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DRAFT
Preliminary (50%) Remedial Design Report

Wadsworth Street Former Manufactured Gas Plant Site

Site No. 8-35-015

Geneva, New York

May 2011

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Site No. 8-35-015

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NYSEG

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1. Introduction

This *Preliminary (50%) Remedial Design Report* (50% Remedial Design Report) has been prepared to support the implementation of the New York State Department of Environmental Conservation- (NYSDEC-) selected remedy for the NYSEG Wadsworth Street Former Manufactured Gas Plant (MGP) Site located in Geneva, New York (the site). The NYSDEC-selected remedy was presented in the March 2010 Record of Decision (ROD) (NYSDEC, 2010b).

NYSEG entered into an Order on Consent with the NYSDEC in March 1994 to investigate and, where necessary, remediate 33 former MGP sites in New York State. The Wadsworth Street Former MGP site (Site No. 8-35-015) is included on this list of 33 sites. Section VI of the Order indicates that NYSEG shall submit a remedial design to facilitate implementation of the NYSDEC-selected remedial alternative for the site. This 50% Remedial Design Report has been prepared in accordance with the following documents:

- March 1994 Order on Consent
- March 2010 Record of Decision
- NYSDEC Division of Environmental Remediation *Technical Guidance for Site Investigation and Remediation* (DER-10) (NYSDEC, 2010c)
- NYSDEC-approved *Remedial Design Work Plan* (RDWP) (ARCADIS, 2010c)

1.1 Purpose

The purpose of this 50% Remedial Design Report is to present the remedial approach and preliminary design for implementing the remedial action for the Wadsworth Street Former MGP Site. As such, this 50% Remedial Design Report provides the preliminary engineering design for each component of the remedial action; specific design and supporting technical information is included, as appropriate. This 50% Remedial Design Report, the associated Design Drawings, list of Technical Specifications, and supporting documents are collectively referred to hereafter as the Design Documents.

Upon receipt of NYSDEC comments on this 50% Remedial Design Report, comments will be incorporated, as appropriate, and a *Draft (95% Completion) Remedial Design Report* (95% Remedial Design Report) will be prepared. In addition to incorporating appropriate NYSDEC comments, the 95% Remedial Design Report will include

additional supporting design and technical information related to the site remedy. Following NYSDEC and New York State Department of Health (NYSDOH) review and approval of the 95% Remedial Design Report, a *Final (100%) Remedial Design Report* (100% Remedial Design Report) will be prepared and signed and stamped by a Professional Engineer licensed in the State of New York. The 100% Remedial Design Report will be of biddable quality and detail.

1.2 Report Organization and Structure

The 100% Remedial Design Report, the associated Design Drawings, Technical Specifications, and supporting documents will be collectively referred to as the Contract Documents. This 50% Remedial Design Report is supported by select Design Drawings (included as Appendix A) and a list of Technical Specifications to be included in the 95% Remedial Design Report (Appendix B). The 95% Remedial Design Report will include the Technical Specifications listed in Appendix B and the following supporting documents:

- *Community Air Monitoring Plan* (CAMP)
- *Construction Quality Assurance Plan* (CQAP)
- *Pre-Remediation In-Situ Sampling and Analysis Work Plan* (Sampling Plan)
- *Community and Environmental Response Plan* (CERP)
- *Citizen Participation Plan* that incorporates appropriate activities outlined in the NYSDEC's, "*Draft Citizen Participation Handbook for Remedial Programs*", dated August 2008.

1.3 Background

This section presents a summary of site background information, including a description of the site location and physical setting, as well as a brief site history.

1.3.1 Site Location and Setting

The site is located in the City of Geneva, near the northwestern shore of Seneca Lake in eastern Ontario County, New York. The former MGP operated in an area comprised of a rectangular parcel of land that is now located in a mixed commercial and residential area in the east-central part of Geneva, New York. The site is bordered by

Wadsworth Street to the east, Railroad Place and a railroad (Finger Lakes Railway) to the south, a restaurant to the west and residential properties to the north. The northern shore of Seneca Lake is located approximately 900 feet southeast of the site. Railroad Place intersects Wadsworth Street and bisects the site. A gas holder (Gas Holder 1) and coal shed were formerly located in Railroad Place. Several MGP structures formerly existed at the current location of the City of Geneva's Public Safety Building (PSB) south of Railroad Place.

The portion of the former MGP site located north of Railroad Place is currently owned by NYSEG, while the area south of Railroad Place is owned by the City of Geneva. The area owned by NYSEG includes a grass-covered area in the eastern portion of the property and an asphalt parking lot that comprises the western portion of the property. A restaurant on Railroad Place leases the parking lot from NYSEG. A gravel parking area is located in the northeast portion of NYSEG's property and is used by residential property owners. A NYSEG gas regulator station is located near the intersection of Railroad Place and Wadsworth Street. The City of Geneva's PSB consists of a courtroom, office space, the local jail, and an attached pole barn structure. A large parking lot used by PSB employees is located west of the PSB. A Finger Lakes Railway line is located immediately south of the PSB.

Based on utility drawings obtained from the City of Geneva, several utilities are located within the Railroad Place right-of-way, and transect former Gas Holder 1. Utilities present within Railroad Place include, but are not limited to:

- 24-inch sanitary sewer
- 8-inch potable water mains
- 8-inch natural gas distribution lines

Additionally, two natural gas distribution lines are located immediately south of (and enter/exit) the NYSEG gas regulator station.

1.3.2 Site History

The gas plant was constructed in 1853 and included a retort and condenser house, purification building (including lime room, ammonia tank and cistern), coal shed and one gas holder (Gas Holder 1). A second gas holder (Gas Holder 2) was constructed circa 1900 in the northwest portion of the site. The majority of the buildings/structures associated with the gas plant were demolished between 1903 and 1909; the only remaining structures after 1909 were the second gas holder, tool house and meter house. The remaining holder was demolished between 1915 and 1925. Between 1925

and 1943, a 500,000-cubic-foot gas holder (Gas Holder 3) and a regulator house were constructed at the site to serve as a storage/distribution facility. This newer holder may have served as a remote distribution holder for the Border City MGP, which was constructed at approximately the same time that the Wadsworth MGP was decommissioned. Gas Holder 3 was demolished sometime after 1946; however, portions of the holder foundation wall and slab still exist. Railroad Place was constructed through the center of the former MGP site, covering the location of Gas Holder 1.

The following interim remedial measures (IRMs) have been completed at the site:

- Railroad Place Utility Trench (1999) – A trench was excavated along Railroad Place to facilitate installation of a new waterline by the City of Geneva in May 1999. The trench measured approximately 6 feet wide by 6 feet deep by 100 feet in length and ran through the foundation of the southernmost gas holder (Gas Holder No. 1). The material excavated from the trench was managed and disposed of in accordance with applicable rules and regulations. Based on the removal and off-site disposal of soil, the trenching/soil removal activities were considered an IRM.

- Vapor Intrusion Mitigation (2008/2009) – Based on the findings of soil vapor intrusion sampling, NYSEG conducted an IRM during 2008 and 2009 consisting of a combination of constructing a sub-slab depressurization vapor intrusion mitigation system and adjusting the HVAC operational set points in the PSB to minimize or eliminate the negative pressure conditions relative to conditions beneath the slab. Details regarding the sampling conducted in support of soil vapor intrusion evaluations are detailed in Section 1.3.2.3.

- Fencing and Cover (2010) – From March through June 2010 NYSEG completed an IRM to install a perimeter site fence and gravel cover over non-fenced areas. A detailed description of the IRM activities was provided in the July 2010 *Construction Completion Report/Interim Site Management Plan* (ARCADIS, 2010b). Clearing and grubbing was conducted to remove a dilapidated portion of an existing fence, extensive household and yard debris, brush, shrubs, and other vegetation which obstructed placement of the fence. A permanent chain-link fence, equipped with a locking vehicle access gate, was installed along a portion of the property boundary to prevent trespassing on the site. A recess was integrated along the northern fence line to allow ease of vehicular movement by neighboring properties. A temporary surface cover consisting of a non-woven geotextile fabric material and crushed stone was installed along the northern portion of the NYSEG

property. A 6-inch layer of topsoil was placed over the area in the western side of the site that was disturbed by clearing and grubbing activities.

1.4 Site Characterization

A summary of environmental investigations conducted at the site was presented in the *Remedial Investigation Report* (RI Report) (ARCADIS, 2008) and *Feasibility Study Report* (FS Report) (ARCADIS, 2010a). Both reports are included as part of the *Supplemental Information Attachment* (to be included as part the 95% Remedial Design). A brief description of the site geology/hydrogeology and nature and extent of impacts, as presented in the RI Report, is presented in the following subsections. Additionally, a summary of the March 2011 Pre-Design Investigation (PDI) is provided in this section and a PDI Summary Letter Report (ARCADIS, 2011) is included as Attachment 1.

1.4.1 Geology and Hydrogeology

Three geologic units were observed/investigated beneath the site during the RI. In descending order, these units consist of: 1) fill; 2) silt and clay; and 3) fine sand. These units comprise at least the upper approximately 40 feet of materials that underlie the site. Since the deepest investigation location was terminated at approximately 40 feet below grade, the geologic materials below 40 feet are unknown. The fill is the least significant hydrogeologic unit because it is generally unsaturated, especially north of Railroad Place. Approximately 1 to 2 feet of fill is saturated in the area south of Railroad Place. The bottom of the fill is typically encountered at approximately 4 to 8 feet below grade. The silt and clay unit is continuous across the site and is generally 12 to 16 feet in thickness, except in the area of former Gas Holder 1 where the silt and clay is artificially thin (approximately 1 foot in thickness), assumed due to excavation activities conducted to install Gas Holder 1. The silt and clay unit primarily consists of silt and clay with interbedded thin (i.e., on the order of a few millimeters thick) fine sand seams. The water table is located in the silt and clay unit in the northern portion of the site. The silt and clay grades into a fine sand unit at approximately 18 to 20 feet below grade. The fine sand unit is at least 22 feet in thickness and contains traces of medium sand and clay.

The horizontal hydraulic conductivity of the silt and clay and fine sand units appear to be similar. The average horizontal hydraulic conductivity for these units is low - approximately 0.09 feet/day. The vertical hydraulic conductivity of the silt and clay is expected to be less because of the horizontal bedding of this unit. As a result, groundwater in this unit likely moves more rapidly laterally along bedding than vertically

across the bedding. Because of this anisotropy, the silt and clay unit is significant hydrogeologically because it may limit recharge to the fine sand unit by restricting downward infiltration of precipitation.

Groundwater beneath the site moves north-northeast. Although groundwater appears to flow away from Seneca Lake, a regional groundwater discharge boundary, it is likely that site groundwater eventually finds its way to Seneca Lake. Local variability in groundwater flow direction is common in glacial/glacio-lacustrine depositional settings (such as the site area) due to the heterogeneous nature of glacially-derived overburden materials.

1.4.2 Nature and Extent of Impacts

This subsection describes the nature and extent of the environmental impacts identified at the site and focuses on the environmental impacts to be addressed by the remedial construction activities. A detailed account of the environmental site impacts, including analytical summary tables, is presented in the RI Report.

1.4.2.1 Soil Quality

The quality of site soil was evaluated during the RI by characterizing soil samples collected during the various site investigations and submitting select soil samples for laboratory analysis for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and cyanide. A summary of the surface and subsurface soil quality is presented below.

Surface Soil

During the RI, six surface soil samples (0 to 0.2 feet below grade) were collected and analyzed for SVOCs, VOCs and total cyanide. Surface soil samples SS-1 through SS-6 were all collected from the NYSEG-owned property. Surface soil data were compared to 6NYCRR Part 375-6 unrestricted use soil cleanup objectives (SCOs) (unrestricted use SCOs). A limited number of MGP-related VOCs (i.e., benzene, toluene) were detected in the surface soil samples. However, these constituents were not detected at concentrations greater than unrestricted use SCOs. During the RI, 15 polycyclic aromatic hydrocarbons (PAHs) were detected in surface soil sample (SS-1) at concentrations greater than unrestricted use SCOs. Select PAHs were also detected at concentrations greater than unrestricted use SCOs in surface soil samples SS-2, SS-5 and SS-6. Total cyanide was not detected at concentrations greater than the unrestricted use SCO in surface soil samples collected during the RI.

Subsurface Soil

Indications of NAPL and/or sheen were observed in three areas of the site: former Gas Holder 1; at monitoring well MW-3 (near the former purifier house); and an unknown buried structure near the SB-14 borings.

Trace-to-little viscous, tar-like NAPL was observed at three soil borings (SB-5, SB-7 and SB-13) completed inside the footprint of former Gas Holder 1 at a depth interval of approximately 16 to 23 feet below grade (immediately above and below the floor of the holder).

The soil boring for monitoring well MW-3 was drilled through a possible brick foundation, likely associated with the former lime house or purifier house. MGP-related impacts were observed at monitoring well MW-3, where a moderate to faint odor, trace sheen, and slightly elevated PID readings (up to 42 parts per million [ppm]) were noted intermittently between 10 and 22 feet below grade. The impacts were observed below the foundation.

As indicated in the ROD, both Railroad Place and the Public Safety Building serve as site cover for the minor MGP related impacts identified in these areas.

A buried structure was encountered at soil boring SB-14A. The void was encountered from approximately 4 to 6.5 feet below grade, and contained water and a black oil-like fluid. A second boring (SB-14B) was completed approximately 5 feet west of SB-14A in an attempt to miss the apparent structure. Strong odors and relatively minor photoionization detector (PID) readings were observed at SB-14B at depths to 15 feet below grade. No visual indications of MGP-related impacts were observed in test pits TP-1, TP-1A and/or TP-1B that were completed immediately north of soil boring SB-14A. Additionally, BTEX compounds were not detected at concentrations greater than laboratory detection limits and PAHs were not detected at concentrations greater than unrestricted use SCOs in soil samples collected from SB-14B (10-12') or TP-1 (7').

The highest concentrations of total BTEX and PAHs were detected in samples collected from the visually impacted material within or near Gas Holder 1 (i.e., samples collected from soil borings SB-5, SB-7, SB-13) and the buried structure encountered at soil boring SB-14A.

1.4.2.2 Groundwater Quality

Groundwater quality was evaluated by comparing the analytical results of groundwater samples to the NYSDEC *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* (TOGS 1.1.1). Monitoring wells are generally screened within the silt and clay unit with some wells screens extending into the upper few feet of the fine sand unit. With the exception of the groundwater samples collected from monitoring well MW-3, the groundwater in these units did not contain BTEX and PAHs at concentrations greater than TOGS 1.1.1 criteria. Based on the interpreted groundwater flow direction and location of former MGP structures, the source of these dissolved phase constituents could be associated with the former lime house, purifier house, or other former MGP structures located beneath the PSB.

Groundwater in the silt and clay and fine sand unit was found to contain low concentrations of total cyanide over a broader area than that affected by BTEX and PAHs. Low concentrations of cyanide were detected in groundwater samples collected from each of the monitoring wells located near and downgradient of the former lime house/purifier house and former Gas Holder 1. Total cyanide was only detected at concentrations greater than the TOGS 1.1.1 criteria (i.e., 200 parts per billion [ppb]) in groundwater samples collected from monitoring wells MW-2 and MW-3 (ranging from 259 to 600 ppb).

1.4.2.3 Soil Vapor Quality

A soil vapor intrusion investigation was conducted at the City of Geneva's PSB. The investigation included collecting soil vapor samples from below the floor slab of the building, and samples of air inside and outside of the building. The investigation results indicated that several VOCs were present in vapor samples collected beneath the building foundation slab and from indoor air. However, the VOCs could not be attributed to a particular source. Several of the VOCs (most notably BTEX) are potentially related to the former MGP, but these same compounds have other possible non-MGP sources such as gasoline. Other detected VOCs, such as trichloroethene, are not related to the former MGP. The concentrations of VOCs detected in indoor air were below appropriate criteria. Based on the investigation results, subsurface MGP byproducts do not appear to be contributing VOCs to the indoor air at the PSB via soil vapor intrusion.

The NYSDEC and the NYSDOH concluded that the concentrations of BTEX and naphthalene detected below the slab present a potential for future soil vapor intrusion into the PSB. As such, the NYSDEC and the NYSDOH requested that NYSEG either

install a sub-slab depressurization system or conduct additional vapor sampling during the 2007/2008 winter season. NYSEG conducted an IRM during 2008 and 2009, consisting of a combination of constructing a sub-slab depressurization vapor intrusion mitigation system and adjusting the HVAC operational set points in the PSB to minimize or eliminate the negative pressure conditions relative to conditions beneath the slab.

If new buildings or structures are constructed on the NYSEG-owned property in the future, a soil vapor intrusion evaluation would be conducted prior to construction to evaluate the potential need for soil vapor intrusion mitigation measures to be included in the construction design.

1.4.3 Pre-Design Investigation

In support of the remedial design for the site remedy, a PDI was conducted in March 2011. The scope of the PDI activities was presented in the NYSDEC-approved October 2010 *Remedial Design Work Plan* (RDWP) (ARCADIS, 2010c). As presented in the RDWP, the objectives of the PDI were to:

- Locate and inspect the structure observed in RI soil boring SB-14A
- Confirm the extent of soil containing MGP-related impacts in the vicinity of soil boring SB-14A
- Document the extent of dissolved phase groundwater impacts at the site
- Evaluate the microbial community present at the site to support a *Natural Attenuation Evaluation*

As indicated previously, the PDI Summary Letter Report (ARCADIS, 2011) is included as Attachment 1.

Soil boring SB-14C was completed at the same location as RI soil boring SB-14A to further investigate the subsurface structure encountered during the RI. As indicated in Attachment 1, a metal tank was encountered in soil boring SB-14C when using air knife/vacuum equipment (air knife). The invert of the tank was measured (through the hole in the top of the tank created during completion of RI soil boring SB-14A) at approximately 6.5 feet below grade. The air knife was then used to determine the horizontal limits of the tank, which measures approximately 7 feet long and 3.5 to 4 feet

wide. Additional PDI soil borings completed in the vicinity of soil boring SB-14C did not contain visual MPG-impacts.

As part of the PDI, a new groundwater monitoring well (MW-10) was installed to facilitate analysis of groundwater in the vicinity of the NYSEG gas regulator station and support the *Natural Attenuation Evaluation* to be conducted as part of the PDI. Groundwater samples were collected from each of the existing and new monitoring wells to document the extent of dissolved phase groundwater impacts and evaluate the microbial community at the site. Benzene was detected in groundwater samples collected from existing monitoring well MW-3 and new monitoring well MW-10 at concentrations greater than TOGS 1.1.1 criteria. Results of the *Natural Attenuation Evaluation* will be presented as part of the 95% Remedial Design.

2. Basis of Design

As indicated in the ROD, the major component of the selected site remedy includes the removal of the subsurface structure and MGP-related impacted soil on the NYSEG property in the area of the tar structure (near soil boring SB-14A) to remove accessible on-site source material. This section describes the process and tools that were used to identify soil requiring remediation and presents the rationale for revisions to the NYSDEC-approved removal area. Rationale for the scope and extent of other remedy components is also presented below.

2.1 Remedial Objectives

As presented in the ROD, the selected remedy must eliminate or mitigate all significant threats to public health and/or the environment from MGP-related materials and impacted media present at the site. To achieve this goal, the following remedial objectives have been established for the protection of public health and the environment.

Table 2.1 Remedial Objectives

Public Health Protection
Soil
• Prevent ingestion/direct contact with contaminated soil
• Prevent inhalation of contaminants volatilizing from the soil
• Prevent inhalation of contaminated particles from the soil
Groundwater
• Prevent ingestion of groundwater containing contaminant levels exceeding drinking water standards
• Prevent contact with contaminated groundwater
• Prevent inhalation of contaminants volatilizing from groundwater
Soil Vapor
• Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into the indoor air of buildings at or near the site

Environmental Protection
Soil • Prevent migration of contaminants that would result in groundwater or surface water contamination Groundwater • Restore the groundwater aquifer to meet ambient groundwater quality criteria to the extent practicable • Prevent discharge of contaminated groundwater to surface water

2.2 Summary of Select Site Remedy

The NYSDEC-selected remedy for the site consists of the following remedial components:

- A remedial design program that would be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program and also access the viability of enhanced natural attenuation.

- The removal of the subsurface structure and MGP-related impacted soil on the NYSEG property in the area of the tar structure (near soil boring SB-14A). This excavation will remove source material (as defined in Section 2.3) that is accessible at the site.

- A site cover will be required for the properties comprising the site to allow for their continued commercial use. This cover will consist of the existing PSB and the associated pavement, sidewalks and parking lots, as well as Railroad Place for the City-owned properties. For the NYSEG-owned property, a soil cover [or asphalt pavement] will be installed in areas of exposed surface soil. The soil cover will consist of a minimum of one foot of soil meeting the commercial use requirements for cover material set forth in 6NYCRR Part 375-6.7(d), placed over a demarcation layer. In areas not designated for access roads or parking, the upper 6 inches of the soil cover will be of sufficient quality to maintain a vegetative layer.

- The holder foundation slab remaining on the NYSEG property [i.e., Gas Holder 3] will be uncovered, inspected, and if tar is observed, cleaned. After the inspection

and any required cleaning, the slab will remain, and the site will be restored consistent with the surrounding conditions.

- Enhanced natural attenuation of the identified groundwater contamination will be evaluated as part of the remedial design, and if a viable approach is identified, it will be implemented. The most likely form for such enhancement would be to increase the amount of oxygen available to the soil bacteria which can naturally degrade the MGP-related COCs present in groundwater.

- Imposition of an institutional control in the form of an environmental easement for the controlled property that:

  - requires the remedial party or site owner to complete and submit a periodic certification of institutional and engineering controls to the NYSDEC in accordance with 6NYCRR Part 375-1.8(h)(3)

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  - land use is subject to local zoning laws, the remedy allows the use and development of the controlled property for commercial use

  - restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDEC, New York State Department of Health (NYSDOH) or County DOH

  - prohibits agriculture or vegetable gardens on the controlled property

  - requires compliance with a NYSDEC-approved *Site Management Plan*

- Development of a *Site Management Plan* that includes the following:

  - An *Institutional and Engineering Control Plan* that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to assure the following institutional and/or engineering controls remain in place and effective:

    <u>Institutional Controls</u> – The environmental easement discussed above will be required for both the NYSEG- and City-owned parcels (i.e., Public Safety

Building property), as well as the portion of Railroad Place located within the limits of the former MGP.

Engineering Controls – The soil cover, the existing buildings, streets, paved areas, and the sub-slab depressurization system already installed in the PSB. The enhanced natural attenuation system, if implemented, would also require ongoing engineering controls to maintain its effectiveness

This plan includes, but may not be limited to the following:

- an *Excavation Plan* which details the provisions for management of future excavations in areas of remaining impacted soil and disposal of soil generated during future excavations
- descriptions of the provisions of the environmental easements including any land use and groundwater use restrictions
- provisions for management and inspection of the identified engineering controls
- the steps necessary for the periodic review and certification of the institutional and/or engineering controls
- provisions for the continued operation of the sub-slab depressurization system in the PSB.

- a *Monitoring Plan* to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to the following:
  - monitoring of groundwater to assess the performance and effectiveness of the remedy
  - a schedule of monitoring and frequency of submittals to be provided to the NYSDEC
  - provisions to evaluate the potential for soil vapor intrusion into any building that may be constructed on the site, including provisions for implementing soil vapor mitigation (as necessary)

- provisions to evaluate the potential for soil vapor intrusion for existing buildings if building use changes significantly

2.3 Remedial Components

The remedial components of the site remedy include:

- Removal of the former tank (and MGP-related source material that may be present immediately surrounding the tank). As defined in DER-10, source material includes NAPL or grossly contaminated material that contains substantial quantities of mobile NAPL identified through visual inspection, strong odors, or is otherwise readily detectable without laboratory analysis. For the purpose of this Remedial Design, source material is defined as soil containing visual MGP-related impacts in quantities greater than slight/trace sheens, staining, or isolated blebs.

- Placement of a soil cover.

- Enhancement (if necessary) of the natural attenuation processes to address dissolved phase groundwater impacts.

Results from the March 2011 PDI were used to refine select components of the site remedy, as presented in the following sections.

2.3.1 Tank Removal and Soil Excavation

Soil excavation limits in the ROD include an approximately 13-foot by 15-foot removal area to address the subsurface structure encountered during the RI and delineated during the PDI, as well as MGP-impacted soil surrounding the structure. As indicated in Section 1, the PDI included drilling soil boring SB-14C to locate the presumed structure that was encountered in RI soil boring SB-14A. Based on the observations at soil boring SB-14C, the structure at this location consists of a metal underground tank. The invert of the tank was measured, through a hole in the top of the tank, at approximately 6.5 to 7 feet bgs. Several borings were then completed using air knife technologies to delineate the horizontal limits of the tank, which measures approximately 7 feet long and 3.5 to 4 feet wide. Visually impacted material was not observed in the PDI soil borings completed in the vicinity of the tank. Therefore, the subsurface excavation activities will be limited to removal of the former tank and any visually impacted soil located below the tank (to an assumed depth of 8 feet below grade).

2.3.2 Soil Cover Installation

Consistent with the ROD, the foundation slab of former Gas Holder 3 will be uncovered, visually inspected, and if visual impacts (i.e., visible free product) are observed on the surface of the foundation slab, the slab will be cleaned. Prior to the installation of the surface cover, a demarcation layer will be installed to denote the surface cover limits. Following placement of the demarcation layer, a soil cover will be installed to generally match the existing lines and grades at the site perimeter and near the gas regulator building. Soil cover materials will consist of a combination of gravel and vegetated topsoil. Vegetated portions of the soil cover will consist of one foot of material that meets the commercial use allowable constituent levels for imported fill or soil provided in Appendix 5 of DER-10 (NYSDEC, 2010c), with the top six inches of soil sufficient to maintain a vegetative layer.

As indicated in the ROD, the existing PSB, asphalt pavement in parking lots and Railroad Place, and sidewalks will serve as a surface cover for properties not owned by NYSEG.

2.3.3 Natural Attenuation Evaluation/Enhancement

The NYSDEC ROD requires an evaluation of the natural attenuation processes potentially occurring at the site and identification of potential means to enhance natural attenuation processes. As indicated in Section 1, the March 2011 PDI included the collection and analysis of groundwater samples to evaluate the microbial community present at the site. Although analytical results for groundwater samples are presented in Attachment 1, the *Natural Attenuation Evaluation* was not completed at the time when this 50% Remedial Design was submitted to NYSDEC. The evaluation will be presented as part of the 95% Remedial Design. The *Natural Attenuation Evaluation* will determine whether or not additional groundwater sampling is needed to evaluate the natural attenuation processes potentially present at the site, and if the processes could be enhanced through the addition of a groundwater amendment.

2.4 Assumptions

The following assumptions have been made to facilitate the development of this 50% Remedial Design.

- Permanent or semi-permanent road/lane closures will be not be permitted in Railroad Place or Wadsworth Street (per March 2011 conversations with City of Geneva Department of Public Works).

- Confirmation soil sampling will not be completed at the limits of remediation areas. However, one documentation sample will be collected from the bottom of the tank removal excavation area.

- Destructive testing or sampling of the Gas Holder 3 slab will not be conducted as part of the remedial action.

- Existing site fencing will be maintained (to the extent practicable) during remedial construction activities.

- Tank removal and soil excavation activities will be completed to a maximum depth of 8 feet below grade. The limits of the tank and soil removal activities will be established based on the presence of source material (as defined in Section 2.3).

- Visible tar will not be encountered during the inspection of the foundation for former Gas Holder 3.

3. Organizational Structure and Responsibilities

NYSEG, the NYSDEC, and NYSDOH will participate jointly in the implementation of the remedial activities described in the 100% Remedial Design. NYSEG has the ultimate responsibility for implementing the remedial activities. NYSDEC and NYSDOH personnel are anticipated to be onsite periodically to observe work activities. NYSEG will be responsible for all on-site construction operations during the project, except for the operations indicated herein. The construction activities will be observed by NYSEG's Remediation Engineer for general compliance with the 100% Remedial Design. Communication with regulatory agencies and with members of the surrounding community will be managed by NYSEG.

Key NYSEG, NYSDEC, and NYSDOH personnel are identified below.

Table 3.1 Key Project Personnel

Name/Affiliation	Address	Contact Information
NYSEG		
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NYSDEC		
Mr. Douglas MacNeal Project Manager	625 Broadway 11th Floor Albany, NY 12233-7017	T: 518.402.9564 dkmacnea@gw.dec.state.ny.us
NYSDOH		
Ms. Debbie McNaughton Project Manager	335 East Main Street Rochester, NY 14604	T: 585.423.8069
Design Engineer: ARCADIS		
Mr. Jason Brien, P.E. Project Manager Ms. Margaret Carrillo-Sheridan, P.E. Engineer of Record	6723 Towpath Road Syracuse, NY 13214	T: 315.671.9114 jason.brien@arcadis-us.com T: 315.671.9167 M.Carrillo-Sheridan@arcadis-us.com
Remediation Engineer: To Be Determined (TBD)		
Project Manager, Project Oversight, Sampling Technician	TBD	TBD

Minimum responsibilities of NYSEG, the Design Engineer, Remediation Engineer, and the Remediation Contractor for work to be conducted prior to, during, and following implementation of the remedial activities at the site are presented in the following subsections.

3.1 NYSEG Responsibilities

NYSEG will be responsible for the following:

- Coordinate with the Remediation Contractor, Design Engineer, and Remediation Engineer (as necessary) to implement the required work activities in conformance with the 100% Remedial Design.

- Secure access agreements and coordinating with property owners with respect to the implementation of the remedial activities.

- Prepare and send a Notice and Fact Sheet consistent with NYSDEC Program Policy DER-23, *Citizen Participation Handbook for Remedial Programs* (NYSDEC, 2010a) to send to the site contact list before field work begins.

- Contract with the selected Remediation Contractor.

- Contract with a firm to serve as the Remediation Engineer.

- Contract with a laboratory for the analysis of soil, water, and other waste samples, as appropriate.

- Issue contract addenda (if any) and modifications (if any) based on input from the Remediation Engineer.

- Act as the “Generator” for material resulting from the remedial activities for off-site treatment and/or disposal of the waste.

- Contract with waste haulers and waste disposal vendors.

- Provide bills of lading/manifests for the off-site shipment of waste materials from the site. These shipping documents may be provided to the Remediation Engineer to sign as an agent for NYSEG, under separate agreement with NYSEG.

- Coordinate with the NYSDEC and NYSDOH regarding environmental-related work activities.

3.2 Design Engineer Responsibilities

The Design Engineer will provide the following services prior to and during the implementation of the remedial activities:

- Conduct pre-remediation in-situ sampling and prepare a *Pre-Remediation In-Situ Sampling and Analysis Report*.

- Provide assistance to NYSEG with preparation of waste profiles for off-site treatment/disposal of wastes to be generated as part of the remedial activities.

3.3 Remediation Engineer Responsibilities

The Remediation Engineer will provide the following services during implementation of the remedial activities:

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

- Provide project management/oversight to observe and monitor implementation of the remedial activities.

- Maintain records of the work efforts associated with implementation of the remedial activities, including daily field reports and digital photographs of the work in progress and to document observations, problems, and deficiencies.

- Maintain records of labor, materials, and equipment utilized for the remedial activities and any unusual circumstances, if any are encountered.

- Document that the remedial activities are conducted in general conformance with the 100% Remedial Design and notify NYSEG of any deviations.

- Provide a sampling technician to conduct community air monitoring in accordance with the CAMP (to be included in the 95% Remedial Design Report).

- Monitor the Remediation Contractor's survey control for evaluating payment quantities, as applicable.

- Coordinate with waste disposal facilities and waste haulers contracted by NYSEG.
- Review and sign (as an authorized agent for NYSEG) waste manifests/bills of lading for shipments of waste materials generated by the remedial activities.
- Maintain an on-site project log containing waste manifests/bills of lading for wastes generated by the remedial activities.
- Assist NYSEG in the review of Remediation Contractor invoices/requests for payment.
- Coordinate pre-construction project meeting, project construction/coordination meetings (as required), and a project close-out meeting for the remedial activities.
- Prepare a *Final Engineering Report* to document completion of the remedial activities (as discussed in Section 6).
- Provide NYSEG with support to resolve any problems that may arise when the 100% Remedial Design is implemented.

3.4 Remediation Contractor Responsibilities

Remediation Contractor responsibilities are detailed throughout the Technical Specifications (to be included as Appendix B). Note that the Remediation Contractor's responsibilities also include:

- Verifying all existing site conditions, including understanding the site data summarized in the *Supplemental Information Package*
- Thoroughly reviewing the Contract Documents
- Providing all supervision, labor, equipment, and materials necessary to implement the activities described in the 100% Remedial Design
- Reviewing Energy East's Contractor Safety Requirements (last updated June 26, 2008)
- Notifying the Remediation Engineer and NYSEG immediately upon discovery of a conflict between the Contract Documents and actual site conditions

4. Pre-Remediation Activities

The following activities will be completed prior to the initiation of remedial activities prior to Remediation Contractor mobilization:

- Conduct pre-remediation sampling
- Preparation of Remediation Contractor pre-mobilization submittals
- Obtain regulatory permits, access agreements, and other approvals

4.1 Pre-Remediation Sampling

Prior to the remedial construction activities, the Design Engineer (ARCADIS) will conduct pre-remediation sampling to characterize soil to be excavated and groundwater to be managed during the remedial construction activities. Sampling will be conducted in accordance with the analytical and sampling frequency requirements provided by anticipated waste disposal/treatment facilities. A detailed description of the sampling protocol, waste characterization, air quality monitoring, and analytical requirements is presented in the *Pre-Remediation In-Situ Sampling and Analysis Work Plan* (to be included in the 95% Remedial Design Report).

The results of the pre-remediation sampling and laboratory analyses will be used to evaluate the potential reuse and disposal/treatment options for materials generated during the remedial construction activities. Following the receipt of analytical data, ARCADIS will prepare a *Pre-Remediation In-Situ Sampling and Analysis Report*. The report will include a brief description of work performed, tabulated summaries of sample analytical results, a plan view of sample locations, and cross sections of the excavation areas so that the information can be used by the waste disposal facilities to approve and accept the material for disposal.

In general, soil/fill that contains visible NAPL, total BTEX and/or PAHs at concentrations greater than or equal to 10 and 500 mg/kg, or that is characteristically hazardous for benzene, shall be treated by low-temperature thermal desorption (LTTD).

4.2 Remediation Contractor Pre-Mobilization Submittals

Following contract award, the selected Remediation Contractor will be required to prepare pre-mobilization submittals for review by NYSEG and the Design Engineer and/or Remediation Engineer. The Remediation Contractor will not be allowed to mobilize to the site prior to review and approval of all required pre-mobilization

submittals. These submittals will include, but not necessarily be limited to, the following:

- *Health and Safety Plan (HASP)* – The Remediation Contractor will be required to prepare and submit a site-specific HASP (for use by the Remediation Contractor's on-site personnel during the remedial activities) to provide a mechanism for establishing safe working conditions at the site. The HASP will be prepared in accordance with all applicable rules and regulations, including 29 Code of Federal Regulations (CFR) 1910 and 29 CFR 1926, and shall be prepared by a certified by a Certified Industrial Hygienist. The Remediation Contractor is required to take all necessary precautions for the health and safety of all on-site Remediation Contractor employees in compliance with all applicable provisions of federal, state, and local health/safety laws and the provisions associated with the HASP. The Remediation Contractor will assume sole responsibility for the accuracy and content of its HASP.

- Remediation Contractor's *Schedule and Sequencing Plan* – The Remediation Contractor shall prepare a schedule to show the complete sequence of construction by major work activities.

Additional requirements regarding the content of these Remediation Contractor pre-mobilization submittals and the overall submittal process are presented in the Specification Section 01010 – Summary of Work (to be included in Appendix B).

4.3 Permitting and Access Agreements

Based on the remedial activities to be conducted at the site and information currently available, the following permit(s), authorization(s) and/or notification(s) have been identified, at a minimum, as potentially applicable with respect to approval of remedial activities:

- *Fire Hydrant Usage Permit* – A permit from the City of Geneva will be required for the use of water from a fire hydrant located proximate to the site. The Remediation Contractor will be required to obtain and maintain this permit, including fees and deposit.

In addition to the above, the Remediation Contractor shall be responsible for obtaining any other pertinent and applicable local, state, or federal permits associated with the implementation of the remedial activities outlined in the 100% Remedial Design Report. However, pursuant to 6 NYCRR Part 375-1.12 (Permits), the NYSDEC may

exempt a remedial party from the requirement to obtain any NYSDEC-issued permits for which the substantive requirements are met. Prior to implementing the remedial activities, NYSEG will satisfy notification requirements and obtain applicable review required by the NYSDEC.

5. Remediation Activities

This section presents a task-by-task summary of the remedial activities to be completed as part of this project.

A site-specific *Construction Quality Assurance Plan* (CQAP) that describes the materials, procedures, and testing related to construction, evaluation, and documentation during the implementation of the remedial activities will be included in the 95% Remedial Design. A *Contingency Plan* that addresses potential emergencies that may arise during the remedial construction activities will also be included as an appendix to the 95% Remedial Design. The Remediation Contractor shall complete each remediation task in accordance with the Remediation Contractor's HASP. The Remediation Contractor shall be responsible for conducting worker health and safety and work space monitoring. The Remediation Engineer will conduct community air monitoring for the duration of the project.

The Remediation Contractor shall conduct remediation activities following the general sequence described below.

Table 5.1 General Construction Sequence

Remedial Construction Component	Approximate Duration
Mobilization and site preparation	1 week
Tank removal and excavation activities	2 days
Backfill tank removal and excavation area	2 days
Surface material removal	3 days
Gas Holder 3 foundation slab inspection	1 day
Install soil cover	4 days
Final site restoration, survey and demobilization	1 week
Total Estimate Duration	5 weeks

The Remediation Contractor may propose an alternative remediation sequence. Alternate construction sequences shall be approved by NYSEG and the Design Engineer prior to implementation.

A description of each remediation task, including references to supporting information presented elsewhere in the Contract Documents, is presented in the following subsections.

5.1 Remediation Task 1 – Mobilization

Site mobilization will be initiated by the Remediation Contractor after notification from NYSEG to proceed. In general, mobilization activities include bringing personnel, equipment, and materials to the site to support the remedial construction activities. Mobilization activities to be conducted by the Remediation Contractor include, but are not limited to, the following tasks:

- Mobilizing necessary labor, equipment, materials, tools, and supervision to commence work on the project.

- Coordinating with Dig Safely New York prior to construction activities to mark all on-site underground utilities.

- Removing existing site fencing and installing temporary site security fencing and gates, and project/warning signs. Requirements for the project sign are presented in Specification Section 01902 – Project Sign (to be included in Appendix B). Locations of temporary fencing are shown on Design Drawing 3 (Appendix A). Temporary fencing shall be 6-foot high chain link fence equipped with “No Trespassing” signs.

- Mobilizing and establishing one field office trailer to be utilized by the Remediation Contractor, the Remediation Engineer and the NYSDEC during implementation of the remedial activities. The trailer (and supporting telephone and internet services) shall conform to the requirements presented in Specification Section 01901 – Field Office Trailer and Other Support (to be included in Appendix B).

- Coordinating with NYSEG to obtain access to electrical service, as necessary. In the event that on-site electrical service is not available or accessible, the Remediation Contractor shall be responsible for providing electrical service, as necessary, for use during the remedial activities.

- Providing and maintaining portable sanitary services for use by on-site personnel engaged in the remedial activities. Portable sanitary services shall be installed at the location shown on Design Drawing 3 (Appendix A) and shall conform to the requirements presented in Specification Section 01901 – Field Support Facilities (to be included in Appendix B).

5.2 Remediation Task 2 – Site Preparation

In general, the Remediation Contractor will conduct the following site preparation activities:

- Verify existing site conditions and identify, mark, and verify the location(s) of all aboveground and underground utilities, equipment, and structures, as necessary, to implement the remedial activities. The Remediation Contractor shall also be responsible for maintaining appropriate clearances from utilities (e.g., active overhead electric lines, underground conduit/piping). If the Remediation Contractor damages existing utilities, equipment, or structures, the Remediation Contractor shall be responsible for notifying the appropriate utility company/municipality and fully repairing all damages at no additional cost to NYSEG. Repairs (if necessary) shall be completed in accordance with all requirements of the utility company/municipality and to the satisfaction of the Remediation Engineer.

- Establish survey control and work limits. Requirements for establishing survey control are presented in Specification Section 01160 – Survey Control (to be included in Appendix B). The Remediation Contractor shall survey and mark-out the limits of the excavation area.

- Install temporary erosion and sediment control measures. Control measures shall be installed in accordance with Design Drawings 3 and 6 (Appendix A) and Specification Section 01110 – Environmental Protection Procedures (to be included in Appendix B).

- Deploy work zone air monitoring equipment for worker health and safety monitoring, as required, prior to initiating intrusive activities. Although the Remediation Engineer will be responsible for conducting community air monitoring in accordance with Specification Section 02507 – Odor, Vapor, and Dust Control (to be included Appendix B) and the CAMP (to be included in the 95% Remedial Design), the Remediation Contractor shall verify daily that community air monitoring is being conducted prior to initiating intrusive site activities.

- Construct decontamination areas. The Remediation Contractor shall construct decontamination areas for trucks, equipment, and personnel during implementation of the remedial activities. Anticipated areas to be used by the Remediation Contractor are shown on Design Drawing 3 (Appendix A). Section views and the minimum requirements for decontamination area construction will be presented as part of the 95% Remedial Design.

Refer to Design Drawing 3 (Appendix A) for additional information regarding site preparation activities.

5.3 Remediation Task 3 – Vapor and Dust Monitoring and Control

As required by the NYSDOH's Generic CAMP, real-time airborne particulate monitoring will be conducted continuously during all intrusive and/or potential dust generating activities (e.g., excavation support installation, excavation, backfilling, material handling activities) using instrumentation equipped with electronic data-logging capabilities. Additionally, as required by the NYSDOH's Generic CAMP, VOCs will be monitored continuously during all intrusive and/or potential dust-generating activities. Odors associated with MGP-related impacts to soil are anticipated to be generated during intrusive activities. The Remediation Engineer will be responsible for conducting community air monitoring. However, the Remediation Contractor shall address dust and vapors in accordance with the CAMP (to be included as part of the 95% Remedial Design) and Specification Section 02507 – Odor, Vapor, and Dust Control (to be included in Appendix B), and odors shall be addressed as directed by NYSEG and/or the Remediation Engineer. The following dust, vapor, and odor control measures may be used during these activities, depending upon specific circumstances, visual observations and air monitoring results:

- Water.
- BioSolve® spray.
- Polyethylene sheeting (e.g., for covering excavation faces, material stockpiles).
- Minimizing excavation surface area to be exposed at any given time.
- Vapor suppression foam.

Upon completion of a shift and prior to leaving the site at the end of a day, any open excavations will be backfilled to minimize potential odors, to the extent practical, or covered with polyethylene. During the work day, exposed areas may be covered with polyethylene sheeting, foamed or temporarily covered with appropriate soil, as required, to control odors. An odor agent (e.g., Bio-Solve, Rusmar Foam product) shall

be used as necessary. Material Safety Data Sheets (MSDS) for odor suppressant products must be maintained on site by the Remediation Contractor.

A more detailed description of the air monitoring program, including routine requirements, action levels for increased monitoring, provisions for corrective actions to address air emissions, and/or provisions for remedial action modifications/work stoppage, is provided in the CAMP (to be included as part of the 95% Remedial Design) and Specification Section 02507 – Odor, Vapor, and Dust Control (to be included in Appendix B).

5.4 Remediation Task 4 – Surface Material Removal

The Remediation Contractor shall be responsible for the removal of existing surface material at the site. The Remediation Contractor shall remove existing 12-inches of topsoil and gravel from the NYSEG property to facilitate inspection of the former foundation slab for Gas Holder 3 (discussed under Remediation Task 6) and installation of a new soil cover (discussed under Remediation Task 9). Surface material removal shall be conducted in accordance with Specification 02201 – Earthwork (to be included in Appendix B). Removed material removed shall be handled and disposed/treated off-site in accordance with Specification Section 02415 – Impacted Material Handling and Excavation Procedures (to be included in Appendix B).

5.5 Remediation Task 5 – Tank and Soil Removal

The Remediation Contractor shall conduct excavation activities to remove the former tank and source material in the immediate vicinity of the tank (if encountered). As indicated in Section 2, source material is defined as soil containing visual MGP-related impacts in quantities greater than slight/trace sheens, staining, or isolated blebs. Following removal of source material, the Remediation Engineer shall collect one documentation sample from the bottom of the tank removal excavation.

The anticipated horizontal extent of the removal area is presented on Design Drawing 4 (Appendix A). The Remediation Contractor shall complete the tank removal/soil excavation activities to an anticipated depth of 8 feet below grade. Note that if source material is encountered below the tank, the Remediation Contractor will be required to remove the source material. However, for bidding purposes, the Remediation Contractor shall assume that removal activities will be completed to a depth of 8 feet below grade.

Excavated material shall be handled/managed as discussed under Remediation Task 6. If, based on the presence of source material, soil removal activities are required at depths greater than 8 feet below grade, the Remediation Contractor shall use pre-engineered excavation support systems (e.g., trench boxes) or a cantilever sheet pile support system to complete the soil removal activities. Potential excavation support systems will be furthered evaluated as part of the 95% Remedial Design. Additional information on excavation support systems to be utilized by the Remediation Contractor will be included in the 95% Remedial Design.

Tank and soil removal activities shall be conducted by the Remediation Contractor in accordance with following specifications (to be included in Appendix B):

- Section 02201 – Earthwork
- Section 02202 – Rock and Debris Removal
- Section 02415 – Impacted Material Handling and Excavation Procedures

Note that an approximately 4-inch diameter metal pipe was encountered above the top of the former tank during the PDI. The Remediation Contractor shall coordinate with NYSEG to confirm that the pipe is not an active gas line and then cut and cap the pipe in accordance with Specification Section 02415 – Section 02399 – Former Pipe Abandonment (to be included in Appendix B).

The Remediation Contractor shall pump out the contents of the tank prior to removal. Additionally, the Remediation Contractor shall dewater/stabilize materials within the excavation (if necessary) prior to removal and transportation to the off-site treatment/disposal facility selected by NYSEG. For the purpose of developing a bid, the Remediation Contractor shall assume that excavation area dewatering shall be conducted via sump installed within the excavation areas as detailed in Specification Section 02415 – Impacted Material Handling and Excavation Procedures (to be included in Appendix B). Approximately 2,000 gallons of water are anticipated to be generated during the remedial construction activities. Water shall be stored in a 2,500 gallon polyethylene tank (to be provided by the Remediation Contractor) to be staged as shown on Design Drawing 3 (Appendix A). A pre-fabricated spill containment berm shall be placed beneath the tank.

The Remediation Engineer shall coordinate with NYSEG-selected waste transportation vendors and disposal facilities to manage and remove the containerized water from the work area. Waste transportation and disposal activities shall be conducted in accordance with all applicable state and federal requirements, as well as the requirements set forth by the disposal facility.

5.6 Remediation Task 6 – Gas Holder 3 Foundation Inspection

As indicated under Remediation Task 4, the Remediation Contractor shall remove surface materials covering former Gas Holder 3 to facilitate inspection of the foundation slab (and any valve boxes or tar drips, if encountered). The Remediation Contractor shall initially remove materials outside the limits of the paved parking area to expose the northern and eastern portions of the holder foundation slab. The Remediation Engineer will visually inspect the holder foundation slab and document (through photographs) that the foundation slab is free if visual impacts (i.e., visible free product, not including staining). If free phase liquid is observed, the Remediation Contractor shall power-wash/clean/vacuum the foundation slab such that no visible free product remains, to the satisfaction of the Remediation Engineer. Additional information regarding NAPL removal procedures is included in with Specification Section 02415 – Impacted Material Handling and Excavation Procedures (to be included in Appendix B). The Remediation Contractor will not be required to remove stained concrete.

If free phase liquid is observed on the northern and eastern portions of the holder foundation slab, the western and southern portions of the slab (i.e., below the existing asphalt parking lot) will require inspection. If inspection is required, the Remediation Contractor shall saw-cut the asphalt pavement to create a clean break line. The Remediation Contractor shall remove only the portions of the pavement necessary to expose the holder foundation. Pavement removed to facilitate the inspection shall be handled in accordance with Specification Section 02415 – Impacted Material Handling and Excavation Procedures (to be included in Appendix B). The Remediation Engineer will visually inspect the holder foundation slab and if free phase liquid is observed, the Remediation Contractor shall power-wash/clean/vacuum the foundation slab such that no visible free product remains, to the satisfaction of the Remediation Engineer.

The Remediation Contractor shall replace surface materials as discussed under Remediation Task 9. For the purpose of establishing a bid price, the Remediation Contractor shall assume that no free phase liquid will be observed during holder inspection activities

5.7 Remediation Task 7 – Waste Handling/Management

Soil, debris, water, NAPL, and miscellaneous MGP-impacted wastes generated during the remedial activities will be handled and disposed/treated off-site in accordance with all applicable federal, state, and local regulations.

As indicated in Section 4, prior to the remedial construction activities, the Design Engineer will conduct pre-remediation sampling to characterize soil to be excavated and groundwater to be managed during the remedial construction activities. The results of the pre-remediation sampling and laboratory analyses will be presented in a *Pre-Remediation In-Situ Sampling and Analysis Report*. The report will include the material handling and off-site disposal/treatment requirements for soil, water, NAPL, and miscellaneous wastes generated during the remedial activities.

Traffic routes to be utilized by the Remediation Contractor and waste transporters (as well as the importation of construction materials) are provided in the CERP (to be included as part of the 95% Remedial Design).

5.8 Remediation Task 8 – Backfill

Following the completion of the soil excavation activities, the excavation area shall be backfilled to facilitate placement of the soil cover. The Remediation Contractor shall backfill the removal areas with imported general fill to facilitate final site restoration, as discussed under Remediation Task 9. Backfill material requirements are presented in Specification Section 02206 – Selected Fill (to be included in Appendix B). Backfill shall be placed and compacted in accordance with Specification Section 02201 – Earthwork (to be included in Appendix B).

5.9 Remediation Task 9 – Soil Cover

As indicated in Section 2, the existing Public Safety Building, asphalt pavement in parking lots and Railroad Place, and sidewalks will serve as a surface cover for properties not owned by NYSEG. The Remediation Contractor shall install a soil cover on the NYSEG property. The soil cover will generally consist of a minimum of one foot of imported fill material. Soil cover components are shown on Design Drawing 5 (Appendix A). Requirements for the soil cover materials are presented in the following specifications (to be included in Appendix B):

- Section 02201 – Earthwork
- Section 02206 – Selected Fill
- Section 02210 – Topsoil and Seeing
- Section 02270 – Geotextile
- Section 02645 – Asphalt Pavement

As indicated under Remediation Task 7, removal of the existing asphalt is not anticipated to be required as part of the holder foundation inspection activities. The

Remediation Contractor shall install a combination of vegetated topsoil and gravel (that meets the commercial use allowable constituent levels for imported fill or soil provided in Appendix 5 of DER-10) over the portion of the foundation holder exposed during the inspection activities. Prior to placing imported fill material, the Remediation Contractor shall install a geotextile or polyethylene fabric demarcation layer. As shown on Design Drawing 5 (Appendix A), the Remediation Contractor shall install gravel surfaces in the northern portion of the NYSEG property (to serve as a parking area for adjacent residents) and near the gas regulator station (to provide vehicle access to the building). All other areas will be covered with general fill and a minimum of six inches of topsoil suitable to maintain a vegetative layer.

5.10 Remediation Task 10 – Project Close-Out and Demobilization

This section presents project close-out activities to be completed by the Remediation Contractor.

5.10.1 Restoration

The Remediation Contractor shall restore all other surface features disturbed, damaged, or destroyed during the remedial activities, including, but not limited to, sidewalks, pavement and curbs, vegetated surfaces, and permanent site fencing. Sidewalks, roadways, and curbs shall be replaced in kind. Site restoration details are provided on Design Drawing 5 (Appendix A).

Repairs to sidewalks, pavement, and curbs that are damaged by the Remediation Contractor during remedial construction shall be approved by the City of Geneva, prior to conducting surface restoration activities. The Remediation Contractor shall be responsible for gaining City approval of any repairs to damaged surfaces and meeting all local, state, and federal laws.

5.10.2 Decontamination

The Remediation Contractor shall decontaminate (as necessary) all personnel and equipment that comes into contact with excavated materials. The Remediation Contractor shall conduct decontamination of personnel and equipment within the constructed decontamination area.

At a minimum, the Remediation Contractor shall decontaminate the Remediation Contractor's project equipment (including, but not limited to, excavation equipment, trucks, pumps, and hand tools) that comes in contact with excavated materials prior to

demobilizing and prior to handling clean material in accordance with Specification Section 01112 – Decontamination Procedures (to be included in Appendix B). In addition, equipment used to handle excavated material or liquids shall be decontaminated prior to further handling of non-impacted material. The Remediation Contractor shall perform decontamination activities until no visible soil, debris, or stains are present on the equipment surfaces (to the satisfaction of the Remediation Engineer). Equipment, such as pumps, shall be flushed using clean water and appropriate cleaning agents (as necessary) to the satisfaction of the Remediation Engineer.

Unless otherwise directed by the Remediation Engineer, any equipment to be taken off site by the Remediation Contractor shall be cleaned within the constructed decontamination area and subject to a final visual review by the Remediation Engineer. Precautions shall be taken to limit contact between the equipment, personnel performing the cleaning activities, and any cleaning liquids that may accumulate in the decontamination area. The extent and method of cleaning shall be at the discretion of the Remediation Contractor; however, each piece of equipment shall be inspected by the Remediation Engineer for any visible soils, staining, or other debris prior to its demobilization from the site. Any observed soils, staining, or other debris shall be promptly removed by the Remediation Contractor to the satisfaction of the Remediation Engineer. Water that is generated during decontamination activities will be collected and containerized in appropriate containers for off-site treatment/disposal.

The Remediation Contractor shall prepare the solid and liquid waste streams generated by the decontamination activities for off-site disposal. Treatment/disposal of collected wash water, solids, and other materials shall be in accordance with Remediation Task 8 – Excavated Material and Waste Handling (Section 4.8) and Specification 02415 – Impacted Material Handling and Excavation Procedures.

5.10.3 Survey

The Remediation Contractor shall retain a New York State licensed surveyor to conduct survey control during completion of the remedial actions, as required by the Contract Documents. The survey information (including final as-built information) will be used to document that the remedial activities have been completed consistent with the project design requirements. The Remediation Contractor shall supply the survey information to the Remediation Engineer for inclusion in the *Final Engineering Report* to be prepared by the Remediation Engineer upon completion of the remedial activities. Survey work associated with the remedial activities will be performed in

accordance with Specification Section 01160 – Survey Control and Section 01720 – Project Record Documents (to be included Appendix B).

5.10.4 Demobilization

Following completion of all remedial actions, the Remediation Contractor shall conduct the following demobilization activities:

- Dismantle the work area(s), staging area(s), and decontamination area.
- Clean/decontaminate equipment and construction-related materials prior to removal from the site.
- Remove from the site, all material equipment and support structures.

6. Post-Remediation Activities

This section presents the remedial activities to be conducted following the completion of remediation activities at the former MGP site.

6.1 Final Engineering Report

Upon completion of the remedial construction activities, a *Final Engineering Report* (FER) will be prepared by the Remediation Engineer for submittal to the NYSDEC. In general, and in conformance with the intent of Section 5.8(b) of DER-10 (NYSDEC, 2010c) the FER will present, at a minimum, the following information:

- Description of the remediation activities completed in accordance with the approved remedial design, including problems encountered and variations (if any) from the NYSDEC-approved *Final (100%) Remedial Design Report.*
- Record drawings, tables, and figures detailing the remedial activities completed.
- Certification statement.
- Information and documentation regarding the final quantities and disposition of materials disposed/treated off site during implementation of the remedial activities, including executed manifests and bills of lading.

The FER will be prepared in a format based on available templates on the NYSDEC website. A professional engineer licensed in New York State will sign and seal the *Final Engineering Report*, including the record drawings and certification statement.

6.2 Post-Remedial Action Groundwater Monitoring

Following the completion of the remedial construction activities, periodic groundwater monitoring will be conducted to document site groundwater conditions and potentially, further evaluate natural attenuation processes occurring at the site. As indicated above, the results of the *Natural Attenuation Evaluation* will be included as part of the 95% Remedial Design. NYSEG will recommend a scope, frequency, and duration for post-remedial action groundwater monitoring based on the results of the *Natural Attenuation Evaluation*. Additional details regarding post-remedial action groundwater monitoring will be presented in the 95% Remedial Design.

6.3 Institutional Controls

As required by the ROD, institutional controls in the form of an environmental easement will be established for the site. NYSEG will establish the environmental easement in support of the following:

- Requiring the property owner (NYSEG) to complete and submit periodic certifications to NYSDEC that the institutional and engineering controls are still in place and remain effective
- Restricting the use of the site to commercial use
- Restricting the use of groundwater at the site
- Requiring management of the site in accordance with the provisions of the SMP (as described in the following subsection)

NYSEG will establish the environmental easement following the completion of the remedial construction activities. Note that per the ROD, institutional controls are also required for City-owned portions of the site (i.e., the PSB lot and Railroad Place). NYSEG will coordinate with the City and NYSDEC to assess the feasibility of establishing institutional controls on parcels not owned by NYSEG.

6.4 Site Management Plan

Following completion of the remedial construction activities and consistent with the requirements of DER-10 (NYSDEC, 2010c), NYSEG will prepare an SMP that will detail the post-remedial action activities to be conducted at the site. The SMP will be prepared to include the following:

- *Institutional and Engineering Control Plan* – describes the use restrictions and engineering controls that have been established at the site. This plan may include the following:
    - an *Excavation Plan* that includes procedures and protocols for testing, handling, and disposal of remaining site soil that may be excavated in the future

  - an *Excavation Plan* that includes procedures and protocols for testing, handling, and disposal of remaining site soil that may be excavated in the future

  - descriptions of the environmental easements and groundwater use restrictions established for the site

  - requirements for inspections and management of engineering controls

  - requirements for periodic reviews and certification of institutional and engineering controls

  - requirements for the continued operation of the sub-slab depressurization system in the PSB

- *Monitoring Plan* – used to assess the performance and effectives of the remedial activities. This plan may include the following:

  - requirements for conducting periodic groundwater monitoring

  - a schedule of the monitoring activities and submittals to be provided to NYSDEC

  - requirements to evaluate the potential for vapor intrusion at any new buildings that may be constructed onsite in the future, including provisions for implementing soil vapor mitigation (as necessary)

  - requirements to evaluate the potential for vapor intrusion for existing site buildings if building use changes significantly

7. Schedule

This section presents the preliminary project schedule for NYSDEC review of the Contract Documents.

Table 7.1 Preliminary Project Schedule

Schedule Component	Date
50% Remedial Design to NYSDEC	May 31, 2011
NYSEG receives NYSDEC comments on 50% Remedial Design	June 30, 2011
95% Remedial Design to NYSDEC	September 30, 2011
NYSEG receives NYSDEC comments on 95% Remedial Design	October 31, 2011
100% Remedial Design to NYDSEC	December 1, 2011

Remediation scheduling will be presented as part of the Request for Proposal to potential remedial contractors at the time that NYSEG and NYSDEC decide to implement the remedial action at this site.

8. References

ARCADIS, 2008. *Remedial Investigation Report*, Wadsworth Street Former Manufactured Gas Plant Site, prepared for the NYSEG, February 2008.

ARCADIS, 2010a. *Feasibility Study Report*, Wadsworth Street Former Manufactured Gas Plant Site, prepared for the NYSEG, February 2010.

ARCADIS, 2010b. *Construction Completion Report/Interim Site Management Plan*, Wadsworth Street Former MGP Site, prepared for NYSEG. July 2010.

ARCADIS, 2010c. *Remedial Design Work Plan*, Wadsworth Street Former MGP Site, prepared for NYSEG. October 2010.

ARCADIS, 2011. *PDI Summary Letter Report*, Wadsworth Street Former MGP Site, prepared for NYSEG. April 2011.

NYSDEC. 2010a. *DER-23*. *Citizen Participation Handbook for Remedial Programs.* January, 2010.

NYSDEC, 2010b. *Record of Decision*. NYSEG, Wadsworth Street, Geneva MGP Site, Site Number 8-35-015, March 2010.

NYSDEC, 2010c. *DER-10, Technical Guidance for Site Investigation and Remediation*. May 2010.

Appendix A

Design Drawings

CITY: SYRACUSE, NY DIV/GROUP:ENV/141 DB:BGP KLS NES K.SARTORI LD:BGP PIC: K.WHITE PM: J.BRIEN TM: J.BRIEN LYR:ON=*;OFF=*REF*
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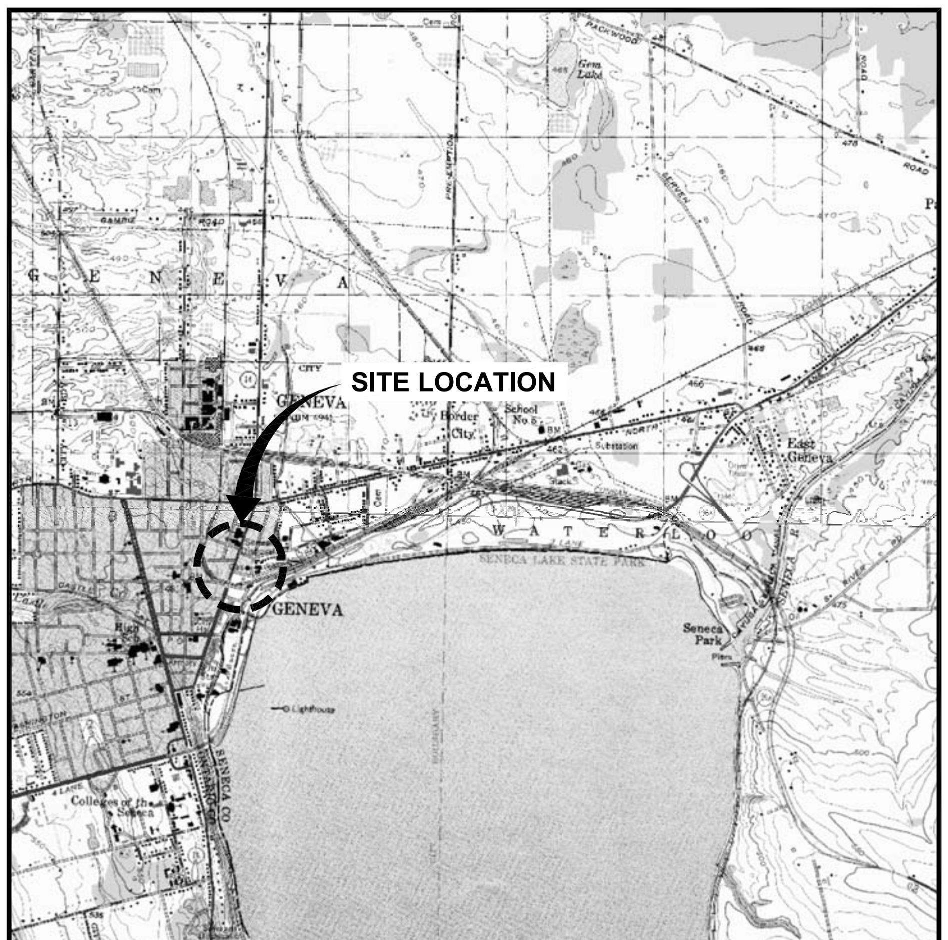
XREFS: IMAGES: 13104X01.tif 13104X02.tif PROJECTNAME: ---

DESIGN DRAWINGS

WADSWORTH STREET
FORMER MANUFACTURED GAS PLANT SITE
DRAFT (50%) REMEDIAL DESIGN



REFERENCE: BASE MAP USGS 7.5 MINUTE QUADRANGLE., GENEVA S. & GENEVA N., 1953, PHOTOREVISED 1978

LOCATION MAP

0 2000' 4000'
GRAPHIC SCALE

DATE ISSUED
MAY 2011

DRAFT
NOT FOR CONSTRUCTION

NYSEG
GENEVA, NEW YORK

ARCADIS

ARCADIS OF NEW YORK, INC.

INDEX TO DRAWINGS

GENERAL NOTES:

1. DIFFERENCES IDENTIFIED BY THE REMEDIATION CONTRACTOR BETWEEN THE CONTRACT DOCUMENTS AND ACTUAL SITE CONDITIONS, WHICH MAY AFFECT CONSTRUCTION, SHALL BE SUBMITTED TO THE REMEDIATION AND DESIGN ENGINEERS IN WRITING FOR CLARIFICATION.
2. THE REMEDIATION CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL OTHER FEDERAL–, STATE–, COUNTY–, AND/OR CITY–SPECIFIC PERMITS THAT MAY BE REQUIRED TO PERFORM THE WORK, INCLUDING NYSDOT WORK PERMITS.
3. INFORMATION RELATED TO SUBSURFACE CONDITIONS IS APPROXIMATE AND SHOULD NOT BE RELIED ON AS A COMPLETE DEPICTION OF SITE CONDITIONS. THE REMEDIATION CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, INCLUDING ABOVEGRADE AND SUBSURFACE FEATURES WHETHER OR NOT SHOWN ON DESIGN DRAWINGS OR OTHERWISE DESCRIBED IN THE CONTRACT DOCUMENTS.
4. THE TECHNICAL WORK AND CONTRACTOR REQUIREMENTS ARE DESCRIBED IN SEVERAL DOCUMENTS THAT COLLECTIVELY REPRESENT THE REMEDIAL DESIGN. THESE DOCUMENTS INCLUDE THE REMEDIAL DESIGN NARRATIVE, DESIGN DRAWINGS, TECHNICAL SPECIFICATIONS, CAMP, CQAP, AND CERP. THESE DOCUMENTS SHOULD BE THOROUGHLY REVIEWED BY THE REMEDIATION CONTRACTOR. ANY DIFFERENCES IDENTIFIED BY THE REMEDIATION CONTRACTOR BETWEEN THE INFORMATION PRESENTED IN THE ABOVE–LISTED DOCUMENTS SHALL BE SUBMITTED TO THE REMEDIATION AND DESIGN ENGINEER (IN WRITING) FOR REVIEW AND RESOLUTION.

UTILITY NOTES:

1. THE LOCATIONS, ALIGNMENTS, AND CONSTRUCTION OF UTILITIES SHOWN ON THE DESIGN DRAWINGS ARE APPROXIMATE AND BASED ON INFORMATION READILY AVAILABLE TO THE OWNER/DESIGN ENGINEER. THE CONTRACTOR SHALL VERIFY THE PRESENCE AND LOCATION OF ALL OVERHEAD/UNDERGROUND SITE FEATURES AND UTILITIES RELEVANT TO AND POTENTIALLY TO BE ENCOUNTERED DURING THE WORK. ADDITIONAL SITE FEATURES AND UTILITIES MAY BE PRESENT THAT ARE NOT SHOWN ON THE DESIGN DRAWINGS.
2. THE REMEDIATION CONTRACTOR IS RESPONSIBLE FOR CONTACTING/COORDINATING WITH DIG SAFELY NEW YORK TO IDENTIFY AND LOCATE UNDERGROUND UTILITIES. THE DIG SAFELY NEW YORK PHONE NUMBER IS 811; THE WEBSITE IS WWW.DIGSAFELYNEWYORK.COM.
3. EXCEPT WHERE NOTED OR AS OTHERWISE INDICATED IN THE REMEDIAL DESIGN, THE REMEDIATION CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE AND PROTECTION OF ALL OVERHEAD/UNDERGROUND SITE FEATURES AND UTILITIES THAT MAY BE AFFECTED BY THE WORK. ALL UTILITIES, UNLESS STATED OTHERWISE, SHALL REMAIN IN OPERATION FOR THE DURATION OF THE WORK.
4. THE REMEDIATION CONTRACTOR IS RESPONSIBLE FOR CONTACTING/COORDINATING WITH THE APPROPRIATE UTILITY COMPANIES FOR THE TEMPORARY BRACING, REMOVAL, RELOCATION, AND/OR REPLACEMENT OF ANY UTILITIES, UTILITY POLES, OR GUY WIRES.

SAFETY NOTES:

1. THE REMEDIATION CONTRACTOR SHALL PROVIDE EVIDENCE OF ALL ONSITE PERSONNEL COMPLETING OSHA 40–HOUR TRAINING AND 8–HOUR REFRESHER TRAINING PRIOR TO INITIATING REMEDIAL CONSTRUCTION ACTIVITIES.
2. THE REMEDIATION CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING, MAINTAINING, AND SUPERVISING ALL SAFETY MEASURES AND PROGRAMS IN CONNECTION WITH THE PROJECT. THE REMEDIATION CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE SAFETY OF, AND SHALL PROVIDE THE NECESSARY PRECAUTIONS TO PROTECT, SITE WORKERS, CONSTRUCTION OVERSIGHT PERSONNEL, AND SITE VISITORS.
3. THE REMEDIATION CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS, AND ORDERS OF PUBLIC BODIES HAVING JURISDICTION FOR THE SAFETY OF PERSONS OR PROPERTY OR TO PROTECT THEM FROM DAMAGE, INJURY, OR LOSS, INCLUDING, WITHOUT LIMITATION, THE DEPARTMENT OF LABOR SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION PROMULGATED UNDER THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 (PL 91–596) AND UNDER SECTION 107 OF THE CONTRACT WORK HOURS AND SAFETY STANDARDS ACT (PL 91–54) AND AMENDMENTS THERETO. THE REMEDIATION CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS SET FORTH UNDER 29 CFR 1910 AND 29 CFR 1926. THE REMEDIATION CONTRACTOR SHALL ERECT AND MAINTAIN, AS REQUIRED BY THE CONDITIONS AND THE PROGRESS OF THE WORK, ALL NECESSARY SAFEGUARDS FOR THE SAFETY AND PROTECTION OF PERSONS AND PROPERTY AND SHALL COMPLY WITH ALL APPLICABLE RECOMMENDATIONS OF THE MANUAL OF ACCIDENT PREVENTION IN CONSTRUCTION OF THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC.
4. THE REMEDIATION CONTRACTOR SHALL FURNISH AND PLACE PROPER GUARDS FOR PREVENTION OF ACCIDENTS, AND PROVIDE ALL EXCAVATION SHORING/BRACING, SCAFFOLDING, SHIELDING, DUST/VAPOR/ODOR PROTECTION, MECHANICAL/ELECTRICAL PROTECTION, SPECIAL GROUNDING, SAFETY RAILINGS, BARRIERS, OR OTHER SAFETY FEATURES REQUIRED. AS NEEDED, THE REMEDIATION CONTRACTOR SHALL PROVIDE AND MAINTAIN SUFFICIENT LIGHT DURING NIGHT HOURS TO SECURE SUCH PROTECTION. THE REMEDIATION CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING SECURITY ON SITE DURING NON–WORKING HOURS FROM THE DATE OF INITIAL MOBILIZATION UNTIL THE DATE OF FINAL DEMOBILIZATION, OR AS OTHERWISE DIRECTED BY THE OWNER/ENGINEER.
5. THE MATERIALS SUBJECT TO HANDLING AS PART OF THE PROJECT MAY CONTAIN HAZARDOUS CONSTITUENTS OR CHEMICALS AND SHOULD BE HANDLED IN ACCORDANCE WITH APPLICABLE REGULATIONS. THE REMEDIATION CONTRACTOR SHALL DEVELOP AND IMPLEMENT APPROPRIATE HEALTH AND SAFETY MEASURES FOR ITS EMPLOYEES, SUBCONTRACTORS, AND SITE VISITORS, AND FOR THE PROTECTION OF THE ENVIRONMENT AND SURROUNDING COMMUNITY. THE REMEDIATION CONTRACTOR'S HASP SHALL BE DEVELOPED IN ACCORDANCE WITH APPLICABLE OSHA, FEDERAL, STATE, AND LOCAL REGULATIONS.
6. SEVERAL CONTRACTOR ACTIVITIES WILL BE PERFORMED WITHIN, ADJACENT TO, OR IN THE VICINITY OF THE EXCAVATION/BACKFILL AREAS. THE REMEDIATION CONTRACTOR'S HASP SHALL RECOGNIZE THE TYPES OF ACTIVITIES TO BE PERFORMED, THE UNIQUE HAZARDS SPECIFIC TO THESE ACTIVITIES, AND SPECIAL PRECAUTIONS AND CONTROLS THAT ARE TO BE IMPLEMENTED. OF ADDITIONAL NOTE AND EMPHASIS ARE THOSE ACTIVITIES THAT POTENTIALLY INVOLVE WORK WITHIN THE EXCAVATION AREAS ONCE EXCAVATION/BACKFILL ACTIVITIES ARE INITIATED, AND THAT POTENTIALLY REQUIRE WORKER ACCESS INTO THE EXCAVATED AREAS. THE REMEDIATION CONTRACTOR SHALL CLEARLY IDENTIFY AND EVALUATE THE SPECIFIC TYPES OF ACTIVITIES THAT COULD INVOLVE WORKER ENTRY INTO THE EXCAVATION AREAS, SPECIFIC INGRESS/EGRESS ROUTES AND PROVISIONS, PERSONNEL AND WORK AREA MONITORING, PERSONAL PROTECTIVE EQUIPMENT, COMMUNICATIONS, ETC. FURTHER, TO THE EXTENT PRACTICABLE (AS DETERMINED BY THE CONTRACTOR), THE CONTRACTOR IS ENCOURAGED TO MINIMIZE WORKER ENTRY INTO THE EXCAVATED AREAS.

SITE MANAGEMENT/PROJECT PERFORMANCE NOTES:

1. ALL WORK SHALL BE PERFORMED WITHIN THE PROJECT WORK LIMITS. NO WORK SHALL BE PERFORMED BEYOND THE PROJECT WORK LIMITS WITHOUT PRIOR APPROVAL FROM THE OWNER/REMEDIATION ENGINEER.
2. WORK ACTIVITIES ARE PERMITTED ON NON–HOLIDAY WEEKDAYS (MONDAY THROUGH FRIDAY) BETWEEN THE HOURS OF 7:00 AM AND 5:30 PM. NO WORK SHALL BE PERFORMED OUTSIDE OF THESE HOURS WITHOUT PRIOR APPROVAL FROM THE OWNER/REMEDIATION ENGINEER.
3. ALL WORK SHALL BE PERFORMED IN A NEAT AND ORDERLY MANNER, IN CONFORMANCE WITH BEST MODERN TRADE PRACTICE, AND BY COMPETENT, EXPERIENCED PERSONNEL. MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH ALL CODES, REGULATIONS, AND REQUIREMENTS OF ALL APPLICABLE CITY, STATE, FEDERAL, AND OTHER PUBLIC OR PRIVATE AUTHORITIES.
4. ALL EQUIPMENT OPERATED WITHIN THE PROJECT WORK LIMITS SHALL BE DECONTAMINATED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS PRIOR TO ARRIVING ONSITE AND PRIOR TO LEAVING THE SITE. PROJECT EQUIPMENT THAT COMES IN CONTACT WITH EXCAVATED MATERIALS SHALL BE APPROPRIATELY DECONTAMINATED PRIOR TO HANDLING IMPORTED BACKFILL MATERIAL OR EXCAVATED MATERIAL SUBJECT TO RE–USE AS ONSITE BACKFILL TO THE SATISFACTION OF THE REMEDIATION ENGINEER.
5. THE REMEDIATION CONTRACTOR SHALL ESTABLISH, MAINTAIN, AND PROTECT THE PROJECT WORK LIMITS (INCLUDING EXCLUSION, CONTAMINATION REDUCTION, AND SUPPORT ZONES) AS DEFINED IN THE CONTRACTOR'S HASP.
6. THE REMEDIATION CONTRACTOR SHALL ESTABLISH AND MAINTAIN SURVEY CONTROL THROUGHOUT THE WORK IN ACCORDANCE WITH THE REMEDIAL DESIGN.
7. NO EXCAVATED MATERIALS OR SUPPLIES OF ANY KIND SHALL BE STORED ON PRIVATE OR PUBLIC PREMISES WITHOUT PRIOR APPROVAL FROM THE OWNER/REMEDIATION ENGINEER.
8. THE REMEDIATION CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY TRAFFIC CONTROL MEASURES (E.G., FLAG MEN, SIGNS, CONES, ETC.) AND COORDINATING THE HAULING OF MATERIALS ON PUBLIC ROADWAYS.
9. THE REMEDIATION CONTRACTOR SHALL REMOVE ABOVEGROUND AND UNDERGROUND NON–EARTHEN MATERIALS (E.G., BRUSH, LOGS, TREES, STUMPS, BRICK, CONCRETE, PIPING, ETC.) AS REQUIRED TO PERFORM THE WORK. SUCH MATERIALS SHALL BE DOWNSIZED (AS REQUIRED BY THE WASTE TRANSPORTATION AND DISPOSITION VENDORS), AND TRANSPORTED OFFSITE TO AN APPROPRIATE, OWNER–SELECTED DISPOSAL FACILITY.
10. EXISTING SITE FEATURES NOT SPECIFICALLY IDENTIFIED ON THE DESIGN DRAWINGS MAY REQUIRE REMOVAL BY THE REMEDIATION CONTRACTOR TO FACILITATE CONSTRUCTION. THE REMOVAL OF SUCH FEATURES SHALL NOT BE PERFORMED WITHOUT PRIOR APPROVAL FROM THE OWNER/REMEDIATION ENGINEER.
11. THE REMEDIATION CONTRACTOR SHALL RESTORE ALL AREAS THAT ARE IMPACTED BY THE PROJECT, INCLUDING BUT NOT LIMITED TO, EQUIPMENT AND MATERIAL STORAGE AREAS, MATERIAL LOADING AREAS, PARKING AREAS, AND LOCATION OF SITE TRAILER, EXCEPT WHERE NOTED OTHERWISE IN THE CONTRACT DOCUMENTS.
12. THE REMEDIATION CONTRACTOR SHALL CONTROL ODORS, DUST, AND VAPORS THAT RESULT FROM THE CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH THE CONTRACTOR'S HEALTH AND SAFETY PLAN, THE CONTRACT DOCUMENTS, AND APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
13. THE REMEDIATION CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL ABOVEGROUND AND BELOW GROUND NON–EARTHEN MATERIALS INCLUDING, BUT NOT LIMITED TO: FORMER TANK, FORMER BUILDING FOUNDATIONS, DEBRIS, BRUSH, LOGS, TREES, STUMPS, REFUSE, AND RUBBISH FROM WITHIN THE PROJECT WORK LIMITS, AS REQUIRED TO PERFORM THE REMEDIAL ACTIVITIES DESCRIBED HEREIN.
14. THE REMEDIATION CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOADING OF ALL WASTE MATERIALS GENERATED DURING THE PROJECT. THE REMEDIATION ENGINEER SHALL COORDINATE TRANSPORTATION WITH OFF–SITE DISPOSAL FACILITIES.
15. THE REMEDIATION CONTRACTOR SHALL COLLECT, EXTRACT, CONVEY AND CONTAINERIZE ALL WATER GENERATED DURING THE PROJECT. THE REMEDIATION ENGINEER SHALL COORDINATE TRANSPORTATION WITH OFF–SITE DISPOSAL FACILITIES.
16. THE REMEDIATION CONTRACTOR SHALL NOT INITIATE ANY INTRUSIVE ACTIVITIES (I.E., INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES, SHEET PILE INSTALLATION, EXCAVATION, OR MATERIAL HANDLING) WITHOUT FIRST CONFIRMING THAT THE COMMUNITY AIR MONITORING PROGRAM IS IN OPERATION.
17. COMMUNITY AIR MONITORING FOR VOLATILE ORGANIC COMPOUNDS AND PARTICULATES SHALL BE PERFORMED BY THE REMEDIATION ENGINEER ON A CONTINUOUS BASIS DURING ALL INTRUSIVE AND/OR POTENTIAL DUST GENERATING ACTIVITIES (E.G., INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES, INSTALLATION OF EXCAVATION SUPPORT SYSTEMS, EXCAVATION/MATERIAL HANDLING ACTIVITIES, ETC.). THE REMEDIATION CONTRACTOR SHALL ENSURE THAT COMMUNITY AIR MONITORING IS BEING PERFORMED PRIOR TO INITIATING INTRUSIVE AND/OR POTENTIAL DUST GENERATING ACTIVITIES EACH DAY.
18. ALL AREAS IMPACTED BY OR OTHERWISE DISTURBED DURING THE PROJECT SHALL BE RESTORED TO PRE–CONSTRUCTION CONDITION AND/OR AS INDICATED IN THE REMEDIAL DESIGN BY THE REMEDIATION CONTRACTOR IN A TIMELY MANNER AND PRIOR TO CONTRACTOR DEMOBILIZATION.

REFERENCE NOTES:

1. BASE MAP BASED ON SURVEYS COMPLETED BY NYSEG ON DECEMBER 14, 2005 AND OCTOBER 2006. BASE MAP UPDATED BASED ON SURVEY COMPLETED BY ARCADIS ON MARCH 23, 2011. ELEVATIONS IN REFERENCE TO NGVD 1929, HORIZONTAL DATUM IS NAD 83 STATEPLANE, NEW YORK CENTRAL.
2. PROPERTY BOUNDARIES WERE DIGITIZED FROM CITY OF GENEVA, ONTARIO COUNTY, NEW YORK TAX MAP [104.35], DATED MAY 1, 2008.

SURVEY NOTES:

1. ACTUAL SITE FEATURES AT THE TIME OF CONSTRUCTION MAY DIFFER FROM THOSE SHOWN ON THE DESIGN DRAWINGS. THE REMEDIATION CONTRACTOR SHALL PROMPTLY NOTIFY THE OWNER AND REMEDIATION ENGINEER (IN WRITING) OF ANY SUCH DIFFERENCES THAT MAY AFFECT THE PERFORMANCE OF THE WORK.
2. IT SHALL BE THE REMEDIATION CONTRACTOR'S RESPONSIBILITY TO ESTABLISH AND MAINTAIN CONSTRUCTION SURVEY CONTROL AND VERIFY GRADES DURING THE PERFORMANCE OF WORK USING A NEW YORK STATE–LICENSED LAND SURVEYOR.
3. THE REMEDIATION CONTRACTOR SHALL PERFORM SURVEY ACTIVITIES IN ACCORDANCE WITH THE REMEDIAL DESIGN (I.E., SPECIFICATION SECTION 01160 – SURVEY CONTROL AND THE CQAP).

ABBREVIATIONS:

AMSL	ABOVE MEAN SEA LEVEL
BTEX	BEAZENE, TOLUENE, ETHYLBENZENE, XYLENE
CAMP	COMMUNITY AIR MONITORING PLAN
CERP	COMMUNITY AND ENVIRONMENTAL RESPONSE PLAN
CFR	CODE OF FEDERAL REGULATIONS
CQAP	CONSTRUCTION QUALITY ASSURANCE PLAN
CY	CUBIC YARDS
EA.	EACH
EL.	ELEVATION
HASP	HEALTH AND SAFETY PLAN
HDPE	HIGH–DENSITY POLYETHYLENE
LTTD	LOW TEMPERATURE THERMAL DESORPTION
M&P	MATERIALS AND PERFORMANCE
MAX.	MAXIMUM
MGP	MANUFACTURED GAS PLANT
MIN.	MINIMUM
NYCRR	OFFICIAL COMPILATION OF CODES, RULES, AND REGULATIONS OF THE STATE OF NEW YORK
NYSDEC	NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
NYSDOT	NEW YORK STATE DEPARTMENT OF TRANSPORTATION
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PAH	POLYCYCLIC AROMATIC HYDROCARBONS
PPM	PARTS PER MILLION
PDI	PRE–DESIGN INVESTIGATION
PVC	POLYVINYL CHLORIDE
RI	REMEDIAL INVESTIGATION
SQ.	SQUARE
TYP.	TYPICAL
UST	UNDERGROUND STORAGE TANK

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CITY: SYRACUSE-NY DIV/GROUP: 141/ENV DB: B.GETTS K.SARTORI LD: B.GETTS PIC: K.WHITE PM: J.BRIEN TM: J.BRIEN LYR:ON=*;OFF=*REF*
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No.	Date	Revisions	By	Ckd

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Professional Engineer's Name: **MARGARET A. CARRILLO-SHERIDAN**
Professional Engineer's No.: 082251

State	Date Signed	Project Mgr.
NY		JDB
Designed by: JRG	Drawn by: BGG	Checked by: JDB

ARCADIS OF NEW YORK, INC.

NYSEG • GENEVA, NEW YORK
WADSWORTH STREET FORMER MANUFACTURED GAS PLANT SITE
DRAFT (50%) REMEDIAL DESIGN

GENERAL NOTES, REFERENCE DRAWINGS, AND ABBREVIATIONS

ARCADIS Project No.: B0013104.0000.00013
Date: MAY 2011

ARCADIS
6723 Towpath Road
P.O. Box 66
Syracuse, NY 13214
Tel: 315.446.9120

1

DRAFT
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CITY: SYRACUSE-NY DIV/GROUP: 141/ENV DB: B.GETTS LD: B.GETTS PIC: K.WHITE PM: J.BRIEN TM: J.BRIEN LYR:ON=*;OFF=*REF*
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Professional Engineer's Name: **MARGARET A. CARRILLO-SHERIDAN**
Professional Engineer's No.: 082251

State	Date Signed	Project Mgr.
NY		JDB
Designed by	Drawn by	Checked by
JRG	BGG	JDB

ARCADIS
ARCADIS OF NEW YORK, INC.

NYSEG • GENEVA, NEW YORK
WADSWORTH STREET FORMER MANUFACTURED GAS PLANT SITE
DRAFT (50%) REMEDIAL DESIGN

EXISTING SITE PLAN

ARCADIS Project No.
B0013104.0000.00013

Date
MAY 2011

ARCADIS
6723 Towpath Road
P.O. Box 66
Syracuse, NY 13214
Tel: 315.446.9120

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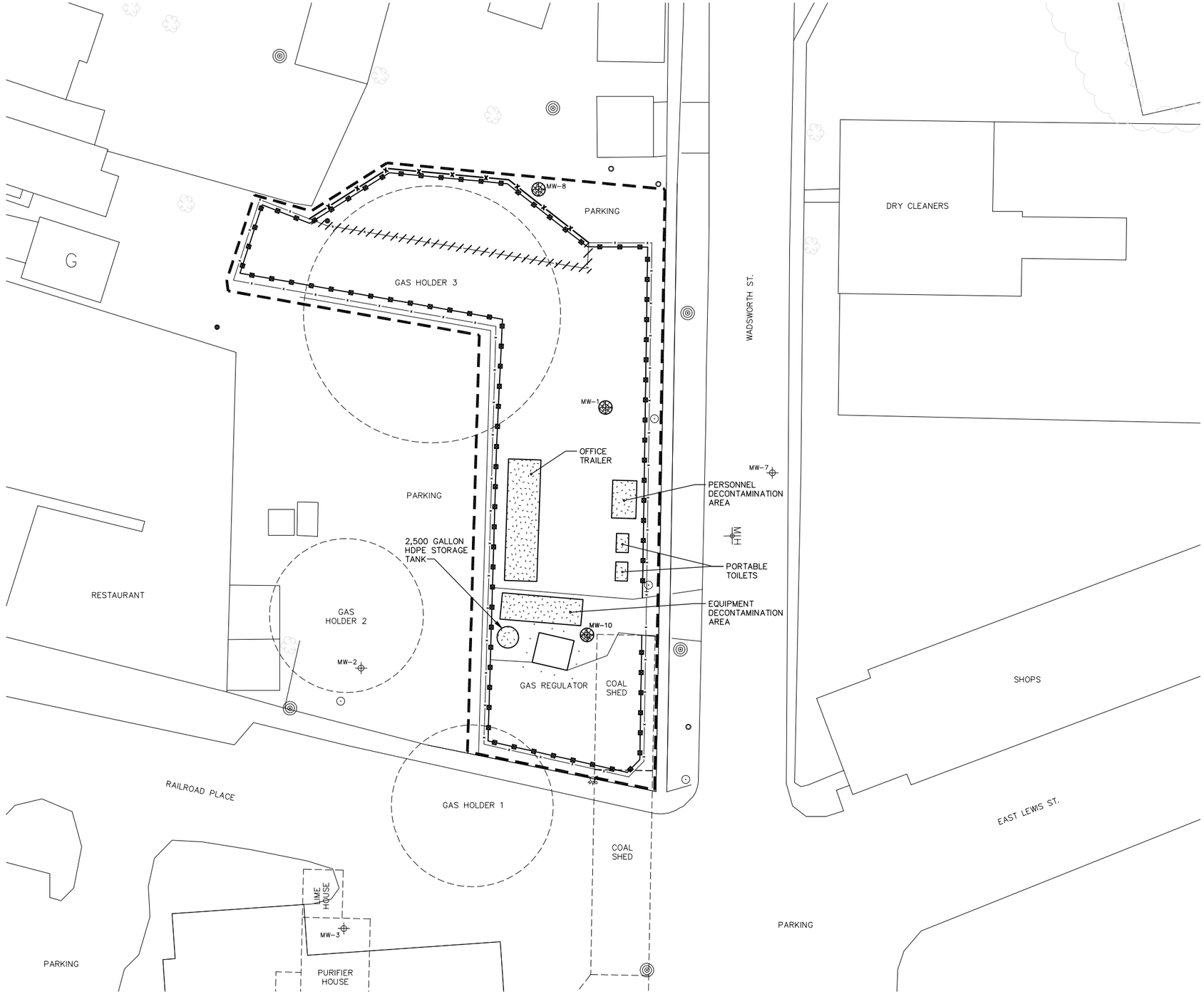

LEGEND:

- FENCE
- FORMER MGP STRUCTURE
- POWER POLE
- LIGHT POLE
- POST, SIGN
- HYDRANT
- MANHOLE
- MONITORING WELL LOCATION
- PROJECT WORK LIMITS
- EXISTING SITE FEATURE TO BE REMOVED
- EXISTING SITE FEATURE TO BE PROTECTED
- TEMPORARY SITE SECURITY FENCE
- STRAW BALE DIKE OR SILT FENCE (1,2 / 6)

NOTES:

1. THE REMEDIATION CONTRACTOR SHALL INSTALL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO DISTURBING EXISTING SITE SOILS AND VEGETATION.
2. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO PREVENT MIGRATION OF CONSTRUCTION RELATED SOILS, DEBRIS, FUELS, SOLVENTS, LUBRICANTS, CONCRETE, LEACHATE, OR ANY OTHER POLLUTANT BEYOND THE PROJECT WORK LIMITS.
3. ACTUAL LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES MAY VARY BASED ON ACTUAL SITE CONDITIONS ENCOUNTERED AT THE TIME OF CONSTRUCTION.
4. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES MAY BE REQUIRED AT TIME OF CONSTRUCTION TO CONTROL EROSION AND SEDIMENTATION.
5. TEMPORARY EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION INCLUDING, BUT NOT LIMITED TO, INSPECTION, MAINTENANCE, AND INSTALLATION OF ADDITIONAL CONTROLS (AS NEEDED, AND IN COORDINATION WITH THE REMEDIATION ENGINEER) SHALL BE THE RESPONSIBILITY OF THE REMEDIATION CONTRACTOR. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE LATEST EDITION OF THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.
6. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED, AT A MINIMUM, ONCE EVERY SEVEN CALENDAR DAYS. INSPECTION RESULTS SHALL BE SUMMARIZED IN A WEEKLY INSPECTION REPORT SUBMITTED TO THE REMEDIATION ENGINEER FOR REVIEW. REFER TO THE CONSTRUCTION QUALITY ASSURANCE PLAN FOR INSPECTION REPORT REQUIREMENTS.

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Professional Engineer's Name: MARGARET A. CARRILLO-SHERIDAN		
Professional Engineer's No.: 082251		
State: NY	Date Signed:	Project Mgr.: JDB
Designed by: JRG	Drawn by: BGG	Checked by: JDB

ARCADIS OF NEW YORK, INC.

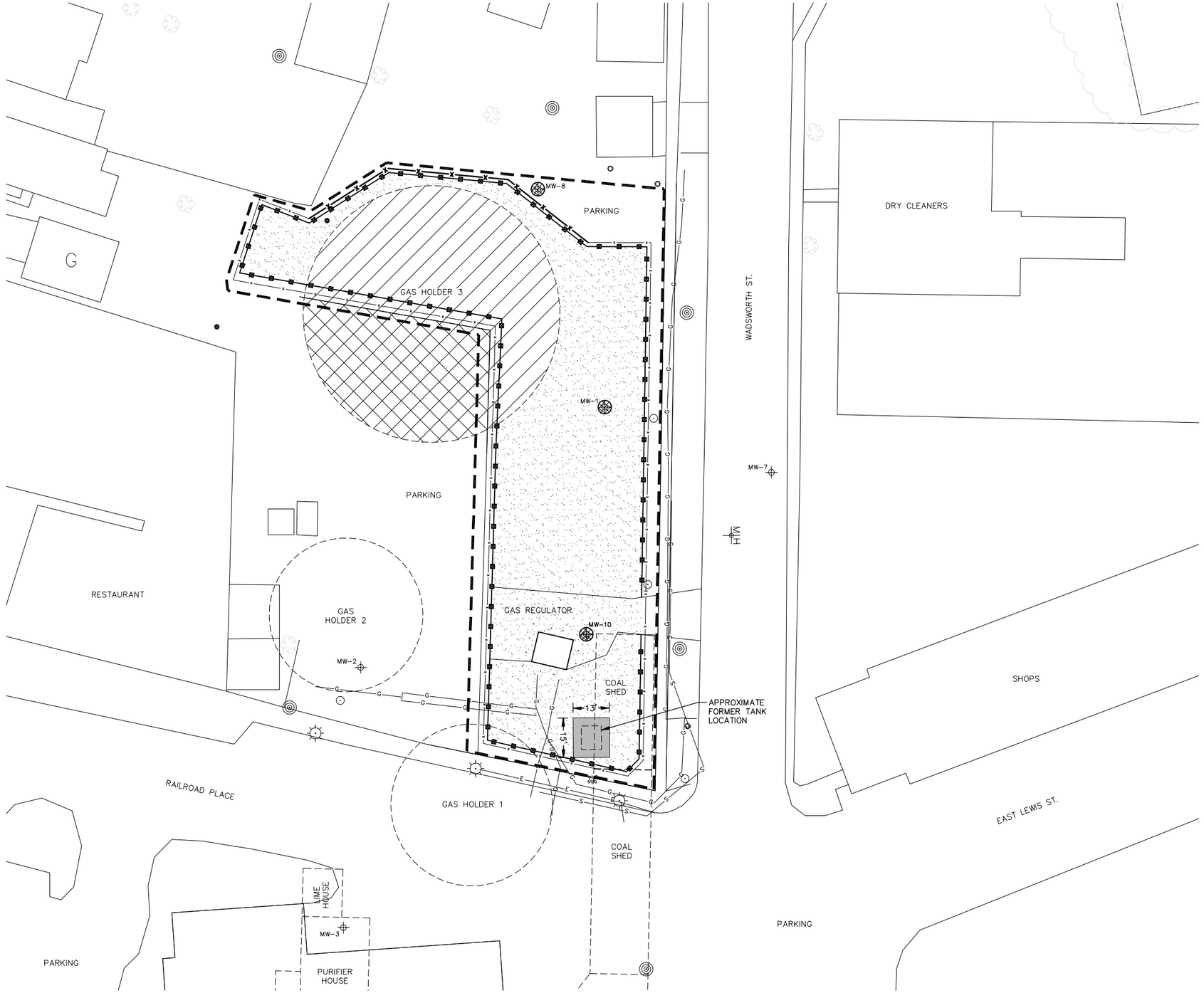
NYSEG • GENEVA, NEW YORK
WADSWORTH STREET FORMER MANUFACTURED GAS PLANT SITE
DRAFT (50%) REMEDIAL DESIGN

SITE PREPARATION PLAN

ARCADIS Project No.: B0013104.0000.00013
Date: MAY 2011

ARCADIS
6723 Towpath Road
P.O. Box 66
Syracuse, NY 13214
Tel: 315.446.9120

3



LEGEND:

- FENCE
- FORMER MGP STRUCTURE
- POWER POLE
- LIGHT POLE
- POST, SIGN
- HYDRANT
- MANHOLE
- MONITORING WELL LOCATION
- PROJECT WORK LIMITS
- EXISTING SITE FEATURE TO BE PROTECTED
- TEMPORARY SITE SECURITY FENCE
- STRAW BALE DIKE OR SILT FENCE (1,2 / 6)
- APPROXIMATE HORIZONTAL EXTENT OF TANK AND SOIL REMOVAL
- APPROXIMATE HORIZONTAL EXTENT OF SURFACE MATERIAL REMOVAL
- APPROXIMATE HORIZONTAL EXTENT OF INITIAL GAS HOLDER 3 FOUNDATION SLAB VISUAL INSPECTION
- APPROXIMATE HORIZONTAL EXTENT OF FOUNDATION SLAB VISUAL INSPECTION IF FREE PRODUCT IS OBSERVED DURING INITIAL VISUAL INSPECTION
- SEWER LINE
- GAS LINE
- ELECTRIC LINE (SUBSURFACE)

NOTES:

1. EXCAVATION ACTIVITIES SHALL BE COMPLETED IN ACCORDANCE WITH ALL APPLICABLE OSHA REQUIREMENTS.
2. THE REMEDIATION CONTRACTOR IS RESPONSIBLE FOR REMOVING AND DISPOSING OF THE FORMER TANK IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL REQUIREMENTS.
3. TANK AND SOIL REMOVAL ACTIVITIES SHALL BE COMPLETED TO AN ASSUMED DEPTH OF 8 FEET BELOW GRADE.
4. AN APPROXIMATELY 4-INCH DIAMETER METAL PIPE WAS ENCOUNTERED ABOVE THE TOP OF THE FORMER TANK DURING THE PDI. THE REMEDIATION CONTRACTOR SHALL COORDINATE WITH NYSEG TO CONFIRM THAT THE PIPE IS NOT AN ACTIVE GAS LINE AND THEN CUT AND CAP THE PIPE AS PART OF THE TANK REMOVAL ACTIVATES.
5. THE REMEDIATION CONTRACTOR IS REQUIRED TO REMOVE THE TOP 12 INCHES OF EXISTING SURFACE COVER AS SHOWN.
6. THE REMEDIATION CONTRACTOR SHALL VISUALLY INSPECT ANY TAR DRIPS OR VALVE BOXES ASSOCIATED WITH GAS HOLDER 3, IF ENCOUNTERED.
7. IF FREE PHASE LIQUID (I.E., NAPL) IS OBSERVED DURING HOLDER FOUNDATION INSPECTION, THE REMEDIATION CONTRACTOR SHALL POWER WASH/CLEAN/VACUUM THE FOUNDATION SLAB SUCH THAT NO VISIBLE FREE PRODUCT REMAINS, TO THE SATISFACTION OF THE REMEDIATION ENGINEER. THE REMEDIATION CONTRACTOR WILL NOT BE REQUIRED TO REMOVE STAINED CONCRETE.
8. THE REMEDIATION CONTRACTOR WILL BE REQUIRED TO REMOVE THE ASPHALT PAVEMENT COVERING THE WESTERN AND SOUTHERN PORTIONS OF THE HOLDER. IF FREE PRODUCT IS OBSERVED ON THE NORTHERN OR EASTERN PORTION OF THE FORMER FOUNDATION FOR GAS HOLDER 3. IF NECESSARY, THE REMEDIATION CONTRACTOR SHALL SAW CUT THE PAVEMENT TO CREATE A CLEAN BREAK LINE AND ONLY REMOVE PORTIONS OF THE PAVEMENT NECESSARY TO EXPOSE THE HOLDER FOUNDATION.

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CITY: SYRACUSE,NY DIV/GROUP: 141/ENV DB: B.GETTS LD: B.GETTS PIC: K.WHITE PM: J.BRIEN TM: J.BRIEN LYR:ON=*;OFF=*REF*
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1"=20' (20' 0 20' 40')

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No.	Date	Revisions	By	Ckd

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Professional Engineer's Name: **MARGARET A. CARRILLO-SHERIDAN**
Professional Engineer's No.: 082251

State	Date Signed	Project Mgr.
NY		JDB
Designed by: JRG	Drawn by: BGG	Checked by: JDB

ARCADIS
ARCADIS OF NEW YORK, INC.

NYSEG • GENEVA, NEW YORK
WADSWORTH STREET FORMER MANUFACTURED GAS PLANT SITE
DRAFT (50%) REMEDIAL DESIGN

REMOVAL PLAN

ARCADIS Project No.: B0013104.0000.00013
Date: MAY 2011

ARCADIS
6723 Towpath Road
P.O. Box 66
Syracuse, NY 13214
Tel: 315.446.9120

4

LEGEND:

- FENCE
- FORMER MGP STRUCTURE
- POWER POLE
- LIGHT POLE
- POST, SIGN
- HYDRANT
- MANHOLE
- MONITORING WELL LOCATION
- PROJECT WORK LIMITS
- SITE FEATURE TO BE REMOVED
- EXISTING SITE FEATURE TO BE PROTECTED
- TEMPORARY SITE SECURITY FENCE
- VEGETATED TOPSOIL
- STONE

NOTES:

1. REMEDIATION CONTRACTOR TO REMOVE TEMPORARY SITE SECURITY FENCE AND REPLACE EXISTING FENCE TO ORIGINAL LOCATION.

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CITY: SYRACUSE-NY DIV/GROUP: 141/ENV DB: B.GETTS LD: B.GETTS PIC: K.WHITE PM: J.BRIEN TM: J.BRIEN LYR:ON=*;OFF=*REF*
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Professional Engineer's Name: **MARGARET A. CARRILLO-SHERIDAN**
Professional Engineer's No.: 082251

State	Date Signed	Project Mgr.
NY		JDB
Designed by: JRG	Drawn by: BGG	Checked by: JDB

ARCADIS OF NEW YORK, INC.

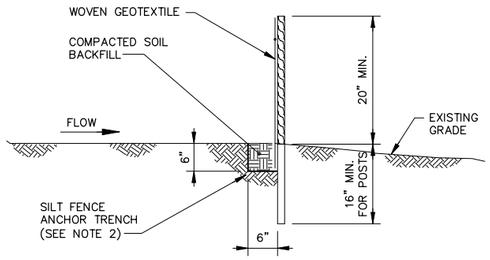
NYSEG • GENEVA, NEW YORK
WADSWORTH STREET FORMER MANUFACTURED GAS PLANT SITE
DRAFT (50%) REMEDIAL DESIGN

SITE RESTORATION PLAN

ARCADIS Project No.: B0013104.0000.00013
Date: MAY 2011

ARCADIS
6723 Towpath Road
P.O. Box 66
Syracuse, NY 13214
Tel: 315.446.9120

5



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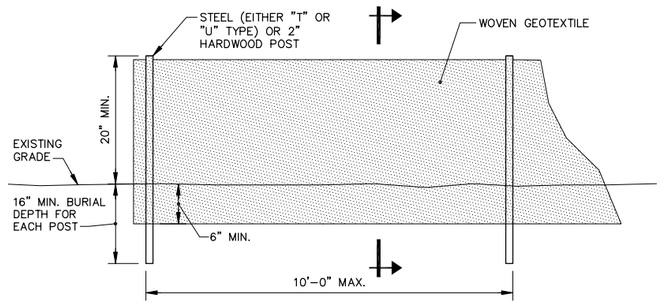


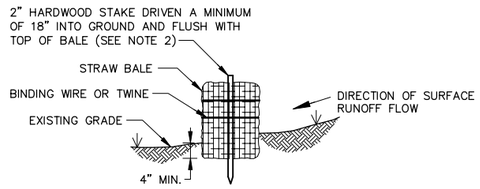
PROFILE

NOTES:

1. SEDIMENT DEPOSITS SHALL BE REMOVED WHEN "BULGES" DEVELOP IN SILT FENCE OR AS DIRECTED BY ENGINEER.
2. THE SILT FENCE SHALL BE FOLDED INTO A TRENCH AND BACKFILLED.
3. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE LATEST EDITION OF THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.

SILT FENCE 1

NOT TO SCALE



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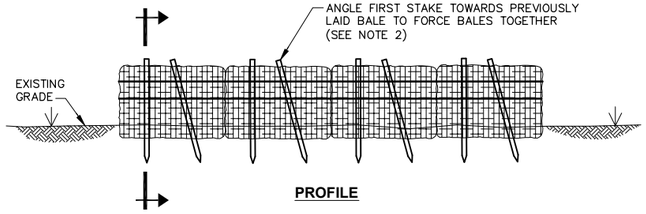

PROFILE

NOTES:

1. BALES SHALL BE BOUND WITH BALE TIES INTACT.
2. WITHIN AREAS WHERE STAKES CANNOT BE EASILY DRIVEN (I.E., PAVEMENT/CONCRETE), THE REMEDIATION CONTRACTOR SHALL PROVIDE AN ALTERNATE MEANS OF ANCHORING STRAW BALES (E.G., SAND BAGS) SUCH THAT EXISTING PAVEMENT/CONCRETE IS NOT DAMAGED.
3. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE LATEST EDITION OF THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.
4. BALES USED ON PAVED SURFACES SHALL BE SECURED WITH SAND BAGS OR OTHER APPROPRIATE MEANS.
5. THE REMEDIATION CONTRACTOR MAY USE EITHER, OR A COMBINATION OF, SILT FENCE OR STRAW BALES FOR EROSION CONTROL.

STRAW BALE DIKE 2

NOT TO SCALE

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CITY: SYRACUSE DIV/GROUP: ENVCAD DB: S. KOWALCZYK LD: PIC: K.WHITE PIC: K.WHITE PM: J.BRIEN TM: J.BRIEN LYR: ON=*;OFF=*REF*
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Professional Engineer's Name: MARGARET A. CARRILLO-SHERIDAN
Professional Engineer's No.: 082251
State: NY | Date Signed: | Project Mgr.: JDB
Designed by: JRG | Drawn by: BGG | Checked by: JDB

ARCADIS OF NEW YORK, INC.

NYSEG • GENEVA, NEW YORK
WADSWORTH STREET FORMER MANUFACTURED GAS PLANT SITE
DRAFT (50%) REMEDIAL DESIGN

EROSION AND SEDIMENT CONTROL DETAILS

ARCADIS Project No.: B0013104.0000.00013
Date: MAY 2011

ARCADIS
6723 Towpath Road
P.O. Box 66
Syracuse, NY 13214
Tel: 315.446.9120

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Appendix B

List of Specifications

List of Specifications
Preliminary (50%) Remedial Design Report

NYSEG – Wadsworth Street Former Manufactured Gas Plant Site – Geneva, New York

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Attachment 1

PDI Summary Letter Report

ARCADIS of New York, Inc
6723 Towpath Road
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Syracuse
New York 13214-0066
Tel 315 446 9120
Fax 315 449 0017
www arcadis-us com

ENVIRONMENTAL

John J. Ruspantini, CHMM
Environmental Analyst
Site Investigation and Remediation
NYSEG
18 Link Drive
Binghamton, New York 13904

Subject:
Wadsworth Street (Geneva) Former MGP Site
Pre-Design Investigation Summary

Date:
May 25, 2011

Contact:
Jason Brien, PE

Phone:
315.671.9114

Email:
jason.brien@arcadis-us.com

Our ref:
B0013104

Dear Mr. Ruspantini:

This letter presents a summary of the Pre-Design Investigation (PDI) conducted for the NYSEG Wadsworth Street Former Manufactured Gas Plant (MGP) Site (the site) located in Geneva, New York. PDI activities were completed in accordance with the New York State Department of Environmental Conservation- (NYSDEC-) approved October 2010 *Remedial Design Work Plan* (RDWP) (ARCADIS, 2010). The objectives of the PDI were to:

- Locate and inspect the structure encountered in Remedial Investigation (RI) soil boring SB-14A
- Delineate the visual extent of soil containing MGP-related impacts in the vicinity of soil boring SB-14A
- Document the extent of dissolved phase groundwater impacts at the site
- Evaluate the microbial community present at the site to support a *Natural Attenuation Evaluation*

PDI activities and results are summarized below. A photo log documenting PDI investigation activities is included as Attachment A.

General PDI Coordination

ARCADIS contacted (via telephone on March 16, 2011) the City of Geneva Department of Public Works Director, Mr. Paul Cosentino, regarding the scope of

potential future remedial construction activities that would be conducted at the site. Based on the small site size, there is limited space available for equipment and material lay-down areas. ARCADIS inquired whether road closures would be permitted during remedial construction activities to provide more working room at the site. Mr. Cosentino indicated road closures and lane restrictions would only be permitted if remedial construction activities (e.g., excavation) were to be conducted within public streets.

Additionally, ARCADIS notified Mr. Cosentino that groundwater sampling would be conducted at the monitoring wells located around the Public Service Building (PSB) during the week of March 21, 2011. Per Mr. Cosentino's request, ARCADIS notified the police department in the PSB each day prior to conducting groundwater sampling.

Utility Markout

Prior to conducting intrusive activities, an on-site meeting was held with local utility companies to assess and document the presence of subsurface activities near proposed investigation locations. Dig Safety New York (DigSafe) was contacted to perform a public utility markout (Ticket No. 03081-150-026-00). As part of the utility markout, representatives from the utilities were requested to attend an on-site meeting held on March 14, 2011 to review the scope of the PDI activities. In addition to DigSafe, representatives from the NYSEG Gas Department, City of Geneva Water and Sewer Department, a City of Geneva electrician, and Verizon attended the site meeting. Proposed monitoring well and soil boring locations were reviewed with the utility companies and proposed investigation locations were modified as appropriate to maintain adequate clearances.

ARCADIS also retained a private utility location subcontractor (SoftDig) to conduct an independent private utility markout. SoftDig utilized a magnetic locator and ground-penetrating radar (GPR) to confirm the utility markout conducted by DigSafe.

Soil Investigation

ARCADIS' drilling subcontractor (Parratt-Wolff, Inc. [Parratt-Wolff]) completed a total of five soil borings (SB-14C and SB-16 through SB-19) at the locations shown on Figure 1. Prior to drilling the borings, Parratt-Wolff hand-cleared the upper five feet of each boring using air knife/vacuum equipment (air knife) to confirm that no utilities were present at the proposed soil boring locations. At the request of NYSEG, a

representative from NYSEG's Gas Department was on-site during the hand-clearing activities.

The grout column associated with RI soil boring SB-14A was located during air knifing activities and the air knife was then used to clear material around soil boring SB-14A. During the air knife activities, a faint MGP-like odor was noted from 2 to 3 feet below grade and the top of metal tank was encountered at approximately 3.5 below grade. The invert of the tank was measured (through the hole in the top of the tank created during completion of RI soil boring SB-14A) at approximately 6.5 feet below grade. The air knife was then used to determine the horizontal limits of the tank, which measures approximately 7 feet long and 3.5 to 4 feet wide. The approximate location of the tanks is shown on Figure 1 and a photo log containing pictures of the tank is included as Attachment A. Visual impacts were not observed in soil to a depth of 8 feet below grade at the hand-cleared locations completed in the immediate vicinity of the tank. Note that during the hand-clearing activities, an approximately, 4-inch diameter pipe (oriented east/west) was encountered above the tank. The origin/termination of the pipe is unknown at this time.

A waste characterization sample was collected from the water within the tank and submitted to TestAmerica in Buffalo, New York for analysis for toxicity characteristic leaching procedure (TCLP) volatile organic compounds (VOCs), TCLP semi-volatile organic compounds (SVOCs), TCLP metals, reactivity, ignitability and corrosivity. Analytical results are presented in Table 1. The hole in the top of the tank was covered with bricks (removed during boring clearing) and the hand-cleared boreholes completed near the tank were backfilled with existing site material and grout.

Soil borings SB-16 through SB-19 were completed to a depth of 10 feet below grade (i.e., approximately 3.5 feet below the invert of the tank) using hollow-stem augers to delineate the visual extent of MGP-related impacts near RI soil boring SB-14A. Soil boring locations are shown on Figure 1. Soil samples were collected continuously in two foot sample intervals using split-barrel samplers. Each sample was visually characterized for color, texture, and moisture content, as well as the presence/absence of visible staining, sheen, NAPL, and obvious odors. NAPL was not observed in any of the PDI soil borings. A faint petroleum-like odor was noted in soil borings SB-16 (4 to 5 feet) and SB-18 (6.5 to 7.5 feet). Black staining was noted in soil borings SB-16 and SB-17 from 5.3 to 5.7 feet. Following completion of the soil borings, boreholes were backfilled with soil cuttings and cement-bentonite grout. Soil boring logs are included as Attachment B.

Investigation-derived waste (IDW) (e.g., soil cuttings, decontamination water, decontamination pad construction materials) were drummed and staged on-site. Drums were labeled with non-hazardous labels indicating relevant information (e.g., drum contents, date generated, generator name, etc.). A waste characterization composite soil sample was collected and submitted to TestAmerica for analysis for TCLP VOCs and polychlorinated biphenyls (PCBs). Waste characterization results for this material are presented Table 2.

Groundwater Investigation

As part of the groundwater investigation activities, a new monitoring well (MW-10) was installed hydraulically downgradient from the underground structure encountered at RI soil boring SB-14A. The upper five feet of the monitoring well boring was hand-cleared as described above for the soil borings. The soil boring completed to facilitate installation of monitoring well MW-10 was drilled to a depth of 25 feet below grade using hollow-stem augers. Soil samples were collected continuously and each sample was visually characterized as described above. The well was installed to a total depth of 25 feet below grade using 2-inch diameter schedule 40 PVC material and equipped with a 0.010 inch well screen from 15 to 25 feet below grade. Monitoring well MW-10 was completed at the ground surface with a flush-mount steel curb box secured in a 6-inch thick concrete pad. A monitoring well construction log is included as part of Attachment B.

Following installation and development of monitoring well MW-10, groundwater samples were collected from each existing and new groundwater monitoring well to document the extent of dissolved phase groundwater impacts and evaluate the existing microbial community in support of the *Natural Attenuation Evaluation*. Prior to collecting groundwater samples, groundwater level measurements were collected from each groundwater monitoring well. Water table elevations are presented in Table 3 and a water table contour map is included as Figure 2. Groundwater samples were then collected using low-flow sampling techniques and groundwater samples were submitted to TestAmerica, Microseeps, and Microbial Insights for laboratory analysis. Groundwater sampling logs are included as Attachment C and analytical results for groundwater samples are included as Table 4. Note that the groundwater sample collected from new monitoring well MW-10 contained benzene at a concentration (i.e., 14 micrograms per liter [ug/L]) that exceeded its NYSDEC TOGS 1.1.1 Class GA guidance value of 1 ug/L. Analytical results are currently being utilized as part of the *Natural Attenuation Evaluation* to evaluate the microbial

community present at the site. Results of the *Natural Attenuation Evaluation* will be presented as part of the remedial design.

Monitoring well purge water was combined with the decontamination water generated during soil boring activities. A waste characterization composite water sample was collected and submitted to TestAmerica for analysis of TCLP VOCs and PCBs. Waste characterization results for this sample are presented in Table 2.

Site Survey

ARCADIS's survey subcontractor (Mr. Paul Olszewski, P.L.S.) conducted a site survey to document the following:

- the location of subsurface utilities marked out during the PDI
- the location of soil borings completed as part of the PDI
- the location and elevation of new monitoring well MW-10
- the existing site topography

Site survey information will be incorporated into the remedial design, as appropriate.

Please do not hesitate to contact John Ruspantini at 607.762.8787 or the undersigned at 315.671.9114 if you have any questions or comments regarding the information presented in this letter.

Sincerely,

ARCADIS of New York, Inc

Jason Brien, P.E.
Certified Project Manager

Copies:
Margaret A. Carrillo-Sheridan, P.E., ARCADIS (w/o enclosure)

Attachments:

Table 1 – Tank Liquid Waste Characterization Results
Table 2 – Solid and Liquid Waste Characterization Results
Table 3 – Water Table Elevations
Table 4 – Groundwater Analytical Results
Figure 1 – PDI Locations
Figure 2 – Water Table Contour Map – March 21, 2011
Attachment A – Photo Log
Attachment B – Soil Boring and Monitoring Well Construction Logs
Attachment C – Groundwater Sampling Logs

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Tables

Table 1
Tank Liquid Waste Characterization Results

NYSEG - Wadsworth Street Former MGP Site - Geneva, New York

Location ID: Date Collected: Sample Name:	Units	Regulatory Limit	TWS-1 03/17/11 TWS-1
TCLP VOCs			
1,1-Dichloroethene	mg/L	0.7	0.010 U
1,2-Dichloroethane	mg/L	0.5	0.010 U
2-Butanone	mg/L	200	0.050 U
Benzene	mg/L	0.5	0.020
Carbon Tetrachloride	mg/L	0.5	0.010 U
Chlorobenzene	mg/L	100	0.010 U
Chloroform	mg/L	6.0	0.010 U
Tetrachloroethene	mg/L	0.7	0.010 U
Trichloroethene	mg/L	0.5	0.010 U
Vinyl Chloride	mg/L	0.2	0.010 U
TCLP SVOCs			
1,4-Dichlorobenzene	mg/L	7.5	0.010 U
2,4,5-Trichlorophenol	mg/L	400	0.0050 U
2,4,6-Trichlorophenol	mg/L	2.0	0.0050 U
2,4-Dinitrotoluene	mg/L	0.13	0.0050 U
2-Methylphenol	mg/L	200	0.011
3-Methylphenol	mg/L	200	0.010 U
4-Methylphenol	mg/L	200	0.010 U
Hexachlorobenzene	mg/L	0.13	0.0050 U
Hexachlorobutadiene	mg/L	0.5	0.0050 U
Hexachloroethane	mg/L	3.0	0.0050 U
Nitrobenzene	mg/L	2.0	0.0050 U
Pentachlorophenol	mg/L	100	0.010 U
Pyridine	mg/L	5.0	0.025 U
TCLP Metals			
Arsenic	mg/L	5.0	0.0110
Barium	mg/L	100	0.190
Cadmium	mg/L	1.0	0.00100 U
Chromium	mg/L	5.0	0.00200 J
Lead	mg/L	5.0	0.00500 U
Mercury	mg/L	0.2	0.000200 U
Selenium	mg/L	1.0	0.0150 U
Silver	mg/L	5.0	0.00300 U
Misc. Compounds			
Flashpoint	deg. F	<140	>176
Cyanide, Reactivity	mg/L	250	0.180 JB
Sulfide, Reactivity	mg/L	500	10.0 U
pH	SU	< 2 or > 12.5	7.96 H

Notes:

1. Samples collected by ARCADIS on the date indicated.
2. Samples analyzed by TestAmerica located in Buffalo, NY.
3. Concentrations reported in milligrams per liter (mg/L) which is equivalent to parts per million (ppm) unless otherwise noted.
4. B - Indicates that the analyte was detected in the associated Method Blank.
5. J - Indicates that the associated numerical value is an estimated concentration.
6. U - Indicates that the compound was analyzed for but not detected. The associated value is the compound quantitation limit.
7. H - Indicates that the sample was prepared or analyzed beyond the specified holding time.

Table 2
Solid and Liquid Waste Characterization Results

NYSEG - Wadsworth Street Former MGP Site - Geneva, New York

Location ID: Date Collected: Sample Name:	Units	Regulatory Limits[5,6]	WC (solid) 03/23/11 WC-03230211	WC (liquid) 03/23/11 WC-03230211
TCLP VOCs				
1,1-Dichloroethene	mg/L	0.7	0.010 U	0.0010 U
1,2-Dichloroethane	mg/L	0.5	0.010 U	0.0010 U
2-Butanone	mg/L	200	0.050 U	0.0050 U
Benzene	mg/L	0.5	0.010 U	0.0012
Carbon Tetrachloride	mg/L	0.5	0.010 U	0.0010 U
Chlorobenzene	mg/L	100	0.010 U	0.0010 U
Chloroform	mg/L	6.0	0.010 U	0.0010 U
Tetrachloroethene	mg/L	0.7	0.010 U	0.0010 U
Trichloroethene	mg/L	0.5	0.010 U	0.0010 U
Vinyl Chloride	mg/L	0.2	0.010 U	0.0010 U
PCBs				
Aroclor-1016	mg/kg	50	0.019 U	0.49 U
Aroclor-1221	mg/kg	50	0.019 U	0.49 U
Aroclor-1232	mg/kg	50	0.019 U	0.49 U
Aroclor-1242	mg/kg	50	0.019 U	0.49 U
Aroclor-1248	mg/kg	50	0.011 J	0.49 U
Aroclor-1254	mg/kg	50	0.019 U	0.49 U
Aroclor-1260	mg/kg	50	0.019 U	0.49 U

Notes:

1. Samples collected by ARCADIS on the date indicated.
2. Samples analyzed by TestAmerica located in Buffalo, NY.
3. J - Indicates that the associated numerical value is an estimated concentration.
4. U - Indicates that the compound was analyzed for but not detected. The associated value is the compound quantitation limit.
5. Toxicity characteristic regulatory limits presented for VOCs.
6. Total PCB concentration greater than 50 parts per million is considered as a NYS hazardous waste.

Table 3
Water Table Elevations

NYSEG - Wadsworth Street Former MGP Site - Geneva, New York

Location ID	MP Elevation (ft. AMSL)	3/21/2011		
		DTW	Water Elevation (ft. AMSL)	Depth to Bottom
MW-1	453.49	6.54	446.95	19.64
MW-2	455.38	7.11	448.27	24.48
MW-3	456.38	6.01	450.37	16.79
MW-4	456.03	4.19	451.84	15.58
MW-5	455.20	5.58	449.62	19.58
MW-6	456.79	5.41	451.38	17.47
MW-7	453.15	6.19	446.96	16.41
MW-8	453.15	5.67	447.48	19.58
MW-9	457.20	6.83	450.37	16.28
MW-10	453.74	6.71	447.03	25.05

Notes:
1. Depths to water measured by ARCADIS on the date indicated.
2. MP - Measuring point. Measuring point elevations surveyed by NYSEG.
3. DTW - Depth to Water.
4. Elevations given in feet Above mean Sea Level (AMSL), 1929 NGVD.Water.

Table 4
Groundwater Analytical Results

NYSEG - Wadsworth Street Former MGP Site - Geneva, New York

Location ID: Date Collected: Sample Name:	NYSDEC GA Groundwater Criteria Standards and Guidance Values	Units	MW-1 03/21/11 MW-01	MW-2 03/22/11 MW-2	MW-3 03/22/11 MW-3	MW-4 03/22/11 MW-4	MW-5 03/22/11 MW-5	MW-6 03/23/11 MW-6	MW-7 03/22/11 MW-7	MW-8 03/22/11 MW-8	MW-9 03/23/11 MW-9	MW-10 03/21/11 MW-10
VOCs												
1,1,1-Trichloroethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
1,1,2,2-Tetrachloroethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
1,1,2-Trichloro-1,2,2-trifluoroethane	- -	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
1,1,2-Trichloroethane	1	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
1,1-Dichloroethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
1,1-Dichloroethene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
1,2,4-Trichlorobenzene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
1,2-Dibromo-3-chloropropane	0.04	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
1,2-Dibromoethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
1,2-Dichlorobenzene	3	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
1,2-Dichloroethane	0.6	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
1,2-Dichloropropane	1	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
1,3-Dichlorobenzene	3	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
1,4-Dichlorobenzene	3	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
2-Butanone	50	ug/L	10 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U [10 U]	10 U
2-Hexanone	50	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U [5.0 U]	5.0 U
4-Methyl-2-Pentanone	- -	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U [5.0 U]	5.0 U
Acetone	50	ug/L	10 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U [10 U]	**3.3 J**
Benzene	1	ug/L	1.0 U	1.0 U	**4.5**	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	**14**
Bromodichloromethane	50	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Bromoform	50	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Bromomethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Carbon Disulfide	60	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Carbon Tetrachloride	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Chlorobenzene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Chloroethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Chloroform	7	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Chloromethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
cis-1,2-Dichloroethene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
cis-1,3-Dichloropropene	0.4	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Cyclohexane	- -	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Dibromochloromethane	50	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Dichlorodifluoromethane	- -	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Ethylbenzene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Isopropylbenzene	- -	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Methyl acetate	- -	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Methyl tert-butyl ether	10	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Methylcyclohexane	- -	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Methylene Chloride	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Styrene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Tetrachloroethene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Toluene	5	ug/L	1.0 U	1.0 U	**2.9**	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	**0.81 J**
trans-1,2-Dichloroethene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
trans-1,3-Dichloropropene	0.4	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Trichloroethene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Trichlorofluoromethane	- -	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Vinyl Chloride	2	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U
Xylene (Total)	5	ug/L	2.0 U	2.0 U	**16**	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U [2.0 U]	2.0 U

Table 4
Groundwater Analytical Results

NYSEG - Wadsworth Street Former MGP Site - Geneva, New York

Location ID: Date Collected: Sample Name:	NYSDEC GA Groundwater Criteria Standards and Guidance Values	Units	MW-1 03/21/11 MW-01	MW-2 03/22/11 MW-2	MW-3 03/22/11 MW-3	MW-4 03/22/11 MW-4	MW-5 03/22/11 MW-5	MW-6 03/23/11 MW-6	MW-7 03/22/11 MW-7	MW-8 03/22/11 MW-8	MW-9 03/23/11 MW-9	MW-10 03/21/11 MW-10
SVOCs												
2,4,5-Trichlorophenol	1	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
2,4,6-Trichlorophenol	1	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
2,4-Dichlorophenol	1	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
2,4-Dimethylphenol	1	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
2,4-Dinitrophenol	1	ug/L	9.7 U	9.5 U	9.9 U	9.7 U	9.8 U	9.9 U	9.8 U	11 U	9.4 U [9.5 U]	9.5 U
2,4-Dinitrotoluene	5	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
2,6-Dinitrotoluene	5	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
2-Chloronaphthalene	10	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
2-Chlorophenol	1	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
2-Methylnaphthalene	- -	ug/L	4.9 U	4.8 U	**0.79 J**	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
2-Methylphenol	1	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
2-Nitroaniline	5	ug/L	9.7 U	9.5 U	9.9 U	9.7 U	9.8 U	9.9 U	9.8 U	11 U	9.4 U [9.5 U]	9.5 U
2-Nitrophenol	1	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
3,3'-Dichlorobenzidine	5	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
3-Nitroaniline	5	ug/L	9.7 U	9.5 U	9.9 U	9.7 U	9.8 U	9.9 U	9.8 U	11 U	9.4 U [9.5 U]	9.5 U
4,6-Dinitro-2-methylphenol	1	ug/L	9.7 U	9.5 U	9.9 U	9.7 U	9.8 U	9.9 U	9.8 U	11 U	9.4 U [9.5 U]	9.5 U
4-Bromophenyl-phenylether	- -	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
4-Chloro-3-methylphenol	1	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
4-Chloroaniline	5	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
4-Chlorophenyl-phenylether	- -	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
4-Methylphenol	1	ug/L	9.7 U	9.5 U	9.9 U	9.7 U	9.8 U	9.9 U	9.8 U	11 U	9.4 U [9.5 U]	**0.88 J**
4-Nitroaniline	5	ug/L	9.7 U	**7.8 J**	9.9 U	9.7 U	9.8 U	9.9 U	9.8 U	11 U	9.4 U [9.5 U]	9.5 U
4-Nitrophenol	1	ug/L	9.7 U	9.5 U	9.9 U	9.7 U	9.8 U	9.9 U	9.8 U	11 U	9.4 U [9.5 U]	9.5 U
Acenaphthene	20	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Acenaphthylene	- -	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Acetophenone	- -	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Anthracene	50	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Atrazine	- -	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Benzaldehyde	- -	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Benzo(a)anthracene	0.002	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Benzo(a)pyrene	0	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Benzo(b)fluoranthene	0.002	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Benzo(g,h,i)perylene	- -	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Benzo(k)fluoranthene	0.002	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Biphenyl	- -	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
bis(2-Chloroethoxy)methane	5	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
bis(2-Chloroethyl)ether	1	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
bis(2-chloroisopropyl)ether	5	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
bis(2-Ethylhexyl)phthalate	5	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Butylbenzylphthalate	50	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Caprolactam	- -	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Carbazole	- -	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Chrysene	0.002	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Dibenz(a,h)anthracene	- -	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Dibenzofuran	- -	ug/L	9.7 U	9.5 U	9.9 U	9.7 U	9.8 U	9.9 U	9.8 U	11 U	9.4 U [9.5 U]	9.5 U
Diethylphthalate	50	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Dimethylphthalate	50	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Di-n-butylphthalate	50	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	**0.44 JB**
Di-n-octylphthalate	50	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U

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Groundwater Analytical Results

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Location ID: Date Collected: Sample Name:	NYSDEC GA Groundwater Criteria Standards and Guidance Values	Units	MW-1 03/21/11 MW-01	MW-2 03/22/11 MW-2	MW-3 03/22/11 MW-3	MW-4 03/22/11 MW-4	MW-5 03/22/11 MW-5	MW-6 03/23/11 MW-6	MW-7 03/22/11 MW-7	MW-8 03/22/11 MW-8	MW-9 03/23/11 MW-9	MW-10 03/21/11 MW-10
SVOCs (continued)												
Fluoranthene	50	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Fluorene	50	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Hexachlorobenzene	0.04	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Hexachlorobutadiene	0.5	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Hexachlorocyclopentadiene	5	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Hexachloroethane	5	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Indeno(1,2,3-cd)pyrene	0.002	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Isophorone	50	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Naphthalene	10	ug/L	4.9 U	4.8 U	**7.7**	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Nitrobenzene	0.4	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
N-Nitroso-di-n-propylamine	- -	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
N-Nitrosodiphenylamine	50	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Pentachlorophenol	1	ug/L	9.7 U	9.5 U	9.9 U	9.7 U	9.8 U	9.9 U	9.8 U	11 U	9.4 U [9.5 U]	9.5 U
Phenanthrene	50	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Phenol	1	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Pyrene	50	ug/L	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.9 U	5.4 U	4.7 U [4.8 U]	4.8 U
Inorganics												
Alkalinity, Total	- -	mg/L	**389**	**351**	**216**	**452**	**458**	**415**	**413**	**496**	**333 [333]**	**278**
Cyanide, Total	0.2	mg/L	**0.066 ***	**0.290**	**0.330**	0.0100 U	0.0100 U	0.0100 U	**0.0310**	**0.0370**	0.0100 U [0.0100 U]	**0.160 ***
Ferric Iron	- -	mg/L	0.100 U	**0.990**	**0.260**	**25.8**	**2.50**	**0.680**	**1.00**	**0.200**	**0.520 [0.400]**	**1.20**
Nitrate Nitrite as N	- -	mg/L	**0.580**	**5.20**	**3.70**	0.0500 U	0.0500 U	**2.00**	0.0500 U	**0.0480 J**	0.0500 U [0.0500 U]	0.0500 U
Sulfate	250	mg/L	**143 B**	**85.8 B**	**168 B**	**116 B**	**31.0**	**76.7 B**	**189 B**	**188 B**	**62.5 B [60.5]**	**1,180 B**
Sulfide (S)	- -	mg/L	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	**0.0760 J [0.100 U]**	0.100 U
Metals												
Manganese	0.3	mg/L	**0.130 B7**	**1.60 B**	**0.0110 B**	**6.20 B**	**2.90 B**	**0.480**	**0.210 B**	**0.140 B**	**1.70 [1.80]**	**1.20 B7**
Metals-Filtered												
Iron	0.3	mg/L	**0.120**	**0.140**	**0.150**	**7.40**	**1.50**	0.0500 U	**0.0260 J**	**0.0370 J**	**0.130 [0.130]**	**1.50**
Manganese	0.3	mg/L	**0.0740**	**0.770 B**	**0.0160 B**	**5.80 B**	**2.80 B**	**0.260**	**0.0470 B**	**0.120 B**	**1.80 [1.80]**	**1.20**
Misc. Compounds												
Naphthalene Dioxygenase (qNAH)	- -	cells/mL	37,800	45,900	34,700	40,200	19,700	50,800	14,200	30,200	27,700	46,200
Toluene Dioxygenase (qTOD)	- -	cells/mL	6,490,000	5,660,000	2,100,000	1,980,000	2,410,000	74,300	705,000	2,760,000	50,400	17,100,000
Total Organic Carbon	- -	mg/L	**1.6**	**2**	1 U	**6.5**	1 U	**7.5**	**1.9**	1 U	**2.4 [2.3]**	**3.4**
Dissolved Gases												
Carbon Dioxide	- -	mg/L	**38**	**42**	**8.6**	**110**	**63**	**88**	**51**	**81**	**53**	**43**
Methane	- -	ug/L	**0.68**	**0.46**	**0.11**	**150**	**19**	**1.9**	**3**	**0.11**	**7.3**	**16**

Notes:

1. Samples collected by ARCADIS on the dates indicated.
2. Samples analyzed by TestAmerica located in Buffalo, NY; Microseeps in Pittsburgh, PA; and Microbial Insights in Rockford, TN. Dissolved gases analyses completed by Microseeps. qNAH and qTOD analyses completed by Microbial Insights. All other analyses completed by TestAmerica.
3. J - Indicates that the associated numerical value is an estimated concentration.
4. U - Indicates that the compound was analyzed for but not detected. The associated value is the compound quantitation limit.
5. * - Indicates that the Laboratory Control Spike or Laboratory Control Spike Duplicate exceeds the control limits.
6. B - Indicates that the analyte was also detected in the associated method blank.
7. B7 - Indicates that the target analyte was detected in method blank at or above method reporting limit. Concentration found in the sample at least 10 times above the concentration found in the blank.
8. Bold indicates detectable concentrations.
9. Shaded indicates concentration exceeds NYSDEC GA Groundwater Criteria Standards and Guidance Values.

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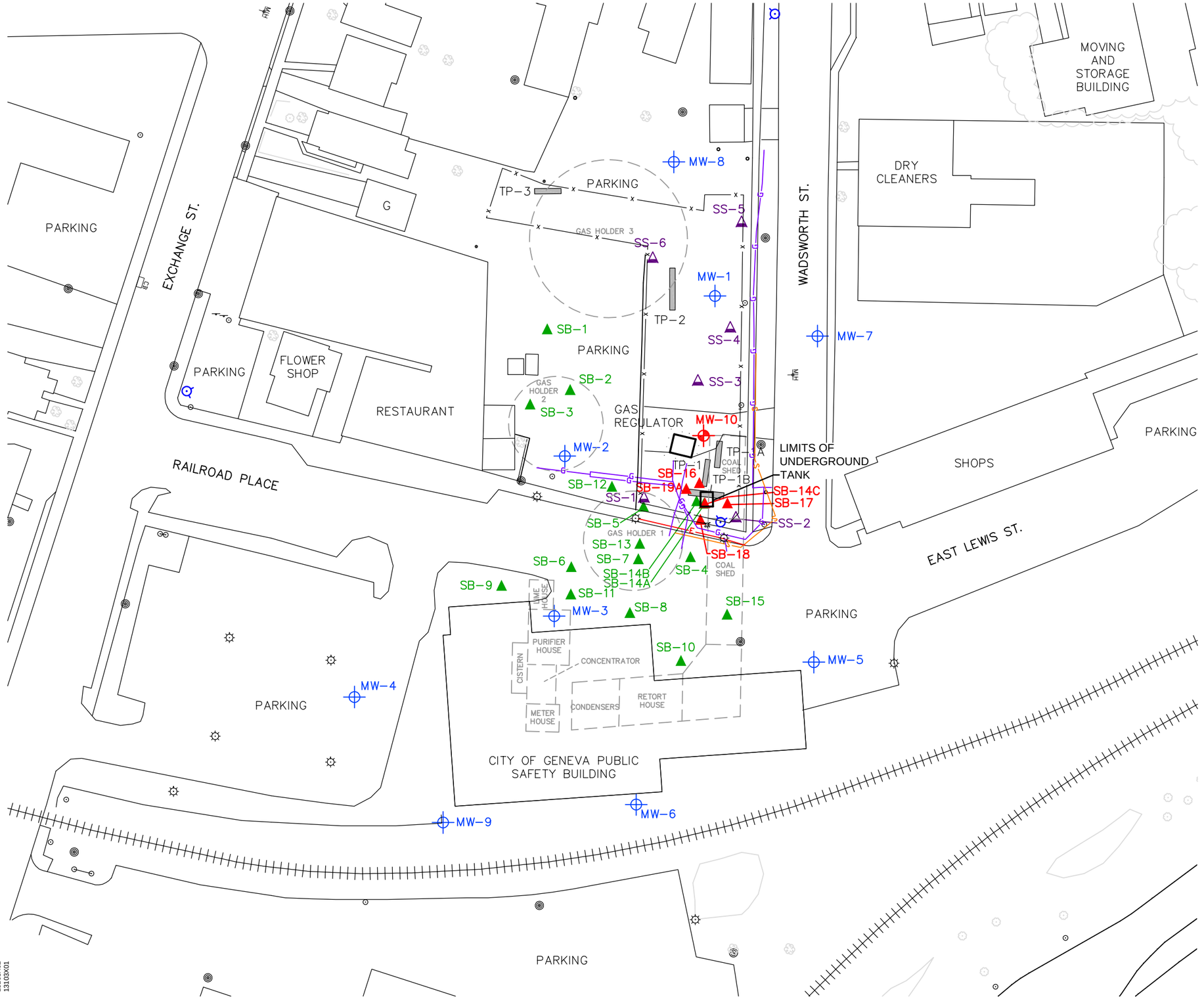
Figures



LEGEND:

- RI MONITORING WELL LOCATION
- RI SOIL BORING LOCATION
- RI SURFACE SOIL LOCATION
- RI TEST PIT LOCATION
- FENCE
- RAILROAD
- POWER POLE
- LIGHT POLE
- POST, SIGN
- HYDRANT
- SEWER LINE
- GAS LINE
- ELECTRIC LINE
- FORMER MGP STRUCTURE
- MANHOLE
- PDI SOIL BORING
- PDI MONITORING WELL

NOTES:

1. BASE MAP BASED ON SURVEYS COMPLETED BY NYSEG ON DECEMBER 14, 2005, OCTOBER 2006, AND BY PAUL J. OLSZEWSKI, PLS, PLLC ON MARCH 14 AND 23, 2011. ELEVATIONS IN REFERENCE TO NGVD 1929, HORIZONTAL DATUM IS NAD 83 STATEPLANE, NEW YORK CENTRAL.
2. ALL LOCATIONS ARE APPROXIMATE.
3. PROPERTY BOUNDARIES WERE DIGITIZED FROM CITY OF GENEVA, ONTARIO COUNTY, NEW YORK TAX MAP [104.35], DATED MAY 1, 2008.

0 60' 120'

GRAPHIC SCALE

NYSEG
WADSWORTH STREET FORMER MGP SITE
GENEVA, NEW YORK
PDI SUMMARY REPORT

PDI LOCATIONS

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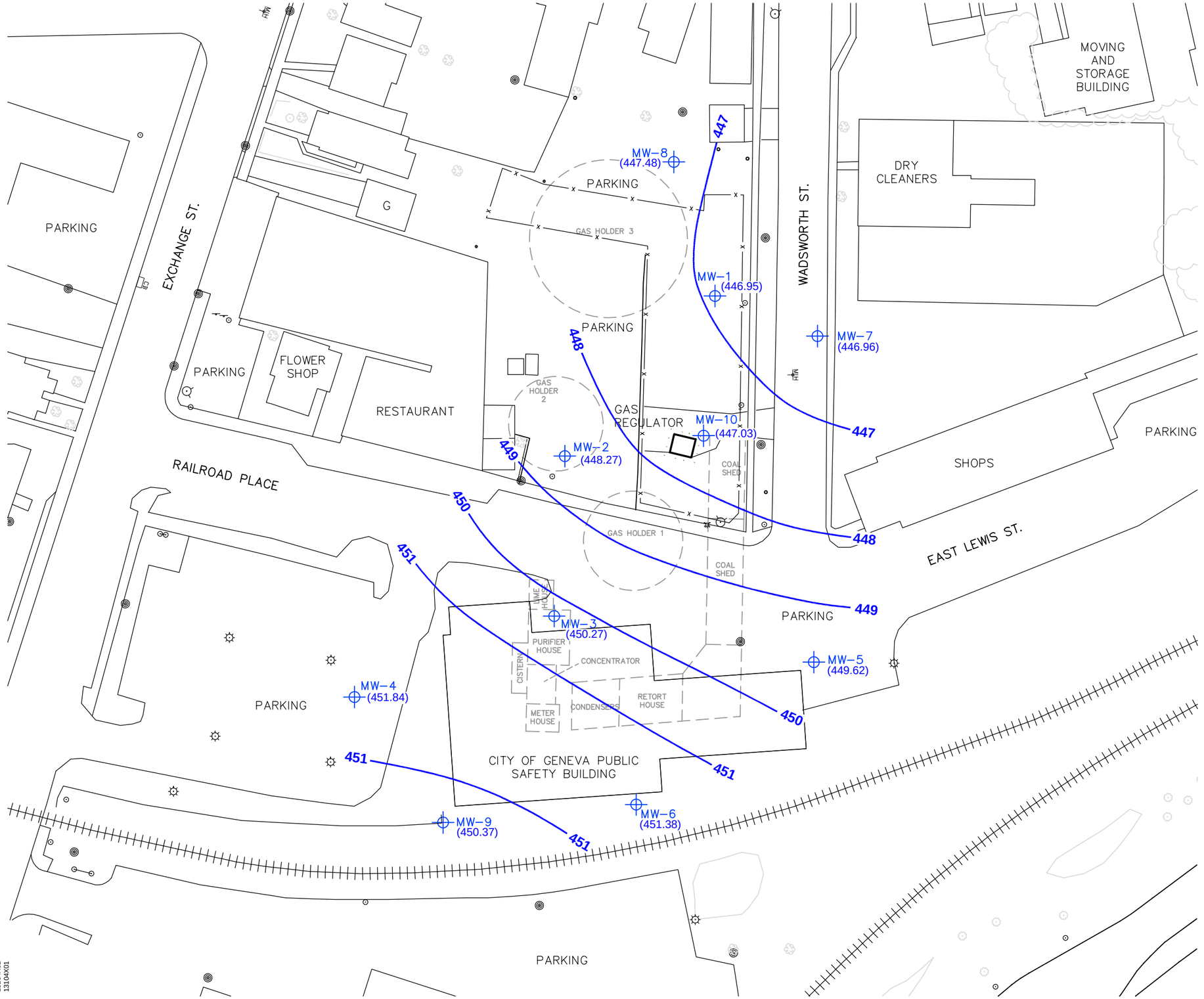
FIGURE
1

CITY: SYRACUSE, NY DIV/GROUP: ENV/CADD DB: A. SCHILLING, W. JONES, P. LISTER PM/TM: J. BRIEN TR: L. ZURANSKI LYR: ON=*;OFF=REF, (FRZ)
G:\ENVCAD\SYRACUSE\ACTIVE\B001310300000000005\DWG\013103B07.DWG LAYOUT: 1 SAVED: 4/12/2011 9:37 AM ACADVER: 18.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 4/12/2011 9:38 AM BY: LISTER, PAUL
XREFS: IMAGES: PROJECTNAME: ---
13103X05
13103X02
13103X01



LEGEND:

- MONITORING WELL LOCATION
- FENCE
- RAILROAD
- POWER POLE
- LIGHT POLE
- POST, SIGN
- HYDRANT
- FORMER MGP STRUCTURE
- MANHOLE
- (449.62) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (FT, AMSL)
- 447 WATER TABLE ELEVATION CONTOUR (FT, AMSL)

NOTES:

1. BASE MAP BASED ON SURVEYS COMPLETED BY NYSEG ON DECEMBER 14, 2005, OCTOBER 2006, AND BY PAUL J. OLSZEWSKI, PLS, PLLC ON MARCH 14 AND 23, 2011. ELEVATIONS IN REFERENCE TO NGVD 1929, HORIZONTAL DATUM IS NAD 83 STATEPLANE, NEW YORK CENTRAL.
2. ALL LOCATIONS ARE APPROXIMATE.
3. PROPERTY BOUNDARIES WERE DIGITIZED FROM CITY OF GENEVA, ONTARIO COUNTY, NEW YORK TAX MAP [104.35], DATED MAY 1, 2008.

0 60' 120'

GRAPHIC SCALE

NYSEG
WADSWORTH STREET FORMER MGP SITE
GENEVA, NEW YORK
PDI SUMMARY REPORT

WATER TABLE CONTOUR MAP - MARCH 21, 2011

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FIGURE 2

CITY: SYRACUSE, NY DIV/GROUP: ENV/CADD DB: A. SCHILLING, W. JONES, P. LISTER PM/TM: J. BRIEN TR: J. GOLUBSKI LYR: ON=*;OFF=REF, (FRZ)
G:\ENVCAD\SYRACUSE\ACTIVE\00131\04\0000\00011\DWG\131104W01.DWG LAYOUT: 2 SAVED: 4/21/2011 2:53 PM ACADVER: 18.0S (LMS TECH) PAGESETUP:
XREFS: IMAGES: PROJECTNAME: ---
13104X05
13104X02
13104X01

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Attachment A

Photo Log

ARCADIS
Infrastructure, environment, buildings

Attachment A – Photo Log

Pre-Design Investigation Summary Letter Report

CLIENT: NYSEG	**SITE NAME:** Wadsworth Street Former MGP Site
PROJECT #: B0013104	**SITE LOCATION:** Geneva, New York
PHOTOGRAPH #: 704	
PHOTOGRAPHER: JRO	
DATE: 3/15/2011	
DIRECTION: South	
COMMENT: Subsurface gas lines marked by Premier (yellow flags) and SoftDig (pink paint).	

CLIENT: NYSEG	**SITE NAME:** Wadsworth Street Former MGP Site
PROJECT #: B0013104	**SITE LOCATION:** Geneva, New York
PHOTOGRAPH #: 715	
PHOTOGRAPHER: JRO	
DATE: 3/15/2011	
DIRECTION: Northeast	
COMMENT: Air knife and vac truck used to hand-clear boring locations.	

ARCADIS
Infrastructure, environment, facilities

Attachment A – Photo Log

Pre-Design Investigation Summary Letter Report

CLIENT: NYSEG	**SITE NAME:** Wadsworth Street Former MGP Site
PROJECT #: B0013104	**SITE LOCATION:** Geneva, New York
PHOTOGRAPH #: 727	
PHOTOGRAPHER: JRO	
DATE: March 15, 2011	
DIRECTION: East	
COMMENT: Abandoned steel pile (approximately 3-inch diameter encountered above tank).	

CLIENT: NYSEG	**SITE NAME:** Wadsworth Street Former MGP Site
PROJECT #: B0013104	**SITE LOCATION:** Geneva, New York
PHOTOGRAPH #: 729	
PHOTOGRAPHER: JRO	
DATE: 3/15/2011	
DIRECTION: North to the right	
COMMENT: Original SB-14A boring location. Hole in top of tank bridged with lumber. Grout column from previous boring in upper middle of photograph.	

ARCADIS
Infrastructure, environment, facilities

Attachment A – Photo Log

Pre-Design Investigation Summary Letter Report

CLIENT: NYSEG	**SITE NAME:** Wadsworth Street Former MGP Site
PROJECT #: B0013104	**SITE LOCATION:** Geneva, New York
PHOTOGRAPH #: 754	
PHOTOGRAPHER: JRO	
DATE: 3/15/2011	
DIRECTION: North to the right	
COMMENT: Original SB-14A boring location. Hole in top of tank. Additional soil cleared.	

CLIENT: NYSEG	**SITE NAME:** Wadsworth Street Former MGP Site
PROJECT #: B0013104	**SITE LOCATION:** Geneva, New York
PHOTOGRAPH #: 758	
PHOTOGRAPHER: JRO	
DATE: 3/15/2011	
DIRECTION: North to the right	
COMMENT: Brick wall running east/west on right side of picture. You can just see another running north/south at the extreme right of the picture. Tank is on the left side (south) of the wall.	

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Infrastructure, environment, facilities

Attachment A – Photo Log

Pre-Design Investigation Summary Letter Report

CLIENT: NYSEG	**SITE NAME:** Wadsworth Street Former MGP Site
PROJECT #: B0013104	**SITE LOCATION:** Geneva, New York
PHOTOGRAPH #: 761	
PHOTOGRAPHER: JRO	
DATE: 3/15/2011	
DIRECTION: South	
COMMENT: Holes cleared using vac truck/air knife to delineate the lateral extent of the tank. Brick walls running east/west and north/south are in the foreground near the traffic cone.	

CLIENT: NYSEG	**SITE NAME:** Wadsworth Street Former MGP Site
PROJECT #: B0013104	**SITE LOCATION:** Geneva, New York
PHOTOGRAPH #: 769	
PHOTOGRAPHER: JRO	
DATE: 3/16/2011	
DIRECTION:	
COMMENT: Soil boring SB-18 completed along Railroad Place.	

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Infrastructure, environment, facilities

Attachment A – Photo Log

Pre-Design Investigation Summary Letter Report

CLIENT: NYSEG	**SITE NAME:** Wadsworth Street Former MGP Site
PROJECT #: B0013104	**SITE LOCATION:** Geneva, New York
PHOTOGRAPH #: 780	
PHOTOGRAPHER: JRO	
DATE: 3/16/2011	
DIRECTION: North	
COMMENT: Installation of Monitoring Well MW-10.	

CLIENT: NYSEG	**SITE NAME:** Wadsworth Street Former MGP Site
PROJECT #: B0013104	**SITE LOCATION:** Geneva, New York
PHOTOGRAPH #: 788	
PHOTOGRAPHER: JRO	
DATE: 3/17/2011	
DIRECTION: Northeast	
COMMENT: Augers placed on decontamination pad.	

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Attachment B

Well Boring Logs

Date Start/Finish: 3/15/2011-3/16/2011
Drilling Company: Parratt-Wolff
Driller's Name: Marquel Chatman
Drilling Method: Air Knife
Auger Size: NA
Rig Type: Vac. Truck 4000
Sampling Method: 2" Hand Auger

Northing: 1046474.88
Easting: 714261.4
Casing Elevation: NA

Borehole Depth: 4' bgs
Surface Elevation: 454.08

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-14C**

Client: NYSEG

Location: Wadsworth Street
Geneva, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
455									
0	1	0-1	NA	NA	NA	0.0		Dark brown SAND and SILT, trace fine subangular Gravel, organics, non-plastic, moist. (10R 2.5/1)	
	2	1-2	NA	NA	NA	0.0			
	3	2-3	NA	NA	NA	0.0		Red BRICK, some Slag and Concrete, little Silt and fine Sand, faint MGP-like odor, non-plastic, moist. (10R 3/3)	Borehole backfilled with soil removed from borehole to grade.
450									
5								Boring terminated at 4.5 feet bgs	
445								Cleared boring down to 3 feet bgs before finding old metal pipe with bolts running East-West. Hole found on top of structure with 2x6 wood piece vertically sticking up out of hole at 4 feet bgs, with grout surrounding it from 3 feet bgs to surface. Found sides of structure with it situated approximately 7x4 feet running North-South. Hole in structure plugged with red bricks and numerous holes covered with dirt upon completion. Water sample taken from inside the structure.	
10									
440									
15									

Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

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Date Start/Finish: 3/15/2011-3/17/2011
Drilling Company: Parratt-Wolff
Driller's Name: Marquel Chatman
Drilling Method: Air Knife/Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Vac. Truck 4000/CME-55
Sampling Method: 2" x 2' Split Spoon

Northing: 1046487
Easting: 714258.08
Casing Elevation: NA

Borehole Depth: 10' bgs
Surface Elevation: 453.86

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-16**

Client: NYSEG

Location: Wadsworth Street
Geneva, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	455									
0		1	0-1	NA	NA	NA	0.0		Dark brown SILT, some to little fine Sand, trace red Brick, Slag, Organics, non-plastic, moist. (10R 2.5/1)	
		2	1-2	NA	NA	NA	0.0			
		3	2-3	NA	NA	NA	0.0		BOULDER and WOOD support pieces.	
		4	3-4	NA	NA	NA	0.0			
	450	5	4-5	NA	NA	NA	0.0		Dark brown to grey Clayey SILT, litle fine Sand, trace red Brick, Blag, non-plastic, saturated. Faint petroleum-like odor and possible grey staining. (GLEY2 5/5PB)	
5		6	5-7	1.8	3 2 3 4	5	0.0		Brown SILT, some Clay, trace fine Sand, no odor, non-plastic, saturated. (2.5YR 5/3) Possible black staining between 5.3-5.7 feet bgs. Increasing amount of Clay with depth.	Borehole backfilled with bentonite/grout to grade.
		7/8	7-9	0.0/1.5	3 3 4 3	7	NA/0.0		A second attempt at sampling 7-9 feet bgs was conducted with no recovery the first time.	
	445	9	9-10	0.8	4 3	NA	0.0		Brown Clayey SILT, little to trace fine Sand, non-plastic, saturated. (2.5YR 5/2)	
10									Boring terminated at 10 feet bgs	
	440									
15										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Vac. Truck/Air Knife method used to clear boring down to 5 feet bgs, then CME-55 Truck Rig used for 5-10 feet bgs. Boring grouted upon completion, no samples taken for analysis.

Date Start/Finish: 3/15/2011-3/17/2011
Drilling Company: Parratt-Wolff
Driller's Name: Marquel Chatman
Drilling Method: Air Knife/Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Vac. Truck 4000/CME-55
Sampling Method: 2" x 2' Split Spoon

Northing: 1046474.79
Easting: 714274.95
Casing Elevation: NA

Borehole Depth: 10' bgs
Surface Elevation: 454.08

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-17**

Client: NYSEG

Location: Wadsworth Street
Geneva, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
455									
0	1	0-1	NA	NA	NA	0.0		Brown medium SAND, some fine to coarse Sand, some to little fine subangular to subrounded Gravel, trace red Brick, moist. (10R 3/3)	
	2	1-2	NA	NA	NA	0.0		BRICK (pile).	
	3	2-3	NA	NA	NA	0.0			
	4	3-4	NA	NA	NA	0.0			
450	5	4-5	NA	NA	NA	0.0		Brown CLAY, trace Silt, dense, stiff, plastic, saturated. (5YR 5/4)	
5	6	5-7	1.8	3 2 3 4	5	0.0		Brown to dark grey at 6.4 feet bgs, SILT and fine SAND, trace Clay, no odor, dense, non-plastic, wet to saturated. (5YR 6/4 & 5YR 4/1) Possible black staining between 5.3-5.7 feet bgs. Increasing amount of Clay with depth.	Borehole backfilled with bentonite/grout to grade.
	7/8	7-9	0.0/1.5	3 3 4 3	7	NA/0.0		Brown Clayey SILT, some to little fine Sand, non-plastic, saturated. (5YR 6/4) A second attempt at sampling 7-9 feet bgs was conducted with no recovery the first time.	
445	9	9-10	0.8	4 3	NA	0.0			
10								Boring terminated at 10 feet bgs	
440									
15									

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Vac. Truck/Air Knife method used to clear boring down to 5 feet bgs, then CME-55 Truck Rig used for 5-10 feet bgs. Boring grouted upon completion, no samples taken for analysis.

Date Start/Finish: 3/15/2011-3/16/2011
Drilling Company: Parratt-Wolff
Driller's Name: Marquel Chatman
Drilling Method: Air Knife/Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Vac. Truck 4000/CME-55
Sampling Method: 2" x 2' Split Spoon

Northing: 1046464.85
Easting: 714258.66
Casing Elevation: NA

Borehole Depth: 10' bgs
Surface Elevation: 454.61

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-18**

Client: NYSEG

Location: Wadsworth Street
Geneva, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
455 / 0									
	1	0-1	NA	NA	NA	0.0		Dark brown SILT, some to little fine Sand, trace red Brick, non-plastic, moist. (GLEY2 2.5/10G)	
	2	1-2	NA	NA	NA	0.0		Brown SILT, little Clay, trace fine Sand and fine subangular Gravel, non-plastic, moist. (2.5YR 3/4)	
	3	2-3	NA	NA	NA	0.0		Brown SILT, some to little Clay, trace fine Sand, non-plastic, moist. (5YR 4/3)	
	4	3-4	NA	NA	NA	0.0		Brown Clayey SILT, trace fine Sand and red Brick, non-plasic, moist. (7.5YR 4/4)	
450 / 5	5	4-5	NA	NA	NA	0.0		Brown SILT, some to little Clay, trace fine Sand, red Brick, black Slag and Coal, non-plastic, moist. (7.5YR 4/4)	
	6	5-7	2.0	2 4 5 5	9	0.0		Brown SILT, little fine Sand, trace Clay, non-plastic, moist. (10R 4/2)	Borehole backfilled with bentonite/grout to grade.
								Grey fine SAND and SILT, trace Clay, non-plastic, wet-saturated. (10R 4/1) Faint petroleum-like odor with presence of saturated soils. lens of grey-sand (possible staining), faint petroleum-like odor.	
	7	7-9	1.6	5 6 7 9	13	0.0		Brown Clayey SILT, trace fine Sand, stiff, medium plasticity, moist. (10R 4/2)	
445 / 10	8	9-10	0.8	3 4	NA	0.0		Brown SILT, lens of Clayey Silt and fine Sand throughout, non-plastic, wet-saturated. (10R 4/2)	
								Boring terminated at 10 feet bgs	
440 / 15									

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Vac. Truck/Air Knife method used to clear boring down to 5 feet bgs, then CME-55 Truck Rig used for 5-10 feet bgs. Boring grouted upon completion, no samples taken for analysis.

Date Start/Finish: 3/15/2011-3/17/2011
Drilling Company: Parratt-Wolff
Driller's Name: Marquel Chatman
Drilling Method: Air Knife/Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Vac. Truck 4000/CME-55
Sampling Method: 2" x 2' Split Spoon

Northing: 1946483.448
Easting: 714250.1943
Casing Elevation: NA

Borehole Depth: 10' bgs
Surface Elevation: 454.58

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-19/SB-19A**

Client: NYSEG

Location: Wadsworth Street
Geneva, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	455									
0		1	0-1	NA	NA	NA	0.0		Dark brown SILT, little fine Sand, trace red Brick, non-plastic, moist. (5YR 2.5/2)	
		2	1-2	NA	NA	NA	0.0			
		3	2-3	NA	NA	NA	0.0		Brown SILT, little Clay, trace Slag, Coal, red Brick, non-plastic, moist. (2.5YR 2/3)	
		4	3-4	NA	NA	NA	0.0		trace Ash, Organics at 4 feet bgs	
	450	5	4-5	NA	NA	NA	0.0		wet at 5 feet bgs	
5		6	5-7	1.1	2 4 5 5	4	0.0		Brown SILT, some to little Clay, trace fine Sand, organic odor, wet to saturated. (2.5YR 5/4)	Borehole backfilled with bentonite/grout to grade.
		7	7-9	1.9	5 6 7 9	11	0.0		Brown medium SAND, saturated. (2.5YR 5/2) Brown SILT and fine subangular GRAVEL, trace fine Sand, Clay, soft, loose, saturated. (2.5YR 5/2) Brown Silty CLAY, trace fine Sand, dense, medium plasticity, saturated. (2.5YR 6/4)	
	445	8	9-10	0.6	3 4	NA	0.0		Brown SILT, loose, non-plastic, soft, saturated. (2.5YR 4/2)	
10									Boring terminated at 10 feet bgs	
	440									
15										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Vac. Truck/Air Knife method used to clear boring SB-19 down to 3-3.5 feet bgs before finding brick structure blocking north side of hole, white sand on south side. (NYSEG confirmed anode associated with nearby gas pipe) Moved north 4.5 feet to procede with SB-19B to 5 feet bgs. CME-55 Truck Rig used for 5-10 feet bgs. Boring grouted upon completion. No samples taken for analysis.

Date Start/Finish: 3/15/2011-3/17/2011
Drilling Company: Parratt-Wolff
Driller's Name: Marquel Chatman
Drilling Method: Hollow Stem Auger
Auger Size: 4.25" ID
Rig Type: CME-55
Sampling Method: 2" x 2' Split Spoon

Northing: 1046516.33
Easting: 714260.61
Casing Elevation: 453.74

Borehole Depth: 25' bgs
Surface Elevation: 453.97

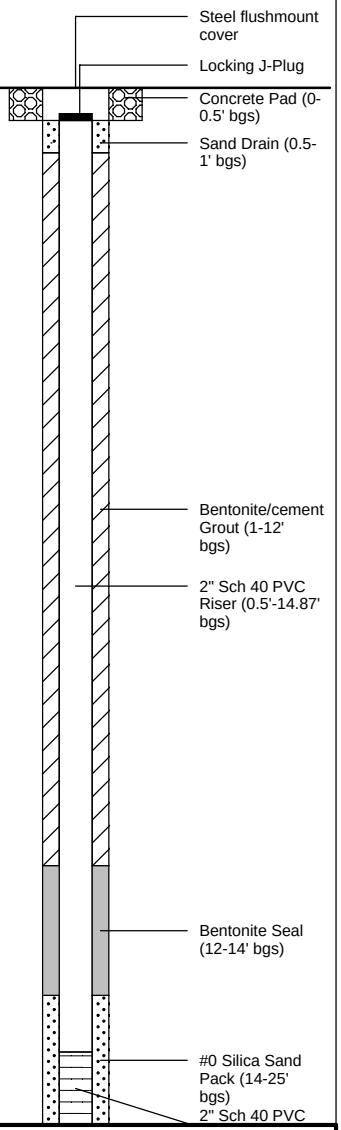
Descriptions By: Joshua Oliver

Well/Boring ID: **MW-10**

Client: NYSEG

Location: Wadsworth Street
Geneva, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
	455								
0									
		1	0-1	NA	NA	NA	NA		Dark brown SILT, little fine Sand, trace Slag, fine subangular Gravel, non-plastic, moist. (5YR 2.5/1)
		2	1-2	NA	NA	NA	NA		Dark brown SILT and CLAY, trace fine Sand, Slag, red Brick, Rubber soles, medium plasticity moist to wet. (5YR 2.5/1)
		3	2-3	NA	NA	NA	NA		Dark to light brown Clayey SILT, trace fine Sand, Coal, non-plastic, wet to saturated. (5YR 5/1)
		4	3-4	NA	NA	NA	NA		Little Coal.
	450	5	4-5	NA	NA	NA	NA		(5YR 4/3)
5									
		6	5-7	1.6	1 1 1 2	2	0.0		Brown fine SAND and SILT, trace Clay, non-plastic, moist to wet. (2.5YR 4/2) Grey-brown laminated SILT, some Clay, medium plasticity, moist. (5YR 7/1) Faint petroleum-like odor. Brown Clayey SILT, little to trace fine Sand, non-plastic, moist. (5YR 5/2)
		7	7-9	1.2	4 4 5 10	9	0.0		Increasing fine Sand with depth.
	445								
10		8	9-11	1.8	3 3 4 4	7	0.0		Pink-brown CLAY, trace Silt, laminations of fine Sand and Silt, medium plasticity, moist. (2.5YR 7/4)
		9	11-13	1.1	3 3 4 3	7	0.0		Pink-brown fine to medium SAND, trace Silt, non-plastic, wet. (2.5YR 5/2)
	440	10	13-15	2.0	WOH/2.0 6 2 9	NA	0.0		Pink-brown CLAY, trace Silt, soft, saturated. (2.5YR 4/2)
15									
					WOH/2.0 2				No Recovery.



Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level; WOH = Weight of Hammer

Vac. Truck/Air Knife method used to clear boring down to 5 feet bgs, then CME-55 Truck Rig used for 5-25 feet bgs. No samples taken for analysis.

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Client: NYSEG

Well/Boring ID: **MW-10**

Borehole Depth: 25' bgs

Site Location:
Wadsworth Street
Geneva, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
		11	15-17	0.0	3 2	NA	0.0			0.010" Slot Screen (14.87-24.63' bgs)
		12	17-19	1.9	4 4 4 5	8	0.0		Pink-brown CLAY, trace Silt, soft, saturated. (2.5YR 4/2) Pink-brown CLAY, trace Silt with laminations of fine Sand, wet. (2.5YR 6/1) Brown medium to coarse SAND, little fine Sand, non-plastic, saturated. (2.5YR 4/1)	#0 Silica Sand Pack (14-25' bgs)
	435									
20		13	19-21	2.0	1 2 1 2	3	0.0			2" Sch 40 PVC 0.010" Slot Screen (14.87-24.63' bgs)
		14	21-23	2.0	2 3 4 3	7	0.0		Pink-brown/brown fine SAND, little to trace Silt, non-plastic, saturated (2.5YR 4/1)	
					5 5				Pink-brown/brown coarse to medium SAND, trace fine Sand, non-plastic, saturated. (2.5YR 5/1)	
	430	15	23-25	2.0	4 4	9	0.0		Pink-brown/brown fine SAND, trace Silt, non-plastic, saturated. (2.5YR 5/3)	
25									Boring terminated at 25 feet bgs.	2" Sch 40 PVC Cap (24.63-25' bgs)
	425									
30										
	420									
35										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level; WOH = Weight of Hammer

Vac. Truck/Air Knife method used to clear boring down to 5 feet bgs, then CME-55 Truck Rig used for 5-25 feet bgs. No samples taken for analysis.

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Attachment C

Groundwater Sampling Logs

Wadsworth Street - Geneva, NY

2011 Well Sampling Event

Site *Event*

MONITORING WELL SAMPLING LOG

Sampling Personnel: Joshua Oliver/ JDL
Well ID: MW-01
Client / Job Number: BOU13104
Date: 3/21/11
Weather: OVERCAST 40° F
Time In: 1250 **Time Out:** 1536

Well Information

Depth to Water:	(feet)	6.14	(from MP)
Total Depth:	(feet)	19.64	(from MP)
Length of Water Column:	(feet)	13.5	
Volume of Water in Well:	(gal)	2.2005	

Well Type:	(Flushmount)		Stick-Up
Well Material:	Stainless Steel		(PVC)
Well Locked:	(Yes)		No
Measuring Point Marked:	(Yes)		No
Well Diameter:	1"	(2")	Other:

Purging Information

Purging Method:	Bailer	(Peristaltic)	Grundfos	Other:
Tubing/Bailer Material:	St. Steel	Polyethylene	Teflon	Other:
Sampling Method:	(Bailer)	(Peristaltic)	Grundfos	Other:

Duration of Pumping: 80 (min)
Average Pumping Rate: 128 (ml/min) Water-Quality Meter Type: Horiba-22
Total Volume Removed: 2.15 (gal) Did well go dry: Yes (No)

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L =3875 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO	Cond.	ORP
±0.1	± 10%	± 3.0%	± 10 mV

Time: / Parameter:	1	2	3	4	5	6	7	8	9
	13:01	13:06	13:11	13:16	13:21	13:26	1331	1336	1341
Volume Purged (gal)	—	0.44	0.57	0.65	0.76	0.87	0.94	1.02	1.24
Rate (mL/min)	—	140 mL/min	160	150	150	140	120	140	130
Depth to Water (ft.)	6.14	6.26	6.30	6.30	6.31	6.27	6.28	6.28	6.29
pH	—	7.20	7.32	7.35	7.41	7.41	7.42	7.47	7.34
Temp. (C)	—	11.72	11.89	11.75	11.76	11.73	11.67	11.85	11.80
Conductivity (mS/cm)	—	0.503	0.502	0.501	0.501	0.501	0.501	0.502	0.503
Dissolved Oxygen	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ORP (mV)	—	256	204	161	127	112	99	83	78
Turbidity (NTU)	—	330	240	190	150	120	120	90	80
Notes:	PUMP STARTED	SLIGHTLY TURBID/ CLOUDY							

Sampling Information

Analyses	#	Laboratory

Sample ID: Sample Time: 1427
MS/MSD: Yes (No)
Duplicate: Yes (No)
Duplicate ID Dup. Time:
Chain of Custody Signed By:

Problems / Observations

PID - 0.0

2 1 = X / 3875 2100

INITIAL OBSERVATION: CLOUDY AND TURBID, NO ODOR

FINAL OBSERVATION: LESS CLOUDY, NO ODOR

STARTED SAMPLING @ 1427 END 1536

Wadsworth Street - Geneva, NY

2011 Well Sampling Event

Site *Event*

MONITORING WELL SAMPLING LOG

Sampling Personnel: Joshua Oliver/ JDL
Well ID: MW-01 (CONTINUED)
Client / Job Number: B0013104
Date: 3/21/11
Weather: OVERCAST 40° F
Time In: **Time Out:**

Well Information

Depth to Water:	(feet)	(from MP)
Total Depth:	(feet)	(from MP)
Length of Water Column:	(feet)	
Volume of Water in Well:	(gal)	

Well Type:	Flushmount	Stick-Up
Well Material:	Stainless Steel	PVC
Well Locked:	Yes	No
Measuring Point Marked:	Yes	No
Well Diameter:	1" 2"	Other:

Purging Information

Purging Method:	Bailer	Peristaltic	Grundfos	Other:
Tubing/Bailer Material:	St. Steel	Polyethylene	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	Grundfos	Other:

Duration of Pumping: (min)
Average Pumping Rate: (ml/min) Water-Quality Meter Type:
Total Volume Removed: (gal) Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L =3875 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO	Cond.	ORP
±0.1	± 10%	± 3.0%	± 10 mV

Time: / Parameter:	1	2	3	4	5	6	7	8	9
	1346	1351	1356	1401	1406	1411	1416	1421	
Volume Purged (gal)	1.34	1.53	1.68	1.89	2.04	2.23	2.49	2.59	
Rate (mL/min)	150	120	130	130	140	130	150	100	
Depth to Water (ft.)	6.30	6.24	6.25	6.25	6.24	6.23	6.21	6.24	
pH	7.39	7.42	7.44	7.45	7.44	7.45	7.44	7.44	
Temp. (C)	11.89	11.94	11.88	11.82	11.79	11.72	11.68	11.51	
Conductivity (mS/cm)	0.502	0.503	0.504	0.503	0.503	0.504	0.504	0.504	
Dissolved Oxygen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
ORP (mV)	71	63	58	55	50	50	49	46	
Turbidity (NTU)	65	60	50	50	40	37	37	36	
Notes:							Pump fluctuation		

Sampling Information

Analyses	#	Laboratory

Sample ID:		Sample Time:
MS/MSD:	Yes	No
Duplicate:	Yes	No
Duplicate ID		Dup. Time:
Chain of Custody Signed By:		

Problems / Observations

PID =

Wadsworth Street - Geneva, NY

2011 Well Sampling Event

Site *Event*

MONITORING WELL SAMPLING LOG

Sampling Personnel: Joshua Oliver/ JOL
Well ID: MW-2
Client / Job Number: B0013101
Date: 3-22-11
Weather: cloudy, 40°F
Time In: **Time Out:**

Well Information

Depth to Water:	(feet)	6.21	(from MP)
Total Depth:	(feet)	21.48'	(from MP)
Length of Water Column:	(feet)	15.27'	
Volume of Water in Well:	(gal)	~2.5 gal	

Well Type:	Flushmount		Stick-Up
Well Material:	Stainless Steel		PVC
Well Locked:	Yes		No
Measuring Point Marked:	Yes		No
Well Diameter:	1"	2"	Other:

Purging Information

Purging Method:	Bailer	Peristaltic	Grundfos	Other:
Tubing/Bailer Material:	St. Steel	Polyethylene	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	Grundfos	Other:

Duration of Pumping:	(min)	42 min	
Average Pumping Rate:	(ml/min)	~230	Water-Quality Meter Type: Horiba-22
Total Volume Removed:	(gal)	~2.5 gal	Did well go dry: Yes / No

Conversion Factors

gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L =3875 ml = 0.1337 cubic feet

Unit Stability

pH	DO	Cond.	ORP
±0.1	± 10%	± 3.0%	± 10 mV

Time: / Parameter:	1	2	3	4	5	6	7	8	9	1105
	1023	1028	1033	1038	1043	1048	1053	1058	1103	
Volume Purged (gal)										
Rate (mL/min)		~230	~230	~250	~230	~230	~230	~230	~230	
Depth to Water (ft.)		6.54	6.96	7.24	7.15	7.13	7.11	7.10	7.10	
pH		7.41	7.43	7.43	7.43	7.42	7.40	7.38	7.39	
Temp. (C)		10.52	11.14	11.21	11.22	11.24	11.28	11.31	11.34	
Conductivity (mS/cm)		1.01	0.998	0.993	0.990	0.987	0.986	0.984	0.985	
Dissolved Oxygen		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
ORP (mV)		277	282	285	285	283	284	284	284	
Turbidity (NTU)		104.5	30.9	10.6	10.8	6.71	6.32	5.99	5.91	
Notes:	Pump Start		Pump Fluctuating							SAMPLE TAKEN

Sampling Information

Analyses	#	Laboratory

Sample ID:	MW-2	Sample Time:	1105
MS/MSD:	Yes	No	
Duplicate:	Yes	No	
Duplicate ID		Dup. Time:	
Chain of Custody Signed By:			

Problems / Observations

PID = 0.0

Initial obs: Brown, slightly turbid, odorless
<- rust colored organics

Final obs: clear, odorless, colorless

Wadsworth Street - Geneva, NY

2011 Well Sampling Event

Site *Event*

MONITORING WELL SAMPLING LOG

Sampling Personnel: Joshua Oliver/ J.N LeMessurier **Well ID:** MW-3
Client / Job Number: 30013104 **Date:** 3/22/11
Weather: OVERCAST, 40°F **Time In:** 1037 **Time Out:** 1220

Well Information

Depth to Water:	(feet)	5.03	(from MP)
Total Depth:	(feet)	16.74	(from MP)
Length of Water Column:	(feet)	11.71	
Volume of Water in Well:	(gal)	1.91	

Well Type:		Flushmount	Stick-Up
Well Material:		Stainless Steel	PVC
Well Locked:		Yes	No
Measuring Point Marked:		Yes	No
Well Diameter:	1"	2"	Other:

Purging Information

Purging Method:	Bailer	Peristaltic	Grundfos	Other:
Tubing/Bailer Material:	St. Steel	Polyethylene	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	Grundfos	Other:

Duration of Pumping: (min) 35
Average Pumping Rate: (ml/min) 107 Water-Quality Meter Type: Horiba U-22
Total Volume Removed: (gal) 1.04 Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L =3875 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO	Cond.	ORP
±0.1	± 10%	± 3.0%	± 10 mV

Time: / Parameter:	1 ~~1100~~ ~~1050~~	2 ~~1105~~ ~~1055~~	3 ~~1110~~ ~~1100~~	4 ~~1115~~ ~~1105~~	5 ~~1120~~ ~~1110~~	6 ~~1125~~ ~~1115~~	7 1130	8 1135	9
Volume Purged (gal)	—	0.11	0.24	0.38	0.47	0.60	0.71	0.84	
Rate (mL/min)	—	160	140	140	100	110	110	110	
Depth to Water (ft.)	5.03	5.33	5.29	5.28	5.28	5.27	5.27	5.27	
pH	—	7.57	7.65	7.67	7.68	7.69	7.70	7.71	
Temp. (C)	—	9.74	9.66	9.49	9.50	9.39	9.33	9.29	
Conductivity (mS/cm)	—	3.19	3.22	3.27	3.29	3.30	3.30	3.30	
Dissolved Oxygen	—	1.10	1.24	1.14	1.24	1.08	1.06	1.04	
ORP (mV)	—	234	246	251	253	255	254	254	
Turbidity (NTU)	—	10	7.9	7.2	5.7	5.4	5.3	5.3	
Notes.	STARTED PUMP							STABLE, SAMPLE STARTED	

Sampling Information

Analyses	#	Laboratory

Sample ID: MW-3 Sample Time: 1140
MS/MSD: Yes (No)
Duplicate: Yes (No)
Duplicate ID Dup. Time:
Chain of Custody Signed By:

Problems / Observations

PID = 0.0

INITIAL OBSERVATION: LOW TURBIDITY SOMEWHAT CLEAR. MAYBE FAINT CHEMICAL ODOR.

FINAL OBSERVATION NO ODOR, CLEAR, LOW TURBIDITY

STARTED SAMPLING @ 1140 END @ 1215

Wadsworth Street - Geneva, NY

2011 Well Sampling Event

Site *Event*

MONITORING WELL SAMPLING LOG

Sampling Personnel: Joshua Oliver/ JR
Well ID: MW-4
Client / Job Number: 60138.04
Date: 3-22-11
Weather: cloudy 40°F
Time In: 1230 **Time Out:**

Well Information

Depth to Water:	(feet)	4.40'	(from MP)
Total Depth:	(feet)	8.58'	(from MP)
Length of Water Column:	(feet)	9.18'	
Volume of Water in Well:	(gal)	~1.5 gal	

Well Type:	Flushmount		Stick-Up
Well Material:	Stainless Steel		PVC
Well Locked:	Yes		No
Measuring Point Marked:	Yes		No
Well Diameter:	1"	2"	Other:

Purging Information

Purging Method:	Bailer	Peristaltic	Grundfos	Other:
Tubing/Bailer Material:	St. Steel	Polyethylene	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	Grundfos	Other:

Duration of Pumping: (min) 75 min
Average Pumping Rate: (ml/min) ~175 Water-Quality Meter Type: Horiba 22
Total Volume Removed: (gal) ~3.3 gal Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L =3875 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO	Cond.	ORP
±0.1	± 10%	± 3.0%	± 10 mV

Time: / Parameter:	1	2	3	4	5	6	7	8	9	
	1233	1238	1243	1248	1253	1258	1303	1308	1313	1318
Volume Purged (gal)										
Rate (mL/min)		~100	~150	~175	~175	~175	~175	~175	~175	~175
Depth to Water (ft.)		4.43	4.43	4.44	4.44	4.44	4.44	4.45	4.45	4.45
pH		7.04	7.04	7.03	7.05	7.05	7.05	7.05	7.05	7.05
Temp. (C)		11.84	12.04	12.12	12.25	12.27	12.32	12.49	12.54	12.56
Conductivity (mS/cm)		11.7	11.6	11.4	11.2	11.1	11.1	11.1	11.0	11.0
Dissolved Oxygen		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ORP (mV)		-8	-12	-16	-23	-27	-29	-31	-31	-33
Turbidity (NTU)		324	220	180	110	91.8	79.7	60.1	52.8	43.7
Notes:	Pump Started									

3.3

Sampling Information

Analyses	#	Laboratory

Sample ID: MW-4 Sample Time: 1348
MS/MSD: Yes No
Duplicate: Yes No
Duplicate ID Dup. Time:
Chain of Custody Signed By:

Problems / Observations

PID = 0.0

Initial obs: Brown, rust colored organics, odorless

Final Obs: Clear, colorless, odorless

Wadsworth Street - Geneva, NY

2011 Well Sampling Event

Site *Event*

MONITORING WELL SAMPLING LOG

Sampling Personnel: Joshua Oliver/ JDL **Well ID:** MW-4

Client / Job Number: **Date:** 3-22-11

Weather: **Time In:** **Time Out:**

Well Information

Depth to Water:	(feet)	(from MP)
Total Depth:	(feet)	(from MP)
Length of Water Column:	(feet)	
Volume of Water in Well:	(gal)	

Well Type:	Flushmount	Stick-Up
Well Material:	Stainless Steel	PVC
Well Locked:	Yes	No
Measuring Point Marked:	Yes	No
Well Diameter:	1" 2"	Other:

Purging Information

Purging Method:	Bailer	Peristaltic	Grundfos	Other:
Tubing/Bailer Material:	St. Steel	Polyethylene	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	Grundfos	Other:

Duration of Pumping: (min)

Average Pumping Rate: (ml/min) Water-Quality Meter Type:

Total Volume Removed. (gal) Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L =3875 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO	Cond.	ORP
±0.1	± 10%	± 3.0%	± 10 mV

Time: / Parameter:	1	2	3	4	5	6	7	8	9
	1323	1328	1333	1338	1343	1348			
Volume Purged (gal)									
Rate (mL/min)	~175	~175	~175	~175	~175				
Depth to Water (ft.)	4.45	4.45	4.45	4.45	4.45				
pH	7.06	7.06	7.06	7.06	7.06				
Temp. (C)	12.47	12.51	12.53	12.55	12.58				
Conductivity (mS/cm)	10.9	10.9	10.9	10.8	10.8				
Dissolved Oxygen	0.00	0.00	0.00	0.00	0.00				
ORP (mV)	-35	-36	-36	-36	-36				
Turbidity (NTU)	36.4	30.0	25.6	25.0	24.9				
Notes:						SAMPLE TAKEN			

Sampling Information

Analyses	#	Laboratory

Sample ID:		Sample Time:	
MS/MSD:	Yes	No	
Duplicate:	Yes	No	
Duplicate ID		Dup. Time:	
Chain of Custody Signed By:			

Problems / Observations

PID =

Wadsworth Street - Geneva, NY

2011 Well Sampling Event

Site: 1 | Event

MONITORING WELL SAMPLING LOG

Sampling Personnel: Joshua Oliver/ JON LEMESSURIER | **Well ID:** MW-5
Client / Job Number: 30013104 | **Date:** 3/22/11
Weather: OVERCAST, 36°F | **Time In:** 0805 | **Time Out:** 1020

Well Information

Depth to Water:	5.90 (feet) (from MP)
Total Depth:	19.57 (feet) (from MP)
Length of Water Column:	13.67 (feet)
Volume of Water in Well:	222 (gal)

Well Type:	Flushmount	Stick-Up
Well Material:	Stainless Steel	PVC
Well Locked:	Yes	No
Measuring Point Marked:	Yes	No
Well Diameter:	1"	2" Other:

Purging Information

Purging Method:	Bailer	Peristaltic	Grundfos	Other:
Tubing/Bailer Material:	St. Steel	Polyethylene	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	Grundfos	Other:

Duration of Pumping: (min) 85
Average Pumping Rate: (ml/min) 118 | Water-Quality Meter Type: Horiba 2.2
Total Volume Removed: (gal) 240 | Did well go dry: Yes / No

Conversion Factors

gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L = 3875 ml = 0.1337 cubic feet

Unit Stability

pH	DO	Cond.	ORP
±0.1	± 10%	± 3.0%	± 10 mV

Time: / Parameter:	1	2	3	4	5	6	7	8	9
	0810	0815	0820	0825	0830	0835	0840	0845	0850
Volume Purged (gal)	—	0.13	0.23	0.31	0.49	0.57	0.70	0.81	0.98
Rate (mL/min)	—	80	160	140	120	130	130	120	100
Depth to Water (ft.)	5.90	6.29	6.90	7.12	7.20	7.23	7.26	7.29	7.32
pH	—	6.71	6.98	7.09	7.12	7.00	6.97	6.97	7.04
Temp. (C)	—	7.49	7.01	7.11	6.96	7.06	7.54	7.82	7.97
Conductivity (mS/cm)	—	0.660	0.646	0.643	0.648	0.966	1.27	1.28	1.28
Dissolved Oxygen	—	11.04	10.91	10.66	10.44	9.48	7.93	6.98	6.29
ORP (mV)	—	222	213	210	209	80	-27	-22	-55
Turbidity (NTU)	—	38	36	31	23	10	4.8	3.8	3.2
Notes:	STARTED PUMPING	PRETTY CLEAR, NO ODOR				MAJOR CHANGES, NO ODOR			

Sampling Information

Analyses	#	Laboratory

Sample ID: MW-5 | Sample Time: 0932
MS/MSD: Yes / (No)
Duplicate: Yes / (No)
Duplicate ID | Dup. Time:
Chain of Custody Signed By:

Problems / Observations

PID = 0.0

INITIAL OBSERVATION: CLEAR, LOW TURBIDITY, NO ODOR

FINAL OBSERVATION VERY LOW TURBIDITY, NO ODOR

SAMPLE STARTED @ 0932, END 1015

Wadsworth Street - Geneva, NY

2011 Well Sampling Event

Site *Event*

MONITORING WELL SAMPLING LOG

Sampling Personnel: Joshua Oliver/ Jeff LeMessurier **Well ID:** MW-5

Client / Job Number: B0013184 **Date:** 3/22/11

Weather: **Time In:** 0825 **Time Out:**

Well Information

Depth to Water:	(feet)	(from MP)
Total Depth:	(feet)	(from MP)
Length of Water Column:	(feet)	
Volume of Water in Well:	(gal)	

Well Type:	Flushmount		Stick-Up
Well Material:	Stainless Steel		PVC
Well Locked:	Yes		No
Measuring Point Marked:	Yes		No
Well Diameter:	1"	2"	Other:

Purging Information

Purging Method:	Bailer	Peristaltic	Grundfos	Other:
Tubing/Bailer Material:	St. Steel	Polyethylene	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	Grundfos	Other:

Duration of Pumping: (min) 35

Average Pumping Rate: (ml/min) Water-Quality Meter Type:

Total Volume Removed: (gal) Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L =3875 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO	Cond.	ORP
±0.1	± 10%	± 3.0%	± 10 mV

Time: / Parameter:	1	2	3	4	5	6	7	8	9
	0855	0900	0905	0910	0915	0920	0925	0930	0935
Volume Purged (gal)	1.07	1.25	1.41	1.60	1.81	2.02	2.16	2.30	
Rate (mL/min)	110	130	130	130	140	130	130	130	
Depth to Water (ft.)	7.38	7.41	7.46	7.48	7.56	7.60	7.60	7.61	
pH	7.04	7.08	7.07	7.07	7.09	7.09	7.08	7.08	
Temp. (C)	8.16	8.14	8.22	8.26	8.27	8.35	8.35	8.41	
Conductivity (mS/cm)	1.28	1.28	1.29	1.29	1.29	1.29	1.30	1.31	
Dissolved Oxygen	~~5.55~~ 5.51	4.95	4.23	3.92	3.48	3.22	3.19	3.17	
ORP (mV)	-55	-58	-59	-55	-58	-58	-59	-60	
Turbidity (NTU)	3.2	3.7	2.5	2.3	2.7	2.1	2.0	2.0	
Notes:									

Sampling Information

Analyses	#	Laboratory

Sample ID:		Sample Time:
MS/MSD:	Yes	No
Duplicate:	Yes	No
Duplicate ID		Dup. Time:
Chain of Custody Signed By:		

Problems / Observations

PID =

Wadsworth Street - Geneva, NY

2011 Well Sampling Event

Site *Event*

MONITORING WELL SAMPLING LOG

Sampling Personnel: Joshua Oliver/ JON LEMESSURIER **Well ID:** MW-6
Client / Job Number: B0013104 **Date:** 3/23/11
Weather: SNOW (HEAVY), 30° **Time In:** 0756 **Time Out:** 1230

Well Information

Depth to Water:	(feet)	5.18	(from MP)
Total Depth:	(feet)	17.47	(from MP)
Length of Water Column:	(feet)	12.29	
Volume of Water in Well:	(gal)	2.00	

Well Type:	Flushmount		Stick-Up
Well Material:	Stainless Steel		PVC
Well Locked:	(Yes)		No
Measuring Point Marked:	(Yes)		No
Well Diameter:	1"	(2")	Other:

Purging Information

Purging Method:	Bailer	(Peristaltic)	Grundfos	Other:
Tubing/Bailer Material:	St. Steel	(Polyethylene)	Teflon	Other:
Sampling Method:	(Bailer)	(Peristaltic)	Grundfos	Other:

Duration of Pumping:	(min)	40 MIN			
Average Pumping Rate:	(ml/min)	106	Water-Quality Meter Type:	HORIBA 2.2	
Total Volume Removed:	(gal)	1.04	Did well go dry:	Yes	(No)

Conversion Factors

gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L =3875 ml = 0.1337 cubic feet

Unit Stability

pH	DO	Cond.	ORP
±0.1	± 10%	± 3.0%	± 10 mV

Time: / Parameter:	1	2	3	4	5	6	7	8	9
	0940	0945	0950	0955	1000	1005	1010	1015	1020
Volume Purged (gal)	—	0.13	0.25	0.36	0.45	0.57	0.69	0.80	0.95
Rate (mL/min)	—	150	130	120	110	110	110	110	110
Depth to Water (ft.)	5.18	5.22	5.23	5.23	5.23	5.23	5.24	5.24	5.24
pH	—	6.84	7.04	7.02	6.96	6.88	6.97	6.94	6.92
Temp. (C)	—	8.75	8.55	8.67	8.39	8.32	8.16	8.45	8.53
Conductivity (mS/cm)	—	0.775	0.780	0.780	0.780	0.783	0.780	0.781	0.794
Dissolved Oxygen	—	1.42	1.30	0.92	0.41	0.41	0.19	0.15	0.10
ORP (mV)	—	191	187	187	192	197	194	196	197
Turbidity (NTU)	—	21	21	22	20	20	19	18	18
Notes:	START PUMP								END PUMP START SAMPLE

Sampling Information

Analyses	#	Laboratory

Sample ID:		Sample Time: 1025
MS/MSD:	(Yes)	No
Duplicate:	Yes	(No)
Duplicate ID		Dup. Time:
Chain of Custody Signed By:		

(6)

Problems / Observations

PID = 0.0

INITIAL OBSERVATION: HIGHER TURBIDITY, NO ODOR

FINAL OBSERVATION: TURBIDITY SAMPLE, NO ODOR

MS & MSD WERE EXTRACTED FROM MW-6.

STARTED SAMPLE @ 1025 END @ 1230

Wadsworth Street - Geneva, NY

2011 Well Sampling Event

Site / Event

MONITORING WELL SAMPLING LOG

Sampling Personnel: Joshua Oliver/ **Well ID:** MW-7

Client / Job Number: 60013104 **Date:** 3-22-11

Weather: Cloudy, 40° **Time In:** 0750 **Time Out:**

Well Information

Depth to Water:	(feet)	5.99'	(from MP)
Total Depth:	(feet)	16.41'	(from MP)
Length of Water Column:	(feet)	10.42'	
Volume of Water in Well:	(gal)	~1.7 gal	

Well Type:	Flushmount		Stick-Up
Well Material:	Stainless Steel		PVC
Well Locked:	Yes		No
Measuring Point Marked:	Yes		No
Well Diameter:	1"	2"	Other:

Purging Information

Purging Method:	Bailer	Peristaltic	Grundfos	Other:
Tubing/Bailer Material:	St. Steel	Polyethylene	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	Grundfos	Other:

Duration of Pumping: (min) ~60 min

Average Pumping Rate: (ml/min) ~130 ml/min Water-Quality Meter Type: Horiba-22

Total Volume Removed: (gal) ~2 gal Did well go dry: Yes No

Conversion Factors

gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L =3875 ml = 0.1337 cubic feet

Unit Stability

pH	DO	Cond.	ORP
±0.1	± 10%	± 3.0%	± 10 mV

Time: / Parameter:	1	2	3	4	5	6	7	8	9	
	0820	0825	0830	0835	0840	0845	0850	0855	0900	0905
Volume Purged (gal)										
Rate (mL/min)		~130	~130	~130	~130	~130	~130	~130	~130	~130
Depth to Water (ft.)		6.13	6.15	6.15	6.15	6.14	6.15	6.15	6.15	6.15
pH		7.11	7.33	7.43	7.45	7.41	7.39	7.39	7.42	7.44
Temp. (C)		10.26	10.28	10.81	10.85	10.80	10.92	11.12	11.08	11.13
Conductivity (mS/cm)		1.12	1.14	1.11	1.10	1.10	1.10	1.10	1.10	1.10
Dissolved Oxygen		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ORP (mV)		263	257	251	249	247	250	242	237	236
Turbidity (NTU)		76	83	78	69	63	51.7	50.7	26.7	21.8
Notes:	Start Pump									

Sampling Information

Analyses	#	Laboratory

Sample ID: MW-7 Sample Time: 0920

MS/MSD: Yes No

Duplicate: Yes No

Duplicate ID Dup Time:

Chain of Custody Signed By:

Problems / Observations

PID = 0.0

Initial Obs: cloudy, odorless

Final Obs: clear, odorless

Wadsworth Street - Geneva, NY

2011 Well Sampling Event

Site *Event*

MONITORING WELL SAMPLING LOG

Sampling Personnel: Joshua Oliver/ JDJ LeMessurier **Well ID:** MW-8

Client / Job Number: B0013104 **Date:** 3/22/11

Weather: OVERCAST, 40°F **Time In:** 1250 **Time Out:** 1445

Well Information

Depth to Water:	(feet)	5.56	(from MP)
Total Depth:	(feet)	19.58	(from MP)
Length of Water Column:	(feet)	14.02	
Volume of Water in Well:	(gal)	2.29	

Well Type:	Flushmount		Stick-Up
Well Material:	(Stainless Steel)		PVC
Well Locked:	(Yes)		No
Measuring Point Marked:	(Yes)		No
Well Diameter:	1"	(2")	Other:

Purging Information

Purging Method:	Bailer	(Peristaltic)	Grundfos	Other:
Tubing/Bailer Material:	St. Steel	(Polyethylene)	Teflon	Other:
Sampling Method:	(Bailer)	(Peristaltic)	Grundfos	Other:

Duration of Pumping: (min) 35

Average Pumping Rate: (ml/min) 105 Water-Quality Meter Type: Horiba U-22

Total Volume Removed: (gal) 0.93 Did well go dry: Yes (No)

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L =3875 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO	Cond.	ORP
±0.1	± 10%	± 3.0%	± 10 mV

Time: / Parameter:	1	2	3	4	5	6	7	8	9
	1305	1310	1315	1320	1325	1330	1335	1340	
Volume Purged (gal)	—	0.18	0.24	0.31	0.48	0.57	0.69	0.80	
Rate (mL/min)	—	200	130	100	100	90	110	110	
Depth to Water (ft.)	5.56	6.36	6.76	6.97	7.10	7.10	7.05	7.05	
pH	—	7.44	7.16	7.15	7.15	7.13	7.13	7.13	
Temp. (C)	—	9.13	9.16	9.08	9.07	9.07	9.00	8.89	
Conductivity (mS/cm)	—	1.24	1.21	1.20	1.19	1.19	1.18	1.18	
Dissolved Oxygen	—	0.48	0.00	0.00	0.00	0.00	0.00	0.00	
ORP (mV)	—	195	186	178	171	164	160	159	
Turbidity (NTU)	—	4.0	3.6	3.8	3.3	3.3	3.4	3.4	
Notes:	START PUMP								

Sampling Information

Analyses	#	Laboratory

Sample ID: MW-8		Sample Time: 1345	
MS/MSD:	Yes	(No)	
Duplicate:	Yes	(No)	
Duplicate ID		Dup. Time:	
Chain of Custody Signed By:			

Problems / Observations

PID = 0.0

INITIAL OBSERVATION: NO ~~SMELL~~ ODOR, LOW TURBIDITY

FINAL OBSERVATION NO ODOR, LESS TURBID

SAMPLE STARTED @ 1345 END @ 1445

Wadsworth Street - Geneva, NY

2011 Well Sampling Event

Site *Event*

MONITORING WELL SAMPLING LOG

Sampling Personnel: Joshua Oliver/ JPL
Well ID: MW-9
Client / Job Number: BCP13101
Date: 5-23-11
Weather: SNOW 35° F
Time In: 0830 **Time Out:**

Well Information

Depth to Water:	(feet)	5.58'	(from MP)
Total Depth:	(feet)	16.28'	(from MP)
Length of Water Column:	(feet)	10.7'	
Volume of Water in Well:	(gal)	~1.7 gal	

Well Type:		Flushmount	Stick-Up
Well Material:		Stainless Steel	PVC
Well Locked:		Yes	No
Measuring Point Marked:		Yes	No
Well Diameter:	1"	2"	Other:

Purging Information

Purging Method:	Bailer	Peristaltic	Grundfos	Other:
Tubing/Bailer Material:	St. Steel	Polyethylene	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	Grundfos	Other:

Duration of Pumping: (min) 76
Average Pumping Rate: (ml/min) ~185 Water-Quality Meter Type: Horiba-22
Total Volume Removed: (gal) ~3.6 gal Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L =3875 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO	Cond.	ORP
±0.1	± 10%	± 3.0%	± 10 mV

Time: / Parameter:	1	2	3	4	5	6	7	8	9
	0912	0917	0923	0927	0932	0937	0942	0947	0952
Volume Purged (gal)									
Rate (mL/min)		~180	~190	~190	~180	~190	~180	~180	~180
Depth to Water (ft.)		5.93	6.07	6.15	6.21	6.24	6.23	6.22	6.22
pH		7.01	6.96	7.09	7.24	7.37	7.38	7.38	7.38
Temp. (C)		9.94	9.97	10.23	10.33	10.40	10.36	10.34	10.33
Conductivity (mS/cm)		0.961	0.851	0.821	0.808	0.794	0.795	0.795	0.796
Dissolved Oxygen		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ORP (mV)		77	56	38	27	23	21	20	20
Turbidity (NTU)		869	359	151	97.9	78.9	60.9	56.7	40.4
Notes:	Pump Started								

Sampling Information

Analyses	#	Laboratory

Sample ID MW-9 Sample Time: 1028
MS/MSD: Yes (No)
Duplicate: (Yes) No
Duplicate ID DUP-032311 Dup. Time: —
Chain of Custody Signed By:

Problems / Observations

PID = 0.0

Initial Obs. cloudy, slight brown coloring, odorless

Final Obs: clear, colorless, odorless

Wadsworth Street - Geneva, NY

2011 Well Sampling Event

Site *Event*

MONITORING WELL SAMPLING LOG

Sampling Personnel: Joshua Oliver/ **Well ID:** MW-9

Client / Job Number: **Date:** 3-23-11

Weather: **Time In:** **Time Out:**

Well Information

Depth to Water:	(feet)	(from MP)
Total Depth:	(feet)	(from MP)
Length of Water Column:	(feet)	
Volume of Water in Well:	(gal)	

Well Type:	Flushmount	Stick-Up
Well Material:	Stainless Steel	PVC
Well Locked:	Yes	No
Measuring Point Marked:	Yes	No
Well Diameter:	1" 2"	Other:

Purging Information

Purging Method:	Bailer	Peristaltic	Grundfos	Other:
Tubing/Bailer Material:	St. Steel	Polyethylene	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	Grundfos	Other:

Duration of Pumping: (min)

Average Pumping Rate: (ml/min) Water-Quality Meter Type:

Total Volume Removed: (gal) Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L =3875 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO	Cond.	ORP
±0.1	± 10%	± 3.0%	± 10 mV

Time: / Parameter:	1	2	3	4	5	6	7	8	9
	0957	1002	1007	1012	1017	1022	1028		
Volume Purged (gal)									
Rate (mL/min)	~190	~195	~185	~185	~185	~185			
Depth to Water (ft.)	6.23	6.24	6.26	6.23	6.24	6.24			
pH	7.36	7.27	7.36	7.35	7.29	7.30			
Temp (C)	10.38	10.49	10.42	10.49	10.48	10.47			
Conductivity (mS/cm)	0.800	0.803	0.805	0.807	0.809	0.810			
Dissolved Oxygen	0.00	0.00	0.00	0.00	0.00	0.00			
ORP (mV)	16	21	16	16	18	16			
Turbidity (NTU)	35.6	29.8	18.5	15.1	15.5	15.0			
Notes:	Pump Malfunctioning						SAMPLE		

Sampling Information

Analyses	#	Laboratory

Sample ID:	Sample Time:	
MS/MSD:	Yes	No
Duplicate:	Yes	No
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

PID =

Wadsworth Street - Geneva, NY

2011 Well Sampling Event

Site *Event*

MONITORING WELL SAMPLING LOG

Sampling Personnel: Joshua Oliver/ JDL
Client / Job Number: B003104
Weather: Cloudy, 48°F

Well ID: MW-10
Date: 3-21-11
Time In: 1345 **Time Out:**

Well Information

Depth to Water: 6.81' (feet) (from MP)
Total Depth: 25.05' (feet) (from MP)
Length of Water Column: (feet) 18.24'
Volume of Water in Well: (gal) 2.9 gal

Well Type:	Flushmount	Stick-Up
Well Material:	Stainless Steel	(PVC)
Well Locked:	(Yes)	No
Measuring Point Marked:	(Yes)	No
Well Diameter: 1"	(2")	Other:

Purging Information

Purging Method:	Bailer	Peristaltic	Grundfos	Other:
Tubing/Bailer Material:	St. Steel	Polyethylene	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	Grundfos	Other:

Duration of Pumping: (min) 76 min
Average Pumping Rate: (ml/min) ~100 Water-Quality Meter Type: Horiba-22
Total Volume Removed: (gal) ~2 gal Did well go dry: Yes (No)

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L =3875 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO	Cond.	ORP
±0.1	± 10%	± 3.0%	± 10 mV

Time: / Parameter:	1	2	3	4	5	6	7	8	9
	1404	1409	1414	1419	1424	1429	1434	1439	1444
Volume Purged (gal)									
Rate (mL/min)		~100	~100	~100	~100	~100	~100	~100	~100
Depth to Water (ft.)		7.51	8.07	8.31	8.57	8.80	8.93	9.04	7.03
pH		7.32	6.92	6.88	6.87	6.87	6.86	6.86	6.86
Temp. (C)		11.43	11.73	11.85	11.94	12.05	12.08	12.11	12.14
Conductivity (mS/cm)		2.04	2.02	2.00	1.95	1.91	1.91	1.91	1.91
Dissolved Oxygen		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ORP (mV)		-25	-35	-37	-39	-41	-40	-39	-39
Turbidity (NTU)		85	85	75	61	50	45	40	37
Notes:	Pump Started	Alarm! the pump cannot go into stratum							

Sampling Information

Analyses	#	Laboratory

Sample ID: MW-10 Sample Time: 1520
MS/MSD: Yes (No)
Duplicate: Yes (No)
Duplicate ID: Dup. Time:
Chain of Custody Signed By:

Problems / Observations

PID = 0.0

Initial Obs: slightly cloudy, no odor, no sheen

Final Obs: clear, no odor

Wadsworth Street - Geneva, NY

2011 Well Sampling Event

Site *Event*

MONITORING WELL SAMPLING LOG

Sampling Personnel: Joshua Oliver/ **Well ID:** MW-10

Client / Job Number: **Date:**

Weather: **Time In:** **Time Out:**

Well Information

Depth to Water:	(feet)	(from MP)
Total Depth:	(feet)	(from MP)
Length of Water Column:	(feet)	
Volume of Water in Well:	(gal)	

Well Type:	Flushmount	Stick-Up	
Well Material:	Stainless Steel	PVC	
Well Locked:	Yes	No	
Measuring Point Marked:	Yes	No	
Well Diameter:	1"	2"	Other:

See PG

Purging Information

Purging Method:	Bailer	Peristaltic	Grundfos	Other:
Tubing/Bailer Material:	St. Steel	Polyethylene	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	Grundfos	Other:

Duration of Pumping: (min)

Average Pumping Rate: (ml/min) Water-Quality Meter Type:

Total Volume Removed: (gal) Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L =3875 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO	Cond.	ORP
±0.1	± 10%	± 3.0%	± 10 mV

Time: / Parameter:	1	2	3	4	5	6	7	8	9
	1449	1454	1459	1504	1509	1514	1520		
Volume Purged (gal)									
Rate (mL/min)	~100	~100	~100	~100	~100	~100			
Depth to Water (ft.)	9.11	9.14	9.16	9.17	9.13	9.18			
pH	6.56	6.86	6.86	6.86	6.86	6.86			
Temp. (C)	12.19	12.23	12.27	12.20	12.20	12.17			
Conductivity (mS/cm)	1.92	1.93	1.94	1.94	1.95	1.96			
Dissolved Oxygen	0.00	0.00	0.00	0.00	0.00	0.00			
ORP (mV)	-41	-43	-43	-44	-43	-44			
Turbidity (NTU)	33	32	31	30	30	30			
Notes:							SAMPLED		

Sampling Information

Analyses	#	Laboratory
Sample ID: MW-10	Sample Time: 1520	
MS/MSD: Yes	No	
Duplicate: Yes	No	
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

PID = 0.0

See PG 1