Penn Yan Former Manufactured Gas Plant Site

YATES COUNTY

PENN YAN, NEW YORK

INTERIM SITE MANAGEMENT PLAN

NYSDEC Site Number: 862009

Prepared for:

New York State Electric and Gas Corp

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Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

DECEMBER 2020

CERTIFICATION STATEMENT

I MATTHEW THORPE certify that I am currently a NYS registered professional engineer as in defined in 6 NYCRR Part 375 and that this Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

P.E.

DATE

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List of Acronyms

AA	Access Agreement
ACM	Asbestos Containing Material
AECOM	AECOM USA, Inc.
AS	Air Sparging
ASP	Analytical Services Protocol
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
bgs	Below Ground Surface
BMPs	Best Management Practices
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CAMP	Community Air Monitoring Plan
C/D	Construction and Demolition
CFR	Code of Federal Regulation
CLP	Contract Laboratory Program
CLSM	Controlled Low Strength Material
COC	Certificate of Completion
CO2	Carbon Dioxide
CP	Commissioner Policy
DER	Division of Environmental Remediation
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
EWP	Excavation Work Plan
GHG	Green House Gas
GWE&T	Groundwater Extraction and Treatment
HASP	Health and Safety Plan
IC	Institutional Control
ISMP	Interim Site Management Plan
NAPL	Non-Aqueous Phase Liquid
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSEG	New York State Electric and Gas Corp
NYCRR	New York Codes, Rules and Regulations
O&M	Operation and Maintenance
OM&M	Operation, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
tPAH	Total Polycyclic Aromatic Hydrocarbon
PDI	Pre-Design Investigation
PDIWP	Pre-Design Investigation Work Plan
PID	Photoionization Detector
PRP	Potentially Responsible Party

PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RDWP	Remedial Design Work Plan
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RP	Remedial Party
RSO	Remedial System Optimization
SAC	State Assistance Contract
SCG	Standards, Criteria and Guidelines
SCO	Soil Cleanup Objective
SI	Supplemental Investigation
SOP	Standard Operating Procedures
SOW	Statement of Work
SPDES	State Pollutant Discharge Elimination System
SSD	Sub-slab Depressurization
SVE	Soil Vapor Extraction
SVI	Soil Vapor Intrusion
SVOC	Semi-Volatile Organic Compound
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program
VOC	Volatile Organic Compound

ES EXECUTIVE SUMMARY

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

Site Identification: NYSDEC Site #862009, Penn Yan Former MGP Site Penn Yan, New York

Institutional Controls:	1. The property may be used for restricted residential use;
	2. Maintain ECs, restriction on use of groundwater, annual inspections, notification of ownership or usage change for the properties, implementation of ISMP, environmental easement, and future intrusive activities to follow excavation work plan.
	3. All ECs must be inspected at a frequency and in a manner defined in the ISMP.
Engineering Controls:	1. Soil and engineered Cover system 2. Controlled low strength material

Inspections:	Frequency
1. Soil and engineered cover system inspection	Annually
2. Periodic Review	Annually
Monitoring:	
1. Groundwater Monitoring	Quarterly
Maintenance:	
1. Soil and engineered cover system maintenance	As needed
2. Groundwater monitoring well maintenance	As needed
Reporting:	
1. Groundwater Monitoring Report	Quarterly

Site Identification: NYSDEC Site #862009, Penn Yan Former MGP Site Penn Yan, New York

2. Periodic Review Report	Annually for the first 5 years

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

1.0 INTRODUCTION

1.1 General

This Interim Site Management Plan (ISMP) is a required element of the remedial program for the Penn Yan Former Manufactured Gas Plant Site located in Village of Penn Yan, Town of Milo, New York (hereinafter referred to as the "Site"). See Figure 1. The Site is currently in the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program Site No. 862009 which is administered by New York State Department of Environmental Conservation (NYSDEC).

New York State Electric and Gas Corporation (NYSEG) entered into an Order on Consent on March 30,1994 with the NYSDEC to remediate the site. A figure showing the site location and boundaries of this site is provided in Figure 2. The boundaries of the site are more fully described in the metes and bounds site description that is part of the Environmental Easement provided in Appendix A.

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

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

It is important to note that:

- This ISMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the ISMP is a violation of the Environmental Easement, which is grounds for revocation of the Certificate of Completion (COC);
- Failure to comply with this ISMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and the Order on Consent (Index # DO-0002-9309; Site #862009) for the site, and thereby subject to applicable penalties.

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

This ISMP was prepared by AECOM USA, Inc. (AECOM), on behalf of NYSEG, in accordance with the requirements of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 2010, and the guidelines provided by the NYSDEC. This ISMP addresses the means for implementing the ICs and ECs that are required by the Environmental Easement for the site.

1.2 Revisions

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

1.3 Notifications

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

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

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

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

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

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

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

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

- At least 60 days prior to the change, the NYSDEC and NYSEG will be notified in writing by the property owner of the proposed change. This will include a certification that the prospective purchaser/Remedial Party has been provided with a copy of the Order on Consent, and all approved work plans and reports, including this ISMP.

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

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

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The site is located in the Village of Penn Yan, Town of Milo, Yates County, New York and is composed of two contiguous parcels of land. The larger parcel is identified as Section/Block/Lot #46.17-2-68 and the smaller parcel is identified as Section/Block/Lot #46.17-2-74 on the Yates County Tax Map (see Figure 2). The site is an approximately 0.815-acre area. The larger parcel is approximately 0.805 acres and the smaller parcel is approximately 0.01 acres. The site is bounded to the north by Water Street, the Keuka Lake Outlet, a Class C waterway, to the south, a commercial property located at 128 Liberty Street to the west, and a mixed commercial/residential property consisting of a three-story commercial building occupied by a wine store and a private residence to the east (see Figure 2 – Site Layout Map) . Further to the east is the mixed commercial/residential Birkett Landing development adjacent to the outlet. The boundaries of the site are more fully described in Appendix A – Environmental Easement. The owner of the site parcel at the time of issuance of this ISMP is/are:

New York State Electric and Gas (NYSEG)

The off-site Area consists of an approximate 1.7-acre portion of the Keuka Lake Outlet, a Class C waterway. The off-site Area consists of submerged sediments beneath the Keuka Lake Outlet claimed by the State of New York.

2.2 Physical Setting

2.2.1 Land Use

The site consists of the following: a currently vacant masonry “gas house” building which was formerly used for gas manufacturing operations. This building is located within the historic district of the Village of Penn Yan as defined by the New York State

Department of Parks and Recreation. The remaining areas of the parcel consist of a mowed, grass-covered area, driveways and parking area, and a grass/brush covered riparian strip of land along Keuka Lake outlet. The smaller parcel is located adjacent to Water street, to the northeast of the former MGP process area. A small building is currently present on the parcel, housing the natural gas regulator servicing the Village of Penn Yan. The site is zoned Waterfront Development and Conservation (WDC) District, which permits commercial and residential uses.

The properties adjoining the Site and in the neighborhood surrounding the Site primarily include commercial and residential properties. The Keuka Lake Outlet is south of the Site; immediately north of the Site is Water Street; immediately West of the site is a commercial property at 128 Liberty Street. One building is present at this property which is currently being renovated for commercial use. the properties immediately east of the Site include commercial and residential properties. Immediately east of the site is a three-story mixed commercial/residential building occupied by a wine store and a private residence. Further to the east is the mixed commercial/residential Birkett Landing development adjacent to the Outlet.

2.2.2 Geology

Three soil units have been identified in the subsurface beneath the site. From the ground surface downward, these are a manmade fill unit, a silt unit, and a sand unit. The fill unit is found across the site and generally ranges from 4 feet thick (around the MGP building) to 13 feet thick (adjacent to Water St). The thickness of the fill unit adjacent to the Keuka Lake Outlet is approximately 8 feet.

Beneath the fill is a silt unit that ranges in thickness between 10 and 20 feet. This silt unit appears to act as a potential aquitard beneath the site, limiting movement of groundwater and contaminants from the site. A sand unit of unknown thickness is present below the silt. The depth to bedrock is unknown; however, it is likely greater than 300 feet bgs in the area of the site.

The Keuka Lake Outlet has an organic silt sediment unit approximately 4 feet thick. Beneath the silt is a clay unit of unknown thickness.

A geologic cross section is shown in Figure 3. Site specific boring logs associated with the monitoring wells are provided in Appendix C.

2.2.3 Hydrogeology

The groundwater table has historically been present between 3 and 15 feet below ground surface (bgs) at the site. Groundwater flows from the northwest to the southeast across the site towards the Keuka Lake Outlet. Horizontal hydraulic conductivity testing was performed for six wells in 1990 by TRC Companies, Inc. (TRC). The hydraulic conductivity measurements ranged from 1×10^{-3} cm/sec to 7×10^{-5} cm/sec.

A groundwater contour mapping is shown in Figure 4. Groundwater elevation data is provided in Table 2. Groundwater monitoring well construction logs are provided in Appendix C.

2.3 Investigation and Remedial History

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

The site was initially developed as a malt house and wood storage facility, operating from the 1840's to the late 1890's. The MGP was constructed in 1899 and operated until 1931. During this period gas was manufactured using a coal gasification process using coal, coke, and water. The operating companies included the Penn Yan Gas Light Company (1889–1926) and the New York State Central Electric Corporation (1927–1931). Gas was distributed to consumers through buried mains and used primarily for illumination. Several

byproducts from the MGP process including coal tar, ash, and purifier waste were stored on site and either sold or disposed off-site.

The previous remedial activities at the Site are listed below:

- Between 1986 and 1990, TRC performed fieldwork at the site that included the excavation of test pits; the completion of soil borings; the installation of monitoring wells; and the analyses of soil, surface water, groundwater, and sediment samples (TRC, 1986, 1990a).
- Between September 1991 and May 1992, SLC Consultants/Constructors, Inc. (SLC) performed remedial work at the site (SLC, 1991 and 1992). Subsurface Tar Tank A was uncovered and cleaned out. The 3,000-gallon underground storage tank (UST) located between the warehouse/garage building and the Outlet (Tar Tank B) was also decommissioned, cleaned-out and removed. Tar-impacted soil was excavated from the tank pit area.
- A Supplemental Investigation (SI) was performed by Geraghty and Miller, Inc. in June 1994 (Geraghty and Miller, 1994b). The SI included the completion of three soil borings and the collection of additional sediment samples. Following the SI, eight rounds of groundwater sampling were performed including sampling in November 1991, November 1992, November 1993, July 1994, April 1995, April 1996, April 1997, and April 1998.
- AECOM conducted a remedial investigation (RI) submitted to NYSDEC in November of 2008 (AECOM, 2008). The scope of the RI included subsurface utility clearing, surface and subsurface soil sampling, test pit excavation, soil boring installation, monitoring well installation and development, groundwater sampling, sediment probing and sampling, bathymetric surveys and site surveys.
- In November 2012, AECOM submitted a Feasibility Study (FS) Report assessing remedial alternatives for the Site (AECOM, 2012). The recommended alternative included excavation and dredging of contaminated materials on-Site and in the Outlet.
- In December 2012, NYSDEC issued a Record of Decision (ROD) for the Site, which established a remedial action for the on-site and off-site impacted materials (NYSDEC, 2012). The selected remedial action includes excavation of on-Site soils and sediments in the Outlet. The remedial action objectives (RAOs) established by the ROD are summarized in Section 2.3.
- The Remedial Design Work Plan (RDWP) was submitted on March 13, 2013 and approved by the NYSDEC on May 28, 2013.
- The Pre-Design Investigation Work Plan (PDIWP) was submitted on March 13, 2013 and approved by the NYSDEC on May 28, 2013. Addendum No. 1 of the PDIWP was submitted on October 7, 2013 to change the location of two geotechnical borings and approved by the NYSDEC on October 7, 2013. Addendum No. 2 of the PDIWP was submitted on January 23, 2014 to excavate test pits and expose the building foundation and perform a hazardous building materials survey and approved by the NYSDEC on January 24, 2014.

- AECOM conducted the pre-design investigation (PDI) during two mobilizations to the site. The initial mobilization occurred from July 9, 2013 to July 18, 2013. The second mobilization to the site occurred from February 3, 2014 to February 7, 2014.
- AECOM submitted the Remedial Design Report in June 2014. The remedial activities, executed from July 2015-November 2019, include the following:
    - Asbestos containing material (ACM) and hazardous materials abatement of the Former MGP Building.
    - Structural repairs and reinforcement of the Former MGP Building.
    - Removal of sediment in the Keuka Lake Outlet which contains visible non-aqueous phase liquid (NAPL), sheen, or which produce a visible sheen when agitated.
    - Removal of sediment in the Keuka Lake Outlet adjacent to the site and downstream of the site to the downstream control structure with concentrations of total polycyclic aromatic hydrocarbon (tPAH) compounds at levels above the site-specific background concentration of 43 milligrams per kilogram (mg/kg) tPAH17 (NYSDEC, 2012) to a depth no greater than two feet.
    - Backfill areas where sediment was removed to re-establish bottom elevations and provide habitat for aquatic organisms.
    - Excavation of sub-surface soil with concentrations of total semi-volatile organic compounds (SVOCs) greater than 500 mg/kg, concentrations of volatile organic compounds (VOCs) greater than 10 mg/kg, or soils which are visually impacted with NAPL and/or NAPL sheens.
    - Removal of former MGP structures, debris, piping, and major obstructions which remain in the subsurface to the extent practicable.
    - Excavation of surface soil exceeding restricted-residential soil cleanup objectives (SCOs).
    - Backfilling excavations to re-establish original site grades.
    - Placement of site cover consisting of pavement, sidewalks, buildings, or two feet of clean soil.
    - Transportation of excavated soil and sediment to the temporary fabric structure (TFS) for amendment and dewatering. Restore Restoration of the site with topsoil and gravel; re-building the bank adjacent to the site with riprap, topsoil and plantings, planting grass in Upland areas, and planting subaquatic vegetation in selected Outlet areas.
    - Off-site transportation and disposal or treatment of soil and sediment removed from the site at a permitted waste management facility.

2.4 Remedial Action Objectives

The RAOs for the Site as listed in the Record of Decision dated December 2012 are as follows:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of, volatiles from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Prevent the discharge of contaminants to surface water.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

Sediment

RAOs for Public Health Protection

- Prevent direct contact with contaminated sediments.

RAOs for Environmental Protection

- Prevent impacts to biota from ingestion/direct contact with sediments causing toxicity or impacts from bioaccumulation through the marine or aquatic food chain.

- Restore sediments to pre-release/background conditions to the extent feasible.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

2.5 Remaining Contamination

This section presents a summary of impacts remaining at the site and off-site areas following remediation.

2.5.1 Soil

In areas of the building where the building's foundation was shallower than anticipated, MGP impacts (soils and coal tar) remain on or below the original foundation between the newly installed grade beams. Due to building stability issues and the impracticality of removing these materials, it became necessary to remove impacted materials from under the wall/grade beams and backfill with Controlled Low Strength Material (CLSM). The material was removed until visually clean at which point confirmation bottom samples were collected and the area was backfilled with CLSM with NYSDEC approval. In conjunction with the newly installed grade beams the CLSM encased any remaining impacted material within cementous material (grade beams and CLSM). In-place containment of impacted materials in these areas was approved by NYSDEC.

Table 3 and Figure 5 summarize the results of all soil samples collected that exceed the Unrestricted Use SCOs and the restricted residential, Use SCOs at the site after completion of remedial action.

2.5.2 Sediment

In accordance with the ROD, the remediation goal for sediment was tPAH17 of 43 mg/kg. This goal was exceeded at 4 sample locations in the Keuka Lake Outlet. A minimum of two feet of clean habitat fill was installed above these locations. All visual contamination was removed per the NYSDEC-approved visual screening process.

Table 4 and Figure 6 summarize the results of all sediment samples collected that exceed the SCGs after completion of the remedial action.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

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

This plan provides:

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

3.2 Institutional Controls

A series of ICs is required by the ROD to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination; and,

(3) limit the use and development of the site to restricted residential uses only. Adherence to these ICs on the site is required by the Environmental Easement and will be implemented under this ISMP. ICs identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement. The IC boundaries are shown on Figure 8. These ICs are:

- The property may be used for: restricted residential use;
- All ECs must be operated and maintained as specified in this ISMP;
- All ECs must be inspected at a frequency and in a manner defined in the ISMP.
- The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Yates Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department.
- Groundwater monitoring must be performed as defined in this ISMP;
- Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this ISMP;
- All future activities that will disturb remaining contaminated material must be conducted in accordance with this ISMP;
- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this ISMP;
- Operation, maintenance, monitoring, inspection, and reporting of any physical component of the remedy shall be performed as defined in this ISMP;
- The potential for vapor intrusion must be evaluated for the occupation of the existing building and for any building developed on the property, any potential impacts that are identified must be monitored or mitigated;
- Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement;
- The potential for vapor intrusion must be evaluated for the building redeveloped in the area within the IC boundaries noted on Figure 7, and any potential impacts that are identified must be monitored or mitigated; and

- Vegetable gardens and farming on the site are prohibited.

For the off-site areas the Institutional Controls are:

- Compliance with the Environmental Easement and this ISMP by the Grantor and the Grantor's successors and assigns;
- All ECs must be operated and maintained as specified in this ISMP;
- All ECs must be inspected at a frequency and in a manner defined in the ISMP;
- Groundwater and soil vapor monitoring must be performed as defined, and applicable, in this ISMP; Data and information pertinent to site management must be reported to the NYSDEC at the frequency and manner defined in this ISMP;
- ICs identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement;
- All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with this ISMP;
- The use of the groundwater underlying the property is prohibited without treatment rendering it safe for its intended use, as determine and pre-approved by the NYSDEC, New York State Department of Health (NYSDOH), and Yates County Department of Health;
- The potential for vapor intrusion must be evaluated for any buildings developed on the property, and any potential impacts that are identified must be monitored or mitigated;
- Vegetable gardens and farming on the property are prohibited;
- Require the remedial party or Site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3); and
- Allow the use and development of the controlled property for restricted residential uses, though land use is subject to local zoning laws.

3.3 Engineering Controls

3.3.1 Soil Engineered Cover System

Exposure to remaining contamination at the site is prevented by a soil and engineered cover system placed over the site. This soil and engineered cover system is comprised of a minimum of 24 inches of clean soil on site and a 6 inch geoweb infilled with a 1 inch layer of AquaGate overlain by a 5 inch layer of AquaBlok all overlain by a geotextile demarcation layer and a minimum of 12 inches of clean soil off-site. Figure 9 presents the location of the two cover systems and applicable demarcation layers. The off-site cover system comprised of the AquaGate and AquaBlok is located along the bank between the former gas house and the Keuka Lake Outlet. The Excavation Work Plan (EWP) provided in Appendix D outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection of this cover are provided in the Monitoring and Sampling Plan included in Section 4.0 of this ISMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and associated Community Air Monitoring Plan (CAMP) prepared for the site and provided in Appendix E.

3.3.2 CLSM

Controlled Low Strength Material (CLSM) is present in the area of the building foundation as described in Section 2.5. The CLSM shall not be removed without prior approval from NYSDEC. The EWP provided in Appendix D outlines the procedures required to be implemented in the event the EC is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a HASP and associated CAMP prepared for the site and provided in Appendix E.

3.3.3 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision

document. The framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10.

3.3.3.1 – Soil and Engineered Cover System

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

3.3.3.2– Controlled Low Strength Material

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

4.0 MONITORING AND SAMPLING PLAN

4.1 General

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

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

- Sampling and analysis of all appropriate media (e.g., groundwater);
- Assessing compliance with applicable NYSDEC standards, criteria and guidance (SCGs), particularly groundwater standards and Part 375 SCOs for soil; and
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment;

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

- Sampling locations, protocol and frequency;
- Information on all designed monitoring systems;
- Analytical sampling program requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

Reporting requirements are provided in Section 7.0 of this ISMP.

4.2 Site – wide Inspection

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

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

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

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this ISMP and the Environmental Easement;
- Achievement of remedial performance criteria; and

- If site records are complete and up to date.

Reporting requirements are outlined in Section 7.0 of this plan.

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

4.3 Treatment System Monitoring and Sampling

Samples shall be collected from the monitoring wells on a routine basis. Sampling locations required analytical parameters and schedule are provided in Table 5 – Post Remediation Sampling Requirements and Schedule below. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

Detailed sample collection and analytical procedures and protocols are provided in Appendix H– Field Sampling Plan and Appendix F – Quality Assurance Project Plan.

4.3.1 Groundwater Sampling

Groundwater monitoring will be performed quarterly to assess the performance of the remedy. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

The network of monitoring wells has been installed to monitor upgradient, on-site and downgradient groundwater conditions at the site. The network of on-site and off-site wells has been designed based on the following criteria:

Table 6 summarizes the wells identification number, as well as the purpose, location, depths, diameter and screened intervals of the wells. As part of the groundwater monitoring, 12 on-site wells (6 deep and 6 shallow) are sampled to evaluate the effectiveness of the remedial system. Two of the monitoring wells are currently installed and the remaining ten are proposed to be installed.

Monitoring well construction logs are included in Appendix C of this document.

If biofouling or silt accumulation occurs in the on-site and/or off-site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced, if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair or decommissioning of any monitoring well for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent Periodic Review Report. Well decommissioning without replacement will be done only with the prior approval of the NYSDEC. Well abandonment will be performed in accordance with NYSDEC's guidance entitled "CP-43: Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be replaced in kind in the nearest available location, unless otherwise approved by the NYSDEC.

The sampling frequency may only be modified with the approval of the NYSDEC. This ISMP will be modified to reflect changes in sampling plans approved by the NYSDEC.

Deliverables for the groundwater monitoring program are specified in Section 7.0 – Reporting Requirements.

4.3.2 Sediment Sampling

Annual inspection will include visually monitoring for the presence of sheen and/or coal tar NAPL on the surface of the Keuka Lake Outlet near the Outlet Control Structure (flood control gates) at the Main Street bridge. Historically sheen and/or NAPL was only visible on the water surface during the warmest months of the year (i.e. June through August) so this visual monitoring will take place during summer months only.

A one-time post-remediation inspection for assessment of the reestablishment of the biotic community within the remediated portion of the Keuka Lake Outlet will be performed for inclusion in the first PRR.

4.3.3 Soil Vapor Intrusion Sampling

Prior to the construction of any enclosed structures located over areas that contain remaining contamination (Figure 8A and Figure 8B), a soil vapor intrusion (SVI) evaluation will be performed to determine whether any mitigation measures are necessary to eliminate potential exposure to vapors in the proposed structure. Alternatively, an SVI mitigation system may be installed as an element of the building foundation without first investigating. This mitigation system may include a vapor barrier and/or passive sub-slab depressurization system that is capable of being converted to an active system.

Prior to conducting an SVI investigation or installing a mitigation system, a work plan will be developed and submitted to the NYSDEC and NYSDOH for approval. This work plan will be developed in accordance with the most recent NYSDOH “Guidance for

Evaluating Vapor Intrusion in the State of New York" (NYSDOH, 2006). Measures to be employed to mitigate potential vapor intrusion will be evaluated, selected, designed, installed, and maintained based on the SVI evaluation, the NYSDOH guidance, and construction details of the proposed structure.

Preliminary (unvalidated) SVI sampling data will be forwarded to the NYSDEC and NYSDOH for initial review and interpretation. Upon validation, the final data will be transmitted to the agencies, along with a recommendation for follow-up action, such as mitigation.

If conducted, SVI sampling results, evaluations, and follow-up actions will also be summarized in the next Periodic Review Report. The sampling frequency may only be modified with the approval of the NYSDEC. This ISMP will be modified to reflect changes in sampling plans approved by the NYSDEC.

Deliverables for the soil vapor intrusion sampling program are specified in Section 7.0 – Reporting Requirements.

4.3.4 Monitoring and Sampling Protocol

All sampling activities will be recorded in a field book and associated sampling log as provided in Appendix G - Site Management Forms. Other observations (e.g., groundwater monitoring well integrity, etc.) will be noted on the sampling log. The sampling log will serve as the inspection form for the monitoring network. Additional detail regarding monitoring and sampling protocols are provided in the site-specific Field Sampling Plan provided as Appendix H of this document.

4.4 Soil and Engineered Cover System Monitoring

Exposure of the residual contamination to the humans has been eliminated by the engineered controls implemented in areas where contamination may remain. The soil and engineered cover area should be observed during the annual Site inspection. The IC/EC

certification in the PRR should include language regarding the status and condition of the engineered cover system consisting of pavement and/or soil cover and confirm that no excavation has been performed in the area without prior approval by the NYSDEC.

5.0 OPERATION AND MAINTENANCE PLAN

5.1 General

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

6.0 PERIODIC ASSESSMENTS/EVALUATIONS

6.1 Climate Change Vulnerability Assessment

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

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

A narrow portion of the bank is in the FEMA 100-year flood plain as depicted on Figure 2. However, the site does not have any active remediation systems that would be susceptible to potential vulnerabilities due to power outage or flooding. Stormwater management is provided by the Village of Penn Yan stormwater management system. At this time there are not any Site components that would be susceptible to damage from high winds or erosion. Since this is not an active site, there are no remedial systems or site elements that could contribute to spill/release of contaminants. Since no potential vulnerabilities have been identified at the Site a vulnerability assessment is not needed for this ISMP. In the future, if Site conditions change, the potential vulnerabilities will be reassessed and the ISMP will be updated accordingly.

6.2 Green Remediation Evaluation

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

Since the Site is in the post remedial phase and there are no active remediation systems operating at the Site the green remediation evaluation is limited to items relating to the monitoring and sampling activities at the Site. During the sampling and maintenance activities green remediation best management practices (BMPs) will be implemented at the Site. GSRx, A green and sustainable remediation tool developed by AECOM, includes the following list of BMPs related to monitoring and sampling that will be considered:

- Consider the long-term effects of monitoring versus the short-term effects of source removal
- Perform non-intrusive surveys to determine delineation boundaries (e.g. geophysical survey of USTs)
- Consider the use of direct sensing technologies to obtain geological, geotechnical, and hydrogeological information.
- Use long-term monitoring optimization approaches to eliminate redundant or otherwise unnecessary sampling
- Consider the use of direct push technologies versus rotary technologies
- Consider the use of data loggers to monitor groundwater levels
- Consider the use of dedicated sampling equipment
- Conduct investigation work with the use of real-time monitoring/sampling equipment to encourage in-field decisions for further investigation requirements
- Specify laboratory analytical methods generating less waste and solvents, for solids and fluids, if comparable accuracies can be achieved

- Consider the use of field testing and field screening methods
- Use certified mobile laboratories to analyze collected samples
- Consider the distance of the laboratory from the Site when evaluating qualified laboratories for testing that cannot be completed onsite
- Limit the number and size of shipments to offsite laboratories
- Encourage electronic deliverables from laboratories; discourage hard copy deliverables

In addition, the following green and sustainable remediation BMPs will also be considered throughout the monitoring and sampling program implementation:

- Site visits will be coordinated such that multiple activities (e.g. groundwater sampling and Site inspections) will be conducted during the same visit in order to minimize travel.
- Rechargeable batteries will be used for field instruments versus disposable batteries.
- Field work will be conducted such that waste materials will be minimized.
- Noise impacts to offsite receptors will be minimized.
- Work and traffic patterns will be sequenced to minimize local traffic congestion.
- An idle reduction plan will be implemented for all onsite vehicles and machinery.
- Efficient traffic patterns will be established on Site to minimize local disturbance and noise.
- Equipment will be suitably sized to perform the work.
- Routine and on-time maintenance to equipment will be performed to improve fuel efficiency (i.e., oil changes).
- All vehicles and equipment that consume diesel fuel will use Low Sulfur Diesel Fuel.

6.2.1 Timing of Green Remediation Evaluations

For major remedial system components, green remediation evaluations and corresponding modifications will be undertaken as part of a formal Remedial System Optimization (RSO), or at any time that the Project Manager feels appropriate, e.g. during significant maintenance events or in conjunction with storm recovery activities.

Modifications resulting from green remediation evaluations will be routinely implemented and scheduled to occur during planned/routine operation and maintenance activities. Reporting of these modifications will be presented in the PRR.

6.2.2 Frequency of System Checks, Sampling and Other Periodic Activities

Transportation to and from the Site and use of consumables in relation to visiting the Site in order to conduct system checks and or collect samples and shipping samples to a laboratory for analyses have direct and/or inherent energy costs. The schedule and/or means of these periodic activities have been prepared so that these tasks can be accomplished in a manner that does not impact remedy protectiveness but reduces expenditure of energy or resources.

6.2.3 Metrics and Reporting

As discussed in Section 7.0 and as shown in Appendix G – Site Management Forms, information on energy usage, solid waste generation, transportation and shipping, water usage and land use and ecosystems will be recorded to facilitate and document consistent implementation of green remediation during site management and to identify corresponding benefits; a set of metrics has been developed.

6.3 Remedial System Optimization

A Remedial Site Optimization (RSO) study will be conducted any time that the NYSDEC or the remedial party requests in writing that an in-depth evaluation of the remedy is needed. An RSO may be appropriate if any of the following occur:

- The remedial actions have not met or are not expected to meet RAOs in the time frame estimated in the Decision Document;
- The management and operation of the remedial system is exceeding the estimated costs;
- The remedial system is not performing as expected or as designed;
- Previously unidentified source material may be suspected;
- Plume shift has potentially occurred;
- Site conditions change due to development, change of use, change in groundwater use, etc.;
- There is an anticipated transfer of the site management to another remedial party or agency; and
- A new and applicable remedial technology becomes available.

An RSO will provide a critique of a site's conceptual model, give a summary of past performance, document current cleanup practices, summarize progress made toward the site's cleanup goals, gather additional performance or media specific data and information and provide recommendations for improvements to enhance the ability of the present system to reach RAOs or to provide a basis for changing the remedial strategy.

The RSO study will focuses on overall site cleanup strategy, process optimization and management with the intent of identifying impediments to cleanup and improvements to site operations to increase efficiency, cost effectiveness and remedial time frames. Green remediation technology and principals are to be considered when performing the RSO.

7.0. REPORTING REQUIREMENTS

7.1 Site Management Reports

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

All applicable inspection forms and other records, including media sampling data and system maintenance reports, generated for the site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of Table 8 and summarized in the Periodic Review Report.

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

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc.);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets, and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and

- A determination as to whether contaminant conditions have changed since the last reporting event.

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

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

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

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

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

7.2 Periodic Review Report

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

- Identification, assessment and certification of all ECs/ICs required by the remedy for the site and off-site area.
- Results of the required annual site and off-site area inspections and severe condition inspections, if applicable.
- All applicable site management forms and other records generated for the site and off-site area during the reporting period in the NYSDEC-approved electronic format, if not previously submitted.
- A summary of any discharge monitoring data and/or information generated during the reporting period, with comments and conclusions.
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor, etc.), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends.
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted in digital format as determined by the NYSDEC. Currently, data is supplied electronically and submitted to the NYSDEC EQuIS^{TM} database in accordance with the requirements found at this link: http://www.dec.ny.gov/chemical/62440.html.
- A site and off-site area evaluation, which includes the following:

- The compliance of the remedy with the requirements of the site-specific RAWP, ROD or Decision Document;
- The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
- Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring and Sampling Plan for the media being monitored;
- Recommendations regarding any necessary changes to the remedy and/or Monitoring and Sampling Plan; and
- Trends in contaminant levels in the affected media will be evaluated to determine if the remedy continues to be effective in achieving remedial goals as specified by the Decision Document.
- The overall performance and effectiveness of the remedy.

7.2.1 Certification of Institutional and Engineering Controls

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

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

- *The inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;*
- *The inspection of the adjacent off-site area to confirm the effectiveness of the engineered cover system required by the remedial program was performed under my direction;*
- *The engineering control systems are performing as designed and are effective;*
- *To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program*

- *The ICs/ECs employed at this site and adjacent off-site area are unchanged from the date the control was put in place, or last approved by the Department;*
- *Nothing has occurred that would impair the ability of the control to protect the public health and environment;*
- *Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;*
- *Access to the site and adjacent off-site area will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;*
- *If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;*
- *Use of the site and adjacent off-site area is compliant with the environmental easement;*
- *The information presented in this report is accurate and complete.*

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner or Owner's Designated Site Representative] for the site."

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

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

7.3 Corrective Measures Work Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a Corrective Measures Work Plan will be submitted to the NYSDEC for approval. This

plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Work Plan until it has been approved by the NYSDEC.

7.4 Remedial Site Optimization Report

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

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

8.0 REFERENCES

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

AECOM, 2008. Remedial Investigation Report, Penn Yan Water Street MGP Site, Penn Yan, New York, NYSDEC Site No., 8-62-009, Index # D0-000-9309. November 20, 2008.

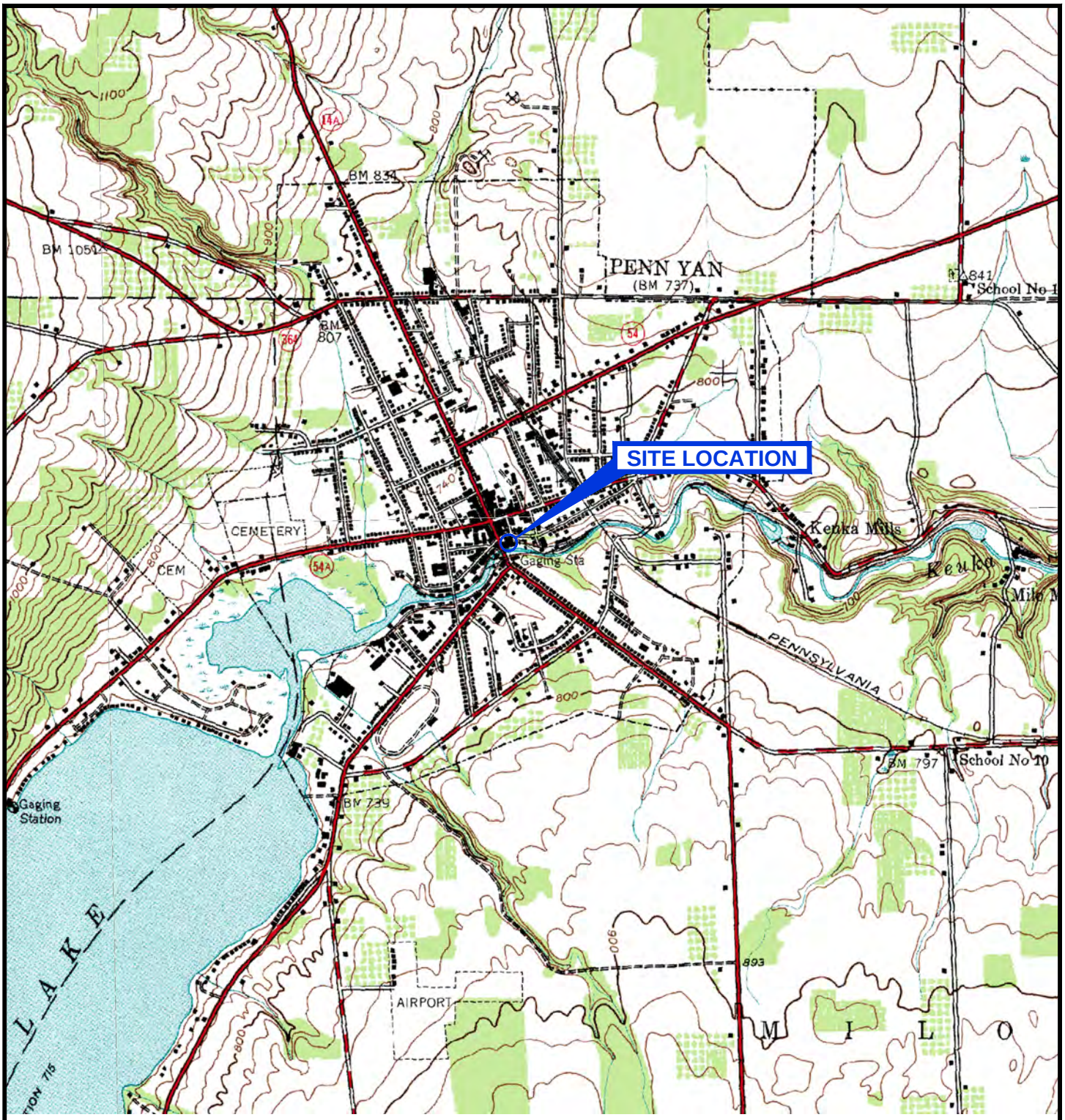
AECOM, 2014. Remedial Design Report, Penn Yan Water Street MGP Site, Penn Yan, New York, NYSDEC Site No., 8-62-009, Index # D0-000-9309. August 2014.

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

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

NYSDEC, 2012. Record of Decision, NYSEG, Penn Yan Water Street MGP, Penn Yan, Yates County, New York, Site No. 8-62-009. December 2012.

FIGURES



UNITED STATES GEOLOGIC SURVEY
PENN YAN QUADRANGLE
NEW YORK
7.5 MINUTE SERIES (TOPOGRAPHY)

PENN YAN, NY.
1983
PHOTOREVISED 1995

SCALE 1:24000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

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AECOM

PENN YAN WATER STREET FORMER MGP SITE SITE MANAGEMENT PLAN			**SITE LOCATION MAP**	
DATE: JULY 2020	DRWN:			**FIGURE 1**

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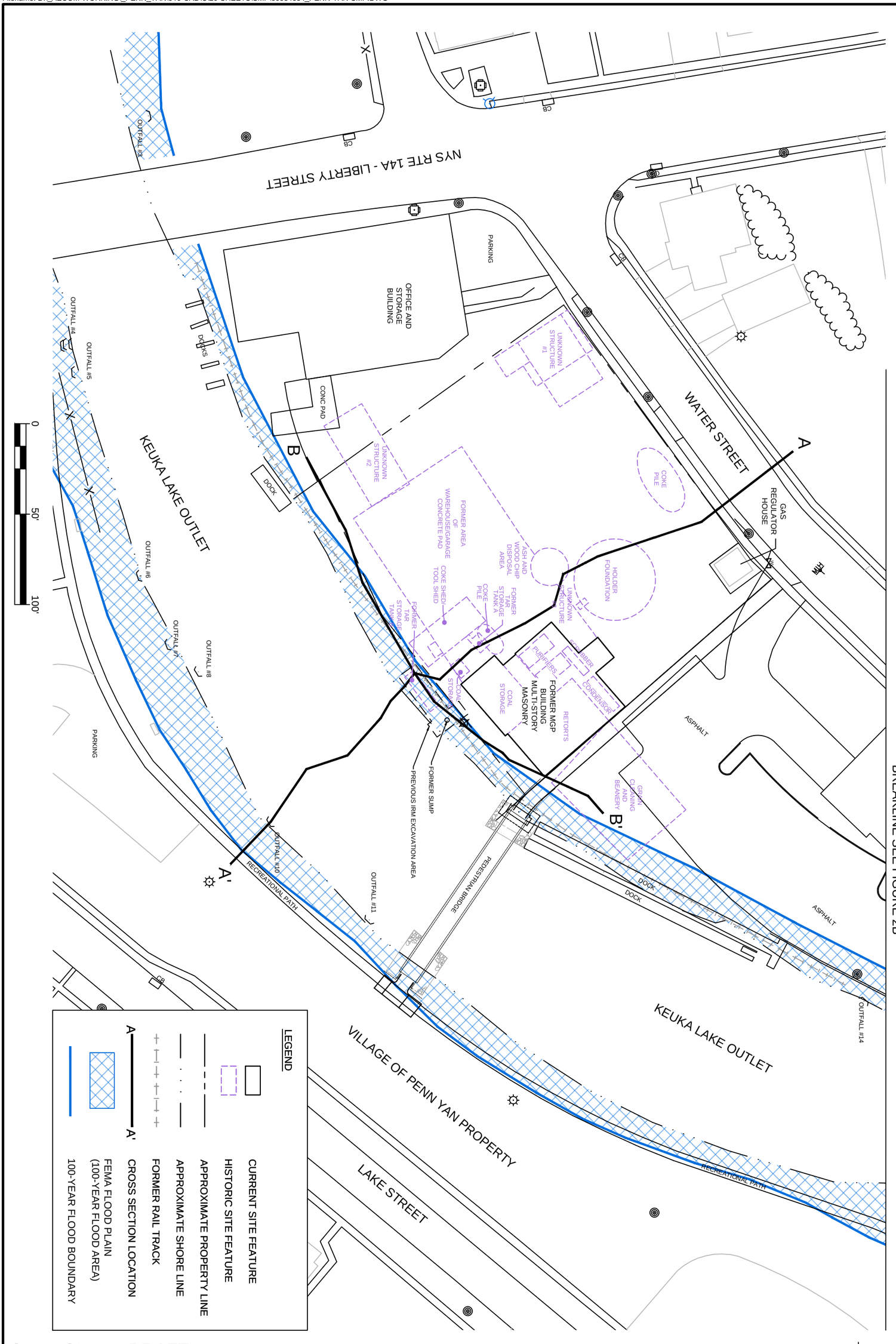


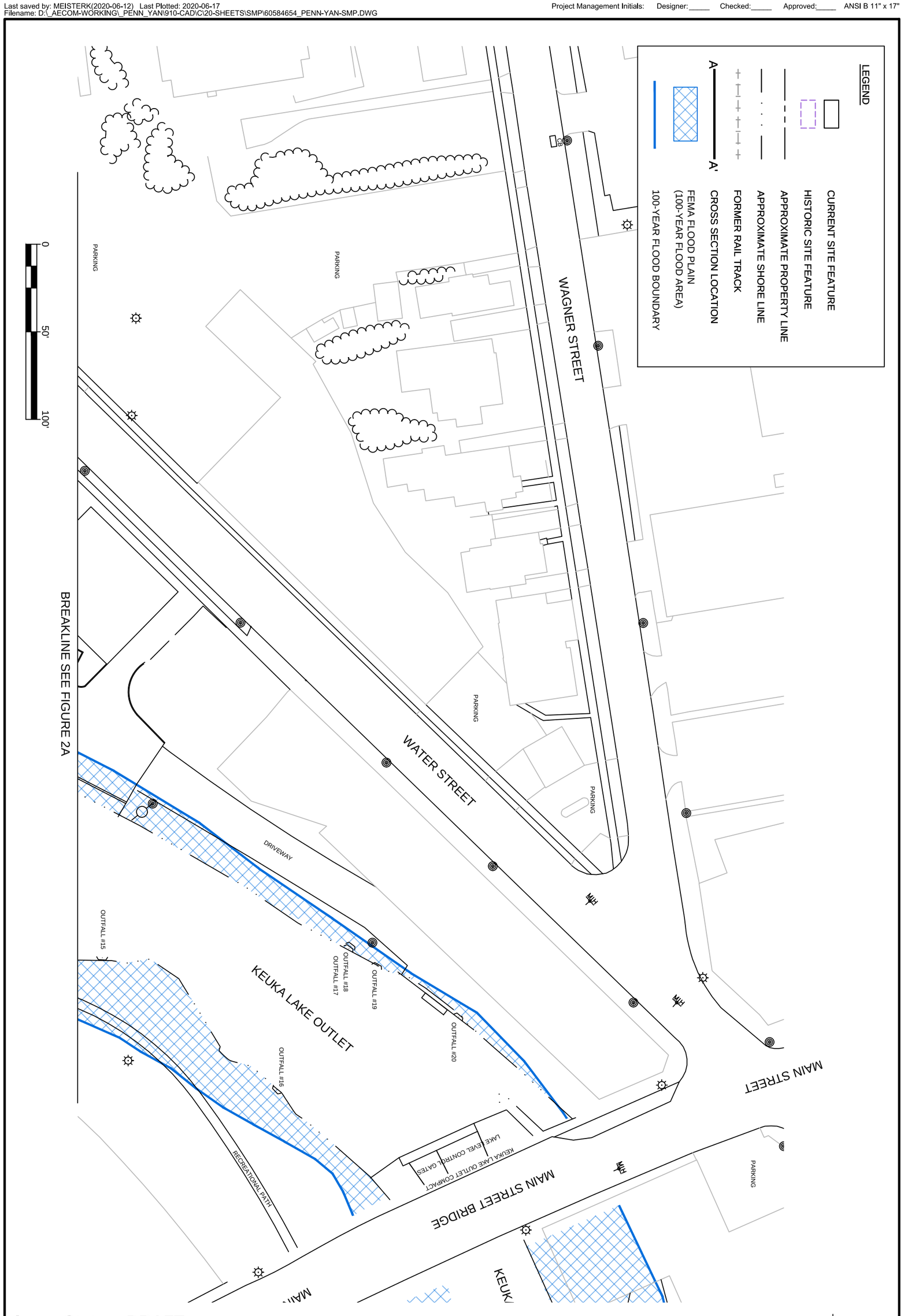
Issue Status: DRAFT

SITE MANAGEMENT PLAN
WATER STREET MANUFACTURED GAS PLANT
VILLAGE OF PENN YAN, YATES COUNTY, NEW YORK
Project No.: 60584654 Date: JULY 2020

SITE MAP
1 OF 2

AECOM

Figure: 2A



Issue Status: DRAFT

SITE MANAGEMENT PLAN
WATER STREET MANUFACTURED GAS PLANT
VILLAGE OF PENN YAN, YATES COUNTY, NEW YORK
Project No.: 60584654 Date: JULY 2020

SITE MAP
2 OF 2

AECOM

Figure: 2B

NORTH

A

SOUTH

A'

WATER STREET

PROPERTY LINE

MW5S

FORMER GAS HOLDER

FORMER WAREHOUSE GARAGE

ASH AND WOOD CHIP DISPOSAL AREA

TAR STORAGE TANK A

COAL STORAGE

LIMIT OF EXCAVATION

TAR STORAGE TANK B

RECREATION PATH

KEUKA LAKE OUTLET

EDGE OF SHORE

T31

SDC01

SDC02

SDC03

OUTFALL G

EDGE OF SHORE

SB23

TP1W

SB14

SB29

SB13

SB12

MW3S

TP5

SB21

FILL

SILT

PIPE

CLAY

SAND

SILTY SAND AND GRAVEL

OUTFALL

735
730
725
720
715
710
705
700
695
690

0
30
60
90
120
150
180
210
240
270
300
330
360
390

HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=10'

LEGEND

- FILL
- SILT
- CLAY
- SAND
- SILTY SAND AND GRAVEL
- CONCRETE
- MONITORING WELL SCREEN
- SOIL BORING OR VIBRACORE SAMPLE
- FORMER STRUCTURE LOCATION
- DIRECT CONTACT
- INFERRED CONTACT
- SEDIMENT SURFACE
- OUTLET ELEVATION
- GROUNDWATER ELEVATION OCTOBER 25, 2006
- LABORATORY SAMPLE RANGE
- SUMP
- SURVEYED LIMITS OF EXCAVATION / DREDGING

NOTES:

1. THE DESCRIPTIONS AND COLORED PORTIONS OF THE FIGURE ARE GENERAL IN NATURE AND ARE BASED ON A LIMITED NUMBER OF SAMPLES. REFER TO THE BORING LOGS AND THE RESULTS OF THE CHEMICAL ANALYSES FOR SPECIFIC INFORMATION REGARDING THE SUBSURFACE GEOLOGICAL UNITS AND THE DISTRIBUTION OF ANALYTICAL COMPOUNDS.

2. SECTION IS POINT TO POINT.

Issue Status: DRAFT

CROSS-SECTION A-A'

Figure: 3A

AECOM

SITE MANAGEMENT PLAN
WATER STREET MANUFACTURED GAS PLANT
VILLAGE OF PENN YAN, YATES COUNTY, NEW YORK
Project No.: 60584654 Date: JULY 2020

ANSI B 11" x 17"
Approved:
Checked:
Designer:
Project Management Initials:

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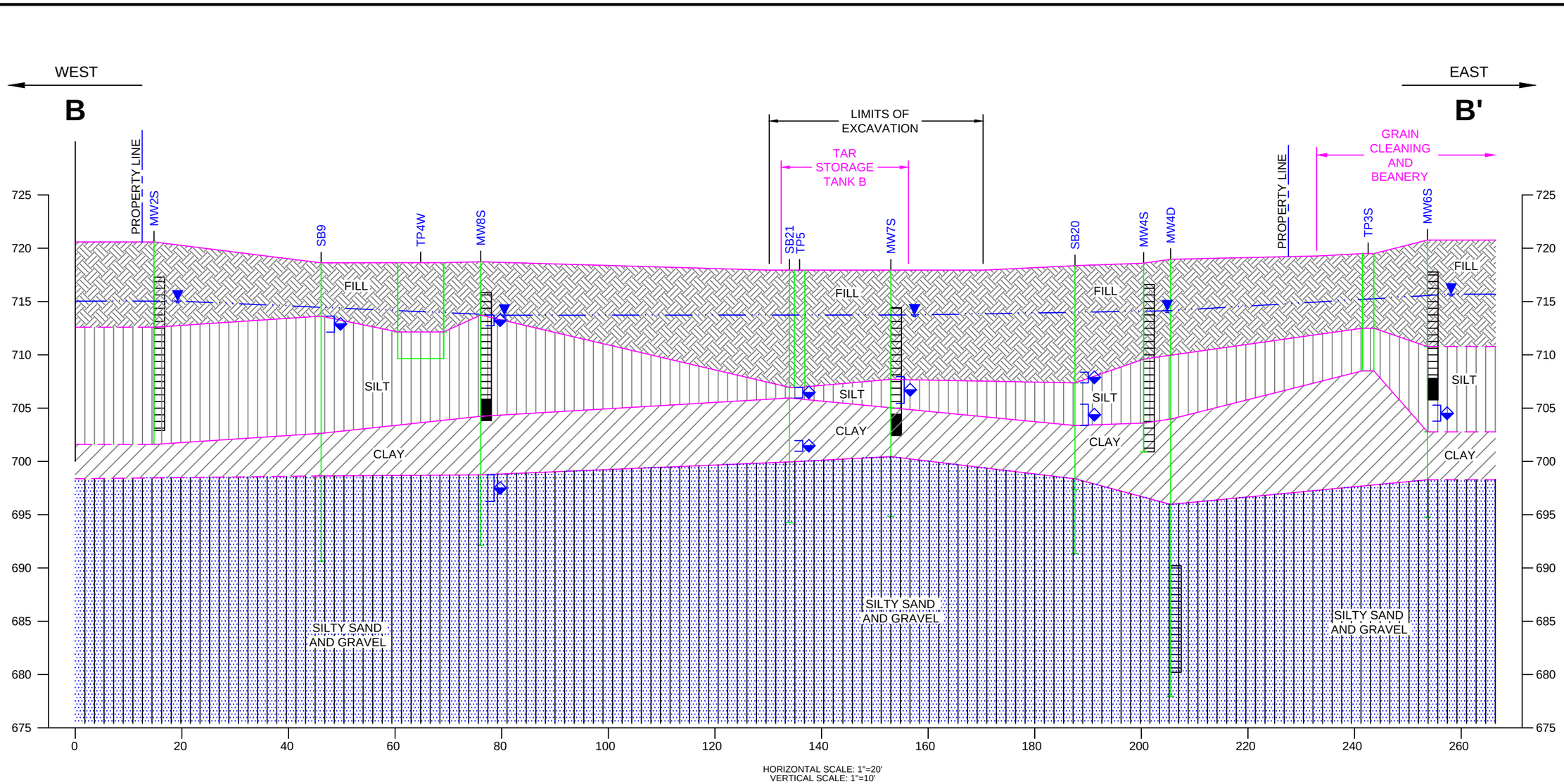

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'

LEGEND

- FILL
- SILT
- CLAY
- SAND
- SILTY SAND AND GRAVEL
- CONCRETE
- MONITORING WELL SCREEN
- SOIL BORING OR VIBRACORE SAMPLE
- FORMER STRUCTURE LOCATION
- DIRECT CONTACT
- INFERRED CONTACT
- SEDIMENT SURFACE
- OUTLET ELEVATION
- GROUNDWATER ELEVATION OCTOBER 25, 2006
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2. SECTION IS POINT TO POINT.

Issue Status: DRAFT

AECOM

Figure: 3B

CROSS-SECTION B-B'

SITE MANAGEMENT PLAN
WATER STREET MANUFACTURED GAS PLANT
VILLAGE OF PENN YAN, YATES COUNTY, NEW YORK
Project No.: 60584654 Date: JULY 2020

Project Management Initials: Designer: Checked: Approved: ANSI B 11" x 17"

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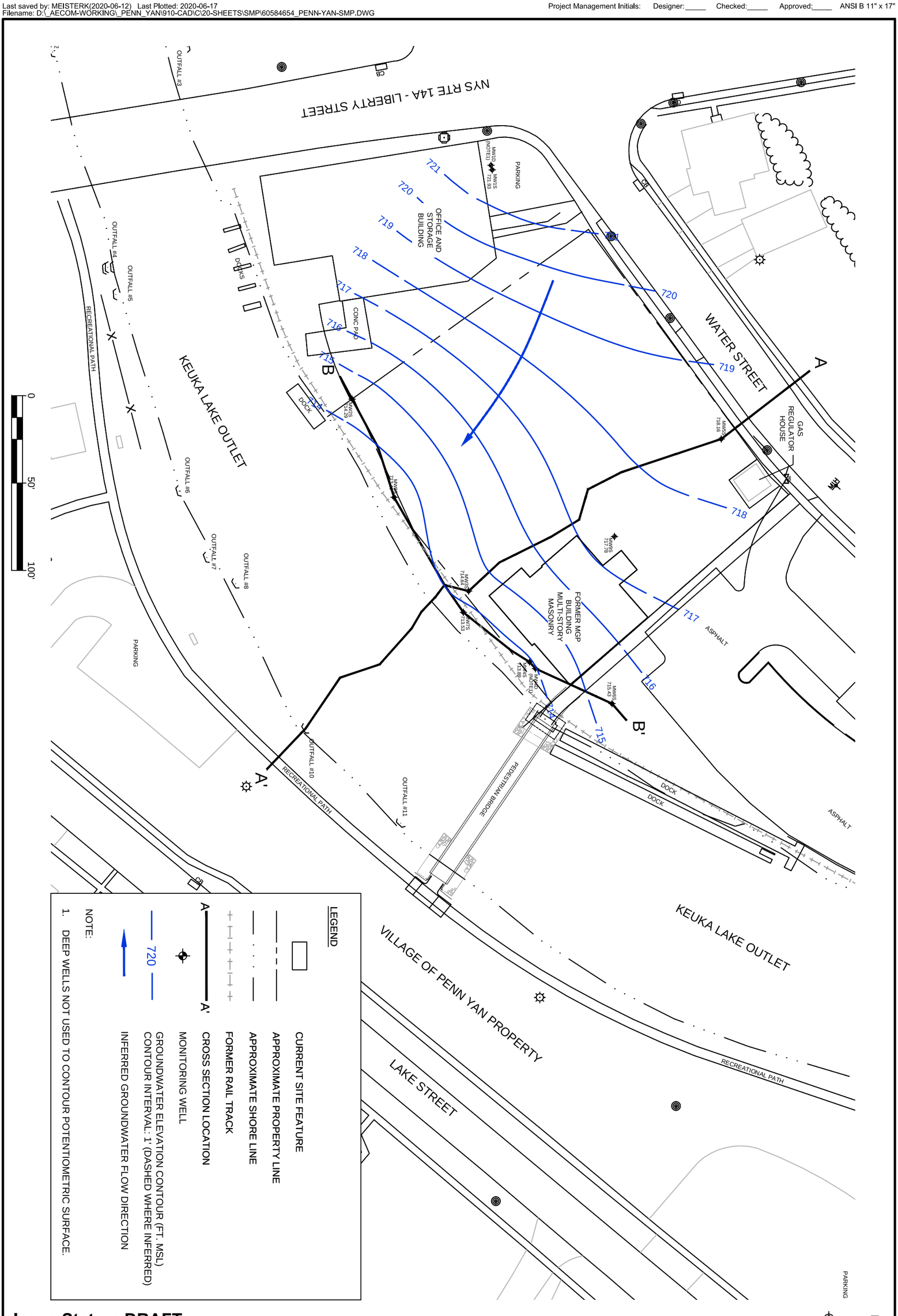

Issue Status: DRAFT

SITE MANAGEMENT PLAN
WATER STREET MANUFACTURED GAS PLANT
VILLAGE OF PENN YAN, YATES COUNTY, NEW YORK
Project No.: 60584654 Date: JULY 2020

SHALLOW GROUNDWATER CONTOUR MAP
OCTOBER 2006

AECOM

Figure: 4

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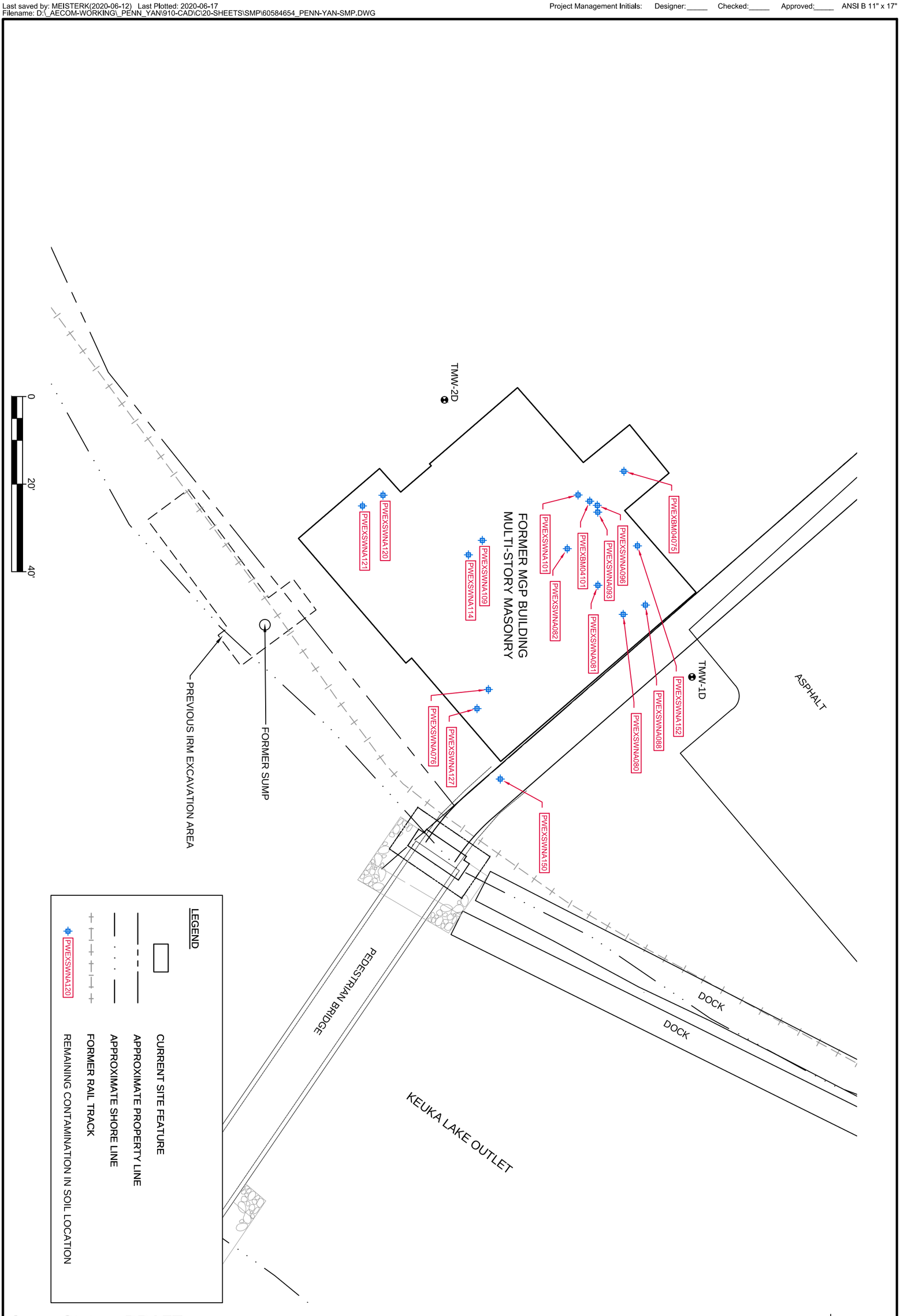
Project Management Initials: Designer:_____ Checked:_____ Approved:_____ ANSI B 11" x 17"



Issue Status: DRAFT

N

SITE MANAGEMENT PLAN
WATER STREET MANUFACTURED GAS PLANT
VILLAGE OF PENN YAN, YATES COUNTY, NEW YORK
Project No.: 60584654 Date: JULY 2020

REMAINING SOIL CONTAMINATION

AECOM

Figure: 5

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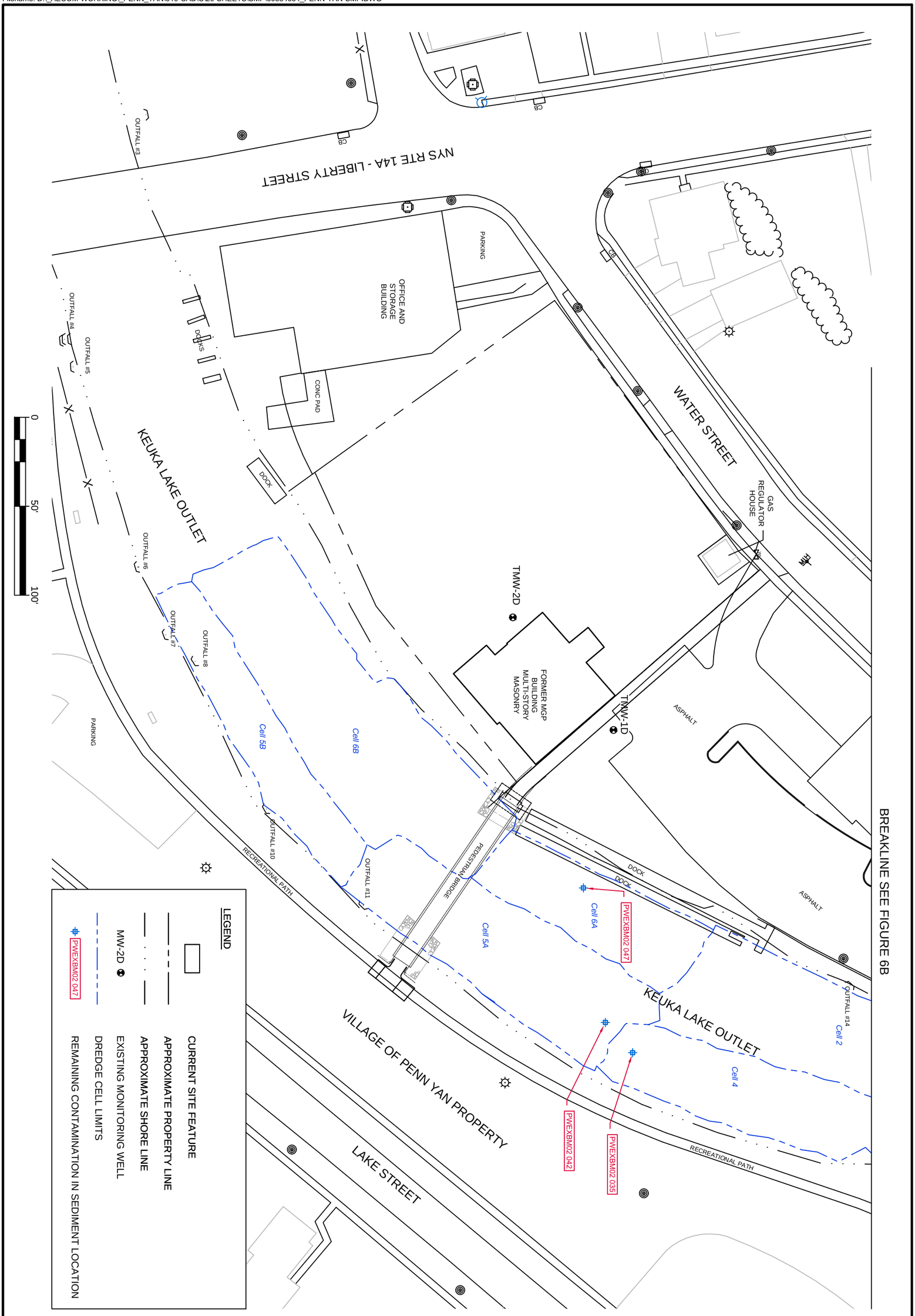

Issue Status: DRAFT

SITE MANAGEMENT PLAN
WATER STREET MANUFACTURED GAS PLANT
VILLAGE OF PENN YAN, YATES COUNTY, NEW YORK
Project No.: 60584654 Date: JULY 2020

REMAINING SEDIMENT CONTAMINATION
1 OF 2

AECOM

Figure: 6A

Last saved by: MEISTERK(2020-06-12) Last Plotted: 2020-06-17
Filename: D:_AECOM-WORKING_PENN_YAN\910-CAD\C\20-SHEETS\SMP\60584654_PENN-YAN-SMP.DWG

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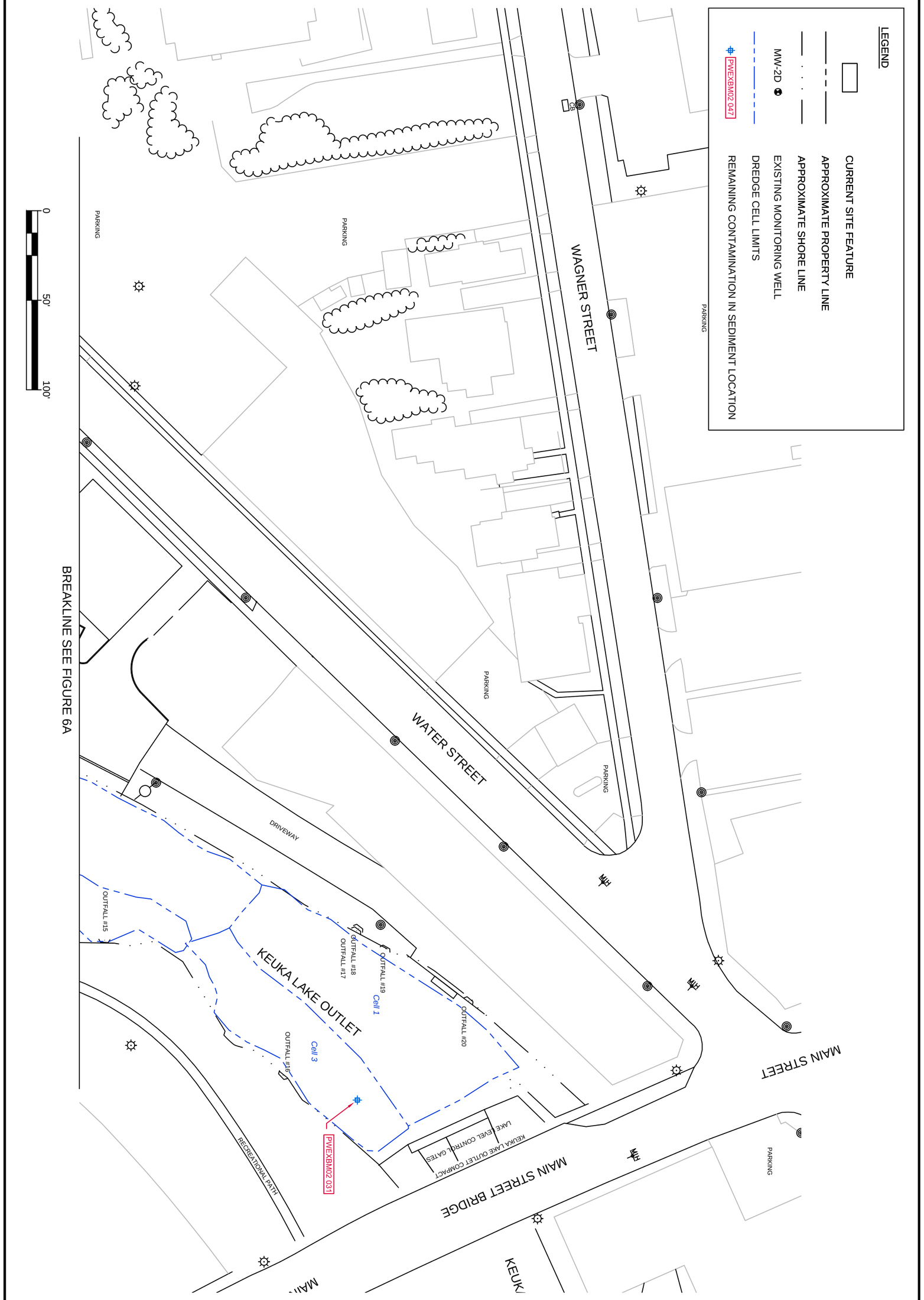

Issue Status: DRAFT

SITE MANAGEMENT PLAN
WATER STREET MANUFACTURED GAS PLANT
VILLAGE OF PENN YAN, YATES COUNTY, NEW YORK
Project No.: 60584654 Date: JULY 2020

REMAINING SEDIMENT CONTAMINATION
2 OF 2

AECOM

Figure: 6B

Last saved by: MEISTERK(2020-06-12) Last Plotted: 2020-06-17
Filename: D:_AECOM-WORKING_PENN_YAN\910-CAD\C\20-SHEETS\SMP\60584654_PENN-YAN-SMP.DWG

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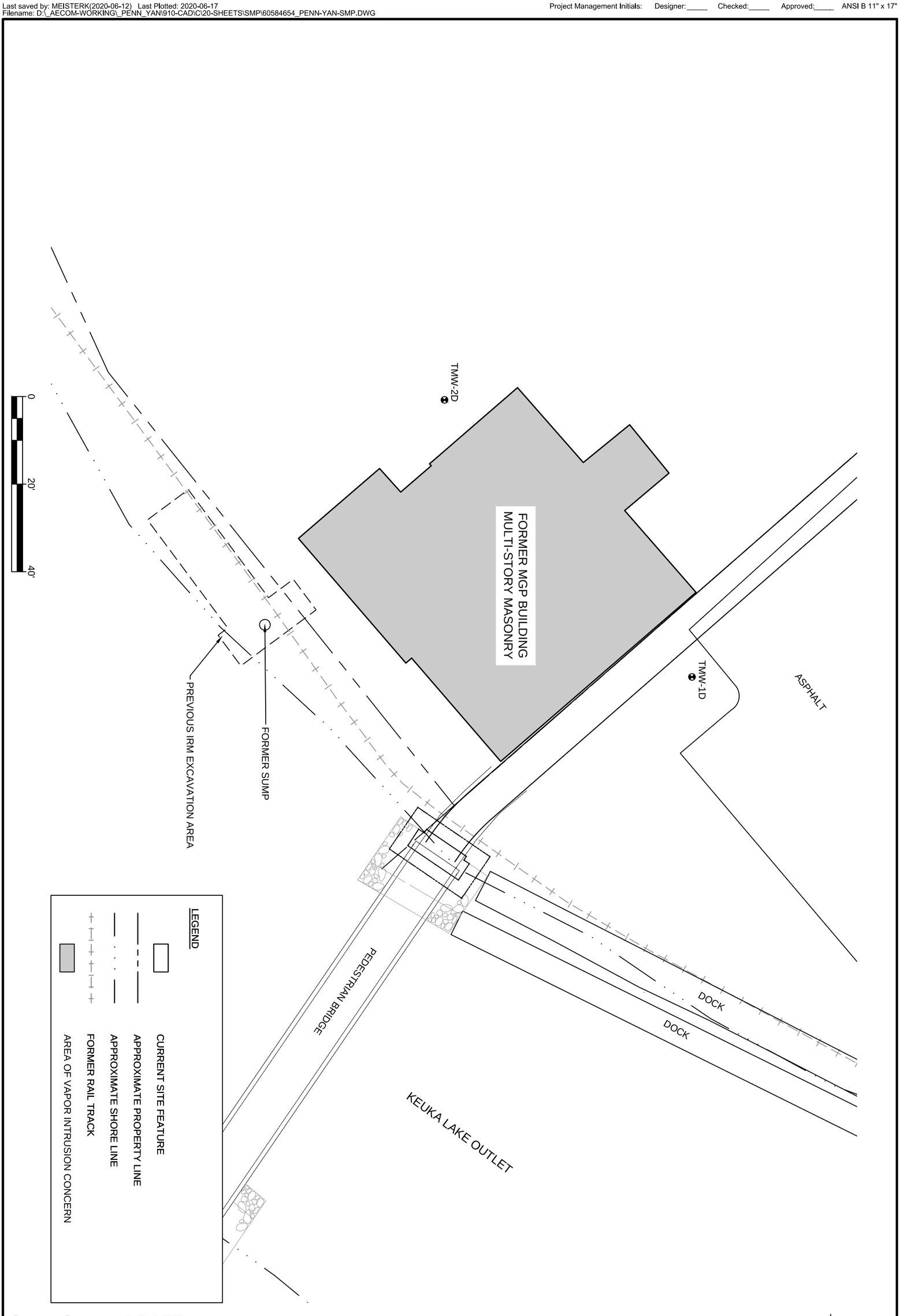

Issue Status: DRAFT

N

SITE MANAGEMENT PLAN
WATER STREET MANUFACTURED GAS PLANT
VILLAGE OF PENN YAN, YATES COUNTY, NEW YORK
Project No.: 60584654 Date: JULY 2020

AREA OF SOIL VAPOR INTRUSION CONCERN

AECOM

Figure: 7

Last saved by: MEISTERK(2020-06-12) Last Plotted: 2020-06-17
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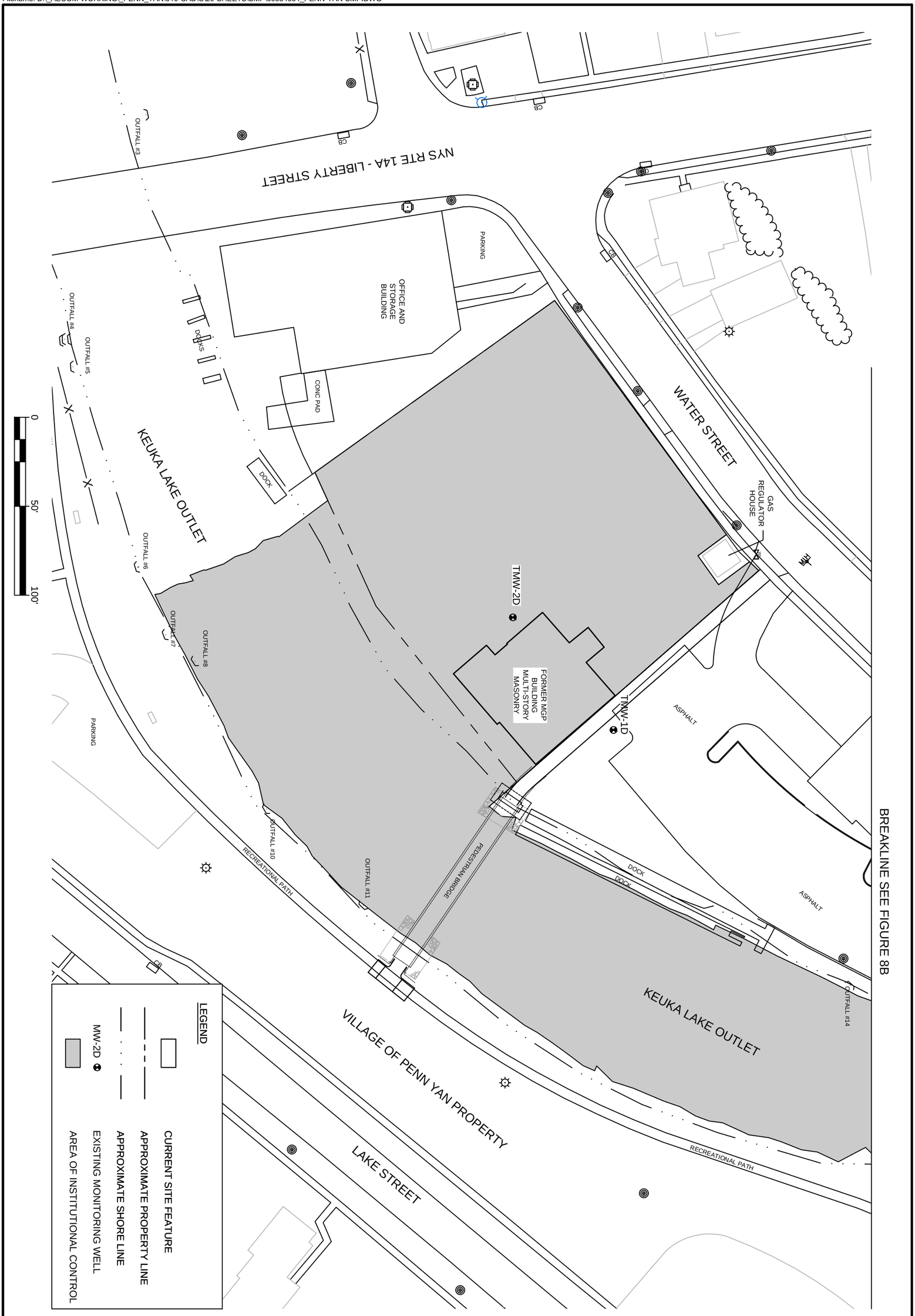

Issue Status: DRAFT

SITE MANAGEMENT PLAN
WATER STREET MANUFACTURED GAS PLANT
VILLAGE OF PENN YAN, YATES COUNTY, NEW YORK
Project No.: 60584654 Date: JULY 2020

INSTITUTIONAL CONTROL BOUNDARIES
1 OF 2

AECOM

Figure: 8A

Last saved by: MEISTERK(2020-06-12) Last Plotted: 2020-06-17
Filename: D:_AECOM-WORKING_PENN_YAN\910-CAD\C\20-SHEETS\SMP\60584654_PENN-YAN-SMP.DWG

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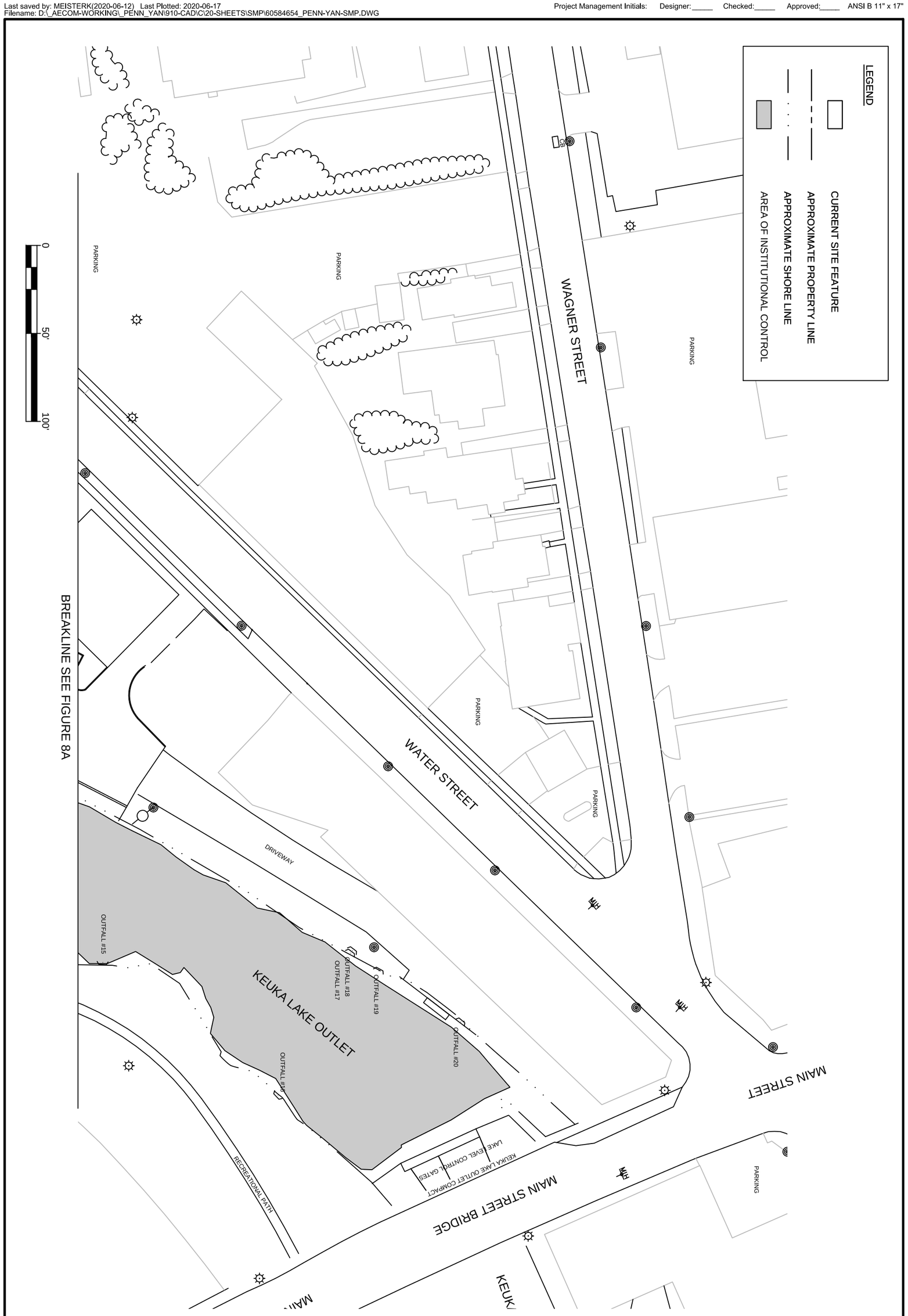


Issue Status: DRAFT

N

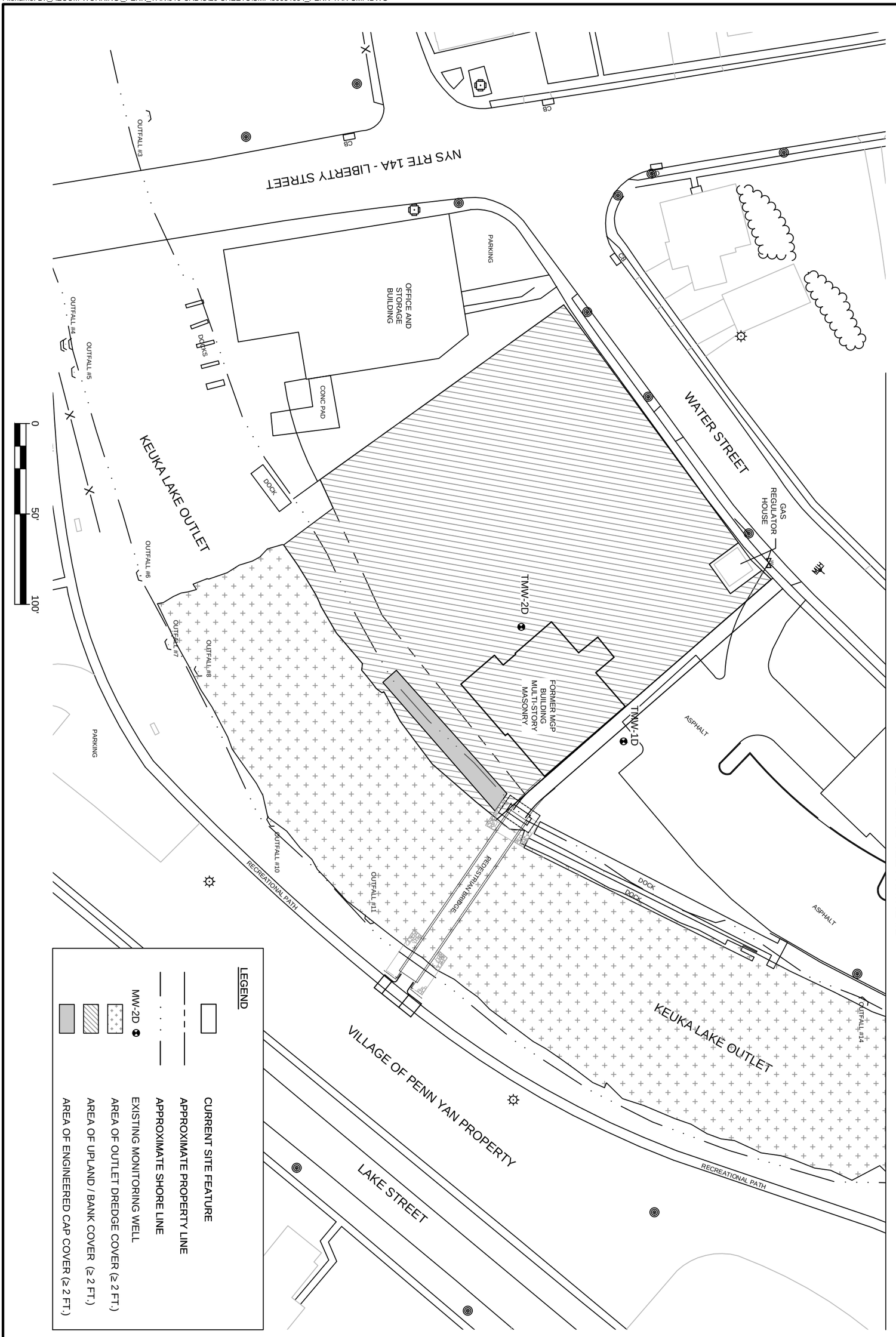
SITE MANAGEMENT PLAN
WATER STREET MANUFACTURED GAS PLANT
VILLAGE OF PENN YAN, YATES COUNTY, NEW YORK
Project No.: 60584654 Date: JULY 2020

INSTITUTIONAL CONTROL BOUNDARIES
2 OF 2

AECOM
Figure: 8B

Last saved by: MEISTERK(2020-06-12) Last Plotted: 2020-06-17
Filename: D:_AECOM-WORKING_PENN_YAN\910-CAD\C\20-SHEETS\SMP\60584654_PENN-YAN-SMP.DWG

Project Management Initials: Designer:_____ Checked:_____ Approved:_____ ANSI B 11" x 17"



Issue Status: DRAFT

N

SITE MANAGEMENT PLAN
WATER STREET MANUFACTURED GAS PLANT
VILLAGE OF PENN YAN, YATES COUNTY, NEW YORK
Project No.: 60584654 Date: JULY 2020

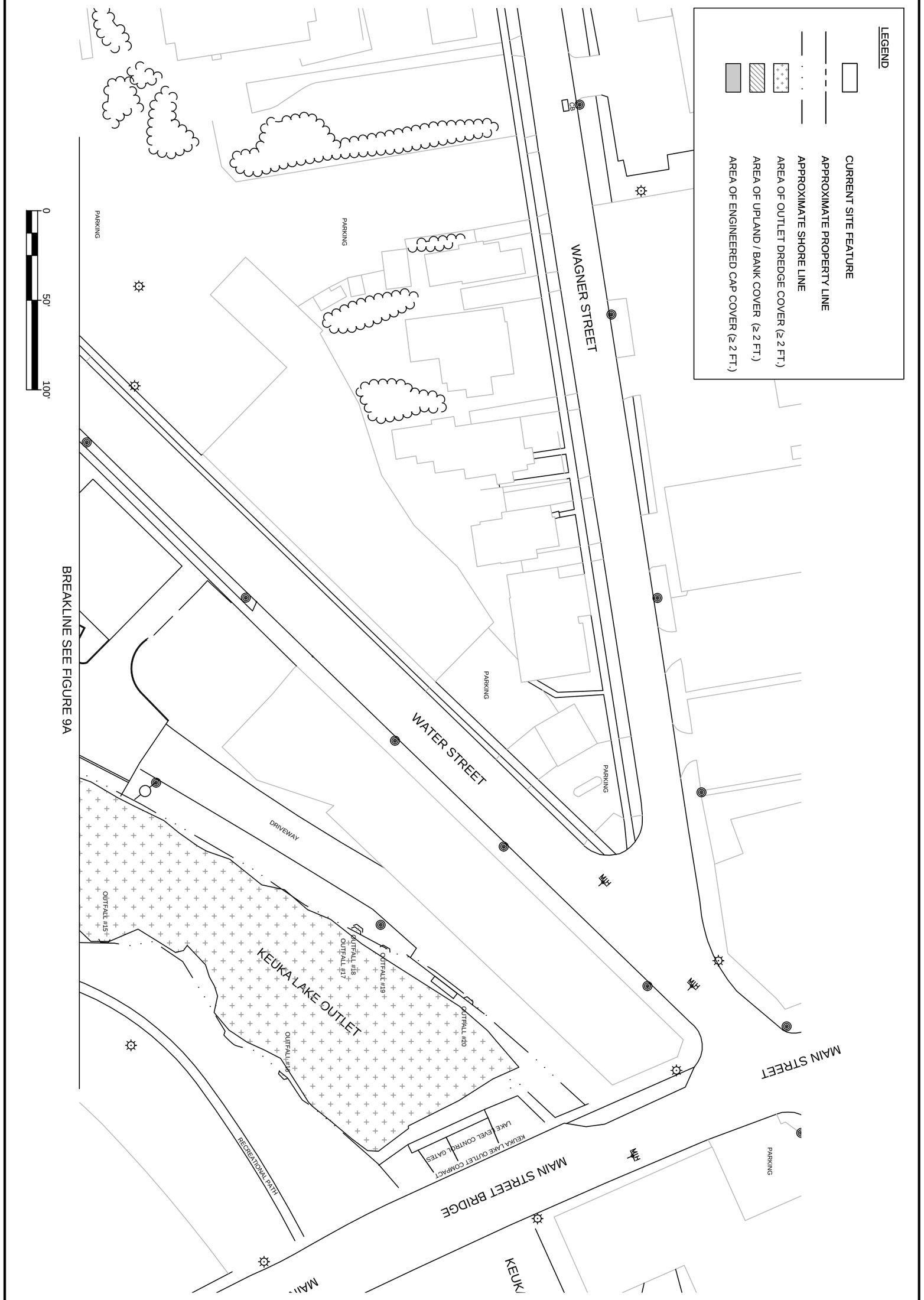
ENGINEERING CONTROL LOCATIONS
1 OF 2

AECOM

Figure: 9A

Last saved by: MEISTERK(2020-06-12) Last Plotted: 2020-06-17
Filename: D:_AECOM-WORKING_PENN_YAN\910-CAD\C\20-SHEETS\SMP\60584654_PENN-YAN-SMP.DWG

Project Management Initials: Designer:_____ Checked:_____ Approved:_____ ANSI B 11" x 17"



Issue Status: DRAFT

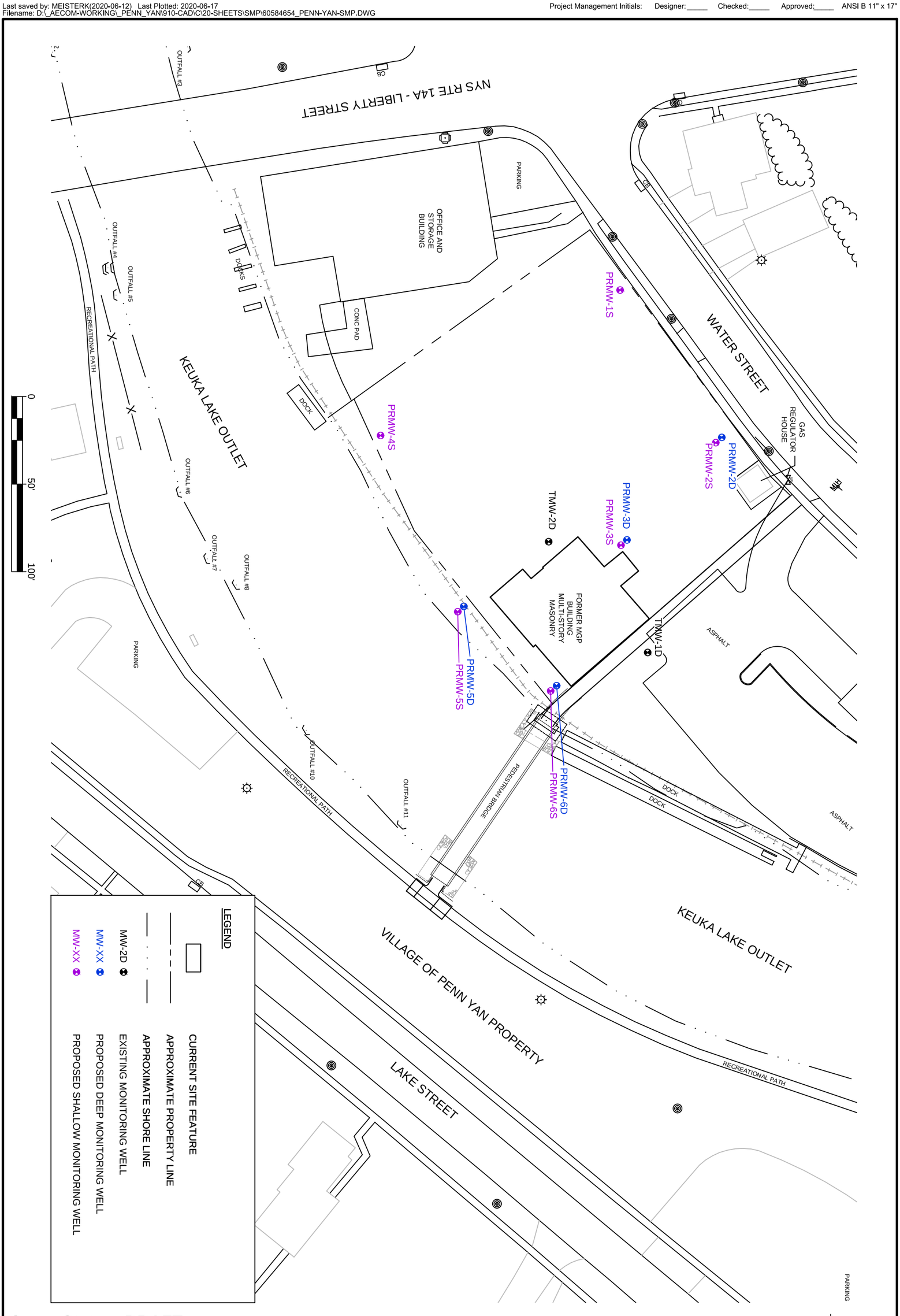
N

SITE MANAGEMENT PLAN
WATER STREET MANUFACTURED GAS PLANT
VILLAGE OF PENN YAN, YATES COUNTY, NEW YORK
Project No.: 60584654 Date: JULY 2020

ENGINEERING CONTROL LOCATIONS
2 OF 2

AECOM

Figure: 9B



Issue Status: DRAFT

SITE MANAGEMENT PLAN
WATER STREET MANUFACTURED GAS PLANT
VILLAGE OF PENN YAN, YATES COUNTY, NEW YORK
Project No.: 60584654 Date: JULY 2020

MONITORING WELL NETWORK

AECOM

Figure: 10

TABLES

Table 1: Notifications

Name	Contact Information
Gerald Pratt NYSDEC Project Manager Division of Environmental Remediation Section C Bureau C Geologist	518-402-9667 gerald.pratt@dec.ny.gov
Daniel Eaton NYSDEC GW	djeaton@gw.dec.state.ny.us
John Ruspantini NYSEG Project Manager	585-484-6787 jjruspantini@nyseg.com
Steve Mullin NYSEG Manager Environmental Remediation Program	585-771-4556 steve_mullin@rge.com

Notes:

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

Table 2: Groundwater Elevation Measurements

	TMW-1D		TMW-1S		TMW-2D		TMW-2S	
Date	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)
5/8/2017	5.3	720.18	5.75	719.94	N/A	N/A	N/A	N/A
5/15/2017	5.41	720.07	6.02	719.67	1.12	720.169	1.26	719.93
5/17/2017	5.57	719.91	6.15	719.54	1.25	720.039	1.7	719.49
6/14/2017	6.21	719.27	6.51	719.18	2	719.289	2	719.19
6/28/2017	6.14	719.34	6.5	719.19	2.01	719.279	2.05	719.14
8/17/2017	6.82	718.66	7.43	718.26	2.61	718.679	2.65	718.54
8/25/2017	7.05	718.43	7.53	718.16	2.73	718.559	2.74	718.45
8/30/2017	6.95	718.53	7.59	718.1	2.79	718.499	2.81	718.38
9/8/2017	7.05	718.43	7.55	718.14	2.93	718.359	2.96	718.23
9/15/2017	7.09	718.39	7.59	718.1	2.97	718.319	2.98	718.21
9/21/2017	7.19	718.29	7.66	718.03	3.05	718.239	3.05	718.14
9/28/2017	7.26	718.22	7.72	717.97	3.16	718.129	3.15	718.04
10/5/2017	7.3	718.18	8.02	717.67	3.2	718.089	3.2	717.99
10/12/2017	7.3	718.18	7.9	717.79	3.26	718.029	3.25	717.94
10/20/2017	7.42	718.06	7.96	717.73	3.33	717.959	3.2	717.99
10/26/2017	7.42	718.06	7.97	717.72	3.33	717.959	3.33	717.86
11/3/2017	7.21	718.27	7.82	717.87	3.06	718.229	3.13	718.06
11/10/2017	7.05	718.43	7.44	718.25	2.97	718.319	2.97	718.22
11/22/2017	7.18	718.3	7.72	717.97	3.07	718.219	3.06	718.13
12/1/2017	7.25	718.23	7.94	717.75	3.21	718.079	3.21	717.98
12/8/2017	7.14	718.34	7.86	717.83	3.03	718.259	3	718.19
12/14/2017	7.52	717.96	8.13	717.56	3.41	717.879	3.41	717.78
12/21/2017	7.57	717.91	8.25	717.44	3.53	717.759	3.51	717.68
1/4/2018	7.57	717.91	8.29	717.4	3.39	717.899	3.35	717.84
1/11/2018	7.52	717.96	8.22	717.47	3.51	717.779	3.49	717.7
1/18/2018	7.28	718.2	7.86	717.83	3.12	718.169	3.11	718.08
1/24/2018	7.11	718.37	7.74	717.95	2.94	718.349	2.93	718.26
1/31/2018	7.07	718.41	7.56	718.13	2.8	718.489	2.8	718.39
2/5/2018	7.02	718.46	7.57	718.12	2.84	718.449	2.89	718.3
2/15/2018	7.18	718.3	7.67	718.02	2.97	718.319	2.97	718.22
2/23/2018	6.96	718.52	7.6	718.09	2.84	718.449	2.84	718.35
3/1/2018	6.94	718.54	7.26	718.43	2.55	718.739	2.59	718.6
3/8/2018	6.59	718.89	7.04	718.65	2.34	718.949	2.41	718.78
3/15/2018	6.48	719	6.96	718.73	2.21	719.079	2.29	718.9
3/22/2018	6.52	718.96	7.05	718.64	2.29	718.999	2.38	718.81
3/29/2018	6.68	718.8	7.04	718.65	2.24	719.049	2.29	718.9
4/5/2018	6.51	718.97	6.75	718.94	2.02	719.269	2.1	719.09
4/12/2018	6.33	719.15	6.85	718.84	2.06	719.229	2.14	719.05
4/19/2018	6.09	719.39	6.6	719.09	1.86	719.429	1.95	719.24
4/26/2018	6.17	719.31	6.48	719.21	1.77	719.519	1.88	719.31
5/3/2018	6.11	719.37	6.56	719.13	1.85	719.439	1.95	719.24
5/10/2018	6.22	719.26	6.65	719.04	2.04	719.249	2.13	719.06
5/17/2018	6.35	719.13	7	718.69	2.11	719.179	2.19	719
5/25/2018	6.52	718.96	7.02	718.67	2.25	719.039	2.32	718.87
6/1/2018	6.58	718.9	7.12	718.57	2.36	718.929	2.42	718.77
6/7/2018	6.58	718.9	7.05	718.64	2.39	718.899	2.46	718.73
6/14/2018	6.71	718.77	7.24	718.45	2.51	718.779	2.57	718.62
6/21/2018	6.78	718.7	7.37	718.32	2.63	718.659	2.68	718.51
7/3/2018	7.06	718.42	7.51	718.18	2.77	718.519	2.82	718.37
7/12/2018	7.1	718.38	7.68	718.01	2.89	718.399	2.93	718.26
7/19/2018	7.13	718.35	7.69	718	3	718.289	3.02	718.17
7/27/2018	7.12	718.36	7.59	718.1	2.87	718.419	2.91	718.28
8/2/2018	7.13	718.35	7.62	718.07	2.96	718.329	2.99	718.2
8/8/2018	7.15	718.33	7.65	718.04	3.02	718.269	3.04	718.15
8/15/2018	7.13	718.35	7.8	717.89	2.99	718.299	3.01	718.18
8/23/2018	7.13	718.35	7.6	718.09	2.95	718.339	3.01	718.18
8/28/2018	7.23	718.25	7.73	717.96	3.07	718.219	3.1	718.09
9/6/2018	7.33	718.15	7.86	717.83	3.23	718.059	3.22	717.97
9/17/2018	7.32	718.16	7.96	717.73	3.2	718.089	3.22	717.97
9/26/2018	7.31	718.17	7.91	717.78	3.15	718.139	3.17	718.02
10/2/2018	7.28	718.2	7.89	717.8	3.21	718.079	3.2	717.99
10/9/2018	7.26	718.22	7.84	717.85	3.15	718.139	3.18	718.01
10/16/2018	7.3	718.18	7.89	717.8	3.17	718.119	3.21	717.98
10/23/2018	7.37	718.11	7.91	717.78	3.27	718.019	3.29	717.9
10/30/2018	7.29	718.19	7.81	717.88	3.16	718.129	3.18	718.01
11/7/2018	7.02	718.46	7.53	718.16	2.89	718.399	2.91	718.28
11/13/2018	7.23	718.25	7.72	717.97	3.11	718.179	3.12	718.07
11/19/2018	6.91	718.57	7.42	718.27	2.78	718.509	2.81	718.38
11/26/2018	6.75	718.73	7.27	718.42	2.61	718.679	2.63	718.56
12/4/2018	6.67	718.81	7.18	718.51	2.49	718.799	0.82	720.37
12/10/2018	6.71	718.77	7.22	718.47	2.52	718.769	0.85	720.34

Table 2: Groundwater Elevation Measurements

	TMW-1D		TMW-1S		TMW-2D		TMW-2S	
Date	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)
12/18/2018	6.89	718.59	7.4	718.29	2.68	718.609	1.08	720.11
12/26/2018	7.15	718.33	7.64	718.05	2.91	718.379	1.34	719.85
1/2/2019	6.54	718.94	7.04	718.65	2.34	718.949	0.72	720.47
1/8/2019	6.5	718.98	7.01	718.68	2.29	718.999	0.69	720.5
1/14/2019	6.61	718.87	7.14	718.55	2.4	718.889	0.81	720.38
1/25/2019	6.78	718.7	7.34	718.35	1.2	720.089	0.92	720.27
1/28/2019	6.74	718.74	7.29	718.4	1.16	720.129	0.87	720.32
2/5/2019	6.77	718.71	7.35	718.34	1.05	720.239	0.65	720.54
2/11/2019	6.55	718.93	7.22	718.47	0.95	720.339	0.65	720.54
2/20/2019	6.48	719	7.17	718.52	0.95	720.339	0.65	720.54
2/26/2019	6.4	719.08	7.11	718.58	0.9	720.389	0.65	719.207
3/4/2019	6.37	719.11	7.05	718.64	0.9	720.389	0.65	719.207
3/11/2019	6.3	719.18	7.01	718.68	0.97	720.319	0.65	719.207
3/19/2019	6.17	719.31	6.93	718.76	0.9	720.389	0.65	719.207
3/25/2019	6.4	719.08	7	718.69	0.6	720.689	0.65	719.207
4/4/2019	6.5	718.98	7.15	718.54	0.6	720.689	0.65	719.207
4/10/2019	6.5	718.98	7.14	718.55	0.6	720.689	0.65	719.207
4/18/2019	6.43	719.05	7.09	718.6	0.6	720.689	0.65	719.207
4/23/2019	6.2	719.28	7	718.69	0.6	720.689	0.65	719.207
5/2/2019	6.4	719.08	6.51	719.18	0.6	720.689	0.65	719.207
5/7/2019	6.27	719.21	6.65	719.04	0.6	720.689	0.65	719.207
5/16/2019	5.91	719.57	6	719.69	0.6	719.019	0.65	719.207
5/20/2019	5.9	719.58	5.41	720.28	0	719.619	0.65	719.207
5/21/2019	5.89	719.59	6.41	719.28	0	719.619	0.65	719.207
5/22/2019	6	719.48	6.09	719.6	0.1	719.519	0.65	719.207
5/23/2019	5.97	719.51	6.51	719.18	0.1	719.519	0.65	719.207
5/24/2019	5.98	719.5	6	719.69	0.1	719.519	0.4	719.457
5/28/2019	5.87	719.61	6.42	719.27	0	719.619	0.3	719.557
5/29/2019	5.84	719.64	6.39	719.3	0.1	719.519	0.3	719.557
5/30/2019	5.86	719.62	6.4	719.29	0	719.619	0.4	719.457
5/31/2019	5.84	719.64	6.37	719.32	0.05	719.569	0.45	719.407
6/3/2019	5.84	719.64	6.39	719.3	0	719.619	0.5	719.357
6/3/2019	5.86	719.62	6.37	719.32	0	719.619	0.4	719.457
6/3/2019	5.87	719.61	6.41	719.28	0	719.619	0.4	719.457
6/4/2019	5.86	719.62	6.41	719.28	0	719.619	0.4	719.457
6/4/2019	5.84	719.64	6.33	719.36	0	719.619	0.4	719.457
6/5/2019	5.83	719.65	6.36	719.33	0	719.619	0.4	719.457
6/6/2019	5.9	719.58	6.42	719.27	0.025	719.594	0.4	719.457
6/7/2019	6	719.48	6.54	719.15	0.2	719.419	0.5	719.357
6/10/2019	6.12	719.36	6.67	719.02	0.3	719.319	0.6	719.257
6/11/2019	6.12	719.36	6.65	719.04	0.4	719.219	0.63	719.227
6/12/2019	6.15	719.33	6.71	718.98	0.4	719.219	0.62	719.237
6/13/2019	6.12	719.36	6.65	719.04	0.35	719.269	0.6	719.257
6/14/2019	6.13	719.35	6.66	719.03	0.4	719.219	0.66	719.197
6/17/2019	6.16	719.32	6.71	718.98	0.4	719.219	0.65	719.207
6/18/2019	6.11	719.37	6.64	719.05	0.4	719.219	0.64	719.217
6/19/2019	6.09	719.39	6.63	719.06	0.4	719.219	0.63	719.227
6/20/2019	6.07	719.41	6.62	719.07	0.35	719.269	0.62	719.237
6/21/2019	5.97	719.51	6.52	719.17	0.15	719.469	0.59	719.267
6/24/2019	6.2	719.28	6.55	719.14	0.2	719.419	0.5	719.357
6/25/2019	5.96	719.52	6.48	719.21	0.1	719.519	0.55	719.307
6/26/2019	6.03	719.45	6.56	719.13	0.35	719.269	0.55	719.307
6/27/2019	6.13	719.35	6.65	719.04	0.4	719.219	0.6	719.257
6/28/2019	6.15	719.33	6.68	719.01	0.4	719.219	0.63	719.227
7/8/2019	6.24	719.24	6.79	718.9	0.5	719.119	0.71	719.147
7/9/2019	6.25	719.23	6.78	718.91	0.5	719.119	0.76	719.097
7/10/2019	6.26	719.22	6.8	718.89	0.5	719.119	0.76	719.097
7/11/2019	6.23	719.25	6.82	718.87	0.5	719.119	0.74	719.117
7/12/2019	6.26	719.22	6.8	718.89	0.5	719.119	0.79	719.067
7/15/2019	6.37	719.11	6.9	718.79	0.6	719.019	0.87	718.987
7/16/2019	6.4	719.08	6.93	718.76	0.6	719.019	0.89	718.967
7/17/2019	6.44	719.04	6.98	718.71	0.62	718.999	0.89	718.967
7/18/2019	6.42	719.06	6.97	718.72	0.6	719.019	0.92	718.937
7/19/2019	6.46	719.02	7	718.69	0.67	718.949	0.94	718.917
7/22/2019	6.44	719.04	6.94	718.75	0.66	718.959	0.93	718.927
7/23/2019	6.42	719.06	6.67	719.02	0.63	718.989	0.98	718.877
7/24/2019	6.51	718.97	7.03	718.66	0.7	718.919	1.04	718.817
7/25/2019	6.58	718.9	7.2	718.49	0.79	718.829	1.07	718.787
7/26/2019	6.61	718.87	7.2	718.49	0.84	718.779	1.15	718.707
7/29/2019	6.61	718.87	7.18	718.51	0.78	718.839	1.05	718.807
7/30/2019	6.64	718.84	7.14	718.55	0.82	718.799	1.17	718.687

Table 2: Groundwater Elevation Measurements

	TMW-1D		TMW-1S		TMW-2D		TMW-2S	
Date	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)
7/31/2019	6.72	718.76	7.34	718.35	0.95	718.669	3.61	716.247
8/1/2019	6.72	718.76	7.3	718.39	0.83	718.789	3.61	716.247
8/2/2019	6.65	718.83	7.29	718.4	0.83	718.789	2.91	716.947
8/5/2019	6.82	718.66	7.32	718.37	0.9	718.719	3.07	716.787
8/6/2019	6.77	718.71	7.33	718.36	0.93	718.689	1.31	718.547
8/7/2019	6.79	718.69	7.35	718.34	0.95	718.669	1.33	718.527
8/8/2019	6.75	718.73	7.3	718.39	0.92	718.699	1.31	718.547
8/9/2019	6.81	718.67	7.36	718.33	0.97	718.649	1.35	718.507
8/12/2019	6.89	718.59	7.47	718.22	1.58	718.039	1.47	718.387
8/13/2019	6.86	718.62	7.46	718.23	1.04	718.579	1.43	718.427
8/14/2019	6.88	718.6	7.49	718.2	1.08	718.539	1.47	718.387
8/15/2019	6.93	718.55	7.52	718.17	1.12	718.499	1.51	718.347
8/16/2019	6.91	718.57	7.53	718.16	1.11	718.509	1.48	718.377
8/19/2019	6.95	718.53	7.56	718.13	1.12	718.499	1.54	718.317
8/20/2019	6.96	718.52	7.56	718.13	1.14	718.479	1.54	718.317
8/21/2019	6.95	718.53	7.56	718.13	1.14	718.479	1.54	718.317
8/22/2019	6.96	718.52	7.56	718.13	1.14	718.479	1.55	718.307
8/23/2019	6.99	718.49	7.62	718.07	1.18	718.439	1.58	718.277
8/26/2019	7.05	718.43	7.64	718.05	1.24	718.379	1.66	718.197
8/27/2019	7.01	718.47	7.6	718.09	1.23	718.389	1.61	718.247
8/28/2019	7	718.48	7.6	718.09	1.2	718.419	1.61	718.247
8/29/2019	7.03	718.45	7.65	718.04	1.24	718.379	1.65	718.207
8/30/2019	7.04	718.44	7.64	718.05	1.26	718.359	1.61	718.247
9/3/2019	7.06	718.42	7.66	718.03	1.26	718.359	1.66	718.197
9/4/2019	7	718.48	7.63	718.06	1.2	718.419	1.67	718.187
9/5/2019	7.12	718.36	7.7	717.99	1.31	718.309	1.71	718.147
9/6/2019	7.08	718.4	7.68	718.01	1.24	718.379	1.68	718.177
9/9/2019	7.2	718.28	7.8	717.89	1.39	718.229	1.81	718.047
9/10/2019	7.19	718.29	7.78	717.91	1.38	718.239	1.8	718.057
9/11/2019	7.13	718.35	7.72	717.97	1.34	718.279	1.77	718.087
9/12/2019	7.16	718.32	7.75	717.94	1.36	718.259	1.78	718.077
9/13/2019	7.18	718.3	7.77	717.92	1.39	718.229	1.81	718.047
9/16/2019	7.2	718.28	7.82	717.87	1.41	718.209	1.81	718.047
9/17/2019	7.22	718.26	7.81	717.88	1.42	718.199	1.84	718.017
9/18/2019	7.26	718.22	7.86	717.83	1.45	718.169	1.88	717.977
9/19/2019	7.27	718.21	7.85	717.84	1.48	718.139	1.89	717.967
9/20/2019	7.27	718.21	7.87	717.82	1.48	718.139	1.9	717.957
9/23/2019	7.26	718.22	7.86	717.83	1.46	718.159	1.88	717.977
9/30/2019	7.27	718.21	7.8	717.89	1.4	718.219	1.69	718.167
10/2/2019	7.33	718.15	7.93	717.76	1.54	718.079	2	717.857
10/3/2019	7.39	718.09	7.99	717.7	1.63	717.989	2.04	717.817
10/4/2019	7.41	718.07	7.99	717.7	1.61	718.009	2.04	717.817
10/7/2019	7.36	718.12	7.96	717.73	1.58	718.039	2.03	717.827
10/8/2019	7.37	718.11	7.96	717.73	1.6	718.019	2.02	717.837
10/9/2019	7.38	718.1	8.02	717.67	1.59	718.029	2.07	717.787
10/14/2019	7.37	718.11	7.96	717.73	1.58	718.039	1.96	717.897
10/15/2019	7.41	718.07	7.9	717.79	1.61	718.009	2.04	717.817
10/16/2019	7.33	718.15	7.95	717.74	1.55	718.069	1.99	717.867
10/17/2019	7.29	718.19	7.89	717.8	1.5	718.119	1.94	717.917
10/18/2019	7.39	718.09	7.99	717.7	1.61	718.009	2.02	717.837
10/21/2019	7.43	718.05	8.01	717.68	1.64	717.979	2.07	717.787
10/22/2019	7.39	718.09	7.99	717.7	1.6	718.019	2.04	717.817
10/25/2019	7.47	718.01	8.05	717.64	1.68	717.939	1.98	717.877
10/28/2019	7.41	718.07	8	717.69	1.63	717.989	2.06	717.797
10/29/2019	7.41	718.07	8	717.69	1.6	718.019	2.05	717.807
10/30/2019	7.42	718.06	8.01	717.68	1.64	717.979	2.07	717.787
10/31/2019	7.31	718.17	7.91	717.78	1.51	718.109	1.96	717.897
11/1/2019	7.23	718.25	7.84	717.85	1.45	718.169	1.91	717.947
11/4/2019	7.3	718.18	7.9	717.79	1.45	718.169	1.9	717.957
11/5/2019	7.25	718.23	7.9	717.79	1.5	718.119	1.9	717.957
11/6/2019	7.3	718.18	7.9	717.79	1.5	718.119	1.9	717.957
11/7/2019	7.25	718.23	7.85	717.84	1.4	718.219	1.9	717.957
11/8/2019	7.25	718.23	7.9	717.79	1.4	718.219	1.9	717.957
11/11/2019	7.3	718.18	7.9	717.79	1.5	718.119	1.9	717.957
11/13/2019	7.3	718.18	7.9	717.79	1.5	718.119	2	717.857
11/14/2019	7.3	718.18	7.9	717.79	1.5	718.119	2	717.857
11/15/2019	7.3	718.18	7.9	717.79	1.5	718.119	2	717.857
11/18/2019	7.3	718.18	7.9	717.79	1.5	718.119	2	717.857
11/19/2019	7.3	718.18	7.9	717.79	1.5	718.119	2	717.857
11/21/2019	7.4	718.08	8	717.69	1.5	718.119	2.05	717.807

Table 3: Remaining Soil Contamination

Location ID Sample Date Sample ID	NYSDEC Part 375-6 Restricted-Residential	*SOUTHEAST ROOM*				
		PWEXSWNA076 4/3/2019 480-151412-1	PWEXSWNA080 4/4/2019 480-151412-5	PWEXSWNA081 4/4/2019 480-151412-6	PWEXSWNA082 4/4/2019 480-151412-7	PWEXSWNA127 4/4/2019 480-151436-3
Semivolatile Organic Compounds (ppm)						
2,4,5-Trichlorophenol		ND	ND	ND	ND	ND
2,4,6-Trichlorophenol		ND	ND	ND	ND	ND
2,4-Dichlorophenol		ND	ND	ND	ND	ND
2,4-Dimethylphenol		ND	ND	ND	ND	ND
2,4-Dinitrophenol		ND	ND	ND	ND	ND
2,4-Dinitrotoluene		ND	ND	ND	ND	ND
2,6-Dinitrotoluene		ND	ND	ND	ND	ND
2-Chloronaphthalene		ND	ND	ND	ND	ND
2-Chlorophenol		ND	ND	ND	ND	ND
2-Methylnaphthalene		ND	**0.48**	ND	**0.11**	**0.073**
2-Methylphenol		ND	ND	ND	ND	ND
2-Nitroaniline		ND	ND	ND	ND	ND
2-Nitrophenol		ND	ND	ND	ND	ND
3,3'-Dichlorobenzidine		ND	ND	ND	ND	ND
3-Nitroaniline		ND	ND	ND	ND	ND
4,6-Dinitro-2-methylphenol		ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether		ND	ND	ND	ND	ND
4-Chloro-3-methylphenol		ND	ND	ND	ND	ND
4-Chloroaniline		ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether		ND	ND	ND	ND	ND
4-Methylphenol		ND	ND	ND	ND	ND
4-Nitroaniline		ND	ND	ND	ND	ND
4-Nitrophenol		ND	ND	ND	ND	ND
Acenaphthylene	100	**0.76**	**4.9**	**0.15**	**0.49**	**0.12**
Acetophenone		ND	ND	ND	ND	ND
Anthracene	100	**2.6**	**19**	**1.4**	**1.6**	**0.17**
Atrazine		ND	ND	ND	ND	ND
Benzaldehyde		ND	ND	ND	ND	ND
Benzo[a]anthracene	1	**1.7**	**22**	**2.7**	**1.3**	**0.86**
Benzo[a]pyrene	1	**1.7**	**15**	**2**	**1**	**0.73**
Benzo[b]fluoranthene	1	**1.7**	**17**	**2.1**	**1.1**	**0.68**
Benzo[g,h,i]perylene	100	**1.2**	**8.1**	**1.1**	**0.56**	**0.66**
Benzo[k]fluoranthene	3.9	**0.88**	**8.7**	**1.1**	**0.53**	**0.4**
bis (2-chloroisopropyl) ether		ND	ND	ND	ND	ND
Bis(2-chloroethoxy)methane		ND	ND	ND	ND	ND
Bis(2-chloroethyl)ether		ND	ND	ND	ND	ND
Bis(2-ethylhexyl) phthalate		ND	ND	ND	ND	ND
Butyl benzyl phthalate		ND	ND	ND	ND	ND
Acenaphthene	100	**4.6**	**3.2**	**0.034**	**0.42**	ND
Biphenyl		**1.1**	**0.66**	**0.21**	**0.31**	**0.057**
Caprolactam		ND	ND	ND	ND	ND
Carbazole		**5**	**4**	**0.27**	**0.5**	**0.074**
Chrysene	3.9	**1.6**	**18**	**2.1**	**1**	**0.92**
Dibenz(a,h)anthracene	0.33	ND	**2.6**	ND	**0.17**	ND
Dibenzofuran	59	**5**	**12**	**1.1**	**1.2**	**0.12**
Diethyl phthalate		ND	ND	ND	ND	ND
Dimethyl phthalate		ND	ND	ND	ND	ND
Di-n-butyl phthalate		ND	ND	ND	ND	ND
Di-n-octyl phthalate		ND	ND	ND	ND	ND
Fluoranthene	100	**5.9**	**53**	**5.2**	**2.6**	**0.9**
Fluorene	100	**4.4**	**19**	**0.62**	**1.3**	**0.055**
Hexachlorobenzene		ND	ND	ND	ND	ND
Hexachlorobutadiene		ND	ND	ND	ND	ND
Hexachlorocyclopentadiene		ND	ND	ND	ND	ND
Hexachloroethane		ND	ND	ND	ND	ND
Indeno[1,2,3-cd]pyrene	0.5	**0.96**	**8.2**	**1.1**	**0.54**	**0.55**
Isophorone		ND	ND	ND	ND	ND
Naphthalene	100	**0.47**	**5.3**	**0.1**	**1.9**	**0.42**
Nitrobenzene		ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine		ND	ND	ND	ND	ND
N-Nitrosodiphenylamine		ND	ND	ND	ND	ND
Pentachlorophenol	6.7	ND	ND	ND	ND	ND
Phenanthrene	100	**13**	**75 D**	**3.2**	**5**	**0.47**
Phenol	100	ND	ND	ND	ND	ND
Pyrene	100	**4.9**	**43**	**5.2**	**2.1**	**1.5**
Total Conc		**57.47**	**339.14**	**29.684**	**23.73**	**8.759**
Total Estimated Conc. (TICs)		**16.6**	**242.6**	**16.18**	**17.86**	**4.81**

Notes:

Results are pending data validation and DUSR preparation.

Results do not include laboratory data qualifier codes.

ND = Not detected above given laboratory reporting limit.

NR = Not reported

ppm = Parts per million

Bold = Detected above reporting limit.

Grey highlighted cells exceed the NYSDEC Part 375-6 Restricted Residential Use Level

Table 3: Remaining Soil Contamination

Location ID Sample Date Sample ID	NYSDEC Part 375-6 Restricted-Residential	*SOUTHWEST ROOM*		*SMALL NE ROOM*	*LARGE NORTHEAST ROOM*	
		PWEXSWNA120 4/8/2019 480-151556-6	**PWEXSWNA121 4/9/2019 480-151605-4**	**PWEXSWNA088 4/9/2019 480-151605-16**	**PWEXSWNA152 4/9/2019 480-151605-13**	**PWEXSWNA093 4/9/2019 480-151605-9**
Semivolatile Organic Compounds (ppm)						
2,4,5-Trichlorophenol		ND	ND	ND	ND	ND
2,4,6-Trichlorophenol		ND	ND	ND	ND	ND
2,4-Dichlorophenol		ND	ND	ND	ND	ND
2,4-Dimethylphenol		ND	ND	ND	ND	ND
2,4-Dinitrophenol		ND	ND	ND	ND	ND
2,4-Dinitrotoluene		ND	ND	ND	ND	ND
2,6-Dinitrotoluene		ND	ND	ND	ND	ND
2-Chloronaphthalene		ND	ND	ND	ND	ND
2-Chlorophenol		ND	ND	ND	ND	ND
2-Methylnaphthalene		ND	ND	**0.2**	ND	ND
2-Methylphenol		ND	ND	ND	ND	ND
2-Nitroaniline		ND	ND	ND	ND	ND
2-Nitrophenol		ND	ND	ND	ND	ND
3,3'-Dichlorobenzidine		ND	ND	ND	ND	ND
3-Nitroaniline		ND	ND	ND	ND	ND
4,6-Dinitro-2-methylphenol		ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether		ND	ND	ND	ND	ND
4-Chloro-3-methylphenol		ND	ND	ND	ND	ND
4-Chloroaniline		ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether		ND	ND	ND	ND	ND
4-Methylphenol		ND	ND	ND	ND	ND
4-Nitroaniline		ND	ND	ND	ND	ND
4-Nitrophenol		ND	ND	ND	ND	ND
Acenaphthylene	100	**11**	**1.1**	**0.31**	**0.11**	**0.73**
Acetophenone		ND	ND	ND	ND	ND
Anthracene	100	**49**	**9.7**	**2.6**	**0.71**	**2.3**
Atrazine		ND	ND	ND	ND	ND
Benzaldehyde		ND	ND	ND	ND	ND
Benzo[a]anthracene	1	**46**	**13**	**2.1**	**1**	**2.2**
Benzo[a]pyrene	1	**31**	**9.6**	**1.3**	**0.79**	**1.7**
Benzo[b]fluoranthene	1	**32**	**11**	**1.8**	**0.9**	**2.2**
Benzo[g,h,i]perylene	100	**15**	**5.7**	**0.66**	**0.41**	**1.1**
Benzo[k]fluoranthene	3.9	**15**	**5.7**	**0.73**	**0.51**	**0.86**
bis (2-chloroisopropyl) ether		ND	ND	ND	ND	ND
Bis(2-chloroethoxy)methane		ND	ND	ND	ND	ND
Bis(2-chloroethyl)ether		ND	ND	ND	ND	ND
Bis(2-ethylhexyl) phthalate		ND	ND	ND	ND	ND
Butyl benzyl phthalate		ND	ND	ND	ND	ND
Acenaphthene	100	**4.1**	**0.33**	**1.4**	**0.082**	**0.4**
Biphenyl		**3.5**	ND	**0.71**	**0.24**	**0.54**
Caprolactam		ND	ND	ND	ND	ND
Carbazole		**4.8**	**0.8**	**0.48**	**0.29**	**0.64**
Chrysene	3.9	**37**	**9.5**	**1.5**	**0.74**	**1.8**
Dibenz(a,h)anthracene	0.33	ND	ND	ND	ND	**0.32**
Dibenzofuran	59	**24**	**2.1**	**2.7**	**0.84**	**2.1**
Diethyl phthalate		ND	ND	ND	ND	ND
Dimethyl phthalate		ND	ND	ND	ND	ND
Di-n-butyl phthalate		ND	ND	ND	ND	ND
Di-n-octyl phthalate		ND	ND	ND	ND	ND
Fluoranthene	100	**120 D**	**28**	**5.1**	**1.5**	**5.4**
Fluorene	100	**30**	**2.1**	**3.1**	**0.67**	**2**
Hexachlorobenzene		ND	ND	ND	ND	ND
Hexachlorobutadiene		ND	ND	ND	ND	ND
Hexachlorocyclopentadiene		ND	ND	ND	ND	ND
Hexachloroethane		ND	ND	ND	ND	ND
Indeno[1,2,3-cd]pyrene	0.5	**15**	**5.5**	**0.68**	**0.41**	**1**
Isophorone		ND	ND	ND	ND	ND
Naphthalene	100	**1.5**	**0.33**	**10D**	**0.16**	**0.46**
Nitrobenzene		ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine		ND	ND	ND	ND	ND
N-Nitrosodiphenylamine		ND	ND	ND	ND	ND
Pentachlorophenol	6.7	ND	ND	ND	ND	ND
Phenanthrene	100	**160 D**	**20**	**10D**	**2.9**	**9.7D**
Phenol	100	ND	ND	ND	ND	ND
Pyrene	100	**77 D**	**25**	**4**	**1.4**	**4.4**
Total Conc		**675.9**	**149.46**	**51.17**	**13.662**	**40**
Total Estimated Conc. (TICs)		**2644.7**	**46**	**44.75**	**15.61**	**31.14**

Notes:

Results are pending data validation and DUSR preparation.

Results do not include laboratory data qualifier codes.

ND = Not detected above given laboratory reporting limit.

NR = Not reported

ppm = Parts per million

Bold = Detected above reporting limit.

Grey highlighted cells exceed the NYSDEC Part 375-6 Restricted

Table 3: Remaining Soil Contamination

Location ID Sample Date Sample ID	NYSDEC Part 375-6 Restricted-Residential	*NW ROOM* **PWEXSWNA101*** **4/10/2019** **480-151836-7**	*OUTSIDE E WALL OF NE/SE ROOMS* **PWEXSWNA150** **4/10/2019** **480-151836-6**	*WEST CORRIDOR* **PWEXSWNA109** **4/11/2019** **480-151821-2**	*WEST CORRIDOR* **PWEXSWNA114** **4/11/2019** **480-151821-5**	*Upland/TFS* **PWEXBM07174** **9/11/2019** **460-191058-1**
Semivolatile Organic Compounds (ppm)						
2,4,5-Trichlorophenol		ND	ND	ND	ND	ND
2,4,6-Trichlorophenol		ND	ND	ND	ND	ND
2,4-Dichlorophenol		ND	ND	ND	ND	ND
2,4-Dimethylphenol		ND	ND	ND	ND	ND
2,4-Dinitrophenol		ND	ND	ND	ND	ND
2,4-Dinitrotoluene		ND	ND	ND	ND	ND
2,6-Dinitrotoluene		ND	ND	ND	ND	ND
2-Chloronaphthalene		ND	ND	ND	ND	ND
2-Chlorophenol		ND	ND	ND	ND	ND
2-Methylnaphthalene		**14**	ND	ND	**2.4**	**10**
2-Methylphenol		ND	ND	ND	ND	ND
2-Nitroaniline		ND	ND	ND	ND	ND
2-Nitrophenol		ND	ND	ND	ND	ND
3,3'-Dichlorobenzidine		ND	ND	ND	ND	ND
3-Nitroaniline		ND	ND	ND	ND	ND
4,6-Dinitro-2-methylphenol		ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether		ND	ND	ND	ND	ND
4-Chloro-3-methylphenol		ND	ND	ND	ND	ND
4-Chloroaniline		ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether		ND	ND	ND	ND	ND
4-Methylphenol		ND	ND	ND	ND	**0.067**
4-Nitroaniline		ND	ND	ND	ND	ND
4-Nitrophenol		ND	ND	ND	ND	ND
Acenaphthylene	100	**14**	**0.13**	**0.57**	**1.1**	**7.9**
Acetophenone		ND	ND	ND	ND	**0.92**
Anthracene	100	**35**	**0.24**	**1.6**	**1.6**	ND
Atrazine		ND	ND	ND	ND	**6.4**
Benzaldehyde		ND	ND	ND	ND	ND
Benzo[a]anthracene	1	**25**	**0.89**	**2.3**	**1.8**	ND
Benzo[a]pyrene	1	**17**	**0.75**	**1.9**	**1.1**	**5.5**
Benzo[b]fluoranthene	1	**20**	**1.1**	**2.1**	**1.4**	**3.6**
Benzo[g,h,i]perylene	100	**8.1**	**0.63**	**1.5**	**0.6**	**4.2**
Benzo[k]fluoranthene	3.9	**6.9**	**0.38**	**1.2**	**0.68**	**1.8**
bis (2-chloroisopropyl) ether		ND	ND	ND	ND	**2.4**
Bis(2-chloroethoxy)methane		ND	ND	ND	ND	**1.7**
Bis(2-chloroethyl)ether		ND	ND	ND	ND	ND
Bis(2-ethylhexyl) phthalate		ND	ND	ND	ND	ND
Butyl benzyl phthalate		ND	ND	ND	ND	ND
Acenaphthene	100	**13**	ND	**0.26**	**0.37**	ND
Biphenyl		**9.2**	ND	100	**0.45**	ND
Caprolactam		ND	ND	ND	ND	ND
Carbazole		**12**	ND	**0.14**	**0.62**	**2.2**
Chrysene	3.9	**23**	**0.85**	**1.8**	**1.2**	**4.6**
Dibenz(a,h)anthracene	0.33	ND	ND	**0.3**	ND	**0.67**
Dibenzofuran	59	**32**	**0.065**	**1.1**	**1.7**	**6.4**
Diethyl phthalate		ND	ND	ND	ND	ND
Dimethyl phthalate		ND	ND	ND	ND	ND
Di-n-butyl phthalate		ND	ND	ND	ND	ND
Di-n-octyl phthalate		ND	ND	ND	ND	ND
Fluoranthene	100	**58**	**1.6**	**5.6D**	**3.5**	**12**
Fluorene	100	**32**	**0.081**	**0.81**	**2**	**7.4**
Hexachlorobenzene		ND	ND	ND	ND	ND
Hexachlorobutadiene		ND	ND	ND	ND	ND
Hexachlorocyclopentadiene		ND	ND	ND	ND	ND
Hexachloroethane		ND	ND	ND	ND	ND
Indeno[1,2,3-cd]pyrene	0.5	**8**	**0.49**	**1.3**	**0.62**	**2.2**
Isophorone		ND	ND	ND	ND	ND
Naphthalene	100	**180 D**	**0.074**	**0.043**	**5.5D**	**27**
Nitrobenzene		ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine		ND	ND	ND	ND	ND
N-Nitrosodiphenylamine		ND	ND	ND	ND	ND
Pentachlorophenol	6.7	ND	ND	ND	ND	ND
Phenanthrene	100	**99**	**1**	**6D**	**5.3D**	**19**
Phenol	100	ND	ND	ND	ND	ND
Pyrene	100	**46**	**1.5**	**5.4**	**2.8**	**10**
Total Conc		**652.2**	**9.78**	**34.023**	**34.74**	**135.957**
Total Estimated Conc. (TICs)		**336.8**	**7.71**	**53.39**	**60.05**	**23.1**

Notes:

Results are pending data validation and DUSR preparation.

Results do not include laboratory data qualifier codes.

ND = Not detected above given laboratory reporting limit.

NR = Not reported

ppm = Parts per million

Bold = Detected above reporting limit.

Grey highlighted cells exceed the NYSDEC Part 375-6 Restricted

Table 3: Remaining Soil Contamination

Location ID Sample Date Sample ID	NYSDEC Part 375-6 Restricted-Residential	*Undermining* PWEXBM04101 5/21/2019 460-182570-2	 PWEXSWNA096 5/21/2019 460-182570-3	 PWEXBM04075 5/31/2019 460-183257-1
Semivolatile Organic Compounds (ppm)				
2,4,5-Trichlorophenol		ND	ND	ND
2,4,6-Trichlorophenol		ND	ND	ND
2,4-Dichlorophenol		ND	ND	ND
2,4-Dimethylphenol		**0.34**	ND	**0.055**
2,4-Dinitrophenol		ND	ND	ND
2,4-Dinitrotoluene		ND	ND	ND
2,6-Dinitrotoluene		ND	ND	ND
2-Chloronaphthalene		ND	ND	ND
2-Chlorophenol		ND	ND	ND
2-Methylnaphthalene		**1**	**2.3**	**0.024**
2-Methylphenol		ND	ND	ND
2-Nitroaniline		ND	ND	ND
2-Nitrophenol		ND	ND	ND
3,3'-Dichlorobenzidine		ND	ND	ND
3-Nitroaniline		ND	ND	ND
4,6-Dinitro-2-methylphenol		ND	ND	ND
4-Bromophenyl phenyl ether		ND	ND	ND
4-Chloro-3-methylphenol		ND	ND	ND
4-Chloroaniline		ND	ND	ND
4-Chlorophenyl phenyl ether		ND	ND	ND
4-Methylphenol		**0.12**	ND	**0.014**
4-Nitroaniline		ND	ND	ND
4-Nitrophenol		ND	ND	ND
Acenaphthylene	100	**1.9**	**0.51**	**0.38**
Acetophenone		**3.8**	**0.92**	**0.18**
Anthracene	100	ND	ND	ND
Atrazine		**12**	**2.9**	**0.67**
Benzaldehyde		ND	ND	ND
Benzo[a]anthracene	1	ND	ND	ND
Benzo[a]pyrene	1	**6.1**	**2.7**	**0.48**
Benzo[b]fluoranthene	1	**4.8**	**2.1**	**0.28**
Benzo[g,h,i]perylene	100	**5.8**	**2.6**	**0.35**
Benzo[k]fluoranthene	3.9	**2.3**	**0.97**	**0.11**
bis (2-chloroisopropyl) ether		**2**	**0.9**	**0.17**
Bis(2-chloroethoxy)methane		**2.3**	**0.97**	ND
Bis(2-chloroethyl)ether		ND	ND	ND
Bis(2-ethylhexyl) phthalate		ND	ND	ND
Butyl benzyl phthalate		ND	ND	ND
Acenaphthene	100	ND	ND	ND
Biphenyl		ND	ND	ND
Caprolactam		ND	ND	**0.23**
Carbazole		**4.7**	**1.6**	**0.4**
Chrysene	3.9	**5.9**	**2**	**0.031**
Dibenz(a,h)anthracene	0.33	**0.49**	**0.22**	**0.6**
Dibenzofuran	59	**8.7**	**3.6**	ND
Diethyl phthalate		ND	ND	ND
Dimethyl phthalate		ND	ND	ND
Di-n-butyl phthalate		ND	ND	**0.13**
Di-n-octyl phthalate		ND	ND	ND
Fluoranthene	100	**17**	**7.6**	**1.1**
Fluorene	100	**8**	**2.8**	**0.67**
Hexachlorobenzene		ND	ND	ND
Hexachlorobutadiene		ND	ND	ND
Hexachlorocyclopentadiene		ND	ND	ND
Hexachloroethane		ND	ND	ND
Indeno[1,2,3-cd]pyrene	0.5	**2.9**	**1.3**	**0.16**
Isophorone		ND	ND	ND
Naphthalene	100	**48**	**17**	**0.27**
Nitrobenzene		ND	ND	ND
N-Nitrosodi-n-propylamine		ND	ND	ND
N-Nitrosodiphenylamine		ND	ND	ND
Pentachlorophenol	6.7	ND	ND	ND
Phenanthrene	100	**29**	**12**	**2**
Phenol	100	ND	ND	ND
Pyrene	100	**13**	**5.6**	**0.81**
Total Conc		**180.15**	**70.59**	**9.114**
Total Estimated Conc. (TICs)		**59**	**8.4**	**1.07**

Notes:

Results are pending data validation and DUSR preparation.

Results do not include laboratory data qualifier codes.

ND = Not detected above given laboratory reporting limit.

NR = Not reported

ppm = Parts per million

Bold = Detected above reporting limit.

Grey highlighted cells exceed the NYSDEC Part 375-6 Restricted

Table 4: Remaining Sediment Contamination

Location ID	PWEXBM02 031	PWEXBM02 035	PWEXBM02 042	PWEXBM02047
Cell Location	Cell 3	Cell 4	Cell 5A	Cell 6A
Sample Date	10/17/2016	10/31/2016	12/8/2016	12/8/2016
SDG	R1611025-003	R1611543-004	R1612959-001	R1700210-002
Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Parameter				
2-Methylnaphthalene	15000 U	**4000**	**25000**	57000 U
Acenaphthene	**30000**	**5500**	**33000**	57000 U
Acenaphthylene	15000 U	2400 U	11000 U	57000 U
Anthracene	**51000**	**3700**	**32000**	**160000**
Benzo(a)anthracene	**62000**	2400 U	**26000**	**260000**
Benzo(a)pyrene	**52000**	2400 U	**21000**	**270000**
Benzo(b)fluoranthene	**52000**	2400 U	**22000**	**290000**
Benzo(g,h,i)perylene	**26000**	2400 U	**12000**	**190000**
Benzo(k)fluoranthene	**21000**	2400 U	11000 U	**100000**
Chrysene	**48000**	2400 U	**21000**	**260000**
Dibenzo(a,h)anthracene	15000 U	2400 U	11000 U	57000 U
Fluoranthene	**150000**	**3800**	**59000**	**740000**
Fluorene	**32000**	**3900**	**29000**	**75000**
Indeno(1,2,3-cd)pyrene	**33000**	2400 U	**13000**	**180000**
Naphthalene	15000 U	**8400**	**59000**	57000 U
Phenanthrene	**160000**	**14000**	**94000**	**830000**
Pyrene	**110000**	2400 U	**45000**	**710000**
tPAH17	**827000**	**43300**	**491000**	**4065000**

Notes:

This is a summary table. Only detected analytes are presented.

U = Not detected above given laboratory reporting limit.

Bold = Detected above reporting limit.

Orange highlighted cells exceed the Record of Decision (ROD) remediation goal for tPAH17 of 43 mg/kg

ug/kg = Micrograms per kilogram

Table 5: Post Remediation Sampling Requirements and Schedule

Sampling Location	Analytical Parameters			Schedule
	VOCs	SVOCs	Metals	
TMW-1D	X	X	X	Quarterly
TMW-2D	X	X	X	Quarterly
PRMW-01S	X	X	X	Quarterly
PRMW-02S	X	X	X	Quarterly
PRMW-02D	X	X	X	Quarterly
PRMW-03S	X	X	X	Quarterly
PRMW-03D	X	X	X	Quarterly
PRMW-04S	X	X	X	Quarterly
PRMW-05S	X	X	X	Quarterly
PRMW-05D	X	X	X	Quarterly
PRMW-06S	X	X	X	Quarterly
PRMW-06D	X	X	X	Quarterly

Notes:

1. VOC analytical testing SW 846 Method 8260
2. SVOC analytical testing SW 846 Method 8270
3. Metal analytical testing SW 846 9012

Table 6: Monitoring Well Construction Details

Monitoring Well ID	Well Location	Coordinates (longitude/latitude)	Well Diameter (inches)	Elevation (above mean sea level)			
				Casing	Surface	Screen Top	Screen Bottom
TMW-1D	Off-Site	40.2651° N, 77.0374° W	2	725.48	723.98	669.98	659.98
TMW-2D	On-Site	42.6586° N, 77.0546° W	2	719.62	719.57	669.57	659.57
PRMW-01S	On-Site	TBD	2	TBD	TBD	TBD	TBD
PRMW-02S	On-Site	TBD	2	TBD	TBD	TBD	TBD
PRMW-02D	On-Site	TBD	2	TBD	TBD	TBD	TBD
PRMW-03S	On-Site	TBD	2	TBD	TBD	TBD	TBD
PRMW-03D	On-Site	TBD	2	TBD	TBD	TBD	TBD
PRMW-04S	On-Site	TBD	2	TBD	TBD	TBD	TBD
PRMW-05S	On-Site	TBD	2	TBD	TBD	TBD	TBD
PRMW-05D	On-Site	TBD	2	TBD	TBD	TBD	TBD
PRMW-06S	On-Site	TBD	2	TBD	TBD	TBD	TBD
PRMW-06D	On-Site	TBD	2	TBD	TBD	TBD	TBD

Table 7: Soil and Engineered Cover System Monitoring Requirement and Schedule

Monitoring Event	Frequency	Monitoring Locations	Measurment/Analysis
Soil and engineered cover	Annual	On the cover areas as shown on Figure 8A and 8B	Visual inspect road surface, sidewalk surface, as well as the site surface for signs of unauthorized excavations

Table 8: Schedule of Interim Monitoring/Inspection Reports

Task/Report	Reporting Frequency
Groundwater Monitoring Reports	Quarterly, for the first five years, after five years the frequency will be revised in consultation with the Department
Sediment Monitoring Report	Biennially, for the first five years, after five years the frequency will be revised in consultation with the Department
Periodic Review Report	Annually, for the first five years, after five years the frequency will be revised in consultation with the Department

Notes:

The frequency of events will be conducted as specifed until otherwise approved by the NYSDEC

APPENDIX A – ENVIRONMENTAL EASEMENT

APPENDIX B – LIST OF SITE CONTACTS

Name	Phone/Email Address
John Ruspantini, NYSEG	jjruspantini@nyseg.com
Matt Thorpe, AECOM	Matthew.thorpe@aecom.com
Thomas Haley	Thomas.haley@dec.ny.gov
Scott Deyette, NYSDEC	Scott.deyette@dec.ny.gov
Gerald Pratt, NYSDEC	Gerald.pratt@dec.ny.gov
Daniel Eaton, NYSDEC GW	djeaton@gw.dec.state.ny.us
Sarita Wagh, NYSDOH	Sarita.Wagh@health.ny.gov
Brent Bodine, Village of Penn Yan	bbodine@villageofpennyan.com
Chris Iverson, Iverson Construction	chris@iversenconstr.com
Bonnie Lawson, Iverson Construction	bonnie@iversenconstr.com
Vince Rosato, REI	plaznet2@gmail.com

APPENDIX **C – MONITORING WELL BORING AND CONSTRUCTION LOGS**

AECOM
40 British American Blvd
Latham, New York, 12110

Well ID: TMW-1S

Project Name: NYSEG Penn Yan
NYSEG/Project Number: NYSEG
Date Started/Date Completed: 5/4/17
Boring Location: Upland east
Drilling Company: Nothnagle

Sampling Method: MacroCore
PVC Elevation (ft/msl, NAVD 88):
Ground Elevation (ft/msl, NAVD 88):
Total Depth: 44 ft
Logged By: KS

Depth (Feet)	Recovery (Feet)	PID (ppm)	Sample ID	Sample Interval	Lithology	USCS	Visual Impacts	Geologic Description	Remarks	Well Construction
0 to -2	3.5	0.0				FILL		Brown; fine to coarse SAND, some medium to coarse gravel up to 3-inch diameter; loose, dry.	Bentonite seal at 0 to 1 ft bgs.	
-2 to -4										
-4 to -6	2.0	0.0							Two-inch diameter PVC riser at 0 to 34 ft bgs.	
-6 to -8										
-8 to -10	3.0	0.0				SM		Brown; silty fine SAND, some fine to medium gravel, some orange mottling, trace clay; compact; moist.		
-10 to -12										
-12 to -14	0.0	NA								
-14 to -16									Grouted annulus at 1 to 31 ft bgs.	
-16 to -18	4.0	0.1								
-18 to -20										
-20 to -22	3.5	0.3				CL		Gray; CLAY, little fine to medium gravel; compact; wet.		
-22 to -24										
-24 to -26	1.5	0.1							Bentonite seal at 31 to 33 ft bgs.	
-26 to -28										
-28 to -30	0.0	NA								
-30 to -32										
-32 to -34	2.0	0.2				SM		Brown to gray; silty fine SAND, little fine to medium gravel; compact; moist.	Sand filter pack at 33 to 44 ft bgs.	
-34 to -36										
-36 to -38	2.0	0.0							Number 10 slot PVC screen at 34 to 44 ft bgs.	
-38 to -40										
-40 to -42	3.0	0.2				SP		Brown to gray; homogenous fine SAND, trace fine gravel; loose; wet.		
-42 to -44										

Coal Tar or Coal Tar NAPL Saturated Soil

Hydrocarbon Staining, Hydrocarbon Sheen or NAPL Blebs

Comments:

AECOM
40 British American Blvd
Latham, New York, 12110

Well ID: TMW-1D

Project Name: NYSEG Penn Yan
NYSEG/Project Number: NYSEG
Date Started/Date Completed: 5/4/17
Boring Location: Upland east
Drilling Company: Nothnagle

Sampling Method: MacroCore
PVC Elevation (ft/msl, NAVD 88):
Ground Elevation (ft/msl, NAVD 88):
Total Depth: 64 ft
Logged By: KS

Depth (Feet)	Recovery (Feet)	PID (ppm)	Sample ID	Sample Interval	Lithology	USCS	Visual Impacts	Geologic Description	Remarks	Well Construction
-40								See TMW-1S for the 0 to 44 ft bgs lithology.	Bentonite seal at 0 to 1 ft bgs.	
-42										
-44						SP		Gray; homogenous fine SAND; loose; wet.	Grouted annulus at 1 to 51 ft bgs.	
-46	3.0	0.0								
-48										
-50	3.0	0.0							Bentonite seal at 51 to 53 ft bgs.	
-52										
-54									Sand filter pack at 53 to 64 ft bgs.	
-56	2.5	0.0								
-58									Number 10 slot PVC screen at 54 to 64 ft bgs.	
-60										
-62	3.0	0.0						Boring terminated at 64 ft bgs.		
-64										

Coal Tar or Coal Tar NAPL Saturated Soil

Hydrocarbon Staining, Hydrocarbon Sheen or NAPL Blebs

Comments: See TMW-1S for the 0 to 44 ft bgs lithology.

AECOM
40 British American Blvd
Latham, New York, 12110

Well ID: TMW-2S

Project Name: NYSEG Penn Yan
NYSEG/Project Number: NYSEG
Date Started/Date Completed: 5/8/17
Boring Location: Upland west
Drilling Company: Nothnagle

Sampling Method: MacroCore
PVC Elevation (ft/msl, NAVD 88):
Ground Elevation (ft/msl, NAVD 88):
Total Depth: 40 ft
Logged By: KS

Depth (Feet)	Recovery (Feet)	PID (ppm)	Sample ID	Sample Interval	Lithology	USCS	Visual Impacts	Geologic Description	Remarks	Well Construction
0										
-2	1.5	0.0				FILL		Brown; fine to medium SAND, some fine to coarse gravel, little silt; loose; wet.	Bentonite seal at 0 to 1 ft bgs.	
-4										
-6	2.0	0.0				SM		Brown; silty fine SAND, some fine to medium gravel, little clay, trace organics; compact; dry.	Two-inch diameter PVC riser at 0 to 30 ft bgs.	
-8										
-10	4.0	0.0							Grouted annulus at 1 to 27 ft bgs.	
-12						CL		Gray; CLAY; soft; wet.		
-14	0.3	0.0								
-16										
-18	1.0	0.0								
-20						SM		Gray; SILT, some fine sand, little fine to coarse gravel, little clay; compact; moist.		
-22	3.0	0.0								
-24									Bentonite seal at 27 to 29 ft bgs.	
-26	2.5	0.0								
-28						SP		Brown; homogenous fine SAND; loose; wet.		
-30	4.0	0.0							Sand filter pack at 29 to 40 ft bgs.	
-32										
-34									Number 10 slot PVC screen at 30 to 40 ft bgs.	
-36	3.0	0.0				GP		Brown; fine to coarse gravel, some fine to coarse sand, trace silt; loose; wet.		
-38										
-40										

Coal Tar or Coal Tar NAPL Saturated Soil

Hydrocarbon Staining, Hydrocarbon Sheen or NAPL Blebs

Comments:

AECOM
40 British American Blvd
Latham, New York, 12110

Well ID: TMW-2D

Project Name: NYSEG Penn Yan
NYSEG/Project Number: NYSEG
Date Started/Date Completed: 5/8/17
Boring Location: Upland west
Drilling Company: Nothnagle

Sampling Method: MacroCore
PVC Elevation (ft/msl, NAVD 88):
Ground Elevation (ft/msl, NAVD 88):
Total Depth: 60 ft
Logged By: KS

Depth (Feet)	Recovery (Feet)	PID (ppm)	Sample ID	Sample Interval	Lithology	USCS	Visual Impacts	Geologic Description	Well Remarks	Well Construction
-36								See TMW-2S for the 0 to 40 ft bgs lithology.	Two-inch diameter PVC riser at 0 to 50 ft bgs.	
-38										
-40						SP		Gray; homogenous fine SAND; loose; wet.	Bentonite seal at 0 to 1 ft bgs.	
-42	4.0	11.1								
		23.4							Grouted annulus at 1 to 47 ft bgs.	
-44										
-46	4.0	0.1								
-48									Bentonite seal at 47 to 49 ft bgs.	
-50								Running sands are binding the sampler. Switch to 3-inch diameter split spoons.		
-52	2.0	0.0							Sand filter pack at 49 to 60 ft bgs.	
-54										
-56									Number 10 slot PVC screen at 50 to 60 ft bgs.	
-58	2.0	0.1						Boring terminated at 60 ft bgs.		
-60										

Coal Tar or Coal Tar NAPL Saturated Soil

Hydrocarbon Staining, Hydrocarbon Sheen or NAPL Blebs

Comments: See TMW-2S for the 0 to 40 ft bgs lithology.

APPENDIX D – EXCAVATION WORK PLAN (EWP)

D-1 NOTIFICATION

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

Table 1: Notifications*

Thomas Haley Region 8 NYSDEC Representative	585-226-5400 thomas.haley@dec.ny.gov
Gerald Pratt NYSDEC Project Manager	518-402-9667 gerald.pratt@dec.ny.gov
John Ruspantini NYSEG Project Manager	585-484-6787 jjruspantini@nyseg.com

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

This notification will include:

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

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

D-2 SOIL SCREENING METHODS

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

Since the source material was removed from the gas plant site during various remedial actions and interim remedial measures (IRMs) and disposed off-site, only soils beyond the limits of excavation may exhibit contaminants of concern (COCs) above the Site Cleanup Goals (SCGs) and would require management as per methods described in this method. Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal and material that requires testing to determine if the material can be reused on-site as soil beneath a cover or if the material can be used as cover soil. Further discussion of off-site disposal of materials and on-site reuse is provided in Section D-7 of this Appendix.

D-3 SOIL STAGING METHODS

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

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

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

D-4 MATERIALS EXCAVATION AND LOAD-OUT

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

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

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

All soil waste will be trucked off-site or drummed and transported off-site in the drums to a treatment or disposal facility permitted to accept such material. Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

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

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

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

D-5 MATERIALS TRANSPORT OFF-SITE

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

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

Truck transport routes are as follows (all roads are identified on the map provided as Figure 1):

1. Local Truck Route:
    a. Traveling on NY-20W
    b. Turn left onto NY-14A S/NY-245 S
    c. Turn left onto Water Street
    d. Turn right off Water Street to enter Site
2. Alternate Local Truck Route:
    a. Traveling on NY-20W
    b. Turn left onto Pre Emption Road
    c. Turn right onto NY-54 W

d. Turn left onto Main Street
e. Turn right onto Water Street
f. Turn left off Water Street to enter Site

3. Truck Route from I-90 W:
    a. Traveling on I-90 W
    b. Take exit 42 toward NY-14/Geneva Lyons/Lyons
    c. Merge onto NY-318
    d. Turn right onto NY-14S
    e. Take the New York 96 N ramp
    f. Turn left onto Pre Emption Road
    g. Follow directions from alternate local route from c

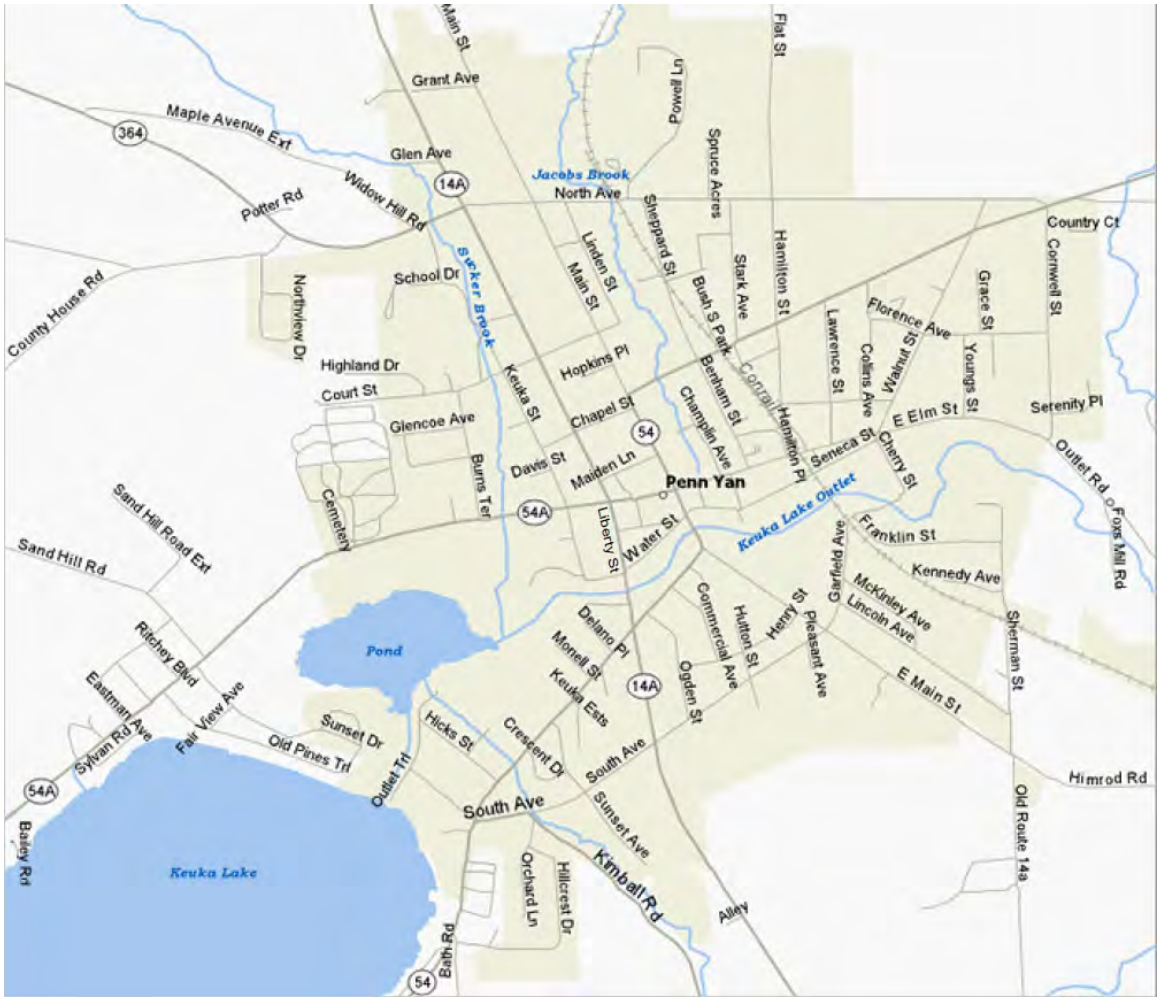


Figure 1: Route Map

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

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

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

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

D-6 MATERIALS DISPOSAL OFF-SITE

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

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C&D debris recovery facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review

Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled consistent with 6NYCRR Parts 360, 361, 362, 363, 364 and 365. Material that does not meet Unrestricted SCOs is prohibited from being taken to a New York State C&D debris recovery facility (6NYCRR Subpart 361-5 registered or permitted facility).

D-7 MATERIALS REUSE ON-SITE

Any excavated materials that are potentially reusable onsite (that do not contain visible tar) must be sampled and proven suitable prior to use. Excavated material must be stockpiled and secured on-site in accordance with the materials management practices stated above prior to sampling. Stockpiles shall be limited to a maximum size of 500 cubic yards for sampling. A three-point composite sample will be collected from each stockpile and submitted for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). This section is applicable only for the areas where potential contaminated soils may be left in place. The excavation and reuse of material in the areas already remediated do not have to be managed per these requirements.

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

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter

(wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site will not be reused on-site.

D-8 FLUIDS MANAGEMENT

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

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

D-9 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities the cover system will be restored in a manner that complies with the Interim Site Management Plan or Record of Decision. The existing cover system is comprised of a minimum of 24 inches of clean soil; or a 6-inch geoweb infilled with a 1 inch layer of AquaGate overlain by 5 inches of AquaBlok all overlain by a geotextile demarcation layer and a minimum of 12 inches of clean soil. The demarcation layer, consisting of 8-ounce non-woven geotextile will be replaced to provide a visual reference to the top of the remaining contamination zone, the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this ISMP. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the upper surface of the remaining contamination. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in an updated ISMP.

D-10 BACKFILL FROM OFF-SITE SOURCES

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

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

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

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

D-11 STORMWATER POLLUTION PREVENTION

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

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

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

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

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

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

D-12 EXCAVATION CONTINGENCY PLAN

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

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

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC’s Project Manager. Reportable quantities of petroleum product will also be

reported to the NYSDEC spills hotline. These findings will be also included in the Periodic Review Report.

D-13 COMMUNITY AIR MONITORING PLAN

A figure showing the location of air sampling stations based on generally prevailing wind conditions will be developed prior to intrusive activities in areas with potential remaining impacts. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations.

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

D-14 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors off-site. Specific odor control methods to be used on a routine basis will include covering the stockpiles and excavation areas with tarp, BioSolve®, or odor control foam. If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the remedial party's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

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

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

D-15 DUST CONTROL PLAN

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

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

D-16 OTHER NUISANCES

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

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

APPENDIX E – HEALTH AND SAFETY PLAN

HASP PROVIDED AS SEPARATE ELECTRONIC FILE

APPENDIX F – QUALITY ASSURANCE PROJECT PLAN

AECOM Imagine it. Delivered.

Quality Assurance Project Plan

Penn Yan Former MGP
Penn Yan, NY
NYSDEC Site #8-62-009

June 2020

Prepared for:

New York State Electric and Gas Corp
18 Link Drive
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Table of Contents

Tables

1. Introduction

This Quality Assurance Project Plan (QAPP) provides a description of the sampling and laboratory procedures/protocols to be used in support of Site Management activities associated with the Penn Yan Water Street former manufactured gas plant (MGP) site located in the Village of Penn Yan, Town of Milo, Yates 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 Site Management Plan (SMP) with regards to specific project objectives and field sampling activities. To the extent that discrepancies exist between this QAPP and the SMP, the SMP shall take precedence.

2. Data Quality Objectives

Data quality objectives 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 SMP. The general project data quality objectives are summarized in this section, with detailed information given throughout this QAPP and associated sections of the SMP. 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 and water analyses.

3. Sample Collection

3.1 Soils

No soil samples will be collected as part of the SMP. If a soil removal action will be required where potentially impacted soils remain at the site, a soil sampling plan will be included with the soil removal work plan submitted to the NYSDEC for approval prior to any soil removal activities.

3.2 Groundwater Sampling

Groundwater samples will be collected as described in the appropriate sections of the SMP. These sections describe the collection procedures, sampling equipment, locations and frequencies for the groundwater samples.

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 (see Section 3.3). Samples will be stored at 4° Celsius until delivered to, and analyzed by, the laboratory.

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 1.

Table 1: Sample Containers & Preservatives

Analysis	Matrix	Container	Preservative
Semivolatiles	Water	1000 ml amber glass	4º Celsius
Volatiles	Water	40 ml glass	4º Celsius or HCl to pH < 2
Total Cyanide	Water	500 ml Plastic	4º Celsius NaOH to pH > 12
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

Table 2 identifies samples holding times.

Table 2: Groundwater Samples

Sample Type	Matrix	Holding Time
Semivolatiles	Water	5 days to extraction 40 days after extraction
Volatiles	Water	14 days

Total Cyanide	Water	14 days

4. Sample Custody, Identification, and Tracking

4.1 Holding Times and Sample Transport

Since the samples will be analyzed at standard 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 COC 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 COC will be included in all hard copies of reports.

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 COC. If a sample container is broken or leaking, it will be noted on the COC 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 COC and the completed COC 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 Appendix A for sample identification naming convention for air, water, and confirmatory samples.

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. 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 Method 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. Gas Chromatograph/Mass Spectrometers are tuned and calibrated every 12 hours, at a minimum.

All field equipment, for real time air analyses will be calibrated daily, in accordance with manufacturer's recommendations. All equipment will be calibrated more frequently if conditions warrant. The total organic analyzer equipped with a photo ionization detector (PID) used to measure volatile organic vapors will be calibrated to benzene with a 100-ppm isobutylene air standard. The DataRam™ or a Thermo Andersen ADR-1200s used to measure particulates will be calibrated to zero with filtered air sample.

6. Analytical Procedures

6.1 Laboratory Analyses

The following Table shows the analytical method to be used for each analyte or group of analytes for the Project:

Table 3: Analytical Methods

Analyte	Analytical Method
Total Semivolatiles	SW 846 Method 8270
Total Volatiles	SW 846 Method 8260
Total Cyanide	SW 846 9012

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. NYSEG has contracted with (To Be Determined) to perform laboratory services for Site Management.

7. 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 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 instrument's detectors will be converted to standard units of 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 ensure that all data deliverables have been properly provided.

7.3 Full Data Validation

The full third-party data validation process consists of a formal systematic review of analytical results and quality control documentation with regards to the parameters cited in Section 8.3. On the basis of this review, a third-party 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 samples will be performed at NYSEG's discretion. Sampling data will be archived if it becomes necessary to perform a full data validation at a future date.

7.4 Data Usability Summary Report

A Data Usability Summary Report (DUSR) provides a thorough review and evaluation of analytical data without the formality of a full third-party data validation. A DUSR for the analytical results of 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 SMP.

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 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. 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 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.

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. 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 required 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 (e.g., balances, ovens, refrigerators, water purification systems) will be checked and documented. Any discrepancies will be immediately reported to the appropriate laboratory personnel for resolution.

Appendix A Sample Identification

Sample Identification

Naming Convention for Soil and Water Samples

SYSTEM CODING

First & Second = Site	Penn Yan Water Street	PW
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
	Monitoring Well	MW
Fifth & Sixth = Location	Sidewall Sample	SW
	Bottom Sample	BM
	Waste Soil	WS
	Wastewater	WW
	Surface water	SW
	Groundwater	GW
	Debris	DB
Seventh & Eighth = Relative Depth	Surface Soil	00
	Depth below Ground	02
	Non-Applicable	NA
Ninth, Tenth & Eleventh =	Sample Number	005

EXAMPLE: Penn Yan Water Street; Groundwater from Monitoring Well MW-04; and sample number 220

SAMPLE IDENTIFICATION: PWMWGWNA220

FORMER MANUFACTURED GAS PLANT SITE OR FORMER MANUFACTURED GAS PLANT SITE DISPOSAL AREA	
Site	**Code**
Albion Ingersoll Street	AI
Auburn Clark Street	AC
Auburn Green Street	AG
Auburn McMaster Street	AM
Binghamton Court Street	BC
Binghamton – Johnson City	BJ
Binghamton Washington Street	BW
Clyde Lock Street	CL
Corning Chestnut Street	CC
Cortland/Homer South Main Street	CH
Dansville Ossian Street	DO
Elmira Madison Avenue	EM
Elmira Water Street	EW
Geneva Border City	GB
Geneva Wadsworth Street	GW
Goshen West Main Street	GS
Granville North Street	GR
Ithaca Cayuga Inlet	II
Ithaca Court Street	IC
Ithaca First Street	IF
Lockport State Road	LS
Lockport Transit Street	LT
Lyons Water Street	LW
Mechanicville Central Avenue	MC
Mechanicville Coons Crossing	ME
Mechanicville Willow Glen MGP Disposal Site	MW
Newark Water Street	NW
Norwich Birdsall Street	NB
Oneonta James Georgeson Avenue (Gas Ave.)	OG
Owego East Main Street	OE
Palmyra Park Drive	PP
Penn Yan Jackson Street	PJ
Penn Yan Water Street	**PW**
Plattsburgh Bridge Street	PB
Plattsburgh Saranac Street	PS
Seneca Falls Fall Street	SF
Warsaw Court Street	WC
Waterloo East Main Street	WE
Waterloo Babbott Street	WB

APPENDIX G - SITE MANAGEMENT FORMS

Summary of Green Remediation Metrics for Site Management

Site Name: _____ Site Code: _____
Address: _____ City: _____
State: _____ Zip Code: _____ County: _____

Initial Report Period (Start Date of period covered by the Initial Report submittal)
Start Date: _____

Current Reporting Period
Reporting Period From: _____ To: _____

Contact Information
Preparer's Name: _____ Phone No.: _____
Preparer's Affiliation: _____

I. Energy Usage: Quantify the amount of energy used directly on-site and the portion of that derived from renewable energy sources.

	Current Reporting Period	**Total to Date**
Fuel Type 1 (e.g. natural gas (cf))		
Fuel Type 2 (e.g. fuel oil, propane (gals))		
Electricity (kWh)		
Of that Electric usage, provide quantity:		
Derived from renewable sources (e.g. solar, wind)		
Other energy sources (e.g. geothermal, solar thermal (Btu))		

Provide a description of all energy usage reduction programs for the site in the space provided on Page 3.

II. Solid Waste Generation: Quantify the management of solid waste generated on-site.

	Current Reporting Period (tons)	**Total to Date (tons)**
Total waste generated on-site		
OM&M generated waste		
Of that total amount, provide quantity:		
Transported off-site to landfills		
Transported off-site to other disposal facilities		
Transported off-site for recycling/reuse		
Reused on-site		

Provide a description of any implemented waste reduction programs for the site in the space provided on Page 3.

III. Transportation/Shipping: Quantify the distances travelled for delivery of supplies, shipping of laboratory samples, and the removal of waste.

	Current Reporting Period (miles)	**Total to Date (miles)**
Standby Engineer/Contractor		
Laboratory Courier/Delivery Service		
Waste Removal/Hauling		

Provide a description of all mileage reduction programs for the site in the space provided on Page 3. Include specifically any local vendor/services utilized that are within 50 miles of the site.

IV. Water Usage: Quantify the volume of water used on-site from various sources.

	Current Reporting Period (gallons)	**Total to Date (gallons)**
Total quantity of water used on-site		
Of that total amount, provide quantity:		
Public potable water supply usage		
Surface water usage		
On-site groundwater usage		
Collected or diverted storm water usage		

Provide a description of any implemented water consumption reduction programs for the site in the space provided on Page 3.

V. Land Use and Ecosystems: Quantify the amount of land and/or ecosystems disturbed and the area of land and/or ecosystems restored to a pre-development condition (i.e. Green Infrastructure).

	Current Reporting Period (acres)	**Total to Date (acres)**
Land disturbed		
Land restored		

Provide a description of any implemented land restoration/green infrastructure programs for the site in the space provided on Page 3.

Description of green remediation programs reported above (Attach additional sheets if needed)
Energy Usage:
Waste Generation:
Transportation/Shipping:
Water usage:
Land Use and Ecosystems:
Other:

CERTIFICATION BY CONTRACTOR
I, _____ (**Name**) do hereby certify that I am _____ (**Title**) of the Company/Corporation herein referenced and contractor for the work described in the foregoing application for payment. According to my knowledge and belief, all items and amounts shown on the face of this application for payment are correct, all work has been performed and/or materials supplied, the foregoing is a true and correct statement of the contract account up to and including that last day of the period covered by this application. _____ **Date** **Contractor**

MONITORING WELL INSPECTION FORM

SITE:

COMPANY:

SITE NAME: _____

JOB#: _____

DATE: _____

TIME: _____

WELL ID: _____

INSPECTOR (PRINT): _____

EXTERIOR INSPECTION CONDITION

PROTECTIVE CASING/ CURB BOX: _____

LOCK/HASP CONDITION: _____ LOCK KEY #: _____

HINGE/ LID: _____ GASKET/SEAL : _____

SECURITY BOLTS TYPE: _____

SECURITY BOLTS : _____ THREAD CONDITION: _____

WELL PAD: _____ BOLLARDS: _____

LABEL/ ID CONDITION: _____

MAINTENANCE PERFORMED (e.g., anti seize applied, re-tapping bolt holes, bolt replacement, gasket replacement, etc.)

INTERIOR INSPECTION CONDITION

WELL CASING INTERIOR: _____

WELL RISER: _____

ANNULAR SPACE: _____

J PLUG: _____

WATER LEVEL: _____ DEPTH TO BOTTOM: _____

HARD/SOFT BOTTOM: _____

MAINTENANCE PERFORMED (e.g., removed water, removed bentonite, sorbed sheen, replaced J plug, etc.)

ADDITIONAL COMMENTS: _____

INSPECTOR (SIGNATURE): _____

PROJECT MANAGER APPROVAL: _____

SITE NAME: _____ SITE ID.: _____

INSPECTOR: _____

MONITORING WELL FIELD INSPECTION LOG

DATE/TIME: _____

WEll ID.: _____

	YES	NO
WELL VISIBLE? (If not, provide directions below)		

WELL COORDINATES? NYTM X_____ NYTM Y_____

PDOP Reading from Trimble Pathfinder:_____ Satelites:_____

GPS Method (circle) Trimble And/Or Magellan

	YES	NO
WELL I.D. VISIBLE?		
WELL LOCATION MATCH SITE MAP? (if not, sketch actual location on back).....		

WELL I.D. AS IT APPEARS ON PROTECTIVE CASING OR WELL: .....

	YES	NO
SURFACE SEAL PRESENT?		
SURFACE SEAL COMPETENT? (If cracked, heaved etc., describe below)		
PROTECTIVE CASING IN GOOD CONDITION? (If damaged, describe below)		

HEADSPACE READING (ppm) AND INSTRUMENT USED..... _____

TYPE OF PROTECTIVE CASING AND HEIGHT OF STICKUP IN FEET (If applicable) _____

PROTECTIVE CASING MATERIAL TYPE: ..... _____

MEASURE PROTECTIVE CASING INSIDE DIAMETER (Inches): ..... _____

	YES	NO
LOCK PRESENT?		
LOCK FUNCTIONAL?		
DID YOU REPLACE THE LOCK?		
IS THERE EVIDENCE THAT THE WELL IS DOUBLE CASED? (If yes,describe below)		
WELL MEASURING POINT VISIBLE?		

MEASURE WELL DEPTH FROM MEASURING POINT (Feet): ..... _____

MEASURE DEPTH TO WATER FROM MEASURING POINT (Feet): ..... _____

MEASURE WELL DIAMETER (Inches): ..... _____

WELL CASING MATERIAL: ..... _____

PHYSICAL CONDITION OF VISIBLE WELL CASING: ..... _____

ATTACH ID MARKER (if well ID is confirmed) and IDENTIFY MARKER TYPE ..... _____

PROXIMITY TO UNDERGROUND OR OVERHEAD UTILITIES..... _____

DESCRIBE ACCESS TO WELL: (Include accessibility to truck mounted rig, natural obstructions, overhead power lines, proximity to permanent structures, etc.); ADD SKETCH OF LOCATION ON BACK, IF NECESSARY.

_____

_____

_____

DESCRIBE WELL SETTING (For example, located in a field, in a playground, on pavement, in a garden, etc.) AND ASSESS THE TYPE OF RESTORATION REQUIRED.

_____

_____

IDENTIFY ANY NEARBY POTENTIAL SOURCES OF CONTAMINATION, IF PRESENT (e.g. Gas station, salt pile, etc.):

_____

_____

_____

REMARKS:

_____

_____

Sketch

Monitoring Well Purging/Sampling Form

Project Name and Number: _____

Monitoring Well Number: _____ Date: _____

Samplers: _____

Sample Number: _____ QA/QC Collected? _____

Purging / Sampling Method: _____

1. L = Total Well Depth: _____ feet
2. D = Riser Diameter (I.D.): _____ feet
3. W = Static Depth to Water (TOC): _____ feet
4. C = Column of Water in Casing: _____ feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$ _____ gal
6. D2 = Pump Setting Depth (ft): _____ feet
7. C2 = Column of water in Pump/Tubing (ft): _____ feet
8. Tubing Volume = C2(0.005737088) _____ gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter	**Units**	**Readings**						
Time	24 hr							
Water Level (0.33)	feet							
Volume Purged	gal							
Flow Rate	mL / min							
Turbidity (+/- 10%)	NTU							
Dissolved Oxygen (+/- 10%)	%							
Dissolved Oxygen (+/- 10%)	mg/L							
Eh / ORP (+/- 10)	MeV							
Specific Conductivity (+/- 3%)	mS/cm^c							
Conductivity (+/- 3%)	mS/cm							
pH (+/- 0.1)	pH unit							
Temp (+/- 0.5)	C							
Color	Visual							
Odor	Olfactory							

Comments:

* Three consecutive readings within range indicates stabilization of that parameter.

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

SITE:
COMPANY:

Project: _____ Site: _____ Well I.D.: _____

Date: _____ Sampling Personnel: _____ Company: _____

Purging/ Sampling Device: _____ Tubing Type: _____ Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: _____ Depth to Well Bottom: _____ Well Diameter: _____ Screen Length: _____

Casing Type: _____ Volume in 1 Well Casing (liters): _____ Estimated Purge Volume (liters): _____

Sample ID: _____ Sample Time: _____ QA/QC: _____

Sample Parameters: _____

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{yl} = \pi r^2 h$)

Remarks:

Site-Wide Inspection Form

NYSEG Penn Yan Former Manufactured Gas Plant Site (NYSDEC Site #862009)
Penn Yan, New York

Engineering Control (s):_____ Inspection Date:_____

Item	Yes	No	N/A	Comments
Does the Engineering Control continue to perform as designed?				
Does the Engineering Control continue to protect human health and the environment?				
Does the Engineering Control comply with requirements established in the SMP?				
Has remedial performance criteria been achieved or maintained?				
Has sampling and analysis of appropriate media been performed during the monitoring event?				
Have there been any modifications made to the remedial or monitoring system?				
Does the remedial or monitoring system need to be changed or altered at this time?				
Has there been any intrusive activity, excavation, or construction occurred at the site?				
Were the activities mentioned above, performed in accordance with the SMP?				
Was there a change in the use of the site or were there new structures constructed on the site?				
In case a new occupied structure is constructed or the use of the current building changed, was a vapor intrusion evaluation done?				
Were new mitigation systems installed based on monitoring results?				
Were the groundwater wells in the monitoring network inspected during this site inspection? If so, were the Monitoring Well Field Inspection Logs Completed?				

Note: Upon completion of the form any non-conforming items warranting corrective action should be identified here within.

Name of Inspector: _____ Signature of Inspector: _____
Inspector's Company: _____ Date: _____

IMMEDIATELY REPORT ANY FAILURE OR DEFECT TO THE PROJECT MANAGER SO A COUNTERMEASURE PLAN CAN BE IMPLEMENTED.

AECOM

Americas

Task Hazard Assessment

S3AM-209-FM6

Date:	**Project Name / Location:**
Permit / Job Number:	**Project Number:**
Description of Task:	

Do you have a pre-job hazard assessment (JHA) specific to this task in your hands?

- **Yes** – review the steps, hazards, and precautions. Attach and reference JHA in the form below. Add any additional steps, hazards, and precautions to this form otherwise unidentified on JHA.
- **No** – list all steps, hazards, and precautions associated with the task in the form below.

Basic Task Steps (explain in order how the task will be carried out)	**Hazards** (identify all hazards & potential hazards of each step)	**Risk** (before)	**Control Measures / Precautions** (describe how that hazard will be controlled)	**Risk** (after)	**Revised?** (yes – record time)
			Highest Risk Index		

The Task Hazard Assessment is to be completed at the worksite by the individual(s) who is intended to conduct the task immediately prior to initiating the associated task. Number and attach additional pages if necessary.

Worker/Visitor acknowledgement and review of this content on back of this document. Originator to also sign Worker acknowledgement section.

Originator

Print Name _____ Signature _____

Supervisor

Print Name _____ Signature _____

Risk Matrix on Reverse

THIS FORM IS TO BE KEPT ON JOB SITE.

AECOM

WORKER SIGN ON

NAME (Please Print) TIME SIGNATURE

I participated in the development and understand the content of this Task Hazard Assessment.

Task Hazard Assessment Follow-Up/Review

Initials/Time	Initials/Time	Initials/Time

Instructions:
Identify basic steps of the task and associated hazards. Calculate the initial risk rating. Identify control measure to eliminate or reduce the hazard's risk and calculate the residual risk rating. If the risk rating (after controls are implemented) cannot be reduced to 4 or lower, additional approvals are needed before the activity can begin.

Employees shall monitor the activities for compliance with this document. Workers should **STOP WORK** on a task if conditions change from the planned and agreed approach to the work.

This document should be updated to reflect new conditions or changes in task methods.

VISITOR SIGN ON

I have read and understand the content of this Task Hazard Assessment.

Emergency Meeting / Assembly Area

Emergency Contact #

Method of Communication

Risk Rating Matrix

Probability	Severity				
	5 - Catastrophic	4 – Critical	3 – Major	2 – Moderate	1 - Minor
5 – Frequent	25	20	15	10	5
4 – Probable	20	16	12	8	4
3 – Occasional	15	12	9	6	3
2 – Remote	10	8	6	4	2
1 - Improbable	5	4	3	2	1

Risk Rating (Probability x Severity)	Risk Acceptance Authority
1 to 4 (Low)	Risk is tolerable, manage at local level
5 to 9 (Medium)	Risk requires approval by Operations Lead/Supervisor & SH&E Manager
10 to 25 (High)	Risk requires the approval of the Operations Manager & SH&E Director

Severity – Potential Consequences				
	People	Property Damage	Environmental Impact	Public Image/Reputation
Catastrophic	Fatality, Multiple Major Incidents	>$1M USD, Structural collapse	Offsite impact requiring remediation	Government intervention
Critical	Permanent impairment, Long term injury/illness	>$250K to $1M USD	Onsite impact requiring remediation	Media intervention
Major	Lost/Restricted Work	> $10K to $250K USD	Release at/above reportable limit	Owner intervention
Moderate	Medical Treatment	> $1K to $10K USD	Release below reportable limit	Community or local attention
Minor	First Aid	</=$1K USD	Small chemical release contained onsite	Individual complaint

Probability		
Frequent	Expected to occur during task/activity	9/10
Probable	Likely to occur during task/activity	1/10
Occasional	May occur during the task/activity	1/100
Remote	Unlikely to occur during task/activity	1/1,000
Improbable	Highly unlikely to occur, but possible during task/activity	1/10,000

CHAIN OF CUSTODY RECORD

PROJECT NO. | SITE NAME

SAMPLERS (PRINT/SIGNATURE)

DELIVERY SERVICE:_____ AIRBILL NO.:_____

LAB_____

COOLER _____ of _____

PAGE _____ of _____

LOCATION IDENTIFIER	DATE	TIME	COMP/ GRAB	SAMPLE ID	MATRIX	TOTAL NO.# OF CONTAINERS	TESTS / BOTTLE TYPE AND PRESERVATIVE	REMARKS	SAMPLE TYPE	BEGINNING DEPTH (IN FEET)	ENDING DEPTH (IN FEET)	FIELD LOT NO.# (IRPIMS ONLY)

MATRIX CODES

AA - AMBIENT AIR; SE - SEDIMENT; SH - HAZARDOUS SOLID WASTE; SL - SLUDGE; WP - DRINKING WATER; WW - WASTE WATER; WG - GROUND WATER; SO - SOIL; DC - DRILL CUTTINGS; WL - LEACHATE; GS - SOIL GAS; WC - DRILLING WATER; WO - OCEAN WATER; WS - SURFACE WATER; WQ - WATER FIELD QC; LH - HAZARDOUS LIQUID WASTE; LF - FLOATING/FREE PRODUCT ON GW TABLE

SAMPLE TYPE CODES

TB# - TRIP BLANK; SD# - MATRIX SPIKE DUPLICATE; RB# - RINSE BLANK; FR# - FIELD REPLICATE; N# - NORMAL ENVIRONMENTAL SAMPLE; MS# - MATRIX SPIKE

(# - SEQUENTIAL NUMBER (FROM 1 TO 9) TO ACCOMMODATE MULTIPLE SAMPLES IN A SINGLE DAY)

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED FOR LAB BY (SIGNATURE)	DATE	TIME

SPECIAL INSTRUCTIONS

Distribution: Original accompanies shipment, copy to coordinator field files

URSF-075C/1 OF 1/CofCR/GCM

WELL DECOMMISSIONING RECORD

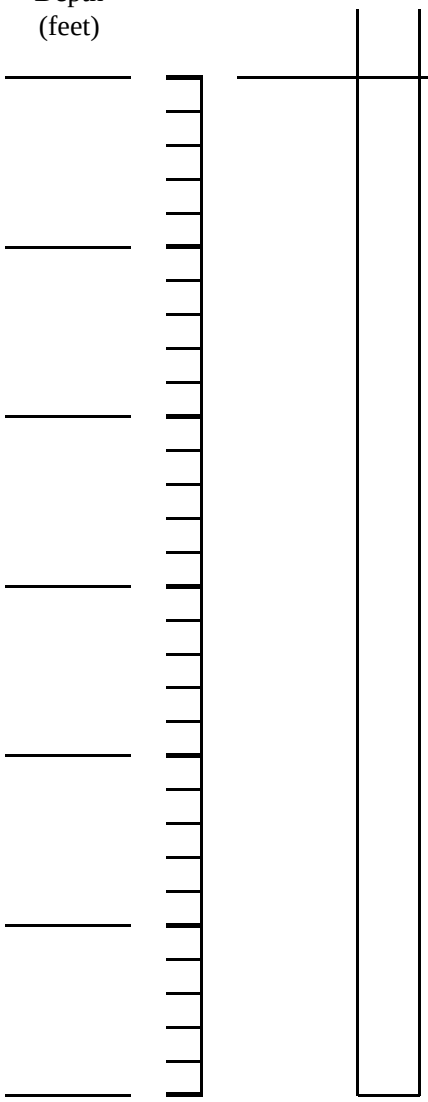
Site Name: Penn Yan Former MGP Site	Well I.D.:
Site Location:	Driller:
Drilling Co.:	Inspector:
	Date:

DECOMMISSIONING DATA
(Fill in all that apply)

OVERDRILLING	
Interval Drilled	
Drilling Method(s)	
Borehole Dia. (in.)	
Temporary Casing Installed? (y/n)	
Depth temporary casing installed	
Casing type/dia. (in.)	
Method of installing	
CASING PULLING	
Method employed	
Casing retrieved (feet)	
Casing type/dia. (in)	
CASING PERFORATING	
Equipment used	
Number of perforations/foot	
Size of perforations	
Interval perforated	
GROUTING	
Interval grouted (FBLS)	
# of batches prepared	
For each batch record:	
Quantity of water used (gal.)	
Quantity of cement used (lbs.)	
Cement type	
Quantity of bentonite used (lbs.)	
Quantity of calcium chloride used (lbs.)	
Volume of grout prepared (gal.)	
Volume of grout used (gal.)	

COMMENTS:

WELL SCHEMATIC*



* Sketch in all relevant decommissioning data, including: interval overdrilled, interval grouted, casing left in hole, well stickup, etc.

Drilling Contractor

Department Representative

WELL DEVELOPMENT LOG

PROJECT TITLE: _____ WELL NO.: _____

PROJECT NO.: _____

STAFF: _____

DATE(S): _____

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=		1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=		2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	0.0	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	0.0	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	0	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=		8"	2.60

OR

$V=0.0408 \times (\text{CASING DIAMETER})^2$

	ACCUMULATED VOLUME PURGED (GALLONS)										
PARAMETERS											
pH											
SPEC. COND. (umhos)											
APPEARANCE											
TEMPERATURE (°C)											

COMMENTS:

APPENDIX H – FIELD SAMPLING PLAN

AECOM Imagine it. Delivered.

Field Sampling Plan

Penn Yan Former MGP
Penn Yan, NY
NYSDEC Site #8-62-009

June 2020

Prepared for:

New York State Electric and Gas Corp
18 Link Drive
P.O. Box 5224
Binghamton, NY 13902

Prepared by:

AECOM
40 British American Boulevard
Latham, NY 12110
aecom.com

Table of Contents

1. Introduction

This Field Sampling Plan (FSP) is designed to provide detailed step-by-step procedures for the field activities performed during the long-term monitoring program at the New York State Electric and Gas (NYSEG) Penn Yan Former Manufactured Gas Plant Site (Site) located in the Village of Penn Yan, Town of Milo, Yates County, New York. It will serve as the field procedures manual to be strictly followed by all project personnel. Adherence to these procedures will ensure the quality and defensibility of the field data collected. In addition to the field procedures outlined in this document, all personnel performing field activities must do so in compliance with: (1) the Quality Assurance/Quality Control (QA/QC) measures outlined in the Quality Assurance Project Plan; (QAPP, Appendix F in the Site Management Plan (SMP); (2) the appropriate Health and Safety guidelines found in the Health and Safety Plan (HASP, Appendix G in the SMP); and (3) the scope of work outlined in the SMP. Locations of the monitoring wells are provided in Figure 2 of the SMP. Prior to each monitoring event, a groundwater level measurement will be recorded at each sampled/monitored well. Frequency of water level measurements and water quality sampling are defined in the SMP.

2. Monitoring Well Abandonment and Re-Development Procedures

2.1 Monitoring Well Abandonment Procedures

Well abandoning will be performed in accordance with New York State Department of Environmental Conservation (NYSDEC) CP-43, using the following steps:

1) Each well will be tremie grouted from the bottom of the well to within five feet of the ground surface to ensure a continuous grout column. Grout slurry composition should be the following:

    a. 1.5 to 3.0 percent by weight - Bentonite (Quick Gel)

    b. 40 to 60 percent by weight - Cement (Portland Type I)

    c. 40 to 60 percent by weight - Water

2) The well casing will be removed at a depth of five feet below grade (if possible) and the outer protective casing "stick-up" and/or flush-mount curb box will be removed only after the well has been properly filled with grout.

3) The uppermost five feet of the borehole will be filled with approved/clean backfill or topsoil.

4) The surface of the borehole will be restored to the condition of the area surrounding the borehole (crushed stone, asphalt, etc.). If the surrounding surface is a concrete sidewalk flag that flag will be replaced.

5) The solid waste should be handled is accordance with Section 11.0 of this plan.

6) Document well construction details in the field notebook and transfer the data onto the Well Decommissioning Record form (SMP Appendix H).

Reference: NYSDEC CP-43: Groundwater Monitoring Well Decommissioning Policy, November 3, 2009.

2.2 Monitoring Well Re-Development Procedures

Summary: On occasion (e.g., due to excessive silt accumulation), it may be necessary to re-develop a monitoring well. Each well will be re-developed by surging and pumping until the discharged water is sediment free based on visual observations and the indicator parameters (pH, temperature, and specific conductivity) have reached a steady state. Re-developing the monitoring well not only removes any sediment, but also may improve the hydraulic properties of the formation. The effectiveness of the re-development measures will be closely monitored in order to keep the volume of discharged water to the minimum necessary to obtain sediment-free samples. A portable turbidimeter will be used to monitor the effectiveness of the re-development. A turbidity reading of < 50 Nephelometric Turbidity Units (NTU) and steady state pH, temperature, and specific conductivity readings will be used as a guide for discontinuing well re-development. The well will be re-

developed as described below. Re-development water will be containerized in 55-gallon drums for off-site disposal.

Procedure:

1) An appropriate well re-development method should be selected, depending on water level depth, well productivity, and sediment content of water. Well re-development options include surging while manual pumping and powered suction-lift or hydrolift pumping.

2) Equipment should be assembled, decontaminated (if necessary), and installed in the well. Care should be taken not to introduce contaminants to the equipment during installation.

3) Well re-development should proceed by repeated surging and removal of water from the well until the discharged water is relatively sediment-free. The effectiveness of the re-development should be monitored at regular intervals using a portable turbidity meter. The volume of water removed and turbidity, pH, temperature, and conductivity measurements will be recorded on a Well Development Log (SMP Appendix H).

4) Well re-development will be discontinued when the turbidity of the discharged water is below 50 NTU.

Reference: ASTM Standard Practice for Design and Installation of Ground Water Monitoring Wells in Aquifers D5092-90.

3. Groundwater Sampling Procedures

3.1 Water Level Monitoring Procedures

Summary: Determination of groundwater depths in monitoring wells is necessary to make potentiometric surface maps. Water levels in monitoring wells scheduled to be sampled during the field work will be measured using an electronic interface probe/water level indicator. During each monitoring event, water levels to be used to generate potentiometric groundwater surface contour maps will be collected from all sampled monitoring wells. Water level measurement procedures are presented below.

Procedure:

1) Clean the water level probe and the lower portion of cable following standard decontamination procedures and test water level meter to ensure that the batteries are charged.

2) Lower the probe slowly into the monitoring well until the solid audible alarm indicates water.

3) Read the depth to the nearest hundredth of a foot from the graduated cable using the V-notch on the riser pipe as a reference.

4) Repeat the measurement for confirmation and record the water level.

5) Lower the probe slowly to the bottom of the monitoring well. Record the bottom depth of the well.

6) Remove the probe from the well slowly, drying the cable and probe with a clean paper towel.

8) Replace the well cap.

9) Decontaminate the water level meter if additional measurements are to be taken.

3.2 Well Purging Procedures

Well purging will be completed using the low-flow purging technique as follows:

1) The well cover will be carefully removed to avoid having any foreign material enter the well.

2) Using an electronic interface probe, the water level below top of casing will be measured. The depth of the well will be measured to determine the volume of water in the well. The end of the probe will be decontaminated between wells. The depth to bottom of the well will be recorded from the V notch in the top of the casing.

3) Calibrate field instruments [e.g., pH, dissolved oxygen (DO), oxidation-reduction potential (ORP), specific conductance, temperature, and turbidity].

4) Start the flow rate low and maintain it between 100 and 500 ml/min, optimally at a rate where the water level remains stable.

5) Purge the required water volume (i.e., until stabilization of pH, DO, ORP, temperature, specific conductivity, and turbidity) using a low-flow pump (e.g., peristaltic pump) and dedicated high density polyethylene (HDPE) tubing (or similar).

During purging, it is permissible to by-pass the flow cell until the groundwater has cleared. New dedicated tubing will be used for each well.

6) Purge the well until the water quality parameters have stabilized. Collect groundwater parameters every five minutes until the well has stabilized. The respective measurements of the parameters must fall within the stated range for three consecutive readings. If stability or five well volumes has been achieved for the parameters listed below, the well can be sampled. The stabilization criteria are: DO ± 10% full-scale range; ORP ± 10%; specific conductivity ± 3% full-scale range; pH ± 0.10 pH unit; temperature ± 0.2°C, and turbidity ± 10% if greater than 50 nephelometric turbidity unit (NTU).

7) Purging of three well volumes is not necessary if the indicator parameters are stable. However, a minimum of thirty minutes of purging is required before sampling, even if the parameters are stable. At the start of purging, it is permissible to by-pass the flow cell until the groundwater has cleared.

Well purging data are to be recorded on the Low Flow Groundwater Purging/Sampling Log (SMP Appendix H).

3.3 Groundwater Sampling Procedures

The following groundwater sampling procedures will be used for monitoring wells after purging has been conducted:

Procedure:

1) After well purging is completed, the flow cell will be disconnected and drained and a sample will be collected into the appropriate laboratory supplied containers from the well tubing, without changing the purge rate.

2) Direct water flow toward the inside wall of the sample container to minimize volatilization. Fill volatile sample containers so no headspace (air bubbles) is present. If containers are pre-preserved, do not overfill sample containers. Note if effervescence is observed.

3) All sample bottles will be labeled in the field using a waterproof permanent marker. They will be filled in the order: volatile organic compounds (VOCs, benzene, toluene, ethylbenzene, and xylene (BTEX only)), semi-volatile organic compounds (SVOCs, polycyclic aromatic hydrocarbons (PAHs) only), and remaining parameters (e.g. cyanide, total suspended solids, etc.).

4) Samples will be collected into laboratory-provided sample bottles (containing required preservatives) and placed on ice in coolers for processing (preservation and packing) prior to shipment or delivery to the analytical laboratory. A chain-of-custody (COC) record (SMP Appendix F) will be initiated. The analytical laboratory will provide certified analyte-free sample bottles.

6) After the required sample containers have been filled, remove dedicated/disposable HDPE tubing (or similar). Decontaminate reusable sampling equipment with laboratory grade soap and distilled water and rinse with distilled water before reassembling.

7) Well sampling data are to be recorded in the field notebook and on the Well Purging Log (SMP Appendix H).

8) Groundwater samples will be placed on ice, and delivered to the laboratory either by the sampler, laboratory courier or common courier (e.g. FedEx) under COC control. The volume of sample required, bottle type and required QA/QC may be found in the QAPP. Groundwater samples will be collected for the parameters referenced in the QAPP. Samples must be received by the laboratory less than 24 hours after collection.

9) If samples are shipped via common courier, the sample cooler must be sealed with a custody seal.

Any observations of sheen, blebs, free-phase product, staining or coating of the sampling equipment, odor, etc. that were made during sampling of groundwater are to be included in the groundwater sample collection log (SMP Appendix H).

4. Sample Labeling

Summary: In order to prevent misidentification and to aid in the handling of environmental samples collected during the field investigation, the following procedures will be used:

Procedure: Each container will have the following information placed on the laboratory supplied sample label:

- Site name
- Sample identification
- Project number
- Collection date/time
- Sampler's initials
- Analysis required and preservatives

Refer to Appendix A of the QAPP (Appendix F) – Sample Identification.

Field duplicate samples will be assigned a unique identification alphanumeric code that specifies the data of collection, the letters DUP (for field duplicate) and an ascending number that records the number of duplicate samples collected that day. For example, the first field duplicate collected on November 17, 2020 would be assigned the following sample number using the code shown below:

DUP-MMDDYY = FD-111720

Subsequent duplicates collected on the same day would be assigned FD-111720-2, FD-111720-3, etc. The field duplicate IDs are “blind”, so that the laboratory cannot trace them to their parent samples. Field sampling crew will record the duplicate sample information on the appropriate Sampling Field Data Sheets and also in the field notebook. The sample will be added to the COC with the time of collection of 0000.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) samples will use the same well identification name as the parent sample, with the acronym MS/MSD after it; for example, MS/MSD collected from well MW- 04 with sample number 220: PWMWGWNA220 (MS/MSD). The sample will be added to the COC with the same time of collection as the parent sample.

Rinsate (Equipment) Blank samples will be labeled with the letters RB (rinsate blank) and the date of collection in the same order as for the field duplicate and added to the COC (e.g., using the same date as above, RB-111720).

Trip blanks will be labeled with the letters TB (trip blank) and the date in the same order as the field duplicate and added to the COC (e.g., for example, using the same date as above, TB-111720).

5. Quality Assurance/Quality Control Sampling

QA/QC procedures are described in the QAPP. QA/QC samples will be collected as follows:

- Field duplicates will be collected per matrix at the rate of one per twenty (5%) samples collected. It will be collected immediately following the collection of the parent sample for the same parameters as the parent sample.
- Matrix Spike/ Matrix Spike Duplicate (MS/MSD) samples will be collected for each matrix at a rate of one per twenty (5%) samples collected. It will be collected immediately following the collection of the parent sample for the same parameters as the parent sample.
- Rinsate (Equipment) Blank samples will be collected one time per sampling event. Laboratory provided deionized water will be run through the clean reused equipment and collected for the same parameters as the sampling program. If dedicated, disposal sampling equipment is used, rinsate blanks are not required.
- Trip Blanks will be provided by the laboratory filled with analyte-free water and returned at the rate of one per sample pickup. Trip blanks will be analyzed for VOCs only.

6. Field Documentation

Field notebooks will be used during all on-site work. A dedicated permanently-bound field notebook will provide a legal record and will be maintained by the field technician overseeing the site activities. Entries will be written with waterproof ink and will be of sufficient detail that a complete daily record of significant events, observations, and measurements is developed. At the conclusion of each day of fieldwork, entries will be signed and dated. Erroneous entries will be corrected by the field technician that made the entries. Corrections will be made by drawing a single line through the error, entering the correct information, and initialing/dating the correction.

The field sampling team will maintain the daily field notebook and logs (SMP Appendix H), which will minimally include the following information:

1) Project name and location of field activity
2) Date and time of entry
3) Names and titles of field team members onsite
4) Names, titles of any site visitors, as well as date and time entering and leaving site
5) Weather information (e.g., temperature, precipitation, cloud coverage, wind speed and direction, etc.)
6) Purpose of field activity and detailed description of fieldwork conducted
7) Sample media to be collected
8) Sample Identification
9) Date and time of sample collection
10) Field observations and measurements (e.g., PID, water levels)
11) Sampling methods and devices
12) Purge volumes (e.g., groundwater)
13) Groundwater purge parameters e.g., pH, temperature, ORP, DO, conductivity, water levels, turbidity, etc.
14) Chain of custody and shipping information.

7. Sample Shipping

Summary: Proper documentation of sample collection and the methods used to control these documents are referred to as chain-of-custody (COC) procedures. COC procedures are essential for presentation of sample analytical chemistry results as evidence in litigation or at administrative hearings held by regulatory agencies. COC procedures also serve to minimize loss or misidentification of samples and to ensure that unauthorized persons do not tamper with collected samples.

The procedures used in this study follow the chain-of-custody guidelines outlined in NEIC Policies and Procedures, prepared by the National Enforcement Investigations Center (NEIC) of the U.S. Environmental Protection Agency Office of Enforcement.

Procedure:

1) A COC record is initiated at the analytical laboratory performing the sample analyses and will accompany the sample containers during preparation, delivery of the sample containers to the field, and during return shipment to the laboratory.

2) The COC record (SMP Appendix F) should be completely filled out by field personnel with all applicable/relevant information as samples are collected and packed for shipment e.g., project name and number, field technician name, sample ID, date/time of collection, matrix, requested parameters, number of sample bottles, relinquishing/receipt signatures, method of sample shipment with shipper airbill number, name of analytical laboratory, etc. Any erroneous markings will be crossed-out with a single line and initialed by the author.

3) The original COC accompanies the samples. It should be placed in a Ziploc® bag (or equivalent) and placed inside the cooler containing the samples. The sampler should retain a copy of the COC for the project records.

4) All groundwater samples should be placed and stored on ice immediately after sample collection in the laboratory supplied coolers.

5) If the laboratory provides a courier to collect the samples from the site, samples should be picked up on the day of collection. If that is not possible, the samples shall be stored on ice in a secure area then delivered to the laboratory the next day, or as soon as possible.

6) If the courier is not provided, samples can be shipped via common courier. Pack the coolers with the samples wrapped in bubble wrap, place ice in plastic baggies to prevent any melt from leaking out of the cooler, and make sure samples will not shift in the cooler. Place the lab address on top of sample cooler. Affix numbered custody seals across the cooler lid. Cover seals with wide, clear tape.

7) Ship samples via overnight carrier the same day that they are collected and must be delivered to the laboratory the following morning.

8) The COC seal must be applied in a manner where they must be broken in order to open the shipping container. Breakage of the seal before receipt at the laboratory may indicate tampering. If tampering is evident, the laboratory must immediately contact the laboratory Project Manager, whom further contacts the consultant Project Manager for further instructions (i.e., cancel or proceed with analyses).

8. Field Sampling Instrumentation

Field sampling equipment will require no maintenance beyond decontamination between sampling locations. Calibration procedures for electronic instruments can be found in the equipment operating manuals. Calibration and maintenance procedures for the common instrumentation that will be used during field investigations are discussed in the equipment operating manuals. A copy of the manufacturer's operating manual for each instrument will be kept with the instrument or the operator. All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions. The calibration procedures and results will be recorded in the field notebook. All changes to instrumentation will be noted in the field notebook.

The following field instruments may be used during project site work:

1) Multi-Parameter Meter (MultiRAE PLUS PGM-50 Monitor (10.6 eV lamp) with PID, %LEL) - Calibration of the meter and a battery check will be performed daily in accordance with manufacturer's specifications. Standards used for calibration will be National Institute of Standards and Technology (NIST) traceable. All calibration data will be recorded in the field notebook.

2) Turbidity Meter – The turbidity meter will be checked daily in accordance with manufacturer's specifications. All daily data will be recorded in the field notebook.

3) Horiba U-22 Multi-Parameter Meter – Calibration of the meter will be performed daily in accordance with manufacturer's specifications. All daily data will be recorded in the field notebook.

9. Sampling Equipment Decontamination Procedures

Summary: To assure that no outside contamination will be introduced into the samples/data, thereby invalidating the samples/data, the following cleaning protocols will apply for all equipment used to collect samples/data during the field investigations.

Procedures:

1) Thoroughly clean equipment with laboratory-grade soap and water, until all visible contamination is gone.
2) Rinse with water, until all visible evidence of soap is removed.
3) Rinse several times with deionized water.
4) Air dry before using.
5) If equipment will not be used immediately, wrap in aluminum foil.
6) Decontamination materials will be collected and placed in 55-gallon drums.

10. Investigation-Derived Waste Characterization and Disposal

Investigation derived waste (IDW) comprises decontamination water, purge water, and NAPL. IDW will be contained in 55-gallon drums. All personal protective equipment (PPE) or disposable sampling equipment (e.g., tubing) will be disposed of as standard municipal waste unless contaminated with visual product, in which case it will be drummed as IDW.

IDW will be properly characterized for off-site disposal.

The IDW subcontractor will be responsible for removing IDW from the work site as needed. All waste will be disposed of at a permitted off-site disposal facility.

11. Analysis

Each groundwater sample will be analyzed by a NYSDOH Environmental Laboratory Approval Program (ELAP) certified laboratory for those parameters referenced in the QAPP. Field personnel will coordinate with the laboratory for sample pick-up, delivery and/or shipment of the samples to the laboratory.

APPENDIX I
REMEDIAL SYSTEM OPTIMIZATION TABLE OF CONTENTS

REMEDIAL SYSTEM OPTIMIZATION FOR PENN YAN FORMER MGP

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