NEW YORK STATE | Department of Environmental Conservation

KATHY HOCHUL
Governor

SEAN MAHAR
Interim Commissioner

January 14, 2025

City of Geneva
Amie Hendrix
47 Castle Street
Geneva, NY 14456

Re: Site Management (SM) Periodic Review Report (PRR) Response Letter
Former Geneva Foundry Site, Geneva
Ontario County, Site No.: C835027

Dear Amie Hendrix (as the Certifying Party):

The Department has reviewed your Periodic Review Report (PRR) and IC/EC Certification for following period: July 7, 2023 to July 7, 2024. The Department hereby accepts the PRR and associated Certification. The Department also accepts the request to extend the certifying period and reporting requirements from annual to every 2 years. Inspections will continue on an annual basis along with all other provisions of the SMP. If in the future, if the site undergoes development or a change in use, the certification period will be re-evaluated.

The frequency of Periodic Reviews for this site is now 2 year(s), your next PRR is due on August 6, 2026. You may receive a reminder letter and updated certification form 75-days prior to the due date. Regardless of receipt or not, of the reminder notice, the next PRR including the signed certification form, is still due on the date specified above.

To document the above changes, please attach a copy of this letter to all copies of the Site Management Plan. If you have any questions, or need additional forms, please contact me at 585-226-5356 or e-mail: adam.morgan@dec.ny.gov.

Sincerely,

Adam Morgan
Project Manager

ec: David Pratt, DEC RHWRE
Anthony Perretta, DOH Project Manager
Justin Deming, DOH
Joe Venuti, City of Geneva
David Meixell, Plumley Engineering

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 8
6274 East Avon-Lima Road, Avon, NY 14414-9516
P: (585) 226-5353 I F: (585) 226-8139
www.dec.ny.gov

February 15, 2019

Sage Gerling
City Manager
City of Geneva
47 Castle St.
Geneva, NY 14456

Dear Mrs. Gerling:

RE: Former Geneva Foundry Site; C835027
City of Geneva, Ontario County

The New York State Departments of Environmental Conservation (NYSDEC) and Health, collectively referred to as the Departments, have completed their review of the document entitled *Site Management Plan* (the SMP) dated December 2018 for the Former Geneva Foundry Site located in the City of Geneva. In accordance with 6 NYCRR Part 375-1.6, the Departments have determined that the SMP, with modifications, address the requirements of the Brownfield Cleanup Agreement (BCA).

The Departments' modifications to the SMP are provided below:

- Excavation Work Plan Section B-7 and B-10: Any new guidance/regulations/policies regarding Emerging Contaminant sampling for reuse of materials on-site and/or imported soil for backfill will be followed.

With the understanding that the above noted modifications are agreed to, the SMP is hereby approved. If you choose not to accept these modifications, you are required to notify this office within 20 days after receipt of this letter.

Please attach a copy of this letter to the SMP and distribute as follows:

- Adam Morgan (NYSDEC, Avon) - 1 hard copy;
- Anthony Perretta (NYSDOH, Albany) – 1 hard copy;
- Document repositories - 1 hard copy each.

The hard copies of the approved plan should be submitted double-sided.

We look forward to working together to bring this site back into productive use. Please contact me at 585-226-5356 if you have questions or concerns on this matter.

Sincerely,

Adam Morgan, EIT
Project Manager

ec:
Anthony Perretta
Dave Meixell
Wendy Marsh
Bernette Schilling
Michael Murphy
Justin Deming
Michael Cruden

Former Geneva Foundry Site

ONTARIO COUNTY

Geneva, NEW YORK

SITE MANAGEMENT PLAN

NYSDEC Site Number: C835027

Prepared for:

City of Geneva

47 Castle Street, Geneva, New York 14456

Prepared by:

Plumley Engineering, P.C.

8232 Loop Road, Baldwinsville, New York

(315) 638-8587

Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date
		Initial Submission	

DECEMBER 2018

CERTIFICATION STATEMENT

I, DAVID K. MEIXELL certify that I am currently a NYS registered professional engineer and that this Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Signature

December 20, 2018
Date

75577
NYS Professional Engineer #

FORMER GENEVA FOUNDRY SITE
ONTARIO COUNTY
GENEVA, NEW YORK

SITE MANAGEMENT PLAN

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LIST OF ACRONYMS

AS	Air Sparging
ASP	Analytical Services Protocol
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CAMP	Community Air Monitoring Plan
C/D	Construction and Demolition
CFR	Code of Federal Regulation
CLP	Contract Laboratory Program
COC	Certificate of Completion
CO2	Carbon Dioxide
CP	Commissioner Policy
DER	Division of Environmental Remediation
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
EWP	Excavation Work Plan
GHG	Green House Gas
GWE&T	Groundwater Extraction and Treatment
HASP	Health and Safety Plan
IC	Institutional Control
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCRR	New York Codes, Rules and Regulations
O&M	Operation and Maintenance
OM&M	Operation, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PID	Photoionization Detector
PRP	Potentially Responsible Party
PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RP	Remedial Party
RSO	Remedial System Optimization
SAC	State Assistance Contract
SCG	Standards, Criteria and Guidelines
SCO	Soil Cleanup Objective

SMP	Site Management Plan
SOP	Standard Operating Procedures
SOW	Statement of Work
SPDES	State Pollutant Discharge Elimination System
SSD	Sub-slab Depressurization
SVE	Soil Vapor Extraction
SVI	Soil Vapor Intrusion
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program

ES EXECUTIVE SUMMARY

The following provides a brief summary of the controls implemented for the Site, as well as the inspections, monitoring, maintenance and reporting activities required by this Site Management Plan:

Site Identification: C835027 Former Geneva Foundry Site, Geneva, NY

Institutional Controls:	1. The property may be used for restricted residential use;	
	2. All ICs as listed in Section 3.2 should be listed here. Environmental Easements define allowable uses.	
	3. All ECs must be inspected at a frequency and in a manner defined in the SMP. This statement is to be included here if there are ECs per the site's remedial program.	
Engineering Controls:	1. Cover system	
	2. All ECs as listed in Section 3.3 should be restated here.	
Inspections:		Frequency
1. Cover inspection		Annually
Monitoring:		
Site Inspection		Annually
Maintenance:		
1. Maintain Cover		As needed
Reporting:		
1. Periodic Review Report		Annually

Further descriptions of the above requirements are provided in detail in the latter sections of this Site Management Plan.

1.0 INTRODUCTION

1.1 General

This Site Management Plan (SMP) is a required element of the remedial program for the Former Geneva Foundry Site (Operable Units 1 and 2) located in Geneva, New York (hereinafter referred to as the "Site"). See Figure 1. The Site is currently in the New York State (NYS) Brownfield Cleanup Program (BCP), Site No. C835027 which is administered by New York State Department of Environmental Conservation (NYSDEC).

The City of Geneva entered into a Brownfield Cleanup Agreement (BCA) on March 9, 2017 with the NYSDEC to remediate the site. A figure showing the site location and boundaries of this site is provided in Figure 2. The boundaries of the site are more fully described in the metes and bounds site description that is part of the Environmental Easement provided in Appendix D.

After completion of the remedial work, some contamination was left at this site, which is hereafter referred to as "remaining contamination". Institutional and Engineering Controls (ICs and ECs) have been incorporated into the site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Ontario County Clerk, requires compliance with this SMP and all ECs and ICs placed on the site.

This SMP was prepared to manage remaining contamination at the site until the Environmental Easement is extinguished in accordance with ECL Article 71, Title 36. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the Environmental Easement, which is grounds for revocation of the Certificate of Completion (COC);

- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and the BCA for the site, and thereby subject to applicable penalties.

All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State. A list of contacts for persons involved with the site is provided in Appendix A of this SMP.

This SMP was prepared by Plumley Engineering, P.C., on behalf of the City of Geneva, in accordance with the requirements of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 3, 2010, and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the ICs and ECs that are required by the Environmental Easement for the site.

1.2 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shut-down of a remedial system, post-remedial removal of contaminated sediment or soil, or other significant change to the site conditions. In accordance with the Environmental Easement for the site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.3 Notifications

Notifications will be submitted by the property owner to the NYSDEC, as needed, in accordance with NYSDEC's DER – 10 for the following reasons:

- 60-day advance notice of any proposed changes in site use that are required under the terms of the BCA, 6NYCRR Part 375 and/or Environmental Conservation Law.

- 7-day advance notice of any field activity associated with the remedial program.

- 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan.

- Notice within 48-hours of any damage or defect to the foundation, structures or EC that reduces or has the potential to reduce the effectiveness of an EC, and likewise, any action to be taken to mitigate the damage or defect.

- Verbal notice by noon of the following day of any emergency, such as a fire; flood; or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action submitted to the NYSDEC within 45 days describing and documenting actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser/Remedial Party has been provided with a copy of the Brownfield Cleanup Agreement (BCA), and all approved work plans and reports, including this SMP.

- Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing to the NYSDEC.

Table 1 on the following page includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in Appendix A.

Table 1: Notifications*

Name	Contact Information
Adam Morgan, NYSDEC Project Manager	(585) 226-5356 or (585) 226-5353 Adam.morgan@dec.ny.gov
Bernette Schilling, NYSDEC Regional HW Engineer	(585) 226-5315 Bernette.schilling@dec.ny.gov
Kelly Lewandowski, NYSDEC Site Control Section, Division of Environmental Remediation	(518) 402-9764 Kelly.lewandowski@dec.ny.gov

* Note: Notifications are subject to change and will be updated as necessary.

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The site is located in Geneva, Ontario County, New York and is identified as Section 104.8 Block 1 and Lots 34 and 50 on the Ontario County Tax Map (see Figure 2). The site is an approximately 2.494-acre area and is bounded by residential properties to the north, Finger Lakes Railway tracks to the south and west, and residential and commercial areas to the east (see Figure 2 – Site Layout Map). The boundaries of the site are more fully described in Appendix D –Environmental Easement. The owner of the site parcels at the time of issuance of this SMP is the City of Geneva

2.2 Physical Setting

2.2.1 Land Use

The Site is zoned industrial and is currently vacant. There are no site occupants.

The properties adjoining the Site and in the neighborhood surrounding the Site primarily include commercial and residential properties. The properties immediately south of the Site include commercial properties; the properties immediately north of the Site include vacant and residential properties; the properties immediately east of the Site include commercial and residential properties; and the properties to the west of the Site include railroad tracks and residential properties.

2.2.2 Geology

The Site is located in a "Till" deposit as mapped by the United States Geological Survey (USGS) [*surficial Geologic Map of New York*, Finger Lakes Sheet, 1986.]. The Till is a glacial deposit with variable textures and a range of particle sizes. The deposit is

relatively impermeable. In the general area, the soil deposit is known to vary in thickness from approximately 3 to 165 feet. Site specific boring logs are provided in Appendix E.

2.2.3 Hydrogeology

Six groundwater monitoring wells were installed by Passero Associates, P.C. around 1999 at the locations noted in Figures 3 and 4. Depths to groundwater were generally less than 10 feet and groundwater flow was noted as being towards the southeast. Two rounds of groundwater samples were collected, with no issues of concern being noted. The wells were closed during the approved site re-grading conducted after the completion of the site remediation.

2.3 Investigation and Remedial History

The following narrative provides a remedial history timeline and a brief summary of the available project records to document key investigative and remedial milestones for the Site. Full titles for each of the reports referenced below are provided in Section 8.0 - References.

The site was operated as a foundry from the late 1800s until its closing in 1988. The City of Geneva entered the Environmental Restoration Program (ERP) in 1999. Passero Associates, P.C. implemented an Interim Remedial Measure (IRM) during the 1990s that removed containers of residual materials from the building. Passero also performed the initial site investigation. This work was documented in the August 2000 *Site Investigation Report and Remedial Alternatives Report for Brownfields Investigation*.

O'Brien & Gere Engineers, Inc. performed further investigative work in accordance with the approved 2006 *Field Sampling Plan* that was documented in the September 2007 *Supplemental Remedial Investigation/Alternatives Analysis Report*. Plumley Engineering, P.C. prepared the December 2015 *Revised Supplemental Investigation/Alternatives Analysis Report (SI/AAR).*

The Record of Decision (ROD) was issued in January 2017. The City of Geneva entered into the BCP in June 2017. Site remediation was completed in November 2017, following approval of the March 2017 *Remedial Action Work Plan* RAWP), May 2017 *Health and Safety Plan* (HASP), and the July 2017 *Quality Assurance Protection Plan* (QAPP). Final grading of the site was performed in 2017 and 2018 following the NYSDEC-approved July 2017 *Site Re-Grading Plan* and in compliance with the *Stormwater Pollution Prevention Plan*. The remediation and grading work was overseen by Plumley Engineering and is documented in the *Final Engineering Report* (FER).

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as listed in the Record of Decision dated January 2017 are as follows:

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food.

2.5 Remaining Contamination

2.5.1 Soil

As further discussed below, Tables 2, 3 and 4, and Figures 2, 3 and 5 summarize the results of all soil samples collected that exceed the Unrestricted Use SCOs and the Restricted Residential Use SCOs at the site after completion of the remedial action.

Following the initial excavation of the four areas designated for remediation, 21 confirmation soil samples were collected from the sides and bottoms of the excavations (see Figure 6 for sample locations). Two of the soil samples exceeded Restricted Residential SCOs (see Table 2). Sample S-8 was collected from the southern sidewall of the OU1-2 excavation (see Figure 6) and contained arsenic at a concentration of 38.6 mg/Kg, which exceeded the Restricted Residential SCO of 16 mg/Kg. As noted on Figure 6, this excavation was then extended and two additional confirmation samples were collected (S-22 and S-23) which were found to meet SCOs.

Soil sample S-15 contained manganese at a concentration of 2,190 mg/Kg, which marginally exceeded the Restricted Residential SCO of 2,000 mg/Kg. This sample was collected from the bottom of the OU1-1, which had been covered with a demarcation layer and backfilled with approved imported fill.

Per the approved Site Re-Grading Plan, a series of soil samples were collected from below the concrete slabs prior to the site remediation. The purpose of this sampling event was to assess site soils for suitability as final cover material when the concrete slab was removed. Twenty-one grab samples were collected for VOC analyses and 11 composite soil samples were collected for analyses of SVOCs, pesticides and metals (see Figure 5). Each composite sample consisted of individual component samples collected from the designated area and were collected from soil depths representative of the soils to be used for cover. There were no exceedances of Restricted Residential SCOs for VOCs. The composite soil samples included exceedances of several Restricted Residential SCOs for SVOCs and metals. Sample locations and analytical results are noted on Figure 5 and in Table 3. Approximately 1,964.35 tons of soil from areas C4 and C7 were excavated during the re-grading phase and transported to Seneca Meadows Landfill for disposal. Area C6 was covered with 2 feet of approved fill and areas C9 and C11 were paved with asphalt.

As part of the re-grading, a Beneficial Use Determination (BUD) was submitted to NYSDEC to allow residual concrete slabs and foundations to be re-sed as fill on-site. As part of the BUD application, ten representative samples of the concrete were collected and

submitted for analyses of asbestos, metals, VOCs and SVOCs. Table 4 presents the analytical results that exceeded Restricted Residential SCOs. The BUD request was approved by NYSDEC January 3, 2018. Concrete that exceeded Restricted Residential SCOs was placed in the west end of area C7 under a demarcation layer and covered with two feet of approved cover material (see Figure 5).

2.5.2 Sediment

Sediments are not present on the site and were not addressed in the remedial action.

2.5.3 Groundwater

Six groundwater monitoring wells were installed by Passero Associates, P.C.at the locations noted on Figures 3 and 4. These wells were sampled in the 1990s and analyzed for VOCs, SVOCs and metals. Issues associated with groundwater were not identified and remaining wells were removed during the re-grading of the site.

2.5.4 Surface Water

Surface waters are not present on the site and were not addressed in the remedial action.

2.5.5 Soil Vapor

Former on-site buildings were demolished in 2005, and remaining concrete slabs were removed in 2017 and 2018. Soil vapor issues were not identified on the site.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

Since remaining contamination exists at the site, Institutional Controls (ICs) and Engineering Controls (ECs) are required to protect human health and the environment. This IC/EC Plan describes the procedures for the implementation and management of all IC/ECs at the site. The IC/EC Plan is one component of the SMP and is subject to revision by the NYSDEC.

This plan provides:

- A description of all IC/ECs on the site;
- The basic implementation and intended role of each IC/EC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the controls to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of IC/ECs, such as the implementation of the Excavation Work Plan (EWP) (as provided in Appendix B) for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site; and
- Any other provisions necessary to identify or establish methods for implementing the IC/ECs required by the site remedy, as determined by the NYSDEC.

3.2 Institutional Controls

A series of ICs is required by the ROD to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination; and, (3) limit the use and development of the site to restricted residential uses only. Adherence

to these ICs on the site is required by the Environmental Easement and will be implemented under this SMP. ICs identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement. The IC boundaries comprise the legal boundaries of both parcels and are shown on Figure 2. These ICs are:

- The property may be used for restricted residential use;
- All ECs must be operated and maintained as specified in this SMP;
- All ECs must be inspected at a frequency and in a manner defined in the SMP.
- The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Ontario County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department.
- Groundwater and other environmental or public health monitoring must be performed as defined in this SMP;
- Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this SMP;
- All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP;
- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP;
- Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this SMP;
- Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement; and
- Vegetable gardens and farming on the site are prohibited;

3.3 Engineering Controls

3.3.1 Cover (or Cap)

Exposure to remaining contamination at the site is prevented by a cover system placed over the site. This cover system is comprised of a minimum of 24 inches of clean approved soil concrete base, or asphalt pavement. Figure 5 presents the location of the cover system and applicable demarcation layers. The Excavation Work Plan (EWP) provided in Appendix B outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection of this cover are provided in the Monitoring and Sampling Plan included in Section 4.0 of this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and associated Community Air Monitoring Plan (CAMP) prepared for the site and provided in Appendix H.

3.3.2 Other ECs

No other ECs are associated with the former Geneva Foundry site. Procedures for maintaining the cover system are documented in the Operation and Maintenance Plan (Section 5.0 of this SMP). Figure 5 shows the location of the ECs for the site.

3.3.3 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10.

3.3.3.1 - Cover (or Cap)

The composite cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in accordance with this SMP in perpetuity.

4.0 MONITORING AND SAMPLING PLAN

4.1 General

This Monitoring and Sampling Plan describes the measures for evaluating the overall performance and effectiveness of the remedy. This Monitoring and Sampling Plan may only be revised with the approval of the NYSDEC. Details regarding the sampling procedures, data quality usability objectives, analytical methods, etc. for all samples collected as part of site management for the site are included in the Quality Assurance Project Plan provided in Appendix G.

This Monitoring and Sampling Plan describes the methods to be used for:

- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment;

To adequately address these issues, this Monitoring and Sampling Plan provides information on:

- Annual inspection and periodic certification.

Reporting requirements are provided in Section 7.0 of this SMP.

4.2 Site-Wide Inspection

Site-wide inspections will be performed at a minimum of once per year. Modification to the frequency or duration of the inspections will require approval from the NYSDEC. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or monitoring devices. During these inspections, an inspection form will be completed as provided in Appendix I – Site Management Forms. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General site conditions at the time of the inspection;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection; and
- Confirm that site records are up to date.

Inspections of all remedial components installed at the site will be conducted. A comprehensive site-wide inspection will be conducted and documented according to the SMP schedule, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria; and
- If site records are complete and up to date; and

Reporting requirements are outlined in Section 7.0 of this plan.

Inspections will also be performed in the event of an emergency. If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs that reduces or has the potential to reduce the effectiveness of ECs in place at the site, verbal notice to the NYSDEC must be given by noon of the following day. In addition, an inspection of the site will be conducted within 5 days of the event to verify the effectiveness of the IC/ECs implemented at the site by a qualified environmental professional, as determined by the NYSDEC. Written confirmation must be provided to the NYSDEC within 7 days of the event that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

4.3 Post-Remediation Media Monitoring and Sampling

Post-remediation monitoring and sampling is not required for the site. In the event that sampling should be required in the future, sample collection and analysis procedures are included in Appendix G – Quality Assurance Project Plan.

4.3.1 Monitoring and Sampling Protocol

All sampling activities will be recorded in a sampling log as provided in Appendix I - Site Management Forms. Other observations will be noted on the sampling log. The sampling log will serve as the inspection form for the monitoring network.

5.0 OPERATION AND MAINTENANCE PLAN

5.1 General

The site remedy does not rely on any mechanical systems, such as groundwater treatment systems, sub-slab depressurization systems or air sparge/soil vapor extraction systems to protect public health and the environment. Therefore, the operation and maintenance of such components is not included in this SMP.

6.0 PERIODIC ASSESSMENTS/EVALUATIONS

6.1 Climate Change Vulnerability Assessment

Increases in both the severity and frequency of storms/weather events, an increase in sea level elevations along with accompanying flooding impacts, shifting precipitation patterns and wide temperature fluctuation, resulting from global climactic change and instability, have the potential to significantly impact the performance, effectiveness and protectiveness of a given site and associated remedial systems. Vulnerability assessments provide information so that the site and associated remedial systems are prepared for the impacts of the increasing frequency and intensity of severe storms/weather events and associated flooding.

This section provides a summary of vulnerability assessments that will be conducted for the site during periodic assessments, and briefly summarizes the vulnerability of the site and/or engineering controls to severe storms/weather events and associated flooding.

6.2 Green Remediation Evaluation

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. This section of the SMP provides a summary of any green remediation evaluations to be completed for the site during site management, and as reported in the Periodic Review Report (PRR).

6.2.1 Timing of Green Remediation Evaluations

For major remedial system components, green remediation evaluations and corresponding modifications will be undertaken as part of a formal Remedial System

Optimization (RSO), or at any time that the Project Manager feels appropriate, e.g. during significant maintenance events or in conjunction with storm recovery activities.

Modifications resulting from green remediation evaluations will be routinely implemented and scheduled to occur during planned/routine operation and maintenance activities. Reporting of these modifications will be presented in the PRR. Ongoing remedial systems are not present at the site and are not anticipated.

7.0. REPORTING REQUIREMENTS

7.1 Site Management Reports

All site management inspection, maintenance and monitoring events will be recorded on the appropriate site management forms provided in Appendix I. These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including media sampling data and system maintenance reports, generated for the site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of Table 5 and summarized in the Periodic Review Report.

Table 5: Schedule of Interim Monitoring/Inspection Reports

Task/Report	Reporting Frequency*
Inspection Report	Annually
Periodic Review Report	Annually, or as otherwise determined by the Department

* The frequency of events will be conducted as specified until otherwise approved by the NYSDEC.

All interim monitoring/inspections reports will include, at a minimum:

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);

- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure (if appropriate) illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether contaminant conditions have changed since the last reporting event.

Routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting maintenance activities;
- Description of maintenance activities performed;
- Any modifications to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and,
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the checklist/form).

Non-routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Description of non-routine activities performed;

- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and

- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

Data will be reported in digital format as determined by the NYSDEC. Currently, data is to be supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link http://www.dec.ny.gov/chemical/62440.html.

7.2 Periodic Review Report

A Periodic Review Report (PRR) will be submitted to the Department beginning sixteen (16) months after the Certificate of Completion is issued. After submittal of the initial Periodic Review Report, the next PRR shall be submitted annually to the Department or at another frequency as may be required by the Department. In the event that the site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the site described in Appendix D -Environmental Easement. The report will be prepared in accordance with NYSDEC's DER-10 and submitted within 30 days of the end of each certification period. Media sampling results will also be incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the site.

- Results of the required annual site inspections and severe condition inspections, if applicable.

- All applicable site management forms and other records generated for the site during the reporting period in the NYSDEC-approved electronic format, if not previously submitted.

- A summary of any discharge monitoring data and/or information generated during the reporting period, with comments and conclusions.

- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor, etc.), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends.

- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted in digital format as determined by the NYSDEC. Currently, data is supplied electronically and submitted to the NYSDEC EQuIS^{TM} database in accordance with the requirements found at this link: http://www.dec.ny.gov/chemical/62440.html.

- A site evaluation, which includes the following:

  – The compliance of the remedy with the requirements of the site-specific ROD;

  – The operation and the effectiveness of any treatment units, etc., including identification of any needed repairs or modifications;

  – Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring and Sampling Plan for the media being monitored;

  – Recommendations regarding any necessary changes to the remedy and/or Monitoring and Sampling Plan; and

  – Trends in contaminant levels in the affected media will be evaluated to determine if the remedy continues to be effective in achieving remedial goals as specified by the Decision Document.

  – The overall performance and effectiveness of the remedy.

7.2.1 Certification of Institutional and Engineering Controls

Following the last inspection of the reporting period, a Professional Engineer licensed to practice in New York State will prepare, and include in the Periodic Review Report, the following certification as per the requirements of NYSDEC DER-10:

"*For each institutional or engineering control identified for the site, I certify that all of the following statements are true:*

- *The inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;*

- *The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;*

- *Nothing has occurred that would impair the ability of the control to protect the public health and environment;*

- *Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;*

- *Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;*

- *If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;*

- *Use of the site is compliant with the environmental easement;*

- *The engineering control systems are performing as designed and are effective;*

- *To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program and generally accepted engineering practices; and*

- *The information presented in this report is accurate and complete.*

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner/Remedial Party or Owner's/Remedial Party's Designated Site Representative] (and if the site consists of multiple properties): *[I have been authorized and designated by all site owners/remedial parties to sign this certification] for the site."*

Every five years, the following certification will be added:

- *The assumptions made in the qualitative exposure assessment remain valid.*

The signed certification will be included in the Periodic Review Report.

The Periodic Review Report will be submitted, in electronic format, to the NYSDEC Central Office, Regional Office in which the site is located and the NYSDOH Bureau of Environmental Exposure Investigation. The Periodic Review Report may need to be submitted in hard-copy format, as requested by the NYSDEC project manager.

7.3 Corrective Measures Work Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a Corrective Measures Work Plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Work Plan until it has been approved by the NYSDEC.

7.4 Remedial Site Optimization Report

In the event that an RSO is to be performed (see Section 6.3), upon completion of an RSO, an RSO report must be submitted to the Department for approval. A general outline for the RSO report is provided in Appendix J. The RSO report will document the research/ investigation and data gathering that was conducted, evaluate the results and facts obtained, present a revised conceptual site model and present recommendations. RSO recommendations are to be implemented upon approval from the NYSDEC. Additional work plans, design documents, HASPs etc., may still be required to implement the recommendations, based upon the actions that need to be taken. A final engineering report and update to the SMP may also be required.

The RSO report will be submitted, in electronic format, to the NYSDEC Central Office, Regional Office in which the site is located, Site Control and the NYSDOH Bureau of Environmental Exposure Investigation.

8.0 REFERENCES

6NYCRR Part 375, Environmental Remediation Programs. December 14, 2006.

NYSDEC DER-10 – "Technical Guidance for Site Investigation and Remediation".

NYSDEC, 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. June 1998 (April 2000 addendum).

Record of Decision, NYSDEC Division of Environmental Remediation. January 2017.

O'Brien & Gere Engineers, Inc. Field Sampling Plan. January 6, 2006

O'Brien & Gere Engineers, Inc. Geneva Foundry: Supplemental Remedial Investigation/Alternatives Analysis Report. September 2007.

Passero Associates, P.C. Site Investigation Report and Remedial Alternatives Report for Brownfields Investigation, Geneva Foundry Site, City of Geneva, New York. Revised August 2000.

Plumley Engineering, P.C., Health and Safety Plan for Remedial Activities. May 2017.

Plumley Engineering, P.C., Quality Assurance Project Plan. July 2017.

Plumley Engineering, P.C., Remedial Action Work Plan. May 2017

Plumley Engineering, P.C., Revised Supplemental Remedial Investigation/Alternatives Analysis Report. December 2015.

Plumley Engineering, P.C., Site Re-Grading Plan. July 2017.

Plumley Engineering, P.C., Stormwater Pollution Prevention Plan. July 2017.

TABLES

[TABLES 1 AND 5 INCLUDED IN TEXT]

FORMER GENEVA FOUNDRY SITE
Jackson Street
City of Geneva, Ontario County, New York
BCP Site No. C835027

TABLE 2 - REMAINING SOILS ABOVE SCOs (FROM REMEDIATION)

Client Sample ID:	Unit	Unrestricted Use Soil Cleanup Objective[1]	Restricted Residential Use Soil Cleanup Objective[1]	S-1	S-4	S-6	S-7	S-11	S-14
Lab Sample ID:				JC54627-1	JC54627-4	JC54627-6	JC54627-7	JC54627-11	JC54627-14
Date Sampled:				10/31/2017	10/31/2017	11/1/2017	11/1/2017	11/1/2017	11/1/2017
Metals Analysis									
Arsenic	mg/kg	13	16	5.5	4.8	**13.3**	11.2	5.4	10
Lead	mg/kg	63	400	**101**	52.3	**108**	42.6	30.8	**123**
Manganese	mg/kg	1,600	2,000	553	895	1,050	1,120	944	895
Mercury	mg/kg	0.18	0.81	0.081	**0.48**	**0.19**	**0.29**	0.13	0.091
Nickel	mg/kg	30	310	20.3	16.8	19.2	15.8	**30.1**	**32.6**
Zinc	mg/kg	109	10,000	98.3	92.4	**518**	74.6	87.7	95.9

Client Sample ID:	Unit	Unrestricted Use Soil Cleanup Objective[1]	Restricted Residential Use Soil Cleanup Objective[1]	S-15	S-16	S-17	S-18	S-19	S-20
Lab Sample ID:				JC54627-15	JC54627-16	JC54627-17	JC54627-18	JC54627-19	JC54627-20
Date Sampled:				11/1/2017	11/1/2017	11/1/2017	11/1/2017	11/1/2017	11/1/2017
Metals Analysis									
Arsenic	mg/kg	13	16	5.9	6.9	5.2	7.5	6.9	7.4
Lead	mg/kg	63	400	45.8	25.6	**162**	28.8	16.7	19.3
Manganese	mg/kg	1,600	2,000	**2,190**	1,560	606	244	548	435
Mercury	mg/kg	0.18	0.81	0.12	0.11	**0.33**	**0.42**	0.049	0.029 B
Nickel	mg/kg	30	310	24.5	**32.2**	22.2	23.9	**34.3**	**32.6**
Zinc	mg/kg	109	10,000	79.9	88.5	**129**	70.5	70.4	77.2

Legend: | **Exceed*** | **Exceed****

Notes:

[1]New York Codes, Rules and Regulations, Title 6 (6NYCRR) Part 375-6, *Remedial Program Soil Cleanup Objectives* , dated December 2006.
mg/kg milligrams per kilogram, equivalent to parts per million (ppm)
SCOs Soil Cleanup Objectives
* Exceedance of Unrestricted Use Soil Cleanup Objective
** Exceedance of Restricted Residential Soil Cleanup Objective

FORMER GENEVA FOUNDRY SITE
Jackson Street
City of Geneva, Ontario County, New York
BCP Site No. C835027

TABLE 3 - REMAINING SOILS ABOVE SCOs (FROM REGRADING)

Client Sample ID:	Unit	Unrestricted Use Soil Cleanup Objective[1]	Restricted Residential Use Soil Cleanup Objective[1]	C2	C3	C5	C6	C8	C9	C10	C11
Lab Sample ID:				JC51245-23	JC51245-24	JC51245-26	JC51245-27	JC51245-29	JC51245-30	JC51245-31	JC51245-32
Date Sampled:				09/18/2017	09/18/2017	09/18/2017	09/18/2017	09/18/2017	09/14/2017	09/14/2017	09/14/2017
MS Semi-volatiles (SW846 8270D)											
Benzo(a)anthracene	µg/kg	1,000	1,000	153	84.2	386	879	128	**6,750**	295	**1,420**
Benzo(a)pyrene	µg/kg	1,000	1,000	176	90.3	465	887	148	**7,180**	325	**1,420**
Benzo(b)fluoranthene	µg/kg	1,000	1,000	251	137	585	**1,210**	212	**8,510**	438	**1,920**
Benzo(k)fluoranthene	µg/kg	800	3,900	100	54.6	206	494	81.6	**3,190**	170	681
Chrysene	µg/kg	1,000	3,900	202	111	443	960	176	**6,530**	352	**1,370**
Dibenzo(a,h)anthracene	µg/kg	330	330	47.8	23.2 J	97	225	36.3 J	**1,830**	77.5	**349**
Fluoranthene	µg/kg	1,000	100,000	271	148	730	**1,300**	266	**10,200**	496	**2,110**
Indeno(1,2,3-cd)pyrene	µg/kg	500	500	170	79.9	385	**809**	128	**4,950**	269	**1,100**
GC/LC Semi-volatiles (SW846 8081B)											
4,4'-DDT	µg/kg	3.3	7,900	ND (0.68)	ND (0.69)	ND (0.62)	**17.1**	ND (0.63)	ND (0.64)	ND (0.63)	ND (0.62)
Metals Analysis											
Arsenic	mg/kg	13	16	6.4	5.3	7.8	**32.5** [b]	9.8	**18.9**	5.4	7.1
Cadmium	mg/kg	2.5	4.3	0.32 B	0.25 B	0.24 B	**6.7**	0.22 B	0.38 B	0.36 B	0.079 B
Copper	mg/kg	50	270	**106**	48.7	**69.3**	**796** [b]	29.5	**59**	29.8	28.4
Lead	mg/kg	63	400	**176**	**64.5**	**82.6**	**1,770** [b]	**124**	**114**	59.3	29
Mercury	mg/kg	0.18	0.81	**0.32**	0.11	**0.27**	**18.2**	0.055	**0.42**	**0.28**	0.14
Nickel	mg/kg	30	310	17	15	16.3	**112**	11.4	18.9	15.3	26.2
Selenium	mg/kg	3.9	180	0.77 U	0.73 U	0.75 U	**6.9 B** [b]	0.74 U	1.7 B	0.75 U	0.73 U
Silver	mg/kg	2	180	0.35 U	0.33 U	0.34 U	**2.9** [b]	0.33 U	0.32 U	0.34 U	0.33 U
Zinc	mg/kg	109	10,000	**206**	**134**	**117**	**1,290** [b]	**135**	**154**	89.6	59.7
General Chemistry											
Chromium, Hexavalent	mg/kg	1	110	**1.4**	0.52	0.42 U	0.44 U	0.68	0.71	0.44 U	0.43 U
Chromium, Trivalent	mg/kg	30	180	20.9 [c]	18.6 [c]	11.5 [c]	**52.3** [c]	12.7 [c]	14.7 [c]	11.9 [c]	22.1 [c]

Notes:

Legend: **Exceed*** **Exceed****

[1]New York Codes, Rules and Regulations, Title 6 (6 NYCRR), Part 375-6, *Remedial Program Soil Cleanup Objectives* , dated December 2006.
[a]More than 40% RPD for detected concentrations between the two GC columns.
[b]Elevated detection limit due to dilution required for high interfering element.
[c]Calculated as: (Chromium) - (Chromium, Hexavalent)

SCOs Soil Cleanup Objectives
*Exceedance of Unrestricted Use Soil Cleanup Objective
**Exceedance of Restricted Residential Soil Cleanup Objective

µg/kg micrograms per kilogram, equivalent to parts per billion (ppb)
mg/kg milligrams per kilogram, equivalent to parts per million (ppm)
ND Not detected above the laboratory method detection limit

J Estimated Value
B Indicates analyte found in associated method blank
U Indicates a result < MDL

FORMER GENEVA FOUNDRY SITE
Jackson Street
City of Geneva, Ontario County, New York
BCP Site No. C835027

TABLE 4 - SUMMARY OF ANALYTICAL RESULTS FROM CONCRETE SAMPLES
EXCEEDANCES OF SCOs

Parameter	Unit	Restricted Residential Use Soil Cleanup Objective[1]	C-5	C-6	C-8
Benzo(a)anthracene	mg/kg	1	**7.010**	0.846	**1.770**
Benzo(a)pyrene	mg/kg	1	**2.670**	0.699	**1.370**
Benzo(b)fluoranthene	mg/kg	1	**7.130**	**1.070**	**1.950**
Chrysene	mg/kg	3.9	**4.570**	0.899	1.530
Dibenz(a,h)anthracene	mg/kg	0.33	**0.596**	0.0873	0.176
Indeno(1,2,3-cd)pyrene	mg/kg	0.5	**1.750**	0.338	**0.568**

Notes:

Legend: **Exceed**

[1]New York Codes, Rules and Regulations, Title 6 (6 NYCRR), Part 375-6, *Remedial Program Soil Cleanup Objectives* , dated December 2006.
mg/kg milligrams per kilogram, equivalent to parts per million (ppm)
SCOs Soil Cleanup Objectives

FIGURES

REF.: USGS - GENEVA SOUTH (NY) QUAD., 2013, 7.5 MIN. SCALE: 1"=2000'

SMP/FIGURES

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PROJECT: GENEVA FOUNDRY SITE

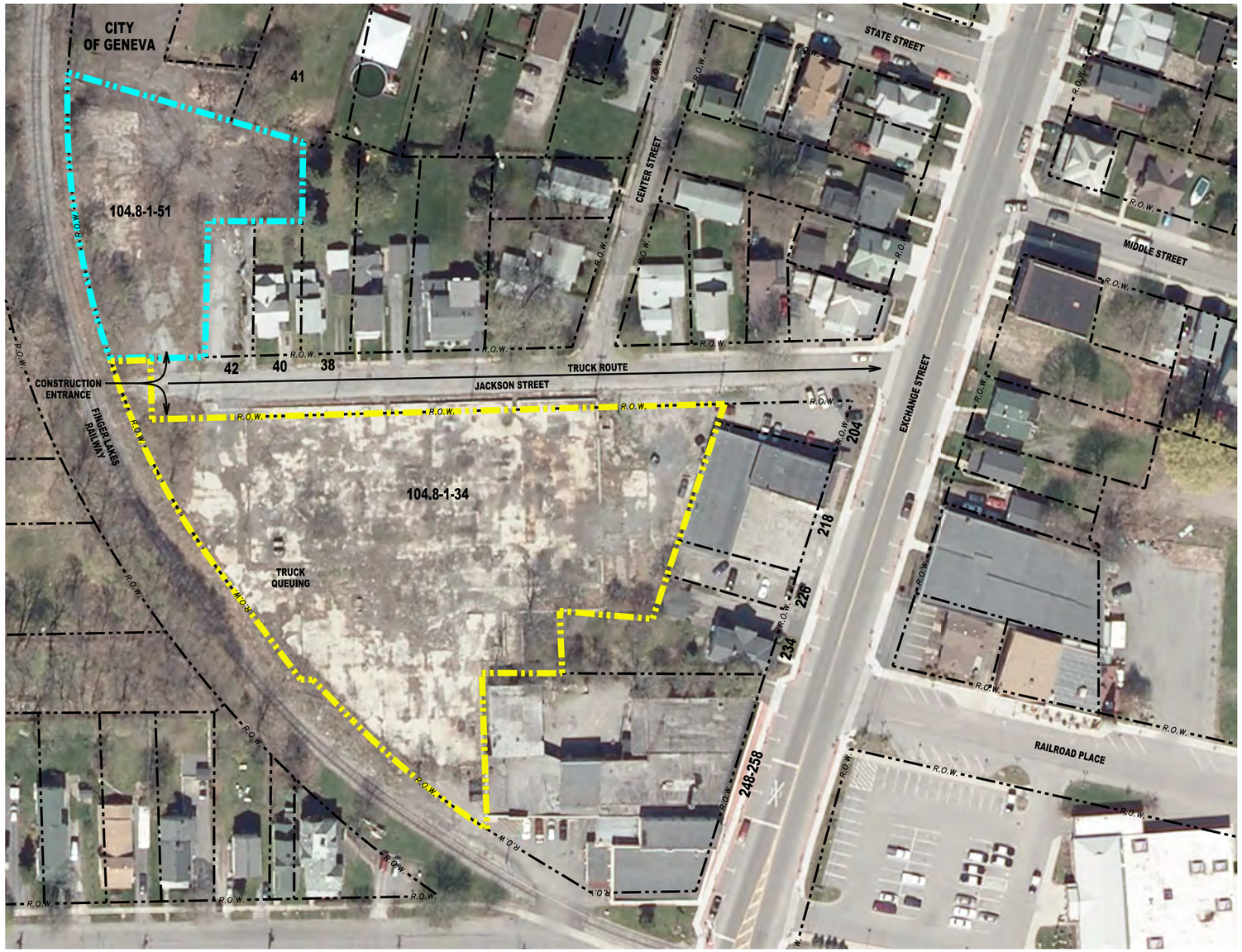
DWG. TITLE: SITE LOCATION MAP

CLIENT: CITY OF GENEVA

LOCATION: CITY OF GENEVA, ONTARIO COUNTY, NEW YORK

Note: No alteration permitted hereon except as provided under Section 7209 Subdivision 2 of the New York State Education Law.

PROJECT No.:	2015003
FILE NAME.:	FIGURE 1
SCALE:	AS NOTED
DATE:	DEC. 2015
ENG'D BY:	DKM
DRAWN BY:	JMD
CHECKED BY:	DRV



Key

- R.O.W. — Right of Way
- Property Line
- Operable Unit 1
- Operable Unit 2

Plan View

1" = 100' SCALE — 50 0 50 100 FEET

SMP/FIGURES

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PROJECT: *GENEVA FOUNDRY SITE*

DWG. TITLE: SITE LAYOUT MAP

CLIENT: CITY OF GENEVA

LOCATION: CITY OF GENEVA, ONTARIO COUNTY, NEW YORK

Note: No alteration permitted hereon except as provided under Section 7209 Subdivision 2 of the New York State Education Law.

PROJECT No.:	2015003
FILE NAME.:	FIGURE 2
SCALE:	AS NOTED
DATE:	MAY 2018
ENG'D BY:	DKM
DRAWN BY:	JJL
CHECKED BY:	DRV

SHEET NO.:

SMP FIGURE 2

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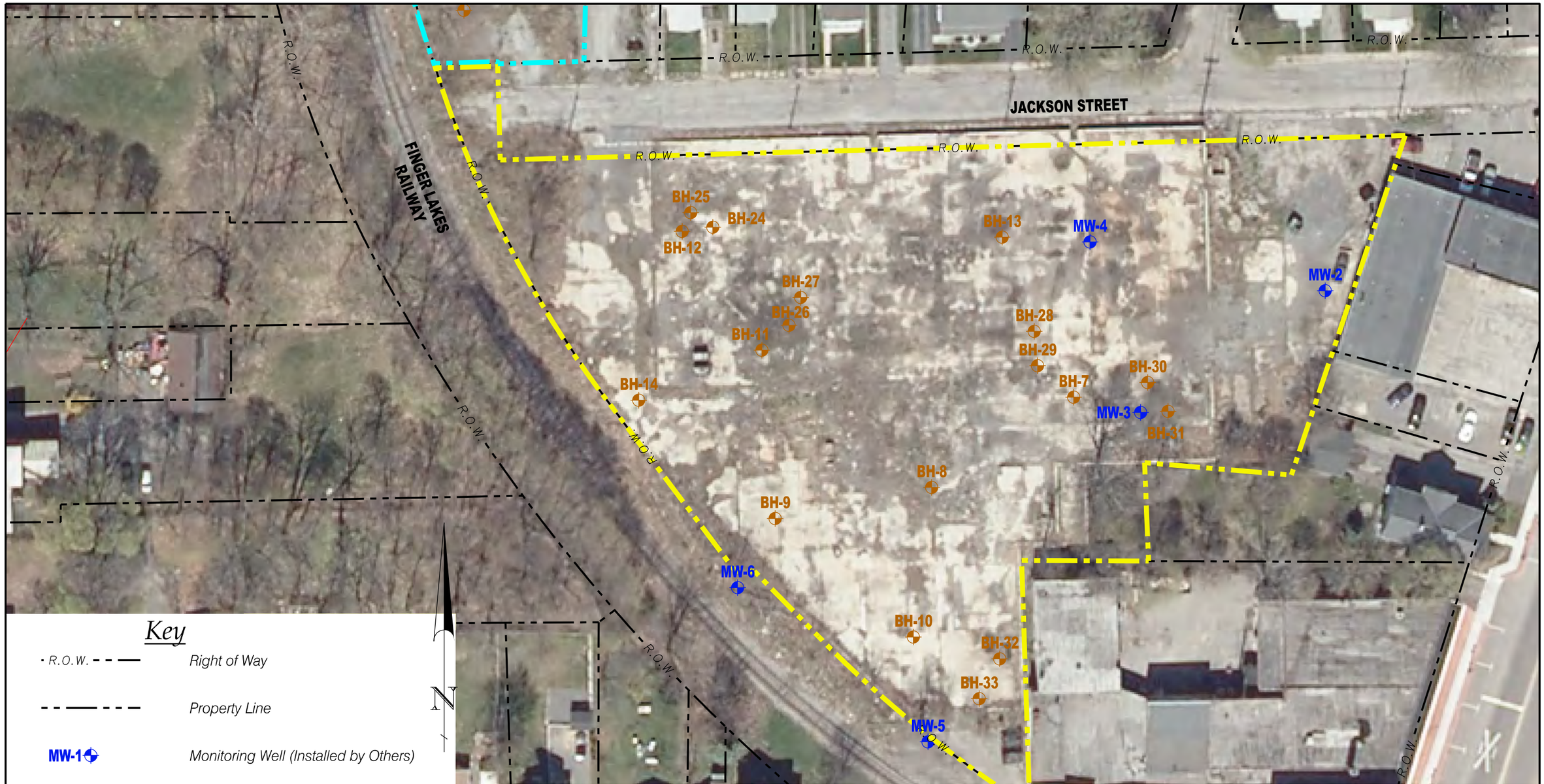

Key

- R.O.W. — Right of Way
- Property Line
- MW-1 — Monitoring Well (Installed by Others)
- BH-15 — Soil Boring (Performed by Others)

*SCOs are Restricted Use Soil Cleanup Objectives for Residential Protection.

Plan View

1" = 50' SCALE 25 0 25 50 FEET

SMP/FIGURES

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PROJECT: GENEVA FOUNDRY SITE

DWG. TITLE: SAMPLE LOCATIONS: OU-1

CLIENT: CITY OF GENEVA

LOCATION: CITY OF GENEVA, ONTARIO COUNTY, NEW YORK

Note: No alteration permitted hereon except as provided under Section 7209 Subdivision 2 of the New York State Education Law.

PROJECT No.:	2015003
FILE NAME.:	FIGURE 3
SCALE:	AS NOTED
DATE:	MAY 2018
ENG'D BY:	DKM
DRAWN BY:	JJL
CHECKED BY:	DRV

SHEET NO.: SMP FIGURE 3

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N

Key

- R.O.W. — Right of Way
- Property Line
- MW-1 — Monitoring Well (Installed by Others)
- BH-15 — Soil Boring (Performed by Others)
- SS-37 ▲ — Surface Soil Sample (Collected by Others)

*SCOs are Restricted Use Soil Cleanup Objectives for Residential Protection.

Plan View

1" = 50' SCALE 25 0 25 50 FEET

SMP/FIGURES

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PROJECT: GENEVA FOUNDRY SITE

DWG. TITLE: SAMPLE LOCATIONS: OU-2

CLIENT: CITY OF GENEVA

LOCATION: CITY OF GENEVA, ONTARIO COUNTY, NEW YORK

Note: No alteration permitted hereon except as provided under Section 7209 Subdivision 2 of the New York State Education Law.

PROJECT No.: 2015003
FILE NAME.: FIGURE 4
SCALE: AS NOTED
DATE: MAY 2018
ENG'D BY: DKM
DRAWN BY: JJL
CHECKED BY: DRV

SHEET NO.: SMP FIGURE 4

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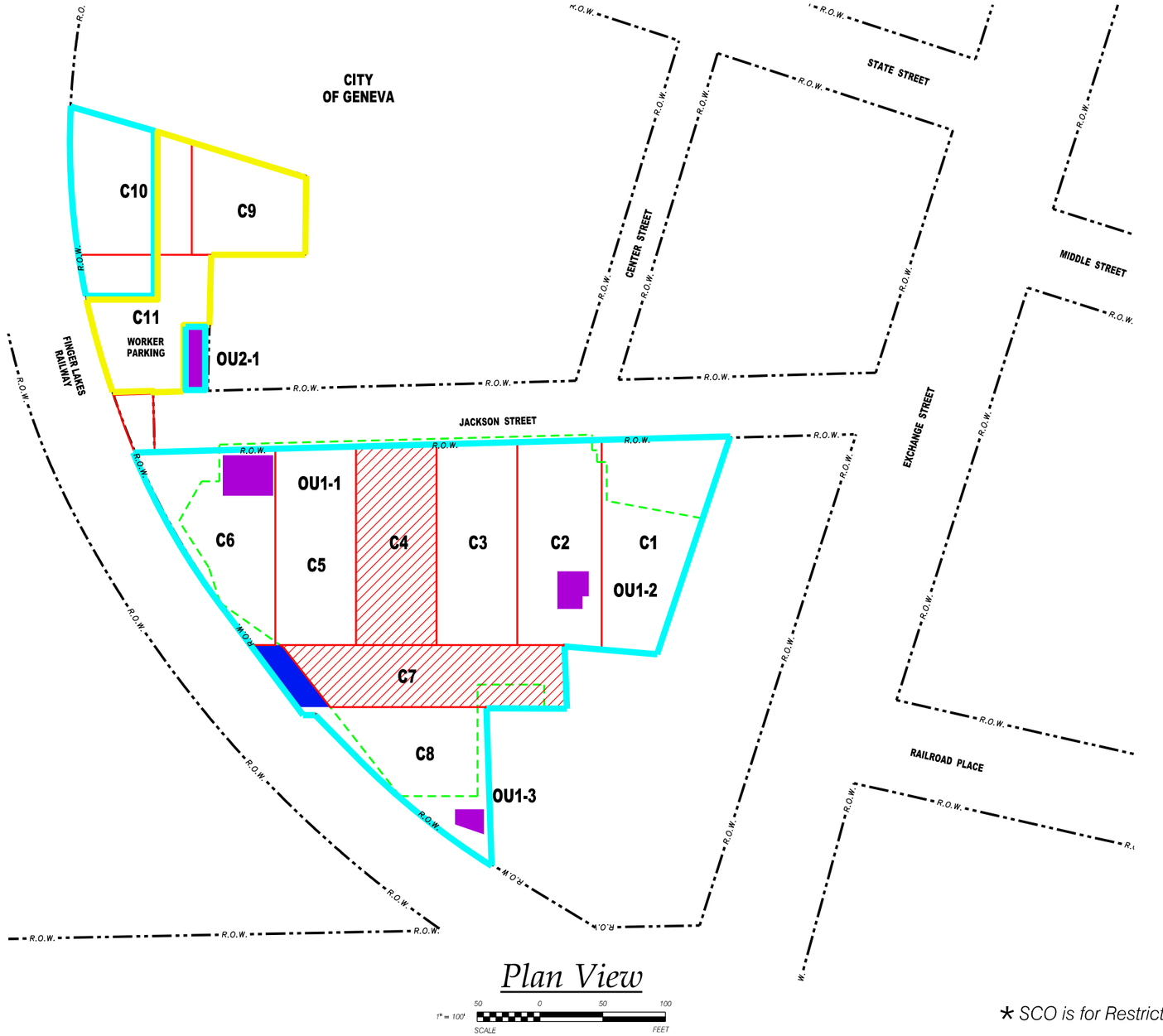

Plan View

Key

- Right of Way
- Property Line
- Cover System of Asphalt Paving
- Cover System of 2 feet of Approved Fill and Vegetation
- Areas that were Remediated (Includes Demarcation Layer)
- Areas Excavated during Re-grading (Includes Demarcation Layer)
- Edges of Concrete
- Additional Demarcation Layer and area of buried concrete

* SCO is for Restricted use Cleanup Objective for Residential Protection.

SMP/FIGURES

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PROJECT: GENEVA FOUNDRY SITE

DWG. TITLE: ENGINEERING CONTROLS LOCATION

CLIENT: CITY OF GENEVA

LOCATION: CITY OF GENEVA, ONTARIO COUNTY, NEW YORK

Note: No alteration permitted hereon except as provided under Section 7209 Subdivision 2 of the New York State Education Law.

PROJECT No.:	2015003
FILE NAME.:	FIGURE 5
SCALE:	AS NOTED
DATE:	APR. 2018
ENG'D BY:	DKM
DRAWN BY:	JJL
CHECKED BY:	DRV

SHEET NO.:

SMP FIGURE 5

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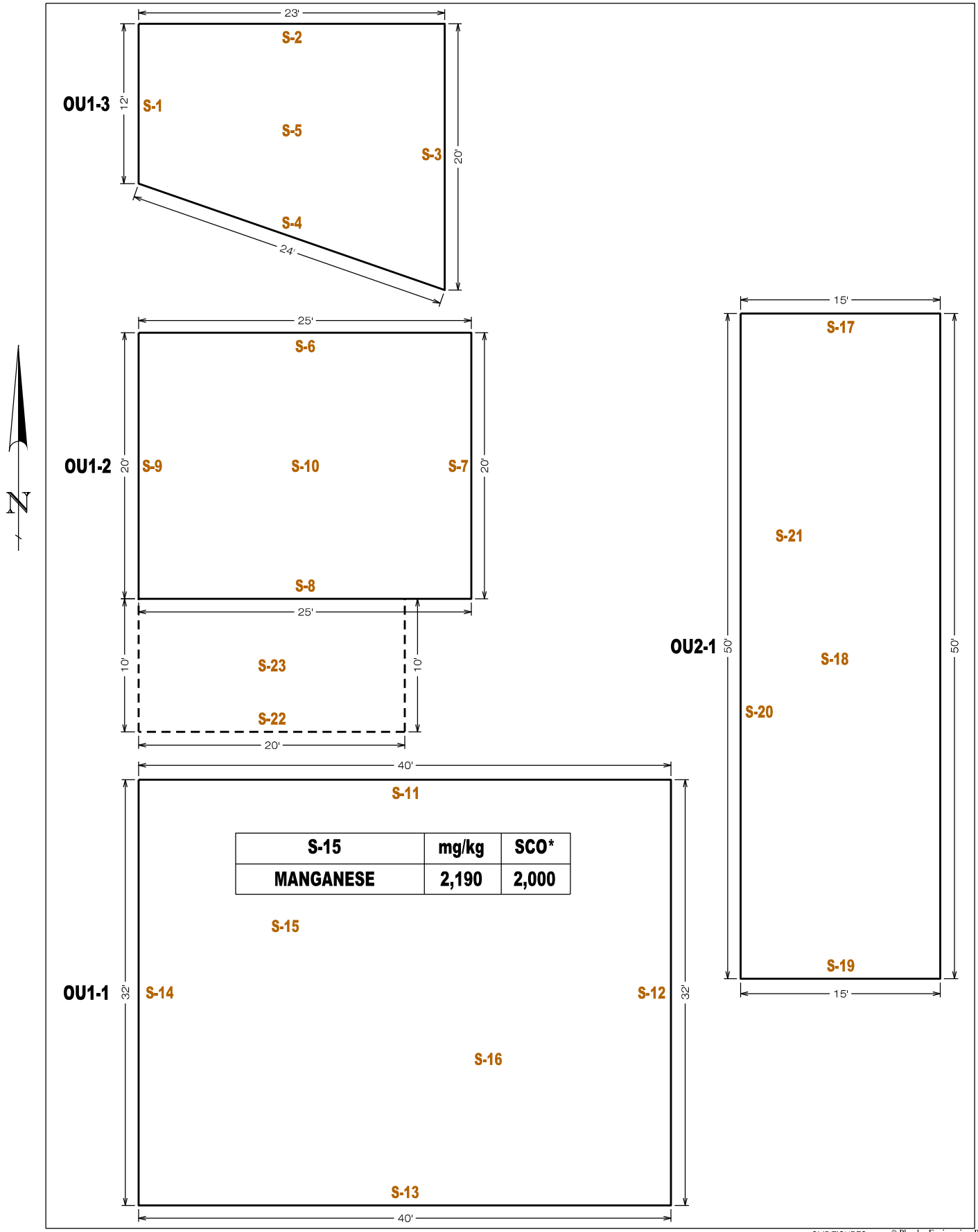

S-15	mg/kg	SCO*
MANGANESE	2,190	2,000

SMP/FIGURES © Plumley Engineering, P.C. 2018

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PROJECT: GENEVA FOUNDRY SITE

DWG. TITLE: REMOVAL DOCUMENTATION SAMPLING RESULTS

CLIENT: CITY OF GENEVA

LOCATION: CITY OF GENEVA, ONTARIO COUNTY, NEW YORK

Note: No alteration permitted hereon except as provided under Section 7209 Subdivision 2 of the New York State Education Law.

PROJECT No.:	2015003
FILE NAME.:	FIGURE 6
SCALE:	AS NOTED
DATE:	MAY 2018
ENG'D BY:	DKM
DRAWN BY:	JJL
CHECKED BY:	DRV

APPENDICES

APPENDIX A

LIST OF SITE CONTACTS

APPENDIX A – LIST OF SITE CONTACTS

Name	Phone/Email Address
Site Owner and Remedial Party - City of Geneva Sage Gerling, City Manager	(315) 828-6585 sgerling@Geneva.ny.us
Qualified Environmental Professional David K. Meixell, P.E.	(315) 638-8587 dmeixell@plumleyeng.com
NYSDEC Regional HWR Engineer Bernette Schilling	(585) 226-5315 Bernette.schilling@dec.ny.gov
NYSDEC DER Project Manager Adam Morgan	(585) 226-5356 adam.morgan@dec.ny.gov
NYSDEC Site Control Section Division of Environmental Remediation	(518) 402-9764 derweb@dec.ny.gov

APPENDIX B

EXCAVATION WORK PLAN

APPENDIX B – EXCAVATION WORK PLAN (EWP)

B-1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the site owner or their representative will notify the NYSDEC. Table 1 includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in Appendix A.

Table 1: Notifications*

Regional Office NYSDEC Representative: Adam Morgan	(585) 226-5356 or (585) 226-5353 Adam.morgan@dec.ny.gov
NYSDEC Site Control: Kelly Lewandowski	(518) 402-9764 Kelly.lewandowski@dec.nu.gov

* Note: Notifications are subject to change and will be updated as necessary.

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control;
- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;

- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;
- A copy of the contractor's health and safety plan (HASP), in electronic format, if it differs from the HASP provided in Appendix H of this SMP;
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

B-2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based (e.g. photoionization detector) soil screening will be performed by a qualified environmental professional during all excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed when invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the COC.

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal and material that requires testing to determine if the material can be reused on-site as soil beneath a cover or if the material can be used as cover soil. Further discussion of off-site disposal of materials and on-site reuse is provided in Sections B-6 and B-7 of this Appendix.

B-3 SOIL STAGING METHODS

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC.

B-4 MATERIALS EXCAVATION AND LOAD-OUT

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and remedial party (if applicable) and its contractors are responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements on the site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the site.

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

A truck wash will be operated on-site, as appropriate. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the site until the activities performed under this section are complete. Truck wash waters will be collected and disposed of off-site in an appropriate manner.

Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived from the site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

B-5 MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

Truck transport routes are as follows:

- Trucks will proceed east on Jackson Street to the intersection with Exchange Street (State Route 14).
- Trucks heading north will turn left on Exchange Street.
- Trucks heading south will turn left on Exchange Street.
- Trucks heading east or west will turn right on Exchange Street, then left on Lake Street. At the end of Lake Street, trucks will turn left onto US Route 20 if heading west, or right if heading east.

All trucks loaded with site materials will exit the vicinity of the site using only these approved truck routes. These are the most appropriate routes and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project site.

Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development.

Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.

B-6 MATERIALS DISPOSAL OFF-SITE

All material excavated and removed from the site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6 NYCRR Part 360) and Federal regulations. If disposal of material from this site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this site will not occur without formal NYSDEC approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet Unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

B-7 MATERIALS REUSE ON-SITE

The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-site. Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for reuse on-site will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site will not be reused on-site.

B-8 FLUIDS MANAGEMENT

All liquids to be removed from the site, including but not limited to, excavation dewatering, decontamination waters and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the site, and will be managed off-site, unless prior approval is obtained from NYSDEC.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed under a SPDES permit.

B-9 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities the cover system will be restored in a manner that complies with the Record of Decision. The existing

cover system is comprised of a minimum of 24 inches of clean soil or asphalt pavement. The demarcation layers, consisting of geotextile material, will be replaced to provide a visual reference to the top of the remaining contamination zone, the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this SMP. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the upper surface of the remaining contamination. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in an updated SMP.

B-10 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the site. A Request to Import/Reuse Fill or Soil form, which can be found at http://www.dec.ny.gov/regulations/67386.html, will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the site.

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards are listed in Appendix 5 of DER-10. Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC. Solid waste will not be imported onto the site.

Trucks entering the site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

B-11 STORMWATER POLLUTION PREVENTION

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

B-12 EXCAVATION CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs), unless the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the Periodic Review Report.

B-13 COMMUNITY AIR MONITORING PLAN

A figure showing the location of air sampling stations based on generally prevailing wind conditions is shown in Figure 2 of the SMP. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations.

Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

B-14 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors off-site. Specific odor control methods are not anticipated to be required on a routine basis. If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor

controls, including the halt of work, is the responsibility of the remedial party's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

B-15 DUST CONTROL PLAN

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

B-16 OTHER NUISANCES

If appropriate, a plan for rodent control will be developed and utilized by the contractor prior to and during site clearing and site grubbing, and during all remedial work.

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

APPENDIX C

RESPONSIBILITIES OF OWNER AND REMEDIAL PARTY

APPENDIX C - RESPONSIBILITIES OF OWNER AND REMEDIAL PARTY

Responsibilities

The responsibilities for implementing the Site Management Plan ("SMP") for the Former Geneva Foundry Site Operable Units 1 and 2 (the "site"), number C835027, are divided between the site owner(s) and a Remedial Party, as defined below. The owner is currently listed as:

City of Geneva (Sage Gerling)
47 Castle Street
Geneva, NY 14456
(315) 828-6585

Solely for the purposes of this document and based upon the facts related to a particular site and the remedial program being carried out, the term Remedial Party ("RP") refers to any of the following: certificate of completion holder, volunteer, applicant, responsible party, and, in the event the New York State Department of Environmental Conservation ("NYSDEC") is carrying out remediation or site management, the NYSDEC and/or an agent acting on its behalf. The RP is:

City of Geneva (Sage Gerling)
47 Castle Street
Geneva, NY 14456
(315) 828-6585

Nothing on this page shall supersede the provisions of an Environmental Easement, Consent Order, Consent Decree, agreement, or other legally binding document that affects rights and obligations relating to the site.

Site Owner's Responsibilities

1) The owner shall follow the provisions of the SMP as they relate to future construction and excavation at the site.

2) In accordance with a periodic time frame determined by the NYSDEC, the owner shall periodically certify, in writing, that all Institutional Controls set forth in Environmental Easements remain in place and continue to be complied with. The owner shall provide a written certification to the RP, upon the RP's request, in order to allow the RP to include the certification in the site's Periodic Review Report (PRR) certification to the NYSDEC.

3) In the event the site is delisted, the owner remains bound by the Environmental Easements and shall submit, upon request by the NYSDEC, a written certification that the Environmental Easements are still in place and have been complied with.

4) The owner shall grant access to the site to the RP and the NYSDEC and its agents for the purposes of performing activities required under the SMP and assuring compliance with the SMP.

5) The owner is responsible for assuring the security of the remedial components located on its property to the best of its ability. In the event that damage to the remedial components or vandalism is evident, the owner shall notify the site's RP and the NYSDEC in accordance with the timeframes indicated in Section 1.3-Notifications.

6) In the event some action or inaction by the owner adversely impacts the site, the owner must notify the site's RP and the NYSDEC in accordance with the time frame indicated in Section 1.3- Notifications and (ii) coordinate the performance of necessary corrective actions with the RP.

7) The owner must notify the RP and the NYSDEC of any change in ownership of the site property (identifying the tax map numbers in any correspondence) and provide contact information for the new owner of the site properties. 6 NYCRR Part contains notification requirements applicable to any construction or activity changes and changes in ownership. Among the notification requirements is the following: Sixty days prior written notification must be made to the NYSDEC. Notification is to be submitted to the NYSDEC Division of Environmental Remediation's Site Control Section. Notification requirements for a change in use are detailed in Section 2.4 of the SMP. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html.

8) The owner will conduct mowing on behalf of the RP. The RP remains ultimately responsible for maintaining the engineering controls.

9) In accordance with the tenant notification law, within 15 days of receipt, the owner must supply a copy of any vapor intrusion data, that is produced with respect to structures and that exceeds NYSDOH or OSHA guidelines on the site, whether produced by the NYSDEC, RP, or owner, to the tenants on the property. The owner must otherwise comply with the tenant and occupant notification provisions of Environmental Conservation Law Article 27, Title 24.

Remedial Party Responsibilities

1) The RP must follow the SMP provisions regarding any construction and/or excavation it undertakes at the site.

2) The RP shall report to the NYSDEC all activities required for remediation, operation, maintenance, monitoring, and reporting. Such reporting includes, but is not limited to, periodic review reports and certifications, electronic data deliverables, corrective action work plans and reports, and updated SMPs.

3) Before accessing the site property to undertake a specific activity, the RP shall provide the owner advance notification that shall include an explanation of the work expected to be completed. The RP shall provide to (i) the owner, upon the owner's request, (ii) the NYSDEC, and (iii) other entities, if required by the SMP, a copy of any data generated during the site visit and/or any final report produced.

4) If the NYSDEC determines that an update of the SMP is necessary, the RP shall update the SMP and obtain final approval from the NYSDEC. Within 5 business days after NYSDEC approval, the RP shall submit a copy of the approved SMP to the owner(s).

5) The RP shall notify the NYSDEC and the owner of any changes in RP ownership and/or control and of any changes in the party/entity responsible for the operation, maintenance, and monitoring of and reporting with respect to any remedial system (Engineering Controls). The RP shall provide contact information for the new party/entity. Such activity constitutes a Change of Use pursuant to 375-1.11(d) and requires 60-days prior notice to the NYSDEC. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html .

6) The RP shall notify the NYSDEC of any damage to or modification of the systems as required under Section 1.3- Notifications] of the SMP.

7) The RP is responsible for the proper maintenance of any installed vapor intrusion mitigation systems associated with the site.

8) The RP is responsible for the proper monitoring and maintenance of any installed drinking water treatment system associated with the site.

9) Prior to a change in use that impacts the remedial system or requirements and/or responsibilities for implementing the SMP, the RP shall submit to the NYSDEC for approval an amended SMP.

10) Any change in use, change in ownership, change in site classification (*e.g.*, delisting), reduction or expansion of remediation, and other significant changes related to the site may result in a change in responsibilities and, therefore, necessitate an update to the SMP and/or updated legal documents. The RP shall contact the Department to discuss the need to update such documents.

Change in RP ownership and/or control and/or site ownership does not affect the RP's obligations with respect to the site unless a legally binding document executed by the NYSDEC releases the RP of its obligations.

Future site owners and RPs and their successors and assigns are required to carry out the activities set forth above.

APPENDIX D

ENVIRONMENTAL EASEMENT/ NOTICE/DEED RESTRICTION

Ontario County Clerk Recording Page

Return To

HANCOCK ESTABROOK LLP
1500 AXA TOWER 1
100 MADISON ST STE 1500
SYRACUSE, NY 13202

Matthew J. Hoose, County Clerk
Ontario County Clerk
20 Ontario Street
Canandaigua, New York 14424
(585) 396-4200

Document Type: **EASEMENT**

Receipt Number: 409886

Grantor (Party 1)
GENEVA CITY

Grantee (Party 2)
NYS PEOPLE

Fees	
Recording Fee	$20.00
TP-584 Form Fee	$5.00
Pages Fee	$60.00
State Surcharge	$20.00
Total Fees Paid:	$105.00

Consideration: $0.00

Control #: 201901090259
Ref #: TX 2019 001654

Refers To
D 01006 0293
D 01006 0283

Property located in **City of Geneva**

State of New York
County of Ontario

Recorded on January 9th, 2019 at 3:14:26 PM
in Liber **01421** of **Deeds**
beginning at page **0531**, ending at page **0542**,
with a total page count of **12**.

Matthew J Hoose

Ontario County Clerk

This sheet constitutes the Clerk's endorsement required by section 319 of the Real Property Law of the State of New York

SL

Do Not Detach

ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36 OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW

THIS INDENTURE made this 19 day of November 2018, between Owner(s) The City of Geneva, New York, having an office at City Hall, 47 Castle Street, Geneva, New York 14456, County of Ontario, State of New York (the "Grantor"), and The People of the State of New York (the "Grantee"), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the address of 23 Jackson Street in the City of Geneva, County of Ontario and State of New York, known and designated on the tax map of the County Clerk of Ontario as tax map parcel numbers: Section 104.8 Block 1 Lot 34, being the same as that property conveyed to Grantor by deed dated November 5, 1998 and recorded in the Ontario County Clerk's Office in Liber and Page 1006/293. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 1.947 +/- acres, and is hereinafter more fully described in the Land Title Survey dated May 1, 2018 and last revised September 11, 2018 prepared by David M. Clark, P.L.S. of Clark Surveyors Land Surveying and Mapping, which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

WHEREAS, Grantor, is the owner of real property located at the address of 44 Jackson Street in the City of Geneva, County of Ontario and State of New York, known and designated on the tax map of the County Clerk of Ontario as tax map parcel numbers: Section 104.8 Block 1

Lot 50, being the same as that property conveyed to Grantor by deed dated November 5, 1998 and recorded in the Ontario County Clerk's Office in Liber and Page 1006/283. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 0.547 +/- acres, and is hereinafter more fully described in the Land Title Survey dated May 1, 2018 and last revised September 11, 2018 prepared by David M. Clark, P.L.S. of Clark Surveyors Land Surveying and Mapping, which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of public health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Brownfield Cleanup Agreement Index Number: C835027-02-17, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved Site Management Plan ("SMP") including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii), Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the Site Management Plan (SMP);

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;

(4) The use of groundwater underlying the property is prohibited without

necessary water quality treatment as determined by the NYSDOH or the Ontario County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(6) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(7) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for Residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i), and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement

is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall, at such time as NYSDEC may require, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such site:

(i) are in-place;

(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5) the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to:

Site Number: C835027
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

All notices and correspondence shall be delivered by hand, by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

11. Consistency with the SMP. To the extent there is any conflict or inconsistency between the terms of this Environmental Easement and the SMP, regarding matters specifically addressed by the SMP, the terms of the SMP will control.

Remainder of Page Intentionally Left Blank

IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

The City of Geneva, New York:

By: _____

Print Name: Sage Gerling

Title: City Manager Date: 11/8/18

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF)

On the 8th day of November in the year 2018, before me, the undersigned, personally appeared Sage Gerling, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Glenda Doris Myers
Notary Public - State of New York

GLENDA DORIS MYERS
Notary Public - State of New York
No. 01MY6214752
Qualified in Ontario County
My Commission Expires December 21, 2021

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting by and Through the Department of Environmental Conservation as Designee of the Commissioner,

By: _____
Michael J. Ryan, Director
Division of Environmental Remediation

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF ALBANY)

On the 19th day of November, in the year 2018, before me, the undersigned, personally appeared Michael J. Ryan, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public - State of New York

Drew A. Wellette
Notary Public, State of New York
Qualified in Schenectady Co.
No. 01WE6089074
Commission Expires 03/17/ 2019

SCHEDULE "A" PROPERTY DESCRIPTION

SOUTH PARCEL – 23 JACKSON STREET

ALL that tract or parcel of land situate in the City of Geneva, County of Ontario, State of New York. Being more particularly described as follows.

Beginning at a point at the intersection of the northerly line of Jackson Street and the easterly line of the Railroad (Finger Lakes Railway). Thence the following nineteen (19) courses and distances.

1. Thence, N 88° 22' 00" E along the northerly line of Jackson Street a distance of 33.00 feet to a point;
2. Thence, S 01° 38' 00" E across Jackson Street a distance of 50.00 feet to a point in the southerly line of Jackson Street;
3. Thence, N 88° 22' 00" E along the southerly line of Jackson Street a distance of 447.20 feet to a point;
4. Thence, S 15° 03' 37" W along the westerly lines of lands of Timothy R. Trombley (L. 1014 P. 301, L. 1100 P. 445) and Kathryn Gringeri (L. 763 P. 557) a distance of 174.71 feet to a point;
5. Thence, N 89° 49' 53" W along the northerly line of lands of Kathryn Gringeri (L. 763 P. 557) a distance of 104.30 feet to a point;
6. Thence, S 01° 02' 00" E along the westerly line of lands of Kathryn Gringeri (L. 763 P. 557) a distance of 51.10 feet to a point;
7. Thence, N 89° 54' 00" W along the northerly line of lands of Albert Colizzi Trust (L. 1194 P. 42) a distance of 32.30 feet to a point;
8. Thence, S 00° 52' 00" W along the westerly line of lands of Albert Colizzi Trust (L. 1194 P. 42) a distance of 122.59 feet to a point;
9. Thence, Northwesterly along the easterly line of the Railroad on a curve to the right having a radius of 786.02 feet, an arc distance of 20.68 feet (Chord = N 53° 58' 24" W 20.68 feet) to a point;
10. Thence, Northwesterly along the easterly line of the Railroad on a curve to the right having a radius of 822.65 feet, an arc distance of 173.25 feet (Chord = N 47° 11' 10" W 172.93 feet) to a point;
11. Thence, S 74° 09' 35" W along the lands of the Railroad a distance of 13.47 feet to a point;
12. Thence, N 38° 58' 08" W along the easterly line of the Railroad a distance of 22.70 feet to a point;
13. Thence, N 36° 53' 43" W along the easterly line of the Railroad a distance of 44.70 feet to a point;
14. Thence, N 34° 08' 07" W along the easterly line of the Railroad a distance of 31.80 feet to a point;

15. Thence, N 32° 53' 47" W along the easterly line of the Railroad a distance of 39.73 feet to a point;
16. Thence, N 30° 18' 59" W along the easterly line of the Railroad a distance of 24.51 feet to a point;
17. Thence, N 25° 10' 07" W along the easterly line of the Railroad a distance of 50.40 feet to a point;
18. Thence, N 21° 15' 51" W along the easterly line of the Railroad a distance of 24.63 feet to a point;
19. Thence, N 20° 41' 25" W along the easterly line of the Railroad a distance of 52.90 feet back to the point of beginning;

Environmental Easement Area containing 85,991± Sq. Ft. or 1.947 Acres of land.

NORTH PARCEL – 44 JACKSON STREET

ALL that tract or parcel of land situate in the City of Geneva, County of Ontario, State of New York. Being more particularly described as follows.

Beginning at a point at the intersection of the northerly line of Jackson Street and the easterly line of the Railroad (Finger Lakes Railway). Thence the following nine (9) courses and distances.

1. Thence, Northerly along the easterly line of the Railroad on a curve to the right having a radius of 1,074.59 feet, an arc distance of 74.38 feet (Chord = N 13° 39' 40" W 74.37 feet) to a point;
2. Thence, Northerly along the easterly line of the Railroad on a curve to the right having a radius of 689.66 feet, an arc distance of 131.30 feet (Chord = N 06° 13' 27" W 131.10 feet) to a point;
3. Thence, Northerly along the easterly line of the Railroad on a curve to the right having a radius of 689.26 feet, an arc distance of 2.91 feet (Chord = N 00° 38' 57" W 2.91 feet) to a point;
4. Thence, S 82° 46' 36" E along the southerly line of lands of the City of Geneva (L. 1342 P. 976) a distance of 139.65 feet to a point;
5. Thence, S 82° 09' 36" E along the southerly line of lands of Elton & Betty Miller (L. 718 P. 522) a distance of 38.90 feet to a point;
6. Thence, S 00° 13' 07" W along the westerly line of lands of the City of Geneva (L. 1327 P. 428) a distance of 74.55 feet to a point;
7. Thence, N 89° 15' 07" W along the northerly line of lands of Mara Ubiles (L. 1337 P. 671) a distance of 76.00 feet to a point;
8. Thence, S 00° 41' 44" E along the westerly line of lands of Mara Ubiles (L. 1337 P. 671) a distance of 107.07 feet to a point in the northerly line of Jackson Street;
9. Thence, S 88° 22' 00" W along the northerly line of Jackson Street a distance of 70.32 feet back to the point of beginning.

Environmental Easement Area containing 23,814± Sq. Ft. or 0.547 Acres of land.

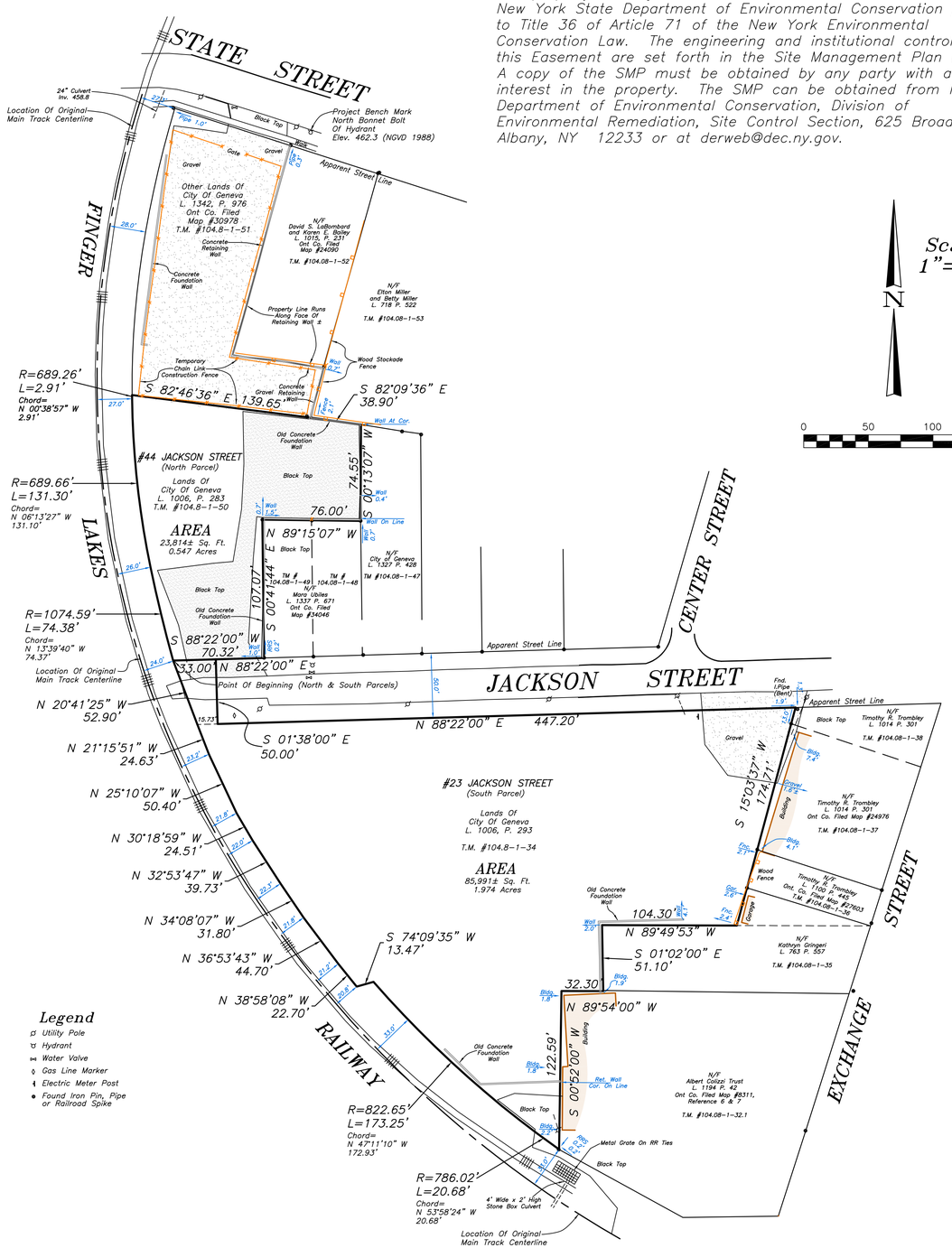
Clark SURVEYORS
Land Surveying & Mapping

23 Banta Street
Phelps, NY 14532
Phone (315) 548-4045

324 West North Street
Geneva, NY 14456
Phone (315) 789-3996

References

1. Abstract of title prepared by Crossroads Abstract, #0163936, last dated April 25, 2017 at 8:29 A.M.
2. Abstract of title prepared by Crossroads Abstract, #0163935, last dated April 25, 2017 at 8:29 A.M.
3. Map prepared by J.W. Brennan, C.E. titled "Map Showing Property Of Harold E. Hovey, Market Basket Corporation" last dated December 1923. Filed in City of Geneva Engineers Office, file #SU-29.
4. Map prepared by J. W. Brennan, C.E. titled "Map Showing Property Geneva Foundry Corp." last dated February 26, 1941. Filed in City of Geneva Engineers Office, file #SU-49.
5. Map prepared by J. W. Brennan, C.E. titled "Property Of Catchpole Foundry Co." last dated February 24, 1916. Filed in City of Geneva Engineers Office, file #SU-49.
6. Map prepared by J. W. Brennan, C.E. titled "Map Showing Property Of Geneva Baking Company" last dated July 5, 1940. Filed in City of Geneva Engineers Office, file #SU-129.
7. Map prepared by J. W. Brennan, C.E. titled "Location Of Buildings On Property Of Geneva Baking Co." last dated August 23, 1940. Filed in City of Geneva Engineers Office, file #SU-129.
8. Map Title "Right Of Way and Track Map New York Central Railroad" Map #V-88/49, dated June 30, 1917.
9. Map prepared by Leonard O. Gardner, PLS titled "Survey Map Property Of D's Tire Service, Inc., Estate Of Samuel M. Passalacqua, Walter V. Passalacqua & Dominic Passalacqua, Jr." last dated February 10, 1999. Ontario County filed map #24976.
10. Map prepared by Leonard O. Gardner, PLS titled "Survey Map Property Of Francis J. Tandle" last dated June 18, 2003. Ontario County filed map #27603.
11. Map prepared by Ronald M. Phillips, PLS titled "Map Of A Survey Of A Parcel Owned By D&R Distributing Comp." last dated January 8, 1978. Ontario County filed map #8311.
12. Map prepared by David J. Hanley, PLS titled "Survey Of Lands To Be Conveyed By Earnest & Ruth VanKoughnet" last dated November 29, 2008. Ontario County filed map #30978.
13. Map prepared by Ronald M. Phillips, PLS titled "A Map Of A Survey Of Land To Be Conveyed By William L. Greco, Jr." last dated December 12, 1997. Ontario County filed map #24090.
14. Map prepared by David M. Clark, PLS titled "Map Showing Lands Of Dennis C. Mahoney" last dated October 3, 2014. Ontario County filed map #34046.



Legend

- Utility Pole
- Hydrant
- Water Valve
- Gas Line Marker
- Electric Meter Post
- Found Iron Pin, Pipe or Railroad Spike

ENVIRONMENTAL EASEMENT

This property is subject to an environmental easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the New York Environmental Conservation Law. The engineering and institutional controls for this Easement are set forth in the Site Management Plan (SMP). A copy of the SMP must be obtained by any party with an interest in the property. The SMP can be obtained from NYS Department of Environmental Conservation, Division of Environmental Remediation, Site Control Section, 625 Broadway, Albany, NY 12233 or at derweb@dec.ny.gov.

METES & BOUNDS DESCRIPTIONS

Note: The Environmental Easement Area covers the Entire Site.

NORTH PARCEL – 44 JACKSON STREET

ALL that tract or parcel of land situate in the City of Geneva, County of Ontario, State of New York. Being more particularly described as follows.

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7. Thence, N 89° 15' 07" W along the northerly line of lands of Mara Ubiles (L. 1337 P. 671) a distance of 76.00 feet to a point;
8. Thence, S 00° 41' 44" E along the westerly line of lands of Mara Ubiles (L. 1337 P. 671) a distance of 107.07 feet to a point in the northerly line of Jackson Street;
9. Thence, S 88° 22' 00" W along the northerly line of Jackson Street a distance of 70.32 feet back to the point of beginning.

Environmental Easement Area containing 23,814± Sq. Ft. or 0.547 Acres of land.

SOUTH PARCEL – 23 JACKSON STREET *(Includes West End Of Jackson Street)*

ALL that tract or parcel of land situate in the City of Geneva, County of Ontario, State of New York. Being more particularly described as follows.

Beginning at a point at the intersection of the southerly line of Jackson Street and the easterly line of the Railroad (Finger Lakes Railway). Thence the following nineteen (19) courses and distances.

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2. Thence, S 01° 38' 00" E across Jackson Street a distance of 50.00 feet to a point in the southerly line of Jackson Street;
3. Thence, N 88° 22' 00" E along the southerly line of Jackson Street a distance of 447.20 feet to a point;
4. Thence, S 15° 03' 37" W along the westerly lines of lands of Timothy R. Trombley (L. 1014 P. 301, L. 1100 P. 445) and Kathryn Gringeri (L. 763 P. 557) a distance of 174.71 feet to a point;
5. Thence, N 89° 49' 53" W along the northerly line of lands of Kathryn Gringeri (L. 763 P. 557) a distance of 104.30 feet to a point;
6. Thence, S 01° 02' 00" E along the westerly line of lands of Kathryn Gringeri (L. 763 P. 557) a distance of 51.10 feet to a point;
7. Thence, N 89° 54' 00" W along the northerly line of lands of Albert Colizzi Trust (L. 1194 P. 42) a distance of 32.30 feet to a point;
8. Thence, S 00° 52' 00" W along the westerly line of lands of Albert Colizzi Trust (L. 1194 P. 42) a distance of 122.59 feet to a point;
9. Thence, Northwesterly along the easterly line of the Railroad on a curve to the right having a radius of 786.02 feet, an arc distance of 20.68 feet (Chord = N 53° 58' 24" W 20.68 feet) to a point;
10. Thence, Northwesterly along the easterly line of the Railroad on a curve to the right having a radius of 822.65 feet, an arc distance of 173.25 feet (Chord = N 47° 11' 10" W 172.93 feet) to a point;
11. Thence, S 74° 09' 35" W along the lands of the Railroad a distance of 13.47 feet to a point;
12. Thence, N 38° 58' 08" W along the easterly line of the Railroad a distance of 22.70 feet to a point;
13. Thence, N 36° 53' 43" W along the easterly line of the Railroad a distance of 44.70 feet to a point;
14. Thence, N 34° 08' 07" W along the easterly line of the Railroad a distance of 31.80 feet to a point;
15. Thence, N 32° 53' 47" W along the easterly line of the Railroad a distance of 39.73 feet to a point;
16. Thence, N 30° 18' 59" W along the easterly line of the Railroad a distance of 24.51 feet to a point;
17. Thence, N 25° 10' 07" W along the easterly line of the Railroad a distance of 50.40 feet to a point;
18. Thence, N 21° 15' 51" W along the easterly line of the Railroad a distance of 24.63 feet to a point;
19. Thence, N 20° 41' 25" W along the easterly line of the Railroad a distance of 52.90 feet back to the point of beginning;

Environmental Easement Area containing 85,991± Sq. Ft. or 1.947 Acres of land.

Only copies from the original of this survey bearing the signature and the land surveyors inked seal (RED INK ONLY) or embossed seal shall be considered as true and valid copies.

Certifications indicated hereon, unless otherwise indicated, signify that this survey was prepared in accordance with the existing code of practice for land surveys as adopted by the NEW YORK STATE ASSOCIATION OF PROFESSIONAL LAND SURVEYORS, the GENESEE VALLEY LAND SURVEYORS ASSOCIATION and the MONROE COUNTY BAR ASSOCIATION. Said certifications shall be valid only to the party for whom the survey was prepared, and on that party's behalf to title company, governmental agency and lending institution listed hereon for mortgage proposed for said party for whom the survey was prepared. Certifications are not transferable to additional institutions or subsequent owners than as may be expressly stated hereon.

I, David M. Clark, PLS hereby certify that this map was prepared on MAY 1, 2018 from notes of an instrument survey completed on APRIL 27, 2018 and from various references listed hereon. No search was made for any easements, restrictions or encumbrances affecting this property other than those found in the references.

By: _____
DAVID M. CLARK P.L.S. #049807

Unauthorized alteration or addition to a survey map bearing a licensed land surveyor's seal is a violation of Section 7209, Subdivision 2 of the New York State Education Law.

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STATE OF NEW YORK · DAVID M. CLARK · LICENSED LAND SURVEYOR · LICENSE No. 049807

Revised 9/11/18 "South Parcel & Description" DMC

PRELIMINARY

Map Showing ENVIRONMENTAL EASEMENT Over Lands Of CITY OF GENEVA (Former Geneva Foundry Site) Situate In City Of Geneva County Of Ontario State Of New York

Job #3850.10

APPENDIX E

MONITORING WELL BORING AND CONSTRUCTION LOGS

APPENDIX 5 – SOIL BORING LOGS

PASSERO ASSOCIATES, P.C.
ARCHITECTS-ENGINEERS-SURVEYORS
100 LIBERTY POLE WAY ROCHESTER, N.Y. 14604
716-325-1000

TEST BORING REPORT

PROJECT Geneva Foundry — HOLE NO: BH1
CLIENT City of Geneva — FILE NO: 97119
CONTRACTOR American Auger — SHEET NO:

GROUNDWATER		DEPTH TO				CASING	SAMPLER	CORE BARREL	
DATE	TIME	WATER	CASING	HOLE	TYPE				LOCATION:
					SIZE ID				ELEVATION:
					HAMMER WT.				DATE START: 2-19-99
					HAMMER FALL				DRILLER: Baye
									INSPECTOR: Morton

SEASONAL AND CLIMATIC CHANGES MAY ALTER OBSERVED WATER LEVELS.

Depth O	Depth C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	SAMPLE N	REC.	NO.	DEPTH	SOIL AND ROCK INFORMATION REMARKS
0'	2'	7	16	8	11		8"			topsoil/grass, C SAND / cinder fill
2'	4'	5	5	7	8		6"		PID 1.4	gravel cinder fill, moist tan SILT w/ tr clay, f Sand
4'	6'	3	4	4	7		8"		0.6	wet tan SILT w/ tr clay
6'	8'	4	4	4	6		18"		0	wet-sat tan SILT w/ tr clay,
8'	10'	7	13	11	18				0	sat tan SILT w/tr clay, sat tan SILT
10'	12'	3	2	1	2					tan SILT w/ tr clay
12'	14'	2	2	1	2					gray plastic CLAY • gray CLAY w/ some silt, gray m SAND w/tr f Sand, clay, gravel

N = NO. OF BLOWS TO DRIVE _____ SPOON _____ WITH _____ LB. WT. _____ EA. BLOW
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLOW

PASSERO ASSOCIATES, P.C.
ARCHITECTS-ENGINEERS-SURVEYORS
100 LIBERTY POLE WAY ROCHESTER, N.Y.
716-325-1000 14604

TEST BORING REPORT

PROJECT Geneva Foundry — HOLE NO: BH2
CLIENT City of Geneva — FILE NO: 97119
CONTRACTOR American Auger — SHEET NO:

GROUNDWATER		DEPTH TO				CASING	SAMPLER	CORE BARREL	LOCATION:
DATE	TIME	WATER	CASING	HOLE	TYPE				ELEVATION:
					SIZE ID				DATE START: 2-19-99
					HAMMER WT.				DRILLER: Baye
					HAMMER FALL				INSPECTOR: Morton

SEASONAL AND CLIMATIC CHANGES MAY ALTER OBSERVED WATER LEVELS.

Depth O	Depth C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	SAMPLE N	REC.	NO.	DEPTH	SOIL AND ROCK INFORMATION REMARKS
0'	2'	3	2	10	10		12"		PID 0	moist black c SANDY fill
2'	4'	3	1	2	1		6"		0	wet c sandy fill w/ tr gravel
4'	6'	5	5	6	6		16"		0	c sandy fill w/ gravel, pieces of brick, wet f SAND w/ clay
6'	8'	3	7	7	7		10"		0	sat gravel fill, at ± 7' sat tan SILT w/ tr f sand
8'	10'	3	7	12	10		14"		0	sat tan SILT w/ tr f sand, clay
10'	12'	2	1	1	1				0	sat tan SILT/CLAY plastic reddish tan CLAY w/ silt
12'	14'	2	2	2	2				0	tan plastic CLAY, 1" layer of tan f-m SAND @ 13.5'

N = NO. OF BLOWS TO DRIVE _____ SPOON _____ WITH _____ LB. WT. _____ EA. BLOW
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLOW

PASSERO ASSOCIATES, P.C.
ARCHITECTS-ENGINEERS-SURVEYORS
100 LIBERTY POLE WAY ROCHESTER, N.Y.
716-325-1000 14604

TEST BORING REPORT

PROJECT Geneva Foundry — HOLE NO: BH 3
CLIENT Amer City of Geneva — FILE NO: 97119
CONTRACTOR American Auger — SHEET NO:

GROUNDWATER		DEPTH TO				CASING	SAMPLER	CORE BARREL	
DATE	TIME	WATER	CASING	HOLE	TYPE				LOCATION:
					SIZE ID				ELEVATION:
					HAMMER WT.				DATE START: 2-24-99
					HAMMER FALL				DRILLER: Bauge
									INSPECTOR: Morton

SEASONAL AND CLIMATIC CHANGES MAY ALTER OBSERVED WATER LEVELS.

Depth		BLOWS ON SAMPLER				SAMPLE				SOIL AND ROCK INFORMATION REMARKS
0	C	0"/6"	6"/12"	12"/18"	18"/24"	N	REC.	NO.	DEPTH	
0'	2'			2"			6"		PID 0	tan-black ~~clay~~ f-m-c fill SAND w/ tr gravel
2'	4'			split spoon			20"		0	dry-moist ~~w/gravel~~ 4" black c SAND fill, dry-moist tan SILT w/ tr clay
4'	6'						18"		0	dry-moist f SAND-SILT to 5', 6" layer moist m SAND, fill looks native to 5' moist tan SILT w/ tr clay
6'	~~8'~~			1" sieve			36"			moist-wet SILT w/ some CLAY
8'	12'						36"			wet SILT w/ tr clay at 8.5-9'
										moist tan SILT w/ some clay

N = NO. OF BLOWS TO DRIVE _____ SPOON _____ WITH _____ LB. WT. _____ EA. BLOW
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLOW

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716-325-1000

TEST BORING REPORT

PROJECT Geneva Foundry — HOLE NO: BH4
CLIENT City of Geneva — FILE NO: 97119
CONTRACTOR American Auger — SHEET NO: 1

GROUNDWATER		DEPTH TO				CASING	SAMPLER	CORE BARREL	LOCATION:
DATE	TIME	WATER	CASING	HOLE	TYPE				ELEVATION:
					SIZE ID		1"		DATE START: 2-23-99
					HAMMER WT.				DRILLER: Baye
					HAMMER FALL				INSPECTOR: Combes

SEASONAL AND CLIMATIC CHANGES MAY ALTER OBSERVED WATER LEVELS.

Depth 0	Depth C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	SAMPLE N	REC.	NO.	DEPTH	SOIL AND ROCK INFORMATION REMARKS
										concrete ~ 10" thick
0'	3'						1'	1	PID ND	0'-3' Rd-Br f SAND and Silt Clayey moist
3'	6'						3'	2	ND	3-6' Rd-Br ~~Silty Clay~~ to Clayey Silt soft moist-wet slight dilatency some f sand, occ silt prts, occ ~~med~~ fine G
6'	9'						3'		ND	d.c 6-6.25' Rd-Br 6.25'-9' clay & silt with occ lt.Br. silt prts. moist-wet slight plastic
9'	12'						3'		ND	Gray-Br. Silty Clay soft wet plastic
12'	15'									Attempt driving 12'-15' can't go further trouble pulling back casing

N = NO. OF BLOWS TO DRIVE _____ SPOON _____ WITH _____ LB. WT. _____ EA. BLOW
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLOW

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TEST BORING REPORT

PROJECT Geneva Foundry	HOLE NO: BH 5
CLIENT City of Geneva	FILE NO:
CONTRACTOR American Auger Foremost Drill	SHEET NO:
	LOCATION:
	ELEVATION:
	DATE START: 2-25-99
	DRILLER:
	INSPECTOR:

GROUNDWATER		DEPTH TO				CASING	SAMPLER	CORE BARREL
DATE	TIME	WATER	CASING	HOLE	TYPE			
					SIZE ID			
					HAMMER WT.	120 lb		
					HAMMER FALL	18"		

SEASONAL AND CLIMATIC CHANGES MAY ALTER OBSERVED WATER LEVELS.

Rep O	Rep C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	SAMPLE N	REC.	NO.	DEPTH	SOIL AND ROCK INFORMATION REMARKS
0	2	4	6	6	7		6"			moist black gravel cinder fill
2	4	2	2	1	2		14"			moist-wet tan SILT w/ tr clay saturated SILT @ 4'
4	6	4	6	9	9					dry tan SILT w/ some clay
6	8	6	6	9	12					sat tan SILT to 7.5', plastic red CLAY w/ some silt
8	10	9	8	8	20					moist tan CLAY w/ some silt sat tan SILT @ 9.5'
13	15	2	2	2	2					same to 14.5, sat tan m SAND @ 14.5

N = NO. OF BLOWS TO DRIVE _____ SPOON _____ WITH _____ LB. WT. _____ EA. BLOW
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLOW

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TEST BORING REPORT

PROJECT Geneva Foundry	HOLE NO: BH 6
CLIENT City of Geneva	FILE NO: 97-119
CONTRACTOR American Auger	SHEET NO:

GROUNDWATER		DEPTH TO				CASING	SAMPLER	CORE BARREL	
DATE	TIME	WATER	CASING	HOLE	TYPE				ELEVATION:
					SIZE ID				DATE START: 2-25-99
					HAMMER WT.				DRILLER: Bays
					HAMMER FALL				INSPECTOR: Morton

SEASONAL AND CLIMATIC CHANGES MAY ALTER OBSERVED WATER LEVELS.

O	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	SAMPLE N	REC.	NO.	DEPTH	SOIL AND ROCK INFORMATION REMARKS
0'	2'	10	7	8	12		16"		PID 0	dry m-c sandy gravel fill
2'	4'	5	7	7	5		12"		0	same
4'	6'	11	7	6	5		1"		0	poor recovery, moist red plastic silty CLAY
6'	8'	7	7	4	8		1"		0	
8'	10'	~~7~~ 2	~~6~~ 4	~~9~~ 4	~~12~~ 3					CLAY to 9', moist tan moist m SAND
10'	12'	~~7~~ 1	~~6~~ 1	~~9~~ 1	~~2~~ 1					saturated tan m SAND
12'	14'	6	9	12	13					same

N = NO. OF BLOWS TO DRIVE _____ SPOON _____ WITH _____ LB. WT. _____ EA. BLOW
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLOW

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TEST BORING REPORT

PROJECT Geneva Foundry	HOLE NO: BH7
CLIENT City of Geneva	FILE NO:
CONTRACTOR American Auger	SHEET NO:

GROUNDWATER		DEPTH TO				CASING	SAMPLER	CORE BARREL	
DATE	TIME	WATER	CASING	HOLE	TYPE				LOCATION:
					SIZE ID				ELEVATION:
					HAMMER WT.				DATE START: 2-24-99
					HAMMER FALL				DRILLER:
									INSPECTOR:

SEASONAL AND CLIMATIC CHANGES MAY ALTER OBSERVED WATER LEVELS.

Dep	Pn	BLOWS ON SAMPLER				SAMPLE				SOIL AND ROCK INFORMATION REMARKS
O	C	0" / 6"	6" / 12"	12" / 18"	18" / 24"	N	REC.	NO.	DEPTH	
0'	3'						18'		PID 0	dry m-c SAND -f/ tr gravel fill
3'	6'								0	Same
6'	9'								0	Same with brick fragment

N = NO. OF BLOWS TO DRIVE _____ SPOON _____ WITH _____ LB. WT. _____ EA. BLOW
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLOW

BORFTRI

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TEST BORING REPORT

PROJECT Geneva Foundry — HOLE NO: B48
CLIENT City of Geneva — FILE NO:
CONTRACTOR American Auger — SHEET NO:
LOCATION:
ELEVATION:
DATE START: 2-24-99
DRILLER: Baye
INSPECTOR: Morton

GROUNDWATER		DEPTH TO				CASING	SAMPLER	CORE BARREL
DATE	TIME	WATER	CASING	HOLE	TYPE			
					SIZE ID			
					HAMMER WT.			
					HAMMER FALL			

SEASONAL AND CLIMATIC CHANGES MAY ALTER OBSERVED WATER LEVELS.

O	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	SAMPLE N	REC.	NO.	DEPTH	SOIL AND ROCK INFORMATION REMARKS
0	3						18"			± 18" dry c SAND + gravel fill; dry tan SILT w/ tr clay
3	6						20"			wet - sat tan SILT w/ tr clay

N = NO. OF BLOWS TO DRIVE _____ SPOON _____ WITH _____ LB. WT. _____ EA. BLOW
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLOW

BORETBL

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TEST BORING REPORT

PROJECT Geneva Foundry	HOLE NO: BH 7
CLIENT City of Geneva	FILE NO:
CONTRACTOR	SHEET NO:

GROUNDWATER		DEPTH TO				CASING	SAMPLER	CORE BARREL	
DATE	TIME	WATER	CASING	HOLE	TYPE				LOCATION:
					SIZE ID				ELEVATION:
					HAMMER WT.				DATE START: 2-24
					HAMMER FALL				DRILLER:
									INSPECTOR:

SEASONAL AND CLIMATIC CHANGES MAY ALTER OBSERVED WATER LEVELS.

O	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	SAMPLE N	REC.	NO.	DEPTH	SOIL AND ROCK INFORMATION REMARKS
0	3									18" black c SAND Fill moist - wet
3	6									SILT u/ tr clay

N = NO. OF BLOWS TO DRIVE _____ SPOON _____ WITH _____ LB. WT. _____ EA. BLOW
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLOW

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TEST BORING REPORT

PROJECT Geneva Foundry	HOLE NO: BH10
CLIENT City of Geneva	FILE NO: 9719
CONTRACTOR American Auger	SHEET NO:

GROUNDWATER		DEPTH TO				CASING	SAMPLER	CORE BARREL	
DATE	TIME	WATER	CASING	HOLE	TYPE				LOCATION:
					SIZE ID				ELEVATION:
					HAMMER WT.				DATE START: 2-24-99
					HAMMER FALL				DRILLER:
									INSPECTOR:

SEASONAL AND CLIMATIC CHANGES MAY ALTER OBSERVED WATER LEVELS.

O	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	SAMPLE N	REC.	NO.	DEPTH	SOIL AND ROCK INFORMATION REMARKS
0	3						18"			12" c wet sand/gravel fill, wet m SAND,
3	6									most-wet tan SILT 4/ some clay

N = NO. OF BLOWS TO DRIVE _____ SPOON _____ WITH _____ LB. WT. _____ EA. BLOW
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLOW

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TEST BORING REPORT

PROJECT Geneva Foundry	HOLE NO: BH11
CLIENT City of Geneva	FILE NO:
CONTRACTOR	SHEET NO:

GROUNDWATER		DEPTH TO				CASING	SAMPLER	CORE BARREL	LOCATION:
DATE	TIME	WATER	CASING	HOLE	TYPE				ELEVATION:
					SIZE ID				DATE START: 2-24-99
					HAMMER WT.				DRILLER:
					HAMMER FALL				INSPECTOR:

SEASONAL AND CLIMATIC CHANGES MAY ALTER OBSERVED WATER LEVELS.

O	C	BLOWS ON SAMPLER. 0"/6"	6"/12"	12"/18"	18"/24"	SAMPLE N	REC.	NO.	DEPTH	SOIL AND ROCK INFORMATION REMARKS
0	3						12"			c dry SAND fill; moist tan SILT w/ some clay
3	6									moist- wet tan SILT & tr-some clay sand, f-m. tan wet SAND @ ≈ 6.5'
6	9									

N = NO. OF BLOWS TO DRIVE _____ SPOON _____ WITH _____ LB. WT._____ EA. BLOW
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT._____ EA. BLOW

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TEST BORING REPORT

PROJECT Geneva Foundry	HOLE NO: BH 12
CLIENT City of Geneva	FILE NO:
CONTRACTOR American Augers	SHEET NO:

GROUNDWATER		DEPTH TO				CASING	SAMPLER	CORE BARREL	
DATE	TIME	WATER	CASING	HOLE	TYPE				LOCATION:
					SIZE ID				ELEVATION:
					HAMMER WT.				DATE START: 2-24-99
					HAMMER FALL				DRILLER: Baze
									INSPECTOR: Morton

SEASONAL AND CLIMATIC CHANGES MAY ALTER OBSERVED WATER LEVELS.

O	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	SAMPLE N	REC.	NO.	DEPTH	SOIL AND ROCK INFORMATION REMARKS
0' 2'	3' 5'									26" void under slab clay / silt / sand fill w/ brick
5'	8'									tan-black fill sand w/ silt, clay
6'	9'									

N = NO. OF BLOWS TO DRIVE _____ SPOON _____ WITH _____ LB. WT. _____ EA. BLOW
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLOW

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TEST BORING REPORT

PROJECT	HOLE NO: BH 14
CLIENT	FILE NO:
CONTRACTOR	SHEET NO:

GROUNDWATER		DEPTH TO				CASING	SAMPLER	CORE BARREL	
DATE	TIME	WATER	CASING	HOLE	TYPE				LOCATION:
					SIZE ID				ELEVATION:
					HAMMER WT.				DATE START: 2-24
					HAMMER FALL				DRILLER:
									INSPECTOR:

SEASONAL AND CLIMATIC CHANGES MAY ALTER OBSERVED WATER LEVELS.

O	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	SAMPLE N	REC.	NO.	DEPTH	SOIL AND ROCK INFORMATION REMARKS
0	3						0"			Cement
3	6									f tan sand, red clay

N = NO. OF BLOWS TO DRIVE _____ SPOON _____ WITH _____ LB. WT. _____ EA. BLOW
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLOW

2-26-99 N side Jackson St Geoprobe

		PID
BH15		
0-3	12" recovery, dry tan SILT w/ tr clay	0
3-6	moist-wet tan SILT w/ tr clay	0

BH16 – under South side Burned Building where roof is collapsed

0-3	moist-wet tan SILT	0
3-6	"	0

BH17		0
0-3	6" c sand/ash fill	0
3-6	moist SILT w/ tr clay	

BH18		0
0-3	c SAND fill	0
3-6	moist f SILT w/ tr clay	

(over)

2-26-99

BH 19

0'-3' 6" rec, tan dry gravel fill

3'-6' dry-moist SILT w/ tr Clay

APPENDIX F

FIELD SAMPLING PLAN

APPENDIX F – FIELD SAMPLING PLAN

Former Geneva Foundry Site
Geneva, New York
Site No. C835027

Objective of the Sampling Plan

The objective of this Sampling Plan is to monitor, if determined to be necessary in the future, groundwater or on-site soils prior to any disturbance.

Sampling Protocol

The following protocol will be followed to accomplish the objective:

Prior to any disturbance of site soils, the NYSDEC Project Manager will be notified in accordance with the Excavation Work Plan (EWP) included in the approved Site Management Plan (SMP). Following NYSDEC approval, the excavation will proceed following the soil screening and management procedures included in the EWP. If requested by the Department soil samples may be collected for laboratory analyses. Soil samples will be screened with a photoionization detector (PID) and visually inspected by an environmental professional. Soil samples may be submitted to a New York State approved environmental laboratory (Laboratory) for analysis of volatile organic compounds (VOCs) via USEPA Methods 8261, semi-volatile organic compounds (SVOCs) via USEPA Method 8270, and/or metals. In addition, the samples may be analyzed for other parameters requested by the Department. Sample points will be staked and surveyed to document the locations.

Methods

Installation of Borings. If required in the future, soil borings will be completed within unconsolidated materials to the water table using direct-push drilling methods. Soil

samples will be collected continuously at each boring from the ground surface to the end depth (assumed to be 15 ft). Each soil sample will be screened in the field using a PID to assess if VOCs are present in the soil and a boring log will be prepared. One unsaturated soil sample will be collected for analysis. The sample will be selected based on visual inspection and field monitoring results.

Installation of Monitoring Wells. If a new or replacement well should be required, the well will be set approximately 7 ft below the water table. It is assumed that the monitoring well will be completed within unconsolidated materials to a maximum depth of 20 ft. The boring for the installation of the monitoring well will be completed using conventional hollow stem auger drilling methods using a minimum 4.25-inch inside diameter auger. The monitoring well will be constructed of a ten-foot length of 2-inch diameter PVC well screen attached to a PVC riser casing. The well screen will be positioned to straddle the water table; however, the top of the well screen will be positioned no less than 3 ft below grade to allow for the placement of an adequate annular seal. The well will be completed with above-grade protective casings.

Any new wells will be developed following installation to remove fine-grained sediment that may have settled in the borehole during drilling and to increase the hydraulic connection between the well and the aquifer. New wells will be developed until evacuated water is visually clear and free of sediment, monitoring parameters have stabilized, and a minimum of three well volumes have been removed. Monitoring parameters will include pH, conductivity, temperature, and turbidity, and will be considered stabilized when they vary less than 10 percent between three successive readings taken at least three minutes apart. Turbidity will be reduced to less than 50 NTU, if attainable. Water generated during the well development will be contained pending characterization and disposal.

Ground water samples will be collected from designated wells and placed in a cooler for delivery to the laboratory for analysis. Ground water samples will be collected using low-flow purging and sampling techniques, as specified in USEPA's "Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures," and using peristaltic pumps. Field

measurements of pH, conductivity, turbidity, dissolved oxygen, redox potential, and temperature will be made during evacuation and prior to collection of the sample. Monitoring parameters will be considered stabilized when three successive readings are within ± 0.1 for pH, ±3% for conductivity, ±10 mv for redox potential, and ± 10% for turbidity and dissolved oxygen. Turbidity will be reduced to less than 50 NTU if the field geologist feels this level is attainable.

Decontamination. The drilling equipment will be decontaminated following completion of each boring or well using high-pressure hot water or steam. Decontamination procedures will take place on a temporary decontamination pad constructed of plastic sheeting on-site. Water generated during the decontamination procedures will be contained in 55-gallon drums for off-site disposal.

Survey. Elevations and locations of new monitoring wells will be surveyed to provide information pertaining to the ground water flow direction. The survey will be referenced to a USGS datum or a pre-established on-site benchmark. The location and elevations (ground surface, PVC casing, steel casing) of the monitoring wells will be surveyed.

Investigation Derived Waste (IDW). Drill cuttings will be managed in accordance with NYSDEC's TAGM 4032 – Disposal of Drill Cuttings. IDW water will be collected in drums and will be left on the site in the location that they are generated. Upon receipt of the analytical data, the water will either be released on site to a permeable ground surface to allow infiltration or will be disposed offsite at a permitted facility in accordance with applicable regulations.

Underground Utilities. The drilling contractor will contact the local underground facilities protective organization to locate utilities at the site prior to initiating the field program. The utilities will only identify the locations of subsurface lines on public property and rights-of-way. The location of on-site utilities will be reviewed with the site owner to approve the locations where drilling will take place.

Health and Safety. A Health and Safety Plan (HASP) has been prepared for the site and is included in the SMP.

Report

Following receipt of the analytical results, a report will be prepared documenting the sampling events and presenting the analytical data as compared with the cleanup objectives listed in the 6 NYCRR Part 375 and NYSDEC ground water standards. The report will contain:

- a description of the field activities that were performed, including modifications to this plan and the reasons for those modifications
- a description of the analytical data developed by the program
- an evaluation of the data obtained to date with respect to applicable criteria
- conclusions regarding the necessity for remediation
- recommendations for remedial activities, if appropriate
- boring logs, sample location maps, and analytical data sheets will be appended to the report, as will other information as appropriate.

APPENDIX G

QUALITY ASSURANCE PROJECT PLAN

QUALITY ASSURANCE PROJECT PLAN

for the

FORMER GENEVA FOUNDRY SITE
Jackson Street
City of Geneva, Ontario County, New York
Site Code C835027

Prepared for:

CITY OF GENEVA
47 Castle Street
Geneva, New York 14456

Prepared by:

PLUMLEY ENGINEERING

8232 Loop Road
Baldwinsville, New York 13027
(315) 638-8587
Project No. 2015003

July 2017

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ATTACHMENTS

1.0 INTRODUCTION

Plumley Engineering, P.C. has developed this Quality Assurance Project Plan (QAPP) for the former Geneva Foundry Site in Geneva, New York (Site) on behalf of the City of Geneva.

The QAPP provides quality assurance/quality control (QA/QC) criteria for work efforts associated with sampling and analysis of environmental media at the Site. This QAPP has been prepared using United States Environmental Protection Agency (EPA) 2006a *EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations* as guidance.[1]

The QAPP will assist in generating data of a known and acceptable level of precision and accuracy. It provides information regarding the project description and personnel responsibilities and sets forth specific procedures to be used during sampling of environmental media, other field activities and laboratory analyses. Personnel participating in the field investigation and laboratory analyses will follow the procedures in this QAPP. The following QA topics are addressed or referenced in this document:

- Project organization and responsibilities.
- Project background.
- Project description.
- Data quality objectives (DQOs) and criteria.
- Special training requirements.
- Documentation.
- Sampling design.

[1]EPA QA/R-5. Washington, D.C.

- Sampling method requirements.
- Sample handling and custody.
- Analytical method requirements.
- QC requirements.
- Instrumentation/equipment testing and maintenance.
- Calibration and frequency.
- Inspection requirements for supplies.
- Data acquisition requirements.
- Data management.
- Assessment and response actions.
- QA reports to management.
- Data review and management.
- Reconciliation with user requirements.

2.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

2.1 Project Participants

While each person involved in the generation of data is implicitly part of the QA program for the project, certain individuals have specific, designated responsibilities. Within Plumley Engineering, these are the Project Officer, Project Manager, QA Officer, Field Leader, Data Management Personnel and Sampling Personnel.

SGS Laboratories, Inc. (SGS) will provide analytical services for the QAPP. Laboratory personnel with QA/QC responsibilities include the Laboratory Project Manager and Laboratory Sample Custodian.

Samples will not be sent to a laboratory that is not listed in this QAPP without the permission of the Plumley Engineering Project Manager.

The following sections describe the relationship among the project participants.

2.2 DEC Project Manager

New York State Department of Environmental Conservation (DEC) has assigned Adam Morgan as the Project Manager for the Site. As such, he will be responsible for reviewing submissions and overseeing project activities on behalf of DEC.

2.3 City of Geneva Project Manager

Gordon Eddington is the City of Geneva Project Manager for the Site. As such, he will be responsible for reviewing submissions and overseeing project activities on behalf of the City of Geneva.

2.4 Plumley Engineering Personnel

2.4.1 Project Officer

Dale R. Vollmer, P.E. will serve as the Project Officer. As such, he will be responsible for the overall corporate management of the QAPP and completion of tasks specified in the QAPP. It will be his responsibility to provide for the allocation of staff and other resources required to complete the project within the specified schedule and budget.

2.4.2 Project Manager

David K. Meixell, P.E. will serve as the Project Manager and client contact. As such, he will have responsibility for the implementation and completion of each of the tasks identified in the QAPP. He will manage the day-to-day project operations and administrative aspects of the project and will function as the client and regulatory contact for the project. In addition, he will have responsibility for coordinating the technical aspects, strategy, and oversight of the RI and field sampling activities.

2.4.3 QA Officer

Derk T. Hudson will serve as the QA Officer. As such, he will be responsible for overall project QA. He will review project plans and revisions to such plans to maintain proper QA throughout the QAPP. In addition, he, or his designee, will be responsible for performance and system audits, data quality review, corrective actions, and coordinating QA/QC efforts between Plumley Engineering and the laboratory.

2.4.4 Field Leader

David K. Meixell, P.E. will also serve as the Field Leader. As such, he will oversee field and related activities as described in the Work Plan and this QAPP. The sampling personnel will report to the Field Leader, who will be responsible for leading, coordinating, and supervising the day-to-day field activities. The Field Leader's responsibilities include:

- Communicate and coordinate with laboratory prior to sample collection and during shipment of sample coolers to the laboratory.
- Develop and implement field-related sampling plans and schedule.
- Coordinate and manage field staff.
- Supervise or act as the field sample custodian.
- Implement QC for technical data, including field measurements.

- Adhere to work schedules.
- Coordinate and oversee technical efforts of subcontractors assisting the field team.
- Identify problems at the field team level and resolve difficulties.
- Implement and document corrective action procedures.

2.4.5 Data Management Personnel

Data management staff from Plumley Engineering will provide data management services.

2.4.6 Sampling Personnel

Experienced engineers, geologists, hydrogeologists and/or environmental technicians will conduct sampling tasks required by the QAPP. Their responsibilities will include the documentation of proper sample collection protocols, sample collection, equipment decontamination, and chain-of-custody documentation. The sampling personnel will report to the Field Leader.

2.5 Laboratory Personnel

2.5.1 Project Manager

Robert Soll of SGS will serve as the Laboratory Project Manager. As such, he will be responsible for the laboratory's QA/QC activities associated with the project. The specific duties of the Laboratory Project Manager include determining whether analyses are conducted within the method requirements and that laboratory custody procedures are followed. Moreover, the Laboratory Project Manager monitors daily precision and accuracy records, maintains detailed copies of all procedures, reschedules analyses based on unacceptable data accuracy or precision, and identifies and implements corrective actions necessary to maintain QA standards.

The Laboratory Project Manager or his designee will conduct initial data assessments of analytical data results, based on the requirements of the QAPP, and report the findings in the data packages. Major QA/QC issues will be reported to the QA Officer.

2.5.2 Laboratory Sample Custodian

Kelly Ramos of SGS will serve as the Laboratory Sample Custodian. As such, her responsibilities will include verifying proper sample entry and sample handling procedures by laboratory personnel. The Laboratory Sample Custodian will report to the Laboratory Project Manager.

3.0 PROJECT BACKGROUND AND DEFINITION

3.1 Project Background

The City of Geneva acquired the former Geneva Foundry Site for back taxes and prepared a Phase II environmental site assessment of the property. The results of this investigation indicated residual soil and groundwater contamination in several areas. Based on the results of the Phase II investigation, the property was accepted into the DEC-administered Environmental Restoration Program and assigned Site Number B00019.

The property is approximately 2.5 acres in size and is bounded by Jackson Street and residential areas to the north, commercial properties to the south and east, and railroad tracks to the west.

3.2 Project Definition

The property is being remediated and a Site Management Plan (SMP) will be prepared when the remediation is completed.

4.0 PROJECT DESCRIPTION AND SCHEDULE

4.1 Project Description

4.1.1 Overview

Analytical methods to be utilized are listed in Attachment 1.

4.1.2 Sample Analysis

SGS will provide analytical services for the site work.

Analyses will meet the requirements of the methods listed in Attachment 1, the QC requirements and corrective actions listed in Attachments 2 and 3, and additional requirements listed in this QAPP. Laboratory control limits will be the most recent laboratory control limits for accuracy and precision.

The laboratory will report non-detect sample results to the quantitation limits (QLs). Organic results that are less than the QLs but greater that the method detection limits (MDLs) will be reported by the laboratory using the "J" flag. The most recent MDLs and QLs will be reported by the laboratory. The attachments also present the applicable screening criteria that will be used to evaluate analytical data.

Samples may be diluted only if analytes of concern generate responses in excess of the linear range of the instrument.

Samples will undergo cleanup procedures where matrix interference prevents accurate quantification and identification of target analytes. In such a case, samples will be cleaned up during the processes from appropriate methods. Interferences will be identified and documented. The cleanup, extraction and sample preparation methods will be listed in the

data package case narrative. If the laboratory has taken appropriate actions and matrix interferences prevent the laboratory from achieving the specified QLs, the Plumley Engineering QA Officer will be contacted as soon as the situation is identified. The Laboratory Project Manager will document in the data package case narrative how the laboratory demonstrated good analytical practices in order to attempt to achieve the specified QLs.

The lowest initial calibration standard will establish the QLs for each analysis reported by the laboratory.

4.1.3 Data Packages

The data results will be reported to the Plumley Engineering Project Manager using Contract Laboratory Program (CLP)-like deliverables format. The complete data packages will also be provided in electronic PDF format.

Documentation of communications between the laboratory and the Plumley Engineering Project Manager or QA Officer will be provided in the data packages.

The laboratory will provide two hard copies and one electronic copy of the data packages within four weeks of receipt of the last sample in a sampling event. Field logs, data packages and records will be included in the project file, which will be archived by Plumley Engineering for a period of 10 years.

4.1.4 Audits

A field or laboratory audit may be performed at the discretion of the Plumley Engineering Project Manager. Additional audits may be required if issues are identified that would severely limit the use of the sample data. Corrective action procedures will be implemented based on unacceptable audit results, as defined herein.

5.0 DATA QUALITY OBJECTIVES AND CRITERIA

5.1 Objectives

Data quality objectives (DQOs) are quantitative and qualitative statements specifying the quality of the environmental data required to support the decision-making process. DQOs define the total acceptable uncertainty in the data for each specific activity conducted during the QAPP. The uncertainty includes both sampling error and analytical error. Ideally, zero uncertainty is the intent. However, the variables associated with the process (field and laboratory) inherently contribute to the uncertainty of the data. It is the overall objective to keep the total uncertainty within an acceptable range that will not hinder the intended use of the data.

QA/QC represents a set of procedures designed to produce analytical data of known and acceptable quality. The distinction between QA and QC programs is as follows: the QA program ensures that all information, data and decisions resulting from the QAPP are technically sound and properly documented, while the QC program assures that the QA program achieve its goals. QA/QC requirements have been established for this QAPP so that there will be a high degree of confidence in the measurements.

The DQOs that will be addressed by the QAPP are based on the following factors that define the scope of the QAPP:

- History of Site operations and areas of suspected impacts
- Results of the RI
- Remediation of impacted soil
- Assessment of data from the excavated areas
- Disposal of excavated soils

The following DQO questions were developed during the preparation of the Remedial Action Work Plan (RAWP):

- Were the VOC, SVOC and total metal groundwater results in exceedence of NYS Class GA standards?

- Were the VOC, SVOC and total metal soil results in exceedence of the SCOs listed in 6 NYCRR Part 375?

Analytical levels as defined by EPA are as follows:

- *Screening Data* are generated by rapid, less precise methods of analysis with less rigorous sample preparation. Sample preparation steps may be restricted to simple procedures, such as dilution with a solvent, instead of elaborate extraction/digestion and cleanup. Screening data provide analyte identification and quantitation, although the quantitation may be relatively imprecise. At least 10% of the screening data should be confirmed using analytical methods and QA/QC procedures and criteria associated with definitive data. Screening data without associated confirmation data are not considered to be data of known quality. Field screening for VOCs by photoionization detector (PID) were conducted during the RI.

- *Definitive Data* are generated using rigorous analytical methods, such as EPA reference methods. Data are analyte-specific, with confirmation of analyte identity and concentration. Methods produce tangible raw data in the form of paper printouts or computer-generated electronic files. Data may be generated at the Site or at an offsite location, as long as the QA/QC requirements are satisfied. For the data to be definitive, either analytical or total measurement error must be identified. The level of QC that will be performed for the definitive data involves the QC efforts described in Section 12, calibration procedures described in Section 14, analytical methods listed in Attachment 1 and QC requirements and corrective actions listed in Attachments 2 and 3. Laboratory control limits listed in the most recent laboratory control limits for accuracy and precision, will be used to evaluate the sample data.

Plumley Engineering has developed the QA/QC program described in this QAPP to assess adherence to DQOs. The remainder of this QAPP describes the specific approaches that will be taken to achieve the required DQOs.

Precision describes the reproducibility of measurements under a given set of conditions. Specifically, it is a quantitative measure of the variability of a group of measurements that have been made in an identical manner, compared to their average value. Precision can be expressed in a variety of manners, including absolute methods such as deviation from the mean or median values, standard deviation and variance, or relative methods such as relative deviation from the mean or median. The overall precision will be determined through the analysis of field duplicates, laboratory duplicates, and matrix spike/matrix spike duplicate (MS/MSD) samples.

Accuracy is defined as the degree of difference between measured or calculated values and the true value. The closer the numerical value of the measurement comes to the true value, or actual concentration, the more accurate the measurement is. Accuracy is expressed in terms of absolute or relative error. Accuracy will be determined through analysis of spiked samples and the analysis of standards with known concentrations.

Representativeness refers to the degree to which a sample taken from a site accurately reflects the matrix at the site. It is a qualitative parameter that is most concerned with the design of the sampling program. Factors that should be considered in the determination of representativeness include appropriateness of sampling and analytical methodologies, representativeness of the selected media and representativeness of the selected analytical procedures. Representativeness will be achieved by following the procedures described in the RAWP.

Comparability refers to the use of consistent procedures, second source reference standards, reporting units, and standardized data format with document control. Adherence to standard procedures and the analysis of external source standard materials maximizes the probability that data generated from a particular method at a given laboratory can be validly compared to the data of another laboratory. This QAPP has been written to provide standard methods to support comparability.

Completeness refers to the process of obtaining the required data as outlined in the QAPP. Completeness is also defined as the percentage of measurements judged to be useable. Samples for which the critical data points fail completeness objectives will require reanalysis of samples (within the specified holding times) until the DQOs are met. The completeness goal has been specified at 95% for this RI.

Sensitivity refers to a measurable concentration of an analyte that has an acceptable level of confidence. MDLs are the lowest concentration of an analyte that can be measured with 99% confidence that the analyte concentration is greater than zero. QLs are levels above the MDLs at which the laboratory has demonstrated the quantitation of analytes.

5.2 Field Sampling

The objective of the field sampling program is to obtain samples that represent the environmental matrix being investigated. This will be accomplished through the use of proper sampling techniques and equipment.

Field screening activities may not require sample collection, but nonetheless involve measurements for which QA concerns are appropriate. The primary QA objective of field screening is to obtain reproducible measurements to a degree of accuracy consistent with the intended use of the measurements and to document measurement procedures.

5.3 Laboratory Analysis

SGS maintains laboratory Standard Operating Procedures (SOPs) and a Quality Assurance Manual (QAM). To obtain data of a quality sufficient to meet the project DQOs, VOC analysis by gas chromatography/mass spectrometry (GC/MS) will be used.

The laboratory will adhere to the specific analyses and QA/QC requirements in the analytical methods listed in Attachment 1 and this QAPP.

6.0 SPECIAL TRAINING REQUIREMENTS

Field personnel must comply with the training requirements for hazardous waste operations in accordance with 29 CFR 1910.120(e). Each individual must have successfully completed a 40-hour course for intrusive work and, minimally, a 24-hour course for non-intrusive work. In addition, each individual must have completed an 8-hour refresher course within the last 12 months if the initial training was more than 12 months ago.

7.0 DOCUMENTATION

This QAPP will be amended by the QA Officer at the discretion of the Plumley Engineering Project Manager as necessary, when guidelines and regulatory documents are revised or if Site requirements necessitate such changes. Whenever the QAPP is amended, the project personnel will receive the amended copy of the QAPP and outdated copies will be removed from circulation.

Field sampling operations and procedures will be documented by onsite personnel. Documentation of sampling operations and procedures will include the following:

- Procedures for preparation of reagents or supplies which become an integral part of the sample.
- Procedures for recording location and specific considerations associated with sample collection.
- Specific sample preservation method.
- Calibration of field instruments.
- Submission of field-based blanks, where appropriate.
- Potential interferences present at the Site.

- Field sampling equipment and containers including specific identification numbers of equipment.
- Sampling order.
- Decontamination procedures.
- Field personnel.

The analytical data results will be reported to the Plumley Engineering Project Manager using CLP-like deliverables format. The data packages will also be provided in PDF electronic format.

A comprehensive case narrative describing the following will be included in the data package:

- Cross-reference list which includes field sample identification name, laboratory identification number and sample dates for each sample in the sample delivery group (SDG) included in the data package.
- Documentation of methodologies utilized to prepare and analyze samples and references.
- Detailed documentation of QC, sample shipment, and analytical problems encountered in processing samples for the data package.
- Documentation of re-analyses, internal QC processes used, corrective actions taken and resolution of corrective actions taken.
- Documentation of communications made with the Plumley Engineering Project Manager and QA Officer during the data generation process.

The laboratory will provide an electronic copy of the data packages within four weeks of receipt of the last sample in a sampling event. Field logs, data packages, and records will be included in the project file which will be archived by Plumley Engineering for a period of 10 years.

8.0 SAMPLING DESIGN

8.1 Objectives

The objective of the sampling program is to obtain samples of environmental media of sufficient quality to support both qualitative and quantitative information to identify the nature and extent of constituents in the investigation areas.

8.2 Sampling Network

The types of parameters, methods, matrices and numbers of samples to be collected for site remedial activities and the QAPP are presented in Attachment 1.

8.3 Sample Locations

Sample locations are described in the RAWP.

A sample designation system will be used to identify samples for laboratory analysis. A list of identifiers used for each sample will be maintained in the project notes by the Plumley Engineering Field Team.

Each sample that is collected will be designated by a unique sample identification number. The first part of the identifier will correspond to the type of media being collected:

- DUP – field duplicate
- TB – trip blank
- FB – field blank
- MS/MSD – matrix spike/matrix spike duplicate

The sample type code will be followed by an alpha-numerical code indicating the sample location number.

Field duplicates will be identified with a unique sample identification number, such that the laboratory will not be aware that the sample is a duplicate. Field sampling personnel will note the duplicate sample in the project notes so that this information will be available when the laboratory data is reviewed. An example designation for a field duplicate from a soil sampling location on the chain-of-custody form will be DUP-1, representing a site location that is not identified on the chain-of-custody record.

9.0 SAMPLING METHOD REQUIREMENTS

9.1 Sampling Procedures

The objective of the field sampling program is to obtain samples that represent the environmental matrix being investigated. This will be accomplished through the use of proper sampling techniques and equipment.

Field duplicate samples will be collected from the same location as the parent sample and will be analyzed for the same parameters as the parent sample.

The field duplicate QC samples will be labeled with fictitious identification locations and times, and submitted to the laboratory as regular samples. The actual identification of the duplicate QC samples will be recorded in the field notes. One field duplicate QC sample will be collected for every 20 samples collected per matrix and sent to the laboratory for analysis.

MS/MSD samples will be collected from the same location as the parent sample and will be analyzed for the same parameters as the parent sample. Each sample will be labeled with the same number as the original sample, designated as MS or MSD, and submitted to the laboratory for the appropriate analyses. One MS and MSD sample will be collected for every 20 samples collected per matrix and sent to the laboratory for analysis.

A field blank will be prepared for sampling when a particular piece of sampling equipment is employed for sample collection and subsequently decontaminated in the field for use in additional sampling. The blank water used to generate the field blank will be provided by the laboratory, using the same source of water as that used to prepare method blanks. The field blank will be composed in the field by collecting, in the appropriate container for the water, a blank water rinse from the equipment after execution of the last step of the proper field decontamination protocol. The identical bottle to bottle transfer technique will be used to generate the field blank. Preservatives or additives will be added to the field blank, where appropriate, for the sampling parameters. One field blank will be collected per 10 samples or once per day, whichever is more conservative. The field blank will be analyzed for the same parameters as the samples collected the same day that the field blank was generated.

A trip blank will be included in the cooler used to ship aqueous and soil samples for VOC analysis. The trip blank is designed to address possible sample contamination from transportation between the Site and the laboratory. A trip blank will be prepared by the laboratory from the same source as the method blank water using the same preservation technique as that used to prepare the sample containers and sent to the Site in a cooler with the other sample containers. Non-aqueous samples collected utilizing methanol preservation will require trip blanks prepared using the same technique as that used to prepare the samples containers. Trip blanks are not opened in the field, but travel with the sample containers. One trip blank will be sent to the laboratory for analysis in each cooler containing samples that have been collected for VOCs.

9.2 Decontamination of Sampling Equipment

The sampling methods have been developed to minimize the possibility of cross-contamination. The following procedures will be used to decontaminate any non-disposable/non-dedicated sampling equipment in accordance with the following procedures, where applicable:

- Wash and scrub the equipment with non-phosphate laboratory grade detergent and potable water.

- Generous tap water rinse.

- Rinse with distilled or deionized water.
- Rinse with distilled and/or deionized water.
- Air dry.
- Rinse with distilled and/or deionized water for samples submitted for organic analysis.
- Wrap with aluminum foil or plastic sleeve for transport.

Equipment will be wrapped in aluminum foil and/or stored in disposable plastic sheeting to maintain contaminant-free conditions. Deviations from these procedures will be documented in the field notes.

10.0 SAMPLE HANDLING AND CUSTODY

10.1 Sample Preparation and Preservation

The laboratory will supply appropriate sample containers in sealed cartons or coolers, as well as preservatives (as appropriate). QA measures for this project will begin with the sample containers. Pre-cleaned containers will be purchased from a EPA-certified manufacturer (I-Chem 200 or equivalent).

Immediately after collection, samples will be transferred to properly labeled sample containers and properly preserved. Attachment 1 lists the proper sample container, sample volumes and preservation. Samples requiring refrigeration for preservation will be promptly transferred to coolers packed with wet ice and/or ice packs. If field storage is required, the samples will be stored in a secured storage facility and an approximate cooler temperature of 4 degrees centigrade (°C) will be maintained. Samples will be shipped or transported within 24 hours of collection and will arrive at the laboratory no later than 48 hours after collection. Proper chain-of-custody documentation will be maintained as discussed in Section 10 of this QAPP. Samples will be analyzed within the holding times specified in Attachment 1.

10.2 Sample Custody and Procedures

These procedures include field custody, laboratory custody and evidence files. Samples are physical evidence and will be handled according to strict chain-of-custody protocols. Documentation must be produced, when needed, that traces the samples from the field to the laboratory and through analyses. The EPA has defined custody of evidence as follows:

- In actual possession.
- In view after being in physical possession.
- In a locked laboratory.
- In a secure, restricted area.

10.2.1 Field Custody Procedures

The field sampler is personally responsible for the care and custody of the sample until transferred.

Field notes will be used to note information regarding collection of samples and any notable observations. All entries will be signed and dated. Corrections will be made by drawing a single line through the incorrect data and initialing and dating the correction that was made to the side of the error. An initialed diagonal line will be used to indicate the end of an entry or the end of the day's activities.

The following information will be recorded in the field notes by the field sampling team:

- Name and title of author, date, and time of Site entry, and physical/environmental conditions during the field activity.
- Meteorological data.

- Project number, client name and Site name.
- Name and title of field crew members.
- Sample media.
- Sample collection method, including equipment utilized.
- Number and volume of samples collected.
- Description of sample locations.
- Date and time of sample collection.
- Sample and QA/QC identification numbers.
- Field observations.
- Field measurements made and equipment used.
- Calculations, results, and calibration data for field sampling and measurements.
- References for maps and photographs of the sample location.
- Dates and method of sample shipments.

A completed sample identification label will be attached to each investigative or QC sample and the sample placed in a shipping container. The identification on the label/tag must be sufficient to enable cross-reference with the logbook. The sample label/tag will be recorded using waterproof, non-erasable ink and will be attached to the sample container using adhesive.

The sample labels will contain the following information:

- Sample number identification.
- Project number.

- Date and time of sample collection.
- Designation of the sample as a grab or composite.
- Type of sample matrix.
- Sample location.
- Sampler initials.
- Whether the sample is preserved or unpreserved.

Chain-of-custody records will be kept starting at the time that sample containers are placed in the coolers for transportation to the laboratory. One completed chain-of-custody record must be kept with each sample cooler at all times.

When transferring the possession of samples, individuals relinquishing and receiving will sign, date and note the time on the chain-of-custody. Custody of samples must be continuous between parties and time gaps must not be present. Each shipment of samples to the laboratory must have its own chain-of-custody record with the contents of the shipment, method of shipment, name of courier and other pertinent information written on the record. The original record accompanies the shipment and the copies are kept with the field logbook and distributed to the Plumley Engineering Project Manager. Freight bills, postal service receipts and bills of lading will be retained as permanent documentation.

If the samples are shipped, the courier's air bill will be attached to the chain-of-custody and the air bill number will be written on the chain-of-custody form.

The chain-of-custody documentation will be recorded using waterproof, non-erasable ink. One sample will be entered on each line of the chain-of-custody record and not be split among multiple lines.

The chain-of-custody form will contain the following information:

- Project identification and number.
- Sample description/location.
- Required analysis.
- Date and time of sample collection.
- Type and matrix of sample.
- Number of sample containers.
- Analysis requested/comments.
- Sampler signature/date/time.
- Date and signature of the field representative.
- Date and signature of the laboratory representative.
- Carrier used to ship coolers
- Air bill number (if shipped by a commercial carrier).

In the case that high concentrations are suspected to be present in the samples, a note to that effect will be included on the chain-of-custody form.

Environmental samples will be packed prior to shipment using the following procedures:

- Select a clean, sturdy cooler in good repair. Secure and tape the drain plug with fiber or duct tape.
- Be sure the lids on all bottles are tight (will not leak) and place bottles into tightly sealed plastic bags.
- Put ice that has been placed in properly sealed heavy-duty polyethylene bags on top of and/or between the samples to maintain the inside temperature at approximately 4°C. Pack samples securely to eliminate breakage during shipment.

- Place chain-of-custody record into a Ziploc plastic bag, tape the bag to the inner side of the cooler lid, close the cooler and securely tape (preferably with fiber tape) the top of the cooler shut. The field sampler will initial and date the seal. The seals must be broken to open the cooler and will indicate tampering if the seal is broken before receipt at the laboratory. Two custody seals will be affixed to the latch and lid of the cooler. The custody seals will consist of adhesive-backed tape that easily rips if it is disturbed.

- A label containing the name and address of the shipper will be placed on the outside of the cooler.

The field sampling team will transport or ship the cooler via an overnight delivery service or hand deliver to the laboratory. Prior to shipment of sample coolers, the field sampling team will contact the laboratory to notify the laboratory of the shipment.

Samples will remain in the custody of the sampler until transfer of custody is completed. Transfer consists of:

- Delivery of samples to the Laboratory Sample Custodian and/or

- Signature of the Laboratory Sample Custodian on the chain-of-custody form as receiving the samples and signature of sampler as relinquishing the samples.

10.2.2 Laboratory Custody Procedures

When the samples arrive at the laboratory, the Laboratory Sample Custodian will sign the courier's air bill or bill of lading (unless hand-delivered) and will note the cooler temperature on the chain-of-custody form. If the cooler temperature is greater than 6°C, the Plumley Engineering Project Manager will be notified. If the cooler arrives at the laboratory after hours, an external chain-of-custody will be properly filled out and accompany the cooler until the laboratory receives the cooler.

The Laboratory Sample Custodian's duties and responsibilities upon sample receipt will be to:

- Document receipt of samples by signing the record with the date and time of sample receipt.
- Note the cooler temperature on the chain-of-custody form.
- Inspect sample shipping containers for the presence or absence of custody seals (only if shipped via overnight courier) and for container integrity.
- Sign the appropriate forms or documents, verify and record the agreement or disagreement of information on sample documents, and if there are discrepancies, record the problem and notify the Plumley Engineering Project Manager.
- Assign a laboratory number for each sample upon receipt. That sample number will be placed on the sample label which will remain attached to the sample container.
- Log sample information into the laboratory sample tracking system.
- Label sample with a unique, sequential laboratory sample number.
- Place samples in the walk-in cooler or sample storage area that is a secure, limited-access storage.

The laboratory will immediately contact the Plumley Engineering Project Manager if issues pertaining to sample condition or documentation are detected (broken security seal; broken, open or otherwise compromised sample bottles; chain-of-custody information in disagreement with sample labels; etc.).

At the laboratory, the analysts will be required to log samples and extracts in and out of storage as the analysis proceeds. Samples and extracts will be returned to secure storage at the close of business. Written records will be kept of each time the sample or extract

changes hands. Care must be exercised to properly complete, date and sign items needed to generate data.

Procedures to be followed by the laboratory include:

- Samples will be handled by the minimum number of people possible.
- The laboratory will set aside a secured sample storage area consisting of a clean, dry, refrigerated, isolated room.
- A specific person will be designated sample custodian. Incoming samples will be received by the custodian who will indicate receipt by signing the chain-of-custody form.
- The custodian will ensure samples that are heat-sensitive, light-sensitive or radio-active, or which require special handling in other ways, are properly stored and maintained prior to analysis.
- The analytical area will be restricted to authorized personnel only.
- After sample analyses are complete, the analytical data will be kept secured and released to authorized personnel only.

If QC samples have not been properly identified during sample collection, the Laboratory Project Manager will contact the Plumley Engineering Project Manager to assign QC samples prior to the start of sample analysis.

10.2.3 Final Evidence File Chain-of-Custody Procedures

The final evidence file will be the central repository for documents that constitute evidence relevant to sampling and analysis activities as described in this QAPP. Plumley Engineering is the custodian of the evidence file and maintains the contents of evidence files for the Site, including relevant records, reports, logs, field notebooks, pictures, subcontractor reports and data reviews.

The final file will be stored at Plumley Engineering and will consist of the following:

- Laboratory data packages, including summary and raw data from the analysis of environmental and QC samples, chromatograms, mass spectra, calibration data, work sheets and sample preparation log.
- Chain-of-custody records.
- Field logbooks and data.
- Pictures and drawings.
- Correspondence.

The evidence file will be maintained in a secured, limited access area until submittals for the project have been reviewed and approved, and for a minimum of 10 years past the submittal date of the final report.

11.0 ANALYTICAL METHOD REQUIREMENTS

11.1 Analytical Methods

The laboratory will utilize the analytical methods and additional requirements listed in this QAPP. The most recent laboratory control limits for accuracy and precision will be used to evaluate the sample data. In addition, the QC requirements and corrective actions listed in Attachments 2 and 3, which augment the method requirements, will be followed by the laboratory during the RI. In the event of an analytical system failure, the Laboratory Project Manager will identify the situation and provide corrective action guidance. The Plumley Engineering QA Officer will be notified and the situation will be documented in the data package case narrative.

MDLs and QLs may only be achieved in an undiluted sample free of matrix interferences or of high concentrations of target analytes. If matrix interferences are encountered or if high

concentrations of target compounds are present, established MDLs and QLs may not be achievable without impacting the instrument quality. The laboratory and Plumley Engineering QA Officer will discuss these situations before the laboratory proceeds with sample analysis.

Samples may be diluted only if analytes of concern generate responses in excess of the linear range of the instrument.

Samples will undergo cleanup procedures for the following situations:

- For solid samples analyzed for SVOCs, with QLs that are elevated above the action limits due to matrix interferences.
- Where matrix interference prevents accurate quantification and identification of target analytes.

When the previously described situations occur, samples will be cleaned up during the processes from appropriate methods. Interferences will be identified and documented. The cleanup, extraction and sample preparation methods will be listed in the data package case narrative.

If the laboratory has taken appropriate actions and matrix interferences prevent the laboratory from achieving the specified QLs, the Plumley Engineering QA Officer will be contacted as soon as the situation is identified. The Laboratory Project Manager will document in the data package case narrative how the laboratory demonstrated good analytical practices in order to attempt to achieve the specified QLs.

Blanks will not be subtracted from target analyte results.

11.2 Detection Limits

The MDL is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined

from analysis of a sample in a given matrix containing the analyte. The QL is the lowest concentration that can be reliably quantified within specified limits of precision and accuracy during routine laboratory operations.

The lowest initial calibration standard will establish the QLs for each analysis reported by the laboratory. The laboratory will report non-detect sample results to the QLs. Results that are less than the QLs but greater that the MDLs will be reported by the laboratory using the "J" flag. The most recent MDLs and QLs will be reported by the laboratory.

Detection limits may only be achieved in an undiluted sample free of matrix interferences or of high concentrations of target analytes. If matrix interferences are encountered or if high concentrations of target compounds are present, established MDLs and QLs may not be achievable without impacting the instrument quality. The laboratory and Plumley Engineering QA Officer will discuss these situations before the laboratory proceeds with sample analysis.

12.0 QC REQUIREMENTS

The overall effectiveness of a QC program depends on operating in the field and laboratory according to a program that systematically ensures the precision and accuracy of analyses by detecting errors and preventing their recurrence or measuring the degree of error inherent in the methods applied. The following sections describe the QA/QC checks that will be utilized in the laboratory and the field during the RI.

12.1 Laboratory QA/QC Checks

Attachments 2 and 3 summarize the laboratory QC checks, frequency of analysis, control limits, and laboratory corrective actions for the analytical methods used in this QAPP. A brief description of laboratory QA/QC analyses is contained in the following subsections.

12.1.1 GC/MS Tuning

Tuning and performance criteria are established to verify mass resolution, identification and, to some degree, instrument sensitivity. These criteria are not sample specific. Conformance is determined using standard materials. Therefore, these criteria should be met in all circumstances.

12.1.2 Calibration

Compliance requirements for satisfactory instrument calibration are established to verify the instrument is capable of producing acceptable quantitative data. Initial calibration demonstrates the instrument is capable of acceptable performance at the beginning of analysis, and continuing calibration and performance checks documents satisfactory maintenance and adjustment of the instrument on a day-to-day basis. Section 14 of this QAPP describes the laboratory equipment calibration process.

12.1.3 Blanks

Several types of blanks will be analyzed by the laboratory. Corrective action procedures will be implemented for blank analyses if target compounds are detected at concentrations greater than the QL, where applicable. The criteria for evaluation of blanks apply to any blank associated with a group of samples. If problems exist with a blank, data associated with the project must be carefully evaluated to determine whether or not there is an inherent variability in the data for the project or if the problem is an isolated occurrence not affecting other data.

A method blank is an analyte-free blank that undergoes the preparation procedures applied to a sample. These samples are analyzed to examine whether sample preparation and analysis techniques result in sample contamination. The laboratory will prepare and analyze a method blank with each group of a maximum of 20 samples that are extracted, digested or analyzed at the same time.

Field blanks are analyzed to assess contamination introduced during field sampling procedures and sample shipment, respectively. Field blanks will consist of samples of analyte-free water that are passed through and/or over decontaminated sampling equipment. One field blank will be collected per set of sampling equipment per sampling event. Field blanks will not be required if dedicated sampling equipment is utilized. The water used for the field blank will be provided by the laboratory from the same source as that used for the laboratory method blank. If the water is stored prior to use, an aliquot from the water source and the storage container will be analyzed prior to use. The field blank samples will be subject to the same analyses as the environmental samples. One field blank will be collected per ten samples or once per day, whichever is more conservative.

A trip blank will be prepared by the laboratory using the same preservation technique as that used to prepare the sample containers, from the same source as the method blank water, and sent to the Site in the cooler with the other sample containers. Non-aqueous samples collected utilizing methanol preservation will require trip blanks prepared using the same technique as that used to prepare the sample containers. The trip blank will undergo shipment from the sampling site to the laboratory in coolers with the environmental samples to be analyzed for VOCs. Trip blanks will be analyzed for VOCs to determine if contamination has taken place during sample handling and/or shipment. Trip blanks will be utilized for samples at a frequency of one for each shipment of samples sent to the laboratory for VOCs analysis.

12.1.4 Internal Standards Performance

Internal standards, which are compounds not found in environmental samples, will be spiked into samples, blanks, MS/MSDs and laboratory control samples (LCSs) at the time of sample preparation. Internal standards must meet retention time and performance criteria specified in the analytical method or the sample will be reanalyzed.

12.1.5 Surrogate Recovery

Accuracy and matrix biases for individual samples are monitored for organic analyses using surrogate additions. Surrogates are compounds similar in nature to the target analytes. The surrogates are spiked into environmental samples, blanks and QC samples prior to sample preparation for organic analyses. The evaluation of the results of these surrogate spikes is not necessarily straightforward. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the review of data based on specific sample results is frequently subjective.

12.1.6 LCS

LCSs are standard solutions that consist of known concentrations of the complete list of target analytes spiked into laboratory analyte-free water or sand. They are prepared or purchased from a certified manufacturer from a source independent from the calibration standards to provide an independent verification of the calibration procedure. These QC samples are then prepared and analyzed following the same procedures employed for environmental sample analysis to assess method accuracy independently of sample matrix effects. The laboratory will prepare and analyze one LCS with each group of a minimum of 20 samples of similar matrix that are extracted, digested or analyzed at the same time. For VOC analysis, one LCS will be analyzed with each analytical sequence in a 12-hour period for each matrix. Percent recoveries will be evaluated to assess the efficiency of the preparation and analysis method independent of sample matrix effects.

12.1.7 MS/MSD and Laboratory Duplicate Samples

MS/MSD and laboratory duplicate analyses will be performed on environmental samples at a frequency of one per sample matrix and every 20 samples of similar matrix. Whenever possible, MS/MSD and laboratory duplicate samples will be prepared and analyzed within the same batch as the environmental samples. MS/MSD samples will be spiked at the

laboratory with the complete list of target analytes. MS/MSD and laboratory duplicate data are generated to determine long-term precision and accuracy of the analytical method with respect to sample matrices. Generally, the MS/MSD data alone are not used to evaluate the precision and accuracy for associated organic samples since data may reflect specific matrix effects only present within one sample.

12.1.8 Compound Identification and Quantitation

The objective of the qualitative criteria is to minimize the number of erroneous identifications of compounds. An erroneous identification can either be a false positive (reporting a compound present when it is not) or a false negative (not reporting a compound that is present). The identification criteria can be applied much more easily in detecting false positives than false negatives. Negatives, or non-detect compounds, represent an absence of data and are therefore much more difficult to assess. The objective for quantitative requirements is to maximize the accuracy of data and sensitivity of the instrument. Unless sample screening indicates the presence of high concentration target analytes, samples will be analyzed undiluted to maximize sensitivity. Samples must be reanalyzed at the appropriate dilution when concentrations exceed the linear calibration range to maximize accuracy. Matrix interferences will be identified and documented. Samples may be diluted only if analytes of concern generate responses in excess of the linear range of the instrument.

12.2 Field QA/QC Checks

In order to evaluate data quality, QA/QC samples will be collected during sample events. Attachment 1 lists the environmental and corresponding QC samples to be collected by analysis and matrix type.

12.2.1 Field Duplicate Samples

Collection of field duplicate samples provides for the evaluation of the laboratory's precision performance by comparing analytical results of two samples from the same

location. They are also collected to evaluate field sample collection precision procedures. Samples are collected from one location and sent to the laboratory blind (with two different sample identifications). Duplicates of aqueous samples are obtained by alternately filling samples containers from the same sampling device for each parameter. Duplicates of aqueous samples submitted for VOC analysis from monitoring wells are filled from the same bailer full of water whenever possible and are the first set of containers filled. Duplicates of solid samples submitted for VOC analysis are obtained from discrete locations without mixing. Duplicates for the remaining analyses require homogenization by filling a decontaminated stainless steel tray or bowl with the sample and mixing it with a decontaminated stainless steel instrument. The mixed sample is divided in half and scooped alternatively from each half to fill the sample container. One field duplicate sample will be collected for every 20 environmental samples (minimum frequency of 5%) or one per matrix for less than 20 samples. If less than 20 samples are collected, one field duplicate sample will be collected.

12.2.2 MS/MSD and Duplicate Samples

MS/MSD samples are duplicate samples that have spiking solutions added at the laboratory during sample preparation. MS/MSD samples are considered identical to the original sample. The percent recovery of the spiked amount indicates the accuracy of the extraction, as well as interferences caused by the matrix. Relative percent differences (RPD) between spike sample recoveries will indicate the precision of the data. Duplicates of aqueous samples are obtained by alternately filling sample containers from the same sampling device for each parameter. One MS/MSD sample set will be collected for every 20 environmental samples submitted to the laboratory (minimum frequency of 5%) or one MS/MSD for less than 20 samples.

For inorganic analyses, duplicate analyses will be performed on environmental samples at a frequency of one per sample matrix and every 20 samples of similar matrix. Duplicate samples will be prepared and analyzed within the same batch as the environmental samples. Duplicate data are generated to determine precision of the analytical method with respect to sample matrices.

12.2.3 Field Blanks

Field blanks will consist of samples of analyte-free water that are passed through and/or over decontaminated sampling equipment. One field blank will be collected per set of sampling equipment per sampling event. Field blanks will not be required if dedicated sampling equipment is utilized. The field blank samples will be subject to the same analyses as the environmental samples. One field blank will be collected per ten samples or once per day, whichever is more conservative

12.2.4 Trip Blanks

Trip blanks will be prepared with other preserved containers and will contain analyte-free solvent. The trip blank will undergo shipment from the sampling site to the laboratory in coolers with the environmental samples to be analyzed for VOCs. Trip blanks will be analyzed for VOCs to determine if contamination has taken place during sample handling and/or shipment. Trip blanks will be utilized for samples at a frequency of one for each shipment sent to the laboratory for VOCs analysis.

12.2.5 Temperature Blanks

Temperature blanks will consist of vials of water that have undergone shipment from the sampling site to the laboratory in coolers with the environmental samples to be analyzed for the sampling program. The temperature of these blanks will be measured at the laboratory upon receipt of the sample cooler to verify compliance with the cooler temperature requirement.

12.3 Corrective Action

Generally, the following corrective actions will be taken by the laboratory. When parameters within control of the laboratory including calibration, instrument performance and blank criteria are not met, the cause of the problem will be located and corrected. The analytical system will

then be recalibrated. Sample analysis will not begin until calibration, instrument performance and blank criteria are met. The QA Officer will be notified of situations of repeated calibration, instrument performance or blank criteria failure at the time of sample analysis. When matrix spike, reference standard or duplicate analyses are out of control, samples analysis will cease. The problem will be investigated. Depending on the results of the overall QC program for the sample set, the data may be accepted, accepted with qualification or determined to be unusable. If the data is determined to be unusable through the application of the corrective actions listed in Attachments 2 and 3, the QC analysis will be re-prepared and reanalyzed. If QC criteria are met upon reanalysis, only the new results are reported. If QC criteria are still not met upon reanalysis, both sets of sample results will be reported and the QA Officer will be notified of the situation at the time of sample analysis.

If matrix interferences are suspected, the QA Officer will be contacted. Unless sample screening indicates the presence of high concentration target analytes, samples may be diluted in the analysis only if analytes of concern generate responses in excess of the linear range of the instrument.

In the case of matrix interference, the laboratory will perform sample cleanup as required by the methods. Interferences will be identified and documented. When matrix interferences are present, samples will be cleaned up during the extraction processes from appropriate methods. The cleanup, extraction and sample preparation methods will be listed in the data package case narrative. If the laboratory has taken appropriate actions and matrix interferences prevent the laboratory from achieving the specified QLs, the QA Officer will be contacted as soon as the situation is identified. The Laboratory Project Manager will document in the data package case narrative how the laboratory demonstrated good analytical practices in order to attempt to achieve the specified QLs.

The QC requirements and corrective actions listed in Attachments 2 and 3, which augment the method requirements, are to be followed by the laboratory and will be referenced by the laboratory in identifying QA/QC issues.

The laboratory will make every reasonable effort to correct QC excursions.

If problems arise with procedures or guidelines set forth herein, the Plumley Engineering QA Officer and Project Manager, in conjunction with the appropriate agencies, will formulate an appropriate corrective action.

12.4 Control Limits

Control limits are either listed in the appropriate methods or are established separately for respective matrix types for surrogate, LCS, MS/MSD and duplicate analyses. Control limits can be considered action limits. The laboratory-established limits are defined as ±3 standard deviations of the mean and correspond to 99.7% confidence limits of a normal distribution curve. Unless previously established, the laboratory will establish control limits for each analyte of concern using a minimum of 20 data points. The control limits are updated by the laboratory on an annual basis. Therefore, the most recent control limits will be used to evaluate data.

12.5 Field Sampling QA/QC

Field sampling crews will always be under direct supervision of the Field Leader. Bound logbooks and appropriate datasheets will be used to document the collection of samples and data so an individual sample or dataset can be traced back to its point of origin, sampler and type of sampling equipment.

Sampling will be performed according to the methods provided in the RAWP and this QAPP. Field QA/QC samples include blind field duplicate, MS/MSDs, field blanks and trip blanks, and will be collected by the sampling team. These samples will be sent to the laboratory for analysis in conjunction with the environmental samples.

Field sampling precision will be evaluated through the RPD of the matrix spike and blind field duplicate sample analysis results. Control limits for the blind field duplicate precision have been established at ±50% for aqueous samples and ±100% for solid samples. For sample results that are less than or equal to five times the QL, the criterion of ±2 times the QL will be applied to evaluate field precision.

Decontamination of sampling equipment will be verified through the analysis of field blanks.

The presence of matrix interferences will be evaluated by the analysis of spiked MS/MSD samples. The integrity of environmental media submitted for VOC analysis will be evaluated by the analysis of trip blanks that accompany each shipment of environmental samples to the laboratory. The trip blank results will be used to determine if contamination of the samples occurred during shipment and/or storage.

Proper chain-of-custody protocols, as presented in Section 10 of this QAPP, will be followed.

12.6 Data Assessment Procedures

The procedures employed by the laboratory to assess the quality of data generated in the laboratory include, but are not limited to, the following:

- Determination of analytical precision per method.
- Determination of analytical accuracy per method.
- Determination of analytical completeness.
- Determination of MDLs and QLs.

Data quality reviews by analysts, supervisors, managers, laboratory directors and QA personnel contribute to the total process.

Precision and accuracy may be assessed utilizing control charts. Control charts will consist of line graphs that provide a continuous graphic representation of the state of each analytical procedure. The standard deviation of the mean of the QC measurement is calculated and the upper and lower warning limits are set at ±2 standard deviation units. The upper and lower control limits are set at plus or minus three standard deviation units. Acceptable data are realized when results fall between the lower and upper warning limits. If the QC value falls between the control limit and the warning limit, the analysis should be scrutinized as possibly out of control.

In general, the accuracy of the methods will be determined by spiking the sample matrix with the analyte and by analyzing reference materials with known concentrations. The spiking levels will be selected to reflect the concentration range of interest. Percent recoveries of the spikes and reference materials will be calculated and compared to the established limits.

The precision of the methods will be determined by the analysis of matrix spike, laboratory duplicate and field duplicate samples. The precision will be evaluated by calculating the RPD for the duplicates. RPD calculations will be compared to the established limits.

The definitions and equations used for the assessment of data quality are discussed below.

- *Accuracy* – Accuracy is a measure of the nearness of an analytical result, or set of results, to the true value. It is usually expressed in terms of error, bias or percent recovery (%R).

  Normally, the term accuracy is used synonymously with percent recovery. It describes either the recovery of a synthetic standard of known value or the recovery of a known amount of analyte (spike) added to a sample of known value. The %R or accuracy can be calculated by using:

  %R = (observed value / true value) x 100 *(for standards)*

  %R = ((conc. spike + sample conc.) - sample conc. x 100) / conc. spike *(for spikes)*

- *Precision* – Precision refers to the agreement or reproducibility of a set of duplicate results among themselves without the assumption of any prior information as to the true result. It is usually expressed in terms of the percent difference (%D) or RPD. The %D is calculated by using:

  %D = (larger SR - smaller SR x 100) / smaller SR

  where SR = sample result

The RPD is calculated by using:

$RPD = (\Sigma(OSR - DSR) \times 100) / ((OSR + DSR)/2)$

where OSR = original sample result

DSR = duplicate sample result

- *Average* – The average or arithmetic mean (X) of a set of n values (Xi) is calculated by summing the individual values and dividing by n:

$X = (\Sigma\ Xi_{i=1\ ton}) / n$

- *Range* – The range (R_i) is the difference between the highest and lowest value in a group. For n sets of duplicate values (X_2, X_1), the range (R_i) of the duplicates and the average range (R) of the n sets are calculated by the following:

$R_i = X_2 - X_1$

$R = \Sigma\ Ri_{i=1\ to\ n} / n$

- *Standard Deviation and Variation* – The standard deviation (S) of a sample of n results is the most widely used measure to describe the variability of a dataset. It is calculated by using the following equation:

$$S = \sqrt{\frac{\Sigma\,(Xi - \overline{X})^2}{n-1}}\ n_{\ to\ i-1}$$

where X = average of the n results

Xi = value of result

Normally, X ± S will include 68% and X ± 2S will include approximately 95% of normally distributed data.

The variance is equal to S2. The percent relative standard deviation (%RSD) or coefficient of variation (CV) is the standard deviation divided by the mean and multiplied by 100 as follows:

$CV = 100S / X$

The Laboratory Project Manager, with individual laboratory group leaders, will identify any data that should be rated as "unacceptable," based on the assessment of the QA/QC criteria and will notify the Plumley Engineering Project Manager.

13.0 INSTRUMENT/EQUIPMENT TESTING AND MAINTENANCE

Preventative maintenance procedures will be carried out on field equipment by Plumley Engineering personnel in accordance with the procedures outlined in the manufacturers' specifications and/or equipment manuals.

Maintenance activities involving field equipment will be recorded in the field notes. Field equipment will be check by qualified field representatives prior to being used in the field. Problems encountered while operating the instrument will be documented in the field notes. If problem equipment is detected or require service, the equipment will be returned and a qualified technician will perform the maintenance required. Use of the instrument will not be resumed until the problem is resolved.

Each major piece of laboratory instrumentation that will be used on this project has been documented and is on file with the laboratory. An equipment form will be prepared for each new purchase. Old forms will be removed from the instrument area and filed when an instrument is replaced.

The laboratory will be required to maintain an equipment form detailing both preventative maintenance activities and the required QA testing and monitoring. In the event the instrument does not perform within the limits specified on the monitoring form, the Laboratory Project

Manager will be notified and a decision made as to what corrective action is necessary. The corrective action procedure will be documented in the instrument log. If repair is necessary, the instrument will not be used for analyses until repairs are completed and the instrument tested. Repairs made to the instrument will be documented in the instrument logbook. Required QA/QC testing and monitoring will be completed prior to the resumption of sample analysis.

Routine maintenance is performed to keep laboratory instruments running under optimum conditions and reduce instrument malfunction. Specific preventative maintenance programs outlining required maintenance procedures and their application frequencies are incorporated in laboratory SOPs for each methodology.

Minimally, field and laboratory instruments will undergo maintenance on an annual basis and when calibration, blank or QC analyses indicate maintenance is necessary to correct or improve system performance. Maintenance, whether performed by laboratory personnel or manufacturer, is documented as an entry in the appropriate log. Log entries include the reason for maintenance, maintenance performed, date and initials of person in charge during maintenance.

The operating temperatures for refrigerators, coolers, ovens and water baths will be monitored daily by the laboratory. The analyst will record the following information in a bound logbook: equipment identification, temperature reading, date and time of reading, and analyst initials.

14.0 CALIBRATION AND FREQUENCY

14.1 Field Equipment Calibration

Field equipment will be calibrated in such a manner that accuracy and reproducibility of results are consistent with the manufacturer's specifications. Equipment to be used for the field sampling will be examined to confirm that it is in good operating condition. This includes checking the manufacturer's operating manual and the instructions for each instrument to confirm that the maintenance requirements are being observed.

In general, instruments will be calibrated daily prior to use and recalibrated as required. All calibration procedures performed will be documented in the field logbook. Calibration will be performed at the intervals specified by the manufacturer. In the event an internally calibrated field instrument fails to meet calibration procedures, it will be returned to the manufacturer for service.

14.2 Laboratory Equipment Calibration

Proper calibration of laboratory analytical instrumentation is essential for the generation of reliable data that meets the project DQOs. Analytical instrument calibration is monitored through the use of control limits established for individual analytical methods. Calibration procedures to be followed are specified, in detail, in the analytical methods. These procedures specify the type of calibration, calibration materials to be used, range of calibration and frequency of calibration. The calibration requirements listed in the QC requirements and corrective actions in Attachments 2 and 3, which augment the method requirements, are to be followed by the laboratory.

The laboratory will be responsible for proper calibration and maintenance of laboratory analytical equipment. The following subsections present general calibration procedures outlined in the analytical methods. For additional calibration information, refer to Attachments 2 and 3.

14.2.1 GC/MS

Before the GC/MS is calibrated for organics analysis, the mass calibration and resolutions of the instruments are verified by 4-bromofluorobenzene (BFB) for VOCs and by decafluorotriphenylphosphine (DFTPP) for SVOCs. The performance check analysis must meet the criteria referenced in the analytical method and the QAPP. The system must be verified every 12 hours of analysis and when the instrument performance check solution fails to meet criteria. Samples are not analyzed until performance check analysis criteria are met.

For organics analysis, an initial five-point calibration is performed for the target compounds prior to startup and whenever system specifications change or if the continuing calibration acceptance criteria have not been met. The lowest calibration standard establishes the QL concentration. The method criteria, including relative response factors (RRFs) and %RSD of specific compounds, must meet established criteria as specified in the method and the QAPP. If these parameters fail to meet criteria, corrective actions must be implemented and the initial calibration must be repeated.

14.2.2 Inorganics

Instrument calibration for metal analyses is performed daily. A two-point calibration for ICP analyses is performed. Five-point calibrations are performed for cold vapor atomic absorption instruments. For non-ICP analyses, the lowest calibration standard establishes the QL concentration. The calibration curves must have correlation coefficients greater than or equal to 0.995. Calibration verification is monitored by analyzing a calibration verification standard and a calibration blank following calibration, every ten samples and at the end of the analytical sequence. The calibration verification standard recovery must be within appropriate method and QAPP criteria or the instrument must be recalibrated. The calibration blank must not contain target compounds at concentrations greater than the QL or corrective actions are implemented.

To verify inter-element and background corrective factors for ICP analysis, interference check samples (ICSA and ICSAB) must be analyzed at the beginning and end of the analysis sequence or a minimum of twice per 8 hours. The percent recoveries for ICS solutions must be within 80% to 120% or corrective actions must be implemented. In addition, a serial dilution analysis must be performed per sample matrix for ICP analyses. If the analyte concentration is greater than ten times the IDL in the original sample, a serial dilution (5-fold dilution) must agree within 10% of the original determination. Detection limits, inter-element corrective factors and linear ranges must be established at the frequency specified in the method.

14.2.3 Thermometers

Thermometers are calibrated on an annual basis using a certified thermometer with a traceable calibration certificate. General purpose thermometers are calibrated at three temperatures encompassing the entire operating range of the thermometer and labeled with correction factors. Thermometers are calibrated at room temperature, at ice point, at the boiling point or above the boiling point. The maximum allowable deviation from the certified thermometer is 2°C. Any thermometer exceeding this tolerance is to be discarded.

14.3 Standards and Solutions

The use of standard materials of a known purity and quality is necessary for the generation of reproducible data. The laboratory will monitor the use of laboratory materials including solutions, standards and reagents. Reagent solutions used for quantitation purposes must be American Chemical Society (ACS) grade or better. Standards prepared or purchased must be traceable to National Standards of Measurement. Standards should be traceable by lot number to a certificate of analysis on file at the laboratory. Standards and standard solutions are verified prior to use. This verification may be in the form of a certification of analysis from the supplier or by comparison to a standard curve or another standard from a separate source. Standards are routinely checked for signs of deterioration, including unusual volume changes, discoloration, formation of precipitates or changes in analyte response.

Solvent materials are also verified prior to use. Each new lot of solvent is analyzed to verify the absence of interfering constituents. Reagent and method blanks are routinely analyzed to evaluate possible laboratory-based contamination of samples.

14.4 Records

A records book will be kept for standards and will include the following information:

- Material name.
- Control or lot number.

- Purity and/or concentration.
- Supplier/manufacturer.
- Receipt/preparation date.
- Recipient/preparer name.
- Expiration date.

These records will be checked periodically as part of the laboratory's internal laboratory controls review.

14.5 Calibration Records

Calibration data will be kept for each instrument that requires calibration. The data will contain a record of activities associated with QA monitoring and instrument repairs. These records will be checked during periodic equipment review and internal and external QA/QC audits.

15.0 INSPECTION REQUIREMENTS FOR SUPPLIES

The use of standard materials of a known purity and quality is necessary for the generation of reproducible data. The laboratory will monitor the use of laboratory consumable materials including solutions, standards and reagents as described in Section 14.

Solvent materials are also verified prior to use. Each new lot of solvent is analyzed to verify the absence of interfering constituents. Reagent and method blanks are routinely analyzed to evaluate possible laboratory-based contamination of samples.

The sample containers used for this project will be supplied by the laboratory. The containers will be pre-cleaned sample containers purchased from a EPA-certified manufacturer (I-Chem 200 or equivalent container) or are cleaned using EPA protocols.

16.0 DATA ACQUISITION REQUIREMENTS

Non-direct measurement data, in the form of historical data from previous Site investigations, will be utilized as appropriate.

17.0 DATA MANAGEMENT

Definitive data will be generated in the laboratory and screening data will be generated in the field as described in Section 5. The laboratory-generated data will be entered into the laboratory database management system and presented in data packages. The laboratory will perform the data review process described in Section 20.

Data will be managed in a relational database management system (DBMS). Laboratory analytical data will be provided in electronic disk deliverable format for direct upload into the DBMS. Associated field data will be entered into the DBMS by hand. The DBMS will then be used to provide custom queries and reports to support data analysis and report preparation. Final tables containing the validated sample data will be prepared.

Records will be incorporated into the final project files. Field logs, data packages and records will be included in the Plumley Engineering project file that will be archived for a period of 10 years.

18.0 ASSESSMENT AND RESPONSE ACTIONS

18.1 Performance and System Audits

18.1.1 Performance Audits

Field and laboratory performance audits consisting of onsite performance evaluations will be completed at the discretion of the Plumley Engineering Project Manager once during

the field program and once during the laboratory analysis program. The audits will be performed by the QA Officer or designee. These audits will evaluate the adherence of the field and laboratory programs to the QA program outlined in this QAPP. The protocols used to conduct the audits may be found in the following sections. Acceptance criteria used in determining the need for corrective action will be those criteria defined in this QAPP. Where acceptance criteria are not defined for laboratory procedures and analytical methods, the laboratory's SOPs and QAM will be consulted. The results of the field and laboratory audits will be documented and submitted to the Project Manager. These reports and any corrective actions that are implemented as a result of the audits will be documented.

18.1.2 Laboratory Audit Protocol

The laboratory audit will note factors that may affect the quality of the analytical results. Minimum QA/QC criteria specified in this QAPP and the analytical methods must be adhered to. An onsite evaluation will be performed by the QA Officer or designee. The areas of concern of the laboratory audit will include:

- Implementation of a scientifically sound QA/QC program addressing precision, accuracy, reproducibility, comparability, completeness and blank contamination.
- Sufficient documentation and record keeping for technical personnel external to the laboratory to recreate each analytical event.
- Compliance with the project requirements for laboratory analysis.

The specific parameters to be evaluated include:

- Data comparability.
- Calibration and quantitation.
- QC execution.

- Out-of-control events.
- SOPs.
- Sample management.
- Recordkeeping.
- Instrument calibration records.
- Other analytical records.
- QC records.
- Corrective action reports.
- Maintenance logs.
- Data review.
- MDLs and QLs.
- QC limits.
- Analytical methods.

18.1.3 Field Audit Protocol

The purpose of a field audit is to identify whether the systems and procedures described in the QAPP are operational in the field and contributing to the production of accurate and defensible analytical results. An onsite evaluation will be performed by the QA Officer or designee. The areas of concern in a field audit include:

- Sampling procedures.
- Decontamination of sampling equipment, if applicable.
- Chain-of-custody procedures.

- SOPs.
- Proper documentation of field methods.

18.2 System Audits

Routine laboratory and field performance will be monitored through the analysis of field equipment and laboratory blanks, spiked samples, laboratory control samples, laboratory and field duplicates, and performance evaluation samples. The Laboratory Project Manager, in conjunction with the Plumley Engineering QA Officer and Project Manager, will formulate corrective actions in the event that QC limits are exceeded. The results of the system audits will be documented.

18.3 Corrective Actions

Corrective action procedures will be implemented based on unacceptable audit results or on detection of unacceptable data during data review performed by the laboratory and the Plumley Engineering Project Manager.

Two types of audits will be performed. The data generation process will be audited by assessing adherence to control limits and by performing an onsite laboratory audit if requested by the Plumley Engineering Project Manager. The field program will be audited through the analysis of field QC samples and by performing an onsite field audit if requested by the Project Manager. If required, corrective action procedures will be developed on a case-by-case basis. The enacted corrective actions will be documented in the appropriate notebook, log or case file. Field and laboratory personnel are encouraged to discuss specific issues and proposed corrective actions with the QA Officer.

The Field Leader will be responsible for field QA. Issues encountered during field sampling will be documented in the field logbook and immediate corrective action will be taken. For problems or situations that cannot be solved through immediate corrective action, the Field Leader will immediately notify the Project Manager who will investigate the situation and determine who will

be responsible for implementing the corrective action. Corrective action will be implemented upon approval by the Project Manager. The Project Manager will verify that the corrective action has been taken, appears effective and at a later date, verify the problem has been resolved. The successfully implemented corrective action will be documented in the field logbook by the Field Leader. Deviations from the QA protocol in this QAPP must be justified, approved by the Project Manager and properly documented.

The corrective actions that will be taken by the laboratory were described previously in Section 12.3 of this QAPP.

19.0 QA REPORTS TO MANAGEMENT

Plumley Engineering will prepare a letter report documenting the field activities and analytical results following completion of the annual sampling. Conclusions and recommendations will be based on evaluation and interpretation of data. The annual report will present a discussion of whether any additional engineering and/or institutional controls are appropriate and necessary.

20.0 DATA REVIEW AND MANAGEMENT

20.1 Deliverables

Valid procedures must be used to prepare the data for it to be scientifically valid, legally defensible and comparable. The data results will be reported to Plumley Engineering in CLP-like deliverables format. The laboratory will be responsible for providing the correct type of data package to Plumley Engineering. The laboratory will also provide the complete data packages in electronic format.

20.2 Data Production, Handling and Reporting

20.2.1 Underlying Documents

Specific laboratory procedures and instrumentation can be found in the SOPs and QAM for the laboratory. The data production and reporting procedures described below will be employed at the laboratory.

20.2.2 Data Reduction

Data reduction consists of manual and computer data reduction procedures and calculations. Computer data reduction procedures and calculations will be checked manually by the laboratory to verify that compound identification and quantitation adhere to method requirements. The laboratory will be responsible for maintaining a listing of computer-based data reduction programs and SOPs for data reduction. Sample preparation or extraction logs will be used to document sample preparation information (preparation weights, volumes, reagents). Instrument injection logs or bench sheets will also be maintained for each instrument.

Qualitative identification and quantitation of organic and inorganic analytes will be performed by experienced analysts in accordance with analytical method requirements.

20.2.3 Laboratory Data Review

Analytical results are generally entered into the laboratory computer system by the analyst, independently reviewed by another analyst or supervisor experienced in the method, and approved by the Laboratory Project Manager. The following are requirements that are generally examined as part of this review:

- Initial calibration criteria were met. Standards in the calibration curve covered the expected concentration ranges of the samples, including the QL.

- Initial and continuing calibrations met the acceptance criteria defined in the method standard procedure.

- Sample results fell within the range of the standard curve.

- For GC/MS methods requiring internal standards, retention times and area responses were evaluated against limits established by the daily calibration.

- Method blanks were processed with each analytical batch and no detectable levels of contamination were identified.

- MS/MSDs were performed at the required frequency and recoveries were within acceptable control limits.

- Duplicate analyses were performed at the required frequency and results were within the control limits.

- LCS analyses were performed with each analytical batch and the results obtained were within control limits.

- For organic compound analyses, surrogate spike recoveries were within control limits.

- Compounds identified by GC/MS were manually rechecked by comparison with the data system library for both target compounds and tentatively identified compounds. Retention times and ratios of fragmentation were verified.

- Calculations have been accurately performed.

- Reporting units are correct.

- Data for the analysis provide a complete audit trail.

- QLs comply with data quality requirements.

The analyst's supervisor will check a minimum of 10% of the data back to raw data in the secondary review. A data package will be generated when required analyses on the samples in a project are complete, entered and reviewed. The data package will be forwarded to the assigned Laboratory Project Supervisor or designee for review for the following items (at a minimum):

- QC data to assess whether or not internal specification and contract requirements have been met.

- Non-conformance reports, if any, for completion of corrective actions and their impact of results. QC requirements and corrective actions listed in Attachments 2 and 3 of this QAPP will be referenced in the laboratory review process. Non-compliance and corrective action procedures will be documented in the case narrative.

The data package requires the signature of the Laboratory Project Supervisor or designee. Electronic data are copied onto computer tape, inventoried and stored offsite in a secure facility or onsite within locked cabinets. This data archive system is maintained for a minimum of five years.

Following final review, two copies of the data package will be transmitted to Plumley Engineering.

The full deliverable data packages will document sample preparation, extraction and analysis, and include raw data and logs associated with the analyses.

All data deliverables from the laboratory must be paginated in ascending order. The data packages will be provided within four weeks of receipt of the last sample for each sampling event.

20.2.4 Data Management

Data will be managed in a relational DBMS. Laboratory analytical data will be provided in electronic format for direct upload into the DBMS. Associated field data will be entered into the DBMS by hand. The DBMS will then be used to provide custom queries and reports to support data analysis and report preparation.

21.0 RECONCILIATION WITH USER REQUIREMENTS

Sample results from this monitoring will be reviewed by the Plumley Engineering Project Manager. Data will be compared to the project screening criteria. Data usability with respect to the DQOs and data uses will be compared to the project requirements. The parameters that will be used to assess the precision, accuracy, representativeness, comparability and completeness are presented in Section 5 of this QAPP. In the event that the completeness objective of 95% is not achieved due to major QC deviations in the sample analysis process, samples will be recollected at the discretion of the Project Manager.

ATTACHMENT 1

FIELD SAMPLING
SUMMARY OF ANALYSES

ATTACHMENT 1
FIELD SAMPLING SUMMARY OF ANALYSES

Parameter	Matrix	Sample Containers and Volumes	Preservation	Holding Time	Number of Investigative Samples	QC Sample Frequency			
						Field Duplicate	Trip Blank	MS/MSDS and Spike Duplicate**	Field Blank***
VOCs (USEPA Methods 5030B/8000C/8260B)*	Soil	One 4-oz. glass container with Teflon® lined screw caps	4°C Minimize headspace	Analysis within 14 days	TBD	One per 20 samples or one per matrix (for less than 20 samples)	1 each in cooler with VOC samples	One per 20 samples or one per matrix (for less than 20 samples)	One per 10 samples or one per day as required
SVOCs (USEPA Method 3510C/3520C/8000C/8270C)*	Soil	One 8 oz. glass container with Teflon® lined screw caps	4°C	7 days from collection to extraction; 40 days from extraction to analysis	TBD	One per 20 samples or one per matrix (for less than 20 samples)	NA	One per 20 samples or one per matrix (for less than 20 samples)	NA
TAL Metals (except Mercury)	Soil	One 8 oz. glass container with Teflon® lined screw caps	4°C	6 months	TBD	One per 20 samples or one per matrix (for less than 20 samples)	NA	One per 20 samples or one per matrix (for less than 20 samples)	NA
Mercury	Soil	One 8 oz. glass container with Teflon® lined screw caps	4°C	28 days	TBD	One per 20 samples or one per matrix (for less than 20 samples)	NA	One per 20 samples or one per matrix (for less than 20 samples)	NA

NOTES:

* Indicates that USEPA Method 5030A, involving utilizing bulk sample vials for preparation, will not be performed for solid samples submitted for VOC analysis.

** MS/MSD indicates matrix spike/matrix spike duplicate sample for organic analyses. Spike duplicate is performed for inorganic analyses.

*** Field blank is required at a frequency of one per 10 samples or one per day if less than 10 samples are collected for each matrix type. Field blank is not required if disposable equipment is used.

FC indicates that if free chlorine is present in samples, it must be removed by the appropriate addition of $Na_2S_2O_3$ or ascorbic acid.

VOCs indicates volatile organic compounds.

SVOCs indicates semi-volatile organic compounds.

United States Environmental Protection Agency (USEPA). 2004. *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846,* 3rd Edition, Update IIIB. Washington D.C.

TBD indicates the number of environmental samples to be determined at a later date.

ATTACHMENT 2

VOLATILE ORGANIC COMPOUNDS USING EPA METHOD 8260 QUALITY CONTROL REQUIREMENTS AND CORRECTIVE ACTIONS

ATTACHMENT 2

VOLATILE ORGANIC COMPOUNDS USING EPA METHOD 8260
QUALITY CONTROL REQUIREMENTS AND CORRECTIVE ACTIONS

Audit	Frequency	Control Limits	Corrective Action
Holding times	Samples must be analyzed within holding time.	Analyze within 14 days from collection for preserved aqueous and solids. Analyze within 7 days from collection for unpreserved aqueous.	1. If holding times are exceeded for initial or any re-analyses required due to QC excursions. 2. Notify QA Officer since re-sampling may be required. 3. Document corrective action in the case narrative.
Solid sample collection	Samples must be prepared using USEPA Method 5035	NA	NA
GC/MS Instrument Performance Check	Once every 12 hours prior to initial calibration and calibration verifications. Analytical sequence must be completed within 12 hours of the GC/MS Instrument Performance Check	1. Bromofluorobenzene (BFB) key ions and abundance criteria listed in the method must be met for all 9 ions and analyses must be performed within 12 hours of injection of the BFB. 2. Part of the BFB peak will not be background subtracted to meet tune criteria. 3. Documentation of all BFB analyses and evaluation must be included in the data packages.	1. Tune the mass spectrometer. 2. Document corrective action in the case narrative. 3. Samples cannot be analyzed until control limit criteria have been met.
Initial Calibration	Prior to sample analysis and when calibration verifications criteria are not met. Initial calibration will contain all target analytes in each standard. Quantitation of analyses will utilize the initial calibration results.	1. Five concentrations bracketing expected concentration range for all compounds of interest. 2. One second-source standard must be analyzed immediately following the initial calibration at the mid-calibration concentration. This standard must be within 30% recovery or within laboratory control limits. It is also recommended that a separate standard at the MDL level be analyzed after calibration is complete to check sensitivity. 3. Response factor (RF) as listed in Method 8260B, with remaining RFs factor $\geq$ 0.050 except for ketones with allowable response factor $\geq$ 0.010. 4. For compound with %RSD >15, quantitation must be performed using a separate calibration curve and the Coefficient of Determination (COD) must be $\geq$ 0.990.	1. Identify and correct problem. 2. If criteria are still not met, recalibrate. 3. Document corrective action in the case narrative. 4. Samples should not be analyzed until calibration control limit criteria are met. 5. Contact QA Officer to discuss problem target analytes before proceeding with analysis.
Calibration Verification	Every 12 hours, following BFB. Calibration verification will contain all target analytes in each standard at a concentration that is representative of the midpoint of the initial calibration.	1. Within percent drift or percent difference (%D) of $\leq$ 20 for all compounds. RF requirements are the same as listed in the initial calibration. 2. The internal standards areas and retention times must meet the method criteria.	1. Reanalyze. 2. If criteria are still not met, identify and correct problem, recalibrate. 3. Document corrective action in the case narrative; samples should not be analyzed until calibration control limit criteria are met.
Preparation Blank Analysis	Every 12 hours, following calibration verification	Methylene chloride less than 3 times QL, 2-butanone and acetone less than 5 times QL. Remaining analytes less than QL. QLs and MDLs will be provided along with the preparation blank results.	1. Reanalyze blank. 2. If limits are still exceeded, clean instrument, recalibrate analytical system, and reanalyze all samples if detected for same compounds as in blank. 3. Document corrective action in the case narrative - samples cannot be analyzed until blank criteria have been met.
Field/Equipment Blank Analysis	Collected one per sampling event, or one per 20 samples or one per matrix (for less than 20 samples)	Methylene chloride less than 3 times QL, 2-butanone and acetone less than 5 times QL. Remaining analytes less than QL. QLs and MDLs will be provided along with the preparation blank results.	1. Investigate problem. 2. Document in the case narrative.
Trip Blank	1 per cooler containing VOC samples.	Methylene chloride less than 3 times QL, 2-butanone and acetone less than 5 times QL. Remaining analytes less than QL. QLs and MDLs will be provided along with the preparation blank results.	1. Investigate problem. 2. Document in the case narrative.
Laboratory Control Sample Analysis	Each analytical batch (every 12 hours). Prepared independently from calibration standards. Spike must contain all target analytes and should be at a concentration, which is in the lower 1/2 of the calibration curve.	Recovery within laboratory control limits. For compounds without established laboratory control limits, 70-130% recovery will be used. The lowest acceptable control limits for recovery will be 10%.	1. If recovery failures are above control limits and these compounds are not detected in the associated samples, corrective action is not required. 2. If recovery failures are below control limits, reanalyze LCS and examine results of other QC analyses. 3. If other QC criteria have not been met, stop analysis, locate and correct problem, recalibrate instrument and reanalyze samples since last satisfactory LCS. 4. Document corrective action in the case narrative.
Internal Standards	All samples and blanks (including MS/MSD)	1. Response -50% - +200% of internal standards from continuing calibration of the day. 2. RT must be ± 30 sec. from associated calibration verification standard of that sequence.	1. Reanalyze. 2. If still outside of the limits, report both analyses. 3. Document corrective action in the case narrative.
Surrogate Spike	All samples and blanks (including MS/MSD)	Recovery within laboratory control limits. The lowest acceptable control limits for recovery will be 10%.	1. Reanalyze any environmental or QC sample with surrogates that exceed control limits. 2. If still outside of the limits, report both analyses. 3. Document corrective action in the case narrative.

Audit	Frequency	Control Limits	Corrective Action
Matrix Spike/ Matrix Spike Dup. (MS/MSD) Analysis	Collected one per 20 samples or one per matrix (for less than 20 samples) Samples from the investigation must be used for MS/MSD analysis. Spike must contain complete list of target analytes.	Recovery and RPD within laboratory control limits. For compounds without established laboratory control limits, 70-130% recovery will be used. The lowest acceptable control limits for recovery will be 10%.	1. Reanalyze if <10%. 2. If reanalysis is still <10%, report both analyses and document in the case narrative. 3. If >10% and LCS criteria are met, document in case narrative; no additional corrective action required. 4. If LCS criteria are exceeded also, examine other QC data for source of problem; *i.e.,* surrogate recoveries for extraction efficiency and calibration data for instrument performance issues. 5. Reanalyze samples and associated MS/MSD and LCSs as required. 6. Document corrective action in the case narrative
Field Dup. Analysis	Collected one per 20 samples or one per matrix (for less than 20 samples) Field duplicate will not be identified to the laboratory.	Validation criteria: 50% RPD for waters, 100% RPD for solids. For sample results that are less than or equal to five times the QL, the criterion of plus or minus two times the QL will be applied to evaluate field duplicates.	No corrective action required of the laboratory since the laboratory will not know the identity of the field duplicate samples. If these criteria are not met, sample results will be evaluated on a case-by-case basis.
Target Analyte Identification	As required for identification of target analytes	1. The intensities of the characteristic ions of a compound maximize in the same scan or within one scan of each other. Selection of a peak by a data system target compound search routine where the search is based on the presence of a target chromatographic peak containing ions specific for the target compound at a compound-specific retention time will be accepted as meeting this criterion. 2. The relative retention time (RRT) of the sample component is within ± 0.06 RRT units of the RRT of the standard component. 3. The relative intensities of the characteristic ions agree within 30% of the relative intensities of these ions in the reference spectrum. (Example: For an ion with an abundance of 50% in the reference spectrum, the corresponding abundance in a sample spectrum can range between 20% and 80%.) 4. Structural isomers that produce very similar mass spectra should be identified as individual isomers if they have sufficiently different GC retention times 5. Identification is hampered when sample components are not resolved chromatographically and produce mass spectra containing ions contributed by more than one analyte. When gas chromatographic peaks obviously represent more than one sample component (i.e., a broadened peak with shoulder(s) or a valley between two or more maxima), appropriate selection of analyte spectra and background spectra is important.	Not applicable
Target Analyte Identification	As required for identification of target analytes	Examination of extracted ion current profiles of appropriate ions can aid in the selection of spectra, and in qualitative identification of compounds. When analytes co-elute (i.e., only one chromatographic peak is apparent), the identification criteria may be met, but each analyte spectrum will contain extraneous ions contributed by the coeluting compound.	Not applicable
Target Analyte Quantitation	Apply USEPA Method 8000C for medium level extraction technique	Moisture correction in accordance with USEPA Method 8000C will be applied to the complete set of solid samples, regardless of the percent moisture content..	Not applicable
Tentatively Identified Compound	If required, perform for each sample and blank analysis. Non-target compounds will be reported using a Mass Spectral Library search.	Not applicable	Not applicable
Dilutions	1. When target analyte concentration exceeds upper limit of calibration curve. 2. When matrix interference is demonstrated by the lab and documented in the case narrative (highly viscous samples or a large number of nontarget peaks on the chromatogram). 3. It is recommended that a reagent blank be analyzed if an analyte saturates the detector or if highly concentrated analytes are detected. Otherwise data impacted from carryover cannot be used. 4. Laboratory will note in the data deliverables which analytical runs were reported.	1. The reagent blank will meet the method blank criteria.	1. Reanalyze reagent blank until method blank criteria are met. 2. Document corrective action in the case narrative.
Percent solids	For soil samples, the percent solids will be determined and sample results will be corrected for percent solids.	Not applicable	Not applicable
pH Determination	Once sample aliquot is taken from the VOC vial, the pH of water samples must be determined.	Record pH and report in the case narrative.	Not applicable
Sample Batching	The laboratory will batch project samples together along with QC samples specified from the project. Non-project information will not be included in the data packages.	Not applicable	Not applicable

Audit	Frequency	Control Limits	Corrective Action
Laboratory control limits	Generated with results for an analyte from a minimum of 20 sample analyses. The average of the sample results and the standard deviation are calculated. The internal warning limits are established at 2 times the standard deviation and the control limits are established at 3 times the standard deviation. The control limits are updated annually.	Not applicable	Not applicable
Deliverables	1. CLP-like deliverables must be provided to document each audit item for easy reference and inspection. 2. An example calculation will be provided for each analysis, for each type of matrix in the data package using samples from the project. 3. Any laboratory abbreviations or notations presented in the raw data or summary information will be explained or referenced in the case narrative. 4. Final spiking concentrations will be presented in summary form. 5. Standard tracing information will be provided. 6. Cooler temperatures and any observations of bubbles in sample containers will be provided in the data packages. 7. Run logs will be provided in the data packages.	Not applicable	Provide missing or additional deliverables for validation purposes.
Method and QAPP requirements	The laboratory will perform the method as presented in this QAPP and will adhere to the QAPP requirements presented herein. Otherwise the laboratory will specifically note any procedures that differ from the method or the QAPP in the data package case narrative.	Not applicable	Not applicable

Notes:

Data validation will be performed in accordance with QA/QC criteria established in these tables and the analytical methods. Excursions from QA/QC criteria will be qualified based on guidance provided in this QAPP.

Communications with Plumley Engineering will be documented and included in the data packages.

ATTACHMENT 3

SEMI-VOLATILE ORGANIC COMPOUNDS USING EPA METHOD 8270 QUALITY CONTROL REQUIREMENTS AND CORRECTIVE ACTIONS

ATTACHMENT 3

SEMI-VOLATILE ORGANIC COMPOUNDS USING EPA METHOD 8270
QUALITY CONTROL REQUIREMENTS AND CORRECTIVE ACTIONS

Audit	Frequency	Control Limits	Corrective Action
Holding Times	Samples must be extracted and analyzed within holding time.	Extract within 7 days from collection for aqueous samples; 14 days for soil samples. Analyze extracts within 40 days of extraction.	If holding times are exceeded for initial or any re-analyses required due to QC excursions, notify the QA Officer since re-sampling may be required.
GC/MS Instrument Performance Check	Once every 12 hours prior to initial calibration and calibration verification. Must contain 50ng/uL of 4,4-DDT, pentachlorophenol, and benzidine. Analytical sequence must be completed within 12 hours of the GC/MS Instrument Performance Check	1. Decafluorotriphenylphosphine (DFTPP) key ions and abundance criteria listed in the method must be met for all 13 ions and analyses must be performed within 12 hours of injection of the DFTPP. 2. Part of the DFTPP peak will not be background subtracted to meet tune criteria. 3. Documentation of all DFTPP analyses and evaluations must be included in the data packages. 4. Degradation of 4,4-DDT <20%. Peak tailing must not be evident.	1. Tune the mass spectrometer. 2. Document corrective action in the case narrative - samples cannot be analyzed until control limit criteria have been met.
Initial Calibration	Prior to sample analysis and when calibration verification criteria are not met. Initial calibration will contain all target analytes in each standard. Quantitation of analyses will utilize the initial calibration results.	1. Five concentrations bracketing expected concentration range for all compounds of interest. 2. One second-source standard must be analyzed immediately following the initial calibration at the mid-calibration concentration. This standard must be within 30% recovery or within laboratory control limits. It is also recommended that a separate standard at the MDL level be analyzed after calibration is complete to check sensitivity. 3. Response factors must meet criteria listed in Method 8270C with the remaining RFs 0.05 with allowable response factor for n-nitroso-di-n-propylamine and 2,4-dimethylphenol of 0.01. 4. For compounds with %RSD >15, quantification must be performed using a separate calibration curve and the COD must be ≥ 0.990.	1. Identify and correct problem. 2. If criteria are still not met, recalibrate. 3. Document corrective action in the case narrative - samples should not be analyzed until calibration control limit criteria are met.
Calibration Verification	Every 12 hours, following DFTPP. Calibration verification will contain all target analytes in each standard at a concentration that is representative of the midpoint of the initial calibration.	1. Within method specified criteria, percent drift or percent difference (%D) ≤ 20 for all compounds. Response factor requirements as listed in initial calibration. 2. The internal standards areas and retention times must meet the method criteria.	1. Reanalyze. 2. If criteria are still not met, identify and correct problem, recalibrate. 3. Document corrective action in the case narrative - samples should not be analyzed until calibration control limit criteria are met.
Preparation Blank Analysis	Prepared with each extraction batch of no more than 20 analytical samples.	1. Common laboratory contaminants (phthalate) less than 5 x QL. Remaining analytes less than QL. 2. QLs and MDLS will be provided along with the preparation blank results.	1. Reanalyze blank. 2. If limits are still exceeded, clean instrument, recalibrate analytical system and re-extract and reanalyze all samples if detected for same compounds as in the blank. 3. Document corrective action in the case narrative - samples should not be analyzed until blank criteria have been met.
Field/ Equipment Blank Analysis	Collected one per sampling event, or one per 20 samples or one per matrix (for less than 20 samples)	1. Common laboratory contaminants (phthalate) less than 5 x QL. Remaining analytes less than QL. 2. QLs and MDLS will be provided along with the blank results.	1. Investigate problem. 2. Document in the case narrative.
Laboratory Control Sample Analysis	Prepared with each extraction batch, of no more than 20 analytical samples. Prepared independently from calibration standards. Spike must contain all target compounds and should be at a concentration that is approximately in the lower 1/2 of the calibration curve.	Recovery within laboratory control limits. For compounds without established laboratory control limits, 70 to 130% recovery will be used. The lowest acceptable control limits for recovery will be 10%.	1. If recovery failures are above control limits and these compounds are not detected in the associated samples, no corrective action is required. 2. If recovery failures are below the control limits, reanalyze LCS and examine results of other QC analyses. 3. If other QC criteria have not been met, stop analysis, locate and correct problem, recalibrate instrument and reanalyze samples since last satisfactory LCS. 4. Document corrective action in the case narrative.
Internal Standards	All samples and blanks (including MS/MSD).	1. Response -50% - +200% of the internal standards from the continuing cal of the day. 2. RT must be ± 30 sec. from calibration verification of that sequence.	1. Reanalyze. 2. If recovery is still outside criteria, report both analyses. 3. Document corrective action in the case narrative.

Audit	Frequency	Control Limits	Corrective Action
Surrogate Spike	All samples and blanks (including MS/MSD).	Recovery within laboratory control limits. The lowest acceptable control limits for recovery will be 10%.	1. Reanalyze if more than 1 AE or 1 BN fails, or if any one surrogate recovery is < 10%. 2. If recovery meets criteria, report both analyses. 3. If re-analysis recovery fails and if the recovery is <10%, re-extract sample if within holding time and re-analyze. 4. If re-analysis recovery fails and if the recovery is >10%, report both analyses. 5. Document corrective action in the case narrative.
Matrix Spike/ Matrix Spike Dup. (MS/MSD) Analysis	Collected one per 20 samples or one per matrix (for less than 20 samples) Samples from the investigation must be used for MS/MSD analysis. Spike must contain complete list of target analytes.	Recovery and RPD within laboratory control limits. For compounds without established laboratory control limits, 70-130% recovery will be used. The lowest acceptable control limits for recovery will be 10%.	1. Reanalyze if <10%. 2. If reanalysis is < 10%, report both analyses and document in the case narrative. 3. If reanalysis is >10%, and LCS criteria are met, document in the case narrative. 4. If LCS criteria are exceeded also, examine other QC data for source of problem; i.e. surrogate recoveries for extraction efficiency and calibration data for instrument performance issues; re-extract or reanalyze samples and associated MS/MSD and LCSs as required.
Field Dup. Analysis	Collected one per 20 samples or one per matrix (for less than 20 samples) Field duplicate will not be identified to the laboratory.	Validation criteria: 50% RPD for waters, 100% RPD for solids. For sample results that are less than or equal to five times the QL, the criterion of plus or minus two times the QL will be applied to evaluate field duplicates.	No corrective action required of the laboratory since the laboratory will not know the identity of the field duplicate samples. If these criteria are not met, sample results will be evaluated on a case-by-case basis.
Target Analyte Identification	As required for identification of target analytes	1. The intensities of the characteristic ions of a compound maximize in the same scan or within one scan of each other. Selection of a peak by a data system target compound search routine where the search is based on the presence of a target chromatographic peak containing ions specific for the target compound at a compound-specific retention time will be accepted as meeting this criterion. 2. The relative retention time (RRT) of the sample component is within ± 0.06 RRT units of the RRT of the standard component. 3. The relative intensities of the characteristic ions agree within 30% of the relative intensities of these ions in the reference spectrum. (Example: For an ion with an abundance of 50% in the reference spectrum, the corresponding abundance in a sample spectrum can range between 20% and 80%.) 4. Structural isomers that produce very similar mass spectra should be identified as individual isomers if they have sufficiently different GC retention times. 5. Identification is hampered when sample components are not resolved chromatographically and produce mass spectra containing ions contributed by more than one analyte. When gas chromatographic peaks obviously represent more than one sample component (i.e., a broadened peak with shoulder(s) or a valley between two or more maxima), appropriate selection of analyte spectra and background spectra is important. 6. Examination of extracted ion current profiles of appropriate ions can aid in the selection of spectra, and in qualitative identification of compounds. When analytes coelute (i.e., only one chromatographic peak is apparent), the identification criteria may be met, but each analyte spectrum will contain extraneous ions contributed by the coeluting compound.	Not applicable
Cleanup	Gel permeation chromatography should be performed for water should extracts with high molecular weight contaminants.	Calibrate according to method. Criteria must be met as listed in method for calibration and blank analysis.	Clean GPC column or replace.
Tentatively Identified Compounds	If required, for each sample and blank analysis. Non-target compounds will be reported using a Mass Spectral Library search.	Not applicable	Not applicable
Sample Batching	The laboratory will batch project samples together along with QC samples specified from the project. Non-project information will not be included in the data packages.	Not applicable	Not applicable
Percent solids	For soil/ samples, the percent solids will be determined and sample results will be corrected for percent solids.	Not applicable	Not applicable

Audit	Frequency	Control Limits	Corrective Action
Dilutions	1. When target analyte concentration exceed upper limit of calibration curve. 2. When matrix interference demonstrated by lab and documented in the case narrative (highly viscous samples or a large number of non-target peaks on the chromatogram). 3. Samples should be cleaned up during sample preparation/extraction procedure using appropriate methods when matrix interference is present. 4. Laboratory will note in the data deliverables which analytical runs were reported.	Not applicable	Not applicable
Laboratory control limits	1. Generated with results for an analyte from a minimum of 20 sample analyses. The average of the sample results and the standard deviation are calculated. The internal warning limits are established at 2 times the standard deviation and the control limits are established at 3 times the standard deviation. The control limits are updated annually.	Not applicable	Not applicable
Deliverables	1. CLP-like deliverables must be provided to document each audit item for easy reference and inspection. 2. An example calculation will be provided for each analysis, for each type of matrix in the data package using samples from the project. 3. Any laboratory abbreviations or notations presented in the raw data or summary information will be explained or referenced in the case narrative. 4. Final spiking concentrations will be presented in summary form. 5. Standard tracing information will be provided. 6. Cooler temperatures will be provided in the data packages. 7. Run logs will be provided in the data packages.	Not applicable	Provide missing or additional deliverables for validation purposes.
Method and QAPP requirements	The laboratory will perform the method as presented in this QAPP and will adhere to the QAPP requirements presented herein. Otherwise the laboratory will specifically note any procedures that differ from the method or the QAPP in the data package case narrative.	Not applicable	Not applicable

Notes:

Data validation will be performed in accordance with QA/QC criteria established in these tables and the analytical methods. Excursions from QA/QC criteria will be qualified based on guidance provided in this QAPP.

Communications with Plumley Engineering will be documented and included in the data packages.

APPENDIX H

HEALTH AND SAFETY PLAN

HEALTH AND SAFETY PLAN

for

REMEDIAL ACTIVITIES

at the

FORMER GENEVA FOUNDRY SITE
Jackson Street
City of Geneva, Ontario County, New York
BCP Site No. C835027

Prepared for:

CITY OF GENEVA
47 Castle Street
Geneva, New York 14456

Prepared by:

PLUMLEY ENGINEERING

8232 Loop Road
Baldwinsville, New York 13027
(315) 638-8587
Project No. 2015003

November 2016
Updated May 2017

TABLE OF CONTENTS

1.0 PURPOSE AND APPLICABILITY

This Health and Safety Plan (HASP) outlines precautions and protective measures that employees and subcontractors ("Workers") of Plumley Engineering must take to minimize the risk to health and safety while performing remedial activities at Operable Units 01 and 02 of the former Geneva Foundry site, located on Jackson Street in the City of Geneva, Ontario County, New York. The site consists of two parcels that were investigated under the Environmental Restoration Program (ERP), prior to being accepted into the Brownfield Cleanup Program (BCP). A Remedial Action Work Plan (RAWP) presenting the proposed actions to address remaining contamination on the site will be submitted to the New York State Department of Environmental Conservation (DEC). Each worker shall review the HASP prior to working on the site. If activities require parties other than the engineer or its subcontractors to be at the site, these parties are solely responsible for maintaining compliance with all applicable regulations and for their own health and safety procedures. All on-site workers must have received the appropriate level of training for their specific duties in accordance with Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120 (e).

2.0 SITE DESCRIPTION

The site is located in a mixed residential-commercial area in the City of Geneva, New York and consists of two parcels, one south of Jackson Street and one north of Jackson Street. The buildings that formerly occupied the site were demolished and both parcels are now vacant properties. Refer to Figure 1 for additional information.

DEC issued a Record of Decision (ROD) in January 2017, and the RAWP being developed will be consistent with the contents of the ROD.

3.0 SCOPE OF WORK

The following tasks are proposed to remediate the site:

- The ROD notes four areas to be excavated and removed for appropriate off-site disposal, with estimated depths of two feet. Existing concrete slabs remaining from the former buildings will be removed prior to excavating the designated areas.

- Waste characterization samples will be collected from the areas to be remediated, analyzed and submitted for approval to the Ontario County Landfill. Excavated soil will be loaded directly onto trucks following approval for disposal, covered and transported by a Part 364-permitted hauler to the landfill. Excavations will be carefully screened throughout the excavation process for indications of potential releases. Screening will consist of visual and olfactory monitoring, and use of a photoionization detection (PID) meter and a Field X-ray Fluorescence (XRF) instrument.

- If further impacted soils are not suspected, confirmation samples will be collected in accordance with DEC requirements and submitted to an ELAP-certified environmental laboratory for analysis of Target Compound List (TCL) semi-volatile organic compounds (SVOCs) plus Tentatively Identified Compounds (TICs) using EPA Method 8270 and Target Analyte List (TAL) metals for confirmation purposes.

- Stakes and plastic fencing will be placed around the excavations prior to leaving the site.

- If the results of the confirmation samples meet the soil cleanup objectives for restricted residential use, the excavations will be backfilled with clean fill that meets the requirements of Appendix 5 of DER-10.

- The removal tasks will be documented in a Site Management Plan and a Final Engineering Report.

These field activities are anticipated to take place during the 2017 calendar year.

4.0 HEALTH AND SAFETY PERSONNEL

The following personnel are responsible for the development, implementation and maintenance of this HASP:

Project Manager.....David K. Meixell, P.E.

Site Safety Officer.....David K. Meixell, P.E.

Although responsibility for implementing this HASP is with the Site Safety Officer, the primary responsibility for health and safety lies with the individual workers. Each worker must be familiar with and conform to the safety procedures outlined in this HASP. The Site Safety Officer is responsible for all decisions regarding health and safety policies, procedures and protective measures. It is the responsibility of the Site Safety Officer to provide the resources required to allow the work to be conducted in conformance with this HASP.

The Site Safety Officer will also be responsible for:

- Maintaining a complete copy of the HASP at the site during all field activities.
- Assuring that all workers at the site are familiar with the procedures outlined in the HASP.
- Assuring that all workers have undergone the required OSHA training program.
- Assuring that workers have, and properly use and maintain, all specified personal protective and other health and safety equipment.
- Assuring that proper decontamination procedures are followed.
- Initiating immediate response actions, if necessary, and coordinating these actions with all workers at the site, any other individuals at the site, any involved agencies or medical facilities.

- Recommending improvements to this HASP, if needed.

The Site Safety Officer has the authority to:

- Direct any worker to alter or suspend any work practice they deem is not sufficient to protect human health.

- Deny access to the site to any individual or organization who does not have a complete copy of the HASP and/or the appropriate training and personal protective equipment (PPE) for the potential health and safety hazards at the site.

The presence or absence of the Site Safety Officer shall in no way relieve any individual or organization of their obligation to comply with the HASP or any applicable Federal, State and local laws and regulations.

5.0 GENERAL INFORMATION

Plan Prepared By / Date: Plumley Engineering / May 2017

Proposed Date(s) of Work: Initial activities will be in 2017. Follow-up activities may occur at various times throughout 2017.

Background Review: Preliminary ___ Complete X

A review of prior site investigation and environmental site assessment reports has been completed sufficiently to support the preparation of the site HASP. As more detailed information is obtained or if new information is obtained that requires a modification to the HASP, an addendum will be issued.

6.0 SITE CONTAMINANT CHARACTERISTICS

Definition of Site Contaminants of Concern

The site formerly operated as a foundry for over 100 years. The main foundry building was located on the southern parcel with an associated building located on the northern parcel. Contaminants of concern (COCs) identified in the site soils include:

- Metals, including chromium, lead and mercury.

- SVOCs, including benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene.

Potential Hazardous Material(s)

The areas identified for remediation contain the COCs. A representative of Plumley Engineering will monitor the progress of the excavations for visual or olfactory evidence of contamination, and will screen the excavation with a PID meter and an XRF instrument.

7.0 HAZARD EVALUATION AND REDUCTION

Although less volatile than the volatile organic compounds (VOCs), SVOCs may also be present in the breathing zone.

Chemical constituents could occur in soils at the site, and thus pose a potential dermal exposure risk that can result from handling site soil or equipment that has come into contact with impacted soil.

The current OSHA permissible exposure limits (PEL) standards are provided in Table 1. Workers are not expected to be exposed to conditions exceeding the PEL.

Based on the nature of the contaminant and the type of work being performed, the most significant hazards at this site are:

- Potential direct contact with VOCs and SVOCs during excavation activities. The PPE requirements for the project are designed to eliminate this risk to the extent practical.

- Physical hazards related to operating and working with excavation equipment. All equipment operators and inspectors shall be familiar with the associated physical hazards and shall have had at least five years of related experience. Environmental contractors shall provide copies of their current HASP to the project engineer for review. The PPE requirements for the project are designed to eliminate this risk to the extent practical.

There are three primary pathways by which site workers can be exposed to chemical hazards: inhalation, ingestion and dermal contact. The chemical exposures across these pathways can cause two types of effects: acute and chronic. Acute effects occur during or shortly after exposure to a sufficiently high concentration of a chemical. Chronic effects occur after repeated or constant exposures for a long period of time. Regulatory exposure limits, such as PELs, are related to both acute effects (such as respiratory irritation) and chronic effects (such as cancer). Symptoms of chemical exposure may include behavioral changes, breathing difficulties, skin color changes, coordination difficulties, coughing, dizziness, weakness, irritability, skin irritation, eye irritation, respiratory tract irritation, headache, nausea, lightheadedness, sneezing, etc.

The primary pathway exposures associated with site VOCs is inhalation and dermal contact with affected media or tools that have come into contact with the affected media. SVOCs may also be present in the breathing space, although typically at concentrations less than VOCs. Real-time ambient air monitoring, appropriate engineering controls, PPE and good hygiene practices will be employed to minimize exposure to VOCs. Exposures to SVOCs, metals, pesticides and polychlorinated biphenyls (PCBs) is primarily by dermal contact with affected media or tools that have come into contact with the affected media.

Another potential pathway for exposure to COCs is through inhalation and dermal contact with airborne dust derived from contaminated soil.

The following precautions will be taken to reduce the potential exposure to site COCs during site investigation and remediation activities:

- Field personnel will conduct air monitoring with a PID meter during excavation activities to measure total concentrations of VOCs in the work zone breathing space.

- Engineering controls and/or appropriate respiratory protection will be used if visible dust does become present in the breathing space.

- The work procedures shall be modified if VOCs in the breathing space rise above action levels.

- Site investigation activities will be conducted in Level D PPE to minimize dermal exposure to potentially affected media (i.e., specifying the use of disposable protective gloves when handling site materials during field sampling activities) and reduce the risk of physical hazards (by requiring hard hats and safety glasses when inspecting drilling or test pits), as detailed in Section 8. The PPE will be upgraded, as necessary, for organic vapor, dermal and dust inhalation hazards.

- Any non-disposable PPE that comes in contact with potentially affected facility media will be decontaminated prior to leaving the work area.

- Soap, clean water and paper towels for washing hands will be provided at the site during all field activities. Hands will be washed thoroughly prior to eating, drinking and leaving the site.

The Site Safety Officer will have the NIOSH *Pocket Guide to Chemical Hazards* available for reference at the site. This reference identifies exposure routes, exposure symptoms, physical

properties, chemical incompatibilities, first aid treatment and other information for many chemical compounds.

Physical hazards expected during the investigation and remediation activities are related to working with heavy construction equipment (backhoe), potential utility conflicts for the excavation work, and slip, trip and fall hazards. Additional physical hazards may include heat or cold stress. These hazards will be evaluated by the Site Safety Officer prior to beginning work in a new area and as conditions change in the work area. The following precautions will be taken to reduce the physical hazards:

- A utility clearance program shall be completed prior to initiating the project, to include contacting Dig Safely New York and researching private utilities. No subsurface borings or test pits will be started at any location prior to utility clearance.

- "Tailgate" safety briefings will be conducted by the Site Safety Officer to identify additional safety protocols, as needed.

- The specified PPE shall be worn by all workers in the project exclusion zone.

- No confined space entries will take place under this HASP. If a confined space entry becomes necessary, appropriate confined space entry procedures will be detailed in an addendum to this plan.

- A warming space will be provided during cold weather, if needed.

- Good housekeeping in the work area will be maintained.

If VOCs in the breathing space are detected above action levels (or as determined by the monitoring plan), work will cease until a determination is made as to whether further controls are required.

If necessary, engineering controls will be developed to minimize dust generation at the sampling location. For example, water may be sprayed on the surface soils to reduce breathing space dust concentrations.

Encountering unknown or unexpected substances or containers of a hazardous nature is possible, though not expected based on the degree of prior investigation and remedial activities undertaken at the site. Work will be discontinued if field measurements or observations indicate there is a potential exposure to a hazard that was not anticipated, is not adequately characterized and controlled, or may exceed the protection provided by the PPE specified for the task.

8.0 SITE SAFETY WORK PLAN

Site Map

Figure 1 shows the main features on and adjacent to the site, and the locations of prior environmental sampling points.

Site Security

Stakes and plastic fencing will be placed around the excavations and maintained until the excavations are backfilled.

Training

All authorized workers will receive a HASP briefing and will be required to read and sign the HASP at the beginning of the field work. The following main items shall be covered:

- The tasks the workers will be required to perform, as detailed in the Work Plan.
- Site ingress, egress and decontamination procedures.

- Site hazards, accident prevention and overexposure symptoms.

- The required PPE plan and exclusion zone requirements.

- Emergency response procedures.

Attachment A is a record of all authorized workers who have either attended the startup training session or received a similar briefing from the Site Safety Officer, to include any visitors. This shall be kept up-to-date throughout the project.

Should unexpected site conditions be encountered requiring utilization of Level C or higher protection and/or other specialized operations (e.g., a confined space entry), the work shall not be carried out until a Response Team comprised of personnel with proper training in accordance 29 CFR Part 1910.120 (e) (f) (g) is formed to complete such work.

Any new personnel assigned to this project shall receive the HASP briefing and be required to read and sign the HASP before being allowed to perform work. The briefing will be given by the Site Safety Officer or a delegated safety representative who has previously completed this training.

The Site Safety Officer will be responsible for insuring that visitors receive the necessary site-specific visitor training applicable to the visitors' anticipated activities. Site visitors shall not be allowed access to the project exclusion zone unless they receive a site-specific training brief, can demonstrate they have received the appropriate training per 29 CFR Part 1910.120 (e) and have received the required project PPE equipment.

Zone(s) of Contamination Identified

Workers are to assume that COCs may occur anywhere on the site in the surface soils, subsurface soil and groundwater.

Medical Surveillance

If used, subcontractors shall be current with medical surveillance requirements in accordance with 29 CFR Part 1910.120 (f).

Exclusion Zone

Temporary exclusion zones will be established around all subsurface drilling and sampling locations while such operations are being conducted. No unauthorized personnel will be allowed to approach the location, as monitored by the Site Safety Officer. Traffic cones will be used to designate the area, set at a safe distance from the associated hazard, as determined by the Site Safety Officer. Any worker in the exclusion zone shall comply with all aspects of the HASP.

Decontamination Area

A central decontamination area where decontamination materials shall be placed and stored, and procedures conducted, will be designated at the outset of the project. Portable decontamination equipment will also be used to expedite the work.

Personal Protection Equipment

- Level of protection in the exclusion zone shall be Level D – Modified.

- Level D PPE in the exclusion zone shall consist of the use of hard hats, rubber (nitrile) gloves, steel-toed boots if inspecting drilling or test pits operations, ear plugs and safety glasses. Latex gloves will be used by inspectors for handling soil samples.

- Drillers and any other site worker who is in close contact with soils during ground intrusive activities shall wear coveralls or other appropriate clothing to safeguard against debris and skin contact.

- A cellular telephone in proper working order shall be available at the work site at all times.

- Eating, drinking, smoking and carrying food or tobacco products are prohibited in the exclusion zone.

Decontamination Procedures

- ***Personnel:*** Workers shall remove coveralls and wash face and hands with soap and water prior to eating, drinking, using restroom facilities or leaving the site.

- ***Protective Equipment:*** A detergent wash and clean water rinse will be used for rubber boots, hard hats, safety glasses and hand sampling tools.

- ***Sampling Equipment:*** A detergent wash and clean water rinse shall be used to clean sampling equipment before exiting the work site. Decontamination of tools shall be performed at the designated decontamination pad facility. Sampling tools will be dry brushed, as appropriate, prior to detergent cleaning.

- ***Vehicles:*** Trucks and excavation equipment will be decontaminated at the designated decontamination area prior to leaving the site. Excavation equipment will also be decontaminated prior to being brought onto the site.

- ***Disposal:*** Gloves, coveralls, etc., used at the site will be collected at a central location for disposal in accordance with all applicable laws of the State of New York or, where applicable, properly cleaned and disinfected for reuse. All water generated from decontamination shall be collected and containerized for proper testing and disposal in accordance with all applicable laws of the State of New York.

Equipment Checklist

Level D Modified

Hardhat

Steel toed work boots

Safety glasses

Safety goggles or shield, if necessary

Tyvek coveralls, if necessary

Rubber and latex gloves

Hearing Protection

Ear Plugs

Decontamination Materials

Alconox

Brushes

Buckets

Potable water source and portable containers

Low pressure sprayer

Decontamination pad materials, including water containment

Plastic drop cloth material

Garbage can and plastic liners

Field Instruments

Photoionization Detector (PID) / Calibrated 10.6 eV

X-Ray Fluorescence (XRF) Analyzer

Other

Disposal dust masks

Glove and helmet liners for cold weather

9.0 ENVIRONMENTAL MONITORING PLAN

Work Zone Monitoring

Air monitoring in the exclusion zone near the point of operation will be periodically tested by the Site Safety Officer using a PID meter as a general precaution at a frequency of once every 60 minutes, or whenever a fugitive odor suggestive of possible VOCs is encountered. Should readings exceeding 5 parts per million (ppm) be recorded, additional readings in the operator breathing zone will be obtained. Should these levels continue to exceed 5 ppm over a sustained period of one minute, work will be discontinued until appropriate engineering controls (e.g. fan ventilation, vapor suppression) and a Community Air Monitoring Program (CAMP) are employed. The Site Safety Officer will continue to evaluate the situation and, if necessary, upgrade the PPE requirements to include air purifying respirators. Should Level C respirator PPE be required, all workers shall have had the proper training for their use and have had a fitness test performed current within the previous one-year period in accordance with 29 CFR 1910.120.134, Appendix A. Readings will be documented on the log sheet provided in Attachment B.

Community Air Monitoring Program

A CAMP requires real-time monitoring for VOCs and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at the site. 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.

Continuous CAMP monitoring for VOCs and particulates will be required for ***ground excavation*** activities.

Periodic monitoring for VOCs will be required during ***non-excavation*** activities, such as collection of surface soil and sediment samples, collection of groundwater samples from existing monitoring wells, direct-push soil borings, installation of small diameter monitoring wells and test pits. "Periodic" monitoring during these activities will consist of taking a PID meter reading upon arrival at a test location and periodically during the work, as described above in "Work Zone Monitoring".

VOC CAMP Monitoring, Response Levels and Actions

VOCs must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone). Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. 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 COCs 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.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 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.

- 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 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.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shut down.

Particulate CAMP 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.

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. If downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level after implementation of dust suppression techniques or if visible emissions are observed, 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.

All 15-minute readings must be recorded and be available for review by DEC and New York State Department of Health (DOH) personnel. Instantaneous readings, if any, used for decision purposes should also be recorded.

10.0 INVESTIGATION WASTE DISPOSAL PLAN

Investigation derived wastes (IDW) generated during the completion of the remedial investigation shall be handled as follows:

- Drill cuttings may be disposed of back within the borehole, provided the cuttings are not grossly contaminated (containing sheen or free product) and the borehole does not penetrate an aquitard or bedrock, nor creates a significant avenue for vertical migration of contamination. Such backfilling shall be completed to within 12 inches of grade, followed by the placement of 6 inches of bentonite, followed by 6 inches of clean soil (drilling sand) when in outdoor, unpaved areas. Patch with asphalt if in a paved area and with concrete if inside the building.

- Drill cuttings that are grossly contaminated shall be containerized in New York State Department of Transportation (DOT) approved drums or temporarily stockpiled on and

covered with plastic sheeting, and handled in accordance with the off-site disposal requirements discussed below. For test pits, grossly impacted soils shall be containerized in DOT-approved drums or temporarily stockpiled on and covered with plastic sheeting, and disposed of in accordance with the off-site disposal requirements discussed below. Such soils are not to be placed directly on the ground during the excavation procedures. All other soils may be placed back in the pit in the order they were removed and the surface left graded with clean soil to promote runoff.

- Groundwater generated from developing, purging and sampling monitoring wells is to be containerized upon production to allow visual observations and can subsequently be discharged to the ground near the point of on-site generation, provided the groundwater:

  - Is free of visual sheen or oil (no free product). No water is to be discharged at the site if it contains visual product.

  - Has no olfactory indicators.

  - Does not contain a known high concentration of COCs, based on prior site sampling work.

  Water containing any of the above characteristics is to be stored in labeled containers in an area affording secondary containment and handled in accordance with the off-site disposal requirements discussed below. Water generated by decontamination procedures is to be handled following the same protocol.

- PPE wastes can be disposed of in a Part 360 permitted solid waste landfill, provided none of the materials contain free product staining. These latter materials are to be handled similarly to grossly impacted soils, as discussed below.

  - Representative samples of the IDW wastes must be collected and analyzed to properly allow the materials to be classified, treated or disposed of.

- Any IDW materials determined to be hazardous or solid wastes are to be transported by haulers permitted in accordance with New York Codes, Rules and Regulations, Title 6 (6 NYCRR) Part 364. Waste manifests are to be provided.

- All IWD materials taken from the site for disposal must be disposed of or treated in DEC-permitted facilities.

11.0 EMERGENCY RESPONSE PLAN

A copy of the HASP and a NIOSH *Pocket Guide of Chemical Hazards* shall be available at the site at all times.

The Site Safety Officer is to be immediately notified of any on-site emergency.

USE THE 911 SYSTEM FOR ANY THREATENING EMERGENCY.

All workers will be alerted upon the occurrence of an emergency involving a potentially ongoing dangerous condition (e.g. a fire, explosion or electrical condition within or adjacent to the site) and the affected area evacuated immediately.

Emergency situations will be evaluated by the Site Safety Officer and initial emergency response measures will be undertaken, if appropriate.

Contact the Project Manager as soon as possible. Emergency telephone numbers are provided.

The following general sequential guidelines are provided for emergency situations:

1. If possible, remove the exposed or injured person(s) from immediate danger. Evacuate other personnel on the property to a safe distance until the Site Safety Officer determines it is safe to return to work.

2. Obtain paramedic and ambulance service (or fire department response, if needed) immediately by calling 911. Render first aid, as applicable to the rescuers' training.

3. If there is any doubt regarding the condition of the area, work shall not commence until all safety issues are resolved.

4. The Site Safety Officer shall contact the Project Manager at the earliest time practical and provide details of the incident.

5. A written report of the incident shall be forwarded to the Project Manager within 24 hours following the incident.

EMERGENCY TELEPHONE NUMBERS

Plumley Engineering..... (315) 638-8587

FOR ALL EMERGENCIES..... 911
(Fire Department, Police Department, Ambulance)

Other Agencies

Fire Department (non-emergency)..... (315) 789-2121

NYSEG (Gas Emergency)..... (800) 572-1121

NYSEG (Electrical Emergency)..... (800) 572-1131

Geneva General Hospital..... (315) 787-4000

DEC Region 8, Avon Office..... (585) 226-2466

DEC Spill Hotline..... (800) 457-7362

Nearest Hospital:

Name: Geneva General Hospital

Location 196 North Street
Geneva, New York 14456
(less than one mile from site)

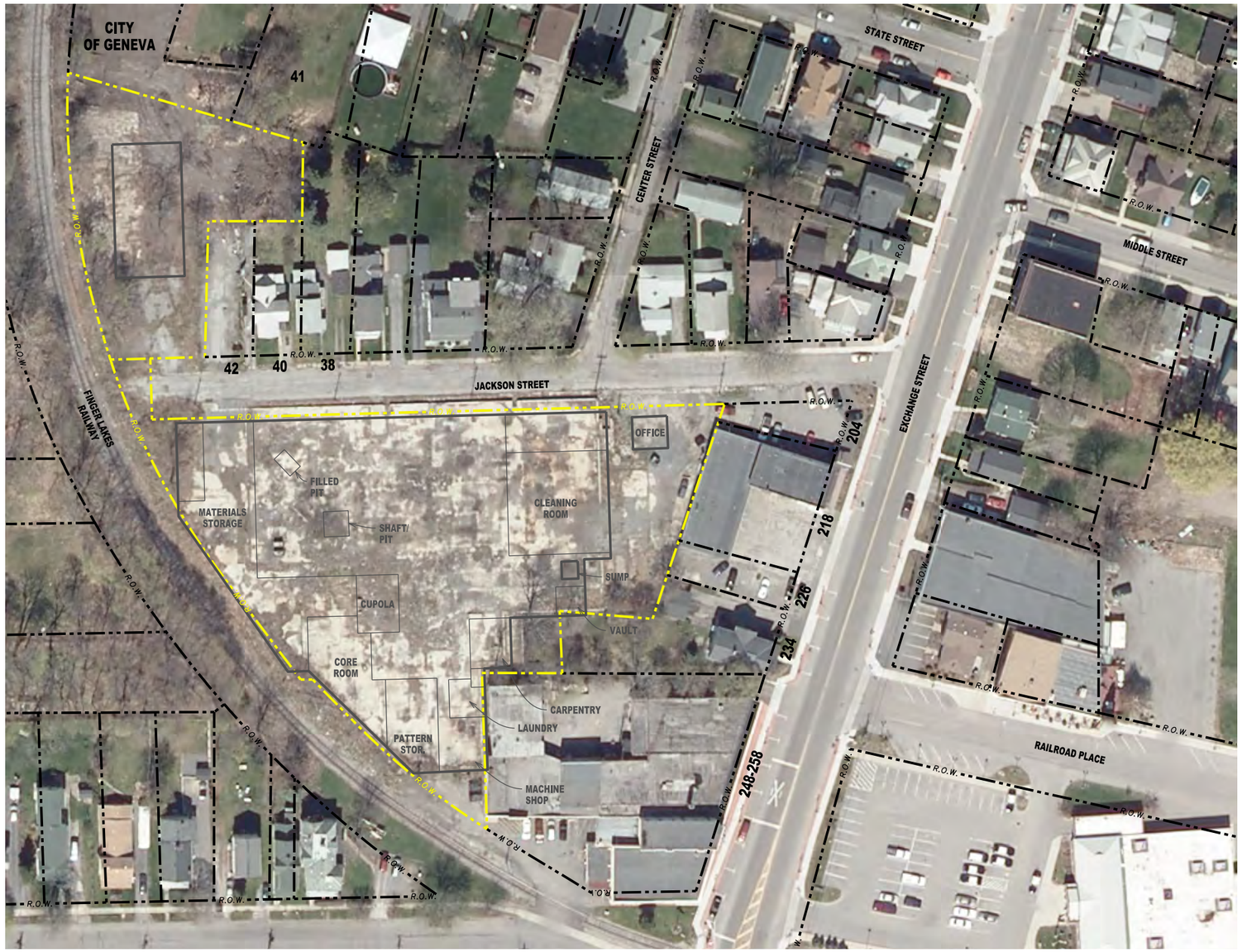
Telephone: (315) 787-4000

Refer to Figure 2 for a map from the Site to Geneva General Hospital.

Written directions to the hospital from the site:

- Head east on Jackson Street.
- Turn left on Center Street and proceed to North Street.
- Turn left onto North Street and proceed to the hospital.

FIGURES



Key

R.O.W. — Right of Way

Property Line

R.O.W. — Former Geneva Foundry Parcels

Adjacent Property Owners

41 State Street - Miller, Betty

38 Jackson Street - City of Geneva

40 Jackson Street - Ubiles, Mara

42 Jackson Street - Ubiles, Mara

204 Exchange Street - Trombley, Timothy R.

218 Exchange Street - Trombley, Timothy R.

226 Exchange Street - Trombley, Timothy R.

234 Exchange Street - Gringeri, Kathryn

248-258 Exchange Street - Albert Colizzi Trust

Plan View

1" = 100' SCALE: 50 0 50 100 FEET

PLUMLEY ENGINEERING

Civil and Environmental Engineering

PLUMLEY ENGINEERING, P.C.
8232 LOOP ROAD
BALDWINSVILLE, NY 13027

TELEPHONE: (315) 638-8587
FAX: (315) 638-9740
WWW.PLUMLEYENG.COM

REVISIONS: DATE: BY:

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PROJECT: GENEVA FOUNDRY SITE

DWG. TITLE: PROPERTY BASE MAP

CLIENT: CITY OF GENEVA

LOCATION: CITY OF GENEVA, ONTARIO COUNTY, NEW YORK

Note: No alteration permitted hereon except as provided under Section 7209 Subdivision 2 of the New York State Education Law.

PROJECT No.: 2015003
FILE NAME.: BCP APP. FIGURE1
SCALE: AS NOTED
DATE: NOV. 2016
ENG'D BY: DKM
DRAWN BY: JMD
CHECKED BY: DRV

SHEET NO.:

FIGURE 1

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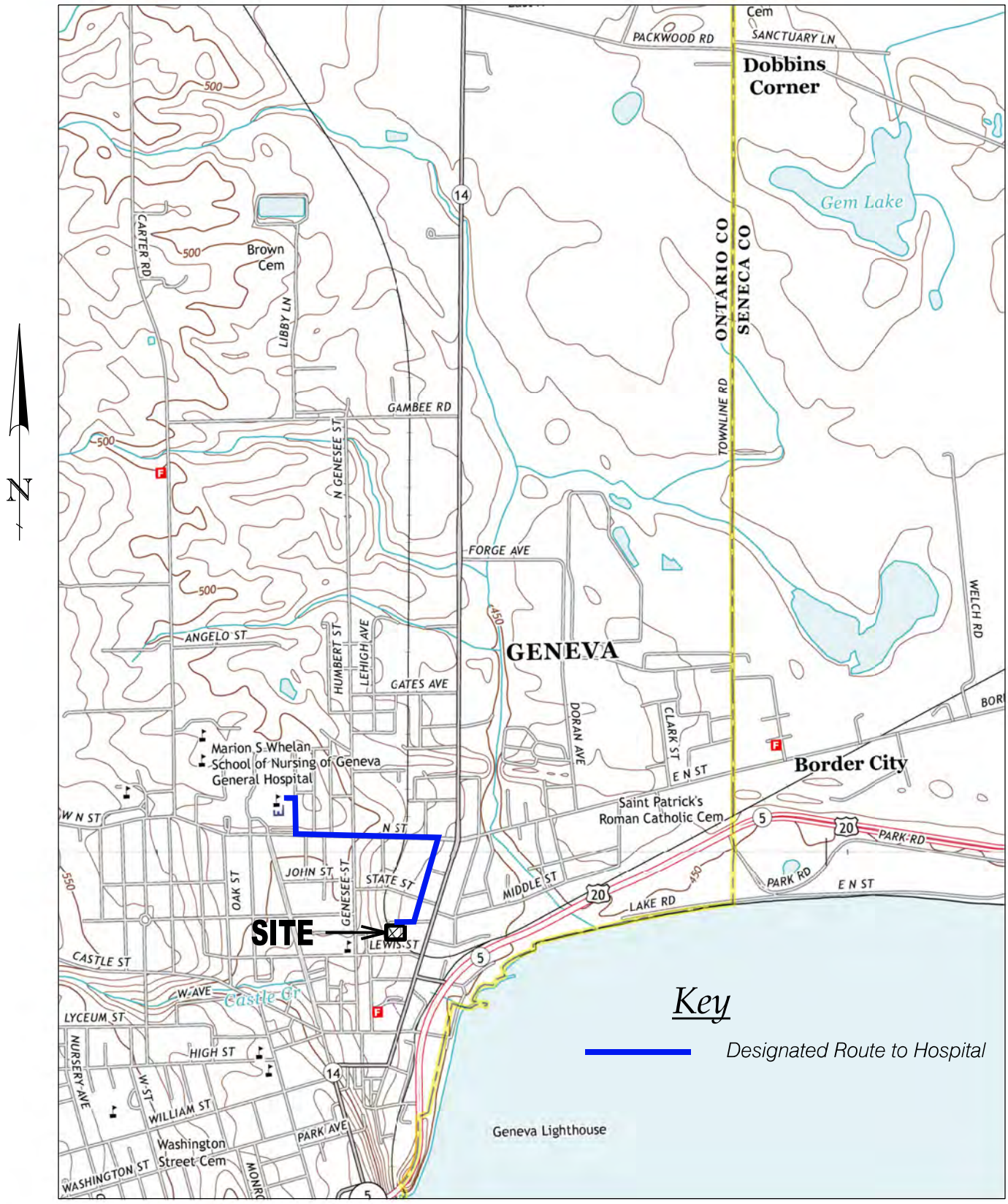

REF.: USGS - GENEVA NORTH (NY) QUAD., 2013, 7.5 MIN. SCALE: 1"=2000'

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PROJECT: FORMER GENEVA FOUNDRY SITE

DWG. TITLE: ROUTE TO HOSPITAL

CLIENT: CITY OF GENEVA

LOCATION: CITY OF GENEVA, ONTARIO COUNTY, NEW YORK

Note: No alteration permitted hereon except as provided under Section 7209 Subdivision 2 of the New York State Education Law.

PROJECT No.:	2015003
FILE NAME.:	Figure2
SCALE:	AS NOTED
DATE:	MAY 2017
ENG'D BY:	DKM
DRAWN BY:	JJL
CHECKED BY:	DKM

TABLE

FORMER GENEVA FOUNDRY SITE
Jackson Street
City of Geneva, Ontario County, New York
BCP Site No. C835027

TABLE 1 - HEALTH AND SAFETY DATA FOR SELECTED CONTAMINANTS OF CONCERN

Contaminant	CAS Number	Ionization Potential (eV)	Odor Threshold (ppm)	PEL 8 hour (ppm)	PEL 15 minute (ppm)	TLV/ TWA (ppm)	STEL (ppm)	Flammable	Explosive Limits	
									LEL	UEL
Chromium	7440-47-3	11.00	390	350	NA	350	450	No	NA	NA
Lead	7439-92-1	NA	NA	100	NA	100	NA	Yes	NA	NA
Mercury	7439-97-6	9.24	NA	1	5	0.1	1	Yes	1.2%	7.8%
Benzo(a)anthracene	56-55-3	9.07	NA	75	NA	NA	NA	Yes	1.3%	9.6%
Benzo(a)pyrene	50-32-8	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	205-99-2	8.76	NA	100	NA	100	125	Yes	0.8%	6.7%

Notes:

eV electron volts
ppm parts per million
NA Not applicable

ATTACHMENTS

ATTACHMENT A
DEC BCP Site No. C835027
AUTHORIZED PERSONNEL

I have read, understand and by signing, agree to comply with the provisions contained in the health and safety plan for this site.

	Name	Representing	Signature	Date
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				

ATTACHMENT B
DEC BCP Site No. C835027
DAILY WORK ZONE AIR MONITORING LOG SHEET

Job: _____ Date: _____ Start Time: _____

Monitoring Personnel: _____

Instruments (circle): PID: _____ HNU LEL Draeger Tubes Other _____

Weather Conditions

Temperature: _____ Sky (circle): Clear P. Cloudy Cloudy Overcast

Wind Speed (approx.): _____ Wind Direction: _____ Precipitation: _____

TIME	PID/LEL READINGS	WORK ZONE	COMMENTS (activities, changes in wind direction, temperature, etc.)

Monitoring Performed By: _____

Were Respirators Worn: Yes No

How Long? _____ Who? _____

Why? _____

APPENDIX I

SITE MANAGEMENT FORMS

Site-Wide Inspection Form
Former Geneva Foundry Site
Geneva, New York

Date: _____ Inspector's Name (Print): _____

Site Owner: _____ Inspector's Phone Number: _____

1. Does the site comply with the required institutional controls? Yes __ No __

   If no, explain deficiencies: _____

2. Describe condition and effectiveness of the soil cover: _____

3. Describe general site conditions: _____

4. Is the annual groundwater monitoring program current? Yes __ No __

5. Have the requirements of the Operation and Maintenance Plan been maintained? Yes __ No __

   If no, explain deficiencies: _____

6. Are site records up to date? Yes __ No __

   If no, explain deficiencies: _____

Additional Comments (if appropriate): _____

_____

_____

_____

Recommended Actions (if appropriate): _____

_____

_____

_____

Signature of Inspector: _____

Summary of Green Remediation Metrics for Site Management

Site Name: _____ Site Code: _____

Address: _____ City: _____

State: _____ Zip Code: _____ County: _____

Initial Report Period (Start Date of period covered by the Initial Report submittal)

Start Date: _____

Current Reporting Period

Reporting Period From: _____ To: _____

Contact Information

Preparer's Name: _____ Phone No.: _____

Preparer's Affiliation: _____

I. Energy Usage: Quantify the amount of energy used directly on-site and the portion of that derived from renewable energy sources.

	Current Reporting Period	Total to Date
Fuel Type 1 (e.g. natural gas (cf))		
Fuel Type 2 (e.g. fuel oil, propane (gals))		
Electricity (kWh)		
Of that Electric usage, provide quantity:		
Derived from renewable sources (e.g. solar, wind)		
Other energy sources (e.g. geothermal, solar thermal (Btu))		

Provide a description of all energy usage reduction programs for the site in the space provided on Page 3.

II. Solid Waste Generation: Quantify the management of solid waste generated on-site.

	Current Reporting Period (tons)	Total to Date (tons)
Total waste generated on-site		
OM&M generated waste		
Of that total amount, provide quantity:		
Transported off-site to landfills		
Transported off-site to other disposal facilities		
Transported off-site for recycling/reuse		
Reused on-site		

Provide a description of any implemented waste reduction programs for the site in the space provided on Page 3.

III. Transportation/Shipping: Quantify the distances travelled for delivery of supplies, shipping of laboratory samples, and the removal of waste.

	Current Reporting Period (miles)	**Total to Date (miles)**
Standby Engineer/Contractor		
Laboratory Courier/Delivery Service		
Waste Removal/Hauling		

Provide a description of all mileage reduction programs for the site in the space provided on Page 3. Include specifically any local vendor/services utilized that are within 50 miles of the site.

IV. Water Usage: Quantify the volume of water used on-site from various sources.

	Current Reporting Period (gallons)	**Total to Date (gallons)**
Total quantity of water used on-site		
Of that total amount, provide quantity:		
Public potable water supply usage		
Surface water usage		
On-site groundwater usage		
Collected or diverted storm water usage		

Provide a description of any implemented water consumption reduction programs for the site in the space provided on Page 3.

V. Land Use and Ecosystems: Quantify the amount of land and/or ecosystems disturbed and the area of land and/or ecosystems restored to a pre-development condition (i.e. Green Infrastructure).

	Current Reporting Period (acres)	**Total to Date (acres)**
Land disturbed		
Land restored		

Provide a description of any implemented land restoration/green infrastructure programs for the site in the space provided on Page 3.

Description of green remediation programs reported above (Attach additional sheets if needed)
Energy Usage:
Waste Generation:
Transportation/Shipping:
Water usage:
Land Use and Ecosystems:
Other:

CERTIFICATION BY CONTRACTOR
I, _____ (**Name**) do hereby certify that I am _____ (**Title**) of the Company/Corporation herein referenced and contractor for the work described in the foregoing application for payment. According to my knowledge and belief, all items and amounts shown on the face of this application for payment are correct, all work has been performed and/or materials supplied, the foregoing is a true and correct statement of the contract account up to and including that last day of the period covered by this application. _____ **Date** **Contractor**

APPENDIX J

REMEDIAL SYSTEM OPTIMIZATION TABLE OF CONTENTS

REMEDIAL SYSTEM OPTIMIZATION FOR FORMER GENEVA FOUNDRY SITE

TABLE OF CONTENTS

APPENDIX K

PERMITS AND/OR PERMIT EQUIVALENT

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Bureau of Technical Support
625 Broadway, 11th Floor, Albany, NY 12233-7020
P: (518) 402-9543 I F: (518) 402-9547
www.dec.ny.gov

December 1, 2016

City of Geneva
Attn: Mathew Horn, City Manager
47 Castle Street
Geneva, NY 14456

RE: Brownfield Cleanup Application
Former Geneva Foundry Site
Site No. C835027

Dear Mr. Horn:

The New York State Department of Environmental Conservation (DEC) has received your application for participation in the Brownfield Cleanup Program (BCP) pursuant to Environmental Conservation Law (ECL) § 27-1401 et seq. We are pleased to advise you that your application has been determined to be complete based upon DEC's initial non-substantive review of your application package. While the application is complete, DEC may require additional information regarding site contamination in order to demonstrate that the site requires remediation pursuant to ECL § 27-1407(1). Additionally, if your application also seeks a determination that the site is eligible for tangible property credits under ECL § 27-1407(1-a), DEC may require additional information in order to make such a determination. If you propose additional material to supplement this application, DEC may consider it at its sole discretion. If additional material or information supplied significantly changes the scope of the site subject to the application, the Department may require you to publish another public notice of availability of the complete application. DEC would then adjust the time frame specified under ECL § 27-1407(6) for notifying you that your request for participation in the BCP is either accepted or rejected.

Pursuant to ECL § 27-1407(5), a 45-day public comment period is to begin after DEC's determination that an application is complete. DEC will publish a notice of the receipt of your application seeking public comment in the "Environmental Notice Bulletin." In accordance with the ECL and DEC regulations (see 6 NYCRR § 375-3.4(b)), you must notify, in writing, all parties on the site contact list[1] of the availability of the complete application for public review and comment.

In order to facilitate the notifications, DEC has prepared the enclosed document for your use as a Public Notice along with instructions. You are responsible for placing a copy of the application (including any attachments) and copies of all other related documents such as any

[1] The site contact list includes (see section 375-1.2(as)) all interested "persons, government agencies, groups or organizations, including, but not limited to, the chief executive officer and zoning board of each county, city, town and village in which such site is located, the public water supplier which serves the area in which such site is located, any site residents, adjacent property owners, any person who has requested to be placed on the site contact list, and the administrator of any school or day care facility located on the site for the purposes of posting and/or dissemination at the facility. Provided, however, that where the site or adjacent real property contains multiple dwelling units, the remedial party may propose an alternative method, consistent with the citizen participation goals set forth in section 375-1.10, for providing such notice in lieu of mailing to each individual."

site assessments, investigation reports, and/or remedial work plans in the document repository before the start of the public comment period. The language in the enclosed Public Notice must be used without alteration in the newspaper notice that you have published in accordance with sections 375-3.2(f) and 375-3.10.

The enclosed public notice must be provided to a local newspaper servicing the area including the site for publication no later than December 14, 2016. By December 13, 2016 the other notifications specified above must be distributed and documents placed in the repository. To the extent that the mailings and publications are not completed in accordance with these time frames, DEC will extend the comment period for a period sufficient to comply with the required public notice requirements running from the latest of these mailings and publications.

Within five days of the mailings, you must submit a "certificate of mailing" using the enclosed form. Additionally, you must submit a proof of publication provided by the newspaper within three days of your receipt of such document. Please submit these documents to DEC's Project Manager:

Frank Sowers
NYS Dept. of Environmental Conservation – Region 8
6274 East Avon-Lima Road
Avon, NY 14414
frank.sowers@dec.ny.gov

DEC will use all best efforts to notify you if the application is accepted or rejected within five days after the close of the public comment period. We look forward to working cooperatively to address the environmental conditions at the brownfield site and return this property to productive use.

Sincerely,

Kelly A. Lewandowski, P.E.
Chief, Site Control Section

Enclosures
ec w/enc.: F. Sowers, Project Manager
M. Cruden, Director, Remedial Bureau E
B. Schilling, RHWRE, Region 8
A. Guglielmi, NYSDEC – OGC, Remediation Bureau
M. Murphy, Project Attorney
D. Harkawik, Regional Attorney, Region 8
K. Anders, NYSDOH
J. Deming, NYSDOH Regional Chief
B. Anderson, Site Control Section
K. Lewandowski
Mathew Horn, Requestor's Representative (mhorn@geneva.ny.us)
Plumley Engineering, P.C., Requestor's Consultant (dmeixell@plumleyeng.com)
Wendy A. Marsh, Esq., Requestor's Attorney (wmarsh@hancocklaw.com)

Brownfield Cleanup Program
Public Notice Instructions to Requestor[2]

1) **Newspaper Notice**
   a) The Requestor must publish the language in the enclosed public notice, without modification, in a local newspaper of general circulation that services the area that includes the site not later than the date specified in the Division of Environmental Remediation's (DER) cover letter. The notice must be a paid newspaper advertisement, prominently located in the community bulletin section or comparable local section of the newspaper (not as a legal notice). The Requestor must publish the notice in English and in any other language spoken by a significant number of people within the site community.
   b) The Requestor must submit a proof of publication of the newspaper notice to the DER Project Manager by the date specified in the DER cover letter.

2) **Requestor's Instructions to Newspapers Regarding Printing the Public Notice**
   a) The enclosed public notice announces the receipt of a complete Brownfield Cleanup Program application package by the New York State Department of Environmental Conservation. Pursuant to ECL Section 27-1405(22), the public notice must be a paid newspaper advertisement, prominently located in the community bulletin section or similar local section of the newspaper (not as a legal notice). The public notice must be published by the date specified. Please provide a proof of publication to the DER Project Manager as soon as possible.

3) **Site Contact List**
   a) The Requestor must mail the enclosed public notice, without modification, to the parties on the site contact list included with the application. The mailing must be performed by the date specified in the DER cover letter. No other materials can be mailed with this notice with the exception of the instructions provided in #4a below.
   b) The Requestor must complete the certificate of mailing and submit it to the DER Project Manager by the date specified in the DER cover letter (see enclosed certificate of mailing form).

4) **Requestor's Instructions to Parties on the Site Contact List Receiving the Public Notice**
   a) The enclosed public notice announces the receipt of a complete Brownfield Cleanup Program application package by the New York State Department of Environmental Conservation. Pursuant to ECL Section 27-1407(5), a public notice announcing the receipt of an application must be sent to parties on the site contact list. Please read the enclosed public notice and review the application package in the site document repository for further information regarding the application and how to submit comments.

5) **Document Repository**
   a) The Requestor must put the application package (application and all attachments) in the site document repository specified in the application prior to the start of the public comment period.

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[2] A requestor (§ 375-3.2(i)) is a person who has submitted an application to participate in the BCP whose eligibility has not yet been determined by DEC.

Public Notice
Fact Sheet

The New York State Department of Environmental Conservation (DEC) has received a Brownfield Cleanup Program (BCP) application, Proposed Remedial Action Plan and Revised Supplemental Remedial Investigation/Alternatives Analysis Report from the City of Geneva for a site known as the Former Geneva Foundry Site, site ID #C835027. This site is located in the City of Geneva, within the County of Ontario, and is located at 23 Jackson Street. Comments regarding this application must be submitted no later than January 28, 2017. A copy of the application, Proposed Remedial Action Plan, Revised Supplemental Remedial Investigation/Alternatives Analysis Report and other relevant documents are available at the document repository located at the Geneva Free Library, 244 Main Street, Geneva, 14456. Information regarding the site and how to submit comments can be found at http://www.dec.ny.gov/chemical/60058.html or send comments to Frank Sowers, Project Manager, NYSDEC-Region 8, 6274 East Avon-Lima Road, Avon, 14414; frank.sowers@dec.ny.gov; or call 585-226-5357.

To have information such as this notice sent right to your email, sign up with county email listservs available at www.dec.ny.gov/chemical/61092.html.

CERTIFICATION OF MAILING

Site Name: Former Geneva Foundry Site
Site No.: C835027

I certify that I mailed on _____ a copy of the attached public notice by first class mail upon the person(s) on the attached mailing list, by depositing a true copy thereof, securely enclosed in a postpaid wrapper, in the Post Office box at _____ in the City of _____, New York, which box is under the exclusive care and custody of the United States Post Office.

_____ _____

Signature Date

New York State Department of Environmental Conservation
Division of Environmental Remediation, 12th Floor
625 Broadway, Albany, New York 12233-7011
Phone: (518) 402-9706 **Fax:** (518) 402-9020
Website: www.dec.ny.gov

Certified Mail, Return Receipt Requested

City of Geneva
Mathew Horn
47 Castle Street
Geneva, NY 14456

FEB 10 2017

Re: Former Geneva Foundry Site
Tax Map ID No.: 104.8-1-34,104.8-1-50
Property County: Ontario
Site No.: C835027

Dear Applicant:

Your application for the above-referenced Brownfield Cleanup Program ("BCP") project has been reviewed by the New York State Department of Environmental Conservation ("Department"). I am pleased to inform you that your request is accepted. The acceptance is based upon your participation as follows:

City of Geneva is a Volunteer as defined in ECL 27-1405(1)(b). Tangible Property Tax Credit Status is described in Section II of the attached Brownfield Cleanup Agreement (BCA).

Based upon the facts and information in the application, information contained in the Department's records, and a timely return of the signed BCAs, the Department is prepared to execute a BCA for the above-described property. Enclosed are three original proposed BCAs. Please have an authorized representative sign all three originals where indicated and return them to my attention at 625 Broadway, Albany, New York, **along with proof that the party executing the BCA is authorized to bind the Requestor. This would be documentation from corporate organizational papers, which are updated, showing the authority to bind the corporation, or a Corporate Resolution showing the same, or an Operating Agreement or Resolution for an LLC.** The BCA shall not be effective until it is fully executed by the parties. A reassessment of eligibility may result in a denial of the application if there are any changes to material facts and information before the BCA is fully executed. **Please note, if the BCA is not signed and returned to the Department within 60 days, the Department will consider the Application withdrawn and the offer to enter the BCP will be deemed rescinded.**

The Department looks forward to working with you on this project. The Department's project manager will assist you in completing your project. You can arrange a meeting to discuss the program's requirements and work plan. The work plan will determine the scope of work to be conducted and completed. You may contact the Department's project team as set forth in Paragraph IV of the attached draft BCA to discuss the next steps.

Sincerely,

Robert W. Schick, P.E., Director
Division of Environmental Remediation

Enclosures:

Department's Copies:
ec: Michael Cruden
Bart Putzig
Dolores Tuohy
Kelly Lewandowski
Andrew Guglielmi
Frank Sowers
Michael Murphy
Adam Morgan

Applicant's Copies:
ec: Mathew Horn (mhorn@geneva.ny.us)
Wendy A. Marsh, Esq. (wmarsh@hancocklaw.com)
Dave Meixell (dmeixell@plumleyeng.com)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Office of the Director
625 Broadway, 12th Floor, Albany, New York 12233-7011
P: (518) 402-9706 | F: (518) 402-9020
www.dec.ny.gov

RECEIVED
MAR 8 2017
City Manager / Personnel Office

February 27, 2017

Mr. Mathew Horn
City Manager
City Of Geneva
47 Castle Street
Geneva, New York 14456

RE: Satisfactory Completion Letter
Site No: B00019
Site Name: Former Geneva Foundry
SAC No.: C300973
SAC Type: Investigation

Dear Mr. Horn:

Congratulations to the City of Geneva on having satisfactorily completed the Investigation Phase of the Environmental Restoration Project that the City of Geneva undertook with State Assistance funds provided pursuant to the 1996 Clean Water/Clean Air Bond Act. The New York State Department of Environmental Conservation (Department) has determined, based upon our inspection of the above-referenced site and review of the documents you have submitted, that the City has completed the project in accordance with the terms and conditions of the above-referenced State Assistance Contract. Accordingly, the Department is issuing this Satisfactory Completion Letter for the project. The site should not be put into its intended use until such time as the remedy outlined in the Record of Decision dated January 13, 2017 has been fully implemented, to the satisfaction of the Department.

If you have any questions, please do not hesitate to contact Frank Sowers, the Department's Project Manager, at 585-226-5357.

Sincerely,

Robert W. Schick, P.E.
Director
Division of Environmental Remediation

ec: K. Anders – NYSDOH

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 8
6274 East Avon-Lima Road, Avon, NY 14414-9516
P: (585) 226-5353 I F: (585) 226-8139
www.dec.ny.gov

September 1, 2017

Mathew Horn
City of Geneva
47 Castle Street
Geneva NY 14456

Re: Former Geneva Foundry Site
23 & 44 Jackson St., Geneva NY
Site Re-Grading Plan, April 2017

Dear Mr. Horn,

The New York State Departments of Environmental Conservation (NYSDEC) and Health (Departments) have completed their review of the document entitled "Site Re-Grading Plan" (Plan) dated July 2017, prepared by Plumley Engineering for the Former Geneva Foundry Site located in the City of Geneva, Ontario County. In accordance with 6 NYCRR Part 375-1.6, the Departments have determined that the Plan, with modifications, address the requirements of the Brownfield Cleanup Agreement (BCA).

The Departments' modifications to the Plan are provided below:

- The Health and Safety Plan (HASP) and Decontamination protocols included in the approved RAWP are incorporated by reference to the Site Re-Grading Plan.
- The approved Site Re-Grading Plan and its documentation (including a PE stamped drawing of the final site-wide cover system) will be included in the Final Engineering Report (FER).
- Section 7.0 states that documentation will be given in the Periodic Review Report, the correct report is the FER.
- Section 12 is modified to include the paragraph below;
    - "Any deviations from this plan must be approved by the NYSDEC Project Manager prior to making the change. Verbal approvals from the NYSDEC Project Manager will be documented in field log books. Deviations and associated documentation of approval will also be included in the FER."
- A copy of the SWPP will be added to the Plan.
- Community Air monitoring will be performed during any ground intrusive activity, as described in the approved RAWP.

With the understanding that the above noted modifications are agreed to, the Site Re-Grading Plan is hereby approved. If you choose not to accept these modifications, you are required to notify this office within 20 days after receipt of this letter or prior to the start of field activities. In this event, I suggest a meeting be scheduled to discuss your concerns prior to the end of this 20-day period.

Prior to the start of field activities, please attach a copy of this letter and the SWPP to the Plan and distribute the approved Plan as follows:

- Adam Morgan (1 hardcopy & 1 electronic copy on CD);
- Anthony Perretta (electronic copy on CD);
- Document repositories (1 hardcopy)

Please notify me at least 7 days in advance of the start of field activities.

We look forward to working together to bring this site back into productive use. If you have questions or concerns on this matter, please contact me at 585-226-5357.

Sincerely,

Adam Morgan
Engineer Trainee
NYSDEC Region 8
Division of Environmental Remediation

ec: M. Horn
D. Meixell
W. Marsh
M. Cruden
B. Schilling
M. Murphy
A. Perretta
J. Deming

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 8
6274 East Avon-Lima Road, Avon, NY 14414-9516
P: (585) 226-5353 I F: (585) 226-8139
www.dec.ny.gov

October 10, 2017

David K. Meixell, P.E.
Senior Engineer
PLUMLEY ENGINEERING, P.C.
8232 Loop Road
Baldwinsville, NY 13027

Re: Former Geneva Foundry Site
23 & 44 Jackson St., Geneva NY
Request to Import Fill, October 2017

Dear Mr. Meixell,

The New York State Departments of Environmental Conservation (NYSDEC) has completed its review of the request to import fill you submitted on behalf of the City of Geneva. The request is hereby accepted. Attach this acceptance letter to the request and include it as an appendix to the Final Engineering Report.

We look forward to working together to bring this site back into productive use. If you have questions or concerns on this matter, please contact me at 585-226-5357.

Sincerely,

Adam Morgan
Engineer Trainee
NYSDEC Region 8
Division of Environmental Remediation

ec: M. Horn
W. Marsh
A. Perretta
M. Cruden
B. Schilling
M. Murphy
J. Deming

Carrie E. Price

From: Gordon Eddington <gedding1@yahoo.com>
Sent: Thursday, November 02, 2017 9:40 PM
To: David K. Meixell
Subject: Fw: Wastewater discharge

Hi Dave,

Here is Will Czaplak's approval to discharge truck wash water to the sanitary sewer.

Gordon

Gordon P. Eddington
Eddington Environmental, LLC
178 Nursery Avenue
Geneva, New York 14456
gedding1@yahoo.com
(315) 277-0162

----- Forwarded Message -----
From: Will Czaplak <WCC@Geneva.ny.us>
To: "'gedding1@yahoo.com'" <gedding1@yahoo.com>
Sent: Wednesday, November 1, 2017 3:13 PM
Subject: Wastewater discharge

Gordon

Please consider this e-mail permission to discharge by-pass water, rinse water and/or ground water collected on the Jackson Street site to the sanitary sewer collection system in the City of Geneva. It is understood that this is a temporary situation and in the event of the discovery of any unknown tanks, pools or collections of unidentified liquids, I will be notified before adding unknown sources to the collection system. If you have any questions or concerns, please feel free to contact me at (315)277-0292.

Will Czaplak
Chief Operator
Marsh Creek WWTP

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 8
6274 East Avon-Lima Road, Avon, NY 14414-9516
P: (585) 226-5353 I F: (585) 226-8139
www.dec.ny.gov

January 3, 2018

David K. Meixell, P.E.
Senior Engineer
PLUMLEY ENGINEERING, P.C.
8232 Loop Road
Baldwinsville, NY 13027

Re: Former Geneva Foundry Site
23 & 44 Jackson St., Geneva NY
Site Re-Grading Plan Modification, December 2017

Dear Mr. Meixell,

The New York State Departments of Environmental Conservation (NYSDEC) and Department of Health (NYSDOH) have completed their review of the request to modify the Site Re-Grading Plan and the Beneficial Use Determination Petition (BUD), submitted on behalf of the City of Geneva. The request to modify is hereby accepted and the BUD petition is approved as described. The Site Re-Grading Plan will serve as an Interim Site Management Plan until a Certificate of Completion is issued. Attach this acceptance letter and the December 5, 2017 request letter, with BUD petition, to the approved Site Re-Grading Plan. Analytical results submitted on December 20, 2017 with regards to the before mentioned BUD, will be included in the Final Engineering Report.

Please update the document repository, located at the Geneva Free Library, 244 Main St. Geneva NY 14456, to include both this letter and the December 5, 2017 request letter. They are hereby incorporated into the approved Site Re-Grading Plan.

We look forward to working together to bring this site back into productive use. If you have questions or concerns on this matter, please contact me at 585-226-5357.

Sincerely,

Adam Morgan, E.I.T
NYSDEC Region 8 Division of Environmental Remediation

ec: M. Horn, W. Marsh, M. Cruden, M. Murphy, B. Schilling, A. Blowers