AECOM Environment

Prepared for:
NYS Electric & Gas Corporation
Binghamton, NY

Prepared by:
AECOM
Latham, NY 12110

April 2012

Remedial Design Report
100% Submittal
Ithaca Court Street Former MGP Site
OU-1, Markles Flats
Ithaca, New York
NYSDEC Site # 7-55-008

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Prepared By Patrick Gratton

Prepared By Will Baker, PE

Reviewed By Scott Underhill, PE

Reviewed By Lucas Hellerich, PE, PhD, LEP

Engineering Certification

I hereby certify that this Remedial Design Report for the Ithaca Court Street Former Manufactured Gas Plant OU-1 Markles Flats Site was prepared in accordance with all applicable statues and regulations and in substantial conformance with the New York State Department of Environmental Conservation Division of Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved OU-1 Markles Flats work plan.

Respectfully submitted,
AECOM Technical Services, Inc.

April 10, 2012
Date

Scott Underhill
Registered Professional Engineer
New York License No. 075332

Contents

Attachments

Appendices

List of Acronyms

bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene and xylenes
CAMP	Community Air Monitoring Plan
CCR	Construction Completion Report
DER	Division of Environmental Remediation
DOT	Department of Transportation
ESMI	Environmental Soil Management, Inc.
FSAP	Field Sampling and Analytical Plan
FS	Feasibility Study
HASP	Health and Safety Plan
IRM	Interim Remedial Measure
IAWWTF	Ithaca Area Wastewater Treatment Facility
HASP	Health and Safety Plan
HSA	Hollow Stem Auger
LEL	Lower Explosive Limit
MGP	Manufactured Gas Plant
MUTCD	Manual on Uniform Traffic Control Devices
MNA	Monitored Natural Attenuation
NAPL	Non-Aqueous Phase Liquid
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
NYSEG	New York State Electric & Gas Corporation
OSHA	Occupational Safety and Health Act or Administration
OU	Operable Unit
PAHs	Polycyclic Aromatic Hydrocarbons
PDI	Pre-Design Investigation
PID	Photoionization Detector
PPE	Personal Protective Equipment
ppm	parts per million
psi	pounds per square inch
RDWP	Remedial Design Work Plan
RECs	Renewable Energy Credits
RI	Remedial Investigation
ROD	Record of Decision
SCG	Standard Criteria or Guidance
SMP	Site Management Plan
SVOCs	Semi-Volatile Organic Compounds
TAGM	Technical and Administrative Guidance Memorandum
TCLP	Toxicity Characteristic Leachate Procedure
TEP	Technical Execution Plan
VOCs	Volatile Organic Compounds

1.0 Introduction

This Remedial Design Report describes the proposed soil remediation of the on-site source area known as Markles Flats, associated with the Ithaca Court Street Former MGP Site Operable Unit-1 (OU-1) located in Ithaca, Tompkins County, New York. This project is being proposed in accordance with Section VII of the Order on Consent (Index Number DO-0002-9309) between New York State Electric & Gas Corporation (NYSEG) and the New York State Department of Environmental Conservation (NYSDEC), and the Record of Decision (ROD) for the site dated September 2003.

The Ithaca Court Street MGP OU-1 Site components are explained in this Remedial Design Report and include:

- Excavation of on-site soils in the area designated as Markles Flats, which includes excavation under the Markles Flats Building (to be demolished) and the surrounding area not addressed during the initial remedial activities on OU-1. A pre-design investigation (PDI) in the Markles Flats area and the immediate vicinity to perform waste characterization of the soils to be removed and determine off-site treatment and disposal facility options will be performed prior to the start of remedial activities.
- The excavation will extend laterally to the existing sheet pile limits as well as limits based on the previous remedial activities completed in the vicinity.
- The excavation will extend vertically to the surface of the silty-clay layer and will continue into the silty-clay layer to a depth of 1 foot if visible MGP impacts are observed or confirmation samples dictate.
- All MGP structures will be excavated, including piping.
- A temporary structure with associated air handling/treatment facilities will be used during this remediation. The effectiveness of emission controls will be demonstrated with appropriate air monitoring.
- All imported backfill will be tested prior to its use on-site. The imported fill must meet the requirements of NYSDEC Part 375-6.8(b) requirements for unrestricted use.
- To the extent practicable, green remediation and sustainability in accordance with DER-31, have been considered in the design and implementation of the remedy.
- Implementation of institutional controls which will allow for residential use, but will prohibit construction of drinking water wells and limit/control subsurface excavations.

The remedial action will be performed under the approval and oversight of the NYSDEC and the New York State Department of Health (NYSDOH). The remedial components above meet and exceed the components set forth in the NYSDEC OU-1 ROD, as all contaminated soil within the Markles Flats area will be excavated down to the confining layer or further based on confirmation samples. This material will be removed and properly disposed/treated off-site at the appropriate disposal facility.

A remedial design package for the remediation of the Ithaca Court Street Operable Unit-2 (OU-2) site (i.e., Areas A, B, C and IW-43) has been submitted to the NYSDEC under separate cover.

1.1 Site Location and Description

Location: The Ithaca Court Street Manufactured Gas Plant (MGP) is located in a residential area of Ithaca, Tompkins County, NY. The former MGP property is bounded by North Plain Street, West Court Street and Esty Street. The former MGP property is currently owned by the Ithaca City School District. The surrounding area consists primarily of single family homes, but also includes private and public schools, a city pool, and an activity center.

Features: The original gas house is still in place at the southwest corner of the site. This building was named the Markles Flats building by students when the building was briefly used as a school and is the only aboveground MGP structure remaining. Former subsurface structures of interest, which have been removed as part of OU-1 remediation activities, include the foundations of gas holders, and a series of conduits within West Court Street that ran from the east side of the Markles Flats building to Cayuga Inlet. In April 2000, NYSEG completed an Interim Remedial Measure (IRM) to remove coal tar, contaminated soil and water associated with the tar wells. The removal of the tar well structures was not indicated in the IRM and these still may remain in the vicinity of the Markles Flats Building.

Current Zoning: The former MGP property is zoned P-1 (Community Services), which could include schools or public recreation. The surrounding area is zoned residential, and is occupied primarily by single family and multi-family housing.

An operable unit represents a portion of the site remedy that for technical or administrative reasons can be addressed separately to eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination. Operational Unit 1, which is the subject of this document, consists of on-site areas where impacts from former site operation have been identified. OU-1 consists of an approximately 2-acre property which is bounded by Esty Road to the north, West Court Street to the south, North Plain Street to the west and North Albany Street to the east. Remedial activities occurred on the OU-1 property between the fall of 2008 and the spring of 2010 in which the majority of the area was remediated with the exception of the Markles Flats Building and the immediately surrounding area adjacent to the building. The focus of this report is the remedial activities needed to address the soil under the Markles Flats Building and the immediately surrounding area to fully address the impacts associated with OU-1.

1.2 Site History

The former gas plant site was initially investigated by NYSEG in 1986. For remediation purposes, areas affected by the former gas plant operations have been separated into two different OUs. A full remedial investigation was initiated in October 2001. During the investigation, coal tar and associated contamination were identified beyond the boundaries of the site and along tar conduits in West Court Street. The site was then organized into two OUs, OU-1 is the plant site and the conduits, and OU-2 is the off-site areas where contamination had migrated through the subsurface, away from the OU-1 area and into the surrounding residential community.

1.3 Previous Investigations and Remedial Actions

The remediation of the conduits in West Court Street started in the fall of 2002 and was completed in the fall of 2010. Remediation of the OU-1 gas plant site began in the fall of 2008 and was completed in January 2010, with the exception of the Markles Flats building. The Construction Completion Report for that work was approved in December 2010 [URS, 2010].

Between 1986 and 2011 the site has been subject to several investigations. These are listed below as compiled by NYSDEC in the “Record of Decision” for OU-1 in 2003, URS in the “Remedial Design Work Plan” for OU-1 July 2007 and URS in the “Construction Completion Report” for OU-1 in 2010.

1. “Investigation of the Former Coal Gasification Site at Court Street, Ithaca, New York; Task 1 Report, Preliminary Site Evaluation.” Prepared by E.C. Jordan Co., April 1986.

2. “Investigation of the Cayuga Inlet Coal Tar Site, Ithaca, New York; Task 1 Report, Preliminary Site Evaluation.” Prepared by E.C. Jordon Co., April 1986.

3. “Investigation of the Former Coal Gasification Site at Court Street, Ithaca, New York; Task 2 Report, Initial Field Investigation Program.” Prepared by E.C. Jordan Co., February 1987.

4. “Investigation of the Cayuga Inlet Coal Tar Site, Ithaca, New York; Task 2 Report, Initial Field Investigation Program.” Prepared by E.C. Jordon Co., June 1987.

5. “Investigation of the Former Coal Gasification Site at Court Street, Ithaca New York; Task 3 Report, Expanded Problem Definition Program.” Prepared by E.C. Jordon Co., March 1988.

6. “Investigation of the Former Coal Gasification Site at Court Street, Ithaca New York; Task 4 Report, Risk Assessment.” Prepared by E.C. Jordon Co., March 1990.

7. Order on Consent, Index No. DO-0002-9309, between the Department and New York State Electric and Gas (NYSEG), executed on March 30, 1994.

8. “Remedial Design Work Plan for Activities at Ithaca Cayuga Inlet Coal Tar Site, City of Ithaca, Tompkins County, New York”. NYSEG, January 1999

9. “Interim Remedial Measures Final Engineering Report for Activities at Ithaca Cayuga Inlet Coal Tar Site, City of Ithaca, Tompkins County, New York”. NYSEG, June 1999.

10. “Remedial Design Work Plan for Activities at Ithaca Court Street Former Manufactured Gas Plant Site, City of Ithaca, Tompkins County, New York”, prepared by NYSEG, February 2000.

11. “Remedial Design Work Plan for Activities at Ithaca Court Street Former Manufactured Gas Plant Site Subsurface Wooden Duct, City of Ithaca, Tompkins County, New York”, prepared by NYSEG, February 2000.

12. “Supplemental Remedial Investigation Citizen Participation Plan for Activities at Ithaca Court Street Former Manufactured Gas Plant (MGP) Site, City of Ithaca, Tompkins County, New York”, prepared by NYSEG Licensing and Environmental Operations Department, May 2001.

13. “Remedial Design Final Engineering Report for Activities at Ithaca Court Street Former Manufactured Gas Plant Site, City of Ithaca, Tompkins County, New York”, prepared by NYSEG, August 2001.

14. “Interim Remedial Measures Final Engineering Report for Activities at Ithaca Court Street Former Manufactured Gas Plant Site Subsurface Wooden Duct Extension, City of Ithaca, Tompkins County, New York”, prepared by NYSEG, August 2001.

15. “Work Plan for a Supplemental Remedial Investigation at the Ithaca Court Street MGP Site”, prepared by IT Corporation, September 13, 2001.

16. “Ithaca Court Street MGP Site Remedial Investigation Report for Operable Unit-1”, prepared by MWH Inc., April 23, 2003.

17. “Ithaca Court Street MGP Site Focused Feasibility Study for Operable Unit-1”, prepared by MWH, Inc., May 9, 2003.

18. “Proposed Remedial Action Plan for the NYSEG – Ithaca Court Street MGP Site, Operable Unit No. 1- Former MGP Site and Structures”, prepared by NYSEG, June 2003.

19. “Interim Remedial Measures Work Plan for Removal of Coal Tar Impacted Soil on Washington Street Between W. Court and Cascadilla Streets Associated with Ithaca Court Street Former Manufactured Gas Plant Site City of Ithaca, Tompkins County, New York”, prepared by NYSEG Environmental Compliance Site Investigation and Remediation, March 2005.

20. “Final Engineering Report Removal of the Subsurface Wooden Duct and Removal of Coal Tar Impacted Soil of Washington Street Between W. Court and Cascadilla Streets Associated with Ithaca Court Street Former manufactured Gas Plant Site, City of Ithaca, Tompkins County, New York”, prepared by NYSEG Environmental Compliance Site Investigation and Remediation, April 2007.

21. “Remedial Design Work Plan for Operable Unit-1”, prepared by URS Corporation, July 2007.

22. “Construction Completion Report for Operable Unit-1”, prepared by URS Corporation, October 2010.

23. Proposed Remedial Action Plan for the NYSEG Ithaca Court St. MGP site, Operable Unit No. 2, prepared by NYSDEC, February 2011.

24. “Remedial Design Work Plan Ithaca Court Street Former MGP Site OU-2 Ithaca, New York NYSDEC Site # 7-55-008”, Index No. DO-00029309”, prepared by AECOM for NYSEG, February 2011

All of the documents associated with these Investigation and Reports are available for public review at the following document repositories:

New York State Department of Environmental Conservation
Central Office, 625 Broadway 11th Floor
Albany, New York 12233-7014
Attn: Ms. Elizabeth B. Lukowski
(866) 520-2334
(By appointment only)

Tompkins County Public Library
101 E. Green Street
Ithaca, NY 14850
(607) 272-4557
Mon-Thurs 10:00 AM – 8:15 PM
Friday-Sat 10:00 AM – 5:00 PM
Sunday 1:00 PM – 5:00 PM

Coal Tar Advisory Committee
106 Washington Street
Ithaca, NY 14850
(607) 272-1239

Attn: Jutta Dotterweich

City of Ithaca

Office of the Mayor
108 East Green Street
(607) 274-6501

1.3.1 Pre-Design Investigation Activities

A pre-design investigation (PDI) will be performed at the Site and include advancement of a total of approximately 8 soil borings (up to two samples per boring) to collect waste characterization samples. These direct push soil borings will be installed approximately 1 to 2 feet into the underlying silty-clay layer (average depth of approximately 20 feet deep for each boring). The PDI will also include the installation of one hollow stem auger (HSA) boring to an approximate depth of 60 feet for geotechnical evaluation to support the sheeting and dewatering design. Work will be completed in accordance with the Ithaca Court Street Former MGP Site OU-1 PDI summary letter sent to NYSDEC in March 2012. The Field Sampling and Analytical Plan (FSAP), the Health and Safety Plan (HASP) and the Community Air Monitoring Plan (CAMP) used during the on-going OU-2 activities will also be utilized during this pre-design investigation for OU-1 (Markles Flats).

A total of 13 samples will be collected for the purpose of waste characterization and facility pre-acceptance. The results of this analysis will be provided in the PDI Summary Report. Additional detail regarding waste characterization is provided in Section 4.5.

2.0 Remedial Action Goals

In accordance with the ROD, the remedial goals for this site are to eliminate and reduce to the extent practicable:

- the presence of NAPL and MGP-related contaminants as the source of soil, groundwater and soil vapor contamination;
- migration of NAPL and MGP-related contaminants that would result in soil, groundwater or soil vapor contamination;
- the release of contaminants from NAPL in on-site soil into groundwater that result in exceedances of groundwater quality standards;
- the potential for ingestion of groundwater with contaminant levels exceeding drinking water standards;
- the potential for ingestion/direct contact with contaminated soil;
- impacts to biota from ingestion/direct contact with soil;
- the release of contaminants from subsurface soil under buildings into indoor air through soil vapor
- the inhalation of or exposure to contaminants volatilizing from soil;

Further, the remediation goals for the site include attaining to the extent practicable:

- recommended soil cleanup objectives in NYSDEC Part 375-6.8(b);
- ambient groundwater quality standards;

3.0 Organizational Structure and Responsibility

NYSEG and New York State regulatory agencies will participate jointly in this remedial action associated with the Ithaca Court Street former MGP site. NYSEG has the ultimate responsibility for implementing the remedial action for the project, including the utility relocation of overhead lines in the area and community air-monitoring program during construction (see Organizational Chart in Appendix A). Approval of this Remedial Design Report by the NYSDEC and the NYSDOH will be secured prior to intrusive activities, and site excavation. NYSDEC and NYSDOH personnel are anticipated to be on-site periodically for purposes of general program oversight. The remediation contractor will be responsible for all on-site construction operations during the project, unless otherwise stated herein, including: sheet pile installation, excavation, and protection of adjacent structures and utilities; construction personnel health and safety; traffic management and safety; implementation of contingency plans for odor control; management of wastewater and waste-handling operations; maintenance of site controls (i.e., run-off, run-on); the construction and material handling activities associated with the remedial action; and documentation of the extent of the removal action.

Communication with regulatory agencies and with members of the surrounding community will be managed by NYSEG. The plan for sharing project information with the community is described in the *Citizens Participation Plan* for the Ithaca Court Street former MGP site OU-1 included in Appendix B.

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

NYSEG:

Mr. Joseph M. Simone, PE: Manager – EH&S Compliance
James A. Carrigg Center, 18 Link Drive, P.O. Box 5224
Binghamton, New York 13902
Phone: (607) 762-7498
Cellular Phone: (607) 427-7498
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Mr. Tracy Blazicek, CHMM: Project Manager
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NYSDEC:

Ms. Elizabeth B. Lukowski: Project Manager
NYSDEC
625 Broadway
Albany, New York 12233-7014
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E-mail: eblukows@gw.dec.state.ny.us

NYSDOH: Justin Deming: Bureau of Environmental Exposure Investigation – Central Section
NYSDOH
Flanigan Square, 547 River Street
Troy, New York 12180-2216
Phone: (518) 402-7860
E-mail: jhd01@health.state.ny.us

4.0 Remedial Design

4.1 Introduction

This remedial design includes a chronological description and performance schedule of anticipated project activities for the Markles Flats area within OU-1. Documents include design drawings, technical specifications, a Community Participation Plan, a Construction Quality Assurance Plan, a Quality Assurance Project Plan, a Transportation Plan, a Project Schedule, an Organizational Structure, a Community Air Monitoring Plan, and NYSDEC Remedial Action Design approval letter located in Appendix L.

Actual project data (e.g., community air-monitoring, noise, dust control) obtained from NYSEG's previous remediation efforts at this and other MGP sites have been used as guidance to design the procedures for the Ithaca Court Street site remediation project.

All work will be conducted to minimize public impact (e.g., traffic, parking, noise) to the extent practicable. Construction operations will generally not begin prior to 7 a.m. or continue after 5 p.m., Monday through Friday. Work on weekends will only be undertaken as necessary to meet the project completion schedule. The following sections describe the procedures to be used for remedial activities.

4.2 Summary of Remedial Activities

The primary activities covered under this remedial design include:

- Mobilization and site preparation;
- Air monitoring to evaluate potential fugitive emissions;
- Construction of temporary enclosure and associated air handling equipment;
- Excavation of soil containing visible MGP impacts or total PAHs in excess of 500 ppm the area designated as Markles Flats, along with off-site treatment and disposal at a permitted facility;
- Excavation and removal of any remaining MGP structures, including piping;
- Restoration of excavation area(s) by means of backfilling to grade. All imported fill must meet the requirements of NYSDEC Part 375-6.8(b) requirements for unrestricted use;
- Transportation and management of excavation soils to an off-site permitted facility; and
- Surveying and site restoration.

The remainder of this section describes these activities and provides the information used as the basis for the design. Additional specific instructions to the remediation Contractor are provided in the Specifications and Drawings.

4.3 Mobilization and Site Preparation

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

- Mob ilization;

- Installation of erosion and sedimentation controls;
- Set-up of temporary site facilities;
- Utility location, protection, and relocation, if necessary; and
- Set-up of traffic management at the project site.

4.3.1 Mobilization

The Contractor will mobilize to the site all necessary labor, equipment, and materials to initiate the work. The initial mobilization will include the delivery of the materials and equipment for site preparation.

4.3.2 Erosion and Sediment Controls

Erosion and sediment controls, including silt fence, will be installed prior to any disruption of site soil. The erosion and sediment controls will be maintained throughout the duration of the work. Erosion and sediment controls are further described in Section 4.7.3.

4.3.3 Clearing and Placement of Site Facilities

The Contractor will set up site facilities needed to support and execute the work. Fencing, trees, and other surface features that impede access to the excavation area will be removed. The following site facilities will be needed during remedial construction:

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

In addition to the above facilities, all work areas will be secured and barricaded with temporary fencing and caution tape to ensure the safety of the workers, visitors, and surrounding public, as well as to prevent vandalism and unauthorized access. The fencing will have professionally-made signs stating that access to the site is limited to authorized personnel, and work within the site must be done with the appropriate personal protective equipment (PPE).

Work zones will be established within the site boundaries in accordance with the site-specific Health and Safety Plan (HASP) that will define the initial exclusion zones, the decontamination zones, and the support zone. These zones will change as the work progresses in order to maintain safety and allow for practical completion of the work.

4.3.4 Surveying

The Contractor will retain a New York State-licensed surveyor to provide initial benchmarks and stakeout for horizontal and vertical excavation control points. The Contractor will use this initial survey to confirm and maintain horizontal and vertical limits as the work proceeds. The licensed surveyor will return to the site as needed to document actual excavation work limits, measurement of unit cost bid items, and to complete an as-built survey of the finished work. NYSEG will perform a pre-construction survey of select residential and commercial properties adjacent to the remediation areas to verify existing conditions prior to the start of work activities. This survey will be used to evaluate if any damage is caused by construction activities and will be used as a guide to properly restore the properties to pre-construction conditions.

4.3.5 Protection of Utilities

The Contractor will identify and protect all utilities within the project work areas. The Drawings identify known utilities active in the work areas that may require protection and/or relocation to facilitate the work. Where necessary, these utilities will be removed, relocated and replaced at the direction or to the satisfaction of the engineer. The Contractor will also be responsible for maintaining utility service to all affected properties throughout the work area.

4.3.6 Utility Relocation

During the excavation work, the overhead electrical lines along the OU-1 boundary (in particular utility pole NYSEG L23) will be impacted. The overall plan and specific phasing for dealing with these utilities throughout the work is shown in the attached drawings and summarized below. The overhead lines will be in close proximity to the temporary enclosure which is to be installed over the open excavation area. To maintain an adequate distance between the overhead lines and the temporary enclosure, the lines will be located to the opposite side of the utility pole tee brace. The relocation of the overhead utility lines will be conducted by NYSEG prior to remedial activities.

4.3.7 Traffic Management

All project traffic is to follow the site transportation route stipulations identified in the Transportation Plan (Appendix C). Further instructions to the Contractor regarding the means and methods of transportation of impacted soil and MGP waste are also provided in the Transportation Plan.

General public traffic on the surrounding block will be managed in accordance with New York State Department of Transportation (NYSDOT) regulations and in conjunction with local officials (i.e. the City of Ithaca street permit). During excavation activities, closure of the surrounding streets (i.e. North Plain Street, Esty Street, West Court Street and North Albany Street) is not anticipated as work will be conducted on the OU-1 site. If street closure is necessary to complete the work, the Remediation Contractor will be responsible for obtaining the City Street Permit and coordinating general public traffic flow throughout the project. The proposed traffic control measures shall be implemented in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), including both the federal version and the NYS supplement [NYSDOT, 2009]. The Remediation Contractor will also be responsible for maintaining access to all of the private properties adjacent to the project work areas. The Remediation Contractor shall also arrange for police assistance with traffic management when necessary and required by the City.

4.4 Excavation

4.4.1 Excavation Objectives

The objectives of this excavation are to:

- Excavate soils containing “visible MGP impacts” or which contain total PAHs in excess of 500 ppm;
- Removal remaining MGP structures within the project limits, including piping; and
- In accordance with the ROD, meet the remedial goals set forth for the protection of the environment and public health.

4.4.2 Limits of Excavation

The overall limits of the excavation of soil in the Markles Flats area will be based on both the historical subsurface investigations in the area as well as the observations made during the pre-design investigation to be completed prior to remedial activities. The volume of soil necessary to remove the visibly MGP impacted material and/or material which contains total PAHs in excess of 500 ppm will require excavation and disposal.

The horizontal limits of excavation in the Markles Flats Building area are based on the historic remedial activities that have taken place on the OU-1 site. The northern and eastern boundaries are currently defined by the existing sheeting that remained after the OU-1 remedial activities completed in the spring of 2010 [URS, October 2010]. The western boundary (North Plain Street) and the southern boundary (West Court Street) are defined by the back edge of the sidewalk and the OU1 site limits. Existing information indicates that the wooden duct removal that occurred along West Court Street extended to the back edge of the sidewalk.

The vertical limits of excavation in the Markles Flats Building area have been estimated based on previous investigation information and the location of the silty-clay layer, which has acted as an impermeable barrier limiting downward migration of the MGP impacts. The depth of the silty-clay layer is variable throughout the area of Markles Flats and ranges from (6.5 to 14.5) feet below ground suface In order to remove any potential underlying lenses of impacted material, excavation depths are planned to extend 1 foot into the silty-clay layer. In general, the anticipated overall excavation depths range from 7.5 to 15.5 feet below ground surface. If visible MGP impacts remain beneath this depth or excavation confirmation sample results exceed 500 ppm for total PAHs, the contractor shall consult with NYSEG to determine the appropriate course of action since the sheet pile has been designed for certain vertical excavation depths (17 feet). Additional excavation may be necessary but will only be performed if directed by NYSEG or its designated agent in writing and an excavation supporting system design is provided by the Remediation Contractor stamped by a New York State registered professional engineer if necessary.

The attached drawings depict the approximate representation of targeted areas for excavation due to the presence of visible MGP-impacts and the depth of the silty-clay layer within this area. A total of approximately 5,200 cubic yards of soil is anticipated to be excavated from this area and disposed of or properly treated off-site.

Soil excavation will extend to beneath the groundwater table and excavation dewatering will be conducted to minimize the infiltrating groundwater. However, soil excavated from beneath the groundwater table may still contain free-draining liquids. This soil will be temporarily placed on top of other impacted material within the excavation limits to help drain the liquid from the material prior to its removal from the excavation. Proper odor control techniques will be utilized during the excavation activities.

To the maximum extent possible, impacted soil will be excavated and directly loaded into trucks for immediate transport to the off-site disposal/treatment facility. Where immediate loading and removal of impacted soils is not practicable, impacted soils will be staged on other soils yet to be excavated or in bermed areas within the project staging/support area. All stockpiles of impacted soil will be secured and managed to collect runoff and dewatered fluids (constructed soil staging areas with gravity sumps) and covered/anchored properly to control odor.

4.4.3 Imported Backfill

Imported backfill material must meet the requirements of NYSDEC Part 375-6.8(b) requirements for unrestricted use. The estimated volume of backfill required for the Markles Flats Building area is 5,200 cubic yards. Analytical testing shall be performed on all imported backfill prior to its use on-site. Per DER-10 requirements, the imported backfill material shall be sampled and analyzed for the following analyses – VOCs, SVOCs, PCBs, Pesticides and Metals. The imported backfill shall be sampled at a minimum of one sample per borrow source. For geotechnical purposes the imported backfill material will also be required to meet the NYSDOT requirements of Embankment in Place item number 203.03. All such stockpiled soils will be protected with soil erosion controls and dust controls.

4.4.4 Excavation Sidewall Stability

Due to the various site constraints throughout the remedial excavation area (public streets within tightly developed urban neighborhoods, existing sheet pile and the OU1 site limits) a temporary excavation support will be installed along the planned horizontal limits of the excavations.

Steel sheet piles will be used to provide excavation support. Sheet pile with internal bracing will be required. The steel sheet piles will be completed in a series of subdivided excavation cells for the Markles Flats Building area as shown on the drawings.

Excavations are located in close proximity to existing structures. Accordingly, pre-condition surveys will be performed by NYSEG for select buildings to document their condition prior to commencement of the work. In addition, permissible vibration criteria has been established based on industry standard practices and vibration monitoring will be performed at the closest structure during sheet pile installation to verify that vibration criteria are met. The steel sheet piles shall be installed using a vibratory hammer. To minimize risk of vibration damage, a high frequency variable moment vibratory hammer will be specified, similar to the vibratory hammer successfully used on OU-1 during prior remediation. NYSEG owned AZ-48 sheet piles are available for use at the Contractor's option. Alternatively, the Contractor shall provide all necessary sheet piles with a minimum section modulus as per the drawings.

The sheet piles will be installed to adequate depth (into the underlying clay layer) to facilitate a hydraulic cutoff. This will enhance excavation stability and minimize groundwater inflow.

All sheet pile work will comply with relevant Occupational Safety and Health Administration (OSHA) requirements. Additional project requirements for sheet piles are provided in the attached drawings and technical specifications.

4.4.5 Dewatering

The proposed excavation within the Markles Flats area will extend beneath the existing groundwater table. The sheet piles installed along the perimeter of the excavation will help to limit groundwater infiltration into the open excavation; however limited excavation dewatering is anticipated. Excavation dewatering will be performed using dewatering sumps within the excavation area containing trash pumps to remove the water. Due to the nature of the dewatering, the extracted water will be routed through a temporary treatment

system to be located in the project staging/support area prior to discharge to a nearby sanitary sewer manhole. Overland piping used in dewatering activities shall be protected using hose ramps or similar protective measures when transferring from the excavation area to the temporary water treatment system if vehicle traffic over these hoses is anticipated. The temporary treatment system shall be capable of treating a flow of 50 gallons per minute and meet the requirements of the Temporary Treatment System specification.

4.5 Waste Management

Several potential waste streams have been identified that may be generated during the remedial actions:

1. Impacted (Remediation Waste Soils) excavated during remedial excavation activities;
2. Impacted (Conditionally Exempt Soil Waste) excavated during the remedial excavation activities;
3. C&D (existing tar well structures);
4. Extracted groundwater; and
5. Incidental project wastes such as PPE.

All of the visibly impacted material that is excavated will be sent off-site for treatment or disposal to a licensed off-site facility approved by NYSEG.

4.5.1 On-site Waste Management

Because of construction sequencing and off-site treatment or disposal facility scheduling issues, and in order to consolidate large amounts of waste material for bulk truck shipments, storing impacted material on site prior to loading and shipment may be necessary. To the extent possible, impacted material generated during excavation will be loaded directly into trucks within the temporary enclosure for off-site transportation. However, if necessary, soils will be stockpiled within the temporary enclosure, which provides an enclosed area to secure the stockpiled material and mitigate odors. If excavated materials exceed the moisture requirements of the disposal facility they shall be stabilized within the temporary enclosure. Soil moisture will be analyzed offsite at the disposal facility. The use of liners and berms will be required for stockpiled soil. If necessary, material stockpiles will be sprayed with odor suppressing foam and/or covered to mitigate the potential for odors migrating into the surrounding community.

Remediation equipment will require decontamination at certain points in the project. In addition, debris generated during excavation may require decontamination to meet disposal facility acceptance requirements. Decontamination will take place using brushes, steam cleaners, and/or pressure washers. Residues from decontamination operations will be collected and managed with other contaminated soil. Decontamination water will be collected for off-site disposal or treatment. Groundwater seeping into the excavation areas will be captured, treated on-site, tested, and then released to the sanitary sewer after the results are reviewed and approved by the Ithaca Area Wastewater Treatment Facility (IAWWTF). Based on confirmation from the IAWWTF pretreatment coordinator, the anticipated maximum allowable discharge rate allowed to the sanitary sewer in this area will be approximately 100 gpm.

All waste management activities, including handling and loading, will be done in such a manner that odors and vapors are controlled in accordance with the Community Air Monitoring Plan (CAMP) provided in Appendix E.

Street sweeping will be provided by the Contractor whenever any soil or dust appears on the road or as directed by the Engineer or NYSDEC.

4.5.2 Pre-Remediation Waste Characterization

The soils within the Ithaca Court Street site will be pre-characterized for disposal during the Pre-Design Investigation (PDI) to take place prior to the start of remedial activities. The results of the PDI waste characterization will be provided in Appendix D upon completion. This pre-characterization data will be used to help facilitate the profiling and pre-acceptance of the materials by the intended disposal facilities prior to soil excavation. The Engineer will provide relevant data to the Contractor who will use this information in finalizing acceptance and contract requirements at the selected disposal facilities prior to commencing work. The disposal of impacted material will be categorized into non-hazardous MGP waste and conditionally exempt MGP remediation waste. The delineation of these waste streams and the associated disposal facilities will be determined once the PDI has been completed.

Should additional waste characterization data be required during the work, the material requiring characterization will be stockpiled and samples will be collected and analyzed for the necessary disposal parameters. This additional data will be made available to the disposal facility as soon as practicable.

4.5.3 Off-site Transportation

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

All haul trucks will have bed liners and solid tarp covers (mesh tarps are not allowable) and, if there is the potential for liquids or tarry material leaking from the waste, they will have gasketed tailgates. Trucks will be sprayed, as necessary, with odor suppressive foam prior to covering to reduce vapor and odor emissions.

Trucks will be loaded in such a manner as to avoid contamination of their exteriors, including tires. In the case when truck exteriors do become contaminated, they will be decontaminated prior to leaving the site. All trucks will be checked before leaving the site and all loose soil or other materials will be brushed off to prevent spreading to the streets.

Hazardous waste shipments will be documented using standard hazardous waste manifests as required by applicable hazardous waste regulations. Other waste materials that have no specific documentation requirements will be documented using waste tracking forms, bills of lading, and receipts. All shipments of waste from the site will be documented, describing the type and amount of waste and the receiving facility. NYSEG designated representatives will sign the transportation manifests prior to loads leaving the site. Off-site trucking will follow the route stipulations recommended in the transportation plan.

4.5.4 Off-site Disposal or Treatment

All excavated materials sent off-site will be disposed of only at facilities specifically approved by NYSEG. Soil characterized as non-hazardous MGP waste will be disposed of at Seneca Meadows and soil characterized as conditionally exempt MGP waste will be disposed of at Environmental Soil Management, Inc. (ESMI) of New York. Further specifics for each facility are as follows.

ESMI, NY

Address: 304 Towpath Road
Fort Edward, New York 12828
Contact: Todd Calder – Vice President of Sales and Marketing
Phone Number: 1 (860) 649-3344

Fax: 1 (860) 649-3377
Cell: 1 (860) 803-1000
E-mail: tcalder@esmiofny.com

Seneca Meadows

Address: 1786 Salcman Road
Waterloo, NY 13165-9570
Contact: Ron Principio – Special Waste Coordinator
Phone Number: (315) 539-5624
Fax: (315) 539-0557
E-mail: rprincipio@iesi.com

Pre-characterization data to be collected during the PDI will be provided to each of these facilities for the anticipated waste streams and preliminary acceptance of the materials will be coordinated with each facility at that time.

4.5.5 Water Management

Water containing MGP constituents will be generated, collected, and contained during decontamination of debris and equipment. The volume of collected impacted water is expected to be relatively small. Although in some cases excavation will take place below the groundwater elevation, the excavation will be dewatered which should help to minimize the water present in the soil removed. The use of proper run-on and runoff controls will further limit the amount of impacted water to be collected. Decontamination water will also require collection and treatment. Collected water will be treated on-site, tested and discharged to the nearby public sanitary sewer. The discharge requirements will follow the IAWWTF temporary discharge permit to be obtained prior to discharge to the on-site sanitary sewer. Anticipated discharge activities have been reviewed with the City IAWWTF and they have provided a draft of their anticipated discharge permit. The final working draft of this discharge permit can be found in Appendix I. The Contractor will be required to finalize this permit with the IAWWTF pretreatment coordinator prior to any actual wastewater discharge. The discharge permit will also cover the remedial activities to take place in the off-site excavation areas of OU2 (Areas 1A and 1B). The discharge line to the sanitary sewer (manhole MH2) shall not be restored until all remedial activities in OU1 and OU2 are complete.

A temporary construction water treatment system will be established in the project support/staging area to treat dewatering wastewater and other project wastewater streams. The basic components of the construction water treatment system are anticipated to consist of fractionation tank(s) for equalization and initial settling of solids, an oil/water separator and oil storage tank for removal and collection of free phase product, organo-clay filtration, solids filtration (basket filter, bag filter or comparable), granular activated carbon for removal of dissolved organic contaminants and anion resin for treatment of cyanide. If necessary, additional treatment components will be provided by the contractor to achieve the city sanitary sewer effluent limits and requirements set forth in the City IAWWTF discharge permit. Following treatment, the treated dewatering wastewater will be discharged to the public sanitary sewer via a convenient sanitary sewer manhole. The treatment system will be capable of handling at least 50 gallons per minute.

Additional information regarding the project water treatment system is provided in the attached drawings and technical specifications. The temporary treatment system will be used during both OU1 (Markles Flats) and OU2 (Areas 1A and 1B) remedial excavation activities.

4.6 Site Restoration

Following excavation activities in the Markles Flats area, the affected area will be backfilled to pre-existing subgrade elevations with clean imported fill material to provide for temporary restoration. Permanent street restoration, curbing and other features around the OU-1 site will be completed, coordinated and finalized between the City of Ithaca and NYSEG. Final permanent street and curbing restoration will not be the responsibility of the Remediation Contractor; this will be performed by the City and their contractors pursuant to a separate agreement to be established between the City and NYSEG. Permanent restoration to take place on the OU-1 property will be the responsibility of the Ithaca School District at the conclusion of remedial activities.

4.7 Environmental Monitoring and Controls

The Contractor will provide environmental controls to ensure that the work activities do not spread impacted soil and MGP wastes outside the impacted areas and maintain the protection of human health and the environment throughout the project.

4.7.1 Odor, Vapor, Dust, and Noise Control

A variety of engineering controls will be available to control odors, vapors, and dust associated with excavation activities. Those controls will include, but will not necessarily be limited to, wetting soils with water to control dust, limiting the size of excavations, covering contaminated soils with plastic sheeting or foam, spraying soils with Biosolve™ and placing a temporary structure with air handling system with off-gas controls over the excavation area. The Contractor shall provide detailed descriptions and drawings with the means and methods proposed for controlling and monitoring odors and vapors during the work. All odor and vapor control equipment and materials shall be approved by the Engineer prior to use.

As required by the OU1 ROD [NYSDEC, 2003] the use of a temporary enclosure with associated air handling equipment/treatment shall be used to cover all excavation area(s). The effectiveness of the emission controls will be demonstrated with appropriate air monitoring. Additional information regarding the temporary enclosure and associated air handling/treatment equipment is provided in the attached drawings and technical specifications.

Equipment or material substitutions for odor and vapor control will be evaluated by the Engineer prior to use on-site on a case-by-case basis. Alternative means and methods of controlling odors and vapors will not be used until approval by the Engineer in writing.

Air Monitoring will be performed in accordance with the CAMP (Appendix E). The work will be stopped in a controlled stand-down procedure, if acceptable levels of air impacts are exceeded. The work stoppage will continue until the source of the emissions is found and the appropriate mitigation efforts are in place. Engineering controls will be applied as needed based upon site conditions and the results of air monitoring activities.

Care will also be exercised to mitigate noise impacts during the project activities. Work hours will be limited to routine daytime hours and equipment will be maintained in proper working order. Where necessary, shrouding and/or sound dampening measures will be utilized to minimize noise. All City ordinances and requirements regarding noise will be followed.

4.7.2 Air Monitoring

Site perimeter and work zone air monitoring will be performed per NYSDOH and Occupational Safety and Health Act (OSHA) requirements, and according to the Engineer's HASP and CAMP and the Contractor's HASP. The contaminants of concern are VOCs and particulates. The CAMP is located in Appendix E.

Summaries of all air monitoring data will be provided to the appropriate parties (e.g., NYSEG, NYSDEC, NYSDOH) on a weekly basis to facilitate the transfer of information related to potential health risks.

4.7.3 Erosion and Sediment Control

Erosion will be prevented and sediment will be controlled during all on-site earthwork activities in accordance with the applicable New York State guidance. Storm water run-off will be controlled in a manner to prevent contact with impacted soils. Any storm water that does contact impacted soils will be properly managed. Hay bales, silt fence, stone, and/or rip rap will be used as necessary to prevent erosion of exposed soils. All erosion controls will be inspected a minimum of once per week and after significant rainfall events, greater than ½ inch per day. Additional erosion control materials will be kept on site to immediately repair any deficiencies that are discovered during the inspections. If the actively disturbed area exceeds 1 acre in size, a Storm Water Pollution Prevention Plan shall be prepared by the Contractor and submitted to the Engineer for review prior to beginning intrusive work on-site.

5.0 Documentation of Site Activities

5.1 Daily Field Construction Report

A daily field construction report will be prepared by the NYSEG project coordinator using the on-site computer to document daily on-site activities. The Daily Field Construction Report will be submitted at the end of each week in an electronic format to Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.

5.2 Transportation Log

A transportation log will be prepared by the NYSEG project coordinator using the on-site computer to document all loads of solid or liquid waste that are transported off-site. The Transportation Log will be submitted at the end of each week in an electronic format to Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.

5.3 Daily Community Air Monitoring Report

A daily community air-monitoring report will be prepared by the NYSEG sampling technician using an on-site computer to document daily air-monitoring results. The daily community air-monitoring report will be submitted at the end of each week in an electronic format to Mr. Svante L. Myrick, City of Ithaca Mayor at asherman@cityofithaca.org (Annie Sherman – Executive Assistant to the Mayor), Mr. Justin Deming, NYSDOH at jhd01@health.state.ny.us, Ms. Elizabeth B. Lukowski, NYSDEC at eblukows@gw.dec.state.ny.us, and Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.

5.4 Master Sample Log

A laboratory notebook will remain in the field office to record every sample collected. The sampling technician will log in all samples collected and those sent to the off-site analytical laboratory. Waybill numbers will be logged at the end of each day.

5.5 Chain of Custody

A Chain-of-Custody form will document custody of all samples from the field to the laboratory.

5.6 Waybills

A waybill receipt will be obtained at the time of accepted sample shipment by Federal Express or courier and will be attached to the Master Sample Log.

5.7 NYSEG's Public Liability Accident Report, NYSEG's Report of Employee Injury, and NYSEG's Incident Report

The above-mentioned report forms will be used to document any accident occurring on-site during the remedial project. The sheets are attached to the *Health and Safety Plan* and will be located in the field project trailer.

5.8 Construction Completion Report

Following completion of the excavation, a CCR will be prepared and submitted to the NYSDEC. This report will include a summary of all of the Daily Field Construction Reports, Daily Community Air-Monitoring Reports, Photographic Log, Sampling Log, Material Disposition Log, and Variances to Work Plan.

The CCRs will be signed and certified by a professional engineer that all activities were completed in full accordance with NYSDEC-approved Remedial Design (this document) and the NYSDEC Order on Consent Index #DO-0002-9309.

6.0 Permitting and Regulatory Requirements

6.1 Permitting

The following permits shall be obtained by the remediation contractor prior to initiation of any work at the site and the substantive requirements of these permits shall be met during all project activities.

- City of Ithaca – Street Opening Permit (if necessary to complete work activities)
- Ithaca Area Wastewater Treatment Facility – Temporary Discharge Permit

Extensive coordination with the City and its relevant departments has already been completed to facilitate the final permits.

6.2 Regulatory Requirements

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

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

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

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

Procedures outlined in the HASP include daily health and safety review meetings, proper use of safety equipment, proper mechanical equipment use, and other policies. At a minimum, the PPE to be worn on site will include safety glasses, hard hat, hearing protection and steel-toed shoes or boots.

The Contractor shall prepare their own HASP. The Contractor's HASP will be subject to the Engineer's review. The Contractor shall follow the requirements of their own HASP throughout the work.

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

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

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

6.3 Transportation Requirements

The federal Department of Transportation (DOT) has developed requirements which regulate the transportation of hazardous materials by road and rail. Among the hazardous materials identified in these regulations are coal tar distillates. In addition, as discussed above, hazardous waste regulations specify that shipments of hazardous wastes must meet certain requirements presented in the federal and applicable state regulations.

Specific requirements for hazardous material shipments include the following:

- All truckers must have valid 364 Waste Transporter Permits;
- Shipping papers must include a description of hazardous materials included in the shipment along with the DOT designated identification number and hazard class. Hazardous wastes may not be shipped without a manifest (49 CFR 172.200);
- Each container, package, or vehicle containing a hazardous material must be marked or labeled with the DOT shipping name, technical name, identification number, and hazard class (49 CFR 172.300 and .400);
- Each vehicle or container containing a hazardous material must be appropriately placarded (49 CFR 172.500);
- When hazardous materials are transported, emergency response information must be available at the point of loading, unloading, and during transport; and
- Truck routes to and from the site will comply with the Transportation Plan that will be developed as part of the remedial design.

7.0 Quality Assurance

Quality assurance procedures will be implemented during the work to ensure that it is in conformance with the Remedial Design, and to provide the basis for implementation of contingency actions, if necessary, to bring the work into conformance with the Remedial Design. Please refer to the procedures noted below and those located in the Construction Quality Assurance Plan (Appendix G) and the Quality Assurance Project Plan (Appendix H).

7.1 General Quality Assurance Procedures

The following quality assurance procedures and tests will be implemented:

- Surveying of the work limits;
- Submittal by the Contractor of weigh tickets for all earthen materials transported to or from the site;
- Submittal by the Contractor, prior to the work, of sieve analyses for all imported earthen materials; and
- Evaluation by the Engineer of the Contractor's proposed borrow source(s) for imported earthen materials. The Contractor will provide to the Engineer analytical data indicating that imported material meets the requirements specified herein;

7.2 Contingency Plan

In the event of a site emergency, such as a spill, power loss, severe weather, fire, structural collapse, or other life-threatening incident not specifically addressed in the site HASP, the employees on scene should immediately check the scene, evacuate if life threatening, call 911, and give care as appropriate within the scope of their training. Additional information and requirements can be found in Appendix F.

8.0 Project Reporting

During the course of the work, the Contractor will regularly provide to the Engineer:

- Daily field logs;
- Equipment and material testing records; and
- Weigh tickets.

At the conclusion of each workday, the Contractor and the Engineer will review the work completed and reach agreement on the quantities for payment obtained from the previous day.

During the course of the work, weekly progress meetings will be conducted with attendance by NYSDEC and NYSDOH, if needed.

The Engineer will provide weekly Progress Reports to NYSEG and NYSDEC. Progress Reports will include:

- The previous week's actions;
- Next week's planned actions;
- Sampling and analytical results;
- Design changes and other modifications to the design; and
- Revised project schedules.

Within 90 days of completion of the remedial activities, the Engineer will prepare a Construction Completion Report (CCR), approved by a professional engineer licensed in the State of New York.

The following items will be included in the CCR:

- A description of all field work performed;
- As-built drawings;
- Identification of all changes to the Remedial Design;
- Copies of all pertinent analytical results, testing records, weigh tickets, bills of lading, and manifests from the disposal of materials; and
- Engineer's certification.

9.0 Green Remediation

The work completed as part of this work plan will comply with all NYSDEC guidance documents including DER-31: Green Remediation [NYSDEC 2010]. To ensure compliance with DER-31 the work will be completed using the best practices and techniques described below. In addition to the items discussed in Section 8.0 – Project Reporting, specific reporting methods relative to DER-31 are further described below.

9.1 Best Practices and Techniques

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

Practice/Technique	Potential Benefits[1]	Applicable to this Work Plan
Use renewable energy where possible or purchase Renewable Energy Credits (RECs)	Reduce/supplement purchased energy use	
Use of remediation technologies with an intermittent energy supply (i.e., energy use during peak energy generation only)	Reduce energy use	
Incorporate green building design	Reduce future use impacts	
Reuse existing buildings and infrastructure to reduce waste	Reduce waste and material use	X
Reuse and Recycle construction and demolition (C&D) debris and other materials (i.e., grind waste wood and other organics for on-site use)	Reduce waste and material use	X
Design cover systems to be usable (i.e., habitat or recreation)	Reduce construction impacts of future development	X
Reduce vehicle idling	Reduce air emissions and fuel use	X
Use of Low Sulfur Diesel Fuel (LSDF) or alternate fuels (i.e., biodiesel or E85)	Reduce air emissions	X
Sequence work to minimize double-handling of materials	Reduce construction impacts	X
Use energy efficient systems and office equipment in the job trailer	Reduce energy use	X
1. Potential benefits listed are not all inclusive and will vary dependent upon the site and implementation of the practice or technique.		

In order to comply with the requirements of DER-31 the following actions will be taken:

- All vehicles and fuel consuming equipment onsite will be shut off if not in use for more than 5 minutes;
- If necessary, any soil cover placed onsite will meet NYCRR Part 375 unrestricted use soil standards and will allow unrestricted future use of the site;
- Work will be sequenced, to the extent practicable, to allow the direct loading of waste containers for off-site disposal;
- To the extent practicable, energy efficient systems and office equipment will be utilized within the site trailers;
- Where practicable inert construction debris that has been segregated from impacted materials will be reused onsite during backfill and site restoration activities; and
- All vehicles and equipment that consume diesel fuel will be required to use ULSD.

9.2 Reporting

All green and sustainable practices and techniques employed each day will be discussed within the daily reports described in Section 5.1 – Daily Reporting. Specifically, the report will acknowledge that the six actions described above were taken that day (if applicable). In addition, the following information will be provided within the daily report:

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

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

10.0 Schedule and Hours of Operation

The remedial activities for the Markles Flats area are planned to begin in the Fall of 2012. The current plan is to perform remedial work in the Markles Flats area at the same time as Area 1A part of OU-2 remediation efforts to minimize disruption to the neighborhood. Excavation work and temporary restoration is anticipated to take approximately seven months. Final permanent street restoration will occur as part of a separate contract between the City and NYSEG following completion of the remediation work. Permanent restoration to take place on the OU-1 property will be the responsibility of the Ithaca City School District at the conclusion of remedial activities.

Hours allowed for equipment operation during the remedial activities will be daylight hours between 7 AM and 5 PM, Monday through Friday, unless otherwise allowed in writing by NYSEG. The Contractor may be on site earlier or later than actual hours of equipment operation, holding safety meetings and other daily planning associated with the site work. A schedule of activities can be found in Appendix K.

11.0 Bid Package/Technical Execution Plan

A TEP will be prepared and submitted by the prospective contractors during the bidding process for this work for NYSEG's review and approval. It will describe:

- The materials, equipment, and methods to be used to perform the work;
- Drawings, specifications, and a layout sequence of the proposed odor, vapor, dust, and noise controls;
- The proposed schedule for completing the work;
- Resumes of key project personnel; and
- Other TEP requirements as outlined in the technical specifications.

The selected Contractor may be required by NYSEG to provide additional clarifications to their TEP prior to, and during the course of, the work.

12.0 References

E.C. Jordan Co., 1986. Investigation of the Former Coal Gasification Site at West Court Street Ithaca, New York; Task 1 Report, Preliminary Site Evaluation. April 1986.

E.C. Jordan Co., 1987. Investigation of the Former Coal Gasification Site at West Court Street Ithaca, New York; Task 2 Report, Initial Field Investigation Program. February 1987.

NYSDEC, 1990. Division Technical and Administrative Guidance Memorandum [TAGM 4030]: Selection of Remedial Actions At Inactive Hazardous Waste Sites Division of Environmental Remediation, Albany, New York, May 15, 1990.

NYSDEC, 1994. Division Technical and Administrative Guidance Memorandum [TAGM 4046]: Determination of Soil Cleanup Objectives and Cleanup Levels. Division of Hazardous Waste Remediation, Albany, New York, January 24, 1994.

NYSDEC, 1998. Ambient Water Quality Standards and Guidance Values, Division of Water Technical and Operational Guidance Series (TOGS 1.1.1), October, and addendums added: January, 1999, April 2000, and June 2004.

NYSDEC, 2003. Record of Decision, Operable Unit 1, NYSEG's Ithaca Court Street MGP, Site No. 755008, Ithaca, New York, September 2003.

NYSDEC, 2010a. Draft DER-10 Technical Guidance for Site Investigation and Remediation, May 2010.

NYSDEC, 2010b. Draft DER-31 Green Remediation. March 17, 2010.

NYSDOT, 2009. Manual on Uniform Traffic Control Devices for Streets and Highways, 2009 Edition. December, 2009.

NYSEG, 1999. Interim Remedial Measures Final Engineering Report for Activities at Ithaca Cayuga Inlet Coal Tar Site, City of Ithaca, Tompkins County, New York. NYSEG, June 1999.

NYSEG, 2007. Interim Remedial Measures Final Engineering Report; Removal of the Subsurface Wooden Duct and Removal of Coal Tar Impacted Soil on Washington Street Between W. West Court and Cascadilla Streets, Associated with Ithaca Court Street Former Manufactured Gas Plant Site, City of Ithaca, Tomkins County, New York. NYSEG, April 2007.

URS, July 2007. Remedial Design Work Plan Operable Unit 1 (OU-1). Ithaca Court Street Former Manufactured Gas Plant Ithaca, New York.

URS, October 2010. Construction Completion Report Operable Unit 1 (OU-1) Remediation. Ithaca Court Street Former Manufactured Gas Plant Ithaca, New YorkUnited States Environmental Protection Agency. April 1999. Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites Directive No. 9200.4-17P.

Attachments

Attachment 1

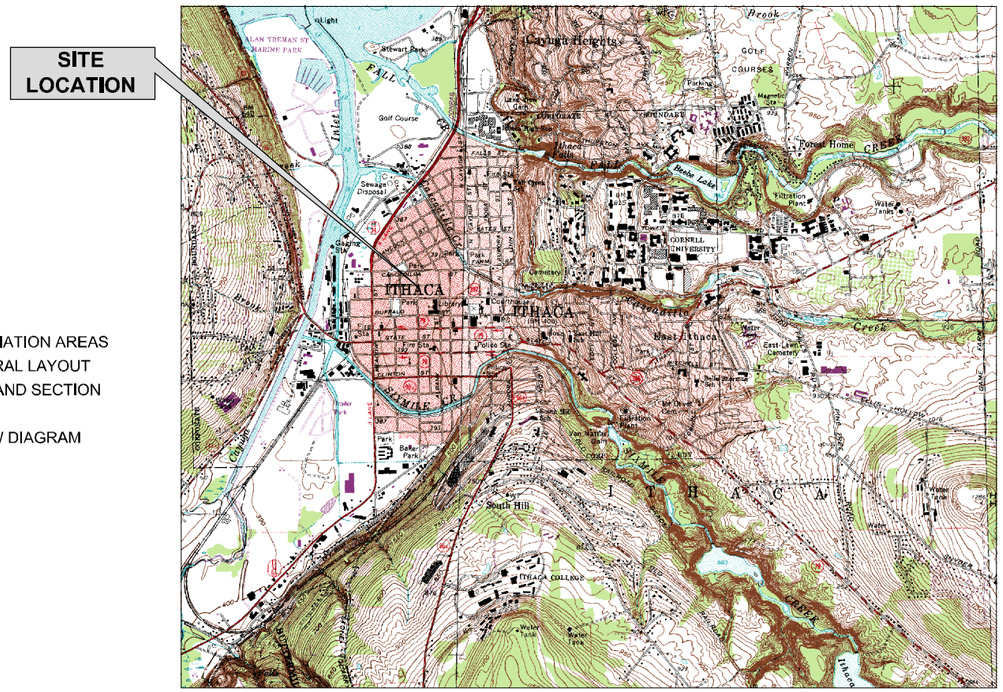
Design Drawings

NYSEG - REMEDIAL DESIGN FOR FORMER COURT STREET MGP SITE - OU1 MARKLES FLATS

ITHACA, TOMPKINS COUNTY, NEW YORK

APRIL 2012

INDEX OF DRAWINGS



SOURCE: USGS ITHACA WEST & ITHACA EAST 7.5' SERIES QUADRANGLES

PROJECT LOCATION

0' 1000' 2000' 4000'

100% DESIGN

(NOT FOR BIDDING)

Prepared For:

NYSEG

NEW YORK STATE ELECTRIC & GAS Corp.
18 Link Drive
Binghamton, New York 13904

Prepared By:

AECOM

AECOM Technical Services
40 British American Blvd.
Latham, New York, 12110
(518) 951-2200

STATE OF NEW YORK
SCOTT ANDREW UNDERHILL
075332
LICENSED PROFESSIONAL ENGINEER

4/10/2012
Date

Scott A. Underhill, P.E.
NYSPE Lic. No. 075332

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GENERAL NOTES

THE CONTRACTOR IS ADVISED THAT ADDITIONAL "NOTES" WILL BE FOUND ON SUBSEQUENT SHEETS OF THE CONTRACT PLANS AND SUCH "NOTES", WHILE PERTAINING TO THE SPECIFIC SHEETS THEY ARE PLACED ON, ALSO SUPPLEMENT THE GENERAL NOTES LISTED HEREIN.

EXISTING CONDITIONS, AS PRESENTED, REPRESENT THOSE CURRENT AS OF THE DATE OF THE FIELD SURVEY. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF SITE CONDITIONS PRIOR TO THE START OF WORK.

ALL ON-SITE REMEDIATION ACTIVITIES SHALL BE IN ACCORDANCE WITH THE ENTIRE CONTRACT DOCUMENTS PACKAGE INCLUDING DESIGN REPORT AND ATTACHMENTS, DRAWINGS AND TECHNICAL SPECIFICATIONS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY LOCAL, STATE, AND FEDERAL PERMITS REQUIRED THAT HAVE NOT BEEN PREVIOUSLY OBTAINED AND MADE PART OF THE CONTRACT DOCUMENTS.

ALL FUEL, OIL, PAINT OR OTHER HAZARDOUS MATERIALS SHALL BE STORED IN A SECONDARY CONTAINMENT AREA AND SECURED IN A LOCKED AREA WITH AN IMPERVIOUS FLOOR DURING NON-WORK HOURS.

A SUPPLY OF ABSORBENT SPILL RESPONSE MATERIAL SUCH AS BOOMS OR BLANKETS SHALL BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES TO CLEAN UP POTENTIAL SPILLS OF HAZARDOUS MATERIALS SUCH AS GASOLINE AND OIL.

CONTRACTOR TO PERFORM CLEARING AND GRUBBING AS NECESSARY WITHIN PROJECT LIMITS. LIMITS OF CLEARING AND GRUBBING SHALL NOT EXTEND BEYOND THE LIMITS SHOWN. PHASE ALL CLEARING TO MINIMIZE CLEARED AREAS REQUIRED TO COMPLETE SPECIFIED WORK. STUMPS OUTSIDE AREAS OF CONTAMINATED SOIL MAY BE DISPOSED OF AS BULKY WASTE AT PERMITTED OFF SITE FACILITY.

CONTRACTOR SHALL OBTAIN CITY PERMIT FOR ALL WORK WITHIN THE CITY OF ITHACA STREET RIGHT-OF-WAY (R.O.W.).

CONTRACTOR SHALL CONTACT DIG-SAFE FOR UTILITY MARK OUTS PRIOR TO ANY SUBSURFACE WORK.

ALL IMPORTED BACKFILL MATERIALS SHALL BE TESTED FOR CHEMICAL AND GEOTECHNICAL PARAMETERS AS SPECIFIED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL EMPLOY THE SERVICES OF AN INDEPENDENT TESTING LABORATORY, APPROVED BY NYSEG, TO PERFORM AND DOCUMENT ALL REQUIRED TESTS. TESTING SHALL CONFORM TO THE APPLICABLE ASTM, NYSDOT, AND NYSDEC STANDARDS AND SPECIFICATIONS. TESTING LABORATORY SHALL SUBMIT A WRITTEN REPORT DESCRIBING THE TESTS PERFORMED AND THE RESULTS OF SUCH TESTS TO THE CONTRACTOR AND ENGINEER.

PROTECTION OF THE TRAVELING PUBLIC

ALL WORK AREAS SHALL BE COMPLETELY FENCED, CONFORMING WITH OSHA REGULATIONS AND TO THE SATISFACTION OF THE ENGINEER, TO PROTECT THE PUBLIC AND PREVENT UNAUTHORIZED ENTRY.

WHILE WORKING WITHIN THE CITY OF ITHACA RIGHT OF WAY (R.O.W.) THE CONTRACTOR SHALL BE REQUIRED TO FOLLOW MAINTENANCE AND PROTECTION OF TRAFFIC, ITEM 619 OF THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AND THE 2009 EDITION OF THE NATIONAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS INCLUDING THE NEW YORK STATE SUPPLEMENT.

WORK WITHIN THE PUBLIC RIGHT OF WAY (R.O.W.)

ALL ACTIVE AND OPEN PORTIONS OF THE ROADWAYS SHALL BE KEPT CLEAN OF MUD AND DEBRIS AT ALL TIMES.

ROADSIDE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES.

MATERIALS, EQUIPMENT AND VEHICLES SHALL NOT BE STORED OR PARKED WITHIN THE CITY OF ITHACA RIGHT OF WAY (R.O.W.).

GENERAL SUBSURFACE CONDITIONS

BORINGS INDICATE THAT OVERBURDEN IS COMPRISED OF FILL OVER SILTY SAND FOLLOWED BY A HIGHLY PERMEABLE THIN LAYER OF GRAVEL, UNDERLAIN BY A SILTY-CLAY LAYER.

BORINGS EXTEND TO A MAXIMUM DEPTH OF 37 FEET, TERMINATING IN THE SILT LAYER. TOP OF ROCK WAS NOT ENCOUNTERED IN THE BORINGS.

GENERAL GROUNDWATER CONDITIONS

GROUNDWATER DEPTH IS BASED ON AVAILABLE BORING LOGS AND THE REMEDIAL INVESTIGATION REPORT (NYSDEC, SEPTEMBER 2003)

THE DESIGN GROUNDWATER LEVELS RANGE FROM A DEPTH OF 3-6 FEET BELOW EXISTING GRADE (APPROXIMATE ELEVATION 389-392). GROUNDWATER LEVELS WILL VARY BY SEASON, WEATHER CONDITIONS AND WATER LEVEL IN CAYUGA LAKE.

PROTECTION OF EXISTING FACILITIES

PROTECT ADJACENT FACILITIES FROM DAMAGE. THESE INCLUDE, BUT ARE NOT LIMITED TO, EXISTING UTILITIES, SIDEWALKS, CURBS, PAVEMENT, AND LIGHT POLES BEYOND PROJECT AREA. REPAIR AND/OR REPLACE DAMAGED FACILITIES AS APPROVED BY NYSEG AT NO ADDITIONAL COST.

PROTECT ADJACENT STRUCTURES FROM DAMAGE.

IN THE MARKLES FLATS BUILDING AREA MONITOR VIBRATIONS AT ADJACENT STRUCTURES DURING WORK. VIBRATIONS RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL NOT EXCEED A PEAK PARTICLE VELOCITY OF 1 INCH PER SECOND (1 IPS). IF NECESSARY, THE CONTRACTOR SHALL MODIFY THEIR OPERATIONS SO AS TO LIMIT MEASURED PEAK PARTICLE VELOCITY AT THE ADJACENT STRUCTURES TO 1 IPS.

DEWATERING

INSTALL DEWATERING SUMP(S) WITHIN THE EXCAVATION AREA AND PUMP TO DRAWDOWN THE GROUNDWATER LEVEL.

TO THE EXTENT PRACTICABLE, GROUNDWATER LEVEL IN THE EXCAVATION AREA SHALL BE AT LEAST 1 FOOT BELOW EXCAVATION SUBGRADE LEVEL AT ALL TIMES.

EXCAVATION

PROPOSED VERTICAL LIMITS OF EXCAVATION ARE ESTIMATED BASED ON AVAILABLE INFORMATION. ACTUAL LIMITS OF EXCAVATION WILL LIKELY VARY BASED ON THE ACTUAL FIELD CONDITIONS. THE CONTRACTOR SHALL EXCAVATE TO A DEPTH OF APPROXIMATELY 1 FOOT INTO THE SILTY-CLAY LAYER. IF VISIBLE MGP IMPACTS REMAIN BENEATH THIS OR IF CONFIRMATION SAMPLES ARE GREATER THAN TOTAL PAH's OF 500ppm, CONTRACTOR SHALL CONSULT WITH NYSEG TO DETERMINE APPROPRIATE COURSE OF ACTION. ADDITIONAL EXCAVATION MAY BE NECESSARY BUT WILL ONLY BE PERFORMED IF DIRECTED BY NYSEG OR ITS DESIGNATED AGENT IN WRITING.

CONTRACTOR SHALL PROVIDE AN ENCLOSING STRUCTURE AND AIR HANDLING EQUIPMENT OVER EXCAVATIONS AT ALL TIMES.

CONTRACTOR TO PROVIDE DUST CONTROL AS NECESSARY THROUGHOUT DURATION OF ALL PROJECT ACTIVITIES.

CONTRACTOR TO SECURE AND MAINTAIN OPEN REMEDIAL EXCAVATIONS AT ALL TIMES.

ALL EXCAVATED MATERIALS SHALL BE APPROPRIATELY CHARACTERIZED AND DISPOSED OF OFF SITE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TRANSPORT AND DISPOSAL OF ALL WASTES GENERATED DURING THIS PROJECT.

BACKFILLING EXCAVATION AREAS

ALL IMPORTED BACKFILL SHALL BE TESTED PRIOR TO ITS USE ON-SITE. THIS IMPORTED MATERIAL MUST MEET THE REQUIREMENTS OF NYSDEC PART 375-6.8[A] REQUIREMENTS FOR UNRESTRICTED USE.

AS PER DER-10 REQUIREMENTS, IMPORTED BACKFILL SHALL BE SAMPLED AND ANALYZED FOR THE FOLLOWING ANALYSES - VOCs, SVOCs, PCBs, PESTICIDES AND METALS. IMPORTED BACKFILL SHALL BE SAMPLED AT A MINIMUM OF ONE SAMPLE PER BORROW SOURCE FOR THIS PURPOSE.

IMPORTED BACKFILL SHALL MEET THE REQUIREMENTS OF NYSDOT SPECIFICATION SECTION 203.03 - EMBANKMENT IN PLACE.

EROSION AND SEDIMENTATION CONTROL NOTES

THE CONTRACTOR SHALL CONSTRUCT ANTI-TRACKING PAD(S) AND TEMPORARY ACCESS/HAUL ROAD(S) WHERE NEEDED TO COMPLETE THE WORK. EACH DAY, CONTRACTOR SHALL SWEEP/CLEAN-UP ANY OFF-SITE TRACKING OF MATERIAL THAT OCCURS AT THE TIME IT OCCURS, OR AT LEAST ONCE A DAY.

CONTRACTOR SHALL INSTALL AND MAINTAIN FILTER FABRIC ENVELOPES ON ALL EXISTING CATCH BASINS WITHIN THE IMMEDIATE VICINITY OF THE PROPOSED WORK ACTIVITIES.

THE CONTRACTOR SHALL INSTALL PERIMETER SILT FENCE AT THE OU-1 SITE PERIMETER.

UTILITIES

GENERAL

LOCATION OF EXISTING UTILITIES BASED UPON BEST INFORMATION AVAILABLE AT TIME OF DESIGN.

CONTRACTOR TO CONFIRM LOCATION OF AND THE DISCONNECTION FOLLOWING BUILDING DEMOLITION OF ALL UTILITIES PRIOR TO ANY EXCAVATION.

CONTRACTOR SHALL VERIFY UTILITY RELOCATION OF OVERHEAD UTILITIES PRIOR TO ANY EXCAVATION.

CONTRACTOR SHALL SCHEDULE ALL WORK WITH UTILITY OWNERS PRIOR TO RELOCATION AND RESTORATION.

GENERAL NOTES (CON'T)

UTILITIES (CON'T)

NEW YORK STATE ELECTRIC AND GAS - OVERHEAD UTILITIES RELOCATION

OVERHEAD UTILITY RELOCATION WILL BE CONDUCTED BY OTHERS PRIOR TO THE START OF REMEDIAL ACTIVITIES.

NYSEG WILL COORDINATE WITH OTHER OVERHEAD UTILITY COMPANIES TO ENSURE COMPLETION OF OVERHEAD UTILITY RELOCATION PRIOR TO THE START OF REMEDIAL ACTIVITIES. OTHER OVERHEAD UTILITIES PRESENT AT THE SITE INCLUDE:

VERIZON
FIBER TECHNOLOGIES, LLC
TIME WARNER CABLE

CONSTRUCTION MONITORING

SETTLEMENT

ESTABLISH SURVEYED ELEVATION BENCH MARKS PRIOR TO COMMENCING WORK AND MONITOR DURING PILE DRIVING OPERATIONS IN ACCORDANCE WITH THE SPECIFICATION. SURVEY ELEVATIONS OF MONITORING POINTS A MINIMUM OF 3 TIMES PRIOR TO THE START OF CONSTRUCTION TO ESTABLISH A BASELINE. MEASURE SURVEY POINTS AND PROVIDE DOCUMENTATION TO THE ENGINEER IN ACCORDANCE WITH THE SPECIFICATIONS.

CRACK GAUGING

CRACK GAUGES SHALL BE INSTALLED IN ACCORDANCE WITH THE SPECIFICATION.

VIBRATION

MONITOR VIBRATIONS ON THE GROUND NEXT TO STRUCTURES CLOSEST TO THE REMEDIATION THE MARKLES FLATS BUILDING AREA TO PROVIDE AMBIENT VIBRATION DATA. POSITION SEISMOGRAPH AT POINT NEAREST PILE DRIVING OPERATIONS.

MONITORING VIBRATIONS FOR A MINIMUM OF THREE (3) DAYS PRIOR TO THE START OF THE CONSTRUCTION ACTIVITIES TO ESTABLISH A BASELINE.

MONITOR VIBRATIONS WHILE DRIVING SHEET PILES OF THE CLOSEST STRUCTURES APPROVED BY THE ENGINEER. POSITION SEISMOGRAPH AT POINT NEAREST PILE DRIVING OPERATION.

TABULATE MONITORING DATA AND PROVIDE SUMMARY TO THE ENGINEER ON A WEEKLY BASIS.

PROJECT COORDINATION

ENGINEER SHALL BE RESPONSIBLE FOR ALL VERIFICATION AND PERFORMANCE TESTING SAMPLING AND ANALYSIS REQUIRED DURING THE PROJECT (INCLUDING BUT NOT LIMITED TO SOIL FOR CONFIRMATION AND IMPORTED BACKFILL AND WATER DISCHARGE SAMPLES). CONTRACTOR SHALL COORDINATE WITH AND ASSIST ENGINEER WITH THESE EFFORTS.

ENGINEER SHALL BE RESPONSIBLE FOR PERFORMING PERIMETER AIR MONITORING SPECIFIED IN THE COMMUNITY AIR MONITORING PLAN. CONTRACTOR SHALL COORDINATE WITH AND ASSIST ENGINEER WITH THESE EFFORTS.

CITY OF ITHACA - OFFICE OF THE CITY ENGINEER

THE CONTRACTOR SHALL COMPLETE AND SUBMIT AN APPLICATION TO REQUEST STREET CLOSURE OF A CITY STREET AT LEAST (2) WEEKS BEFORE THE EVENT.

SURVEY AND STAKE-OUT

CONTRACTOR SHALL PROVIDE THE SERVICES OF A NEW YORK STATE LICENSED LAND SURVEYOR AS NECESSARY FOR ALL WORK. SURVEYOR SHALL STAKE OUT LIMITS OF EXCAVATION AS SPECIFIED AND OTHER PROJECT LOCATIONS WHERE REQUIRED. SURVEYOR SHALL LOCATE IN THE FIELD ALL SIGNIFICANT PROJECT COMPONENTS AND MILESTONES, INCLUDING BUT NOT LIMITED TO UTILITIES, FINAL LIMITS (VERTICAL AND HORIZONTAL) OF EXCAVATION, ACTUAL ISCO INJECTION POINTS AND OTHER APPURTENANT FEATURES. SURVEYOR TO PROVIDE FINAL RECORD DRAWINGS OF THE ACTUAL WORK PERFORMED.

THE NEW YORK STATE LICENSED LAND SURVEYOR SHALL STAKEOUT IN THE FIELD THE EDGE OF THE CITY OF ITHACA STREET RIGHT-OF-WAY (R.O.W.).THE CONTRACTOR SHALL CONFINE ALL REMEDIATION ACTIVITIES WITHIN OU-1.

SITE RESTORATION

THE CONTRACTOR SHALL BACKFILL ALL REMEDIAL EXCAVATION AREAS TO FINISH GRADE IN CONFORMANCE WITH THE CONTRACT REQUIREMENTS.

VERIFY SCALE IF PLAN SHEET IS REDUCED
1 INCH

	DRN	CHK	DATE (M/D/Y)

	DRN BY:	DES BY:	CHK BY:	APP BY:
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DESCRIPTION				

AECOM

NYSEG - REMEDIAL DESIGN FOR FORMER COURT STREET MGP SITE - OU1 ITHACA, NEW YORK

GENERAL NOTES

100% DESIGN
(NOT FOR BIDDING)

PROJECT DATE (M / Y)
APRIL 2012
PROJECT NO.
60215637
FILENAME
MARKLES FLATS
SHEET NO.
2 OF 9
DRAWING NO.
2

Plotted By: melsterk
Plot File Date Created: Apr/10/2012 1:34 PM
Layout-Sheet Name: NOTES
FIlename: L:\WORK\60215637 NYSEG ITHACA, NY COURT ST, MGP OU-2 REMEDIAL DESIGN\7.0 DELIVERABLES\7.2 CADD\7.2.1 BASE MAP PREPARATION\SPECIAL_F

LEGEND

- EXISTING STRUCTURE
- ROADWAY
- SITE PERIMETER FENCE
- EXISTING SHEET PILE
- FORMER MGP STRUCTURE
- EXISTING MGP STRUCTURE
- SANITARY SEWER MAIN
- WATER MAIN
- GAS MAIN
- OVERHEAD UTILITIES
- STORM SEWER MAIN
- STORM MANHOLE
- WATER MANHOLE
- SANITARY SEWER MANHOLE
- CATCH BASIN
- WATER VALVE
- GAS VALVE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- DECIDUOUS TREE
- CONIFEROUS TREE
- SIGN
- CITY STREET MONUMENT
- CONTOUR (0.5 FT. INTERVAL)
- EXISTING SITE PERIMETER FENCE

NOTE

THE MARKLES FLATS STRUCTURE ON OU#1 TO BE DEMOLISHED (BY OTHERS) PRIOR TO THE START OF REMEDIATION PROJECT.

MAPPING NOTES:

DATUM OF ELEVATIONS IS NAVD 88 PER CITY OF ITHACA SURVEY CONTROL MONUMENTS #1066.

CONTOUR INTERVAL IS 0.5 FEET.

MAPPING REFERENCE:

BASE MAPPING COMPILED FROM THE FOLLOWING SOURCES:

1) A FIELD SURVEY AND DRAWING TITLED "TOPOGRAPHIC MAP FOR ITHACA COURT STREET MGP OU-2 PROJECT" INCLUDING ALL NOTE AND REFERENCE THEREIN, PERFORMED BY T. G. MILLER P.C., DATED 9/13/2011,

2) PLANIMETRIC FEATURES AND UTILITY INFORMATION PROVIDED BY NYSEG.

3) UTILITY INFORMATION PROVIDED BY THE CITY OF ITHACA DEPARTMENT OF PUBLIC WORKS, WATER & SEWER DIVISION.

0' 25' 50' 100'

100% DESIGN
(NOT FOR BIDDING)

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VERIFY SCALE IF PLAN SHEET IS REDUCED
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REV	DESCRIPTION	DRN	CHK	DATE (M/D/Y)

AECOM

NYSEG - REMEDIAL DESIGN FOR
FORMER COURT STREET MGP SITE - OU1
ITHACA, NEW YORK

EXISTING CONDITIONS

PROJECT DATE (M / Y)	APRIL 2012
PROJECT NO.	60215637
FILENAME	MARKLES FLATS
SHEET NO.	3 OF 9
DRAWING NO.	3

Plotted By: melsterk
Plot File Date Created: Apr/10/2012 1:36 PM
Layout-Sheet Name: EXIST
Filename: I:\WORK\60215637 NYSEG ITHACA, NY COURT ST - MGP OU-2 REMEDIAL DESIGN\7.0 DELIVERABLES\7.2 CADD\7.2.1 BASE MAP PREPARATION\SPECIAL_F


NORTH PLAIN STREET
NORTH ALBANY STREET
ESTY STREET
WEST COURT STREET
BRICK BUILDING (A.K.A. MARKLES FLATS)
PUBLIC POOL BUILDING
PLAYGROUND
PAVED AREA
UNPAVED PARKING
DECK
420 TO BE DEMOLISHED
FORMER HOUSE
GARAGE
SB-1
SB-2
SB-3
SB-4
SB-5
SB-6
SB-7
SB-8
SB-9
SB-10
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SB-83
SB-84
SB-85

CONTRACTOR LAY-DOWN AND BACKFILL MATERIAL STORAGE AREA

MARKLES FLATS BUILDING EXCAVATION AREA

OPTIONAL RESIDENT PARKING

EXISTING FEATURE PROVIDED BY OTHERS

ESTY STREET

NORTH PLAIN STREET

NORTH COURT STREET

DISCHARGE TO SANITARY SEWER

TEMPORARY WATER TREATMENT SYSTEM

FRAC TANK

FRAC TANK

FUEL

EQUIPMENT STORAGE

GATE

GATE

CHAIN LINK FENCE

STREET LINE

VISIBLE SHEETING

EXISTING BRICK STRUCTURE TO BE RAISED TO CONCRETE SLAB (BY OTHERS) UNDER PRIOR CONTRACT

CONTAMINATION REDUCTION PAD

HAUL ROUTE

TIE INTO EXISTING SHEET PILE

ADDITIONAL AIRLOCK AS REQUIRED

TIE INTO EXISTING SHEET PILE

APPROXIMATE LIMITS OF TEMPORARY CONTAINMENT BUILDING (100'X 160' SHOWN)

BRICK BUILDING (MARKLES FLATS BUILDING)

TIE TEMPORARY SECURITY FENCE INTO EXISTING PERIMETER FENCE (TYP.)

UTILITY COMPANIES TO SHIFT ALL OVERHEAD UTILITIES TO STREET SIDE OF POLE AND CROSS BAR

TRAILER

TRAILER

STORAGE

CONTRACTOR PARKING

FORMER HOUSE NO.420

HOUSE NO.418 E.E.=395.2'

HOUSE NO.416 E.E.=395.6'

HOUSE NO.412 E.E.=397.0'

GRAVEL DRIVE

PROPERTY LINE

CONCRETE WALK

CONCRETE CURBING

CONCRETE SIDEWALK

FACE OF CURB

SIDING

26" MAPLE

20" OAK

10" MAPLE

12" MAPLE

40" MAPLE

LEGEND

- SANITARY SEWER MAIN
- WATER MAIN
- GAS MAIN
- OVERHEAD UTILITIES
- STORM SEWER MAIN
- STORM MANHOLE
- WATER MANHOLE
- SANITARY SEWER MANHOLE
- CATCH BASIN
- WATER VALVE
- GAS VALVE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- DECIDUOUS TREE
- CONIFEROUS TREE
- SIGN
- CITY STREET MONUMENT
- CONTOUR (0.5 FT. INTERVAL)
- EXISTING SITE PERIMETER FENCE
- EXISTING SHEET PILE
- PROPOSED LIMITS OF SOIL TO BE EXCAVATED AND DISPOSED
- PROPOSED LOCATION OF TEMPORARY OVERHEAD UTILITIES
- PROPOSED LOCATION OF TEMPORARY SECURITY FENCING
- TEMPORARY CONTAINMENT BUILDING

0' 10' 20' 40'

NOTES:

1) LAYOUT OF CONTRACTOR LAY-DOWN AND BACKFILL MATERIAL STORAGE AREA IS FOR INFORMATION ONLY. CONTRACTOR MAY MODIFY THIS LAYOUT AS NECESSARY FOR HIS WORK.

2) CONTRACTOR SHALL CONDUCT ALL SOIL EXCAVATION, SOIL STABILIZATION, STOCK PILING AND MATERIAL HANDLING WITHIN THE CONTAINMENT STRUCTURE.

100% DESIGN
(NOT FOR BIDDING)

DESCRIPTION	DRN	CHK	DATE (M/D/Y)

VERIFY SCALE IF PLAN SHEET IS REDUCED 1 INCH

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DES BY: —
CHK BY: —
APP BY: —

AECOM

NYSEG - REMEDIAL DESIGN FOR
FORMER COURT STREET MGP SITE - OU1
ITHACA, NEW YORK

MARKLES FLATS BUILDING
REMEDIATION AREA
GENERAL LAYOUT

PROJECT DATE (M / Y)
APRIL 2012

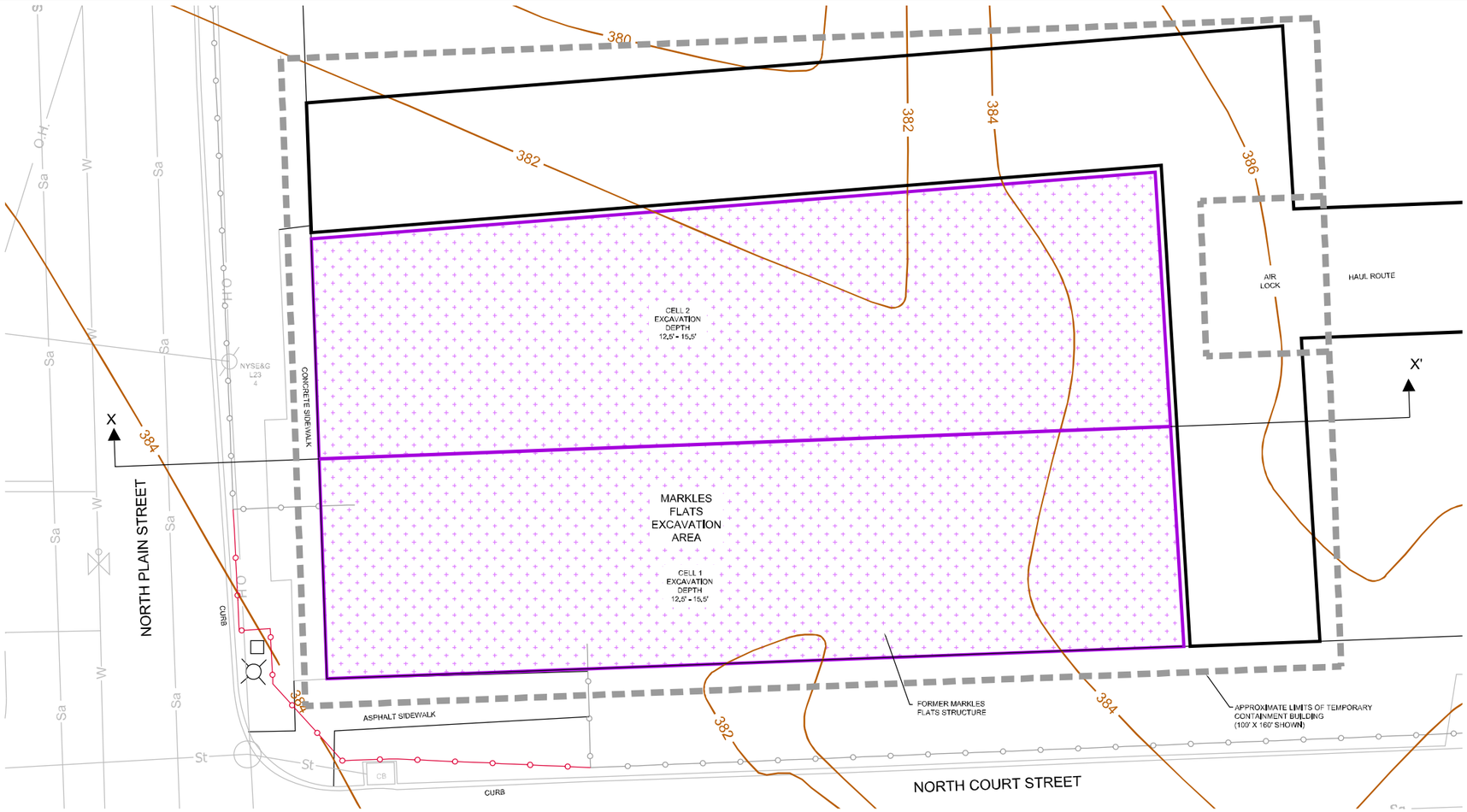
PROJECT NO.
60215637

FILENAME
MARKLES FLATS

SHEET NO.
5 OF 9

DRAWING NO.
5

Plotted By: melsterk
Plot File Date Created: Apr/10/2012 1:39 PM
Layout-Sheet Name: 1DAMFB-LAYOUT
Filename: I:\WORK\60215637 NYSEG ITHACA, NY COURT ST - MGP OU-2 REMEDIAL DESIGN\7.0 DELIVERABLES\7.2 CADD\7.2.1 BASE MAP PREPARATION\SPECIAL_F



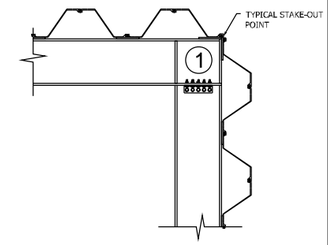
LEGEND

- SANITARY SEWER MAIN
- WATER MAIN
- GAS MAIN
- OVERHEAD UTILITIES
- STORM SEWER MAIN
- STORM MANHOLE
- WATER MANHOLE
- SANITARY SEWER MANHOLE
- CATCH BASIN
- WATER VALVE
- GAS VALVE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- DECIDUOUS TREE
- CONIFEROUS TREE
- SIGN
- CITY STREET MONUMENT
- EXISTING CLAY SURFACE CONTOUR (1 FT. INTERVAL)
- EXISTING SITE PERIMETER FENCE
- EXISTING SHEET PILE
- PROPOSED LIMITS OF SOIL TO BE EXCAVATED AND DISPOSED
- PROPOSED LOCATION OF TEMPORARY SECURITY FENCING
- TEMPORARY CONTAINMENT BUILDING

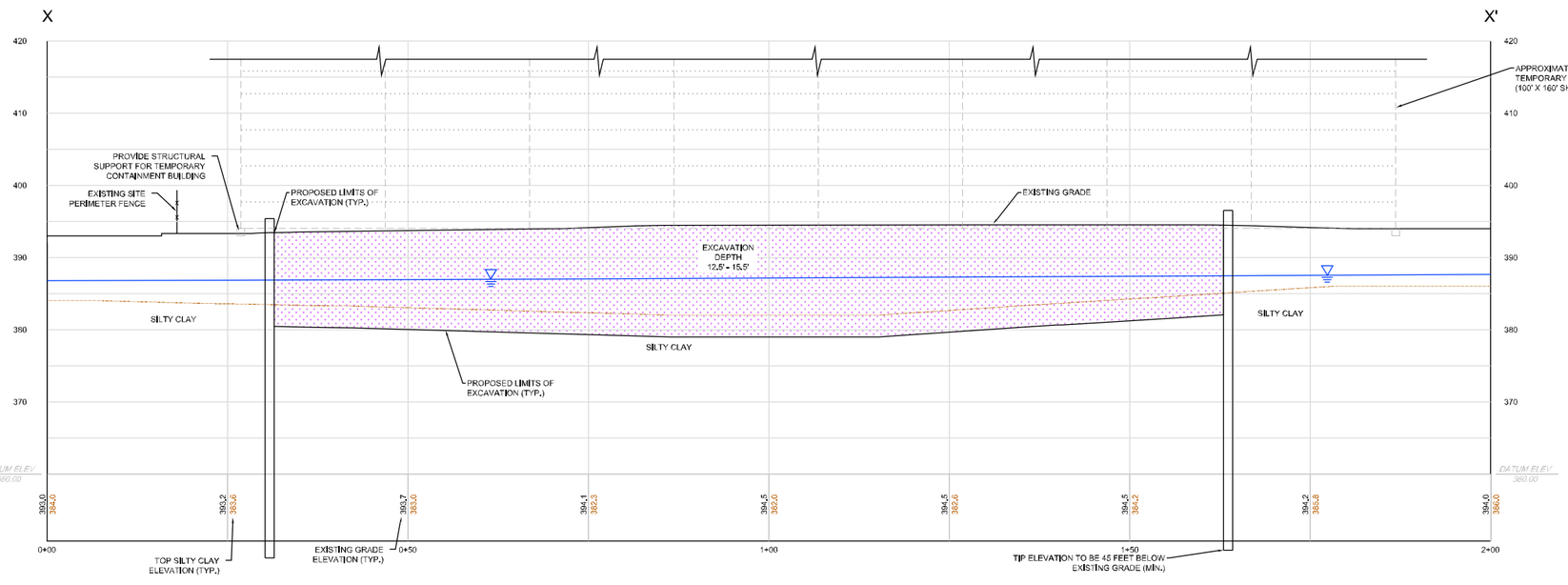
STAKE-OUT COORDINATE TABLE

PLAN

0' 5' 10' 20'



STAKE-OUT DETAIL
NOT TO SCALE



SOIL DISPOSAL NOTE:

THE SOILS WITHIN THE MARKLES FLATS AREA WILL BE PRE-CHARACTERIZED FOR DISPOSAL DURING THE PRE-DESIGN INVESTIGATION TO TAKE PLACE PRIOR TO THE START OF REMEDIAL ACTIVITIES

PROPOSED LIMITS OF SOIL TO BE EXCAVATED AND DISPOSED

SECTION NOTES:

1) TOP OF SILTY-CLAY AND TOP OF GRAVEL CONTOURS FROM HISTORIC AND PRE-DESIGN INVESTIGATION DATA.

2) EXISTING GRADE SHOWN FROM A SURVEY PERFORMED BY T. G. MILLER P.C., DATED 9/13/2011.

3) APPROXIMATE ELEVATIONS SHOWN BASED ON BEST AVAILABLE INFORMATION. ACTUAL DEPTHS MAY VARY BASED ON ACTUAL FIELD CONDITIONS.

SECTION X - X'

0' 5' 10' 20'

100% DESIGN
(NOT FOR BIDDING)

DATE (M/D/Y)	CHK	DRN	DESCRIPTION	REV

VERIFY SCALE IF PLAN SHEET IS REDUCED
1 INCH

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NYSEG - REMEDIAL DESIGN FOR
FORMER COURT STREET MGP SITE - OU1
ITHACA, NEW YORK

MARKLES FLATS BUILDING
REMEDIATION AREA
PLAN AND SECTION

PROJECT DATE (M / Y)	APRIL 2012
PROJECT NO.	60215637
FILENAME	MARKLES FLATS
SHEET NO.	6 OF 9
DRAWING NO.	6

Plotted By: melsterk
Plot File Date Created: Apr/10/2012 1:41 PM
Layout-Sheet Name: 1D-MFB-EX-LAYOUT
Filename: L:\WORK\60215637 NYSEG ITHACA, NY COURT ST., MGP OU-2 REMEDIAL DESIGN\7.0 DELIVERABLES\7.2 CADD\7.2.1 BASE MAP PREPARATION\SPECIAL_F

LEGEND

- CITY STREET MONUMENT
- CONTOUR (0,5 FT. INTERVAL)
- EXISTING STRUCTURE
- ROADWAY
- REMEDIAL EXCAVATION AREAS
- VEGETATED AREA BACKFILL (SEE NOTE)

NOTES:

1. IMPORTED BACKFILL MUST MEET THE REQUIREMENTS OF NYSDEC PART 375-6.8(b) REQUIREMENTS FOR UNRESTRICTED USE.
2. IMPORTED BACKFILL SHALL MEET THE REQUIREMENTS OF NYSDOT STANDARD SPECIFICATION SECTION 203.03 - EMBANKMENT IN PLACE.
3. PERMANENT RESTORATION TO TAKE PLACE ON THE OU-1 PROPERTY WILL BE THE RESPONSIBILITY OF THE ITHACA CITY SCHOOL DISTRICT AT THE CONCLUSION OF REMEDIAL ACTIVITIES.

0' 5' 10' 20'

100% DESIGN
(NOT FOR BIDDING)

AECOM

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NYSEG - REMEDIAL DESIGN FOR FORMER COURT STREET MGP SITE - OU1 ITHACA, NEW YORK

SITE SOIL MANAGEMENT PLAN (EXCAVATION LIMITS)

PROJECT DATE (M / Y)	APRIL 2012
PROJECT NO.	60215637
FILENAME	MARKLES FLATS
SHEET NO.	7 OF 9
DRAWING NO.	7

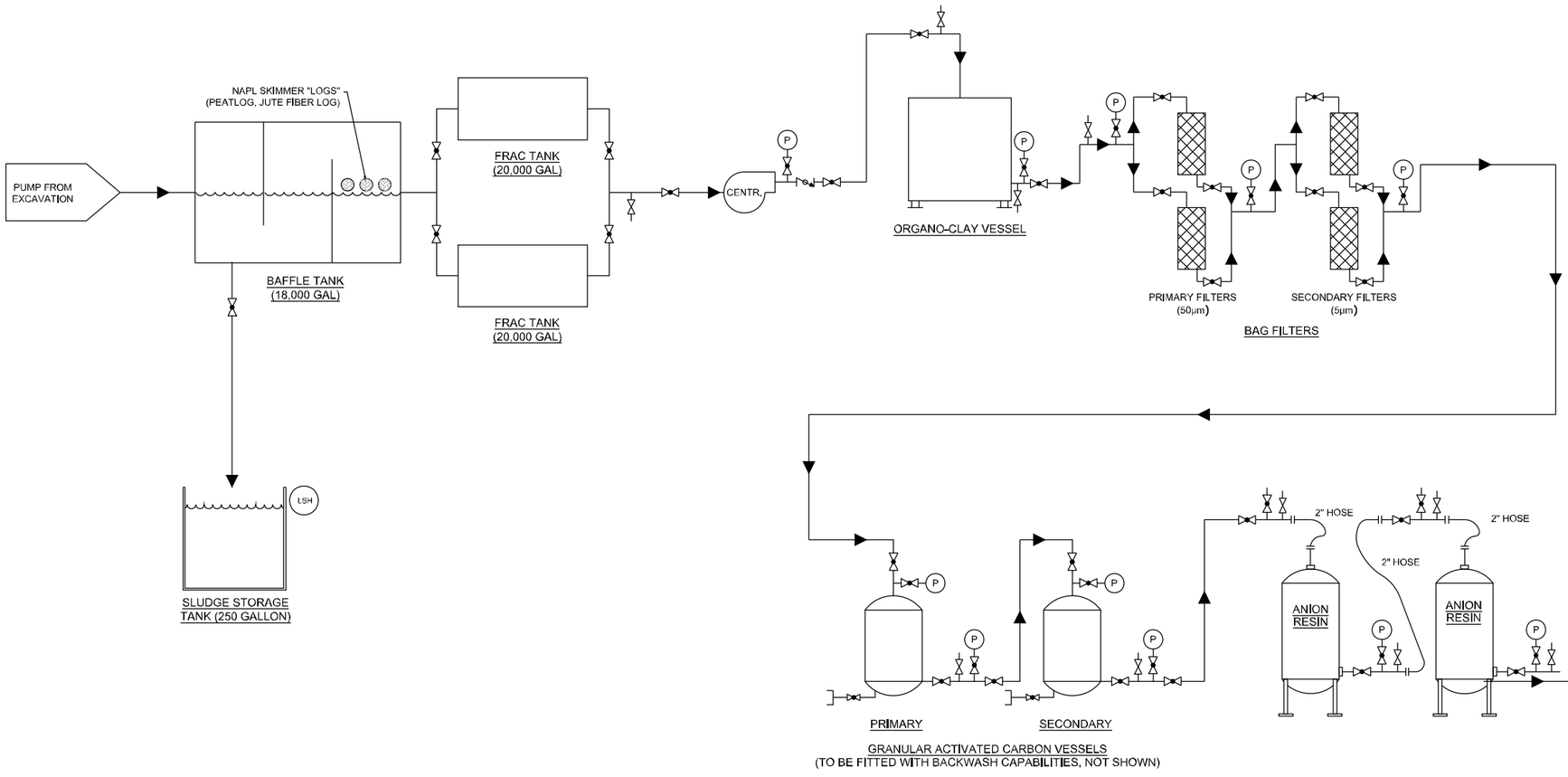
Plotted By: melsterk
Plot File Date Created: Apr/10/2012 1:42 PM
Layout-Sheet Name: SITE SOIL MANAGEMENT
Filename: L:\WORK\60215637 NYSEG ITHACA, NY COURT ST - MGP OU-2 REMEDIAL DESIGN\7.0 DELIVERABLES\7.2 CADD\7.2.1 BASE MAP PREPARATION\SPECIAL_F

NOTES:

1. THE TEMPORARY WATER TREATMENT SYSTEM SHOWN ON THIS DRAWING IS COMPREHENSIVE AND MAY NOT NECESSARILY REPRESENT THE FINAL WATER TREATMENT SYSTEM THAT WILL BE IMPLEMENTED BY THE CONTRACTOR. THE CONTRACTOR MAY PROPOSE AN ALTERNATE WATER TREATMENT SYSTEM DESIGN, THAT AT A MINIMUM, SHALL MEET THE PERFORMANCE STANDARDS AND DESIGN, CONSTRUCTION, AND OPERATIONAL INTENT AS INDICATED ON THIS DRAWING.
2. THE TEMPORARY WATER TREATMENT SYSTEM SHALL BE CAPABLE OF PROCESSING A FLOW RATE OF AT LEAST 50 GALLONS PER MINUTE.
3. THE CONTRACTOR SHALL PROVIDE SECONDARY CONTAINMENT FOR ALL COMPONENTS AND PIPING OF THE WATER TREATMENT SYSTEM.
4. HIGH LEVEL ALARMS SHALL BE PROVIDED ON ALL TANKS AND SHALL MINIMALLY ACTIVATE VISUAL AND AUDIO ALERTS TO SYSTEM OPERATOR.
5. ALL PIPING SHOWN SHALL BE HOSES WITH QUICK DISCONNECT FITTINGS.
6. BACKWASH PIPING NOT SHOWN. BACKWASH WATER SHALL BE FILTERED PRIOR TO DISCHARGE.
7. THE CONTRACTOR SHALL OBTAIN FINAL CITY DISCHARGE PERMIT AND PAY DISCHARGE PERMIT FEES.
8. IF NECESSARY, ADDITIONAL TREATMENT COMPONENTS WILL BE PROVIDED BY THE CONTRACTOR TO ACHIEVE THE CITY SANITARY SEWER EFFLUENT LIMITS AND REQUIREMENTS SET FORTH IN THE CITY IAWWTF DISCHARGE PERMIT.

LEGEND:

- PRIMARY PROCESS PIPING
- SECONDARY PROCESS PIPING
- SAMPLE TAP
- P — PRESSURE GAUGE
- BALL VALVE
- CHECK VALVE
- FM — FLOW METER
- LSH — LEVEL SWITCH HIGH
- LSHH — LEVEL SWITCH HIGH-HIGH
- LSL — LEVEL SWITCH LOW
- CENTR. — CENTRIFUGAL PUMP



VERIFY SCALE IF PLAN SHEET IS REDUCED — 1 INCH —

REV	DESCRIPTION	DRN	CHK	DATE (M/D/Y)

DRN BY: | DES BY: | CHK BY: | APP BY:

AECOM

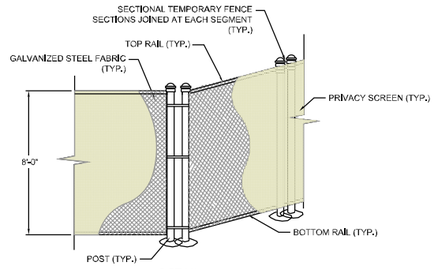
NYSEG - REMEDIAL DESIGN FOR FORMER COURT STREET MGP SITE - OU1 ITHACA, NEW YORK

GROUNDWATER TREATMENT SYSTEM PROCESS FLOW DIAGRAM

100% DESIGN
(NOT FOR BIDDING)

PROJECT DATE (M / Y)	APRIL 2012
PROJECT NO.	60215637
FILENAME	MARKLES FLATS
SHEET NO.	8 0F 9
DRAWING NO.	8

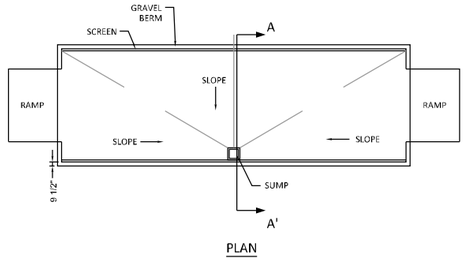
Plotted By: melsterk
Plot File Date Created: Apr/10/2012 1:43 PM
Layout-Sheet Name: WTPFD
Filename: L:\WORK\60215637 NYSEG ITHACA, NY COURT ST, MGP OU-2 REMEDIAL DESIGN\7.0 DELIVERABLES\7.2 CADD\7.2.1 BASE MAP PREPARATION\SPECIAL_F



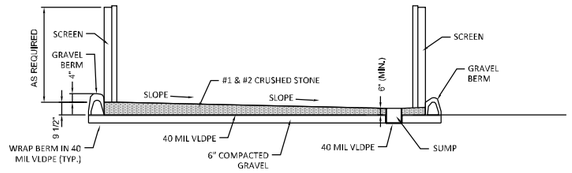
DETAIL

TEMPORARY SECURITY FENCE

NOT TO SCALE



PLAN

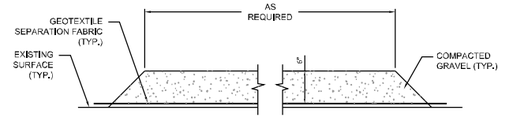


NOTE:
A SUBMERSIBLE PUMP WILL BE PLACED IN SUMP AS REQUIRED. THE PUMP WILL TRANSPORT WASTEWATER VIA HOSE TO DISPOSAL CONTAINERS.

SECTION A - A'

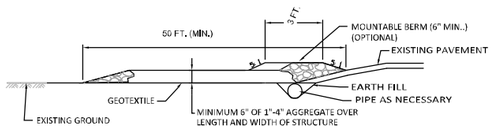
EQUIPMENT CONTAMINATION REDUCTION PAD

NOT TO SCALE

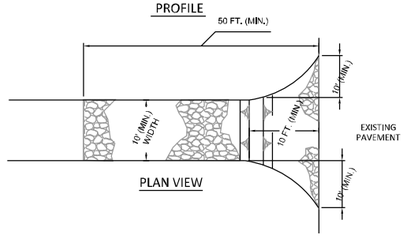


TEMPORARY HAUL ROUTE

NOT TO SCALE



PROFILE



PLAN VIEW

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

STABILIZED CONSTRUCTION ENTRANCE NOTES:

1) STONE SIZE - USE 1 - 4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE

2) LENGTH - NOT LESS THAN 50 FT.

3) THICKNESS - NOT LESS THAN 6 INCHES.

4) WIDTH - 12 FT. MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS, 24 FOOT MINIMUM IF SINGLE ENTRANCE TO SITE.

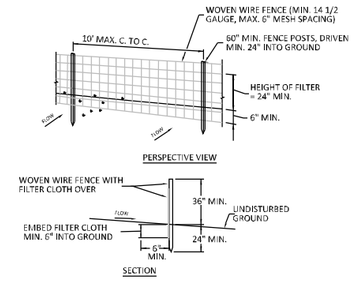
5) GEOTEXTILE - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.

6) SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPE WILL BE PERMITTED.

7) MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO THE PUBLIC RIGHTS-OF-WAY OR ADJACENT PRIVATE, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO THESE AREAS SHALL BE REMOVED IMMEDIATELY.

8) WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

9) PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN EVENT.



PERSPECTIVE VIEW

SECTION

SILT FENCE DETAILS

NOT TO SCALE

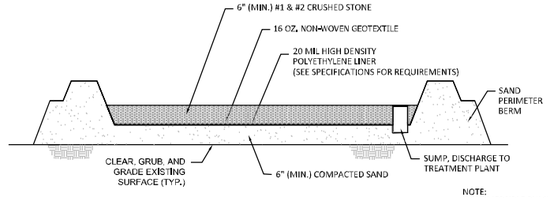
SILT FENCE NOTES:

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

POSTS:
TYPE OR 2" HARDWOOD.

FENCE:
WOVEN WIRE, 14 1/2 GA. 6" MAX. MESH OPENING.

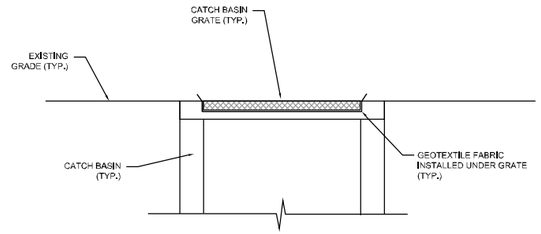
FILTER CLOTH:
FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUAL.



NOTE:
A SUBMERSIBLE PUMP WILL BE PLACED IN SUMP AS REQUIRED. THE PUMP WILL TRANSPORT WASTEWATER VIA HOSE OR PORTABLE CONTAINER TO PROJECT WATER TREATMENT SYSTEM.

STOCKPILE MANAGEMENT AREA AND CONSTRUCTION WATER TREATMENT SYSTEM PAD DETAIL

NOT TO SCALE



SECTION

SEDIMENT CONTROL MEASURES AT EXISTING CATCH BASINS

NOT TO SCALE

DRN BY:	DES BY:	CHK BY:	APP BY:	REV	DESCRIPTION	DRN	CHK	DATE (M/D/Y)
					VERIFY SCALE IF PLAN SHEET IS REDUCED 1 INCH			

AECOM

NYSEG - REMEDIAL DESIGN FOR FORMER COURT STREET MGP SITE - OU1
ITHACA, NEW YORK

TYPICAL DETAILS

100% DESIGN
(NOT FOR BIDDING)

PROJECT DATE (M / Y)	APRIL 2012
PROJECT NO.	60215637
FILENAME	MARKLES FLATS
SHEET NO.	9 0F 9
DRAWING NO.	9

Plotted By: melsterk
Plot File Date Created: Apr/10/2012 1:44 PM
Layout-Sheet Name: DETAILS-1
Filename: I:\WORK\60215637 NYSEG ITHACA, NY COURT ST - MGP OU-2 REMEDIAL DESIGN\7.0 DELIVERABLES\7.2 CADD\7.2.1 BASE MAP PREPARATION\SPECIAL_F

Attachment 2

Technical Specifications

SECTION 02260
EXCAVATION SUPPORT

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Hydraulic press installed and, where applicable, driven watertight sheet piling with sealed interlocks

2. Internal bracing of steel sheet piled excavation areas

3. Additional shoring system for excavations extending to depths greater than 17.0 feet below ground elevation.

4. Monitoring of excavation shoring support systems and adjacent structures for vibration and settlement.

5. Removing sheet pile wall and bracing

1.02 WORK DESCRIPTION AND GENERAL REQUIREMENTS

A. Provide all labor, equipment, supplies, and materials to install, operate, maintain, brace, and remove temporary sheet pile walls as shown on the Drawings and as required herein in order to excavate MGP impacted soils for offsite disposal.

B. OU-2: The proposed temporary sheet piles shall be installed and removed by a method of hydraulic pressing. The contractor shall provide sheets that can be installed through a process of pressing. NYSEG has AZ-48 sheet piles (54-foot lengths) available for use if the contractor provides a means and method of pressing the AZ-48 as per the Drawings.

C. OU-1 (Markles Flats): The proposed temporary sheet piles shall be installed and removed using either: a hydraulic press or; a variable moment vibratory hammer. The intent is to reuse the OU-2 sheetpiles for OU-1 (Markles Flats). The Contractor is advised, however, that NYSEG owned AZ-48 sheet piles are available for use in OU-2 at the Contractor's option.

D. The Contractor shall submit, for approval by the Engineer, as part of their Technical Execution Plan (TEP) a shoring system design to excavate and backfill in sections that extend below 17.0 feet below ground elevation. For excavations greater than 17.0 feet below ground elevation the contractor shall notify the Engineer 24 hours prior to

conducting these excavations. The Contractor is responsible for the materials, sequencing and methods of construction subject to this approved method of further excavation.

E. The Contractor is responsible for the materials, sequencing and methods of construction subject to the Drawings and Specifications.

F. Coordinate bracing installation with excavation and backfill staging.

1.03 SUBMITTALS

A. Shop Drawings:

1. Structural steel shop drawings.

2. Sheet pile interlocks sealant.

3. Pipe / Utilities penetration sleeves, if necessary

4. Additional Shoring System design

B. Miscellaneous Submittals:

1. Qualifications: Sheet pile contractor shall have a minimum of 10 years experience in sheet pile and foundation pile construction, which may include waterfront and bulkhead work.

2. Sheet pile driving methods, driving sequence, and driving equipment, including driving frame details.

3. Sheet pile hydraulic pressing system(s).

4. Variable Moment Vibratory Hammer (if used in OU-1).

5. Sheet pile installation Logs: Submit records daily. Installation logs shall include:

a. Name of CONTRACTOR.
b. Project name.

c. Date.
d. Pile location/number.
e. Name of hammer manufacturer/model.
f. Pile type and length.
g. Ground elevation.
h. Final tip elevation.
i. Pile deviation from plan location.
j. Notes on unusual phenomena.

6. Provide certificates of compliance to material requirements set forth in this section.

7. Proposed means and methods of shoring to facilitate excavation and backfill for depths greater than 17.0 feet below ground elevation. The proposed design and sequencing shall be submitted to the engineer for review and approval.

1.04 PROJECT/SITE CONDITIONS

A. Protect structures, underground utilities, and other construction from damage caused by pile installation operations.

B. Before commencing work provide surveyed elevation bench marks on all structures within 40 ft of pile installation operations and elsewhere as noted on the drawings. Record and report elevation of each bench mark after installing piles and at least twice daily while pile installation is in progress. Should bench mark readings indicate displacement, halt pile installation operations until corrective action has been provided and is acceptable to the Engineer.

C. Provide crack gauges on structures where required by the Engineer before commencing work for all structures within 40ft of pile installation operations and elsewhere as noted in the drawings. Record and report crack gauge measurements after installing piles, and at least twice daily while pile installation is in progress. Should crack gauge readings indicate displacement, halt installation operations until corrective action has been provided and is acceptable to the Engineer.

D. Install inclinometer directly behind the sheetpile wall or attached to the sheetpile wall to a minimum depth of 35 feet to monitor deflection of the wall during excavation activities. The inclinometer shall be installed in Cell 1B-3 at a

location adjacent to House No. 418 (identified in the Drawings), as approved by the Engineer. Use Shape-Accel-Array (SAA) inclinometer, manufactured by Measurand, Inc., Fredericton, New Brunswick. Install in accordance with the manufacture's requirements and recommendations. Provide readout device and software to produce a graphic representation of the lateral deflections. Monitoring daily during excavation activities in Cell 1B-3. Submit results daily.

E. Monitor vibrations of structures at locations approved by the Engineer. Should measurements indicate excessive vibration, halt installation operations until corrective action has been provided and is acceptable to the Engineer.

1. Monitor vibrations at nearest adjacent structures closest to the pile driving operations when installing sheetpiles with hydraulic press.

2. Monitor vibrations continuously at nearest adjacent structures when installing sheetpiles with vibratory hammer, regardless of distance.

1.05 QUALITY ASSURANCE

A. Qualify welders, welding processes and procedures in accordance with AWS D1.1.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Piling and Accessories (if provided by Contractor): ASTM A572 or A992, Grade 50

1. Piling shall be continuous interlock type.

2. Handling hole at top end of each section shall be located above final cutoff elevation. Provide sheeting with one standard handling hole at top end of sheeting. Prior to installation any holes in sheeting shall be patched with a steel plate with a minimum thickness the same as the section at the hole location. The patch shall be continuously welded around its entire perimeter.

3. Sheet pile plan length and section type shall be as noted on Drawings.

SECTION 02260
EXCAVATION SUPPORT

B. Structural Steel Shapes and Plates: ASTM A572 or A992, Grade 50

C. Welding Electrodes: AWS A5.1 or A5.5.

D. Bolts and Nuts: ASTM A325.

E. Turnbuckles: A668 Class A C1035

F. Sleeve Nuts: ASTM A29.

G. Plastic Pipe Sleeves: 3" diameter perforated plastic pipe.

2.02 FABRICATION

A. Fabricate in accordance with applicable AISC specifications, drawings, and approved Shop Drawings.

B. Welding shall be electric arc method in accordance with AWS D1.1, E70XX electrodes conforming to AWS A5.1 or A5.5 for shielded metal arc method and F7X-EXXX flux electrode combination conforming to AWS 5.17 for submerged arc method.

C. Mark and match-mark materials for field assembly.

D. Weld shop connections, bolt or weld field connections, unless otherwise noted or specified.

2.03 HYDRAULIC PRESSING EQUIPMENT

E. Provide pile pressing equipment of type generally used in standard steel sheet pressing practice, operated in accordance with the manufacturer's specifications and recommendations. Pile pressing equipment shall be capable of pressing sheet piles to the required depths without damage.

F. Provide a pressing system of sufficient capacity and size suitable for efficiently driving the sheet piles in the soils encountered at this site.

G. Provide sheet pile pressing template or frame suitable for aligning, supporting, and maintaining sheet piling in the correct position during setting and pressing.

SECTION 02260
EXCAVATION SUPPORT

Use a system of structural framing sufficiently rigid to resist lateral and driving forces and to adequately support the steel sheet piling until the design tip elevation is achieved. Templates shall be fixed so as to not move or shift as piles are pressed. Prevent sheet piles from warping or wandering from the alignment, or racking along the alignment.

2.04 VARIABLE MOMENT VIBRATORY HAMMER EQUIPMENT (OU-1 ONLY)

A. Provide variable moment vibratory hammer of type generally used in standard steel sheet practice, operated in accordance with the manufacturer's specifications and recommendations. Variable moment vibratory hammer equipment shall be capable of driving sheet piles to the required depths without damage.

B. Provide a variable moment hammer system of sufficient capacity and size suitable for efficiently driving the sheet piles in the soils encountered at this site.

C. Provide sheet pile driving template or frame suitable for aligning, supporting, and maintaining sheet piling in the correct position during setting and driving. Use a system of structural framing sufficiently rigid to resist lateral and driving forces and to adequately support the steel sheet piling until the design tip elevation is achieved. Templates shall be fixed so as to not move or shift as piles are driven. Prevent sheet piles from warping or wandering from the alignment, or racking along the alignment.

PART 3 – EXECUTION

3.01 GENERAL:

A. Install, maintain, and remove, excavation support (including any approved additional support for section excavation and backfill) in such a manner to prevent excessive movement, settlement, or loss of ground, removal of soil fines from the adjacent ground, or damage to or excessive movement of adjacent structures, utilities, roadways and other features.

3.02 PRESSING SHEET PILING

A. If NYSEG does not provide sheet piles and CONTRACTOR is required to provide piles, order length of piles shall be determined by CONTRACTOR and

approved by the Engineer. Approval does not relieve CONTRACTOR from obligation to provide piles of sufficient length to achieve proper pile penetration.

B. Once pressing for pile group (typically, groups of 4 sheets, or a quad) is started, pile group shall be pressed to required penetration without stopping.

C. When high-resistant strata lying near surface must be penetrated, rotary drilling or pretrenching may be used to minimize hard driving of long piles during early stages of pressing operations, as approved by the Engineer. Augering and spudding shall not be allowed in the deeper, low permeability soils. Jetting is not allowed. The contractor shall have this equipment readily available onsite in case high-resistant strata are encountered. It will be the contractor's responsibility to provide sufficient equipment and take appropriate actions to ensure that the sheets can be pressed to the design depth.

D. Backfill voids between pile and pre-excavated hole using satisfactory soil materials.

E. Observations shall be made to determine uplift of adjacent piles. Uplifted piles shall be pressed to original elevation, without additional cost to the Owner. It may be necessary to weld piles together to avoid uplift so that the interlock sealant is not damaged.

F. Press sheet piling by approved methods to not subject piles to serious damage and to ensure perfect interlocking with adjoining piles throughout length of piles. Take precautions to ensure piles are within specified tolerance to line and grade.

G. Pile ruptured in interlock or otherwise considered significantly damaged by the Contractor shall be pulled and new pile pressed in its place.

3.03 VIBRATING SHEET PILING (OU-1 ONLY)

A. Reuse sheetpiles from OU-2. Alternatively, Contractor may request to use NYSEG owned AZ 48 sheetpiles.

B. When high-resistant strata lying near surface must be penetrated, rotary drilling or pretrenching may be used to minimize hard driving of long piles during early stages of driving operations, as approved by the Engineer. Augering and

spudding shall not be allowed in the deeper, low permeability soils. Jetting is not allowed. The contractor shall have this equipment readily available onsite in case high-resistant strata are encountered. It will be the contractor's responsibility to provide sufficient equipment and take appropriate actions to ensure that the sheets can be installed to the design depth.

C. Backfill voids between pile and pre-excavated hole using satisfactory soil materials.

D. Observations shall be made to determine uplift of adjacent piles. Uplifted piles shall be re-driven to original elevation, without additional cost to the Owner. It may be necessary to weld piles together to avoid uplift so that the interlock sealant is not damaged.

E. Take precautions to ensure piles are within specified tolerance to line and grade.

F. Pile ruptured in interlock or otherwise considered significantly damaged by the Contractor shall be pulled and new pile driven in its place.

3.04 WALES

A. Wales shall consist of steel structural shapes fabricated as shown on Drawings and be connected securely to steel piling at locations and elevations shown on Drawings.

B. Wales that are tilted, bent, or otherwise damaged during progress of construction shall be aligned, straightened or replaced as required by the Engineer at no additional cost to the Owner.

C. Wale splices shall be provided in accordance with details shown on Drawings.

D. Obtain tight bearing between wales and support wall and ample bearing area with steel or hardwood blocking at every sheet pile.

3.05 BOLTING

SECTION 02260
EXCAVATION SUPPORT

A. Install bolts at proper location and set straight and square with connecting members.

B. Make holes in metal members by drilling or cutting by torch, using template, subject to approval of ENGINEER.

C. After drilling, holes which are too small or out of shape shall be reamed to required size.

D. Remove projecting metal and burrs.

E. Unless otherwise indicated or specified, holes shall be not more than 1/8 in. larger than diameter of item being installed.

F. Provide plain washers under nuts of bolts except where beveled washers are required or plate washers noted.

G. Nuts on bolts shall be drawn up tight and, where indicated, threads of bolt shall be peened or tack welded.

3.06 WELDING

A. Welded connections shall be as indicated on Drawings.

B. Weld in accordance with AWS D1.1.

C. Welding shall be performed by certified structural welders in accordance with AWS D1.1.

3.07 INTERLOCK SEALANT

A. Sealant shall be the Swellseal® WA system from DeNeef® Construction Chemicals, Inc. or approved equal.

B. Sealant shall be field applied the entire length of the sheet. Adhere to all manufacturer's specifications, recommendations, and guidelines for field application and protection of the sealant.

SECTION 02260
EXCAVATION SUPPORT

C. When stored or transported, sealed interlocks shall always face down or covered with tarps to avoid contact with standing water to avoid premature swelling of the sealant.

D. When installing sheet piles with sealed interlocks, the leading edge shall always be the interlock without sealant.

E. Each interlock shall be cleaned during installation.

F. Interlocks with water-swelling product shall be lubricated with a commercial soap-based product just prior to installation.

G. The top of each untreated (leading) interlock shall be chamfered and free of burrs, so that the sealed interlock will not be damaged during installation.

H. Special attention shall be given to keep the piles plumb in order to minimize friction during driving. Special care shall be taken to ensure that the temperature of the interlock does not exceed 130^{o}C to avoid damaging the sealant (when vibratory hammer is used; requirement not applicable for pressing). The contractor shall have water readily available at all times to cool the interlock if specified temperatures are exceeded. Sheet piles in which the sealant has smoldered or burned shall be extracted and the defective sealant removed and replaced in accordance with the manufacturer's specifications.

I. Sheet piles with sealed interlocks must be installed to required depth within 2 hours after start to minimize premature swelling of sealant, or in accordance with the manufacturer's specifications.

J. Prevent unwanted movement between adjacent sheet piles that may cause failure of sealant that has previously set.

K. Cut off sheet piles in accordance with the sheet pile and sealant manufacturer's recommendations to prevent damage to the sealant. Use respirators as needed, as recommended by the sheet pile and sealant manufacturer.

3.08 MISCELLANEOUS STRUCTURAL SHAPES AND PLATES

SECTION 02260
EXCAVATION SUPPORT

A. Where shown on Drawings, provide miscellaneous structural shapes and plates to complete Work.

3.09 FIELD QUALITY CONTROL

A. Install piles within following maximum tolerances:

1. Location: 3 in. from location indicated.

2. Plumbness: Maintain 1 in. in 10 ft from vertical or maximum of 4 in., measured when pile is above ground in leads.

3. Final pile cut-off elevation shall be within 1 in. of Drawing cut-off elevation.

B. Damaged piles and piles installed outside required driving tolerances will not be accepted. Withdraw piles rejected and replace with new piles.

3.10 MOVEMENT

A. Monitor the performance of components of the excavation support system for vertical and horizontal movements and for overstressing of structural members.

B. Limit movement to protect adjacent structures, utilities, roadways and other features.

C. Lateral Deflection of the sheetpile system shall not exceed ½ inch.

3.11 VIBRATION

A. Measure vibrations in structures adjacent to work areas as specified.

B. Prepare daily vibration monitoring reports and submit to Engineer the following work day.

C. Vibration Action Levels:

SECTION 02260
EXCAVATION SUPPORT

1. 0.75 inches per second (ips): Notify Engineer
2. 1.00 ips: Immediately stop work and notify Engineer. Inspect structure for potential damage. Develop Action Plan to reduce vibration levels and minimize risk of damage. Do not continue sheet pile installation until the Action Plan is approved by the Engineer and Owner.

3.12 REMOVAL

A. Installed excavation support system(s) to be removed after area has been backfilled and compacted. Remove all components of the system(s).

B. Stop removal of sheetpiles if significant quantities of cohesive soil are found to adhere to the extracted sheetpiles. Notify Engineer and propose actions to minimize removal of soil with the extracted sheetpiles.

C. When removing the excavation support system(s), do not disturb or damage adjacent structures, utilities, roadways and other features. Fill voids immediately with well-graded cohesion less sand.

D. Remove all bracing including, wales, struts, and other temporary bracing elements after area has been backfilled to bracing elevation.

*** END OF SECTION ***

SECTION 02150
ODOR AND VAPOR CONTROL AND TEMPORARY FABRIC STRUCTURES

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Summary
B. Submittals
C. Quality Control
D. Temporary Fabric Structures
E. Air Handling Equipment
F. Lighting
G. Air Treatment System
H. Odor Suppressing Foam
I. Air Monitoring Equipment
J. Operation and Maintenance
K. Performance
L. Monitoring

1.02 SUMMARY:

A. The Contractor shall provide all materials, equipment, and labor to provide odor and vapor control at the site during but not limited to all excavation, demolition, backfilling, stockpiling, soil amending, loading of impacted soil, or MGP waste handling and transport. During excavation activities on OU-1 the contractor is required to conduct all of the activities noted above within the temporary fabric structure. OU-2 excavation activities require the contractor implement the use of a temporary fabric structure only as a secondary control if needed. In conjunction with this specification the area specific odor and vapor control requirements and action levels can be found in the OU-1 and OU-2 Community Air Monitoring Plans (CAMPs).

1.03 SUBMITTALS:

A. The Contractor shall provide in the Technical Execution Plan (TEP) detailed descriptions and drawings with the means and methods proposed for controlling and monitoring odors and vapors inside the Temporary Fabric Structure and the exhaust from the Temporary Fabric Structure during the work. The TEP shall describe the method to be used for monitoring the extent of adsorption on the air treatment units so that the units can be changed prior to contaminant breakthrough. The TEP shall include design calculations, shop drawings, installation instructions, maintenance instructions and vendor information for all temporary fabric structures, foundations, lighting, air handling equipment (including air exchanges per hour), and air treatment systems.

SECTION 02150
ODOR AND VAPOR CONTROL AND TEMPORARY FABRIC STRUCTURES

B. Contractor shall submit written documentation showing conformance of the materials and constructed work with the specifications. This shall include documentation that the provided Piian® System is of sufficient size and capacity for the Work (outside of the temporary fabric structure) as scheduled by the Contractor.

C. All odor and vapor control equipment and materials shall be approved by the Engineer prior to use.

D. The Contractor may propose alternative means and methods for controlling dust, odors, and vapors from site operations, particularly for activities conducted outside the temporary fabric structure such as excavation. Equipment or material substitutions for odor and vapor control will be evaluated by the Engineer prior to use on-site on a case-by-case basis. Alternative means and methods of controlling odors and vapors cannot be used until approval by the Engineer is received in writing.

E. The Contractor shall provide all Work Zone and air treatment system effluent monitoring data in the daily report on a form acceptable to the Engineer.

1.04 QUALITY CONTROL:

A. Contractor shall monitor the air inside the structure and outside the structure in accordance with this specification and the site specific Health and Safety Plan to confirm that the levels established for odors and vapors are maintained.

PART 2 – PRODUCTS

2.01 TEMPORARY FABRIC STRUCTURES:

A. Excavation, stockpiling, and loading operations for soil and debris located within the designated limits shown on the Drawings associated with OU-1, shall take place under a temporary fabric structure to the extent practicable. During excavation activities on OU-2 if substantial odors still present an issue following the implementation of the site controls indicated in the OU-2 CAMP, then the temporary fabric structure will be utilized.

B. If excavation, stockpiling, and loading is not possible in some locations under a temporary fabric structure as shown on the Drawings, then extreme care and diligence in using other methods to reduce odors and vapors shall be employed. Other methods must be approved in advance by the Engineer.

C. The Contractor shall design and construct temporary foundations for the temporary fabric structure(s) based on their selected building vendor's specifications. Design Shop

SECTION 02150
ODOR AND VAPOR CONTROL AND TEMPORARY FABRIC STRUCTURES

Drawings and calculations for all foundations shall be provided with the Contractor's TEP.

D. The structures must be a stressed membrane structure.

E. No exterior guy ropes or cables shall be used for anchoring the structure.

F. There shall be no exterior horizontal purlins.

G. The structure shall be completely clear-span with no interior supports of any description.

H. All personnel doors and windows must be installed in such a way that the vertical and horizontal tension on the architectural membrane is maintained, at all times.

I. All personnel doors, especially fire exits, must come complete with a protective all weather hood system to shed snow and rain away from front of doors.

J. The completed structure shall be designed to withstand a wind loadings based on the local Building Code.

K. The stressed membrane structure must be designed to shed snow before the design load is exceeded, or alternatively provide structure capacity to meet or exceed required roof snow load requirements of Tompkins County, New York.

L. The architectural membrane, when assembled and tensioned, shall be absolutely wrinkle free, and shall remain so indefinitely in hot and cold temperatures.

M. In order to provide the introduction of natural light for daytime use, a continuous section of highly translucent white architectural membrane (skylight) shall be incorporated into the membrane along the peak of the structure.

N. Structure Supplier must be a proven, established manufacturer and have a minimum of ten years experience in the design, fabrication and delivery of structures with the same specifications (same size not required) as outlined above together with at least fifty installations in North America.

O. Structure Supplier must supply a Technical Consultant on site for the full duration of the erection and each relocation of the structures to provide information about structure assembly and erection. All costs for the Consultant’s time, travel, meals and accommodation are to be the responsibility of the Contractor.

SECTION 02150
ODOR AND VAPOR CONTROL AND TEMPORARY FABRIC STRUCTURES

P. Upon award of this contract, structure supplier is to supply detailed drawings and supporting calculations for the structure, including Shop Drawings showing the location, dimensions, and load bearing capacities of the structural members, and a description of the methods of installation. The shop drawings and design description of the temporary fabric structure shall be stamped and signed by a Professional Civil/Structural Engineer licensed in the State of New York.

Q. The building shall be properly cleaned and decontaminated at the completion of the project.

2.02 AIR HANDLING EQUIPMENT:

A. The air handling Equipment shall be of adequate size and capacity to achieve the performance standards in this specification.

B. The air handling equipment shall be a complete unit equipped with but not limited to: duct work, blowers, motor starters, electric power and controls, particulate filters, and activated carbon filters.

C. The air handling equipment shall have an air flow capable of maintaining negative pressure within the temporary fabric structure every hour, 24 hours per day, 7 days per week and as required to meet the requirements of Subsection 3.02 of this section.

D. Contractor shall construct a noise reduction enclosure around the blower unit(s) and connection(s) to the carbon vessel. The carbon vessel itself will not require an enclosure. Material specifications and construction details are listed below; any variation in materials shall be approved in advance by the Engineer.

1. The enclosure siding shall be constructed of 1 layer of ½-inch Hardie Cement Fiber Backer Board or equivalent.

2. Sufficient framing to local building codes shall be constructed to stabilize the enclosure and shall be concealed on the inside of the cement fiber backer board.

3. The interior of the framing shall be covered with 2 inch thick Owens Corning 703 un-faced semi rigid panels or equivalent. The panels shall be attached to the 2 inch x 4 inch framing and not the cement fiber panels to allow for a 3½ inch dead air space. The acoustic insulation shall be affixed using appropriate length wood screws and 1-inch washers.

SECTION 02150
ODOR AND VAPOR CONTROL AND TEMPORARY FABRIC STRUCTURES

4. The roof of the enclosure shall be treated in the same fashion as mentioned above.

5. In addition to typical nailing, construction adhesive shall be used at each edge of the cement backer board that is attached to a stud or joist. Backer board corners and seams must be butted together to achieve a tight seal, and sealed with construction adhesive.

6. All walls and ceiling must be no closer than 18 inches from the blower unit.

7. At the seam where the blower and transition enclosure connects to the carbon vessel, the enclosure must be caulked to the vessel with silicone caulk. For cracks larger than ¼ inch, use a foam backer rod before caulking.

8. At the hose(s) opening the hose shall be lined with ½-inch thick sponge rubber, 6 inches wide, in exactly once circle around the hose(s). Ensure a tight fit around the rubber with the backer board.

9. The base of the enclosure shall maintain ground contact. The soil surrounding the enclosure shall be lapped over the exterior siding as necessary to ensure ground contact.

10. All necessary access doors shall be constructed of screwed on backer board panels overlapping the outer layer of backer board siding by 4 inches in each direction as shown in the access panel detail drawing. The door shall be located on the side of the enclosure furthest from receptors where practicable.

11. Where the wiring penetrates the enclosure shall be sealed with silicone caulk.

12. If ventilation is required for heat buildup, provide necessary air intake and discharge chimney. Ventilation sizing requirements will be determined by the Contractor's manufacturer or mechanical engineer. The length of the air intake and the height of the discharge chimney 1.5 times the largest dimension of their respective open area. The inside of these ducts shall be lined with the above specified insulation. Mount a small metal lip or flashing over the exposed edge of the chimney insulation to prevent it from getting direct precipitation.

2.03 LIGHTING:

A. The Contractor shall provide adequate electric lighting to allow sufficient light within the structure for 10 hours of work per day during the winter season.

SECTION 02150
ODOR AND VAPOR CONTROL AND TEMPORARY FABRIC STRUCTURES

2.04 AIR TREATMENT SYSTEM:

A. The Contractor shall provide an air treatment system with the air handling equipment that will remove air-borne chemical constituents generated during the work. The chemical constituents of concern include but are not limited to volatile organic compounds from MGP wastes.

B. The air treatment system shall be adequately sized to capture and/or treat the constituents of concern generated inside the temporary fabric structure and meet the performance standards outside the temporary fabric structure.

C. The air treatment system shall be adequately sized to facilitate a minimum of 4 air changes per hour inside the temporary fabric structure. The volume shall include the volume of the structure above ground, as well as the volume of excavated material below the ground surface. The volume of excavated material shall be calculated assuming a completely excavated cell down to the design depth, plus a potential 3 foot over-excavation.

2.05 ODOR SUPPRESSING FOAM:

A. The contractor shall provide odor-suppressing foam to contain odors and vapors generated from excavation, stockpiling, loading, and amending impacted soil and MGP waste on the site for both OU-1 and OU-2 excavation areas.

B. The odor-suppressing foam shall be a spray on foam that provides a direct contact impermeable vapor barrier to impacted soil or MGP wastes.

C. Odor suppressant shall be provided by Rusmar, or approved equivalent, and shall have been successfully used on previous MGP remediation projects.

D. Odor suppressant foam application unit shall have minimum coverage rate of 270 square feet per minute at a depth of 3-inches. Unit shall have self contained storage to allow premixing and be equipped with freeze protection for operation throughout the winter months.

2.06 AIR MONITORING EQUIPMENT:

A. The Contractor shall provide air monitoring equipment to monitor the air inside and outside the temporary fabric structures (work zone monitoring). All air monitoring equipment shall be approved by the Engineer prior to use. The Contractor shall provide adequate backup air monitoring equipment to allow uninterrupted site operations. The

SECTION 02150
ODOR AND VAPOR CONTROL AND TEMPORARY FABRIC STRUCTURES

equipment shall be calibrated according to the equipment manufacturer's specifications. The equipment shall be calibrated at a minimum once per day and after any repair.

B. The Contractor shall provide a photo-ionization detector (PID) capable of providing results on a real-time basis to monitor organic vapors.

C. The Contractor shall provide a particulate air monitor capable of providing results on a real-time basis with a detection range from 0.01 to 400 mg/cubic meter.

D. The Contractor shall provide carbon monoxide detectors capable of providing results on a real-time basis with a minimum detection limit of 1 ppm.

E. The Contractor shall provide Nitrogen Dioxide detectors capable of providing results on a real time basis.

PART 3 – EXECUTION

3.01 OPERATION AND MAINTENANCE:

A. Contractor shall operate the air handling System and air treatment system 24 hours per day, 7 days per week as directed by the Engineer.

B. The Contractor shall maintain the temporary fabric structure, the air handling system and the air treatment system in working condition throughout the project and shall repair or replace any equipment that fails and shall replace filters, activated carbon, and other expendable air treatment media as necessary.

C. The Contractor shall operate the Piian odor neutralization system 24 hours per day, 7 days per week throughout the entire portion of the project when temperatures remain above freezing (32°F) and MGP impacted soils are exposed as directed by the Engineer.

D. The Contractor shall maintain the Piian odor neutralization system in working condition throughout the project and shall repair or replace any equipment that fails and shall replace system components as necessary at no additional cost to the Owner.

E. The Contractor shall operate Biosolve sprayers as required to control odors during soil disturbing operations.

SECTION 02150
ODOR AND VAPOR CONTROL AND TEMPORARY FABRIC STRUCTURES

F. The Contractor shall maintain the Biosolve odor control sprayers in working condition throughout the project and shall repair or replace any equipment that fails and shall replace system components as necessary at no additional cost to the Owner.

3.02 PERFORMANCE:

A. OPERATIONS WITHIN AND NOT WITHIN THE TEMPORARY FABRIC STRUCTURE

1. The Contractor will be notified when real time monitoring being performed at the site perimeter has indicated action levels as specified in the CAMPs (OU-1 and OU-2) have been reached. Upon notification, the Contractor shall begin to implement or increase odor/vapor reduction controls as necessary.

2. The Engineer will notify NYSDEC and DOH representatives if action levels are exceeded. The primary contact will be the oversight NYSDEC project manager.

B. OPERATIONS WITHIN THE TEMPORARY FABRIC STRUCTURE

1. The air treatment system must remove air-borne chemical constituents and meet the performance standards below:

a. Total particulates shall be below 100 µg/cubic meter in the exhaust air outside the temporary fabric structure at all times.

b. Total organic vapors shall be below 2.5 ppm in the exhaust air outside the temporary fabric structure.

c. There shall be no detectable MGP odors at the site perimeter.

d. Shall allow the personnel working inside of the structure to maintain personal protective equipment of Level C or lower.

2. The Contractor shall cease all operations if any of the performance standards are exceeded. Work cannot proceed until approval by the Engineer is received.

3. All exposed areas and stockpiles left undisturbed for greater than 2 hours shall be covered with a secured polyethylene tarp. All stockpiles left overnight shall be similarly covered. Vapor suppression foam shall be utilized to cover stockpiles during stockpiling and loading of any soil containing tar like materials or NAPL. Foam application must begin within 10 minutes of creation of the stockpile or the beginning of loading activities and continue until stockpile activities are

completed, at which time the pile shall be covered with polyethylene sheeting and secured.

4. The Contractor shall monitor the workspace in the temporary fabric structure to ensure action levels specified in the Contractor's HASP are observed and that the proper level of personnel protective equipment is utilized.

C. OPERATIONS NOT WITHIN THE TEMPORARY FABRIC STRUCTURE

1. The Contractor shall apply odor-suppressing foam to the soil stockpiles, excavation outside of the temporary fabric structure, or loading operations as directed by the Engineer.

2. The Contractor shall provide labor, equipment, and material required to apply odor and vapor suppressant foam to all exposed soil areas including stockpiles within 5 minutes when directed by the Owner or the Engineer. Failure to apply vapor/odor suppression materials within the specified time shall result in all Contractor operations being suspended until such time as the Engineer determines the request for controls has been fully satisfied by the Contractor and no additional payment for such downtime shall be due to the Contractor.

3. The Contractor shall provide sufficient odor suppressant foam sprayer and Biosolve sprayer equipment to apply foam and/or Biosolve mixture as directed during the entire period when soil disturbance occurs.

4. All exposed areas and stockpiles left undisturbed for greater than 2 hours shall be covered with a secured polyethylene tarp. All stockpiles left overnight shall be similarly covered. Vapor suppression foam shall be utilized to cover stockpiles during stockpiling and loading of any soil containing tar like materials or NAPL. Foam application must begin within 10 minutes of creation of the stockpile or the beginning of loading activities and continue until stockpile activities are completed, at which time the pile shall be covered with polyethylene sheeting and secured.

3.03 MONITORING:

A. The Contractor shall monitor the air inside the temporary fabric structure and at the air treatment system exhaust(s) to confirm that the performance standards are met. Provide summary of results daily to the Engineer.

SECTION 02150
ODOR AND VAPOR CONTROL AND TEMPORARY FABRIC STRUCTURES

B. The Contractor shall monitor the air within the temporary structure with the air monitoring equipment at least once every hour during work activities. The Contractor shall monitor for all of the applicable performance standards and document the results. Provide summary of results daily to the Engineer.

C. The Contractor shall monitor the air at the air treatment system exhaust with the air monitoring equipment at least once every hour during work activities. The Contractor shall monitor the exhaust for the applicable performance standards and document the results.

D. The Contractor shall monitor the extent of adsorption of the air treatment units to enable units to be changed prior to contaminant breakthrough.

E. The Contractor shall notify the Engineer if any of the performance standards are exceeded and stop work immediately.

F. The Engineer will, subsequent to corrective action, notify the Contractor when work can resume.

END OF SECTION

SECTION 02245
TEMPORARY WATER TREATMENT SYSTEM

PART 1 – GENERAL

SECTION INCLUDES:

A. Summary
B. Submittals
C. Project Description and Conditions
D. Primary Water Treatment Equipment and Controls
E. Discharge Limits
F. Testing and Startup Activities
G. Water Quality Testing
H. Routine Monitoring
I. Corrective Actions
J. Documentation

1.01 SUMMARY

A. The Contractor shall provide all manpower, equipment, and materials to execute all activities necessary to provide, operate, and maintain a temporary water treatment system at the former Manufactured Gas Plant (MGP) site located in Ithaca, New York.

B. This section covers the requirements for the functional design, performance, construction features, operation, and testing of the equipment described in the following sections.

C. The contractor may propose an alternate water treatment system design that, at a minimum, shall meet the effluent limits established by the City of Ithaca for discharge to the municipal sanitary sewer and design, construction, and operational intent established herein.

D. If necessary, additional treatment components will be provided by the contractor to achieve the City sanitary sewer effluent limits and requirements set forth in the City Ithaca Area Wastewater Treatment Facility (IAWWTF) Discharge Permit.

1.02 SUBMITTALS

A. Contractor shall submit a Technical Execution Plan with their bid. The Technical Execution Plan shall include:

1. Description of water treatment system, equipment (including size and capacity), processes, and monitoring.

SECTION 02245
TEMPORARY WATER TREATMENT SYSTEM

2. Contractor shall submit an Operation & Maintenance plan with their design of the WWTP to include regular maintenance, daily operating procedures and recording of performance parameters, logs, and record keeping.

3. Calculation and support documentation for treatment system design, component selection and sizing.

4. Description of the coordination with the excavation dewatering system.

5. Any proposed alterations from the minimum required system shown in the Drawings

Detailed plan shall outline all provisions and precautions to be taken by the Contractor regarding the collection, treatment and discharge of project wastewater. The plan must be specific and complete, including such items as schedules, locations, sizes, capabilities of equipment, materials and all other incidental items necessary and/or required to ensure proper treatment of the anticipated flows and compliance with the City discharge permit. No water handling or treatment shall begin until all this plan has been reviewed and approved by the Engineer.

1.03 PROJECT DESCRIPTION AND CONDITIONS

A. Excavation and dewatering, described in Specifications Section 02240 – Dewatering, will generate water impacted with MGP constituents.

B. Contractor shall provide and maintain a water treatment system that is capable of treating and discharging water in accordance with the City IAWWTF Discharge Permit Equivalent and the Specifications. The Contractor shall ensure continuous operation of treatment system throughout the duration of the project as directed by the Engineer.

C. Contractor shall prepare and submit a Technical Execution Plan in accordance with the procedures set forth in Specifications Section 01330 – Submittal Procedures. Contractor shall follow the approved water treatment plan, and be responsible for meeting the requirements of the discharge permit volume and constituent concentration limitations.

D. Contractor shall maintain Daily Discharge Volume Logs obtained from a continuously totalizing water meter, hours of treatment system operation, peak flow rates, and other pertinent data for the Engineer's verification

SECTION 02245
TEMPORARY WATER TREATMENT SYSTEM

and approval, in accordance with the discharge permit. Contractor's Daily Report of water treatment activities shall be in a format acceptable to the Engineer and shall include the results of daily system inspections.

E. Contractor is responsible for all fines and penalties associated with non-conformance of the system in meeting the discharge permit.

F. The contractor shall provide all manpower, equipment and materials to execute all activities necessary to provide, operate, and maintain a temporary water treatment system. Unless approved otherwise, the temporary water treatment system will include the following major components:

1. Berms and containment;
2. Influent tanks (two fractionation tanks and one baffle/oil-water separator tank);
3. Effluent storage tank (1 fractionation tank, 20,000 gallon capacity);
4. Double diaphragm pumps;
5. Oil/water separator;
6. Transfer tank;
7. Oil storage tank;
8. Transfer pumps;
9. Organo-clay vessels;
10. Bag filters;
11. Granular activated carbon (GAC) vessels;
12. Anion resin;
13. Piping and appurtenances;
14. Meters and gauges; and
15. Air compressor

G. The temporary water treatment system shall be capable of treating a flow rate of 50 gallons per minute (gpm).

H. Analytical results for groundwater samples collected from impacted material within adjacent remediation area 1C are provided in the PDI Summary Report for OU-2. The proposed temporary water treatment systems shall be capable of reducing the anticipated concentrations of these contaminants in the dewatering wastewater from the remedial excavations (i.e., influent characteristics) to the discharge treatment levels required by the City of Ithaca for discharge to the municipal sanitary sewer.

SECTION 02245
TEMPORARY WATER TREATMENT SYSTEM
PART 2 – PRODUCTS: PRIMARY WATER TREATMENT EQUIPMENT AND CONTROLS

2.01 WATER TREATMENT EQUIPMENT

This section specifies the minimum design and construction requirements for major treatment system components. Substitutions of system components other than those specified herein must be submitted for consideration and approval by the Engineer in accordance with the requirements of the Contract Documents.

A. The Contractor shall furnish, install and operate water treatment equipment of sufficient capacities to meet the requirements of the IAWWTF Discharge Permit and site dewatering needs.

B. Contractor shall keep on hand, or have immediate access to, additional pumps of sufficient capacity to maintain water treatment activities during any pump breakdown or maintenance.

C. Contractor shall provide freeze protection for all water treatment hoses, piping, and pumping equipment necessary to execute the work throughout the winter months, including but not limited to: insulation, heat wraps, heaters, and/or enclosures. Freeze protection chemicals or solutions shall not be used on site without prior approval of the Engineer.

D. Contractor shall repair or replace damaged pumps, piping, hoses, tanks, and all other water treatment equipment and materials within four working hours if damaged. Damage includes any pump and power failures, leaks, breaks, clogs or other conditions that adversely affect the water treatment system and subsequent discharge of treated water.

E. Contractor shall keep on hand, or have immediate access to, spare components to provide reasonably for any breakdown. Contractor shall maintain on site spare pumps during water treatment operations.

F. All water treatment equipment shall remain the property of the Subcontractor and shall be decontaminated in accordance with Specifications Section 02130 – Decontamination and removed from the Project site at the completion of the work.

2.02 BERMS AND CONTAINMENT

The temporary water treatment system, exclusive of influent and effluent tanks shall be constructed with a containment area complete with continuous 20-mil

SECTION 02245
TEMPORARY WATER TREATMENT SYSTEM

HDPE liner and berms to provide containment volume equal to 110% of the largest container within the containment area.

2.03 INFLUENT SETTLING TANKS

A. The influent settling tanks shall be of steel construction and shall provide, at a minimum, enough storage capacity to store 60,000 gallons. The tanks shall allow the water level in the tank to be determined by visual inspection and the use of a stick level indicator.

B. Each tank shall be furnished with an inlet and outlet pipe connection. The tank shall be equipped with two, 4-inch valves at each end.

C. The tanks shall be a minimum of two 21,000 gallon Steel Manifold Fractionation Tanks, and one 18,000 gallon baffle tanks, manufactured by Baker Tanks, or equal.

D. The Contractor shall take such measures as are necessary to ensure that water does not freeze within the influent tanks.

2.04 EFFLUENT STORAGE TANKS

A. The treated water storage tanks shall be of steel construction with a total minimum storage capacity of 20,000 gallons.

B. Each tank shall be furnished with an 8" valve manifold with 4" outlets.

C. The tank shall be 21,000 gallon Steel Manifold Fractionation Tank, manufactured by Baker Tanks, or equal.

D. The Contractor shall take such measures as are necessary to ensure that water does not freeze within the final effluent tanks.

E. Additional tanks (if needed) shall be the responsibility of the Contractor.

2.05 DOUBLE DIAPHRAGM PUMPS

A. Double diaphragm pumps shall be rated for a combined pumping rate of 50 gallons per minute (gpm) at a pumping head to be determined by the contractor.

B. Controls for transfer pumps shall consist of level switches for low water level, high water level and high-high water levels.

C. The pumps shall be SA Series Sandpiper, manufactured by Warren Rupp, or equal.

2.06 OIL/WATER SEPARATOR

SECTION 02245
TEMPORARY WATER TREATMENT SYSTEM

A. The oil/water separator shall be a gravity type - rectangular channel coalescing oil/water separator capable of removing gross free oil and similar floatable products and shall contain integral collection chambers for settleable sludge/solids recovery.

B. The oil/water separator shall be designed in accordance with Stokes Law and the American Petroleum Institute Publication 421, "Monographs on Refinery Environmental Control Management of Water Discharges, Design and Operation of Oil-Water Separators" and Stokes Law for an influent water flow rate up to 50 gpm. The effluent shall contain less than 10 milligrams per liter (mg/L) of oil droplets greater than 30 micrometers (microns) with a specific gravity of 0.9 or less at a flow rate of 50 gpm or less.

C. The oil/water separator shall be model TS036-F34 molded fiberglass or equivalent or TS036-S34 carbon steel, as manufactured by Hydro-Flo Technologies, Inc., or equal.

2.07 TRANSFER TANK

A. The transfer tank shall contain low, high, and high-high level switches for transfer pump operation.

B. The transfer tank shall be manufactured of one-piece, seamless, linear polyethylene that is translucent for viewing of interior water levels.

C. The transfer tank shall be a 1,000 gallon one-piece, seamless, linear polyethylene tank.

2.08 OIL STORAGE TANK

A. The oil storage tank shall be a 250 gallon auxiliary polyethylene tank to contain oil and sediment from oil water separator.

2.09 TRANSFER PUMPS

A. The transfer pumps shall be horizontal close-coupled, end suction centrifugal pumps of cast iron construction and rated for a combined pumping rate of 50 gpm (maximum allowable throughput to the temporary water treatment system) at a pumping head to be determined by the Contractor.

B. The pump motors shall be non-overloading of National Electrical Manufacturers Association (NEMA) standard design suitable for close-coupled pump mounting.

SECTION 02245
TEMPORARY WATER TREATMENT SYSTEM

C. Controls for transfer pumps shall consist of level switches in tank for low water level, high water level and high-high water levels.

D. The transfer pumps shall be model type 3656, as manufactured by Goulds, or equal.

2.10 ORGANO-CLAY VESSEL

A. The organo-clay vessel shall have a loaded hydraulic capacity of 50 gpm. A minimum of 2,000 pounds of organo-clay shall be used upstream of the GAC Adsorption Units.

B. Based on performance specifications of the organo-clay media, the size of the reservoir should be between 5 square foot (minimum) and 8 square foot (maximum) with a bed thickness range between 3 feet (minimum) and 6 feet (maximum). The recommended contact time should be between 5 to 7 minutes.

C. Particle size for the organo-clay material shall be determined by U.S. Standard Sieve Size 8x30 mesh, with a packaged moisture content of 8 percent. Drained moisture retention capacity for organo-clay should be 10 percent with a density between 40 and 60 pounds per cubic foot.

D. The organo-clay vessel shall be model AF-2000, as manufactured by Tetrasolv Filtration, or equal. The organo-clay shall be MCM-830P, as supplied by Ecologix Environmental Systems, or equal.

2.11 BAG FILTERS

A. The bag filters (two total) shall have a loaded hydraulic capacity of up to 50 gpm. The bag filter housing shall be carbon steel, and shall be pressure rated to a maximum 150 pounds per square inch (psi).

B. The primary bag filters shall be model FSPN-85, as manufactured by FSI, or equal. The primary filter bags shall have a rating of a maximum of 50 micron opening.

C. The secondary bag filters shall be model FSPN-85, as manufactured by FSI, or equal. The secondary filter bags shall have a rating of a maximum of 5 micron opening.

2.12 GRANULAR ACTIVATED CARBON VESSELS

A. The Granular Activated Carbon (GAC) vessels (two total) shall have a loaded hydraulic capacity of 50 gpm. A minimum of 2,000 pounds of GAC shall be used. The vessels shall be provided with lifting supports suitable for lifting by a fork lift truck.

SECTION 02245
TEMPORARY WATER TREATMENT SYSTEM

B. The vessels shall be designed for a downflow application, a carbon dryfill opening in the top and a carbon discharge connection in the unit bottom. All vessel fittings shall be installed by the GAC vessel manufacturer at the time and place of manufacturer. The Contractor shall not modify the GAC vessel in the field without written approval from the Manufacturer.

C. All water shall be routed through the GAC vessels in series during normal treatment system operations. When the primary GAC vessel becomes spent (breakthrough of constituents above permitted limits), a carbon change-out of the primary vessel shall occur. The secondary vessel shall be moved to the primary position and a new GAC vessel shall be placed in the secondary position. GAC units shall be equipped with backwash capabilities.

D. The GAC units shall be model AF-2000, as manufactured by Tetrasolv Filtration, or equal. The GAC shall be Westates Aquacarb 830 or Aquacarb 1240 carbon as supplied by US Filter or equal.

2.13 ANION RESIN

A. The contractor shall provide anion resin capable of treating 50 gpm of groundwater containing up to 5,000 ug/L. During the remedial investigation, the concentration of cyanide in groundwater ranged from non-detect to 1,800 ug/L, with an average of 110 ug/L. The discharge criteria is 200 ug/L (maximum concentration 30 day average) and 600 ug/L (maximum concentration 24 hour average) as defined in the IAWWTF discharge permit.

B. The anion resin vessel shall be DOT compliant, capable of processing 50 gpm at a pressure of 60 psi and have a capacity of sufficient resin to reduce concentrations to below discharge criteria.

C. The resin shall be USF A-284, as supplied by Siemens, DOWEX SBR, as supplied by Dow Chemical Company, or approved equal.

2.14 PIPING AND APPURTENANCES

A. The contractor shall provide all necessary piping and appurtenances required for operation of the temporary treatment system.

B. Influent piping from the excavation upstream of the influent tanks and outside the containment berm shall be double walled to ensure

containment in the event of a leak. Effluent piping from the treatment system to the point of discharge may be single-wall pipe.

C. All piping and appurtenances shall conform to applicable American Society for Testing and Materials (ASTM) standards.

D. All exterior piping required for the treatment system shall be protected from vehicular traffic when placed on ground surface (e.g., influent pipe from excavation areas).

2.15 METERS AND GAUGES

The contractor shall provide all necessary meters and gauges to ensure proper monitoring of the entire treatment system.

A. Contractor shall provide adequate system controls to permit unattended operation with occasional operator checks for monitoring and adjustments.

B. The Contractor shall provide a notification system, such as pressure gages and alarms, to alert an operator if the system experiences conditions that will potentially cause the treatment system to shutdown.

C. Contractor shall provide high-level alarms on tanks to prevent overflow conditions. Alarms may cause automatic actions to relieve the condition or may warn the operator.

D. If an upset condition occurs, which may result in a release or nonconformance with the discharge permit, Contractor shall immediately suspend operation and notify the Engineer.

E. The water treatment system shall not be operated without onsite supervision.

Contractor shall provide and maintain at all times flow meters to record water discharged from both the treatment system to the effluent storage tank(s) and to the City of Ithaca for municipal sanitary sewer. The flow meters shall record instantaneous and totalized flow.

2.15 AIR COMPRESSOR

A. The air compressor shall be sized by the Contractor to supply air to the all diaphragm pumps.

B. The air compressor shall have two stage capability, rebuildable components, intake unloaders, and loadless starting.

SECTION 02245
TEMPORARY WATER TREATMENT SYSTEM

C. The air compressor shall be a Qunicy Compressor, or equal.

PART 3 - EXECUTION

3.01 GENERAL

The Contractor shall provide, operate and maintain a temporary on-site water treatment system as described in this specification that shall treat liquid waste streams encountered during remedial work. The Contractor shall maintain lines of communication with the appropriate representative of the NYSEG and the NYSDEC and the City of Ithaca regarding all discharge issues. The Contractor shall ensure continuous operation of treatment system throughout the duration of the project.

3.02 DISCHARGE LIMITS

A. The Contractor shall at all times maintain the treatment system so as to not exceed the effluent limits established by the City of Ithaca for discharge to the municipal sanitary sewer.

B. The pH of the discharged effluent shall not be less than 5.5 or greater than 11.0.

3.03 TESTING AND STARTUP ACTIVITIES

A. After mobilization and setup of the water treatment system, the contractor shall perform system startup and testing activities and troubleshooting prior to initiating full scale (normal) operations.

B. Startup and testing activities shall be in accordance with the manufacturer's recommendations and as indicated in the Contractor-prepared O&M manual that has been reviewed by the Engineer. General startup and testing of the temporary water treatment system shall consist of treating a minimum of 20,000 gallons of water collected from the first proposed excavation area (i.e., water that has been in contact with soil/sediment to be removed). During the startup test, the water treatment system shall be operated at the 50 gpm peak flow rate until the entire 20,000 gallon batch is treated or at the maximum flow obtained from the dewatering. During this time, the Contractor shall continuously monitor and record readings (every 30 minutes minimum) from all gauges and meters as necessary in order to demonstrate that the system is operating as designed to the satisfaction of the Engineer. In addition, the Contractor shall make adjustments to the system as necessary to maintain a continuous flow rate of approximately 50 gpm while meeting the operating requirements of each system component.

SECTION 02245
TEMPORARY WATER TREATMENT SYSTEM

C. The Contractor shall assist the Engineer in the collection of start-up testing samples following treatment of approximately 10,000 gallons and 20,000 gallons of water. The entire 20,000 gallons of treated water shall be retained in the effluent storage tanks until analytical results obtained indicate that the Contractor may discharge the water to the Ithaca municipal sanitary sewer. Samples collected during start-up will be submitted by the Engineer for laboratory testing of the following parameters:

Parameter	Influent/Effluent
Volatile Organic Compounds	Yes
Semi Volatile Organic Compounds	Yes
Cyanide	Yes
pH	Yes
Total Suspended Solids	Yes
Metals	Yes
Pesticides/Herbicides	Yes
Total Petroleum Hydrocarbons	Yes

D. As required by the City temporary discharge permit, the Contractor shall assist the Engineer with collection of periodic samples of the discharge of the water treatment system. All samples shall be of the type (grab versus composite) required by the City discharge permit and shall be analyzed for the parameters identified in the City discharge permit. All analytical results shall be distributed to the Engineer, Contractor, NYSEG, and City of Ithaca.

3.04 WATER QUALITY TESTING

Treatment system water quality testing shall be conducted during normal operations for both treatment system influent and effluent. During the system operation, testing will be conducted on a schedule and frequency to meet the requirements of the City discharge permit. The Engineer will collect the water samples for analysis and arrange for laboratory analysis of these samples.

3.05 ROUTINE MONITORING

A. The temporary water treatment system will be manually operated and controlled through a series of valves, visual reading gauges, and pump controls as necessary to accommodate system operation. The Contractor shall provide for a water treatment system operator to be on-site at all

times during system operation. The system will be manually controlled by the operator. At a minimum, the daily activities to be performed by the system operator (at least once per shift) include at a minimum:

1. Visual inspection of influent and effluent piping to and from the treatment system;
2. Visual inspection of all pumps, fittings and equipment for leakage;
3. Visual inspection of the waste oil and sludge storage tanks to document storage capacity;
5. Obtaining readings from the system pressure gauges associated with all treatment systems within the treatment train. Pressure gauge readings may be used to determine when a backwash event or filter replacement is required or that a particular treatment unit is not functioning properly;
6. Obtaining readings from the flow meter to monitor the system flow rate;
7. Obtaining readings from the flow totalizer to record the total system flow to date and calculate the daily flow- total; and
8. During the operation of the treatment system, the influent tanks shall be visually inspected each time they are emptied to determine the depth of the sediment in the bottom of the tank. If sediment is observed to be 4 inches deep (or if directed by the Engineer) the tank shall be cleaned. Liquids from the cleaning activities shall be treated using the temporary water treatment system, while solids shall be collected and placed into the staging area for subsequent disposal by Owner. The Contractor shall solidify material to make it suitable for off-site disposal as a solid waste.

3.07 CORRECTIVE ACTIONS

At the direction of the Owner or the Engineer, the Contractor shall take corrective actions as necessary to maintain specified treatment system performance in the event of an upset condition and/or operating conditions that result in non-compliant effluent water quality. During Corrective Actions, the Contractor may be required to mobilize additional effluent storage tanks and/or repeat start-up and testing procedures as specified herein.

3.08 DOCUMENTATION

The Contractor shall maintain a daily operations log (i.e., tabulated results) in which the process variables described above will be recorded at a minimum frequency of once per shift or more frequently if requested by the Engineer. In

SECTION 02245
TEMPORARY WATER TREATMENT SYSTEM

addition, all activities related to O&M of the treatment system will be documented in the daily log. The daily log will be kept on site and will be made available to the Engineer on demand. Copies of each daily log sheet will be submitted to the Engineer on a daily basis.

*** END OF SECTION ***

Appendix A

Organizational Chart

AECOM Environment

Prepared for:
NYS Electric & Gas Corporation
Binghamton, NY

Prepared by:
AECOM
Latham, NY

April 2012

Organizational Chart
100% Submittal
Ithaca Court Street Former MGP Site
OU-1, Markles Flats
Ithaca, New York
NYSDEC Site # 7-55-008

AECOM Environment

Prepared for:
NYS Electric & Gas Corporation
Binghamton, NY

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Latham, NY

April 2012

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NYSDEC Site # 7-55-008

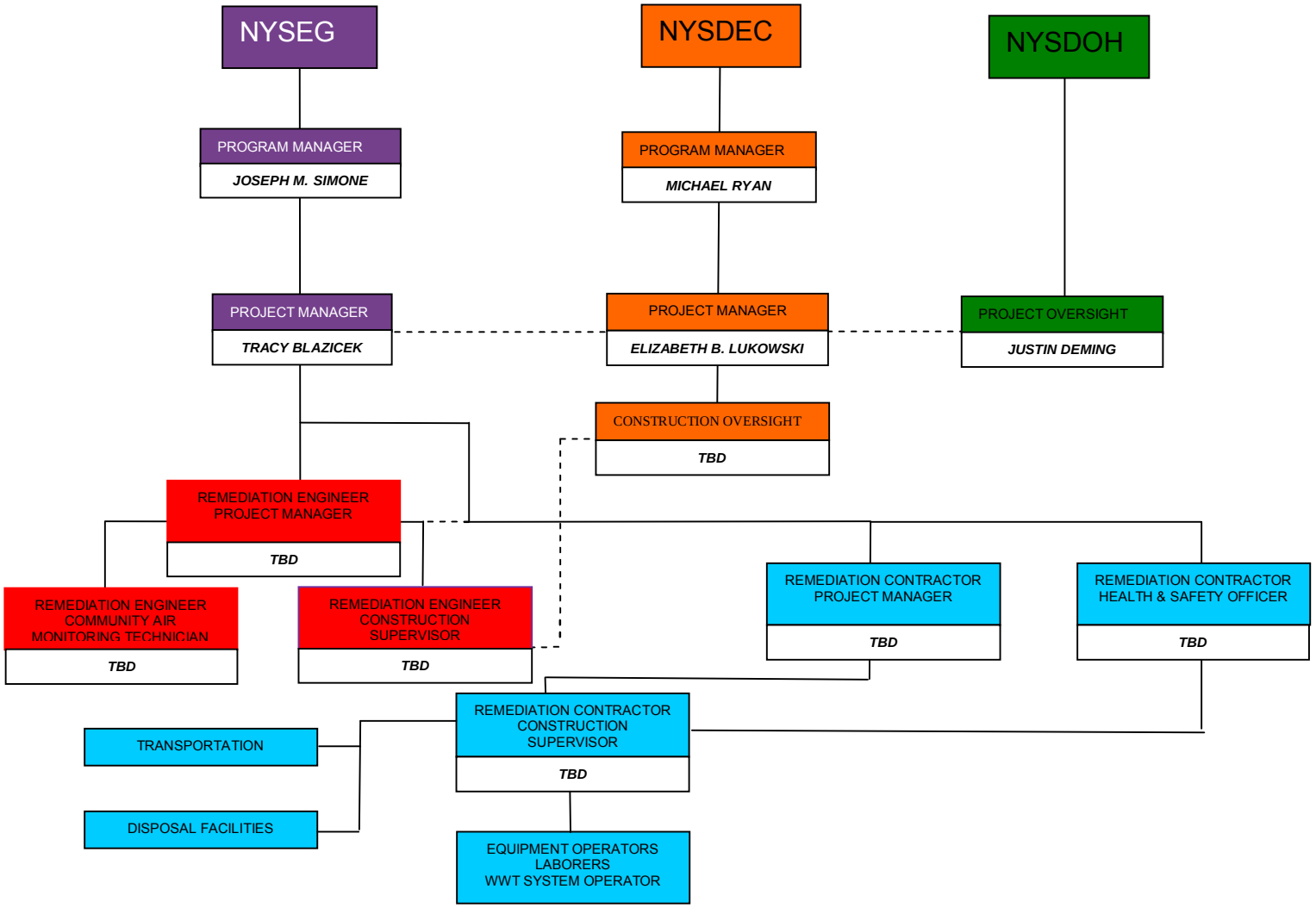
Patrick Gratton

Prepared By Patrick Gratton

Scott Underhill

Reviewed By Scott Underhill, PE

APPENDIX A
ORGANIZATIONAL CHART



Appendix B

Citizens Participation Plan

AECOM Environment

Prepared for:
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Binghamton, NY

Prepared by:
AECOM
Latham, NY 12110

April 2012

Citizens Participation Plan
100% Submittal
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OU-1, Markles Flats
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AECOM Environment

Prepared for:
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Latham, NY 12110

April 2012

Citizens Participation Plan
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Ithaca Court Street Former MGP Site
OU-1, Markles Flats
Ithaca, New York
NYSDEC Site # 7-55-008

Prepared By Patrick Gratton

Reviewed By Scott Underhill, PE

Contents

1.0 Introduction

New York State Electric & Gas Corporation (NYSEG) is preparing to implement a Remedial Action Design involving the excavation and off-site disposal of coal tar impacted soil associated with Ithaca Court Street former manufactured gas plant site located at the intersection of North Plain Street and Esty Street in Ithaca, Tompkins County, New York. This *Citizen Participation Plan* will detail citizen participation activities that will be implemented for this remediation project.

A *Remedial Action Design For Removal And Off-site Disposal Of Coal Tar Impacted Soil Associated With Ithaca Court Street Former Manufactured Gas Plant Site OU-1* has been developed. The proposed Remedial Action Design will involve excavation, removal and disposal of coal tar impacted soil and debris from the Markles Flats area. The Remedial Action Design will be conducted according to the requirements of an Order on Consent between NYSEG and the New York State Department of Environmental Conservation (NYSDEC) and the Record of Decision (ROD). The Order on Consent is a legal document that defines the obligations of each party for conducting site investigations and remediations. The Order on Consent requires that all work by NYSEG at the site be performed under the oversight of the NYSDEC and the New York State Department of Health (NYSDOH). The ROD presents the remedy for OU-1 of the Ithaca Court St. MGP site.

2.0 Project Objective

The primary objectives of the remedial action design, as required by the recent decision to demolish the Markles Flats Building and the Record of Decision issued September 2003, include:

- Excavation of on-site soils in the area designated as Markles Flats, which includes excavation under the Markles Flats Building (to be demolished) and the surrounding area not previously addressed during the initial remedial activities on OU-1. A pre-design investigation (PDI) in the Markles Flats area and the immediate vicinity to perform waste characterization of the soils to be removed and determine off-site treatment and disposal facility options will be performed prior to the start of remedial activities.
- The excavation will extend laterally to the existing sheet pile limits as well as limits based on the previous remedial activities completed in the vicinity. The excavation will extend vertically to 1 foot within the silty-clay layer if visible MGP impacts are observed or confirmation samples dictate.
- All MGP structures will be excavated, including piping.
- A temporary structure with associated air handling/treatment facilities will be used during this remediation.
- All imported backfill will be tested prior to its use on-site. The imported fill must meet the requirements of NYSDEC Part 375-6.8(b) requirements for unrestricted use.
- To the extent practicable, green remediation and sustainability in accordance with DER-31, will be considered in the design and implementation of the remedy.

3.0 Basic Site Information

The former NYSEG MGP site is in Ithaca, Tompkins County, New York. The former gas plant site was initially investigated by NYSEG in 1986. For remediation purposes, areas affected by the former

gas plant operations have been separated into two different operable units. A full remedial investigation was initiated in October 2001. During the investigation, coal tar and associated contamination were identified beyond the boundaries of the site and tar conduits in West Court Street. The site was then organized into two Operable Units: OU-1 is the plant site and the conduits, and OU-2 is the off-site areas where contamination had migrated through the subsurface, away from the OU-1 area and into the surrounding residential community.

The remediation of the conduits in West Court Street started in the fall of 2002 and was completed in the fall of 2010. Remediation of the majority of the OU-1 gas plant site began in the fall of 2008 and was completed in January 2010, with the exception of the Markles Flats building. The construction completion report for that work was approved in December 2010. The Ithaca City School District, which owns the Markles Flats building, has recently obtained the City's approval to demolish the building. The demolition approval for the Markles Flats building has prompted planning of the remedial design.

Once building demolition is complete, this area will be accessible for active remediation work. It has been determined that the preferred method for soil remediation is excavation and off-site disposal.

- The Markles Flats area is located in the southwest corner of the OU-1 site and comprises an area of approximately 9,300 square feet.
- The Remainder of the OU-1 site has an area of approximately 77,820 square feet and was previously remediated during the Fall of 2008 through the Spring of 2010.

4.0 Previous Investigations and Reports

1. "Investigation of the Former Coal Gasification Site at Court Street, Ithaca, New York; Task 1 Report, Preliminary Site Evaluation." Prepared by E.C. Jordan Co., April 1986.

2. "Investigation of the Cayuga Inlet Coal Tar Site, Ithaca, New York; Task 1 Report, Preliminary Site Evaluation." Prepared by E.C. Jordon Co., April 1986.

3. "Investigation of the Former Coal Gasification Site at Court Street, Ithaca, New York; Task 2 Report, Initial Field Investigation Program." Prepared by E.C. Jordan Co., February 1987.

4. "Investigation of the Cayuga Inlet Coal Tar Site, Ithaca, New York; Task 2 Report, Initial Field Investigation Program." Prepared by E.C. Jordon Co., June 1987.

5. "Investigation of the Former Coal Gasification Site at Court Street, Ithaca New York; Task 3 Report, Expanded Problem Definition Program." Prepared by E.C. Jordon Co., March 1988.

6. "Investigation of the Former Coal Gasification Site at Court Street, Ithaca New York; Task 4 Report, Risk Assessment." Prepared by E.C. Jordon Co., March 1990.

7. Order on Consent, Index No. DO-0002-9309, between the Department and New York State Electric and Gas (NYSEG), executed on March 30, 1994.

8. "Remedial Design Work Plan for Activities at Ithaca Cayuga Inlet Coal Tar Site, City of Ithaca, Tompkins County, New York". NYSEG, January 1999

9. “Interim Remedial Measures Final Engineering Report for Activities at Ithaca Cayuga Inlet Coal Tar Site, City of Ithaca, Tompkins County, New York”. NYSEG, June 1999.

10. “Remedial Design Work Plan for Activities at Ithaca Court Street Former Manufactured Gas Plant Site, City of Ithaca, Tompkins County, New York”, prepared by NYSEG, February 2000.

11. “Remedial Design Work Plan for Activities at Ithaca Court Street Former Manufactured Gas Plant Site Subsurface Wooden Duct, City of Ithaca, Tompkins County, New York”, prepared by NYSEG, February 2000.

12. “Supplemental Remedial Investigation Citizen Participation Plan for Activities at Ithaca Court Street Former Manufactured Gas Plant (MGP) Site, City of Ithaca, Tompkins County, New York”, prepared by NYSEG Licensing and Environmental Operations Department, May 2001.

13. “Remedial Design Final Engineering Report for Activities at Ithaca Court Street Former Manufactured Gas Plant Site, City of Ithaca, Tompkins County, New York”, prepared by NYSEG, August 2001.

14. “Interim Remedial Measures Final Engineering Report for Activities at Ithaca Court Street Former Manufactured Gas Plant Site Subsurface Wooden Duct Extension, City of Ithaca, Tompkins County, New York”, prepared by NYSEG, August 2001.

15. “Work Plan for a Supplemental Remedial Investigation at the Ithaca Court Street MGP Site”, prepared by IT Corporation, September 13, 2001.

16. “Ithaca Court Street MGP Site, Interim Draft Supplemental Remedial Investigation Report for Operable Unit-2”, prepared by MWH for NYSEG, August 27, 2002.

17. “Ithaca Court Street MGP Site Remedial Investigation Report for Operable Unit-1”, prepared by MWH Inc., April 23, 2003.

18. “Ithaca Court Street MGP Site Focused Feasibility Study for Operable Unit-1”, prepared by MWH, Inc., May 9, 2003.

19. “Proposed Remedial Action Plan for the NYSEG – Ithaca Court Street MGP Site, Operable Unit No. 1- Former MGP Site and Structures”, prepared by NYSEG, June 2003.

20. “Interim Remedial Measures Work Plan for Removal of Coal Tar Impacted Soil on Washington Street Between W. Court and Cascadilla Streets Associated with Ithaca Court Street Former Manufactured Gas Plant Site City of Ithaca, Tompkins County, New York”, prepared by NYSEG Environmental Compliance Site Investigation and Remediation, March 2005.

21. “Final Engineering Report Removal of the Subsurface Wooden Duct and Removal of Coal Tar Impacted Soil of Washington Street Between W. Court and Cascadilla Streets Associated with Ithaca Court Street Former manufactured Gas Plant Site, City of Ithaca, Tompkins County, New York”, prepared by NYSEG Environmental Compliance Site Investigation and Remediation, April 2007.

22. "OU2 Interim Remedial Measure Work Plan for Wooden Duct Removal Project on W. Court Street Between Meadow and Fulton Streets, Ithaca Court Street Former manufactured Gas Plant Site, City of Ithaca, Tompkins County, New York, prepared by NYSEG, October 2010.

23. Proposed Remedial Action Plan for the NYSEG Ithaca Court St. MGP site, Operable Unit No. 2, prepared by NYSDEC, February 2011.

24. "Remedial Investigation Report Operable Unit 2 NYSEG's Court Street Former MGP Site, Ithaca, New York", prepared by AECOM for NYSEG, February 2011.

25. "Feasibility Study Report Operable Unit 2 NYSEG's Court Street Former MGP Site, Ithaca, New York, NYSDEC Site No: 7-55-008, Index No. D0-00029309", prepared by AECOM for NYSEG, February 2011.

26. "Remedial Design Work Plan Ithaca Court Street Former MGP Site OU-2 Ithaca, New York NYSDEC Site # 7-55-008", prepared by AECOM for NYSEG, July 2011.

5.0 Document Repository

All of the documents associated with these Investigation and Reports are available for public review at the following document repositories:

- New York State Department of Environmental Conservation
  Central Office, 625 Broadway 11th Floor
  Albany, New York 12233-7014
  Attn: Ms. Elizabeth B. Lukowski
  (866) 520-2334
  (By appointment only)

- Tompkins County Public Library
  101 E. Green Street
  Ithaca, NY 14850
  Mon-Thurs 10:00 AM – 8:15 PM
  Friday-Sat 10:00 AM – 5:00 PM
  Sunday 1:00 PM – 5:00 PM

- Coal Tar Advisory Committee
  106 Washington Street
  Ithaca, NY 14850
  (607) 272-1239
  Attn: Jutta Dotterweich

- City of Ithaca
  Office of the Mayor
  108 East Green Street
  (607) 274-6501

6.0 Interested/Affected Public

An electronic mailing list has been developed that includes adjacent property owners and businesses, local and State elected officials, local media, and other identified interested parties. All

information will be disseminated to the public electronically via the NYSDEC's list serve. Interested public can join the List Serve by visiting www.dec.ny.gov/chemical/61092.html

7.0 Description of Citizen Participation Activities for Each Major Element of the Remedial Action Design Project

To facilitate the *Remedial Action Design* process, NYSEG in cooperation with NYSDEC and NYSDOH, will inform the public and local officials of planned remedial activities. Public participation will include at a minimum the following:

- Distribution to those identified in Section 6.0 of this document of a fact sheet prepared by either NYSDEC or NYSEG describing the planned remedial activities.
- A public availability session will be held by NYSDEC, in conjunction with NYSDOH and NYSEG, prior to *Remedial Action Design* finalization, to describe the planned activities at the site.
- Posting by NYSEG of a phone number for the public to call 24-hours per day, with any questions or concerns that may arise during the project. A customer service representative will answer calls and contact a member of the project team who will contact the caller and/or initiate appropriate engineering controls to address the concern.
- Notice of the public availability session will be provided by either NYSDEC or NYSEG via mailing list and notices through the local media.

8.0 Additional Information

For additional information about this project, any of the following individuals may be contacted:

NYSEG:

Mr. Robert Pass – Manager, Regional Outreach & Development
1387 Dryden Road
Ithaca, New York 14850-8810
Phone: (607) 762-6298
E-mail: rlpass@nyseg.com

Mr. Tracy Blazicek: Remediation Project Manager
James A. Carrigg Center, 18 Link Drive, P.O. Box 5224
Binghamton, New York 13902
Phone: (607) 762-8839
E-mail: tlblazicek@nyseg.com

NYSDEC:

Ms. Elizabeth B. Lukowski: Site Project Manager
NYSDEC
625 Broadway
Albany, New York 12233-7014
Phone: (866) 520-2334
E-mail: eblukows@gw.dec.state.ny.us

NYSDOH: Mr. Justin Deming: Bureau of Environmental Exposure Investigation – Central Section
NYSDOH
Flanigan Square, 547 River Street
Troy, New York 12180-2216
Phone: (518) 402-7860
E-mail: jhd01@health.state.ny.us

Appendix C

Transportation Plan

AECOM Environment

Prepared for:
NYS Electric & Gas Corporation
Binghamton, NY

Prepared by:
AECOM
Latham, NY 12110

April 2012

Transportation Plan
100% Submittal
Ithaca Court Street Former MGP Site
OU-1, Markles Flats
Ithaca, New York
NYSDEC Site # 7-55-008

AECOM Environment

Prepared for:
NYS Electric & Gas Corporation
Binghamton, NY

Prepared by:
AECOM
Latham, NY 12110

April 2012

Transportation Plan
100% Submittal
Ithaca Court Street Former MGP Site
OU-1, Markles Flats
Ithaca, New York
NYSDEC Site # 7-55-008

Patrick Gratton

Prepared By Patrick Gratton

Scott Underhill

Reviewed By Scott Underhill, PE

Contents

1.0 Scope of Work

This Plan is for the transportation of solid or liquid non-hazardous and hazardous waste associated with the Ithaca Court Street OU-1 former manufactured gas plant (MGP) site in the City of Ithaca, Tompkins County, New York. All transportation must be in accordance with the Order on Consent Index Number D0-0002-9309 with New York State Department of Environmental Conservation (NYSEDC) and any other applicable Federal, State, and Local Laws.

2.0 Work by Transportation Contractor

The transporter contractor shall provide all necessary supervision, training, permits, hazardous waste manifest (when required), labor, personal protective equipment (PPE), tools, equipment, consumable materials, and expendable materials, to transport solid or liquid waste to a disposal facility as detailed herein.

3.0 General Work Conditions

3.1 The transporter shall comply with all applicable provisions of NYSDEC Regulation, 6 NYCRR Part 364 "Waste Transporters Permit", Title 6 of the Official Compilation of codes, Rules and Regulations.

3.2 The transporter shall comply with all applicable provisions of NYSDEC Regulation, 6 NYCRR Part 372 "Hazardous Waste Manifest System and Related Standards of Generators, Transporters and Facilities", Title 6 of the Official Compilation of codes, Rules and Regulations.

3.3 The transporter shall comply with all applicable provisions of New York State Department of Transportation (NYSDOT), the New York State Department of Motor Vehicle (NYSDMV), and/or any other applicable Federal, State, and Local Laws.

3.4 The transporter shall comply with all applicable provisions of Occupational Safety and Health Act or Administration (OSHA) 29 CFR 1910.120 "Hazardous Waste Operations Health & Emergency Response".

3.5 The transporter shall develop and implement a written Health & Safety Plan for their drivers that address potential exposure to manufactured gas plant site residuals.

3.6 The transporter shall adhere to the following rules while working on a manufactured gas plant site project and waste disposal facility:

3.6.1 Any truck found unacceptable by NYSEG project coordinator or Contractor health & safety officer will be rejected. Any cost for rejected trucks shall be incurred by the transporter. If the NYSDEC project oversight finds any truck unacceptable, they should bring it to the attention of NYSEG project coordinator.

3.6.2 The truck drivers will report their arrival to NYSEG project coordinator.

3.6.3 Truck drivers are generally restricted to their trucks and the designated waiting areas. Drivers are not permitted access to the manufactured gas plant site project without express permission from NYSEG project coordinator.

3.6.4 Trucks drivers will don HARD HATS, SAFETY GLASSES, SAFETY SHOES, and GLOVES, as a minimum for personal protection.

3.6.5 The drivers of all trucks and roll off containers transporting, non-hazardous MGP waste, hazardous solid waste or conditionally exempt manufactured gas plant site remediation waste will line the entire box (to top of side boards) with 6-mil thick polyethylene sheeting. Trucks transporting non-hazardous waste may be lined as previously stated. All trucks will have a watertight tailgate that has a gasket between the box and tailgate or driver will apply caulking between the box and tailgate.

3.6.6 All trucks require working audible and visual backup signals.

3.6.7 When loading or when directed by NYSEG project coordinator, the truck engine should be shut off. Truck may be restarted and driven away only after the “all clear” direction from the loading operator or a site representative.

3.6.8 In residential or other areas where the exhaust and/or noise could be a nuisance the truck engine should be shut off.

3.6.9 No truck will be loaded above the sideboards and no waste will be spilling out of the truck. Before trucks leave the loading areas the truck exterior and tires will be cleaned (by site workers) from waste being loaded.

3.6.10 NYSEG remedial workers will reposition the cover bars over the waste material. DRIVERS WILL NOT WALK OVER WASTE MATERIAL.

3.6.11 Drivers will cover loads before leaving the loading area with a solid fabric (i.e., vinyl, reinforced polyethylene) cover that covers the entire load.

3.6.12 Obey traffic signs and notices (obey the posted speed limit).

3.6.13 Obey rules posted on the site and/or any site specific Health & Safety Plan for all project personnel.

3.6.14 Report any accidents to the NYSEG project coordinator and cooperate with any subsequent accident investigation.

3.6.15 No children under 16 years of age are allowed on manufactured gas plant site projects.

3.6.16 No passengers are allowing in the Contamination Reduction Zone (loading area).

3.6.17 Slow down and be extra cautious during times of poor weather (i.e., rain, fog, snow).

3.6.18 Take extra care around blind corners (watch for pedestrians and construction equipment).

3.6.19 Smoking, eating, and/or drinking is not permitted within the Contamination Reduction Zone. Smoking, eating, and/or drinking are permitted in designate areas of the Support Zone.

3.6.20 After Disposal of waste, the transporter is responsible for properly decontaminating their truck or trailer, trailer or tanker, and roll off containers.

4.0 Truck Route

Truck route for arrival and departure at the Ithaca Court Street OU-1 former MGP site will be as direct as possible and will use interstate and state highways, and primary, well-travelled city streets to the maximum extent possible. Truck route shall avoid minor, congested and/or poorly maintained roads and streets. Contractor shall submit his proposed truck route for NYSEG review and approval prior to any actual trucking activity.

Appendix D

Pre-Design Investigation Summary Report

To be inserted once completed

Appendix E

Community Air Monitoring Plan

AECOM Environment

Prepared for:
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Binghamton, NY

Prepared by:
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Latham, NY 12110

April 2012

Community Air Monitoring Plan
100% Submittal
Ithaca Court Street Former MGP Site
OU-1, Markles Flats
Ithaca, New York
NYSDEC Site # 7-55-008

AECOM Environment

Prepared for:
NYS Electric & Gas Corporation
Binghamton, NY

Prepared by:
AECOM
Latham, NY 12110

April 2012

Community Air Monitoring Plan
100% Submittal
Ithaca Court Street Former MGP Site
OU-1, Markles Flats
Ithaca, New York
NYSDEC Site # 7-55-008

Prepared By Keith A. Stahle, Project Geologist

Reviewed By Scott Underhill, PE

Contents

List of Tables

List of Attachments

1.0 Introduction

This document presents the Community Air Monitoring Plan (CAMP) that will be implemented during remedial activities – excavation at the Markles Flats area – of the New York State Electric and Gas Corporation (NYSEG) former manufactured gas plant (MGP) site, located in the City of Ithaca, New York. The location and layout of the site is shown in Attachment 1 – Design Drawings.

Area 1 is located at the intersection of North Plain Street and Esty Street and is considered a part of Operable Unit 1 (OU-1) of the Ithaca former MGP site. Area 1 is located in a residential neighborhood and consists of the Markles Flats area located in the southwest corner of OU-1 and is considered the focus of this CAMP. This CAMP presents methods and procedures that will be used to provide protection to potential receptors by assuring that the remediation work activities do not spread constituents off site through the air.

This CAMP specifically applies to the remedial activities to take place within the Markles Flats area for the Ithaca MGP site as described in the document "*Remedial Design Report, Ithaca Court Street Former MGP Site, Operable Unit 1, Ithaca, New York".*

The remedial activities involve the installation of shoring and excavation of MGP impacted soils from the Markles Flats area, and boring installation associated with the Pre-Design Investigation (PDI) to be completed prior to remedial activities.

The objectives of this CAMP are to:

- Ensure that the airborne concentrations of constituents of concern (COC) are minimized to protect human health and the environment;
- Provide an early warning system so that potential emissions can be controlled on site at the source; and,
- Measure and document the concentrations of airborne COC to confirm compliance with regulatory limits.

The community air monitoring will be performed around the work zone perimeter, and will measure the concentrations of organic vapors and dust during all ground-intrusive activities (sheet pile installation, soil borings and soil excavation). Real time air quality will include upwind, downwind, endpoint of the air handling unit of the temporary containment building and nearest receptor measurements. Activities which are fully contained within the temporary containment building will not be subject to the CAMP provided any generated VOCs and particulates are contained.

This CAMP is a companion document to AECOM's site-specific Health and Safety Plan (HASP). The HASP is a separate document and is directed primarily toward protection of AECOM on-site workers within the designated work zones.

2.0 Constituents of concern and action levels

The Ithaca Court Street former MGP site is known to have coal tar impacts dating from the site's historical use as a MGP. As such, the COCs are volatile and semi-volatile organic compounds (VOCs and SVOCs). VOCs are more volatile than SVOCs and are generally of greater concern when monitoring the air quality during MGP remedial activities.

Total suspended particulates (airborne dust) are also a concern and must be monitored and controlled due to its ability to co-transport adsorbed constituents and because of its nuisance properties.

Odors, though not necessarily indicative of high constituent concentrations, could create a nuisance and will be monitored and controlled to the extent practicable.

State and federal regulatory agencies have provided action levels for many of these constituents. The action levels are the allowable airborne concentrations above which respiratory protection or other health and safety controls are required. For work at the Ithaca-Court Street former MGP site OU-1 (Markles Flats), the following levels should not be exceeded for more than 15 consecutive minutes at the downwind perimeter or nearest receptor of the site:

- Total VOCs 5.0 ppm (downwind perimeter)
- Total VOCs 2.5 ppm (endpoint of the air handling unit)
- D ust 0.15 milligrams per cubic meter (mg/m^3)

The action levels cited here are concentrations measured above (i.e., in addition to) the background ambient (upwind) concentration with the exception of the air handling unit.

3.0 Air monitoring equipment and methods

Air quality monitoring will be performed for total VOCs and dust as outlined below.

A minimum of three perimeter locations will be established each day and an air monitoring technician will check the instrumentation at each of these locations frequently during the completion of field activities. Typically, there will be monitoring locations at the upwind and downwind perimeter locations along with at least one perimeter station at the nearest receptor and one at the endpoint of the air handling unit. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. Field personnel will be prepared to monitor multiple locations in the event that there is little wind or if the wind direction changes frequently. If ground-intrusive activities are being conducted in multiple areas (OU-1 and OU-2) of the site on the same day, separate perimeter locations and monitoring will be established for each area.

The monitoring instruments will be calibrated at the start of each workday, and again during the day if the performance of an instrument is in question.

3.1 Volatile Organic Compounds

3.1.1 Ambient air monitoring

Real-time VOC monitoring will be performed using a photo- ionization detector (PID). The equipment will be calibrated each day to a 100 ppm isobutylene air standard. The monitoring instruments will be checked by a technician every 15 minutes, and the real-time measurements recorded. The PIDs will be equipped with an audible alarm to indicate an exceedance of the action level.

The equipment used will be capable of calculating 15-minute running average concentrations as necessary. If requested by the New York State Department of Environmental Conservation (NYSDEC) on-site, 15-minute running average concentrations may be calculated, which can then be compared to the action levels.

Real-time monitoring will be initiated one day prior to any intrusive work. Prior to the start of each work day, and immediately following any change in wind schedule, up wind measurements will be taken. Baseline emissions due to natural and anthropogenic sources will be established from these measurements. In order to compensate for the existing ambient conditions, the baseline value will be added to the air monitoring limits.

3.2 Total Suspended Particulate (dust) monitoring)

Total suspended particulate (dust) monitoring will be performed during intrusive activities at the site. Particulate monitors (TSI DustTrak$^{(TM)}$ or equivalent) will be used at the site perimeter (upwind, downwind and at least one for the closest receptor and one at the endpoint of the air handling unit) for continuous real-time dust monitoring. The monitors will respond to particles in the size range of 0.1 to 10 micrometers within a concentration range of 0.01 to 400 mg/m^3. The monitoring instruments will be checked by a technician every 15 minutes, and the real-time measurements recorded. The equipment used will be capable of calculating 15-minute running average concentrations which may be compared to the action levels. The data will be downloaded at the end of each day, and monitoring records will be kept at the site during the work in case there is an inquiry or complaint.

In addition, fugitive dust migration will be visually assessed during all work activities, and the observations recorded. Dust suppression techniques will be implemented throughout project activities as necessary.

4.0 Emission control plan

4.1 Ambient air

Odor, vapor, and dust control will be required for this project due to the close proximity to residential buildings, public roadways, and sidewalks. Table 1 provides a response chart for the monitoring and control of vapor emissions. Table 2 provides a list of emergency contacts.

- If ambient air concentration of total VOC levels at the downwind perimeter of the work area or exclusion zone exceeds 5.0 ppm above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor levels readily decreases (per instantaneous readings) below 5.0 ppm over background, work activities can resume with continued monitoring.
- If total VOC levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5.0 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions until the concentrations drop below the action levels, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5.0 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shutdown.
- If total VOC levels at the air handling unit of the temporary containment building exceed 2.5 ppm for the 15-minute average, remediation activities and/or air handling system operation shall be adjusted as necessary to reduce VOC emissions.

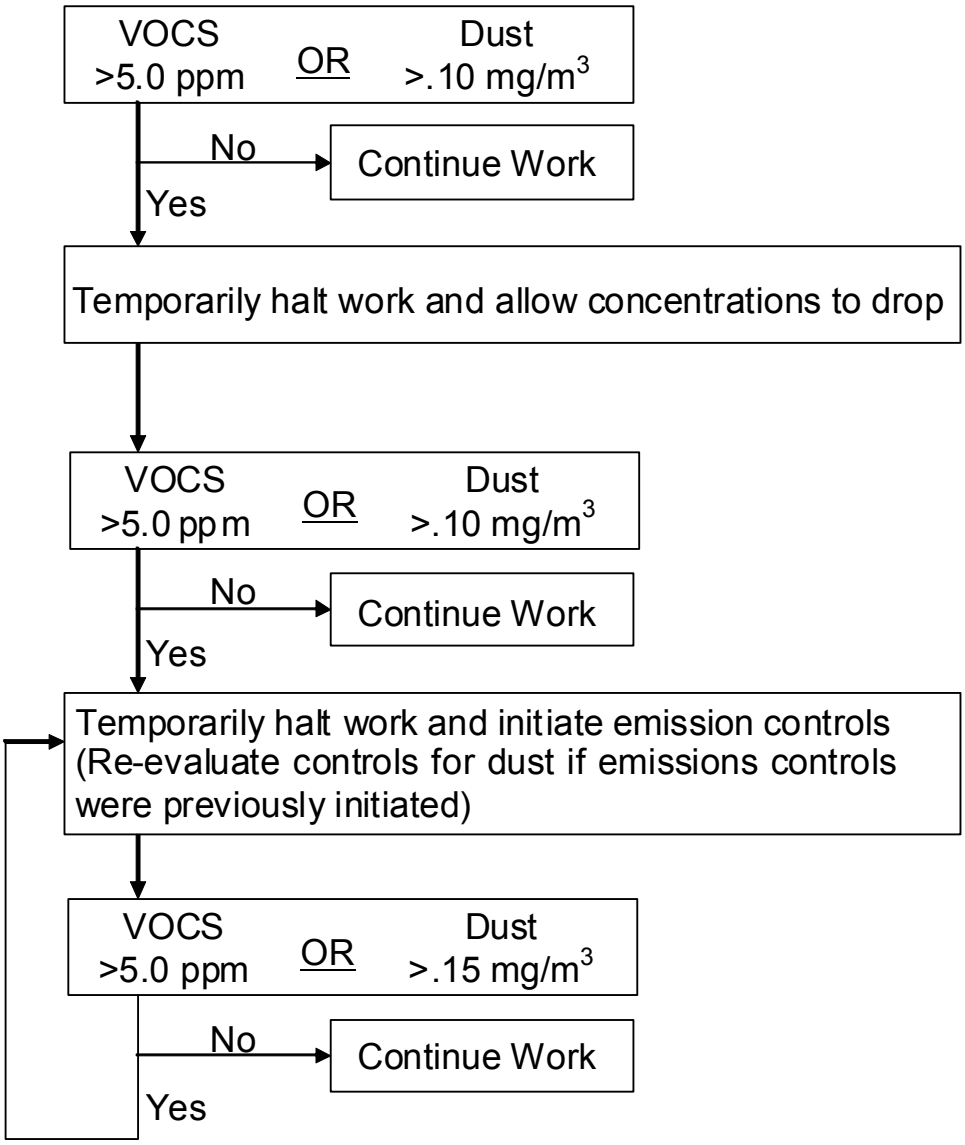
Site perimeter dust concentrations will also be monitored continuously. In addition, dust migration will be visually assessed during all work activities.

- If the downwind dust level is 0.10 mg/m^3 greater than the background (upwind perimeter) level for a 15-minute period, or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that downwind dust levels do not exceed 0.15 mg/m^3 above the background (upwind perimeter) level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind particulate levels are greater than 0.15 mg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind particulate concentration to within 0.15 mg/m^3 of the upwind level and in preventing visible dust migration.

Typical emission control measures may include:

- Apply water for dust suppression;
- Relocate operations, if applicable; and
- Reassess the existing control measures.

Table 1 Vapor emission response chart



Notes:
ppm – parts per million
mg/m^3 – milligrams per cubic meter
VOCs – volatile organic compounds
Please note all limits should take into account background concentrations

If total VOC concentrations at the endpoint of the air handling unit of the temporary containment structure exceed 2.5 ppm, then the necessary adjustments need to be made to the system to reduce VOC emissions.

Table 2 Emergency contacts and telephone numbers

Fire:	911	
Police:	911	
Ambulance:	911	
Engineer:	To Be Determined	
NYSEG Contact	Tracy Blazicek	(607) 237-5325 (cellular)

5.0 Odor control procedures

This section outlines the procedures to be used to control odors that may be generated during the remedial field activities. The remediation program will include a number of activities that may generate odors: boring installation, sheet pile installation, and excavation. The remainder of this section is intended to provide site managers, representatives of NYSDEC and NYSDOH, and the public with information summarizing typical odor control options, and to provide some guidance for their implementation. A description of potential sources of odors and methods to be used for odor control is presented in the following sections.

5.1 Potential sources of odors

Generally, the residuals encountered at former MGP sites are well defined. They are related to residual coal tar-like materials and petroleum, and principally contain VOCs, polycyclic aromatic hydrocarbons (PAHs), and a number of inorganic constituents, including metal-complexed cyanide compounds, and metals. Constituents of MGP tar or petroleum products can produce odor emissions during intrusive activities when they are unearthed during the relocation of utilities and excavation of impacted soils. When this occurs, VOCs and light-end SVOCs can volatilize into the ambient air. Some MGP residuals can cause distinctive odors that are similar to mothballs, roofing tar, or asphalt driveway sealer. However, the constituent concentrations generally associated with these odors are typically less than levels that might pose a potential health risk. It is important to note that the CAMP will provide for continual monitoring of VOCs and dust (intrusive activities only) during the fieldwork to monitor for any potential release of constituents which may pose a threat to health.

5.2 Odor monitoring

The field investigation personnel will record observations of odors generated during the implementation of the work. When odors attributable to the uncovering of impacted media are generated in the work area during intrusive activities such as sheet pile installation and excavation of impacted soils, observations will also be made at the downwind limit and nearest receptor location of the work area in order to assess the potential for off-site odors. The odor monitoring will be performed in conjunction with the PID and dust monitoring program described in this CAMP.

Upon detection of odors at the work zone perimeter, site controls, starting in the work area, will be implemented. The site controls described in the following sections will be used to assist with odor mitigation. Note that the goal of the odor mitigation is to minimize and to prevent, where practicable, the off-site migration of odors. Due to the short distances between any work area and off-site receptors, site controls will be implemented proactively when odors are detected in the breathing zone at any work area.

5.3 General site controls

Several general excavation or intrusive procedure site controls that will be implemented include:

- A temporary structure will be placed over the excavation area and an air handling system with off-gas controls will be used to keep the structure under negative pressure and discharge treated vapors.
- Every effort will be made to minimize the amount of time that impacted material is exposed to ambient air at the site.
- For the excavation within the Markles Flats area, soil with visible MGP impacts will primarily be direct loaded and transported off-site for proper disposal.

- Drill cuttings generated from the soil borings installed during the PDI will be containerized as soon as possible during completion of each soil boring.
- Loading of excavated debris or soil that has not been direct loaded may generate odors. Every effort will be made to complete this work as quickly as possible and to keep these materials covered at all times.
- Meteorological conditions are also a factor in the generation and migration of odors. Some site activities may be limited to times when specific meteorological conditions prevail, such as when winds are blowing away from a specific receptor.

5.4 Secondary site controls

If substantial odors still present an issue following implementation of the above procedures, secondary controls will be enacted. The site manager will work through the applicable list of secondary controls until the perimeter odor issues are resolved. The site manager will work closely with NYSEG and NYSDEC during this task. Final selection of controls will be dependent on field conditions encountered. Secondary controls include the following:

- For stockpiled impacted soil, temporary tarps or polyethylene covers will be used to control odors.
- Two agents that can be sprayed over impacted soil have been determined to be effective in controlling emissions. They include odor suppressant solution (BioSolve™), and Rusmar foam. These agents may be used where tarps cannot be effectively deployed over the source material, or where tarps are ineffective in controlling odors:
  - BioSolve™ can provide immediate, localized control of odor emissions. Information regarding the preparation and use of BioSolve™ is provided in Attachment A.
  - Rusmar foam - Although it is unlikely that it will be necessary, Rusmar foam may be used to cover inactive sources for extended periods of time (up to several days). Rusmar foam creates a uniform, flexible, and impenetrable mechanical barrier that may be utilized to contain odors, volatile organic compounds (VOCs), and dust.

5.5 Record keeping and communication

Similar to readings recorded during the monitoring specified in the CAMP, all odor monitoring results will be recorded in the field log book or other air monitoring forms, and be available for review by the agencies.

The site supervisor will also provide information on odor monitoring and odor management to residents of the neighborhood should they inquire. In the event that odors persist after these efforts, work will be temporarily discontinued until a mutually agreeable solution with NYSEG, NYSDEC, and NYSDOH staff can be worked out which allows the work to be completed while minimizing the off-site transport of nuisance odors.

6.0 Documentation and reporting

Data generated during perimeter air monitoring will be recorded in field logs and summarized daily in spreadsheets. The electronic measurements from the PIDs and dust meters will be downloaded each day, reviewed, and archived and summarized in a daily community air-monitoring report. Exceedances of the action levels, if any, and the actions to be taken to mitigate the situations, will be discussed immediately with the on-site representatives and carefully documented. The daily community air-monitoring report will be submitted at the end of each week in an electronic format to Mr. Svante L. Myrick, City of Ithaca Mayor at asherman@cityofithaca.org (Annie Sherman – Executive Assistant to the Mayor), Mr. Justin Deming, NYSDOH at jhd01@health.state.ny.us, Ms. Elizabeth B. Lukowski, NYSDEC at eblukows@gw.dec.state.ny.us, and Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.

Community Air Monitoring Plan Attachment A

Vapor suppression information

BioSolve®
Hydrocarbon Mitigation Technology

...Is Making A Difference!

VAPOR SUPPRESSION / ODOR CONTROL

BioSolve® offers a relatively simple and cost effective method of suppressing Odors and VOC release from soils, during excavation, loading, stockpiling, etc. The following guidelines will apply to the most common situations encountered on site.

In most cases a 3% BSW solution (1 part **BioSolve®** concentrate to 33 parts water) will be adequate to keep vapor emissions within acceptable limits and control fugitive odor problems on contact. Although, some sites may only require a 2% solution, up to a 6% solution may be recommended on sites with elevated levels or particularly difficult/ mixed stream contaminants are present.

The **BioSolve®** solution should be applied evenly to the soil surface in sufficient quantity to saturate the surface area. As a general rule, use 1-3 litres of **BioSolve®** solution to 1 square metre of surface area. (1 gallon of **BioSolve®** per solution will cover approximately 4-sq. yd. of soil surface area) **BioSolve®** is a water-based surfactant that will apply like water.

BioSolve®, in its concentrated form, is a viscous liquid material that must be diluted with water. A fluorescent red tracing dye is present in the formula allowing **BioSolve®** to be detected during application. Once diluted, **BioSolve®** can be applied with virtually any equipment that can spray water. **BioSolve®** will not harm equipment or clog pipes. For large sites, applicators such as water truck, portable agricultural sprayers, foam inductors & pressure sprayers can be used. For smaller jobs, garden sprayers, water extinguishers or a garden hose with a fertiliser attachment on the nozzle can be used effectively. This characteristic makes **BioSolve®** very adaptable and much most convenient to use in almost any situation. **BioSolve®** is equally effective when used with all types of water (soft, hard, salt or potable).

On stockpiled soil or other soil that will be left undisturbed, a single application of **BioSolve®** to the exposed surfaces may last up to 10 to 14 days or more (depending on environmental conditions). **BioSolve®,** when applied, will form a "cap" of clean soil. If the soil is not disturbed, via weather, movement, etc. this "cap" will remain functional. During excavation, loading or other movement of the soil, it may be required to spray an additional amount of **BioSolve®** to the freshly exposed surface area to keep emissions at an acceptable level.

In case of an extremely high level of emissions, or if the soil is heavily contaminated, it may be necessary to increase the strength of the **BioSolve®** solution or apply more solution per square metre to reduce emissions adequately. It is important that the site be monitored regularly and that the **BioSolve®** solution be reapplied if and when necessary to insure that VOC emissions and odors remain under control.

BioSolve® is packaged and readily available in 55 gallon (208 liter) drums, 5 gallon (19 liter) pails and in 4X1 gallon (3.8 liter X 4) cases. Contact The Westford Chemical Corporation® Toll Free @ 1-800-225-3909, via e-mail at info@biosolve.com or your Local BioSolve distributor for pricing.

BioSolve® should only be used in accordance with all regulatory rules and regulations.

SOIL VAPOR SUPPRESSION UTILIZING BIOSOLVE

BioSolve is being utilized by numerous environmental consultants, response contractors, and fire departments to suppress VOC's & LEL's as well as problem odors. BioSolve encapsulates the source of the vapor rather than temporarily blanketing it like a foam or other physical barrier. Vapor reduction is so fast and effective that BioSolve is used to comply with the tough emission standards regulated by each State.

BioSolve offers a relatively simple and cost effective method of suppressing VOC vapor release from soils during excavation, loading, stockpiling… The following guidelines will apply to the most common situations encountered on site.

In most cases a 3% solution of BioSolve will be adequate to keep vapor emissions within acceptable limits. Dilute BioSolve concentrate with water at a ratio of 1 part BioSolve to 33 parts water to make a 3% solution.

The BioSolve solution should be applied evenly to the soil surface in sufficient quantity to dampen the surface well, (as a general rule, 1 gallon of BioSolve solution will cover approximately 4 sq. yd. of soil surface area). BioSolve is not a foam, it is a surfactant based product that will apply like water. The solution may be applied with a hand sprayer, high pressure power sprayer, water truck, etc., whichever method best suits the site and/or conditions.

NOTE: In the case of extremely high emission levels and/or very porous soil it may be necessary to increase the strength of the BioSolve solution (6%) or apply more per sq. yd. to reduce emissions adequately. On stockpiled soil or other soil that will be undisturbed, a single application of BioSolve to the exposed surfaces may last 10-14 days or more. During excavation, loading, or other movement of soil it may be necessary or required to spray each freshly exposed surface to keep emissions below acceptable

levels.It is important that the site be monitored regularly and the BioSolve solution be reapplied if/when necessary to insure that vapor emissions remain at or below acceptable standards.

MATERIAL SAFETY DATA SHEET

THE WESTFORD CHEMICAL CORPORATION®
P.O. Box 798
Westford, Massachusetts 01886 USA

Ref. No.: 2001
Date: 1/1/2002

Phone: (978) 392-0689
Phone: (508) 878-5895
Emergency Phone-24 Hours: 1-800-225-3909

Fax: (978) 692-3487
Web Site: http://www.BioSolve.com
E-Mail: info@BioSolve.com

SECTION I - IDENTITY

Name:	**BioSolve®**
CAS #:	138757-63-8
Formula:	Proprietary
Chemical Family:	Water Based, Biodegradable, Wetting Agents & Surfactants
HMIS Code:	Health 1, Fire 0, Reactivity 0
HMIS Key:	4 = Extreme, 3 = High, 2 = Moderate, 1 = Slight, 0 = Insignificant

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SECTION II - HAZARDOUS INGREDIENTS

Massachusetts Right to Know Law or 29 C.F.R. (Code of Federal Regulations) 1910.1000 require listing of hazardous ingredients.

This product does not contain any hazardous ingredients as defined by CERCLA, Massachusetts Right to Know Law and California's Prop. 65.

SECTION III - PHYSICAL - CHEMICAL CHARACTERISTICS

Boiling Point	: 265°F	Specific Gravity	: 1.00 +/-.01
Melting Point	: 32°F	Vapor Pressure mm/Hg	: Not Applicable
Surface Tension- 6% Solution	: 29.1 Dyne/cm at 25°C	Vapor Density Air = 1	: Not Applicable
Reactivity with Water	: No	Viscosity - Concentrate	: 490 Centipoise
Evaporation Rate	: >1 as compared to Water	Viscosity - 6% Solution	: 15 Centipoise
Appearance	: Clear Liquid unless Dyed	Solubility in Water	: Complete
Odor	: Pleasant Fragrance	pH	: 9.1+/-.3
Pounds per Gallon	: 8.38		

SECTION IV - FIRE AND EXPLOSION DATA

Special Fire Fighting Procedures	: None	Flammable Limit	: None
Unusual Fire and Explosion Hazards	: None	Auto Ignite Temperature	: None
Solvent for Clean-Up	: Water	Fire Extinguisher Media	: Not Applicable
Flash Point	: None		

SECTION V - SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions to be taken in Handling and Storage: Use good normal hygiene.
Precautions to be taken in case of Spill or Leak -

Small spills, in an undiluted form, contain. Soak up with absorbent materials.
Large spills, in an undiluted form, dike and contain. Remove with vacuum truck or pump to storage/salvage vessel. Soak up residue with absorbent materials.

Waste Disposal Procedures -

Dispose in an approved disposal area or in a manner which complies with all local, state, and federal regulations.

SECTION VI - HEALTH HAZARDS

Threshold Limit Values: Not applicable
Signs and Symptoms of Over Exposure-

Acute : Moderate eye irritation. Skin: Causes redness, edema, drying of skin.
Chronic: Pre-existing skin and eye disorders may be aggravated by contact with this product.

Medical Conditions Generally Aggravated by Exposure: Unknown
Carcinogen: No
Emergency First Aid Procedures -

Eyes: Flush thoroughly with water for 15 minutes. Get medical attention.
Skin: Remove contaminated clothing. Wash exposed areas with soap and water. Wash clothing before reuse. Get medical attention if irritation develops.
Ingestion: Get medical attention.
Inhalation: None considered necessary.

SECTION VII - SPECIAL PROTECTION INFORMATION

Respiratory Protection	: Not necessary	Local Exhaust Required	: No
Ventilation Required	: Normal	Protective Clothing	: Gloves, safety glasses Wash clothing before reuse.

SECTION VIII - PHYSICAL HAZARDS

Stability	: Stable	Incompatible Substances	: None Known
Polymerization	: No	Hazardous Decomposition Products	: None Known

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SECTION IX - TRANSPORT & STORAGE

DOT Class	: Not Regulated/Non Hazardous		
Freeze Temperature	: 28°F	Storage	: 35°F-120°F
Freeze Harm	: None (thaw & stir)	Shelf Life	: Unlimited Unopened

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SECTION X - REGULATORY INFORMATION

The Information on this Material Safety Data Sheet reflects the latest information and data that we have on hazards, properties, and handling of this product under the recommended conditions of use. Any use of this product or method of application, which is not described on the Product label or in this Material Safety Data Sheet, is the sole responsibility of the user. This Material Safety Data Sheet was prepared to comply with the OSHA Hazardous Communication Regulation and Massachusetts Right to Know Law.

Appendix F

Construction Contingency Plan

AECOM Environment

Prepared for:
NYS Electric & Gas Corporation
Binghamton, NY

Prepared by:
AECOM
Latham, NY 12110

April 2012

Construction Contingency Plan
100% Submittal
Ithaca Court Street Former MGP Site
OU-1, Markles Flats
Ithaca, New York
NYSDEC Site # 7-55-008

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Ithaca Court Street Former MGP Site
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NYSDEC Site # 7-55-008

Prepared By Patrick Gratton

Reviewed By Scott Underhill, PE

Contents

1.0 Introduction

This construction contingency plan (CCP) has been developed for personnel to follow during the performance of the remediation project at the NYSEG Ithaca Court Street Site, in the Ithaca, Tompkins County, New York. The focus of the work is to remove impacted soil from the Markles Flats area. The project will consist of mobilization, temporary sheetpiling installation, utility relocation of overhead lines, excavation of contaminated soils, material handling, staging, loading, restoration, along with equipment decontamination and demobilization. Soils contain contaminants that may be characterized as non-RCRA or RCRA hazardous waste. This CCP provides procedures and guidelines that will be implemented in the event of a spill, release, fire, explosion, or other emergency. The CCP includes information necessary to prevent or minimize hazards to human health and the environment.

This CCP was prepared in accordance with United State Environmental Protection Agency (USEPA) and Occupational Health and Safety Administration (OSHA) guidance documents. This CCP supplements the Health and Safety Plan (HASP) that will be prepared for the stated field activities. Reasonable precautions will be taken by the Contractor and its subcontractors to prevent an emergency situation. However, in the event that an emergency occurs, this CCP will be carried out immediately and will govern the procedures to be followed. Subcontractors will be provided with copies of this CCP and will be required to follow the CCP.

2.0 Known Contaminants of Concern

Based on previous site activities and the site history, the contaminants of concern are MGP related chemicals anticipated to be encountered. These include volatile organic compounds and semi-volatile organic compounds (polycyclic aromatic hydrocarbons).

3.0 Planned Field Activities

The planned field activities include the following:

- Site preparation (installation of support facilities).
- Temporary Sheetpiling Installation.
- Construction of decontamination pad.
- Construction of staging areas.
- Utility Relocation of overhead lines (NYSEG Pole L23).
- Construction of temporary enclosure.
- Excavation of soils.
- Material Handling and dewatering activities.
- Water disposal.
- Loading of soils.
- Equipment Decontamination.
- D emobilization.

4.0 Responsibilities and Designation of Emergency Coordinator

The emergency coordinator (EC) or his alternate is responsible for implementing this CCP during an emergency. The EC will also act as the site health safety officer (HSO) to maintain continuity in the lines of authority during an emergency. The site HSO/EC reports to the project superintendent, who reports to the project manager on a daily basis. An alternative EC, who will act in the absence of the project HSO/EC, will be designated in case of the primary EC absence. All site employees must be familiar with the procedures in this plan and are responsible for implementing the plan should the EC or the alternate be unavailable.

At the beginning of the site activities, the EC/HSO will designate one or more employees of the project team in conjunction with any subcontractor, to serve as part of a rescue team. At a minimum, the rescue team will consist of two persons. The rescue team will communicate with the project manager on a daily basis.

The rescue team will respond to emergencies, as needed, and will be under the direction of the EC/HSO. The members of the team must be certified in cardiopulmonary resuscitation (CPR) and emergency first aid.

A list of off-site emergency personnel is provided at the back of this plan. The EC/HSO will either notify off-site personnel or designate someone to do so. The first responders consist of police, fire, ambulance, and possibly the New York State Department of Environmental Conservation (NYSDEC). They will be alerted as to the type of emergencies that may arise and the types of hazards at the site.

5.0 Communications

Communications will be by voice where possible. As a backup, visual signals will be used. Hand signals will be as follows:

Hand gripping throat:	**Can't breathe.**
Grip partner's wrist or place hands around waist:	**Leave work area immediately.**
Hand on top of head:	**Need assistance.**
Thumbs up:	**OK. I'm all right.**
Thumbs down:	**No. Negative.**

Alternatively, hand-held radios may be used, if they are available and are intrinsically safe. In an emergency, and if necessary, a compressed air horn will be used to notify all workers that an emergency situation exists. The signals shall be as follows:

One long blast:	**Evacuate the area by nearest exit.**
Two short blasts:	**Evacuate by normal exit procedures.**

The EC/HSO will notify emergency personnel or designate an alternate to do so. A portable telephone will be used for this purpose. The portable telephone will be located in the clean zone. As a backup, telephones are located in the temporary office facility located within the project staging / support area. Emergency telephone numbers are included at the back of this plan.

6.0 Evacuation

In the event that the air horn is sounded, employees will evacuate the area. Emergency evacuation routes will be designated at the site, prior to initiating field activities. As field activities progress, it will be necessary to modify the evacuation routes, in accordance with site conditions and layout. Evacuation routes must be clear of obstructions. Evacuation routes will be from the work area to a designated meeting location at the project staging / support area, depending on the location of the site activities at the time of the emergency. Evacuation maps will be drawn on site layout maps to outline evacuation routes. These maps will be discussed with site personnel to familiarize them with site conditions.

7.0 Safe Distances and Refuge

The following minimum safe distances have been established. Depending upon the nature of the incident, the EC may increase these distances. Arrangements will be made with the local police department to evacuate nearby neighbors. Any decisions on the need for and distances of evacuation will be made in conjunction with the fire and police department and the NYSDEC:

Minor Spills:	**Not established**
Major Spills:	**Evacuate non-essential personnel to clean zone or 1,000 feet, whichever is greater.**
Minor Fire:	**Evacuate non-essential personnel to clean zone.**
Fire involving a container:	**Evacuate all personnel 1/2 mile in all directions**
Explosion:	**Evacuate all personnel 1/2 mile in all directions.**

8.0 Emergency Response Procedures

In the event of any releases of materials the CCP shall be immediately activated. The equipment to respond to an emergency will be on-site and activated already. There are additional measures to be taken in the event of an emergency. Emergency equipment that will be present is described in the sections that follow. In addition to this CCP, all responses to releases are subject to controls designated in the site HASP.

9.0 Minor Spills During Drum Handling and Removal

For purposes of the CCP, minor spills would be those that consist of 1 gallon or less. Minor spills will be remediated by removing spill debris with any underlying or surrounding contaminated soil. The spilled material will be handled as hazardous waste. If leaking, the container will be placed in an overpack drum. Additional emergency measures would not be implemented, unless needed. The

Contractor will have empty drums, speedi-dri, miscellaneous hand tools, fire extinguishers, absorbent pads and booms to deal with minor spills that may occur on-site.

10.0 Minor Spills in the Drum Staging or Storage Areas

Minor spills onto soil will be cleaned up as discussed above. Minor spills that occur in other areas will need to be collected using absorbent material such as absorbent pads and/or speedi-dri.

11.0 Major Spills

For purposes of this CCP, a major spill is defined as those that involve greater than 1 gallon of material. In the event of a major spill, communication and notification procedures will be implemented. The response will depend on the nature of the release. Attempts will be made to control the release by diking and draining the area. Absorbent pads, Oil Dry, or soil will be used to absorb the release. The removed material will be placed into appropriate drums and sealed to prevent hazards. Employees should note that absorbents solidify the liquid, but do not remove the fire or exposure hazards. Solvents will volatilize from the absorbent and can ignite. Therefore, a fire extinguisher will be brought to the area of the release by the emergency response team, until the material is secured inside a drum. In the event that the release is of sufficient magnitude and cannot be controlled by diking, damming, absorbing, or other method, the local fire department, NYSDEC, and National Response Center shall be notified.

The local responders will be notified through 911. The Ithaca Fire Department will be the first responders. The Ithaca Fire Department has a Hazardous Materials Team and has capabilities of performing Level A, Level B, and Level C response actions. The Ithaca Fire Department will control and mitigate the spill, but the contractor will have the ultimate responsibility for cleaning up the area. If the incident requires Haz Mat response, 911 should be called and the appropriate emergency response personnel will be contacted.

12.0 Confined Space Emergencies

Any confined space entries will follow applicable OSHA regulations. Any personnel performing a confined space entry will be appropriately trained and certified for this activity. Each employee entering a confined space will wear a safety harness equipped with a lifeline for evacuation purposes in the case of an emergency, unless the lifeline creates more of a hazard for the individual in the space. Emergency equipment such as lifelines, breathing equipment, fire extinguishers and harnesses will be ready for immediate response in case an emergency situation arises.

13.0 Fire

A fire extinguisher will be used on minor fires where a container is not involved. If the fire cannot be extinguished immediately or a container is involved, the area must be evacuated immediately and the fire department notified from a safe location. Extinguishing methods include CO2 or a dry chemical. A water spray can also be used (not a direct hose stream). Foam, water spray, or fog can be used on larger spills.

14.0 Explosion

In the event of an explosion, the area shall immediately be evacuated and the fire department notified. The cause of the explosion should be assessed and corrected prior to reentry.

15.0 Medical

Medical emergencies are addressed in the HASP. Appropriate first aid will be administered, and if necessary, the injured individual will be sent to the designated medical facility. An ambulance will be summoned, if needed. The cause of the accident will be determined and corrected, prior to continuing operations. A first aid kit will be maintained in the office trailer at all times.

When possible, injured personnel will be decontaminated or partially decontaminated in accordance with HASP. Based upon the anticipated toxicity of the contaminants, personnel decontamination procedures may be eliminated in a life-threatening situation. Emergency medical personnel will be notified as to the lack of decontamination. Emergency medical personnel will wash with soap and potable water after handling the victim. Appropriate documentation should be completed in accordance with the HASP.

16.0 Training

All employees working on-site will attend an initial 40 hour health and safety training course, annual 8-hour refresher training, and 8-hour training for managers for conducting work at hazardous waste sites. These courses satisfy the initial and follow-up training requirements of 29 CFR 1910.120 (OSHA regulation of hazardous waste site activities). Individuals working in confined spaces are all confined space entry trained with rescue and recovery training

Prior to initiating site work, site personnel will be required to attend a training session given by the EC/HSO. This session will include, but is not limited to, the following topics:

- Site history
- Specific hazards
- Hazard recognition
- Standard operation procedures
- Decontamination (personnel and equipment)
- Emergency procedures

17.0 Severe Weather Conditions

When a hurricane, flood, freeze-up or other severe weather-related threat is detected, all site personnel will immediately be notified. Each Severe Weather Alert will require last-minute preventative measures to minimize potential damage to facilities and equipment. For example, steps such as checking drains, removing electrical material from open yards, protecting soil piles and excavations and managing sheet flow of water will have to be evaluated depending on weather conditions.

18.0 Emergency Telephone Numbers

Emergency telephone numbers and directions to the nearest medical facility are shown below and will be kept by field personnel while on-site. These telephone numbers should be posted next to the closest telephone.

Name	**Telephone Number**
NYSEG Site	TBD
Ithaca Fire Department	911
Ambulance	911
Police Departments	911 (607) 272-3245
Tompkins County Sheriff	911 (607) 272-2444
Cayuga Medical Center 101 Dates Drive Ithaca, NY 14850	(607) 274-4011
National Response Center	(800) 424-8802
New York Department of Environmental Conservation	(800) 457-7362
Chemtrec (Emergency Technical Information)	(800) 424-9300

mapquest

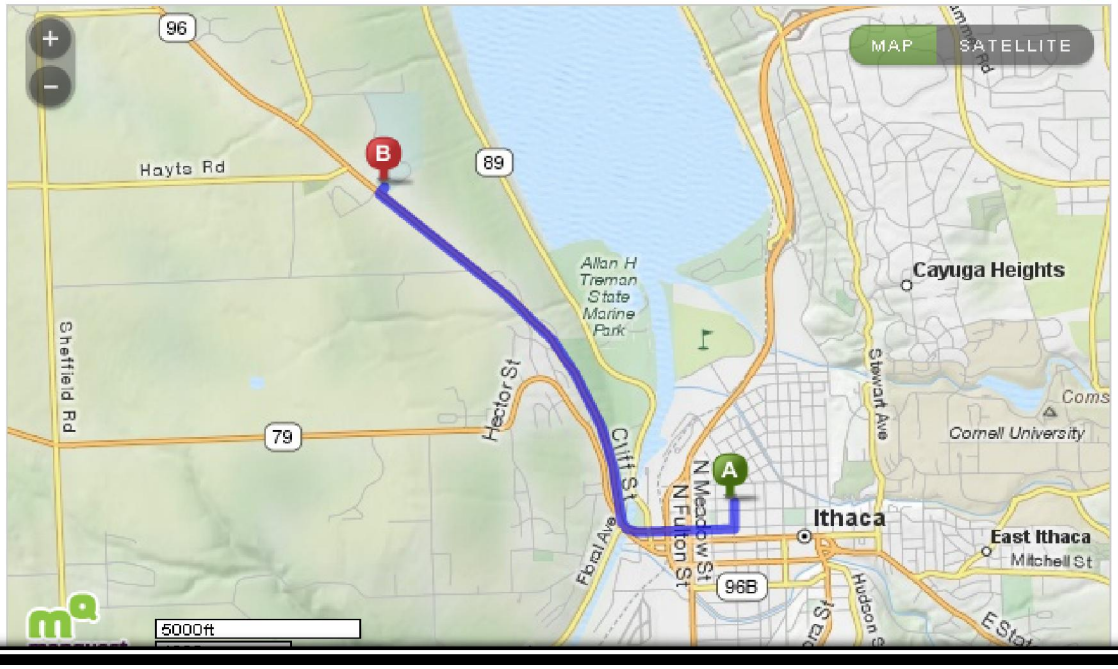
Trip to:
101 Dates Dr
Ithaca, NY 14850-1342
2.99 miles / 7 minutes

Notes
You can type personal notes here to include on your printed page.

A	**420 N Plain St**, Ithaca, NY 14850-4055	
●	1. Start out going **south** on **N Plain St** toward **W Court St**. Map	**0.1 Mi** *0.1 Mi Total*
↱	2. Take the 2nd **right** onto **W Buffalo St**. Map	**0.6 Mi** *0.7 Mi Total*
↑ 96	3. **W Buffalo St** becomes **RT-96**. Map	**2.2 Mi** *2.9 Mi Total*
↱	4. Turn **right** onto **Harris B Dates Dr**. Map	**0.05 Mi** *3.0 Mi Total*
↰	5. Take the 1st **left** to stay on **Harris B Dates Dr**. Map	**0.01 Mi** *3.0 Mi Total*
■	6. **101 DATES DR** is on the **right**. Map	
B	**101 Dates Dr**, Ithaca, NY 14850-1342	

Total Travel Estimate: **2.99 miles - about 7 minutes**

Is the map not visible or not printing?



mapquest

Trip to:
101 Dates Dr
Ithaca, NY 14850-1342
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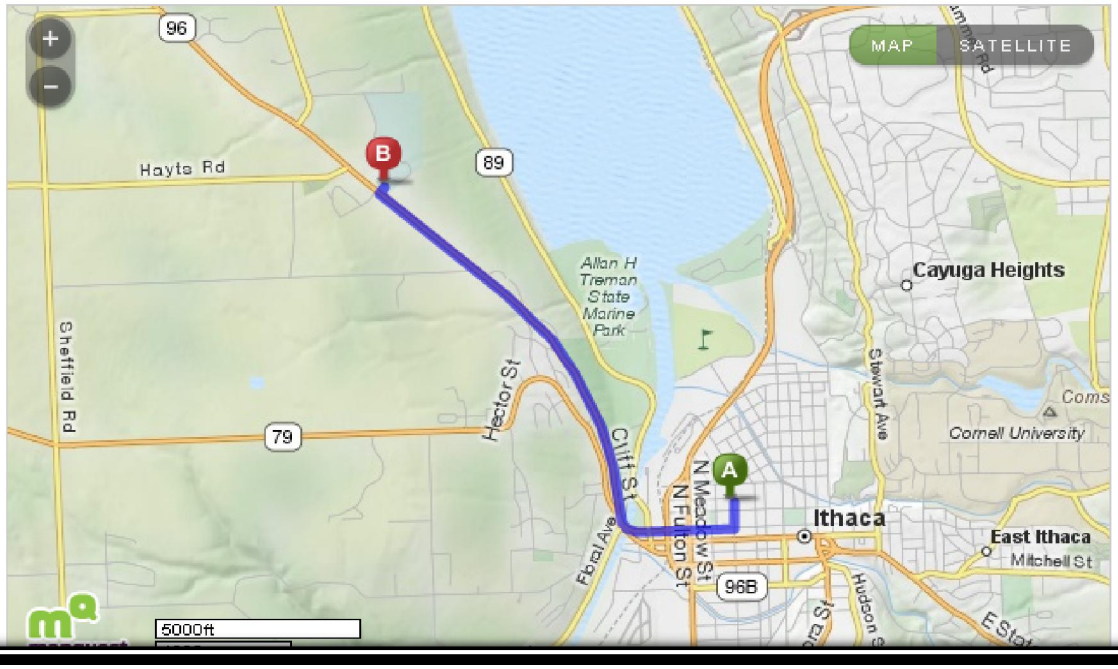

Appendix G

Construction Quality Assurance Plan

AECOM Environment

Prepared for:
NYS Electric & Gas Corporation
Binghamton, NY

Prepared by:
AECOM
Latham, NY 12110

April 2012

Construction Quality Assurance Plan
100% Submittal
Ithaca Court Street Former MGP Site
OU-1, Markles Flats
Ithaca, New York
NYSDEC Site # 7-55-008

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Ithaca Court Street Former MGP Site
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NYSDEC Site # 7-55-008

Prepared By Patrick Gratton

Reviewed By Scott Underhill, PE

Contents

1.0 Introduction

This *Construction Quality Assurance Plan (CQAP)* is designed to assure the quality of the project by monitoring, inspecting, and testing the processes and materials associated with the remediation to be completed at New York State Electric and Gas Corporation's (NYSEG's) Ithaca Court Street OU-1 manufactured gas plan (MGP) site, City of Ithaca, Tompkins County, New York. This Construction Quality Assurance Plan supplements the Remedial Design.

1.1 Construction Quality Assurance Plan Objectives

The objective of this *CQAP* is to identify and standardize measures to provide confidence that activities in all phases of the project will be completed in accordance with the *Remedial Action Design*, applicable local, state and federal regulations and appropriate industry standards. The *CQAP* will be implemented through inspection, sampling, testing, review of services, workmanship, and materials. Specific objectives of this plan establish protocols and procedures for the following components:

1. Responsibility and Authority - The responsibility and authority of the key personnel involved in the completion of the project.
2. Inspection and Testing Activities - Establish the observations and implement inspections and tests that will be used to ensure that the construction activities for the project meet or exceed all design criteria, (i.e., Remedial Design, and local, state and federal regulations).
3. Sampling Strategies - Establish responsibility for sampling activities and methods including frequency and acceptance criteria for ensuring that sampling meets criteria in the Remedial Design, local, state and federal regulations.
4. Documentation and Reporting - Establish appropriate field documents (i.e. daily field construction reports, photographic log, sampling log, and variances to the Remedial Design).

2.0 Responsibility and Authority

Responsibilities of each member of the construction project team are described below.

2.1 Contractor: (To Be Determined)

The contractor is responsible for coordinating field operations for the remediation, including coordination of subcontractors, to comply with the requirements of the *Remedial Action Design* and permitting agencies. The Contractor is responsible for completing and submitting documentation required by the *CQAP* and also has the authority to accept or reject the materials and workmanship of any subcontractors at the site.

The contractor is also responsible to ensure a functional construction quality control organization is active during the project and provide support for the construction quality control system to perform inspections, tests and retesting in the event of failure of any item of work, including that of the subcontractors, and to assure compliance with the contract provisions. The construction quality control system includes, but is not limited to, the inspections and tests required in the technical provisions of the *Remedial Action Design*, and will cover all project operations.

2.2 Construction Quality Assurance Officer: (To Be Determined)

The responsibility of the construction quality assurance officer is to perform those activities in this *CQAP* deemed necessary to assure the quality of construction and support quality control efforts. The construction quality assurance officer will be on-site as required during construction activities. The responsibility of the construction quality assurance officer is to ensure the quality of construction meets or exceeds that defined by the *Remedial Action Design* and identified in the *Quality Assurance Project Plan (QAPP)*. Specific responsibilities of the construction quality assurance officer include:

- Directing and supporting the construction quality control representative inspection personnel in performing observations and tests by verifying that the data are properly recorded, validated, reduced, summarized, and inspected.
- Evaluating the construction activities and the construction quality control representative's efforts
- Evaluating sampling activities and efforts of the sampling quality assurance officer
- Educating construction quality control inspection personnel on construction quality control requirements and procedures
- Scheduling and coordinating construction quality assurance inspection activities

2.3 Sampling Quality Assurance Officer: (To Be Determined)

The responsibility of the sampling quality assurance officer is to perform those activities in this *CQAP*, *Remedial Action Design* and *QAPP* deemed necessary to assure the quality of sampling and testing and support quality control efforts.

The sampling quality assurance officer provides the permitting agency an assurance that all sampling efforts, for both field and laboratory analysis, meet or exceed that defined by the *Remedial Action Design* and identified in the *CQAP*. The sampling quality assurance officer will be on-site as required during the project. The sampling quality assurance officer will report directly to the construction quality assurance officer.

Specific responsibilities of the sampling quality assurance officer include:

- confirming that the test data are properly recorded and maintained (this may involve selecting reported results and back tracking them to the original observation and test data sheets);
- confirming that the testing equipment, personnel, and procedures do not change over time or making sure that any changes do not adversely impact the inspection process;
- confirming that regular calibration of testing equipment occurs and is properly recorded; and
- Providing the construction quality control officer with up to date sampling results.

2.4 Construction Quality Control Representative: (To Be Determined)

A construction quality control representative, supplemented as necessary by additional personnel, is to be on the work site during the construction process, with complete authority to take any action necessary to ensure compliance with the *Remedial Action Design* as necessary to achieve quality in

the constructed facility. The construction quality control representative will be the field engineer. Specific responsibilities of the construction quality control representative include:

- Reviewing the *Remedial Action Design* for clarity and completeness so that the construction activities can be effectively implemented.
- Observe and document contractor's construction quality for compliance with this *CQAP*.
- Verifying that a contractor's construction quality is in accordance with *CQAP*.
- Performing on-site inspection of the work in progress to assess compliance with the *Remedial Action Design*.
- Prepare daily field construction reports to document daily on-site activities. The Daily Field Construction Reports will be submitted at the end of each week in an electronic format to Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.
- Prepare transportation manifests for the transportation of non-hazardous waste, hazardous waste, and conditionally exempt materials (i.e., soil, water, debris).
- Prepare a transportation log documenting all loads of solid or liquid waste that are transported off-site. The Transportation Log will be submitted at the end of each week in electronic format to Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.
- Perform the duties of the health & safety officer.
- Reporting the results of all observations and tests as the work progresses, modify materials and work to comply with *Remedial Action Design*. This includes:
  - Providing reports on daily field construction, material shipments, and inspection results.
  - Review and interpretation of all data sheets and reports.
  - Identification of work that should be accepted, rejected, or uncovered for observation, or that may require special testing, inspection, or approval.
  - Rejection of defective work and verification that corrective measures are implemented.
  - Make observations and records that will aid in finalization of the Final Report.
- Reporting to the construction quality assurance officer results of all inspections including work that is not of acceptable quality or that fails to meet the *Remedial Action Design*.
- Verifying that the equipment used in testing meets the test requirements and that the test are conducted according to the proper standardized procedures.
- Verifying that materials are installed as specified, except where necessary field modifications were required.
- Serves as the overall Project Emergency Coordinator and have ultimate authority in specifying and facilitating any contingency action during any potential emergencies when the Contingency Plan is implemented.

The construction quality control representative will report directly to the quality assurance officer.

2.5 Sampling Representative: (To be Determined)

A sampling representative, supplemented as necessary by additional personnel, is to be on the work site at all times during the construction process. The sampling representative reports directly to the sampling quality assurance officer. Specific responsibilities of the sampling representative include:

- Set up and operation of the weather station.
- Daily recording of meteorological data.
- Daily calibration and operation of real time total volatile organic compound (VOCs), and suspended particulate monitoring equipment.
- Daily recording of real time air quality data. Informs project coordinator and on-site New York State Department of Health (NYSDOH) representatives when concentration of air contaminants approaches or exceeds action levels specified in the Remedial Design. The daily community air-monitoring report will be submitted at the end of each week in an electronic format to Mr. Svante L. Myrick, City of Ithaca Mayor at asherman@cityofithaca.org (Annie Sherman – Executive Assistant to the Mayor), Mr. Justin Deming, NYSDOH at jhd01@health.state.ny.us, Ms. Elizabeth B. Lukowski, NYSDEC at eblukows@gw.dec.state.ny.us, and Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.
- Daily calibration and operation of the field monitoring equipment per manufacturers recommendations, guidelines specified in the *Quality Assurance Project Plan* and Remedial Design. Compiling calibration and results data onto spreadsheets. E-mailing compiled data along with supporting documentation to Sampling Quality Assurance Officer daily.
- Collection, packaging and shipment soil and water samples per guidelines specified in the *QAPP* and Remedial Design. Maintaining master log of all air, water and soil samples collected. Faxing copies of the chain of custody sheets to the Sampling Quality Assurance Officer daily. Tracking confirmation sample points and maintaining a map depicting confirmation sample point locations.
- Consultation with Sampling Quality Assurance Officer for all technical questions, problems, considerations, or requests for supplies or equipment.
- Consultation with Sampling Quality Assurance Officer for all technical questions, problems, considerations, or requests for supplies or equipment.
- Maintaining and organizing on-site field specialist equipment and supplies storage area.
- Performing the duties of Assistant Health & Safety Officer.

3.0 Field Quality Control Inspections, Testing, and Sampling Requirements

The definable features of work identified below are described in the Remedial Design. This section of the *CQAP* describes the anticipated inspection, testing, and sampling requirements of these definable feature works.

3.1 Site Preparation

Elements of the site preparation, including clearing, grubbing, temporary fence installation, erosion control measures will be inspected as they occur to assure compliance with the Remedial Design. Inspection of the siltation fence shall confirm that it's contiguous and its skirt is embedded along its length.

3.2 Equipment Set-up

All materials and equipment are designed to meet specific project needs. Each delivery of materials and/or equipment will be inspected upon arrival by the construction quality control representative and stored at a designated area of the site. Equipment will be set-up per the Remedial Design and drawings.

3.3 Staging of Materials

Material will be managed at the excavation area and directly loaded for transport when possible. If necessary, stockpiles will be inspected a minimum of once per day to assure that covers are in place and intact, and standing water is removed from the liner as needed. Covers will be replaced as needed to prevent precipitation from contacting the material and dust from being generated by the material.

3.4 Excavation of Existing MGP Residue

Excavation activities will comply with Occupational Safety and Health Administration's (OSHA's), "Hazardous Waste Operations and Emergency Response" (29 CFR 1910.120) and Safety and Health Regulations for Construction - Excavations (29 CFR 1926 Subpart P). Excavation activities will be conducted in accordance with the *Remedial Action Design*. Limits of the excavation will be measured by the construction quality control representatives upon completion of the excavation for documentation drawings. Confirmation Sampling is covered in the *Quality Assurance Project Plan*.

3.5 Loading of Materials for Transportation

Materials will be loaded within the temporary containment building with an excavator into dump trailers for transportation to a permitted disposal facility. Polyethylene sheeting will be placed between the stockpile or excavation and the truck to retain any material spilled. The spilled material will be added back to the excavation following completion of loading of each truck. The loading area will be visually inspected to confirm that material remains within the sheetpile containment wall and not tracked onto truck tires.

3.6 Temporary Containment Building and Air Handling Equipment

All associated temporary containment building and air handling requirements will be inspected for conformance with the requirements of the Remedial Design. These facilities will be monitored as specified in the Remedial Design and relevant attachments.

3.7 Wastewater Treatment and Discharge

All associated wastewater treatment and discharge activities will be inspected and subject to the requirements found in the temporary discharge permit.

3.8 Site Restoration

Site restoration will be observed by the construction quality control representative. The remedial excavations will be backfilled as specified in the Remedial Design, and the surface will match the drawings in the *Remedial Action Design*. Clean imported fill material will be brought on-site. This material will be analytically tested prior to arrival and will also be inspected upon arrival. Backfilling and compacting of the excavation will be observed and documented by the construction quality control representative. All liners will be removed and disposed. No stockpiles will remain on-site at the end of the project.

Temporary restoration within the Markles Flats area will be in accordance with the *Remedial Action Design*. All affected areas will be graded to match the specification in the *Remedial Action Design*. The finished surface will be as defined in the *Remedial Action Design*. Visual inspections will confirm that the various site restoration activities meet the relevant requirements.

Future final restoration around the perimeter of the OU-1 site (pavement, sidewalk, etc) will be performed by the City and will be in accordance with the City of Ithaca requirements. Permanent restoration to take place on the OU-1 property will be the responsibility of the Ithaca School District at the conclusion of remedial activities. Final restoration by others is separate from and not part of the remedial work activities.

4.0 Documentation and Reporting Requirements for *CQAP* Activities

Conformance with the *CQAP* will be assured by proper documentation techniques. The construction quality assurance plan inspection team will be guided by data sheets, schedules and checklists. The documentation of the inspection activities will facilitate the adherence to the design documents and maintain the level of reporting required by the parties involved in the project.

4.1 Daily Field Construction Report

A Daily Field Construction Report shall be prepared identifying work force and their labor hours, location, and description of work performed, lost time accidents, equipment left on job site, equipment/materials received and if applicable, submittal status, non-compliance notices received, errors and/or omission in plans and specifications, visitors to the job site, weather conditions and temperatures, and any other pertinent information. The Daily Field Construction Report will be submitted at the end of the week in an electronic format to Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.

4.2 Transportation Log

A Transportation Log will remain in the field office to record all loads of solid or liquid waste that are transported off-site. The Transportation Log will be submitted at the end of the week in an electronic format to Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.

4.3 Photographic Log

The photographic log is designed to document construction activities by still photos. Photographic log may also be used to photographically record activities recorded in a daily construction log or an as-built sketch log. The construction quality control representative will collect photographs.

4.4 Daily Field Construction Report

The construction quality control representative shall prepare a Daily Field Construction Report (DFCR) identifying work force and their labor hours, location and description of work performed, lost time accidents, equipment left on the job site, equipment/materials received and if applicable, submittal status, non-compliance notices received, errors and/or omission in plans and specifications, visitors to the job site, weather conditions and temperatures, and any other pertinent information.

4.5 Daily Community Air-monitoring Report

The Daily Community Air-monitoring Report is designed to document all sampling activities and how they correspond to the Remedial Design. All observations, field and/or laboratory tests will be recorded on a daily sampling log. It is important to note recorded field observations may take the form of notes, charts, sketches, or photographs. The daily community air-monitoring report will be submitted at the end of each week in an electronic format to Mr. Svante L. Myrick, City of Ithaca Mayor at asherman@cityofithaca.org (Annie Sherman – Executive Assistant to the Mayor) , Mr. Justin Deming, NYSDOH at jhd01@health.state.ny.us, Ms. Elizabeth B. Lukowski, NYSDEC at eblukows@gw.dec.state.ny.us, and Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.

4.6 Master Sample Log

The daily notebook will remain in the field office to record every sample collected. The sample technician will log in all samples collected and those sent to the off-site analytical laboratory. Waybill numbers will be logged at the end of each day.

4.7 Chain-of-Custody

A Chain-of-Custody form will document custody of all samples from the field to the laboratory.

4.8 Waybill

A waybill receipt will be obtained at the time of accepted sample shipment by Federal Express or courier and will be attached to the Master Sample Log.

4.9 NYSEG's Public Liability Accident Report, NYSEG's Report of Employee Injury, and NYSEG's Incident Report

The above-mentioned report forms will be used to document any accident occurring on-site during the remedial project. The sheets shall be attached to the Health and Safety Plan and will be located in the field project trailer.

4.10 Variances to Remedial Design

Required changes to the Remedial Design will be processed through the use of a variance log. Approval from the NYSEG project manager is required to recommend a change to the Remedial Design. An amendment to the Remedial Design will be developed for acceptance and the approval by NYSDEC and NYSDOH.

4.11 Construction Completion Report

At the completion of the project, a Construction Completion Report will be prepared and submitted to the NYSDEC. This report will include a summary of all of the Daily Field Construction Report's, Daily Community Air-monitoring Report's, Photographic Log, Sampling log, Material Disposition Log, and Variances to Remedial Design. The Construction Completion Report will be signed and certified by a professional engineer that all remedial activities performed were in full accordance with NYSDEC approved Remedial Design and the NYSDEC Order on Consent Index #DO-0002-9309.

Appendix H

Quality Assurance Project Plan

AECOM Environment

Prepared for:
NYS Electric & Gas Corporation
Binghamton, NY

Prepared by:
AECOM
Latham, NY 12110

April 2012

Quality Assurance Project Plan
Remedial Design Report
100% Submittal
Ithaca Court Street Former MGP Site
OU-1, Markles Flats
Ithaca, New York
NYSDEC Site # 7-55-008

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Prepared By Patrick Gratton

Reviewed By Scott Underhill, PE

Contents

List of Tables

1.0 Introduction

This *Quality Assurance Project Plan (QAPP)* provides a description of the sampling and laboratory procedures/protocols to be used in support of the *Remedial Design* associated with the Ithaca Court Street former manufactured gas plant OU-1 site (specifically the Markles Flats area) located in the City of Ithaca, Tompkins County, New York. The fundamental purpose of the *QAPP* is to ensure that quality analytical data will be generated to support the project in a manner consistent with the Data Quality Objectives as specified herein. This *QAPP* is designed to be used in conjunction with a New York State Department of Environmental Conservation (NYSDEC) approved *Remedial Design* with regards to specific project objectives and field sampling activities. To the extent that discrepancies exist between this *QAPP* and the *Remedial Design*, the *Remedial Design* shall control.

2.0 Data Quality Objectives

Data quality objectives (DQOs) are statements, expressed in either qualitative or quantitative terms, which address the appropriate level of data quality for a project. The quality of data generated must be suitable to support the decisions used to achieve the overall goals as delineated in the *Remedial Design*. The general project data quality objectives are summarized in this section, with detailed information given throughout this *QAPP* and associated sections of the *Remedial Design*. The overall data quality objectives of the project are:

- To ensure that samples collected are representative of the sample population.
- To provide detection limits for the selected analytical methods, which are below the established cleanup objectives or regulatory limits.
- To measure and document precision and accuracy using procedures established by the laboratories, the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) and U.S. Environmental Protection Agency (EPA) approved analytical methods.
- To ensure that a NYSDOH ELAP and NYSDOH ELAP CLP certified laboratory will conduct all soil/residues and wastewater analyses.
- To ensure that all final site verification samples (confirmatory samples) are reported with ASP Category B deliverables.

3.0 Sample Collection

3.1 Soils

Soil samples will be collected as described in the appropriate sections of the *Remedial Design Work Plan*. These sections describe the collection procedures, sampling equipment, locations and frequencies for the soil samples.

All sampling equipment will be properly disposed or decontaminated before being reused. Samples will be collected and placed in pre-cleaned sample containers provided by the laboratory performing the analysis. All necessary preservatives will be added to the sample containers at the laboratory prior to being shipped to the site. Samples will be stored at 4o Celsius until delivered to, and analyzed by the laboratory. This will be accomplished by utilization of an on-site refrigerator and/or coolers with ice. (When collecting composite samples for toxicity characteristic leachate procedure

(TCLP) volatile analysis, volatilization will be minimized by covering the sample compositing container and placing it within a cooler filled with ice between grab sample additions.)

3.2 Water and Wastewater Sampling

Water and wastewater samples will be collected as described in the appropriate sections of the *Remedial Design*. These sections describe the collection procedures, sampling equipment, locations and frequencies for the wastewater samples. Samples of wastewater will be analyzed before the wastewater is discharged to the city sanitary sewer.

Samples will be transferred directly into pre-cleaned sample collection containers, which are supplied by the laboratory performing the analyses. All necessary preservatives will be added to the sample containers at the laboratory prior to being shipped to the site. Samples will be stored at 4° Celsius until delivered to, and analyzed by the laboratory. This will be accomplished by utilization of an on-site refrigerator and/or coolers with ice.

3.3 Sample Containers and Preservatives

Sample containers and preservatives will be provided by the contracted laboratories and stored on-site in a clean and dry location. Sample containers and preservatives by matrix and analysis are listed in Table A (next page).

Table A. Sample Containers and Preservatives

Analysis	Matrix	Container	Preservative
TCLP Semivolatiles	Soil	500 ml glass*	4° Celsius
TCLP Metals	Soil	500 ml glass*	4° Celsius
TCPL Pesticides/Herbicides	Soil	500 ml glass*	4° Celsius
Reactive Cyanide	Soil	500 ml glass*	4° Celsius
Reactive Sulfide	Soil	500 ml glass*	4° Celsius
TCLP Volatiles	Soil	20 ml glass	4° Celsius
Total PAHs	Soil	250 ml glass	4° Celsius
Total BTEX (benzene, toluene, ethylbenzene, xylenes)	Soil	125 ml glass	4° Celsius
Total Metals	Soil	250 ml glass**	4° Celsius
Percent Sulfur	Soil	250 ml glass**	4° Celsius
PCBs	Soil	500 ml glass***	4° Celsius
Ignitability	Soil	500 ml glass***	4° Celsius
BTU/lb	Soil	500 ml glass***	4° Celsius
Flashpoint	Soil	500 ml glass***	4° Celsius
Percent Solids	Soil	500 ml glass***	4° Celsius
pH	Soil	500 ml glass***	4° Celsius
Reactivity	Soil/Water	500 ml glass***	4° Celsius
Corrosivity	Soil/Water	500 ml glass***	4° Celsius

Analysis	Matrix	Container	Preservative
Total Metals	Water	500 ml Plastic	HNO3 to pH < 2
Semivolatiles	Water	1000 ml amber glass	4° Celsius
Pesticides/Herbicides	Water	1000 ml amber glass	4° Celsius
Volatiles	Water	40 ml glass	4° Celsius or HCl to pH > 12
Paint Filter	Water	500 ml glass	4° Celsius
Total Cyanide	Water	500 ml Plastic	4° Celsius NaOH to pH > 12

* May be analyzed from same sample container and/or extract.
** May be analyzed from same container.
*** May be analyzed from same container.
Note: All glass containers will be sealed with Teflon liner caps. All water samples for organic fractions will be collected in duplicate.

3.4 Sampling Holding Times

The following tables identify samples by type and matrix and their related holding times.

Table B. Waste Characterization, Confirmation and Imported Backfill Samples

Sample Type	Matrix	Holding Time*
TCLP Pesticides/Herbicides	Soil	5 days (extraction) 40 days (after extraction)
TCLP Semivolatiles	Soil	5 days (extraction) 40 days (after extraction)
TCLP Mercury	Soil	5 days (extraction) 28 days (after extraction)
TCLP Metals	Soil	180 days
TCLP Volatiles	Soil	14 days
Reactive Sulfide	Soil	7 days
Reactive Cyanide	Soil	14 days
VOCs	Soil	7 days
SVOCs	Soil	14 days
Metals	Soil	180 days
Pesticides	Soil	14 days (extraction) 40 days (after extraction)
PCBs	Soil	14 days (extraction) 40 days (after extraction)
Ignitability	Soil	NA
Reactivity	Soil	Cyanide 14 days

Sample Type	Matrix	Holding Time*
Sulfide	Soil	7 days
Corrosivity	Soil	2 days
Percent solids	Soil	NA
Modified Static Leaching Test	Soil	As soon as possible, but not more than 5 days.
* Samples will be analyzed on a priority basis and reported within 10 days of collection or the maximum holding time, whichever is less.		

Table C. Water/Wastewater Samples

Sample Type	Matrix	Holding Time*
Total Petroleum Hydrocarbons	Water	14 days
pH	Water	ASAP
Total Suspended Solids	Water	7days
Pesticides/Herbicides	Water	NA
VOCs	Water	7 days
SVOCs	Water	14 days
Cyanide	Water	14 days
Select Metals	Water	14 days
* Samples will be analyzed on a priority basis and reported within 5 days or the maximum holding time, whichever is less.		

4.0 Sample Custody, Identification and Tracking

4.1 Holding Times and Sample Transport

Since the samples will be analyzed with a priority turn around, no exceedance of holding time is expected. Holding times will be calculated from the time the sample is collected to the subsequent extraction, if necessary, or analysis. All samples will be delivered to the laboratory by same day courier or overnight delivery in sealed coolers with ice.

4.2 Chain-of-Custody

A Chain-of-Custody will accompany all samples from the point of sampling to delivery of the samples to the laboratory. The Chain-of-Custody will be a record of the location where the sample was collected, the data and time collected, number of containers collected, type(s) of analyses requested, special remarks or requests, and the signature of each custodian of the samples. The complete Chain-of-Custody will be included in all hard copies of reports. See Attachment A for sample Chain-of-Custody Form.

Upon sample receipt, laboratory personnel will be responsible for sample custody. The laboratory sample custodian will verify sample integrity and compare the cooler contents against the field Chain-

of-Custody. If a sample container is broken or leaking it will be noted on the Chain-of-Custody form and NYSEG project personnel will be immediately notified. If the sample custodian observes any labeling or descriptive errors, NYSEG project personnel will be contacted immediately to resolve any discrepancies. After all discrepancies (if any) are resolved, the laboratory will acknowledge receipt of the samples (i.e., by signing and dating the Chain-of-Custody) and the completed Chain-of-Custody will be included in all hard copies of reports and become a permanent part of the project records.

4.2.1 Sample Identification

Each sample collected during the project will have a unique identification number. This number, date of collection and type of analysis will be placed on each sample container after the sample is collected. See Attachment B for sample identification naming convention for air, water, and confirmatory samples. A site map will be used throughout the project to denote the area or point that a confirmatory sample represents.

4.3 Laboratory Sample Tracking

Each laboratory has an internal tracking mechanism to ensure that each sample received has a unique identification number and that results generated and reported for each sample correspond to the identification number assigned at the laboratory.

5.0 Calibration Procedures

Each analysis will be performed in accordance with NYSDOH ELAP (environmental Laboratory Approval Program) sanctioned methods or equivalent U.S. EPA analytical procedures. Each procedure specifies the method of frequency of calibration necessary to perform accurate and precise analyses. Each analytical instrument verifies the Minimum Detection Limit at least every six months as prescribed by the NYSDOH ELAP. The calibration of the instruments is verified at the beginning and end of each auto sampler run.

All field equipment, for real time air analyses will be calibrated daily, in accordance with manufacturer's recommendations. Equipment will be calibrated more frequently if conditions warrant. A photo ionization detector (PID) will be used to measure volatile organic vapors and will be calibrated to a 100 ppm isobutylene air standard. A digital dust meter will be used to measure particulates and will be calibrated to zero with filtered air sample.

6.0 Analytical Procedures

6.1 Laboratory Analyses

The following Table D shows the analytical method to be used for each analyte or group of analytes for the Project.

Table D. Analytical Methods

Analyte	Analytical Method
TCLP Extractions	SW 846 Method 1311
TCLP Volatiles	SW 846 Method 8260
TCLP Semivolatiles	SW 846 Method 8270

Analyte	Analytical Method
TCLP Metals	SW 846 Method 6000/7000 Series
TCLP Pesticides/Herbicides	SW846 Method 8080/8151
Polycyclic Aromatic Hydrocarbons (Table E)	SW 846 Method 8270
Total Volatiles	SW 846 Method 8260
Total Semivolatiles	SW 846 Method 8270
Total Metals	SW 846 Method 6000/7000 Series
PCBs	SW 846 Method 8082
Reactive Sulfide	SW 846 Chapter 7.3.3.2
Reactive Cyanide	SW 846 Section 7.3.3.2
Percent Sulfur	ASTM D-129
BTU/lb	ASTM D-215
Flashpoint	ASTM D-93
Ignitability	SW 846 Method 1030
Reactivity	SW 846 Section 7
Corrosivity	SW 846 Section 7
Percent Solids	ASP Method D-V-Section IX
pH	SW 846 Method 9045
Total Cyanide	SW 846 9012
Paint Filter Test	SW 846 9095

Table E. Polycyclic Aromatic Hydrocarbon (PAH) Analyte List

Parameter
Naphthalene
2-Methylnaphthalene
Acenaphthalene
Acenaphthylene
Fluorene
Phenanthrene
Anthracene
Fluoranthene
Dibenzofuran
Pyrene
Benzo (g,h,i) perylene
Benzo (a) anthracene*
Chrysene*

Parameter
Benzo (b) fluoranthene*
Benzo (k) fluoranthene*
Benzo (a) pyrene*
Indeno (1,2,3 cd) pyrene*
Dibenzo (a,h) anthracene*
*Carcinogenic PAHs (cPAHs)

6.2 Laboratory Selection

The laboratory chosen for the project must be certified, and maintain certification, under the NYSDOH ELAP and NYSDOH ELAP CLP for analyses of solid and hazardous waste. Only analytical laboratories that have experience in MGP projects or similar projects will be considered for use.

7.0 Data Reduction Validation and Reporting

7.1 Data Reduction

7.1.1 Field Data Collection

Real time field data collected during sampling events will include qualitative information regarding the texture, appearance, odors, and any other observations made while soil and water samples are being collected. Meteorological data and current site activity will be noted while collecting data for real time air monitoring. These observations will be recorded in the field logbook.

7.1.2 Laboratory Data Collection and Reduction

A significant portion of the analyses performed requires the use of automated laboratory instrumentation. Raw data collected from the instruments detectors will be converted to standard units of mg/Kg for solid matrices and mg/L for water. All raw data will be stored in electronic form and in laboratory notebooks, in case the analysis needs to be recreated. Raw data for all analyses will be archived for a minimum of four years.

7.2 Data Review

All analytical data will be verified for precision and accuracy utilizing the laboratory's in-house Quality Assurance/Quality Control programs. In addition, all data packages will be reviewed by NYSEG project personnel to insure that all data deliverables have been properly provided.

7.3 Full Data Validation

The full data validation process consists of a formal systematic review of analytical results and quality control documentation with regards to a variety of specific parameters. On the basis of this review, a data validator will make judgments and express concerns on the quality and limitations of the specific data and the validity of the data package as a whole. The data validator prepares documentation of his or her review using the standard USEPA Inorganics Regional Assessment and Organics Regional Assessment forms to summarize deficiencies and general laboratory performance. These

forms are accompanied by appropriate supplementary documentation, which identifies specific problems.

Since a full data validation would typically be used for the purposes of litigation, this level of review may surpass the scope of work necessary for the project. Therefore, any full data validation for analytical results of confirmatory samples will be performed at NYSEG's discretion. Confirmatory sampling data will be archived in the event that it becomes necessary to perform a full data validation at a future date.

7.4 Data Usability Summary Report

A Data Usability Summary Report provides a thorough review and evaluation of analytical data without the formality of a full third party data validation. A Data Usability Summary Report for the analytical results of confirmatory samples will be generated in lieu of a full data validation to verify that the proper data deliverables and procedures have been rendered in accordance with the data quality objectives of the Remedial Action Design.

7.5 Reporting

Final reports for analytical data will be reviewed and accepted by NYSEG prior to submission to the NYSDEC. Reports for analyses performed under the ELAP protocol will contain results sheets for the sample analyzed. These reports must include the following information at a minimum:

- NYSEG Sample ID number;
- Laboratory sample ID number;
- Sample collection date;
- Extraction or digestion date (if applicable);
- Date analyzed;
- Analytical method;
- Analytical results (with units clearly identified);
- Results of laboratory blank and field blanks;
- Results of spikes, matrix spikes, and duplicates;
- Surrogate recoveries (if applicable);
- Complete Chain-of-Custody forms; and
- File log sheets (if available).

8.0 Quality Control Checks

8.1 Field Quality Control

8.1.1 Decontamination Procedures for Sampling

The following decontamination procedure will be followed for all non-disposal (confirmation and imported backfill soil samples) sampling equipment before being reused.

- Equipment will be washed thoroughly with a non-phosphate detergent.
- The equipment will then be rinsed with analyte-free water.
- The equipment will be rinsed with a reagent grade methanol solution diluted with analyte-free water.
- If the equipment is being used for the collection of samples for metals analyses it will then be rinsed with a 10% reagent grade nitric acid solution.
- The equipment will be rinsed with analyte-free water.

After decontamination, equipment will be carefully stored to avoid contamination between sampling events.

8.2 Laboratory Quality Control

Each laboratory is NYSDOH Certified for the analyses they will perform. Each analyst must complete a start-up proficiency procedure to demonstrate their capability to perform accurate and precise analyses on each type of instrument they operate. In addition, each laboratory must accurately analyze samples provided by NYSDOH on a semi-annual basis to maintain certification. The laboratories have internal quality control officers that review all methodologies and implement corrective action, including reanalyzing samples, which do not pass, established laboratory quality control criteria.

Laboratory quality control procedures are specified in the analytical methods. These specifications include the type of laboratory quality control check required, compounds, and concentrations to be used, and laboratory quality control acceptance criteria.

Laboratory quality control checks will include (where specified by method):

- Calibration Standards
- Methods Blanks
- Matrix Spike/Matrix Spike Duplicates
- Surrogate Spikes
- Internal Standards
- Laboratory Duplicates
- Calibration Check Standards
- Laboratory Control Samples

9.0 Preventative Maintenance

9.1 Field Instruments and Equipment

Equipment instruments, tools, gauges, and other items requiring preventative maintenance will be serviced in accordance with the manufacturer's specified recommendations or written procedures developed by the operators. All field equipment service will be conducted by qualified personnel. Prior to any field sampling, each piece of field equipment will be inspected to ensure that it is operational. If the equipment is not operational, it must be repaired prior to use. All equipment which

requires charging or batteries will be fully charged or have fresh batteries at the start of the project. An equipment repair/maintenance log will be kept for each field instrument. Any non-operational/non-repairable field equipment will be replaced.

9.2 Laboratory Instruments and Equipment

Each laboratory has an instrument/equipment maintenance program, which includes procedures for daily, weekly, monthly, or annual routine maintenance. In addition, maintenance is performed if the accuracy and/or precision of the instrument are in question.

9.2.1 Instrument Maintenance

Preventative maintenance of laboratory instruments will be conducted in accordance with the manufacturer's guidelines or written procedures developed by the operators. All instrument service will be performed by qualified personnel. To minimize potential downtime, the laboratory will maintain a sufficient supply of critical spare parts for its instruments and, where practical, maintain a service contract for rapid instrument repair. Wherever possible, the laboratory will retain backup instrumentation. An instrument repair/maintenance log will be maintained for each instrument.

9.2.2 Equipment Monitoring

On a daily basis, the operation of the laboratory equipment (i.e., balances, ovens, refrigerators, water purification systems, etc.) will be checked and documented. Any discrepancies will be immediately reported to the appropriate laboratory personnel for resolution.

Quality Assurance Project Plan Attachment A

Sample Chain of Custody Form

AECOM

CHAIN OF CUSTODY RECORD

Page ____ of ____

Client/Project Name:	Project Location:	Analysis Requested
Project Number:	Field Logbook No.:	
Sampler (Print Name)/(Affiliation):	Chain of Custody Tape Nos.:	
Signature:	Send Results/Report to: / TAT:	

Container Type
P – Plastic
A – Amber Glass
G – Clear Glass
V – VOA Vial
O – Other
E – Encore

Preservation
1 – HCl, 4°
2 – H_2SO_4, 4°
3 – HNO_3, 4°
4 – NaOH, 4°
5 – NaOH/ZnAc, 4°
6 – $Na_2S_2O_3$, 4°
7 – 4°

Matrix Codes:

DW – Drinking Water
WW – Wastewater
GW – Groundwater
SW – Surface Water
ST – Storm Water
W – Water
S – Soil
SL – Sludge
SD – Sediment
SO – Solid
A – Air
L – Liquid
P – Product

Field Sample No./Identification	Date	Time	COMP	GRAB	Sample Container (Size/Mat'l)	Matrix	Preserv.	Field Filtered	Lab I.D.	Remarks

Relinquished by: (Print Name)/(Affiliation)	Date: / Time:	Received by: (Print Name)/(Affiliation)	Date: / Time:	Analytical Laboratory (Destination):
Signature:		Signature:		
Relinquished by: (Print Name)/(Affiliation)	Date: / Time:	Received by: (Print Name)/(Affiliation)	Date: / Time:	
Signature:		Signature:		
Relinquished by: (Print Name)/(Affiliation)	Date: / Time:	Received by: (Print Name)/(Affiliation)	Date: / Time:	Sample Shipped Via: UPS FedEx Courier Other
Signature:		Signature:		Temp blank: Yes No

Q:\GRAPHICS\FORMS\Chain of Custody (COC)\Chain-of-Custody_AECOM_Oct-2010.doc

Serial No. _____

April 2012

Quality Assurance Project Plan Attachment B

Sample Identification Naming Convention

SAMPLE IDENTIFICATION

NAMING CONVENTION FOR SOIL AND WATER SAMPLES

SYSTEM CODING

First & Second = Site	Ithaca Court Street	IC
Third & Fourth = Source	Excavation	EX
	Stockpile	SP
	Frac Tank	FT
	Poly Container	PC
	Metal Barrel	MB
	Roll Off Container	RO
	Waste Wrangler	WW
	Test Pit	TP
	Boring	BO
	Geoprobe	GP
Fifth & Sixth = Location	Sidewall Sample	SW
	Bottom Sample	BM
	Waste Soil	WS
	Wastewater	WW
	Debris	DB
Seventh & Eighth = Relative Depth	Surface Soil	00
	Depth below Ground	02
	Non-Applicable	NA
Ninth, Tenth & Eleventh =	Sample Number	005

EXAMPLE: Ithaca Court Street; Excavation; Sidewall; 2 ft below ground; and sample number:

SAMPLE IDENTIFICATION: ICEXSW02005

Appendix I

Draft Temporary Discharge Permit

To be finalized with City by Contractor prior to remedial activities

ITHACA AREA WASTEWATER TREATMENT FACILITY

TOWN OF ITHACA CITY OF ITHACA TOWN OF DRYDEN OWNERS
525 THIRD STREET
ITHACA, NEW YORK 14850

(607)273-8381
FAX (607)273-8433

TEMPORARY WASTEWATER DISCHARGE PERMIT

PERMIT NO. TP-2012, 02, 03

DATE: February 3, 2012

ISSUED TO: New York State Electric & Gas Corporation
James a Carrigg Center, 18 Link Drive
Binghamton, NY 13902-5224

BILL TO: Joseph M. Simone
New York State Electric & Gas Corporation
18 Link Drive, P.O. Box 5224
Binghamton, NY 13902-5224

PROJECT SITE: NYSEG Ithaca Court Street MGP Site #755008

CONTRACTOR: NYSEG

CONTACTS:

NYSEG Tracy Blazicek Remediation Project manager	office mobile fax	607-762-8839 607-237-5325 607-762-8451
TBD (Wastewater Treatment)	office mobile fax	TBD TBD TBD
TBD (H & S Officer)	office mobile fax	TBD TBD TBD
TBD (Sample testing)	office mobile fax	TBD TBD TBD

CONSIDERATIONS:

1. This temporary discharge is authorized by special permit in accordance with the City of Ithaca, Town of Ithaca and Town of Dryden Sewer Use Law. The cited law authorizes the undersigned to grant such permits.

2. The purpose of this discharge into the sanitary sewer is to support the site in the disposal of groundwater encountered during excavation operations.

3. The Remedial Design Work Plan, which describes the treatment and sampling of the collected water was well prepared and indicates a sound understanding of the regulations and the required protocol for this project.

PERMIT OBJECTIVES:

This permit is intended to meet the four major objectives of the General Pretreatment Regulations.

1. Prevent the introduction of substances in concentrations that would cause the POTW to violate its discharge permit. This is referred to as a pass through violation.

2. Prevent the introduction of substances in concentrations that would contaminate the resulting biosolids (sludge) and preventing beneficial reuse.

3. Prevent the introduction of substances in concentrations that would inhibit treatment processes.

4. Prevent the introduction of substances in concentrations that would be harmful to workers.

CONDITIONS:

1. The attached figures are from the record of decisions issued by NYSDEC for OU-1 and OU-2. Figure 2, for OU-1, shows the plant site located in the southwest corner of the site, which is currently known as the Markles Flats building. The area under and around this building will be excavated to approximately 17'. This area is within the gray colored block in the lower right of Figure 6. Figure 6, for OU-2, displays the areas 1A and 1B, which will be excavated to approximately 17'. Area 1C will receive in-situ soil treatment. No water will be removed from 1C. The approximate sizes of the areas to be excavated are noted below (these numbers are subject to change):
   Area 1A: 7,600 square feet;
   Area 1B: 3,700 square feet;
   Markles Flats Building Area: 9,300 square feet
   MGP impacted soil will be removed from the excavation areas. It is anticipated that groundwater will enter the open excavations. This groundwater will be removed by sump pumps and sent to

portable storage tanks located in the northwest corner of OU-1- before being treated, stored, tested and, if shown to meet standards, discharged into the sanitary sewer system.

2. Pretreatment will be done in the manner described in the Remedial Design Work Plan for the Ithaca Court Street Former Manufactured Gas Plant Site.

3. The treated water will be discharged into the sanitary sewer system at a manhole near the remediation site at a rate of no more than 100 gallons per minute.

4. The IAWWTF will be contacted prior to starting the treatment process and prior to discharging to the sanitary sewer. The anticipated start of work is October 2012.

5. IAWWTF personnel may inspect and/or sample during the process at anytime.

6. All other conditions of the sewer use laws are applicable.

7. The contractor is responsible for ensuring that no substance of concern enters the sanitary sewer in concentrations that would adversely affect the IAWWTF property or processes, cause pass through, or cause concern for worker safety.

8. All water discharged into the sanitary sewers will first be pumped through a totalization meter. This meter will provide an accurate measure of discharged waters for billing and permitting purposes. The contractor will record the amount of water discharged to the sanitary sewer on a daily basis and report the total flow for the month to the IAWWTF.

9. The contractor will arrange for samples to be collected, following EPA approved methods, for the following contaminants and have them analyzed, by an independent, certified laboratory, using EPA approved methods.

Parameter	**Sample type**	**Frequency**
Total Petroleum Hydrocarbons (EPA Method 1664)	Composite *	**
pH	Grab	**
Total suspended solids	Composite *	**
Pesticides/Herbicides (EPA Method 608)	Composite *	***
Volatile organics (EPA Method 624)	Grab	**
Semi volatile organics (EPA Method 625)	Composite *	**
Metals: Arsenic, Barium, Cadmium, Chromium (total), Chromium (hexavalent), Copper, Cyanide, Iron, Lead, Manganese, Nickel, Silver, Zinc (EPA Method 200.7) & Mercury (EPA Method 245.1)	Composite *	**

* When batch tanks of treated wastewater are being individually discharged, 1 grab sample taken from a well mixed tank will substitute for a composite sample.

** The frequency of this sampling and analysis will be:

- During the first week of operations for each excavation area, every treated water batch tank or, if continuous flow conditions exist, 4 grab samples every other day.
- Once per tank or once per week (whichever is less) for the next three weeks;
- Once per tank or every other week (whichever is less) after four weeks of operation.

*** If the results of the first test for Pesticides/Herbicides from the treated water coming from any excavation site is non-detect, then this test does not need to be repeated for additional treated wastewater from that excavation site. This test must be done again when wastewater from a different excavation site is first treated.

A. This is the minimum analysis required and may be increased by the IAWWTF at the discretion of the Chief Operator or their designee.

B. Samples are to be taken from the batch tank after mixing or, when heavy use necessitates continuous discharge; composite samples must be collected at a minimum rate of one sample every 30 minutes at the point of discharge into the treated water holding tank for the duration of the discharge or 24 hours (whichever is less.)

C. The contractor shall pay for all cost associated with the above sampling and testing.

D. Laboratory reports must include chain of custody, quality assurance and quality control information.

E. Results of analysis shall be submitted to the IAWWTF within 24 hours of their receipt.

10. The contractor will inform this facility if any changes are made either in the form of operations or in the quantity or quality of the wastewater discharged to the collection system that might affect the characteristics of the wastewater.

11. Accidental Discharges: This facility must be notified immediately upon the contractor becoming aware of any spill or accidental discharge that might change the characteristics of the wastewater.

12. Any waste material generated as a result of the wastewater pretreatment process shall be disposed of in such a manner so as to prevent entry of such materials into navigable waters, ground water, storm drains, the POTW's Sewer System and the POTW's trucked waste receiving facilities. Detailed records of off-site shipment of such wastes shall be kept and a copy sent to the IAWWTF.

13. Detailed records of any maintenance done to the pretreatment system shall be kept.

14. This permit may be amended by the IAWWTF as conditions dictate.

PROHIBITED DISCHARGES:

1. NYSEG may not introduce into the IAWWTF any pollutant(s) which causes Pass Through or Interference. In addition, the following discharges to the IAWWTF by NYSEG are specifically prohibited:

   A. Storm- and surface waters, roof runoff, and subsurface drainage. These discharges shall be made only to such sewers as are specifically designated by the Chief Operator as storm sewers, or directly to waters of the state, as may be permitted under an applicable SPDES permit.

   B. Any liquids, solids, or gases which by reason of their nature or quantity are, or may be, sufficient, either alone or by interaction with other substances, to cause a fire or explosion hazard in the IAWWTF or be injurious in any other way to the IAWWTF, its operation, or the health or safety of the IAWWTF's workers. At no time shall a user discharge a waste stream with a closed cup flashpoint of less than 140º Fahrenheit or 60º Centigrade using the test methods specified in 40 CFR 261.21. Unless specifically authorized to do so by permit, no user shall discharge any quantity of the following materials: gasoline, kerosene, naphtha, benzene, toluene, xylene, fuel oil, ethers, ketones, aldehydes, chlorates, perchlorates, bromates, carbides, hydrides and sulfides, dry cleaning fluids, and any other substance which the Chief Operator, DEC, or the EPA has notified the user is a fire hazard or explosive hazard to the system. The preceding list of substances is not a comprehensive list of prohibited substances. If a substance meets the general criteria set out in the first two sentences of this subsection, it is prohibited.

   C. Solid or viscous substances in quantities or of such size capable of causing obstruction to the flow in plant piping or other interference with the proper operation of the IAWWTF, including, but not limited to: grease, garbage with particles greater than 1/2 inch in any dimension, animal guts or tissues, paunch manure, bones, hair, hides or fleshings, entrails, whole blood, feathers, ashes, cinders, sand, spent lime, stone or marble dust, metal, glass, straw, shavings, grass clippings, rags, spent grains, spent hops, waste paper, wood, plastics, rubber, tar, asphalt residues, residues from refining or processing of fuel or lubricating oil, mud, or glass grinding or polishing wastes.

   D. Wastewater having a pH less than 5.5 standard units, or greater than 11.0 standard units, or wastewater having any other corrosive or caustic property capable of causing damage or hazard to structures, equipment, and/or personnel at the IAWWTF.

   E. Wastewater containing pollutants in sufficient quantity or concentration to cause the discharge of toxic pollutants in toxic amounts from the IAWWTF into its receiving waters, or to exceed the limitations set forth in a national pretreatment standard, in a pretreatment requirement, including the pollutant limitations referenced at § 216-6 (local limits), or in this wastewater discharge permit.

F. Any pollutants which, either singly or by interaction with other wastes, result in the presence of toxic gases, vapors, or fumes within the IAWWTF in a quantity that may cause IAWWTF worker health and safety problems, or which create a public nuisance, or which create conditions sufficient to prevent entry into the piping or other portions of the IAWWTF for maintenance and repair.

G. Any substance which may cause the IAWWTF's effluent or other product of the IAWWTF, such as residues, sludges, or scums, to be unsuitable for disposal in any manner permitted by law or for reclamation and reuse, or to interfere with the reclamation process. In no case shall a substance discharged to the IAWWTF cause the IAWWTF to be in noncompliance with sludge use or disposal criteria, guidelines, or regulations developed under Section 405 of the Act; or with any criteria, guidelines, or regulations affecting sludge use or disposal developed pursuant to the Solid Waste Disposal Act, the Clean Air Act, or state criteria applicable to the sludge management method being used.

H. Any pollutants, including oxygen-demanding pollutants (BOD), released in a discharge at a flow rate and/or pollutant concentration which will cause interference with the IAWWTF.

I. Any wastewater with objectionable color not removed in the treatment process, such as, but not limited to, dye wastes and vegetable tanning solutions.

J. Heat in amounts which will inhibit biological activity in the IAWWTF resulting in Interference, but in no case heat in such quantities that the temperature at the IAWWTF treatment plant exceeds 40°C (104°F.). In addition, the batch discharge temperature at the discharge point shall not exceed 140°F.

K. Any wastewater containing any radioactive wastes or isotopes of such half-life or concentration as may exceed limits necessary to comply with applicable state or federal regulations.

L. Any sludges or deposited solids resulting from an industrial pretreatment process. Sludges from food processing pretreatment processes may be discharged only if specifically allowed by permit.

M. Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass-through.

N. Any other trucked or hauled pollutants, except for those which are specifically permitted by the IAWWTF in discharge areas designated by the IAWWTF.

2. Except where expressly authorized to do so by an applicable Pretreatment Standard or Pretreatment Requirement, no Industrial User shall ever increase the use of process water or in any other way attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with either a Pretreatment Standard or Pretreatment Requirement.

3. In addition to the discharge prohibitions set forth above, the IAWWTF has developed specific discharge limitations, hereafter referred to as local limits, to prevent Pass Through and Interference and to protect the safety and health of IAWWTF workers. In no case shall a User's discharge to the IAWWTF violate the local limits, as they may be amended from time to time, and which are set forth in separate laws adopted by the municipalities (§ 216-50) and are listed in Section IV of this permit.

4. Applicable Categorical Pretreatment Standards which EPA has promulgated for specific industrial subcategories are hereby incorporated by reference. Where applicable Categorical Pretreatment Standards are more stringent than the local limits, Industrial Users in those subcategories shall comply with the more stringent Categorical Pretreatment Standards in accordance with the compliance timetables for each Categorical Pretreatment Standard mandated by EPA. If EPA modifies an existing Categorical Pretreatment Standard or promulgates a new Categorical Pretreatment Standard for a particular industrial subcategory, and that modified or new Categorical Pretreatment Standard contains limitations more stringent than the local limits, then upon its effective date the modified or new Categorical Pretreatment Standard shall immediately supersede, for Industrial Users in that subcategory, the local limits. The Chief Operator shall notify all affected Industrial Users of the applicable requirements under the Act, as well as of all requirements imposed by subtitles C and D of the Resource Conservation and Recovery Act.

DISCHARGE LIMITATIONS:

In addition to the discharge prohibitions set forth above, the POTW has developed specific discharge limitations, hereafter referred to as local limits (Table 1), to prevent Pass Through and Interference and to protect the safety and health of POTW workers. In no case shall a User's discharge to the POTW violate the local limits, as they may be amended from time to time, and which are set forth in separate laws adopted by the municipalities.

Table I: Local Discharge Limitations (§ 216-50)

Pollutant	Maximum Concentration 30 Day Average (mg/L)	Maximum Concentration 24 Hour Average (mg/L)	Instantaneous Concentration (mg/L)
Arsenic	n/a	0.6	n/a
Barium	80	240	n/a
Cadmium	2.5	7.5	n/a
Chromium, total	8	24	n/a
Chromium, hexavalent	1	3	n/a
Copper	2	6	n/a
Cyanide	0.2	0.6	n/a
Iron	180	540	n/a
Lead	n/a	20	n/a
Manganese	8	24	n/a
Mercury	1.5	4.5	n/a
Nickel	n/a	10	n/a
Silver	6	18	n/a
Zinc	20	35	n/a
pH (S.U.)	n/a	n/a	5.5-11.0 S.U.
Total Petroleum Hydrocarbons *	n/a	n/a	50

* EPA Method 1664

FEE:

1. The disposal fee for wastewater, pretreated to acceptable levels and approved for discharge to the sanitary sewer, will be $10.00 per 1,000 gallons. The amount of water discharged will be determined from the on-site totalization meter.

2. NYSEG will be billed directly, on a monthly basis.

DURATION:

This permit is effective immediately and expires on December 31, 2013. This permit may be amended by the IAWWTF as conditions dictate. This permit may be revoked due to the failure of the contractor to abide by the conditions of this permit. This permit may be revoked by the owners of this facility or their representative without notice or cause.

Permit issued by:

_____ Date: _____

Daniel Ramer
IAWWTF Chief Operator

Appendix J

NYSEG Overhead Electric Relocation Plan

To be inserted when received and completely coordinated with NYSEG

Appendix K

Project Schedule

AECOM Environment

Prepared for:
NYS Electric & Gas Corporation
Binghamton, NY

Prepared by:
AECOM
Latham, NY

April 2012

Project Schedule
100% Submittal
Ithaca Court Street Former MGP Site
OU-1, Markles Flats
Ithaca, New York
NYSDEC Site # 7-55-008

AECOM Environment

Prepared for:
NYS Electric & Gas Corporation
Binghamton, NY

Prepared by:
AECOM
Latham, NY

April 2012

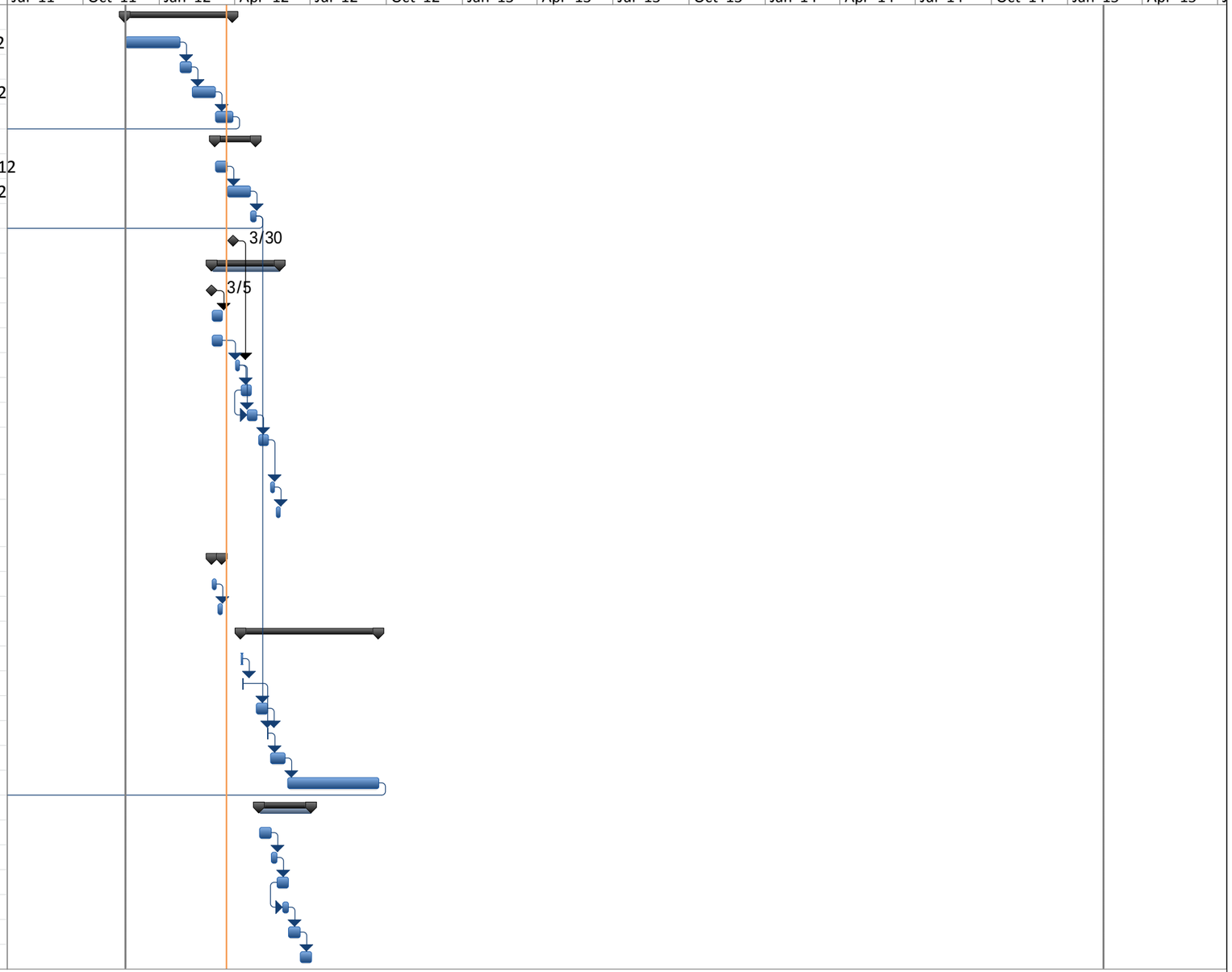
Project Schedule
100% Submittal
Ithaca Court Street Former MGP Site
OU-1, Markles Flats
Ithaca, New York
NYSDEC Site # 7-55-008

Prepared By Patrick Gratton

Reviewed By Scott Underhill, PE

Ithaca Court Street Former MGP OU-1 & OU-2 Remediation
100% Remedial Design Report
Draft Project Schedule

ID	Task Name	Duration	Start	Finish
1	Remedial Design OU2	94 days	Mon 11/21/11	Thu 3/29/12
2	100% Remedial Design OU2	48 days	Mon 11/21/11	Wed 1/25/12
3	NYSEG Review of 100% Design OU2	10 days	Thu 1/26/12	Wed 2/8/12
4	NYSDEC Review of 100% Design OU2	20 days	Fri 2/10/12	Thu 3/8/12
5	Final OU2 Design	15 days	Fri 3/9/12	Thu 3/29/12
6	Remedial Design OU1 (Markles Flats)	35 days	Fri 3/9/12	Thu 4/26/12
7	NYSEG Review of 100% Design OU1	10 days	Fri 3/9/12	Thu 3/22/12
8	NYSDEC Review of 100% Design OU1	20 days	Fri 3/23/12	Thu 4/19/12
9	Final OU1 Design	5 days	Fri 4/20/12	Thu 4/26/12
10	Complete Demo of 420 N. Plain St. (NYSEG)	5 days	Mon 3/26/12	Fri 3/30/12
11	PDI Work Plan and Activities (OU1 & OU2)	60 days	Mon 3/5/12	Fri 5/25/12
12	Submit PDI Work Plans	0 days	Mon 3/5/12	Mon 3/5/12
13	NYSDEC Review of PDI Work Plans	10 days	Mon 3/5/12	Fri 3/16/12
14	Procure Subcontractors	10 days	Mon 3/5/12	Fri 3/16/12
15	PDI Field Work	5 days	Mon 4/2/12	Fri 4/6/12
16	Laboratory Analysis	10 days	Mon 4/9/12	Fri 4/20/12
17	Remedial Des. Addenda	10 days	Mon 4/16/12	Fri 4/27/12
18	NYSDEC Review of Remedial Design Addenda	10 days	Mon 4/30/12	Fri 5/11/12
19	Finalize Revisions to Design Package	5 days	Mon 5/14/12	Fri 5/18/12
20	How to Incorporate into NYSEG bidding/contracting process	5 days	Mon 5/21/12	Fri 5/25/12
21	Tree Removal Coordination	10 days	Mon 3/5/12	Fri 3/16/12
22	AECOM Coordination	5 days	Mon 3/5/12	Fri 3/9/12
23	NYSEG and City Concurrence	5 days	Mon 3/12/12	Fri 3/16/12
24	NYSEG Activities	120 days	Mon 4/9/12	Fri 9/21/12
25	Forester Rev of NYSEG Letter	2 days	Mon 4/9/12	Tue 4/10/12
26	NYSEG Tree Removal Letter	1 day	Wed 4/11/12	Wed 4/11/12
27	NYSEG Public Notice Period	10 days	Fri 4/27/12	Thu 5/10/12
28	NYSEG Public Meeting	1 day	Fri 5/11/12	Fri 5/11/12
29	NYSEG Tree Removal	14 days	Mon 5/14/12	Thu 5/31/12
30	NYSEG Gas and Electric Relocation	80 days	Mon 6/4/12	Fri 9/21/12
31	Final Restoration Plans	45 days	Tue 5/1/12	Mon 7/2/12
32	Design Package	10 days	Tue 5/1/12	Mon 5/14/12
33	NYSEG Review of Design Package	5 days	Tue 5/15/12	Mon 5/21/12
34	City Review of Design Package	10 days	Tue 5/22/12	Mon 6/4/12
35	Contract for Services	5 days	Tue 5/29/12	Mon 6/4/12
36	NYSEG Review Contract for Services	10 days	Tue 6/5/12	Mon 6/18/12
37	City Review of Contract for Services	10 days	Tue 6/19/12	Mon 7/2/12



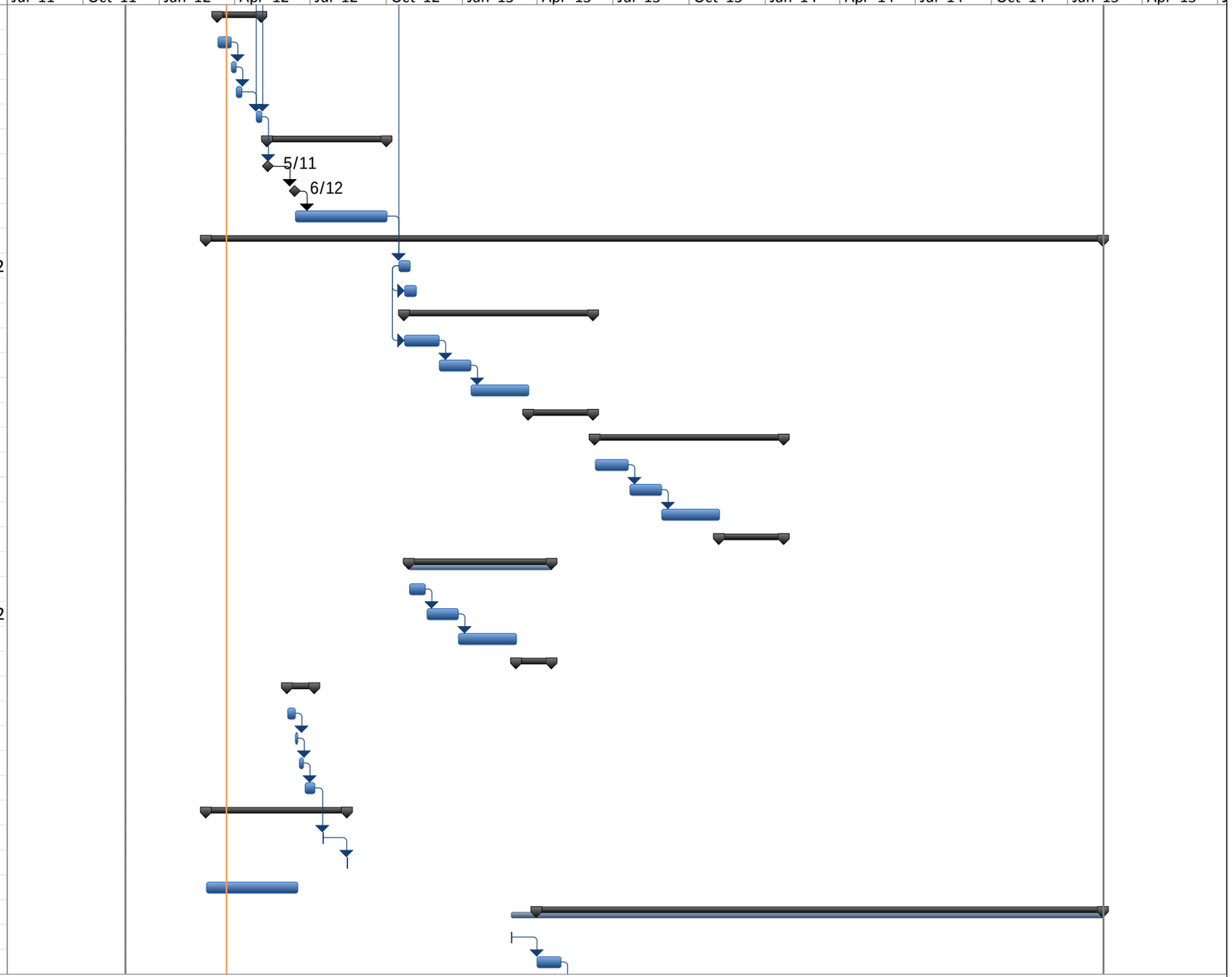
Project Schedule 95 % Submittal
Date: Thu 3/22/12

Task	Project Summary	Inactive Milestone	Manual Summary Rollup	Deadline			
Split	External Tasks	Inactive Summary	Manual Summary	Progress			
Milestone	External Milestone	Manual Task	Start-only				
Summary	Inactive Task	Duration-only	Finish-only				

Notes: Schedule assumes one ISCO event in the first calendar year; however, the timing of ISCO injections may vary based on weather, performance monitoring results, field conditions, and sequencing of site activities.

Ithaca Court Street Former MGP OU-1 & OU-2 Remediation
100% Remedial Design Report
Draft Project Schedule

ID	Task Name	Duration	Start	Finish
38	Bid Package Excavation OU1 & OU2	39 days	Mon 3/12/12	Thu 5/3/12
39	Preparing Bid Package Excavation	12 days	Mon 3/12/12	Tue 3/27/12
40	Internal Review QA/QC Excavation	4 days	Wed 3/28/12	Mon 4/2/12
41	NYSEG Review of Excavation Bid Package	5 days	Tue 4/3/12	Mon 4/9/12
42	Final Bid Package Excavation OU1 & OU2	5 days	Fri 4/27/12	Thu 5/3/12
43	RFP Excavation OU1 & OU2	102 days	Fri 5/11/12	Mon 10/1/12
44	RFP Released	1 day	Fri 5/11/12	Fri 5/11/12
45	Bids Due	0 days	Tue 6/12/12	Tue 6/12/12
46	Evaluation and Approval	79 days	Wed 6/13/12	Mon 10/1/12
47	All Project Activities	774 days	Mon 2/27/12	Thu 2/12/15
48	Mobilization	10 days	Tue 10/16/12	Mon 10/29/12
49	Temp. Water Treatment Plant	10 days	Tue 10/23/12	Mon 11/5/12
50	Area 1A	164 days	Tue 10/23/12	Fri 6/7/13
51	Utility Re-location - Area 1A	30 days	Tue 10/23/12	Mon 12/3/12
52	Sheet Pile Install and Bracing - Area 1A	28 days	Tue 12/4/12	Thu 1/10/13
53	Excavation - Area 1A	50 days	Fri 1/11/13	Thu 3/21/13
54	Work Area Temporary Restoration	56 days	Fri 3/22/13	Fri 6/7/13
58	Area 1B	164 days	Mon 6/10/13	Thu 1/23/14
59	Utility Re-location - Area 1B	30 days	Mon 6/10/13	Fri 7/19/13
60	Sheet Pile Install and Bracing - Area 1B	28 days	Mon 7/22/13	Wed 8/28/13
61	Excavation - Area 1B	50 days	Thu 8/29/13	Wed 11/6/13
62	Work Area Temporary Restoration	56 days	Thu 11/7/13	Thu 1/23/14
66	Markles Flats	124 days	Mon 10/29/12	Thu 4/18/13
67	Site Preparation	15 days	Mon 10/29/12	Fri 11/16/12
68	Sheet Pile Install and Bracing - MF	28 days	Mon 11/19/12	Wed 12/26/12
69	Excavation - MF	50 days	Thu 12/27/12	Wed 3/6/13
70	Work Area Temporary Restoration	31 days	Thu 3/7/13	Thu 4/18/13
74	Bid Package ISCO OU2	25 days	Mon 6/4/12	Fri 7/6/12
75	Preparing Bid Package ISCO	7 days	Mon 6/4/12	Tue 6/12/12
76	Internal Review QA/QC ISCO	3 days	Wed 6/13/12	Fri 6/15/12
77	NYSEG Reivew of ISCO Bid Package	5 days	Mon 6/18/12	Fri 6/22/12
78	Final Bid Package ISCO OU2	10 days	Mon 6/25/12	Fri 7/6/12
79	RFP ISCO OU2	122 days	Mon 2/27/12	Tue 8/14/12
80	RFP Released ISCO	1 day	Mon 7/16/12	Mon 7/16/12
81	Bids Due ISCO	1 day	Tue 8/14/12	Tue 8/14/12
82	Evaluation and Approval ISCO	80 days	Mon 2/27/12	Fri 6/15/12
83	Area 1C	489 days	Mon 4/1/13	Thu 2/12/15
84	Submit TEP	1 day	Fri 3/1/13	Fri 3/1/13
85	Well Install & Boring Clearing	21 days	Mon 4/1/13	Mon 4/29/13



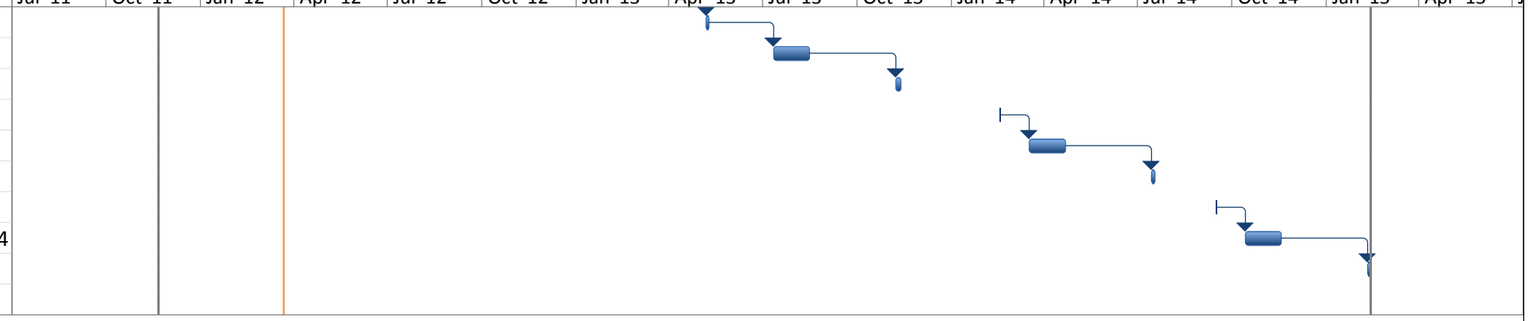
Project Schedule 100 % Submittal
Date: Thu 3/22/12

Task	Project Summary	Inactive Milestone	Manual Summary Rollup	Deadline
Split	External Tasks	Inactive Summary	Manual Summary	Progress
Milestone	External Milestone	Manual Task	Start-only	
Summary	Inactive Task	Duration-only	Finish-only	

Notes: Schedule assumes one ISCO event in the first calendar year; however, the timing of ISCO injections may vary based on weather, performance monitoring results, field conditions, and sequencing of site activities.

Ithaca Court Street Former MGP OU-1 & OU-2 Remediation
100% Remedial Design Report
Draft Project Schedule

ID	Task Name	Duration	Start	Finish
86	Baseline Sampling	3 days	Tue 5/7/13	Thu 5/9/13
87	ISCO Activities (Mob&Inj)	25 days	Fri 7/12/13	Thu 8/15/13
88	Performance Monitoring (Round 1)	3 days	Fri 11/8/13	Tue 11/12/13
89	Submit TEP Addendum	1 day	Mon 2/17/14	Mon 2/17/14
90	ISCO Activities (Mob&Inj)	25 days	Tue 3/18/14	Mon 4/21/14
91	Performance Monitoring (Round 2)	3 days	Tue 7/15/14	Thu 7/17/14
92	Submit TEP Addendum #2	1 day	Mon 9/15/14	Mon 9/15/14
93	ISCO Activities (Mob&Inj)	25 days	Tue 10/14/14	Mon 11/17/14
94	Performance Monitoring (Round 3)	3 days	Tue 2/10/15	Thu 2/12/15
95	Final Site Restoration - TBD			



Project Schedule 100 % Submittal
Date: Thu 3/22/12

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Appendix L

NYSDEC Remedial Action Design Approval Letter

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway, Albany, New York 12233-7014
Phone: (518) 402-9662 • **Fax:** (518) 402-9679
Website: www.dec.ny.gov

Joe Martens
Commissioner

April 10, 2011

Tracy L. Blazicek
NYSEG
P.O. Box 5224
Binghamton, NY 13902-5224

Re: Ithaca Court Street Former MGP Site OU-1 (Markles Flat)
Remedial Design Report
Site # 755008

Dear Mr. Blazicek,

The New York State Departments of Environmental Conservation (Department) and the New York State Department of Health have reviewed the 95% Remedial Design for the above referenced site and find it acceptable. The Design Report is hereby approved.

Please notify the Department as to the schedule for remedial action as it is developed.

If you have any questions, please feel free to contact me at (518)402-9564 or email me at eblukows@gw.dec.state.ny.us.

Sincerely,

Elizabeth B. Lukowski
Engineering Geologist
Remedial Action Bureau C
Division of Environmental Remediation

ec: Tracy Blazicek, NYSEG
J. Deming, NYSDOH
G. Cross
M. Ryan
E. Lukowski