Lockport Former MGP Site
Lockport, New York
NYSDEC Site # 932098

Request For Proposal # 13155
Design Specifications

Excavation of Lockport Former Manufactured Gas Plant
Niagara County, New York

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Bid Schedules

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Lockport Former MGP Site
Lockport, New York
NYSDEC Site # 932098

Contractor Submittal Signature Page

Excavation of Lockport Former Manufactured Gas Plant
Niagara County, New York

Contractors Name _____

Address _____

Telephone _____

Typed Name _____

Title _____

Date of Submittal _____

Signature _____

Your signature on this proposal indicates that your Company has accepted responsibility for the contents and correctness of all information contained within. Additionally, by signing this document bidder certifies that the bid provided is genuine and not collusive. Please verify that all proposal documents are attached and have been completely and properly filled out.

SCHEDULE A
SCHEDULE OF QUANTITIES AND PRICES
Excavation
Lockport Former Manufactured Gas Plant
Niagara County, New York

Bid prices listed in this Schedule are based on performance of the Work as specified in these Specifications shall include all overhead, profit, handling, taxes and all other related charges. The estimated quantities in this Schedule A are based on best judgment of Engineer and may vary from actual site conditions. No adjustment of unit prices will be allowed for any Bid Item due to any change in quantities.

Bid Item		Unit	Estimated Quantity	Unit Price	Total Amount
1	Mobilization and Demobilization	LS	1		$ -
2	Temporary Facilities and Controls	LS	1		$ -
2a	Temporary Facilities and Controls; per month price for each month in excess of the nineteen (19) months assumed in Bid Item 2	Month			Do Not Extend
3	Project Management				
3a	Project Manager	HR	630		$ -
3b	Project Superintendent	HR	630		$ -
3b	Site Health and Safety Officer	HR	630		$ -
4	Subsurface Barrier Wall Installation and Backfill (Phase 1A and 1B)	LS	1		$ -
5	Structure Demolition	LS	1		$ -
6	Excavation and Backfill (Phase 2)	LS	1		$ -
7	Excavation and Backfill (Phase 3)	LS	1		$ -
8	Excavation and Backfill (Phase 4)	LS	1		$ -
9	Excavation and Backfill (Phase 5)	LS	1		$ -
10	Construction Water Treatment System Installation & Operation	LS	1		$ -
11	Construction Water Treatment Operation	1KGAL	0		$ -

Bid Item		Unit	Estimated Quantity	Unit Price	Total Amount
12	Transportation and Disposal: Non-Contaminated Debris	Ton	500		$ -
12a	Transportation and Disposal: Non-Contaminated Debris; per ton price for each ton in excess of the 500 tons assumed in Bid Item 12	Ton			Do Not Extend
13	Transportation and Disposal: Contaminated Debris	Ton	600		$ -
13a	Transportation and Disposal: Contaminated Debris; per ton price for each ton in excess of the 600 tons assumed in Bid Item 13	Ton			Do Not Extend
14	Transportation and Disposal: CENW	Ton	3,700		$ -
14a	Transportation and Disposal: CENW; per ton price for each ton in excess of the 3,700 tons assumed in Bid Item 14	Ton			Do Not Extend
15	Transportation and Disposal: Impacted Soil	Ton	10,200		$ -
15a	Transportation and Disposal: Impacted Soil; per ton price for each ton in excess of the 10,200 tons assumed in the Bid Item 15	Ton			Do Not Extend
16	Substation Fence Replacement	LS	1		$ -
17	Substation Restoration	LS	1		$ -
18	LaGrange Street Restoration	LS	1		$ -
19	Retaining Wall Replacement	LS	1		$ -
20	Bedrock Grout Wall Installation (Phases 6 and 7)	Injection Point	26		$ -
21	Bedrock Well Installation	EA	33		$ -
22	Odor Control Foam System	GALLON	770		$ -
22a	Odor Control Foam System; per gallon price for each gallon in excess of the 770 gallons assumed in Bid Item 22	GALLON			Do Not Extend
23	Odor Control Sprayer System (Biosolve)	GALLON	160		

Bid Item		Unit	Estimated Quantity	Unit Price	Total Amount
23a	Odor Control Sprayer System (Biosolve); per gallon price for each gallon in excess of the 160 gallons assumed in Bid Item 23	GALLON			Do Not Extend
24	Soil Amendment	Ton	50		$ -
24a	Soil Amendment; per ton price for each ton in excess of the 50 tons assumed in Bid Item 24	Ton			Do Not Extend

TOTAL COST $ _____

Definitions:
LS Denotes Lump Sum
CY Denotes in place cubic yard
SF Denotes Square Foot
Ton Denotes short ton (2,000 pounds)
LF Denotes Linear Foot
SY Denotes Square Yard
DAY Denotes Day of System Operation
HR Denoted Hour of System Operation
GALLON Denotes U.S. Gallon
1KGAL Denotes 1,000 U.S. Gallons

SCHEDULE B
LIST OF ADDENDA
Excavation
Lockport Former Manufactured Gas Plant
Niagara County, New York

List all Addenda received

NO.	TITLE	DATE

SCHEDULE C
SCHEDULE OF MATERIALS - (VARIATIONS AND SOURCES)
Excavation
Lockport Former Manufactured Gas Plant
Niagara County, New York

VARIATIONS (Bidder shall list any proposed variations from the specified materials, subject to approval by the Engineer):

MATERIALS SOURCES (Bidder shall list sources of the following specified materials)

Restoration Select Granular Subgrade Item 203.2

Restoration Iberdrola Subgrade Fill

Restoration Low Permeability Clay Fill

Restoration Collection Trench Stone

SCHEDULE D
LIST OF SUBCONTRACTORS
Excavation
Lockport Former Manufactured Gas Plant
Niagara County, New York

Provide the name of each Subcontractor proposed for the Work, together with the amount payable to each Subcontractor. Work that will be carried out partly or entirely by Bidder's own forces shall be indicated by "Own Forces". Should Bidder wish to separate the Work into two parts or more to be awarded to two or more Subcontractors, without conflicting with the requirements of the Specifications, such separation shall be indicated below. Bidder shall not be allowed to change any Subcontractor except with the prior consent of NYSEG and/or the Oversight Engineer.

TYPE OF WORK	NAME AND ADDRESS	APPROXIMATE VALUE

SCHEDULE E
LIST OF EQUIPMENT
Excavation
Lockport Former Manufactured Gas Plant
Niagara County, New York

On this form or Bidder's similar form, list all equipment that will be used in the performance of the Work. Such list shall show for each unit, the description of the unit, capacity, condition, age, and present location, the name of the owner of the equipment, and all-inclusive hourly rental rates including operator. Such equipment shall be subject to inspection by the Owner or Engineer to verify the stated information. The equipment rates provided will be used as the basis for payment of any Time and Materials Work that is deemed necessary by the Engineer for completion of the Work.

DESCRIPTION	CAPACITY	CONDITION	AGE	LOCATION	OWNER	HR. /WKLY RENTAL RATE

SCHEDULE F
CONSTRUCTION MILESTONES
Excavation
Lockport Former Manufactured Gas Plant
Niagara County, New York

Bidder shall prepare an initial Progress Schedule showing all activities and dependent operations such as equipment mobilization and taking into account the Milestones listed below. The Bidder's initial Progress Schedule shall be provided with the Bid proposal.

Milestones:

- Mobilization
- Temporary Facilities
- Sub-Surface Barrier Wall Installation – Phase 1A & 1B
- Excavation of the On-Site Concrete Pad – Phase 2
- Excavation of the Eastern Portion of Lagrange Street – Phase 3
- Excavation of the Western Portion of Lagrange Street – Phase 4
- Excavation of the Western On-Site Area – Phase 5
- Installation of the Grout Wall – Phase 6
- Installation of the Grout Wall – Phase 7
- Sediment Removal (separate contract)
- Bedrock Well Installation
- Site Restoration
- LaGrange Street Restoration

SCHEDULE G
LIST OF PERSONNEL
Excavation
Lockport Former Manufactured Gas Plant
Niagara County, New York

List the names of the principal personnel who will be assigned to the Work, including the superintendent, and their experience, and hourly billing rate (not pay rate). List all categories of personnel and hourly rates for non-principal personnel. The labor rates provided will be used as the basis for payment of any Time and Materials Work that is deemed necessary by the Engineer for completion of the Work.

NAME	POSITION	EXPERIENCE	HOURLY RATE

SCHEDULE H
LIST OF TECHNICAL EXCEPTIONS
Excavation
Lockport Former Manufactured Gas Plant
Niagara County, New York

Note: Technical Exceptions must be identified on SCHEDULE H. Do not refer to attachments or documents. Add additional numbers below as necessary.

1.

2.

3.

4.

Division 1 Specifications

SECTION 01110
SUMMARY OF WORK

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Defined Terms

B. Existing Conditions

C. Project Summary

D. Work by Others

1.02 DEFINED TERMS:

A. **Agreement:** The executed contractor agreement between the Owner and the Contractor.

B. **Bid Item:** A part of the Work, which is defined in the Specifications and measured for payment in accordance with the Specifications.

C. **Bidder:** One who submits a Bid directly to the Owner (New York State Electric and Gas Corporation (NYSEG)) as distinct from a sub-bidder, who submits a bid to a Bidder.

D. **Bidding Documents:** The document issued by NYSEG setting the requirements for the Work and the procedures for submitting bids: The advertisement or invitation to Bid, Specifications, and Drawings.

E. **Contract Documents:** The Contract Documents include the Agreement, Bid Form Schedule A, the Specifications, the Drawings, Project Plans identified in this Specifications Section, any properly executed Change Orders and Work Change Directives, and any properly executed Work Orders or addendums pertaining to Work set forth in the Specifications or Change Order.

F. **Daily Construction Report:** The Contractor's Daily Construction Report described in Specifications Section 01320 and in the Agreement.

G. **Design Engineer:** For the purposes of the work described herein, AECOM will be known as the Design Engineer.

H. **Disturbed Areas:** Areas, which have been disrupted or otherwise changed from their pre-construction conditions by the Contractor's activities that have not been restored as required by the Contract Documents.

I. **Drawings:** The Drawings that show the scope, extent, and character of the Work to be furnished and performed by Contractor and which have been prepared or approved by the Engineer and are included within or referred to in the Contract Documents. Shop Drawings are not Drawings as so defined.

SECTION 01110
SUMMARY OF WORK

J. **Engineer:** For the purposes of the work described herein: in reference to preparation of the Remedial Design, Engineer will refer to the Design Engineer; and in reference to activities during the Remedial Construction, Engineer will refer to the Oversight Engineer.

K. **Impacted:** An area, object, or material that contains or has been in contact with a substance at concentrations exceeding applicable standards or guidelines for that substance, or as determined by Engineer.

L. **Impacted Soil:** Soil determined to contain chemical constituents in concentrations exceeding applicable regulatory guidelines, or as determined by Engineer.

M. **Issuing Office:** The office of the Owner from which the Bidding Documents are to be issued and where the bidding procedures are to be administered is identified below:

New York State Electric and Gas Corporation
James A. Carrigg Center, P.O. Box 5224
Binghamton, New York 13902-5224

N. **Normal Work Hours:** The hours during which the Contractor may perform the work as defined in the Specifications.

O. **Oversight Engineer:** To be determined.

P. **Owner:** For the purpose of the work described here, (New York State Electric & Gas Corporation (NYSEG)), will be known as the Owner.

Q. **Owner's Representative:** The authorized representative of the Owner who may be assigned to the Project site or any part thereof.

R. **Progress Schedule:** The Progress Schedule described in Specifications Section 01320.

S. **Project:** The Project consists of the Scope of Work as described in the Contract Documents.

T. **Project Plans:** Project Plans will be considered Contract Documents. Project Plans for the work will include the Contractor's approved Technical Execution Plan.

U. **Project Superintendent:** The Contractor's Project Superintendent described in Specifications Section 01310.

V. **Record Documents:** The Record Documents and reports described in Specifications Section 01320.

W. **Request for Information:** A written notice by Contractor to receive clarification, direction or explanation from the Engineer regarding the Work.

SECTION 01110
SUMMARY OF WORK

X. **Engineering Representative:** The individual assigned to the Project by the Engineer to provide on-site support during construction.

Y. **Specifications:** Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, standards, workmanship, measurement, and payment as applied to the Work and certain administrative details, applicable thereto.

Z. **Submittals:** The submittals described in the Specifications including, but not limited to, Section 01330 of the Specifications.

AA. **Substantial Completion:** Substantial Completion shall mean all on-site Work is complete except for demobilization and contract closeout. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

BB. **Technical Execution Plan:** A written work plan, submitted by Bidder in accordance with the requirements of the Bidding Documents, and subsequently modified by Contractor in accordance with the Contract Documents, that describes methods, materials, and sequences of specific work items.

CC. **Underground Facilities:** All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities that have been installed underground.

DD. **Work Zones:** Areas of the site where Work is conducted.

1.03 EXISTING CONDITIONS:

A. The NYSEG Lockport Former MGP Site is located in the City of Lockport in Niagara County. The site is located on a 0.87 acre parcel, which is completely occupied by an active electrical substation. The site is bordered by Transit Street to the west, LaGrange Street to the north and Saxton Street to the east. Residential properties border the Site to the south, and the neighborhood is generally residential to the south and east and commercial to the north and west.

The New York State barge Canal is located about 200 feet west of the site. At this location, the canal is cut approximately 45 feet into the bedrock. Groundwater flows generally north and west beneath the MGP site, towards the canal. The water level in the canal is raised and lowered seasonally. While the flow direction remains toward the canal throughout the year, the gradient changes significantly with these variations in canal elevation.

SECTION 01110
SUMMARY OF WORK

B. Utilities and Facilities Shown or Indicated:

1. The information and data shown or indicated on the Drawings with respect to existing utilities and facilities at or contiguous to the Project site are based on information and data furnished to the Owner or the Engineer by the owners of such utilities or facilities or by others.

2. The Owner and the Engineer will not be responsible for the accuracy or completeness of any such information or data relating to utilities or facilities. Contractor is required to verify all locations prior to subsurface work.

3. The cost of all of the following will be included in the contract price and the Contractor will have full responsibility for:

   a. The contractor must call New York's Utility locator service (DigSafe NY) to identify and obtain utilities in the work area.

   b. Reviewing and checking all information and data regarding existing conditions.

   c. Locating all existing utilities and facilities.

   d. Coordination of the Work with the owners of existing utilities and facilities during construction including the Owner.

   e. The safety and protection of all existing utilities and facilities and repairing any damage resulting from the Work as described in the Agreement.

C. Site Conditions:

1. The Site is a former MGP. Structures present during plant operation included multiple gas holders (15,000, 50,000, and 150,000 cubic feet), retorts for carbonizing coal, tar tanks, oil tanks, a purifier house, and coal handling and storage. These buildings were demolished between 1928 and 1948.

   The slab of the former 150,000 cubic foot gas holder located on the eastern end of the site is present.

   The southern portion of the Site contains a large concrete building owned by NYSEG

   The Northern portion of the site contains an active electrical substation and Control House.

SECTION 01110
SUMMARY OF WORK

2. Impacted material will be encountered during excavation and must be handled within applicable regulatory requirements.

1.04 PROJECT SUMMARY:

A. General

1. It is the intent of the Specifications and Drawings to describe a complete Project to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result must be provided whether or not specifically called for at no additional cost to the Owner.

2. The Agreement shall be the governing document. Any contradictions between the Specifications and Agreement shall default to the Agreement unless specified by the Owner or Engineer.

B. The Project objectives include the following:

1. Relocation of the Control House and 12 kV switchgear from the western portion of the site to the eastern portion of the site.

2. Excavation and removal of impacted soils west of the existing substation and parts of LaGrange Street.

3. Installation of an overburden NAPL collection trench along the north and west sides of the existing substation.

4. Installation of approximately 400 linear feet (LF) of grout wall within the bedrock along the nearby Barge Canal in the vicinity of seeps recorded during investigation work.

5. Installation of a subsurface barrier on the south and east sides of the site.

6. Installation of NAPL collection wells both at onsite and offsite locations

7. Implementation of green remediation during construction, to the extent possible.

C. The Contractor will have full responsibility for ensuring that all aspects of the Work are conducted in accordance with the requirements of the Contract Documents and in a manner consistent with industry standards for similar projects and all applicable Laws and Regulations. In these Specifications, certain potentially applicable Laws and Regulations have been identified. These are provided for information only. Neither the Owner nor the Engineer represents or warrants that lists provided are exhaustive or

SECTION 01110
SUMMARY OF WORK

complete. The Contractor shall conduct an independent review of the Laws and Regulations to identify any other requirements that may apply.

D. The Work includes, but is not limited to, the following items:

1. Site Preparation

    a. Prepare submittals and obtain all required permits and approvals.

    b. Mobilization to the site.

    c. Furnish and install temporary facilities.

    d. Locate, protect, and relocate existing utilities (buried and aboveground), structures, monitoring wells, and other facilities not designated for removal. Coordinate work by others as required.

    e. Remove and abandon existing utilities designated for removal. Coordinate work by others as required.

2. Excavation of LaGrange Street

    a. Traffic Control as required.

    b. Saw cut pavement and curbs of LaGrange Street as required.

    c. Installation of Steel Sheet Pile (SSP) as part of vertical barrier walls (VBWs).

    d. Excavate impacted material.

    e. Restoration of LaGrange Street as detailed in the drawings.

3. Excavation of Western portion of Site and Former Gas Holder

    a. Installation of SSP as part of the VBWs.

    b. Remove Former Gas Holder and concrete building on Eastern portion of the site.

    c. Relocate Control House and 12 kV switch gear to Eastern portion of the Site.

    d. Excavate impacted soils from the Western portion of the site.

    e. Restore ground surface as detailed in the Drawings.

SECTION 01110
SUMMARY OF WORK

4. Excavation of Barge Canal

    a. Install Coffer Dam to minimize surface water inflow.

    b. Install by-pass pumping system.

    c. Excavate impacted sediments from Barge Canal.

    d. No restoration of the Barge Canal is anticipated.

5. Installation of a NAPL collection trench on the north and west sides of the existing substation

    a. Traffic control as required

    b. Installation of SSP as part of the VBWs.

    c. Excavate impacted soils and install subsurface impermeable layer.

    d. Restoration of ground surface as detailed in the drawings.

    e. Installation of a series of NAPL collection wells in the NAPL collection trench.

6. Installation of Grout Wall down gradient of the overburden NAPL collection trench and offsite location

    a. Traffic Control as required.

    b. Drill grout holes and water pressure test each hole to determine grout mixture to be used.

    c. Pump grout into grout holes, and rock fractures.

    d. Install NAPL collection wells up gradient of grout wall.

    e. Restore ground surface as detailed in the drawings.

7. Site Restoration

    a. Backfill the site to finish grade with clean imported fill and/or reusable on-site materials.

    b. Grade the site in accordance with the Drawings.

SECTION 01110
SUMMARY OF WORK

c. Remove all facilities and imported material from the offsite soils stockpile and provide seeding and erosion control.

8. Demobilize from the Project Site.

1.05 WORK BY OTHERS

A. The Engineer will sample excavated soil in stockpiles to obtain information required for possible reuse on-site as backfill material.

B. The Engineer will collect confirmation samples from completed excavations. The Contractor will support the Engineer for these sampling events at no additional charge.

C. NYSEG to decommission and relocate Control house and 12 kV switch gear from the Western portion of the Site to the Eastern portion of the site. NYSEG will install the associate foundations, and conduit.

D. NYSEG to realign relocated underground circuits 108 and 413 located under LaGrange Street.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

SECTION 01140
WORK RESTRICTIONS

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Contractor's Use of Premises

B. Access Roads

C. Parking

D. Work Hours

E. Impacted Material Control

F. Restrictions on Noise, Dust, and Odor Emissions

G. Restrictions on Air Emissions of Toxic Chemicals

H. Protection of Existing Utilities

1.02 CONTRACTOR'S USE OF PREMISES:

A. Contractor shall confine all operations, including the storage of materials, to the designated areas of the Project Site as shown in the Drawings, or as otherwise approved in writing by the Engineer. Contractor shall be responsible for arranging for, and paying the costs of, any necessary off-site storage. Any further use of the Project Site must be approved in writing by the Engineer.

B. Storage of all materials will be limited to the Project site and the Stockpile and Staging Area.

C. No Impacted Materials shall be stored in vehicles or stockpiled outside of the Project Site.

D. No Impacted Materials shall be stored in the Stockpile and Staging Area.

E. Contractor's use of the premises shall be limited to the Work being performed under the Specifications and Drawings.

F. The Owner shall execute access agreements to obtain permission to complete any Work that is to be conducted on properties not owned by the Owner. Contractor shall not occupy, cross, or otherwise use any of the properties not owned by the Owner until such access agreements have been executed, and the Engineer has provided written notice to the Contractor that access is permitted.

SECTION 01140
WORK RESTRICTIONS

G. Contractor shall be responsible for the security and safety of Contractor's equipment and facilities. Owner and the Engineer shall not be liable for loss or damage of Contractor's tools, vehicles, equipment, or materials, whatever the cause. Such loss or damage shall not be sufficient reason for changes in the Project Schedule.

H. Contractor shall be responsible for any damage to roadways, facilities, utilities, trees, or structures on, or adjacent to, the Project Site due to negligence, carelessness, actions, errors, or omissions on the part of the Contractor.

1.03 ACCESS ROADS:

A. Contractor vehicles shall enter and exit the Project Site only at the locations designated on the Drawings or as otherwise approved in writing by the Engineer.

B. Contractor shall be responsible for obtaining any permits and paying any fees necessary for Contractor's use of public streets or roads.

C. Contractor shall abide by the Transportation Plan, in accordance with local, state, and federal regulations, including, but not limited to, any flaggers and signage for impeded traffic flow on public streets.

D. Contractor shall, at all times, provide for unimpeded access for emergency vehicles to the Project Site and nearby properties.

1.04 PARKING:

A. Contractor shall park construction vehicles and construction equipment only in areas designated for such purpose and not outside the Project Site.

B. Contractor employees shall park personal vehicles only in an employee parking area as designated by the Contractor's Technical Execution Plan (TEP).

C. Vehicles shall not be parked in any locations where they impede traffic or access to areas where Work is being conducted.

D. Contractor shall, at all times, provide for unimpeded access for residents to park in the supplemental resident parking.

1.05 WORK HOURS:

A. Normal Work Hours shall be from no earlier than 7:00 A.M. to no later than 5:00 P.M., Monday through Friday, or as otherwise approved in advance by the Engineer, and subject to availability of adequate daylight to safely perform the Work. Contractor shall submit a Staffing Plan detailing Work hours and shift requirements as part of the TEP.

SECTION 01140
WORK RESTRICTIONS

B. Work hours established by any ordinance, Law, or Regulation shall supersede the requirements of this Specifications Section.

C. Contractor shall conduct all Work between sunrise and sunset when there is adequate light so that the Work can be conducted safely and the Engineer can effectively observe the Work, or Contractor shall furnish adequate lighting for activities conducted by prior written approval of the Engineer between sunset and sunrise as defined by OSHA regulation. Contractor shall provide adequate lighting at all times, as deemed necessary by the Engineer for safety reasons. However, the Engineer shall not require additional lighting if Contractor can demonstrate that light levels in the Work area meet or exceed OSHA and/or NYSDOT Regulations.

D. Contractor may conduct regular equipment maintenance during hours outside of the Normal Work Hours defined in this Section, with prior approval from the Engineer for such activities.

E. Contractor personnel shall not work on the Project Site alone.

F. Any variation from Normal Work Hours or work on Sundays or Holidays shall be subject to approval by the Engineer and Owner. Any request for change must be made to the Engineer no less than 48 hours in advance.

G. Emergency repairs of equipment outside of Normal Work Hours may be performed without 48-hour notice. However, Contractor shall verbally notify the Engineer prior to such emergency maintenance.

1.06 IMPACTED MATERIAL CONTROL

A. Contractor shall manage the Work to ensure that impacted materials (soil, water, groundwater, and any other impacted materials) are not discharged from the Project Site including the surrounding streets or properties.

1.07 RESTRICTIONS ON NOISE, DUST, AND ODOR EMISSIONS:

A. Contractor is responsible for conducting all Work in accordance with Laws and Regulations concerning noise or sound levels.

B. Contractor is responsible for conducting all Work in accordance with Laws and Regulations concerning airborne dust emissions, including the CAMP, and the site-specific Health and Safety Plan (HASP).

C. Contractor is responsible for conducting all Work in accordance with Laws and Regulations concerning odor emissions, including the CAMP, and the HASP.

SECTION 01140
WORK RESTRICTIONS

D. The Engineer shall have authority to direct Contractor to stop Work or modify Work methods or activities as necessary to enforce compliance with the CAMP or if the Engineer deems odor emissions, noise or sound levels, or dust emissions are exceeded.

1.08 RESTRICTIONS ON AIR EMISSIONS OF TOXIC CHEMICALS:

A. Contractor shall be responsible for conducting all Work in accordance with Laws and Regulations concerning airborne emissions of toxic chemicals including the CAMP, and the HASP.

B. Contractor shall control the Work at all times such that concentrations of airborne constituents measured at the Project Site fence line are below the Action Levels set forth in the Air Monitoring Plans including the CAMP, and the HASP.

C. The Engineer shall have authority to direct the Contractor to stop Work or modify Work methods or activities as necessary to enforce compliance with the Action Levels for airborne emissions of toxic chemicals or to address odor complaints and/or any other third party complaints or issues.

1.09 PROTECTION OF EXISTING UTILITIES:

A. Contractor shall contact and cooperate with utility companies to locate all utilities (including pipelines, cables, power poles, guy wires, and other structures) on the Project Site prior to beginning the Work.

B. Contractor shall comply with the requirements of City, County, and State utility protection Laws or Regulations.

C. All utilities shall be protected from damage during construction, unless otherwise indicated to be removed or abandoned. If damaged, the utilities shall be repaired as required by the utility's Owner at the Contractor's expense.

D. If a utility is encountered that is not shown on the Drawings or otherwise made known to the Contractor prior to beginning the Work the Contractor shall promptly take necessary steps to assure that the utility is not damaged and give written notice to the Engineer. The Engineer shall then review the conditions and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence of the utility.

PART 2 – PRODUCTS

Not used.

SECTION 01140
WORK RESTRICTIONS

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 01250
CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Submittals

B. Procedures for Changes in the Work

C. Contractor Request for Change in Contract Price or Contract Time

D. Correlation of Contractor Submittals

E. Change Order

F. Work Change Directive

1.02 SUBMITTALS:

A. Contractor shall submit all documentation and correspondence regarding changes in the Work in accordance with the procedures specified in Section 01330 - Submittal Procedures.

1.03 PROCEDURES FOR CHANGES IN THE WORK

A. The Engineer may at any time make changes in the Drawings, Specifications, and requirements of any Work Order that the Engineer deems necessary, or as directed by Owner. Contractor shall not make any changes to the Drawings or Specifications except upon written order from The Engineer.

B. Field Order: The Engineer may make minor modifications to the Work, and provide interpretations or clarifications, which do not entail any change to the Contract Price or Contract Times, through the issuance of a Field Order. The Field Order will include the date, name of person issuing it, the relevant Specification or Drawing number, and any additional information necessary for documentation.

C. Work Change Directive (Form attached to this Section 01250): The Engineer may order an addition, deletion, or revision in the Work, or respond to differing or unforeseen physical conditions under which the Work is to be performed, such as by adding or modifying quantities under established unit price Bid Items, by issuance of a Work Change Directive. The Work Change Directive shall be signed by the Engineer's project manager or Resident Project Representative, the Contractor and by the Owner. The Work Change Directive shall include a description of the change to the Work, including reference to the Specification section(s) and Drawing number(s), the method for measurement of the Work covered by the unit price, and an estimate of the expected resulting change to the Contract Price and Contract Time.

D. Change Order (form attached to this Section 01250): A Change Order will be executed for any necessary change to the Work that Contractor will perform on the basis of a unit price or lump sum price for a new work item that is not included on the bid form Schedule A. The Schedule of Values shall be modified by issuance of a Change Order. The Change Order shall be signed by the Engineer's project manager or Resident Project Representative, the Contractor and by the Owner, and shall include a description of the change to the Work including reference to the Specifications section and Drawing number, the new unit price, the method for measurement of the Work covered by the unit price, and an estimate of the expected resulting change to the Contract Price and/or Contract Time.

E. If a change to the Work involves a deduction from the Work Order amount, not determinable by reference to the Schedule of Values, the Engineer estimate of same shall be accepted by Contractor if Contractor fails to submit its own estimate within five (5) working days following notice of such proposed change. The amount of such deduction shall, at the Engineer's option, be a lump-sum amount agreed upon between the Engineer and Contractor on the actual cost saved on labor, material, and equipment usage, which would have been necessary for the portion of the Work not performed.

F. The amount to be allowed to Contractor in excess of the Work Order amount for the performance of additional work, unless being accomplished on a Time and Materials (T&M) or Cost Plus Percentage (CP) basis or determined upon reference to an applicable unit price shall be at a lump sum agreed upon between parties.

G. In the event the Contractor performs any Work on a T&M basis, or cost plus a percentage basis, Contractor shall submit supporting documentation prior to the application for payment.

H. Contractor agrees that if the Engineer is not satisfied with the price quoted by Contractor, for any change in the Work with a value estimated by the Engineer to be more than $25,000, the Engineer may engage another Contractor to perform the change in the Work.

I. If the Engineer and Contractor are not able to agree as to the amount, either of money or time, to be allowed or deducted for any changes in the Drawings, Specifications or requirements for the Work or any Work Order, it shall, nevertheless, be the duty of the Contractor, upon written notice from the Engineer, to proceed immediately with the changes and continue the work as directed by the Engineer.

1.04 CONTRACTOR REQUEST FOR CHANGE IN CONTRACT PRICE OR CONTRACT TIME:

A. Contractor shall maintain detailed records of Work done on the basis of T&M. Contractor shall include with the Daily Construction Report itemizing T&M Work for verification and approval by the Engineer each day that Contractor performs Work on the basis of T&M.

B. Contractor shall document each request for a change in cost or time with sufficient data to allow the Engineer's evaluation of the request, and if deemed necessary by the

Engineer, Contractor shall provide the following types of additional data to support computations:

1. Quantities of products, labor, and equipment

2. Taxes, where applicable

3. Overhead and profit

4. Justification for any change in Contract Time

C. Contractor shall support each claim for additional costs with the following additional information for verification by the Engineer:

1. Origin and date of claim

2. Dates and times work was performed, and by whom

3. Time records for labor and equipment solely applicable to claim

4. Invoices and receipts for products, equipment, and sub-subcontracts, similarly documented

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

3.01 CORRELATION OF CONTRACTOR SUBMITTALS:

A. Contractor shall promptly revise the Schedule of Values and Application for Payment forms to record each authorized Work Change Directive or Change Order as a separate line item and adjust the Contract Price.

B. Contractor shall promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

C. Contractor shall promptly enter changes in Project Record Documents.

END OF SECTION

Work Change Directive and Change Order Forms Follow

WORK CHANGE DIRECTIVE

No. _____

DATE OF ISSUANCE:_____ EFFECTIVE DATE: _____

OWNER: NEW YORK STATE ELECTRIC & GAS CORP.
ENGINEER: _____
SUBCONTRACTOR: _____
Contract / Work Order:_____
Name of Site: _____ Project No. _____

You are directed to proceed with the following changes to the Work:

Description:

Purpose for Work Change Directive:

Attachments:

If Engineer or Contractor believe that the above change has affected Contract Price, any Claim for a Change Order based thereon will involve one or more of the following methods as defined in the Construction Subagreement Documents:

____ Unit Prices

____ Lump Sum $_____

____ Cost of the Work

Estimated increase (decrease) in Contract Price:
$_____.
If the change involves an increase, the estimated amount is not to be exceeded without further authorization.

Estimated increase (decrease) in Contract Times:
Substantial Completion:_____ days;
Ready for final payment: _____ days.

RECOMMENDED:	ACCEPTED:	APPROVED:
By:_____	By:_____	By:_____
Engineer's Representative	CONTRACTOR	NYSEG
Date:_____	Date:_____	Date:_____

Adapted from EJCDC 1910-8-B (1996 Edition)

CHANGE ORDER

No. _____

DATE OF ISSUANCE:_____ EFFECTIVE DATE: _____

OWNER: NEW YORK STATE ELECTRIC & GAS CORP.
ENGINEER: _____
CONTRACTOR: _____
Contract / Work Order:_____
Name of Site: _____ Project No. _____

You are directed to make the following changes to the Construction Subagreement Documents:

Reasons for Change Order:

Attachments:

CHANGE IN CONTRACT PRICE		CHANGE IN CONTRACT TIMES
Original Contract Price $ _____		Date for Substantial Completion: _____
Net Increase (Decrease) from previous Change Orders No.___ to ___ : $ _____		Date for Completion and Readiness for Final Payment: _____
Contract Price prior to this Change Order: $ _____		
Net increase (decrease) of this Change Order: $ _____		
Contract Price with all approved Change Orders: $ _____		

RECOMMENDED: ACCEPTED: APPROVED:

By:_____ By:_____ By:_____
Engineer's Representative CONTRACTOR NYSEG

Date:_____ Date: _____ Date: _____

SECTION 01270
MEASUREMENT AND PAYMENT

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Quantity Estimates

B. Payment

C. Measurement of Quantities

D. Assessment of Non-Conforming Work

E. Eliminated Items

F. Application for Payment

G. Measurement and Payment of Bid Items

1.02 QUANTITY ESTIMATES:

A. For all Unit Price Work, the Contract Price will include an amount equal to the sum of the unit price for each pay item times the estimated quantity of each item as indicated in the Bid Form. The estimated quantities shown on Bid Form Schedule A are not guaranteed and are solely for the purpose of comparison of bids and determining an initial Contract Price. Quantities and measurements supplied or placed in the Work in accordance with the Specifications and Drawings and verified by the Engineer will determine payment.

B. The Engineer will determine the actual quantities and classifications of Unit Price Work performed by the Contractor. The Engineer will review with the Contractor the Engineer's preliminary determinations before rendering a written decision on an Application for Payment.

C. If the actual Work requires more or fewer units than the estimated units indicated on Bid Form Schedule A, Contractor shall provide the required units at the unit prices contracted. Under no circumstances may Contractor exceed stated quantities without prior written approval from the Engineer.

1.03 PAYMENT:

A. Payment includes: Full compensation for all required labor, products, tools, equipment, plant, transportation, services, and incidentals; erection, application, or installation of an item of the Work, including overhead and profit.

B. Payment will not be made for any of the following:

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1. Products wasted or disposed of in a manner that is not acceptable.

2. Products determined as unacceptable before or after placement.

3. Products not completely unloaded from the transporting vehicle.

4. Products placed beyond the lines and levels of the required work.

5. Loading, hauling, and disposing of rejected materials.

6. Products remaining on hand after completion of work.

7. Additional work undertaken to expedite Contractor's operations.

8. Repair or replacement of monitoring wells, utilities, or any other facilities property located within or adjacent to the Work Area.

C. Payment will be made by the Owner for all Work actually performed during a particular payment period. Payments for lump sum items will be made based on the percent completion of the pay item. Upon approval by the Engineer, judgments of percent completion of lump sum items will be made in reference to the Schedule of Quantities and Prices

1.04 MEASUREMENT OF QUANTITIES:

A. Measurement by Weight:

1. Weigh Scales: Scales shall be certified in accordance with applicable laws and regulations for the state and county in which the scales are located. Certification shall have been made within a period of not more than one year prior to date of use for weighing commodity.

2. The term "ton" will mean the short ton consisting of 2,000 pounds.

3. For shipments to offsite waste management facilities and locations, trucks will be weighed at the receiving facility for the purpose of measuring the quantity of Work for payment.

B. Measurement by Volume:

1. Volumes measured as in-place volumes will be determined by survey approved by the Engineer. The Contractor shall retain the services of an independent land surveyor, licensed or registered in the State of New York, whose determination of in-place volumes shall be authoritative and final for the purpose of measurement for payment. To compute in-place volumes of excavation, the

average end area method or other methods acceptable to the Engineer will be used.

C. Measurement by Area: Measured by square dimension using length and width or radius, and verified by the Engineer.

D. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord, and verified by the Engineer.

E. Measurement by Time: Measure by the actual time rounded to the nearest time unit and verified by the Engineer.

1.05 ASSESSMENT OF NON-CONFORMING WORK:

A. Contractor shall replace Work, or portions of the Work, that do not conform to the requirements of the Specifications and Drawings, as assessed by the Engineer.

B. If, in the opinion of the Engineer, it is not practical to remove and replace the non-conforming Work, the Engineer will direct one of the following remedies:

1. The non-conforming Work may remain, but the unit price will be adjusted to a new price at the discretion of the Engineer.

2. The non-conforming Work shall be partially repaired to the instructions of the Engineer, and the unit price will be adjusted to a new price at the discretion of the Engineer.

C. The individual Specification sections may modify these options or may identify a specific formula or percentage price reduction.

D. The authority of the Engineer to assess non-conforming work and identify payment adjustment is final.

1.06 ELIMINATED ITEMS:

A. Should any items contained in the Drawings or Specifications be found unnecessary for the proper completion of the Work, the Engineer may, upon written order to the Contractor, eliminate such items from the Work, and such action shall in no way invalidate the Agreement.

B. Contractor will be paid for actual Work done and all documented costs incurred, including mobilization of materials prior to elimination of such items.

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1.07 APPLICATION FOR PAYMENT:

A. Contractor shall submit Applications for Payment as specified in Specifications Section 01290 – Payment Procedures.

1.08 MEASUREMENT AND PAYMENT OF BID ITEMS:

A. Bid Form Schedule A, Schedule of Values, lists the Bid Items and Unit Price Items for the Work. Measurement and payment of the Work covered by the Contract Documents is specified herein below.

B. At the direction of the Engineer, Contractor may be asked to perform change order work on a T&M basis. Schedule E – List of Equipment, and Schedule G – List of Personnel, shall be the basis for measurement and payment of equipment and labor for Time and Materials Work. Hourly prices for equipment and labor listed on Schedule E and Schedule G shall include Contractor's overhead and profit for such Time and Materials Work.

C. The following paragraphs specify measurement and payment of the Bid items listed on Bid Form Schedule A (attached to this Specification Package):

Bid Item 1 Mobilization and Demobilization

1. Work required to complete Mobilization and Demobilization includes, but is not limited to:

   a. Movement of personnel, equipment, and materials to the site, if such movement is not included in any other Bid Item.

   b. Preconstruction coordination meetings.

   c. Preparation, submittal, and revision of all required pre-mobilization submittals as described in Specifications Section 01330 – Submittal Procedures.

   d. Removal of all personnel, equipment, and materials from the Site at the completion of the Work.

2. Mobilization and Demobilization will be measured for payment as one unit, complete as specified.

3. Payment for Mobilization and Demobilization Work will be made on a percent complete basis of the lump sum price for the Bid item listed on Bid Form Schedule A. Payment of the lump sum price for "Mobilization and Demobilization" shall constitute full compensation for all labor, supervision, materials, equipment, start up submittals, incidentals and all other costs necessary to complete Mobilization and Demobilization Work, including the transport of all equipment, labor and temporary facilities and materials to and from the Site. No

more than 70% of this bid item may be invoiced prior to demobilization from the site as substantial completion.

Bid Item 2 Temporary Facilities and Controls

1. Work required to complete the Temporary Facilities and Controls includes, but is not limited to:

   a. Implement requirements for environmental protection specified in Specifications Section 01140 – Work Restrictions unless specifically identified as being provided by others.

   b. Perform utility markouts in LaGrange Street (DigSafeNY) and within substation (NYSEG)

   c. Provide and maintain temporary fencing as shown on the Drawings. Fencing shall meet Iberdrola specifications for security and grounding.

   d. Provide and maintain a Rusmar foam unit of sufficient size to cover the impacted areas within 5 minutes (or equivalent) on Project Site for the duration of intrusive operations. Foam expendables will be paid under alternate bid item 22.

   e. Provide and maintain power-sprayer units of sufficient size to provide continuous Biosolve®-solution misting over active excavations on Project Site for the duration of intrusive operations. Biosolve® expendables will be paid under alternate bid item 23.

   f. Implement health and safety requirements specified in Specifications Section 01415 – Health and Safety Requirements.

   g. Install and maintain temporary facilities and controls specified in Specifications Section 01500 – Mobilization and Temporary Facilities unless specifically identified as being provided by Others.

   h. Implement and maintain temporary erosion and sediment controls shown on the Drawings and/or specified in Specifications Section 01570 – Erosion and Sediment Controls.

   i. Install decontamination facilities specified in the Drawings and in Specifications Section 02130 - Decontamination and management and disposal of any liquids or residues generated during decontamination.

   j. Maintain and repair of all temporary facilities and controls including those provided by Others during the period when Work is taking place at the site. **Installation of temporary haul roads, stockpile and water treatment pads and restoration of same shall be included.**

   k. Conduct any surveying needed to control and document the Work.

l. All other one-time and recurring activities required by the Contractor to complete the Work unless included in another pay item or specifically identified as being the responsibility of Others.

2. Temporary Facilities and Controls Work will be measured for payment as one unit, complete as specified.

3. Payment for Temporary Facilities and Controls Work will be made on a percent complete basis of the lump sum price for the Bid item listed on Bid Form Schedule A. Payment of the lump sum price for "Temporary Facilities and Controls" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Temporary Facilities and Controls Work.

Bid Item 3 Project Management

1. Work required to provide project management and oversight as specified in Specifications Section 01310 – Project Management and Coordination including Project Staffing and Site Equipment Costs. The project schedule shows the work will take 395 days to complete. The Project Manager/Project Superintendent and Site Health and Safety Officer hours **shall be included in the lump sum bid items**; however 630 hours have been included for each person as additional management time required for dealing with scheduling issues.

2. Payment for Project Management Work will be made in accordance with the hourly rate listed on Bid Form Schedule A.

Bid Item 4 Subsurface Barrier Wall Installation and Backfill (Phase 1A and 1B)

1. Work required to complete Subsurface Barrier Wall Installation and Backfill (Phase 1A and 1B) includes, but is not limited to:

   a. Excavation, stockpiling and loading of soils required to install the subsurface barrier walls described in Phase 1A and 1B.

   a. Installation of the Vertical Barrier Wall sheetpiles.

   b. Delivery, stockpiling, placement, and grading

2. Subsurface Barrier Wall Installation and Backfill (Phase 1A and 1B) Work will be measured for payment as one unit, complete as specified.

3. Subsurface Barrier Wall Installation and Backfill (Phase 1A and 1B) Work will be made on a percent complete basis of the lump sum price for the Bid item listed on Bid Form Schedule A. Payment of the lump sum price for "Subsurface Barrier Wall Installation and Backfill (Phase 1A and 1B)" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Subsurface barrier Wall Installation and Backfill work as specified in the Specifications and as indicated on the Drawings.

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Payment will only be made for barrier wall installation and backfill within the horizontal and vertical limits of excavation shown on the Drawings.

Bid Item 5 Structure Demolition

1. Work required to complete Structure Demolition includes, but is not limited to:

   a. Asbestos removal from the NYSEG building located in the southern portion of the site.

   b. Demolition and removal of the NYSEG building located in the southern portion of the site as specified in the Drawings.

   c. Installation of the soil buttress as specified in the Drawings.

2. Structure Demolition work will be measured for payment as one unit, complete as specified.

3. Payment for Structure Demolition Work will be made on a percent complete basis of the lump sum price for the Bid item listed on Bid Form Schedule A. Payment of the lump sum price for "Structure Demolition" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Structure Demolition Work.

Bid Item 6 Excavation and Backfill (Phase 2)

1. Work required to complete excavation and backfill within Phase 2, Stockpiling and Loading, and Backfill includes, but is not limited to:

   a. Excavation, stockpiling and loading of soils within substation as defined in the Drawings.

   b. Demolition of surface holder foundation, stockpiling and loading of debris for off-site disposal as non-contaminated debris.

   c. Well abandonment.

   d. Managing of excavated soils and if impacted soils are encountered stockpiling (onsite) and loading of impacted soils within the limits of the Excavation as defined in the Drawings.

   e. Backfill of approved reuse soils, placement and compaction, and density testing as specified in Specifications Section 02300 – Backfill and Grading and Iberdrola Fence and Yard Specification.

   f. Installation of all subsurface materials such as the demarcation barrier and structures within the Phase 2 area unless specifically included in another Bid Item.

2. Excavation and Backfill (Phase 2) Work will be made on a percent complete basis of the lump sum price for the Bid item listed on Bid Form Schedule A. Payment of the lump sum price for "Excavation and Backfill (Phase 2)" shall

constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Excavation and Backfill work as specified in the Specifications and as indicated on the Drawings. Payment will only be made for soil excavation and backfill within the horizontal and vertical limits of excavation shown on the Drawings.

Bid Item 7 Excavation and Backfill (Phase 3)

1. Work required to complete excavation and backfill within Phase 3, Stockpiling and Loading, and Backfill includes, but is not limited to:

    a. Excavation, stockpiling and loading of soils within LaGrange Street as defined in the Drawings.

    b. Well abandonment.

    c. Backfill of approved reuse soils, placement and compaction, and density testing as specified in Specifications Section 02300 – Backfill and Grading.

    d. Installation of all subsurface materials and structures within the Phase 3 area unless specifically included in another Bid Item.

2. Payment for Excavation and Backfill (Phase 3) Work will be made on a percent complete basis of the lump sum price for the Bid item listed on Bid Form Schedule A. Payment of the lump sum price for "Excavation and Backfill (Phase 3)" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Excavation and Backfill work as specified in the Specifications and as indicated on the Drawings. Payment will only be made for soil excavation and backfill within the horizontal and vertical limits of excavation shown on the Drawings.

Bid Item 8 Excavation and Backfill (Phase 4)

1. Work required to complete Excavation and Backfill (Phase 4) includes, but is not limited to:

    a. Excavation, stockpiling and loading of soils within LaGrange Street as defined in the Drawings.

    b. Well abandonment.

    c. Backfill of approved reuse soils, placement and compaction, and density testing as specified in Specifications Section 02300 – Backfill and Grading.

    d. Installation of all subsurface materials and structures within the Phase 4 area unless specifically included in another Bid Item.

2. Payment for Excavation and Backfill (Phase 4) Work will be made on a percent complete basis of the lump sum price for the Bid item listed on Bid Form

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Schedule A. Payment of the lump sum for "Excavation and Backfill (Phase 4)" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Excavation and Backfill work as specified in the Specifications and as indicated on the Drawings. Payment will only be made for soil excavation and backfill within the horizontal and vertical limits of excavation shown on the Drawings.

Bid Item 9 Excavation and Backfill (Phase 5)

1. Work required to complete Excavation and Backfill (Phase 5) includes, but is not limited to:

   a. Excavation, stockpiling and loading of soils within LaGrange Street as defined in the Drawings.

   b. Well abandonment.

   c. Backfill of approved reuse soils, placement and compaction, and density testing as specified in Specifications Section 02300 – Backfill and Grading.

   d. Installation of all subsurface materials and structures within the Phase 5 area unless specifically included in another Bid Item.

2. Payment for Excavation and Backfill (Phase 5) Work will be made on a percent complete basis of the lump sum price for the Bid item listed on Bid Form Schedule A. Payment of the lump sum for "Excavation and Backfill (Phase 5)" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Excavation and Backfill work as specified in the Specifications and as indicated on the Drawings. Payment will only be made for soil excavation and backfill within the horizontal and vertical limits of excavation shown on the Drawings.

Bid Item 10 Construction Water Treatment System Installation and Operation

1. Work required to complete Construction Water Treatment System Installation and Operation includes, but is not limited to labor, materials, and equipment required for operation of the water treatment system, relocation (if necessary), operation of dewatering and construction water control, transmission storage equipment, system O&M, data logging, quality control, materials and incidentals.

2. Work required to complete Construction Water Treatment System Installation and Operation also includes, but is not limited to mobilization, set up and removal of all water treatment system equipment, materials, and personnel

3. Construction Water Treatment System Installation and Operation work measured for payment on a lump sum basis up to 5 million (5,000,000) gallons as documented by treatment system operation logs.

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4. Payment for Construction Water Treatment System Installation and Operation will be made on a percent complete basis of the lump sum price listed on Bid Form Schedule A. Payment for Construction Water Treatment System Installation and Operation shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to operate and maintain the construction water treatment system as specified in Specifications Section 02245 – Temporary Water Treatment. For the purpose of documenting the total volume of "treated construction water" counted in regard to the 5 million gallon lump sum price quantity, the metered value of "discharged" effluent from the effluent storage tank will be used. No construction water requiring re-treatment shall be counted towards the lump sum price quantity.

Bid Item 11 Construction Water Treatment Operation

1. Work required to complete Construction Water Treatment Operation includes, but is not limited to labor, materials, and equipment required for operation of the water treatment system, system O&M, data logging, quality control, materials and incidentals.

2. Construction Water Treatment Operation work measured for payment on a unit rate basis of one thousand (1,000) gallon units as documented by treatment system operation logs.

3. Payment for Construction Water Treatment Operation will be made on a percent complete basis of the unit rate price listed on Bid Form Schedule A. Payment for Construction Water Treatment Operation shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to operate and maintain the construction water treatment system as specified in Specifications Section 02245 – Temporary Water Treatment. For the purpose of documenting the total volume of "treated construction water" counted in regard to the 1,000 gallon unit price quantity, the metered value of "discharged" effluent from the effluent storage tank will be used. No construction water requiring re-treatment shall be counted towards the lump sum price quantity.

Bid Item 12 Transportation and Disposal: Non-Contaminated Debris

1. Work required to complete Transportation and Disposal: Debris includes but is not limited to: truck preparation for transport, transportation, and final disposal of excavated impacted debris at approved facility.

2. Transportation and Disposal: Debris Work will be measured for payment on a per ton basis, as documented by scale weight tickets.

3. Payment for Transportation and Disposal: Debris Work will be made in accordance with the unit price listed on Bid Form Schedule A. Payment of the

unit price for "Transportation and Disposal: Debris" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals, approved disposal facility fees and all other costs necessary to complete Transportation and Disposal: Debris Work, as specified in Specifications Section 02120 – Off-site Transportation and Disposal.

Bid Item 13 Transportation and Disposal: Contaminated Debris

1. Work required to complete Transportation and Disposal: Contaminated Debris includes but is not limited to: truck preparation for transport, transportation, and final disposal of excavated impacted debris at approved facility.

2. Transportation and Disposal: Contaminated Debris Work will be measured for payment on a per ton basis, as documented by scale weight tickets.

3. Payment for Transportation and Disposal: Debris Work will be made in accordance with the unit price listed on Bid Form Schedule A. Payment of the unit price for "Transportation and Disposal: Contaminated Debris" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals, approved disposal facility fees and all other costs necessary to complete Transportation and Disposal: Debris Work, as specified in Specifications Section 02120 – Off-site Transportation and Disposal.

Bid Item 14 Transportation and Disposal: Conditionally Exempt Non-Hazardous Waste (Transportation and Disposal: CENW)

1. Work required to complete Transportation and Disposal: CENW includes but is not limited to: truck preparation for transport, transportation, and final disposal of excavated impacted debris at approved facility.

2. Transportation and Disposal: Debris Work will be measured for payment on a per ton basis, as documented by scale weight tickets.

3. Payment for Transportation and Disposal: CENW Work will be made in accordance with the unit price listed on Bid Form Schedule A. Payment of the unit price for "Transportation and Disposal: CENW" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals, approved disposal facility fees and all other costs necessary to complete Transportation and Disposal: CENW Work, as specified in Specifications Section 02120 – Off-site Transportation and Disposal.

4. The Contractor shall select a disposal facility from those listed below. The Contractor shall ensure that the selected disposal facility has capacity to accept excavated materials and spoils at a rate sufficient to meet the Construction Milestones listed in Schedule F. If multiple disposal facilities are required to achieve the construction milestones, the bidder shall provide unit costs and

percent of the total excavated material and spoils shipped to each facility in their TEP and in Schedule A.

a. Covanta Niagara, 100 Energy Boulevard at 56th Street, Niagara Falls, NY, 14304.

Bid Item 15 Transportation and Disposal: Impacted Soil

1. Work required to complete Transportation and Disposal: Impacted Soil includes but is not limited to: truck preparation for transport, transportation, and final disposal of excavated impacted debris at approved facility.

2. Transportation and Disposal: Impacted Soil Work will be measured for payment on a per ton basis, as documented by scale weight tickets.

3. Payment for Transportation and Disposal: Impacted Soil Work will be made in accordance with the unit price listed on Bid Form Schedule A. Payment of the unit price for "Transportation and Disposal: Impacted Soil" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals, approved disposal facility fees and all other costs necessary to complete Transportation and Disposal: Impacted Soil Work, as specified in Specifications Section 02120 – Off-site Transportation and Disposal.

4. The Contractor shall select a disposal facility from those listed below. The Contractor shall ensure that the selected disposal facility has capacity to accept excavated materials and spoils at a rate sufficient to meet the Construction Milestones listed in Schedule F. If multiple disposal facilities are required to achieve the construction milestones, the bidder shall provide unit costs and percent of the total excavated material and spoils shipped to each facility in their TEP and in Schedule A.

   a. High Acres Landfill, 425 Perinton Parkway, Fairport, NY 14450.

   b. Mill Seat Landfill, 303 Brew Road, Bergen, NY 14416.

   c. Seneca Meadows, 1786 Salcman Road, Waterloo, NY 13165.

Bid Item 16 Substation Fence Replacement

1. Work required to complete Substation Fence Replacement work includes, but is not limited to, installation of gravel, structures, concrete, fencing, and other items as required to complete proper installation of the fencing located on the Substation.

2. Substation Fence Replacement Work will be measured for payment as one unit, complete as specified.

3. Payment for Substation Fence Replacement Work will be made on a percent complete basis of the lump sum price for the Bid item listed on Bid Form

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Schedule A. Payment of the lump sum price for "Substation Fence Replacement" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to furnish, and place/install fencing items as detailed in the Design Drawings.

Bid Item 17 Substation Restoration

1. Work required to complete Substation Restoration work includes, but is not limited to, installation of topsoil, gravel, structures, asphalt, concrete, and other restoration items located within the Substation property as defined on the Design Drawings. The Substation Restoration shall include all work included within the substation as defined by the boundary of the Fencing.

2. Substation Restoration Work will be measured for payment as one unit, complete as specified.

3. Payment for Substation Restoration Work will be made on a percent complete basis of the lump sum price for the Bid item listed on Bid Form Schedule A. Payment of the lump sum price for "Substation Restoration" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to furnish, and place/install restoration items as detailed in the Design Drawings.

Bid Item 18 LaGrange Restoration

1. Work required to complete LaGrange Restoration work includes, but is not limited to, installation of topsoil, gravel, structures, asphalt, concrete, and other restoration items located outside of the Substation property as defined by the security fence as shown on the Design Drawings.

2. LaGrange Restoration Work will be measured for payment as one unit, complete as specified.

3. Payment for LaGrange Restoration Work, as specified in Specifications Section 02300, will be made on a percent complete basis of the lump sum price for the Bid item listed on Bid Form Schedule A. Payment of the lump sum price for "LaGrange Restoration" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to furnish, and place/install restoration items as detailed in the Design Drawings.

Bid Item 19 Retaining Wall Replacement

1. Work required to complete Retaining Wall Replacement work includes, but is not limited to, installation of the retaining wall and foundation along the northern boundary of the NYSEG property as defined on the Design Drawings.

2. Retaining Wall Replacement Work will be measured for payment as one unit, complete as specified.

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MEASUREMENT AND PAYMENT

3. Payment for Retaining Wall Replacement Work, will be made on a percent complete basis of the lump sum price for the Bid item listed on Bid Form Schedule A. Payment of the lump sum price for "Retaining Wall Replacement" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to furnish, and place/install restoration items as detailed in the Design Drawings.

Bid Item 20 Bedrock Grout Wall Installation (Phase 6)

1. Work required to complete installation of a grout curtain wall in the bedrock on the northern and western edges of the Site, and along the nearby Barge Canal in the vicinity of seeps recorded during investigation work. Bedrock Well Installation (Phase 6) Work includes, but is not limited to:

    a. Installing a grout curtain wall that will meet the Performance Criteria as described in section 02196 – Grout Wall Installation and in the drawings and design report.

2. Grout curtain wall installation will be measured for payment on per injection point basis.

3. Payment for Bedrock Grout Wall Installation (Phase 6) Work will be made with accordance with the unit price listed on Bid Form Schedule A. Payment of the unit price for grout wall installation shall constitute full compensation for all labor, supervision, materials, equipment, incidentals, and all other costs necessary to complete grout work as specified in Section 02196 – Grout Curtain Wall Installation, and shall include operation and maintenance of the grouting equipment, Spoils management, and trucking and disposal providing all reagents not specifically identified as being provided by others and quality assurance/quality control measures.

Bid Item 21 Bedrock Well Installation

1. Work required to complete installation of bedrock recovery wells as shown on the design drawings.

2. Bedrock well installation will be measured for payment on per well basis.

3. Payment for Bedrock Well Installation Work will be made with accordance with the unit price listed on Bid Form Schedule A. Payment of the unit price for bedrock well installation shall constitute full compensation for all labor, supervision, materials, equipment, incidentals, and all other costs necessary to complete work as specified in Section 02196 – Grout Curtain Wall Installation, and shall include operation and maintenance of the drilling equipment, drill cutting management, and trucking and disposal providing all material not specifically identified as being provided by others and quality assurance/quality control measures.

Bid Item 22 Odor Control Foam System – Operation

SECTION 01270
MEASUREMENT AND PAYMENT

1. Odor Control Foam System – Operation will be measured for payment by the gallon of odor suppressant concentrate(s) applied.

2. Payment for Odor Control Foam System – Operation will be made on a per gallon unit price as listed on Bid Form Schedule A. Payment for odor control foam system - operation shall constitute full compensation for all the costs of Odor Control Foam Concentrate and manpower required to apply same.

Bid Item 23 Odor Control Sprayer System (Biosolve) – Operation

1. Odor Control Sprayer System – Operation will be measured for payment by the gallon of odor suppressant concentrate(s) applied.

2. Payment for Odor Control Sprayer System – Operation will be made on a per gallon unit price as listed on Bid Form Schedule A. Payment for odor control sprayer system - operation shall constitute full compensation for all the costs of Odor Control Sprayer System Concentrate, water and manpower required to apply same.

Bid Item 24 Soil Amendment – Ton

1. Payment for the Work shall be made on a per ton basis of approved additive as directed by Engineer.

2. Payment for Soil Amendment shall be made on per ton basis of the unit price listed on Bid Form Schedule A. Payment for Soil Amendment shall constitute full compensation for amendment of soils for moisture reduction at the direction of the Engineer, including all labor, equipment, and incidentals to blend and mix the approved additive with excavated soils. Soil Amendment will be reimbursed only if dewatering system is properly maintained and functioning efficiently and water treatment maximum flows and capacities are being performed to the Engineer's satisfaction and soils still require amendment prior to transportation and disposal.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 01290
PAYMENT PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Format

B. Submittal Procedures

C. Applications for Payment

D. Invoices

E. Substantiating Data

1.02 FORMAT:

A. The Bid Form Schedule A, Schedule of Quantities and Prices, submitted by the Successful Bidder, as modified by any executed Change Orders, will be the basis of the Bid Form. The Owner may request further breakdown of certain lump sum items to be included in the schedule of values as deemed necessary by the Owner. The Schedule of Values will serve as the basis for progress payments and will be incorporated into a form of Application for Payment as specified herein.

B. Contractor shall submit one Application for Payment and invoice, covering the Work performed in each calendar month, for each month for the duration of the Work.

C. Contractor shall submit to the Owner an Application for Payment on the specified forms, and attach a separate invoice, for the Work completed in the calendar month covered by that Application for Payment.

1. Contractor's invoice shall be a separate page, or pages, in a form of Contractor's choosing that includes the specified information. Contractor shall submit a separate invoice to NYSEG for each Work Order.

1.03 SUBMITTAL PROCEDURES:

A. Contractor shall submit original Application for Payment and invoice, and one copy, to the NYSEG Work Order Representative for review.

B. Payment Period: Submit invoices at intervals not less than 30 days. Submit an invoice for each month no later than the invoice closing date of the following month as set by NYSEG. The schedule of invoice closing dates will be given to the Contractor prior to mobilization.

C. Contractor shall prepare a final Application for Payment and invoice as specified in Section - 01770 Closeout Procedures.

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1.04 APPLICATIONS FOR PAYMENT:

A. Contractor shall submit each application for payment in a standardized form approved by NYSEG. A completed copy of this form shall be the cover for each invoice.

B. Applications for Payment shall be executed and certified by signature of authorized officer of Contractor.

C. Contractor shall list original Work Order amount, and each authorized Change Order and Work Change Directive, listing Change Order or Work Change Directive number and dollar amount.

1.05 INVOICES:

A. Each invoice shall be accompanied by the specified Application for Payment form and shall show the following:

1. The date of the Master Services Agreement

2. Work Order Number

3. Work Order Date

4. NYSEG's Project No.

5. The name of the NYSEG Representative named on the Work Order ("Work Order Representative")

6. A description of the Work performed (The description of the Work shall document site location, project code number and detail the actual Work performed and completed).

B. Invoices that include Work performed on a T&M or CP basis shall be supported with copies of daily time sheets, and Contractor shall attach photocopies of receipts for all materials and expenses claimed as T&M or CP Work. Lack of complete documentation for T&M or CP work will be just cause for refusal by NYSEG to pay such claimed costs, pending submittal of required documentation. All documentation shall be submitted and approved prior to invoice submittal. Contractor shall submit backup copies of all required paperwork that was previously submitted as a part of a daily or weekly submittal.

1.06 SUBSTANTIATING DATA:

A. NYSEG may request substantiating data for any claimed payment. When NYSEG requires substantiating data, Contractor shall submit, within 30 days, data justifying quantities of Work and dollar amounts in question. NYSEG may conditionally approve

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any claimed payment pending submittal of acceptable substantiating data; however, unsubstantiated claims for payment will result in withholding of the unsubstantiated amounts from subsequent payment claims.

B. Contractor shall submit one copy of substantiating data with cover letter for each request for substantiating data. Each submittal of substantiating data shall show Application for Payment number and date, and pay item by number and description.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION

SECTION 01310
PROJECT MANAGEMENT AND COORDINATION

PART 1 – GENERAL

1.01. SECTION INCLUDES:

A. Contractor's Project Superintendent

B. Submittals

C. Project Meetings

D. Coordination – General

E. Coordination of Contractor's Work with Work by Others

F. Layout of the Work

G. Execution

1.02. CONTRACTOR'S PROJECT SUPERINTENDENT:

A. Contractor shall employ a qualified Project Superintendent for the duration of the Work. The Project Superintendent shall be experienced in excavation of Impacted Soils, construction/installation of vertical barrier wall(s) (as required in Specifications Section 02462 – Steel Sheet-Piling), grout wall installation (as required in Specifications Section 02196 – Grout Wall), and coordinating truck transportation of soil and debris. Contractor shall employ an adequate Project coordination staff to assist the Project Superintendent in the required control of Subcontractors, obtaining permits and approvals, development of Progress Schedules, and preparation of Submittals.

B. Contractor shall not change the Project Superintendent for the duration of the project.

C. Any requested changes in critical site personnel shall be requested in writing no sooner than 30 days prior to the anticipated change, and must be approved by the Engineer and Owner.

D. The Contractor's Project Superintendent shall be on the Project Site at all times during the Work, including any Work performed by Subcontractors.

E. The Project Superintendent shall be responsible for the completion of the Work in accordance with the Drawings and Specifications, and shall perform the following specific duties:

1. Coordinate the Work of Contractor's labor and equipment, and that of the Subcontractors.

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2. Serve as the Contractor's primary point of communication with the Engineer, Owner, and Others who are responsible for other aspects of the Project.

3. Coordinate the schedule by which the various tasks are completed within the specified Construction Milestones.

4. Participate in regularly scheduled Project meetings with the Regulator, Engineer and Owner.

5. Schedule and conduct meetings with Subcontractors and other concerned parties as necessary to maintain the Project schedule, resolve matters in dispute, and coordinate use of utilities and other resources.

6. Ensure that quality control objectives are met, and that quality control Work is considered in the Project Schedule so as to avoid delays in the Work.

7. Ensure compliance with all Laws and Regulations and permit requirements.

1.03. SUBMITTALS:

A. Contractor shall prepare and transmit the following Submittals, and any other Submittals described in other Sections of the Specifications, in accordance with the procedures of Specifications Section 01330 – Submittal Procedures:

1. Contractor shall submit Contractor's Daily Construction Report as specified in Specifications Section 01320 – Construction Progress Documentation by 10:00 A.M. the next Working day.

2. Contractor shall submit Applications for Payment as specified in Specifications Section 01290 – Payment Procedures.

3. Contractor shall submit quality control reports and data as specified in other Sections of the Specifications.

4. Contractor shall submit weekly revisions and updates of Progress Schedule as specified in Specifications Section 01320 – Construction Progress Documentation with a detailed 3-week look ahead.

5. Contractor shall submit weekly health and safety report, as specified in Specifications Section 01415 – Health and Safety Requirements.

1.04. PROJECT MEETINGS:

A. Weekly Progress Meetings:

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PROJECT MANAGEMENT AND COORDINATION

1. Contractor shall attend scheduled Weekly Progress Meetings at the Project Site to review progress of the Work, Project Schedule, Submittal status and delivery schedule, contract modifications, health and safety, and other matters. The Engineer shall prepare a meeting agenda in cooperation with the Owner and the Contractor. The Engineer shall preside at meetings. The Engineer shall designate a representative to record minutes to include significant proceedings and decisions, and reproduce and distribute copies of minutes. The Engineer will provide a conference call in procedure for attendees that cannot physically attend the meetings.

2. Attendees shall include:

   a. The Owner.

   b. The Engineer.

   c. Contractor's Project Superintendent.

   d. Contractor, Subcontractors, and Suppliers, as appropriate.

   e. NYSDEC Representative.

   f. Others as appropriate.

B. Other meetings shall be scheduled in accordance with the Specifications or as may be required by the Engineer.

1.05. COORDINATION – GENERAL:

A. Contractor shall coordinate scheduling, Submittals, and Work of the various Sections of Specifications to assure an efficient and orderly sequence of interdependent construction elements, with provisions for accommodating Work performed later.

B. Contractor shall coordinate and schedule Work in cooperation with the Engineer, the Owner, the Owner's Air Monitoring Contractor, local utility companies, and other construction firms that may be conducting related Work at or near the Project Site.

C. Contractor shall direct all communications regarding the Work directly to the Engineer's Site Construction Manager. Contractor shall not discuss the Work nor take direction from any other contractor, consultant, public official, media representative, or any other person without prior written approval by the Engineer.

D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following shall constitute an acceptance of Work that is not in accordance with these Specifications or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. Observation by the Engineer.

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2. Recommendation of any progress payment or final payment by the Engineer.

3. Use or occupancy of the Work or any part thereof by the Engineer or Others.

4. Any acceptance by the Engineer, or failure to do so.

5. Any review and approval of a Submittal by the Engineer.

6. Any inspection, test, or approval by others.

7. Any correction of Non-Conforming Work performed by the Engineer or Others.

E. Hazard Communication Program: Contractor shall be responsible for coordinating any exchange of Material Safety Data Sheets (MSDS) or other hazard communication information required to be made available to or exchange between or among employees at the site. Contractor shall compile and properly file MSDSs on site for all materials furnished by Contractor or its Subcontractors and Suppliers.

1.06. COORDINATION OF CONTRACTOR'S WORK WITH WORK BY OTHERS:

A. **Coordination of Work of Subcontractors**: Contractor shall be responsible for overall coordination of the Work in accordance with the Construction Milestones set forth in Bid Form Schedule F. Contractor shall obtain from its Subcontractors a schedule similar to Contractor's Progress Schedule and shall be responsible for Subcontractors maintaining these schedules and for coordinating any required schedule modifications.

B. **Work by Others:** The Engineer, and others under subcontract to the Engineer and Owner, including the Owner's Air Monitoring Contractor, will be working on the Project Site while the Work is in progress. Contractor shall coordinate and schedule its Work in cooperation with the Engineer's other Contractors, adjacent property owners, City of Lockport, NYSDOT, Owner, and the Engineer.

C. Contractor shall abide by all requirements of the Transportation Plan and other local or county requirements. Contractor shall obtain any necessary permits or approvals for closure of streets or sidewalks adjacent to the Site. Contractor shall notify the Owner prior to any contact with State, County and local officials.

D. Contractor shall abide by all the requirements of the Community Air monitoring Plan and the Odor, Vapor, and Dust Control Plan developed for the Project Site.

E. **Utilities:** Contractor shall coordinate the Work with various utility companies serving the Project Site and shall secure any required permits and approvals. Contractor shall be solely responsible for notifying utility companies prior to commencing any Work, and for response to any emergencies that may arise during the Work. Certain active and inactive utilities may currently be present at the Project Site, the exact location and type of which shall be determined by Contractor without reliance on information provided by the

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PROJECT MANAGEMENT AND COORDINATION

Engineer. Several utilities may currently serve the Project Site or adjacent properties including, but not limited to, the following:

1. Electric
2. Natural gas (fuel gas)
3. Water
4. Sanitary sewer
5. Storm sewer
6. Telephone or other communication (fiber optic cable)

F. The Contractor shall coordinate waste shipments to off-site waste management facilities as specified in Specifications Section 02120 – Off-site Transportation and Disposal.

1.07. LAYOUT OF THE WORK:

A. Contractor shall be solely responsible for laying out the Work, including lines and grades, and for the correctness thereof in accordance with the Specifications and Drawings.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 MODIFICATIONS

A. Any material changes to the work, processes, staffing, sequencing, equipment, or materials will require an amendment to the Technical Execution Plan and review and approval by the Engineer.

END OF SECTION

SECTION 01320
CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 – GENERAL

1.01. SECTION INCLUDES:

A. Submittals

B. Construction Milestones

C. Progress Schedule

D. Daily Construction Report

E. Health and Safety Reports

F. Record Documents

G. Progress Schedule Reviews, Acceptance, Updates, and Revisions

1.02. SUBMITTALS:

A. Work and progress payments shall not start without an initial Progress Baseline Schedule reviewed and approved by the Engineer and Owner. The baseline shall not be altered for the duration of the project. Contractor shall submit an initial Baseline Progress Schedule for approval prior to the Notice to Proceed, and shall submit weekly updates of the Progress Schedule comparing progress to the baseline during the Work in accordance with Specifications Section 01330 – Submittal Procedures. The Project name and date of Submittal shall be written on each sheet.

1.03. CONSTRUCTION MILESTONES:

A. Specific requirements for phasing of the Work are set forth in Bid Form Schedule F, Construction Milestones. The initial Progress Schedule shall be based on progress and completion of the Work within the Construction Milestones and Contract Times listed in Bid Form Schedule F.

1.04. PROGRESS SCHEDULE:

A. The Progress Schedule shall be a bar graph (Gantt chart) showing the proposed order of Work, the expected beginning and completion times for the salient Work features, predecessor(s) for each item, and the duration of each item. The Progress Schedule shall show each activity and, as a minimum, each activity description shall contain:

1. Activity name and identifying number.

2. Predecessor(s).

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3. Successor(s).

4. Activity duration (in calendar days).

5. Percent complete.

6. Float for each activity, where float is the amount of time that an activity can be delayed without delaying the start of the next activity.

B. The Contractor's Progress Schedule shall be developed using the critical path method (CPM) and Microsoft Project or equivalent software.

C. Activities:

1. The Progress Schedule shall identify all major construction activities.

2. The Progress Schedule shall show all significant design, testing, submittals, manufacturing, shipping, construction, installation, commissioning and training activities, milestones for start of Work, completion of construction phases, and completion of commissioning, beneficial occupancy, and punch list.

3. Any utility service interruptions necessary to perform the Work shall be identified.

4. A separate activity shall be provided for each occasion where Work is to be performed by others.

5. The Progress Schedule shall identify permits and approvals that are the responsibility of the Contractor.

6. The Progress Schedule shall identify all Contractors' Work.

7. The Progress Schedule shall identify Owner-furnished and Engineer-furnished items and any Work to be performed by the Owner or Engineer.

8. The Progress Schedule shall identify draft invoice and final invoice submittal dates in accordance with monthly closing dates established by the Engineer.

D. Contractor's Progress Schedule shall explain any additional information or coding used.

E. Contractor shall consider normal calendar year holidays, weather delays, long lead items, review times, and Project phasing, Project Site conditions and space availability in preparing the Progress Schedule.

F. The Contractor shall consider off-site disposal facility and trucking restrictions in preparing the Progress Schedule.

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CONSTRUCTION PROGRESS DOCUMENTATION

G. The milestone completion dates required by the Specifications, listed in Bid Form Schedule F, Construction Milestones, shall be clearly identified on the Progress Schedule. The critical path shall be clearly indicated.

H. The Progress Schedule shall be updated and submitted weekly at the time of the Weekly Progress Meeting. The Progress Schedule shall be available to all meeting participants during the Weekly Progress Meeting.

1.05. DAILY CONSTRUCTION REPORT:

A. Contractor shall prepare a written Daily Construction Report in a format acceptable to the Engineer. The Daily Construction Report shall be prepared for each day Contractor is on the Project Site and submitted to the Engineer, electronically and in hard copy, no later than 10:00 A.M. the next Working day.

B. Daily Construction Reports shall include:

1. Number of Workers for each trade and the names of the Workers.

2. Names of Sub-Contractors and their on-site employees.

3. Hours of Work for each trade or type of equipment.

4. Equipment on the Project Site and materials furnished.

5. Major Work activities performed, and progress thereof, including estimated amounts of specialty Work, stockpiling, loading, dewatering, stormwater diversion, and backfilling Work completed.

6. Odor, Vapor, or Dust mitigation work activities performed.

7. Weather conditions and temperature to include daily precipitation total.

8. Unforeseen subsurface conditions.

9. A list of Submittals transmitted to or received from the Engineer.

10. Meetings attended.

11. Accidents, safety, and security issues.

12. Tests and inspections performed and the results of tests and inspections.

13. Reasons for construction delays.

14. Units of Cost Plus Work, subject to approval daily by the Engineer.

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CONSTRUCTION PROGRESS DOCUMENTATION

15. Units of T&M Work, subject to approval daily by the Engineer.

16. Daily Trucking Logs as specified in Specifications Section 02120 – Off-site Transportation and Disposal.

17. Vehicle Inspection Logs as specified in Specifications Section 02130 - Decontamination.

C. If multiple daily Work shifts are used, Contractor shall submit a Daily Construction Report for each shift.

D. The Daily Construction Reports may be used to substantiate any claim for delay, impact, or change, and shall contain sufficient information to document each potential impact.

E. The Daily Construction Report may be used as the basis for documentation of T&M Work. The units of T&M Work reported by the Contractor's Project Superintendent shall be reviewed daily by the Engineer and are subject to approval by the Engineer. Contractor's Project Superintendent shall promptly make any changes, as required by the Engineer, to the units of T&M Work recorded on the Daily Construction Report.

1.06. HEALTH AND SAFETY REPORTS:

A. Contractor's Daily Construction Report shall include a summary of daily Health and Safety meetings, conferences, issues, incidents, near misses, and actions taken to address and resolve Health and Safety issues.

B. Contractor shall immediately (within 30 minutes) verbally report to the Engineer the occurrence of any and all Health and Safety incidents, including, but not limited to, injuries, accidents, and unsafe conditions. An Incident Report form or Near-Miss Report form, which is included in Specifications Section 01415 – Health and Safety Requirements, shall be submitted to the Engineer within 24 hours of occurrence of the incident or near-miss. The Engineer will be the sole arbitrator of what is to be considered an incident or near miss.

C. Contractor shall provide to the Engineer weekly summary reports of Contractor's Health and Safety performance, including number of hours Worked in the period and a list of Health and Safety incidents with the date, names of any individuals involved, type of incident, current status of any medical treatment of individuals for the incident, and actions taken by Contractor to address the incident or unsafe condition.

D. Contractor shall report to the Engineer the occurrence of any situations requiring a permit or checklist for confined space entry or hot work (welding or torch cutting), and maintain documentation as specified in Specifications Section 01415 – Health and Safety Requirements.

SECTION 01320
CONSTRUCTION PROGRESS DOCUMENTATION

E. Additional reporting requirements are provided in Specifications Section 01415 – Health and Safety Requirements.

1.07. RECORD DOCUMENTS:

A. Contractor shall maintain in a safe place at the Project Site one copy of all Weigh Tickets, Drawings, Survey Data, Specifications, Addenda, Permits, Change Orders, Field Orders, Work Change Directives, Submittals, Laboratory Data, Photographs and written interpretations and clarifications, in good order and annotated to show all changes made during construction. These Record Documents shall be available to the Engineer, Owner, and NYSDEC representative upon request.

B. During the course of the Work, Contractor shall maintain the following records up-to-date at the Project Site at all times, and shall submit the following documents to the Engineer prior to final Application for Payment:

1. General Records:

   a. Contractor's Daily Construction Reports.

   b. Daily Safety Meeting minutes or notes.

   c. Daily Pile Driving Logs.

   d. Settlement Monitoring Logs.

   e. Vibration Monitoring Logs.

   f. Soil Tracking Logs.

   g. Soil and debris disposal documentation (manifests, weight tickets, etc.).

   h. Health and Safety Incident (Accident) Reports and Near-Miss Reports.

   i. Hot Work Permits and Confined Space Entry Permits.

   j. Minutes of all other Contractor meetings.

   k. Progress Photographs and Videos.

2. Test and Laboratory Analytical Results: One copy of all test and analytical results.

3. Bills of Lading: One copy of all bills of lading for materials received.

4. Record Drawings: At the end of construction, the Contractor's surveyor shall prepare Record Drawings showing horizontal and vertical limits of the excavation areas; final grades and elevations; utilities including pipe invert elevations; site restoration including curb and pavement elevations; and other significant site features effected by or changed during construction. Record

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CONSTRUCTION PROGRESS DOCUMENTATION

Drawings shall contain all components and be prepared as specified in Specifications Section 01720 – Surveying.

C. At completion of the Project, the Contractor shall submit three electronic copies of all Record Documents to the Engineer.

1.08. PROGRESS SCHEDULE REVIEWS, ACCEPTANCE, UPDATES, AND REVISIONS:

A. The initial Progress Schedule and all updates submitted by the Contractor shall be reviewed with the Owner and the Engineer and shall be revised and resubmitted if they do not receive the Owner's or the Engineer's approval. The schedule shall be reviewed for:

1. A sequence of Work that satisfies the requirements of the Contract Documents and is reasonable and logical.

2. Activity durations, which are within an expected range, or can be justified by the Contractor to the satisfaction of the Owner and the Engineer.

B. This review shall not be construed as an assignment of responsibility of performance to the Owner or Engineer.

C. Contractor shall make all necessary revisions to the initial Progress Schedule based on the Owner's review and resubmit within 2 days of receipt of comments from the Owner.

1. After the Owner's review, Contractor shall use the Progress Schedule for planning, organizing, and directing the Work and reporting progress.

2. The Contractor shall bear sole responsibility for ensuring completion of the Work within the Contract Times.

3. The Owner's or Engineer's acceptance of any Progress Schedule shall not transfer any of the Contractor's responsibilities to the Owner or Engineer. The Contractor alone shall remain responsible for adjusting forces, equipment, and schedules to ensure completion of the Work within the time(s) specified in the Contract Documents.

D. Updates

1. Contractor shall keep the Progress Schedule current during the Project so that it is an accurate indication of Project progress. Updates shall include any Field Orders, Work Change Directives, Change Orders, and delays.

2. All updates should show progress compared to the project baseline schedule and include actual start dates.

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CONSTRUCTION PROGRESS DOCUMENTATION

3. Contractor shall update the Progress Schedule weekly to document the construction progress. Contractor shall submit the weekly update on the day of the weekly Project meeting. Failure to submit a weekly updated Progress Schedule shall be cause for withholding of progress payments until the update is received and reviewed. Updates shall include a detailed 3-week look ahead, providing day by day planned activities for the upcoming 3 week period.

4. Activity descriptions shall not be changed.

5. Any changes in the milestone dates must be approved, in writing, by the Engineer. Changes in milestone dates shall not cause an extension of the Project completion date without the execution of a Change Order.

E. Revisions:

1. In addition to weekly Progress Schedule Submittals, Contractor shall revise the Progress Schedule when additional Work, delays, or accumulations of causes indicate the Contract Times will be exceeded. Contractor shall submit a written statement describing the cause of the delay.

2. The Engineer shall require a revised Progress Schedule when it is apparent that the Contractor's schedule does not substantially match the actual progress and order of the Work as measured by:

   a. Accumulated delays, which are more than 5 percent of the allotted Contract Times, or 15 calendar days, whichever is less.

   b. Critical path activities (or activities restrained by critical path activities), which have been accomplished.

PART 2 – MATERIALS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 01330
SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Submittal Procedures

B. Requests for Information

C. Startup Submittals

D. Outline of Contractor's Technical Execution Plan

1.02 SUBMITTAL PROCEDURES:

A. Contractor shall prepare and transmit four copies of the following Submittals to the Engineer:

1. Contractor shall submit a Technical Execution Plan as discussed in this Section.

2. Contractor shall submit Contractor's Daily Construction Report electronically by 10:00 A.M. the next Working day as specified in Specifications Section 01320 – Construction Progress Documentation.

3. Contractor shall submit Applications for Payment as specified in Specifications Section 01290 – Payment Procedures.

4. Contractor shall submit quality control reports and data as specified in other Sections of the Specifications.

5. Contractor shall submit weekly revisions and updates of Progress Schedule and Technical Execution Plan as required by the Engineer.

6. Contractor shall submit weekly Health and Safety reports, as specified in Specifications Section 01415 – Health and Safety Requirements.

B. Each submittal will be reviewed and returned with one of the following Classifications:

1. Approved: No exceptions taken; Contractor may proceed with the work.

2. Approved As Noted: Contractor may proceed with the work subject to the comments and/or notes on the Submittal. Resubmittal is not required.

3. Revise and Resubmit: Contractor may not proceed with the work. Resubmittal is required for certain items.

SECTION 01330
SUBMITTAL PROCEDURES

C. Contractor shall transmit each Submittal to the Engineer at the Project Site.

D. Contractor shall provide four copies of each submittal (except dailies) to the Engineer.

E. Contractor shall submit carbon copies (with all signatures affixed) of all waste manifests, weigh tickets, and other shipping documentation.

F. Contractor shall transmit each Submittal with a cover letter signed by Contractor's Project Superintendent. Contractor shall, by signing each Submittal, certify that Contractor has reviewed the Submittal, and that the submitted information conforms to the requirements of the Work and these Specifications.

G. Contractor shall sequentially number the transmittals (e.g., Submittal No. 001). Contractor shall number revised Submittals with original number and a sequential alphabetic suffix (e.g., Submittal No. 001a).

H. Each Submittal shall include Project title, Contractor, Subcontractor or Supplier, title of Submittal, Specifications Section number and, if applicable, Drawing number.

I. Submittals that do not conform to the requirements of the Specifications shall be returned with a notation of deficiencies. Contractor shall revise to correct noted deficiencies and resubmit. When revised for resubmission, Contractor shall identify all changes made since previous submission.

J. Submittals not required by the Specifications shall not be recognized or processed.

1.03 REQUESTS FOR INFORMATION:

A. Contractor shall submit all Requests for Information to the Engineer in writing. Requests for information shall be numbered sequentially and shall include the related Specifications Section number or Drawing number.

B. The Engineer will provide any revisions to the Specifications or Drawings in writing.

C. Contractor shall request written confirmation of any interpretations or clarifications provided verbally by the Engineer.

1.04 STARTUP SUBMITTALS:

A. This paragraph specifies Submittals that Contractor shall prepare and transmit prior to commencing the Work at the Project Site. Additional Submittals are specified in other Sections of these Specifications.

1. Contractor shall submit the initial Progress Schedule as specified in Specifications Section 01320 – Construction Progress Documentation.

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SUBMITTAL PROCEDURES

2. Contractor shall submit the Contractor's HASP as specified in Specifications Section 01415 – Health and Safety Requirements, including documentation of worker's OSHA training and medical monitoring and the name and qualifications of the full-time Site Safety and Health Officer.

3. Certain parts of the Work are performance-based, requiring Contractor to provide detailed written information for review, comment, and approval by the Engineer and/or Owner, regarding the means and methods proposed by Contractor to execute the Work. Contractor shall submit a draft Technical Execution Plan, conforming to the outline specified in Subsection 1.05 of this section, for the Owner's and/or Engineer's review and comment as part of the bid documents. Contractor shall revise the draft Technical Execution Plan as requested by the Owner and/or Engineer and submit a final Technical Execution Plan, subject to the Owner's and/or Engineer's review, approval, and acceptance, prior to commencing Work. Any material changes in the Work, process, staffing, major equipment or materials will require a TEP amendment and review and approval by the Owner and/or Engineer.

4. Contractor shall provide for Engineer's approval the name and qualifications for Subcontractors providing any laboratory, analyses, geotechnical, or surveying services as required in the Specifications and/or contract documents. Such approvals shall not be unreasonably withheld.

1.05 OUTLINE OF CONTRACTOR'S TECHNICAL EXECUTION PLAN:

A. Requirements of the Technical Execution Plan are described throughout the technical specifications, however it shall at a minimum include the following sections:

1. Section A: Project Coordination.

   a. Resume of Project Superintendent(s).

   b. Identification of key personnel.

   c. Detailed Project staffing plan showing staffing levels for each task and phase of Work, along with any plans for shift Work.

   d. Detailed list of proposed subcontractors, including truckers, disposal facilities, and grout walls.

   e. List of major Equipment, Systems, and Material, other than listed in Bid Form Schedule E.

   f. List of Permits and Approvals to be obtained by Contractor, including contact names, titles, and phone numbers.

2. Section B: Progress Schedule.

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SUBMITTAL PROCEDURES

a. Contractor's initial Baseline Progress Schedule, based on the Construction Milestones listed in Bid Form Schedule F.

3. Section C: Construction Facilities and Temporary Controls.

   a. Locations, sizes, and requirements for utility services.

   b. Layout of Support Zone and other Work Zones, including Decontamination Zone.

   c. Proposed design for Site Access Road.

   d. Proposed design of Decontamination Stations.

   e. Decontamination Methods and Equipment.

      i. Procedures to prevent contamination of clean areas.

      ii. Vehicle decontamination and inspection procedures.

      iii. Procedures for collection, treatment, and disposal or discharge of decontamination residuals and used PPE.

4. Section E: Dewatering

   a. Provide a detailed description of System to be used.

   b. Provide calculations to verify pumping capacity.

   c. Provide a sketch of the system with components and tie-in locations.

5. Section F: Grout Wall

   a. Description and specifications of grout wall installation, equipment, and processes.

   b. Grout Wall Layout Drawing showing the configuration and layout of the Grout Wall.

   c. Site map showing the proposed layout and pattern.

   d. Methods for determining and verifying the coordinates, elevations and depths of the grout holes.

   e. Tables showing installation depth, northing and easting, and reference vertical and horizontal datum.

   f. Proposed grout reagents and design mix proportions.

   g. Methods of controlling and mitigating exhaust, dust, and odor emissions and noise levels generated from the grouting equipment.

   h. Methods for transporting, storing, protecting, and handling reagents, including controls and mitigation for dust and noise.

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i. Detailed description and procedures for preparing reagent batch mixes, including methods to prepare and measure reagents to verify and document proper reagent mix proportions.

j. Detailed description of a field test (Demonstration Test) to demonstrate that the proposed equipment and methods can successfully install grout to the specified depths.

k. Total estimated quantity of grout required for the Work.

l. Detailed grouting procedures and sequencing.

m. Contact water management, treatment and disposal procedures.

n. Estimated schedule for completion of the Work.

o. Wash out and grout disposal facilities and practices.

p. Any proposed deviations from the Specifications and Drawings.

q. Spill control measures.

r. Erosion control measures.

s. Quality Control sampling methods, standard operating procedures, personnel, and equipment.

t. Resumes for key personnel assigned to conduct the Work, including Project Superintendent; grouting rig operator, other equipment operators, supervisory engineering staff, and other technical staff.

u. Equipment manufacturer's specifications and description.

6. Section G: Vertical Barrier Walls

a. Site preparation, construction of working areas, etc.

b. Pile driving methods and tools, including cranes, vibratory hammers and other construction equipment including driving frame. Provide complete description of pile hammer(s), including manufacturer's name, model number, operational characteristics, rated energy, age, date(s) of last overhaul, etc.

c. Pile driving templates and guide structures.

d. Sequence of installation.

e. Sheet pile driving hammer(s), including Wave Equation Analysis to evaluate sheet pile driving stresses and drivability.

f. Quality Control, including procedures for maintaining alignment, plumbness, and wall continuity.

7. Section H: Excavation and Backfill.

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a. Detailed description of equipment and procedures to be used to excavate impacted soils and subsurface structures.

b. Detailed description of excavation and backfill sequencing to minimize dewatering flows to the construction water treatment systems.

c. Schedule for installation and operation of dewatering systems, including table showing coordination of dewatering systems with excavation.

d. Excavation production rates in the form of a table of excavation volumes per week for each week of the Project Schedule. In the same table, show the estimated quantities of off-site transportation and the quantities of materials in stockpile.

e. Figures showing locations of temporary on-site haul roads to support the progress of the excavation Work.

8. Section I: Stockpile Management and Loading.

a. Provide a Drawing showing the proposed layout of the stockpile area, including locations of stockpiles for Clean Material, Impacted Material, and Material to be tested. Show on-site truck routes, unloading areas for excavated soil, and loading areas for off-site transportation.

b. Methods and facilities for managing stormwater run-on, runoff from stockpile areas, and water drained from saturated Impacted Soils.

c. Truck loading areas, staging areas for incoming empty trucks.

d. Coordination of excavation, stockpiling, and loading.

9. Section J: Off-site Transportation.

a. Provide names and qualifications of proposed transporters and number of vehicles dedicated to the project.

b. Provide an estimate, by day, of the expected quantities of material to be shipped from the site. Describe the number of trucks to be used, the expected turn-around-times, and the expected number of trips per day.

c. Describe locations and procedures for staging and sequencing trucks to minimize disruption and obstruction of the area around the site.

d. Describe locations and equipment to be used to weigh haul trucks. Include frequency for obtaining true weight of trucks.

e. Provide a Traffic Control Plan showing how trucks will enter and exit the site, the location of flaggers and signs, truck driver orientation and acceptance forms that shall include truck driver responsibilities as specified in the Transportation Plan, designated haul route to and from

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the off-site disposal facilities with posted speed limits, warnings, etc., and incident reporting procedures for trucking related incidents.

f. Provide a plan for verifying the accuracy of weight scales.

10. Section K: Disposal Facilities

a. Detailed description of disposal facilities to be used and their daily capacities

11. Section L: Site Restoration.

a. Describe proposed procedures and equipment and materials to be used to restore disturbed areas. Provide a description of proposed method for the following:

i. Placing clean backfill.

ii. Replacing asphalt.

iii. Replacing curb and sidewalk.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not Used.

END OF SECTION

SECTION 01415
HEALTH AND SAFETY REQUIREMENTS

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Summary

B. References

C. Contractor's Responsibility for Health and Safety

D. Submittals

E. Notifications

F. Equipment and Facilities

G. Personal Protective Equipment

H. Other Health and Safety Equipment

I. Training

J. Work Planning and Meetings

K. Engineering Controls

L. Monitoring

M. Evaluation of Performance

N. Report of Incident Form

O. EHS Opportunity or Near Miss Report Form

P. Hot Work Permit Form

Q. Job Safety Analysis

R. Safety Task Analysis Review (STAR) Form

SECTION 01415
HEALTH AND SAFETY REQUIREMENTS

1.02 SUMMARY:

A. This Section includes Specifications and requirements for Health and Safety during performance of Work, including identification of applicable regulations, submittals, notification requirements, and Health and Safety execution.

1.03 REFERENCES:

A. Applicable regulations and publications include, but are not limited to, the following:

1. OSHA, Title 29 CFR Part 1910, Occupational Safety and Health Standards, and Title 29 CFR Part 1926, Safety and Health Regulations for Construction Sites.

2. NFPA, Flammable and Combustible Liquids Code, NFPA 30, most recent revision.

3. USEPA, Standard Operating Safety Guidelines, November 1984.

4. DHHS, "Manual of Analytical Methods", 3rd edition Volumes I and II, DHHS (NIOSH) Publication 84-100.

5. ANSI, Practices for Respiratory Protection, Z88.2, most recent version.

6. ANSI, Emergency Eyewash and Shower Equipment, Z358.1, 1981.

7. ANSI, Protective Footwear, Z41.1, 1983.

8. ANSI, Respirator Use Physical Qualification for Personnel, Z88.6, 1984.

9. ANSI, Practice for Occupational and Educational Eye and Face Protection, Z87.1, 1979.

10. NIOSH/OSHA/USCG/USEPA, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, DHHS/PHS/CDC/NIOSH, October 1985.

11. NIOSH Pocket Guide to Chemical Hazards, DHHS/PHS/CDC/NIOSH, June, 2000 or most recent.

12. USEPA, Health and Safety Requirements for Personnel Engaged in Field Activities, USEPA Order No. 14402.

13. DOT Standards and Regulations, 49 CFR 171 and 49 CFR 172.

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HEALTH AND SAFETY REQUIREMENTS

14. ACGIH, Threshold Limit Values and Biological Exposure Indices (most recent version).

15. Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, EPA/600/4-87-006, September 1986.

B. Where two or more regulations/documents conflict, the one(s) offering the greatest degree of protection shall apply.

1.04 CONTRACTOR'S RESPONSIBILITY FOR HEALTH AND SAFETY:

A. Contractor shall comply with any and all state, federal, and local ordinances and Regulations.

B. Contractor shall be responsible for the Health and Safety of Contractor's employees, its Subcontractors, suppliers, agents, inspectors, visitors, the general public, and any others associated with or interacting with Contractor who provides labor, goods, or other services on the Project Site.

C. Contractor shall be responsible for emergency response planning and notification, and for actual response to any and all emergencies that may occur during the course of the Work, including emergencies that may occur when Contractor is not present at the Project Site.

D. Contractor is responsible for communicating daily with the Engineer regarding Health and Safety issues for the Owner Representatives safe conduct of the Owner Representatives duties, but such communication shall not imply any duty or responsibility on the part of the Engineer or Owner with regard to Health and Safety of Contractor's employees, its Subcontractors, suppliers, the general public, or Others. The Engineer's and Engineer's responsibility and duty with regard to Health and Safety shall be limited to the Engineer's and Engineer's employees. Contractor shall have responsibility and duty to the Engineer to communicate Health and Safety issues accurately and in a timely manner to allow the Engineer to take appropriate actions to protect the Engineer's, Engineer's employees and the Owner's employees.

E. Contractor shall designate a dedicated Contractor's SSHO on the site during the Work who shall, at a minimum, have at least 4 years of experience as an SSHO on an uncontrolled hazardous waste site, and have 40-hour OSHA Hazardous Waste Operations training and 8-hour OSHA Supervisor training. Contractor's SSHO shall be solely dedicated to Health and Safety issues from the start of the site activities through completion.

F. The SSHO shall enforce the requirements of safety for all Contractor personnel on site at all times. The SSHO shall ensure that all Contractor personnel, Subcontractor personnel, and Contractor visitors, follow the HASP, including wearing the designated level of PPE.

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HEALTH AND SAFETY REQUIREMENTS

If the SSHO elects to require a higher level of protection than that specified in the HASP, the extra costs associated with such higher level shall be borne by Contractor, unless such extra costs are approved in advance in writing by the Engineer.

G. Prior to mobilization and continually through the duration of the Work, the SSHO shall inspect the Project Site and document area-specific and worker-specific protection requirements.

H. After mobilization, the SSHO shall monitor activities and shall document the need for additional worker protection as required, based on activities performed and Action Levels specified in the HASP.

I. The SSHO shall verify that all activities are performed in accordance with the HASP and all federal, state, local, and Health and Safety standards, regulations, and guidelines.

J. In the event of a health or safety risk, as determined by the SSHO or by other Contractor personnel or by the Engineer, Contractor shall not proceed with the Work until a method for handling the risk has been determined in consultation with the Engineer and implemented. Any health or safety risk resulting in a stoppage of Work shall be reported immediately to the Engineer.

K. Contractor shall be responsible for implementing a "Behavior Based Safety" process and providing site training, observation, and feedback for Contractor personnel employed at the site.

L. Contractor shall be responsible for stability of excavations and embankments caused by the Contractor's Work. Contractor shall designate one competent person as defined in 29 CFR Part 1926, Subpart P, Excavations, to inspect and document excavation safety conditions daily, and to ensure excavation safety prior to any personnel entering an excavation.

M. Contractor shall designate one competent person (e.g., crane operator), certified in crane operations, to inspect and document safe crane operation daily, and to ensure safety of crane operation prior to start of slurry wall installation activities.

N. The Engineer shall provide the Contractor with a copy of the Engineer's HASP as a reference.

1.05 SUBMITTALS:

A. Contractor shall prepare and submit a HASP to the Owner as a part of the Technical Execution Plan. The Contractor shall follow all applicable local, state, and federal Health and Safety standards, regulations, and guidelines implemented through, but not limited to, the OSHA, NIOSH, ACGIH, and USEPA. Where these are in conflict, the most

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HEALTH AND SAFETY REQUIREMENTS

stringent requirement shall be followed. The following points shall be addressed in the Contractor's HASP:

1. Names of key personnel and alternates responsible for Health and Safety, including a Contractor Health and Safety Representative and SSHO. The Owner must approve the SSHO.

2. A Health and Safety risk or Job Safety Analysis (JSA) associated with each portion of the Work (i.e., list potential chemical and physical hazards), including JSHAs for excavation work around active utilities, excavation safety, crane operation safety, slurry wall work, and truck traffic into and out of the site.

3. Employee and Subcontractor training assignments to assure compliance with 29 CFR 1910.120.

4. A requirement that Contractor locate Underground Facilities by using "Safe Dig" procedures prior to the start of the Work.

5. Personal protective equipment (PPE) to be used for each of the site tasks and operations being conducted, as required by the PPE program in 29 CFR 1910.120 and 29 CFR 1926.

6. Medical surveillance requirements in accordance with the program in 29 CFR 1910.120.

7. Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used by the Contractor, including methods of maintenance and calibration of monitoring and sampling equipment.

8. Corrective actions and upgrading of personnel protection based on monitoring of air, personnel, and environmental sampling, with specific Action Levels identified.

9. Site control measures in accordance with the control program required in 29 CFR 1910.120 and 29 CFR 1926.

10. Decontamination procedures in accordance with 29 CFR 1910.120 and Specifications Section 02130 – Decontamination.

11. An emergency response plan meeting federal, state, and local requirements for safe and effective responses to emergencies, including the necessary PPE and other equipment. Explanation of potential emergencies and contingency plan of action, including description of the route to the nearest appropriate hospital, hospital route map, and posting of emergency telephone numbers at the site.

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12. If confined space entry is required, include confined space entry procedures in accordance with 29 CFR 1910.146, and a list of all anticipated confined space entries required by Contractor in the course of the Work.

13. A spill containment program meeting the requirements of all applicable local, state, and federal Health and Safety standards.

14. A list of Health and Safety and emergency equipment available on the site.

15. A description of engineering controls used to reduce the hazards of equipment operation and exposure to site hazardous chemicals.

16. An air monitoring plan describing the method, type, frequency, locations of air monitoring, laboratories, and type of analysis to be performed at the Work area for the purpose of employee safety.

17. Open trench excavation procedures in accordance with applicable OSHA Regulations.

18. Procedures for earthwork near buried utilities, where hand digging should be performed within 24 inches of known utility lines unless more stringent requirements are specified by law, Regulation, or the affected utility.

19. Lockout/Tagout where the operation of machinery and/or equipment in which the unexpected energization on start up or the release of stored energy could cause injury to personnel.

B. Contractor's Daily Construction Report, submitted in accordance with Specifications Section 01320 – Construction Progress Documentation, shall include a summary of daily safety issues and a summary of Contractor's Daily Safety Meeting.

C. Contractor shall submit weekly safety reports that include:

1. The names of all Contractor and Subcontractor personnel employed at the site at any time during the month, and the names and duties of key personnel including Contractor's Project Manager, Project Superintendent, SSHO, excavation-competent person, and crane operation-competent person.

2. A summary of all Health and Safety incidents describing any medical treatment that was provided during the month, the current Work status of any individuals affected the names of individuals who may have observed the incident, and actions taken by Contractor to address the unsafe act or unsafe condition.

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3. A summary of all Health and Safety near-misses or observations providing an opportunity for shared learning and future hazard avoidance. For any Health or Safety incident or near-miss, list the date, the nature of the incident or near-miss, and the names of individuals involved. A near-miss form for use in submitting near-misses is attached to this Section.

4. The total number of labor hours worked at the site during that month.

5. Internal Health and Safety audits performed by the Contractor as part of the Contractor's HASP.

6. Results of Contractor behavioral observation and feedback evaluations as described in the Engineer's HASP.

D. Prior to initiating Work, Contractor shall provide the Engineer with documentation of employee and applicable Subcontractor training and medical certifications required by 20 CFR 1910.120 as described in 3.01A of this Section.

E. Contractor shall submit documentation of training and experience for the designated excavation-competent person and crane operation-competent person.

F. Contractor shall maintain all required and applicable training and medical monitoring records on-site including, but not limited to those specified in Part 3.01 (A) of this Section.

G. Contractor shall submit a Hot Work Permit, using the form attached to this Section, for any welding, torch cutting, or activities that generate sparks. Proximity to any ignitable or combustible liquids including MGP waste such as NAPL or tar shall be accounted for and precautions and setbacks shall be provided for prior to issue of permit.

H. Contractor shall conduct a JSA for significant activities and submit the documentation to Engineer for review prior to the start of the activities. Contractor's JSA shall be submitted on the JSA forms attached to this Section, or other form acceptable to the Engineer.

I. Contractor shall submit copies of all periodic crane and drill rig inspections completed.

1.06 NOTIFICATIONS:

A. Contractor shall immediately (within 30 minutes) verbally report to the Engineer the occurrence of any and all Health and Safety incidents. An Incident Report or Near-Miss Report forms as appropriate, which are attached to this Section, shall be submitted within 24 hours of occurrence of the incident or issue.

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B. Contractor shall immediately and fully investigate any such incident or near miss and conduct a root cause analysis, and shall submit to the Engineer, the Contractor's written corrective action plan for such incident within one day after the incident occurs in accordance with Specifications Section 01330 – Submittal Procedures.

C. Contractor shall notify the Engineer in writing at least 5 days prior to bringing any hazardous material, equipment, or process to the site, or using the same on the site. Contractor shall provide the Engineer with a MSDS for all chemicals brought on to the site.

D. Contractor shall immediately notify the Engineer in writing of any hazard that Contractor discovers or observes on the site and corrective measures planned or taken to eliminate or minimize such hazard. Hazard reporting will be completed as a Near Miss Report as described in Subsection 1.05C.3 of this Section.

PART 2 – PRODUCTS

2.01 EQUIPMENT AND FACILITIES:

A. Contractor shall provide all equipment, temporary facilities, and personnel required to perform activities on site safely in accordance with all Regulations and standards, and with the Contractor's HASP.

2.02 PERSONAL PROTECTIVE EQUIPMENT:

A. The appropriate level of PPE shall be determined by the Contractor for specific tasks as described in the Contractor's HASP. If hazards are identified that require a level of protection greater than Level C, Work shall be suspended and the Engineer notified. The Contractor's SSHO, in consultation with the Engineer, shall determine what actions are required prior to restarting Work. Contractor shall determine and document the appropriateness of suggested minimum PPE requirements for Contractor's employees and others at the site.

B. Contractor shall furnish and maintain materials and equipment for the Health and Safety of Contractor employees, its Subcontractors, suppliers, and visitor personnel. Contractor shall provide all required Health and Safety equipment, first aid equipment, tools, monitoring equipment, PPE, and ancillary equipment and methods required to ensure workers' Health and Safety and to comply with the Contractor's HASP. The Engineer will furnish PPE and monitoring for Engineer's employees and Owner's employees.

C. Level D protection will be required at all times while on site by all personnel and visitors on the site, except in Support Zone areas. Level D PPE consists of:

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1. Hard hat.

2. Steel-toed boots.

3. Safety glasses with permanent side shields.

4. Work clothes (long pants, shirts with sleeves).

5. Work gloves.

6. High visibility reflective safety vests.

7. Hearing protection (as needed to prevent exposure exceeding 85 dB level).

D. If additional protection consisting of Level C PPE is required during the Work, Level C PPE shall include protection from organic compounds and consist of Level D protection with the following additions:

1. Air purifying respirator, half-face or full-face (depending on required protection factor) with organic vapor/High Efficiency Particulate Air cartridges meeting NIOSH/Mine Safety and Health Administration Specifications.

2. Disposable poly-coated chemically protective coveralls (blue or grey).

3. Disposable chemically resistant outer gloves (nitrile).

4. Disposable chemically resistant inner gloves (nitrile).

5. Chemically resistant, steel-toed, and steel-shank boots (PVC, neoprene, or nitrile), or outer booties.

E. In most cases, Level C will be the maximum allowed level of PPE. Level B may be allowed provided that personnel are properly trained and certified and exposure levels are below immediately dangerous to life and health (IDLH) conditions.

2.03 OTHER HEALTH AND SAFETY EQUIPMENT:

A. Contractor is required to have the following equipment available on the site for the Health and Safety of Contractor, Subcontractors, suppliers, and visitors:

1. First aid kits.

2. Fire suppression equipment (appropriate to location and type of flammable materials present).

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3. OSHA-approved emergency eyewash facilities.

4. Personnel decontamination facilities and equipment.

5. Other equipment or supplies as determined to be necessary or prudent by Contractor or the Engineer.

6. Flammable liquids storage cabinet, if necessary.

7. Fall protection equipment.

8. Heavy Blankets.

PART 3 – EXECUTION

3.01 TRAINING:

A. Contractor shall provide the following training to each worker except those who will be restricted to the Support Zone:

1. Initial 40-hour (or 80-hour where appropriate) OSHA hazardous waste Health and Safety training and current annual 8-hour refresher training.

2. Eight-hour OSHA hazardous waste supervisory training (required for the Contractor's Superintendent and SSHO).

3. Enrollment in a medical monitoring program, with clearance within the previous 12 months from a licensed physician allowing the worker to participate in field activities and use respiratory protective equipment. Contractor shall not submit detailed medical information for employees.

4. Current respiratory fit testing certification.

5. Current cardiopulmonary resuscitation (CPR) and first aid certification for at least two workers assigned to Work on the site.

6. For one who is assigned the role of a "competent person," documentation of sufficient and relevant training and experience to perform the assigned duties and responsibilities of that role. As defined in 29 CFR 1926.31, the competent person shall be "one who is capable of identifying existing and predictable hazards, and who has authority to take prompt corrective measures to eliminate them." Relevant training and experience shall be in the same type of Project activities included in the Work under this Contract.

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B. Contractor shall designate one "competent person" as defined in 29 CFR Part 1926, Subpart P, Excavations, to inspect and document excavation safety conditions daily, and to ensure excavation safety prior to any personnel entering an excavation.

3.02 WORK PLANNING AND MEETINGS:

A. Contractor shall conduct a daily Health and Safety meeting, prior to beginning Work for that day, to address Health and Safety issues, changing site conditions, activities and personnel. All Contractor and Subcontractor employees working on the site on that day shall attend the meeting. All meetings shall be documented and attendees shall sign acknowledgement of their presence at the meeting. Daily meetings shall include a STAR evaluation of the Work to be conducted and to document meeting attendance and discussion points. The STAR evaluation and daily safety meeting shall be documented on STAR forms, which are attached to this Section.

B. Subcontractor personnel who are not in attendance for the daily Health and Safety meeting shall be briefed on the meeting notes upon arrival at the site and prior to commencing their Work activities. Employees shall sign acknowledgement of briefings prior to commencing Work.

C. Contractor shall hold and document additional safety meetings at the start of each major task and whenever site conditions affecting personnel safety change. Any major task undertaken shall require the completion of a JSA as described in 1.05G of this Section.

3.03 ENGINEERING CONTROLS:

A. Contractor shall, at a minimum, provide the following engineering controls to reduce the hazards of equipment operation and exposure to site hazardous chemicals:

1. Roll-over cages for bulldozers, back hoes, loaders, and tractors.

2. Back-up alarms for all trucks and moving equipment.

3. Wetting of soil or other means to control dust during the Work.

4. Decontamination of personnel and equipment in accordance with Specifications Section 02130 - Decontamination.

5. Barricades for open trenches and excavations.

6. Sloping, benching, shoring, drainage systems, or other controls as necessary to ensure stability of excavations and embankments.

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7. Providing a dedicated flag person or persons to manage truck traffic along and into and out of the site.

8. Provide odor, vapor, and dust emission control as specified in the CAMP and as directed by the Engineer.

9. Others as determined to be necessary or prudent by Contractor or as directed by the Engineer.

B. Contractor shall post ground level warning signs every 50 feet below all overhead utilities on site.

3.04 MONITORING:

A. Contractor shall perform heat exposure and cold exposure monitoring activities as required by weather conditions.

B. The Contractor shall perform all air monitoring activities described in the Contractor's HASP required to provide Health and Safety protection to the Contractor's and Subcontractor's personnel.

C. The Site Perimeter Community Air Monitoring shall be conducted by Others.

3.05 EVALUATION OF PERFORMANCE:

A. Contractor shall routinely conduct internal safety audits on Subcontract and Sub-subcontract Work sites in accordance with the Contractor's HASP. The focus of these routine audits will be on compliance with OSHA and local occupational safety regulations.

END OF SECTION
HEALTH AND SAFETY FORMS FOLLOW

SECTION 01415
HEALTH AND SAFETY REQUIREMENTS

REPORT OF INCIDENT

1. Seek immediate medical attention if necessary.
2. Employee must report all incidents to their supervisor immediately.
3. Supervisor calls the onsite project Engineer's representative.

Section 1 - Organization Information

District:	Section/Dept Number:
Office Name:	
Client Name:	Project Number:
Project Name:	

Section 2 - Type of Incident (SRI Sections to be Completed)

☐ Injury/ illness (Sections 3, 4, and 7)	☐ Vehicle Incident (Sections 3, 4, 5, and 7)	☐ Property Damage (Sections 3, 4, 6 and 7)	☐Environmental Spill/Release (Sections 3, 4, and 7)
☐ Regulatory Inspection or Notification: (Sections 3, 4,7)			☐ Other (describe)

Section 3 – Contact/Incident Information

Employee/Claimant Name:	Employee Job Title:	☐ Full-Time Employee ☐ Subcontractor/Subconsultant ☐ Temp Agency Employee ☐ Part-Time Employee ☐ Third Party Employee	
Work Phone:	Cell Phone:	Home Phone:	Employee Number:
Date/Time of Incident:		Date/Time Reported to Supervisor:	
Street Address of Incident or approximately:		City:	State/Zip:
Body Part Injured:		Type of Treatment: Medical/hospital or doctor ☐ First Aid Only ☐	
Medical Facility Contact Info: (Name, Address, Phone)			

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Section 4 - Descriptions of Incident *(employee, supervisor and witness statements)*

Employee Description of Incident: (use additional paper if necessary)	
Employee Signature:	Date and Time:

Supervisor Description of Incident: (Supervisor signs in Section 7) (use additional paper if necessary)		
Witness Name :	Witness Address:	Witness Phone No.:
Witness Description of the Incident: (use additional paper if necessary)		
Witness Signature:		Date and time:

SECTION 01415
HEALTH AND SAFETY REQUIREMENTS

Section 5 - Vehicle Incident Information (fill out for motor vehicle incidents only)

5a - Driver Name:		Drivers License #:		State Issued:	Expiration Date:
Vehicle Year:	Make:	Model:	Color:	License Plate:	State:
VIN Number:					
Vehicle was: ☐ Owned ☐ Leased ☐ Rented ☐ Personal Vehicle			Who was involved? ☐ Vehicle(Section 5a) ☐ Another Vehicle(Section 5b) ☐ Pedestrian ☐ Property		
Use of Vehicle at Time of Incident: ☐ Office Visit ☐ Site Visit ☐ Client Meetings ☐ Field Work ☐ Personal ☐ Other_____				Vehicle Type: ☐ Commercial Motor Vehicle ☐ Non Commercial Motor Vehicle	
5b - Name of Other Driver:			Address:	City:	State/Zip:
Work Phone:			Cell Phone:		
Date of Birth:	Drivers License #:		State Issued:	Expiration Date:	
Vehicle Year:	Make:	Model:	Color:	License Plate:	State:
VIN Number, Insurance Company Name, Insurance Policy Number:					
If Vehicle Owner is different from driver then complete owner's contact information			Owner Name:		
			Address, City, State, Zip:		
			Work Phone:	Cell Phone:	
Authorities contacted? ☐ Yes ☐ No			If so, who responded?		
Citations Issued? ☐ Yes ☐ No			Type of Citation:	Person Cited:	

SECTION 01415
HEALTH AND SAFETY REQUIREMENTS

Section 6 - General Liability (*Fill out for property damage only*)

Description of damaged property:	
Where can the property be seen?	
Property Owner Name:	
Address, City, State, Zip:	
Work Phone:	Cell Phone:

Section 7- Signatures

Supervisor

Print Name:	Signature:	Date:	Telephone:

Office/Location Manager

Print Name:	Signature:	Date:	Telephone:

NYSEG Project Manager

Print Name:	Signature:	Date:	Telephone:
Comments:			

Attention: This form must be completed and forward to the NYSEG Project Manager within one (1) business day following the occurrence of the incident.

SECTION 01415
HEALTH AND SAFETY REQUIREMENTS

EHS OPPORTUNITY OR NEAR MISS REPORT

Reported by: _____ Incident Date/Time: _____

Date Reported: _____ Site Location: _____

Report Type (check one):

☐ EHS Opportunity (*suggestion for improvement, good EHS idea to share, or EHS observation*)
☐ EHS Near Miss (*event that could have resulted in an incident under different circumstances)*

Event Description:

Describe key aspects such as the operation in progress, worker experience, potential outcome of event, and any contributing conditions. Use additional sheets as necessary.

_____
_____
_____
_____
_____

Hazard Category (check all that apply):

☐ Slip/trip/fall ☐ Traffic/vehicle ☐ Plant/Animal
☐ Chemical ☐ Electrical ☐ Faulty equipment
☐ Weather ☐ Not following procedures ☐ Fire
☐ Improper PPE ☐ Improper body position/tool use
☐ Other: _____

Possible Outcome (check all that apply):

☐ Injury/illness ☐ Property damage ☐ Environmental release

Were you able to correct the problem?

☐ Yes ☐ No If no, whom did you inform:_____ ☐ N/A

Potential Outcome if Circumstances Occurred:

_____
_____
_____

Corrective Action Taken:

_____
_____
_____

SECTION 01415
HEALTH AND SAFETY REQUIREMENTS

HOT WORK PERMIT

Permit Valid For 1 Work Day

Site Name:_____ **Project Number**:_____

EHS Officer:_____ **Client**:_____

Hot Work Description:_____

_____

_____

Workers/Welders Conducting Hot Work:_____

Permits MUST be completed in its Entirety Before Hot Work Begins

	Yes	No
Has Project supervisor been notified of intended Hot Work?		
Does client representative need to be notified of the intended Hot Work?		
Will Hot Work impact the general public, clients, or operation employees?		
Will the intended Hot Work need to be coordinated with other contractors who may be working on the site to make them aware of any hazards and the scope of work to be performed?		
Have hazardous energy sources been identified, isolated, and locked out/tagged out before the start of the Project?		
Will Hot Work be conducted within a confined space?		
All testing equipment (i.e., CGI, oxygen meter, etc.) and firefighting equipment (i.e., extinguisher, etc.) have been checked to ensure proper operation and calibration before the start of this Project?		
Has a fire watch been designated and on station?		
Have coatings on metal surfaces been tested for ignitability and flame spread?		
Has the area been cleared of all flammable materials?		
Have all fuel sources been identified and protected?		
Has the area been restricted with proper barriers and signs?		
Has the area been tested to be certain that atmosphere is 0% LEL before starting Hot Work?		
Have flame sensitive areas and equipment (including cylinders and gas delivery lines) exposed to slag and sparks been protected by flame resistant blankets or removed from the area?		
Have all equipment and hoses been protected from falling metal structures and debris?		
Have escape routes been identified before starting work?		
Is ventilation equipment needed? Type needed:		

SECTION 01415
HEALTH AND SAFETY REQUIREMENTS

The Following Protective Equipment will be required:

	Yes	No		Yes	No
Welding Goggles/Shield Tint			Supplied Air Respirator		
Safety Boots			Head Protection		
Leather gloves			Safety Harness		
Hearing Protection			Welding Leathers – Top		
APR Cartridge			Welding Leathers - Bottom		

Permit Valid for 1 Work Day

The following procedures will be applicable prior to Hot Work on tanks or other types of enclosed structures. (Check all that apply and fill in appropriate information.)

- ☐ Ventilate to 0% LEL
- ☐ Confined Space Entry Permit
- ☐ Mechanical Ventilation Required
- ☐ Cold Cut Only Method Allowed:_____
- ☐ Hot Cutting Permitted Method Allowed:_____

Inert to <_____% Oxygen

Approvals:

_____
Date

_____
Client Representative

_____
Contractor Site Safety Officer

_____
Fire Watch

_____
Performed Hot Work Employee

File Permit in Project Work File and Health and Safety Department

SECTION 01415
HEALTH AND SAFETY REQUIREMENTS

JOB SAFETY ANALYSIS

JSA Type: ☐ Investigation ☐ O&M ☐Office ☐ Construction	☐ New ☐ Revised	Date:
Work Activity:		
Personal Protective Equipment (PPE):		

Development Team	Position/Title	Reviewed By	Position/Title	Date

❶ Job Steps[1]	❷ Potential Hazards[2]	❸ Critical Actions[3]	STOP Stop Work Criteria

Page __ of __

SECTION 01415
HEALTH AND SAFETY REQUIREMENTS

Safety Task Analysis Review (STAR)
Task Description:

List Tasks:

Company:
Completed By:
Date:
Job Location:

List Additional Hazards (Hazards Not Shown with Check Box)

List Additional Controls (Controls Not Shown with Check Box)

Tailgate Meeting Topic

Signatures of Personnel on Task Analysis Review/Tailgate Meeting:

Mentor Assigned to Work

Lessons Learned (Based on changes in conditions, EHS Near- Incidents/ Observations, Potential Emergencies)
Is there a better/safer way to perform the work/task?

Supervisor Review (date/Time):

EHS Review (date/time):

Comments:

SECTION 01415
HEALTH AND SAFETY REQUIREMENTS

Identify Potential Hazards

☐ Abrasions
☐ Biological Hazards (Plants, Animals, Insects)
☐ Cave-in (Trench/Excavation Work)
☐ Chemical/Thermal Burn
☐ Cuts
☐ Dermatitis
☐ Dropping Materials/Tools to Lower Level
☐ Drowning/Flowing Water
☐ Dust
☐ Electrical Shock
☐ Elevated/Overhead Work
☐ Energized Equipment
☐ Fire
☐ Flammability
☐ Foreign Body in Eye
☐ Hazardous Materials (Exposure or Release)
☐ Heat or Cold Stress
☐ Heavy Equipment Operation
☐ Heavy Lifting
☐ High Noise Levels
☐ Impact Noise
☐ Inability to Maintain Communication
☐ Inclement Weather
☐ Overhead Work
☐ Overhead Utilities
☐Underground Utilities
☐ Pinch Points
☐ Pressurized Lines
☐ Slips, Trips, Falls
☐ Sprains/Strains
☐ Traffic
☐ Underground Utilities
☐ Confined Space
☐ New or Rental Equipment
☐ Surface Water Run-On/Run-Off
☐ Odor/VOC Emissions
☐ Compressed Gas Cylinders
☐ Generated Wastes (Solids/Liquids)
☐ Known/Unknown Visitors
☐ Visibility
☐ New Personnel
☐ Hoists/Rigging/Slings/Wire Rope
☐ Special Operations/Instructions (Attach)
☐ Ergonomics

Identify Controls

☐ Air Monitoring
☐ Barricades/Fencing/Silt Fencing
☐ Buddy System
☐ Appropriate Clothing/Monitoring of Weather
☐ Confined Space Procedures
☐ Decontamination
☐ Drinking Water/Fluids
☐ Dust abatement Measures
☐ Equipment Inspection
☐ Exclusion Zones
☐ Exhaust Ventilation
☐ Fall Protection
☐ Fire Extinguisher/Fire Watch
☐ Flotation Devices/Lifelines
☐ Grounds on Equipment/Tanks
☐ Ground Fault Interrupter
☐ Ground Hydraulic Attachments
☐ Hand Signal Communication
☐ Hazardous/Flammable Material Storage
☐ Hazardous Plant/Animal Training
☐ Hearing Protection (Specify)
☐ Hoses, Access to Water
☐ Hot Work Procedures
☐ Insect Repellent or Precautions
☐ Isolation of Equipment or Process (LO/TO)
☐ Stormwater Control Procedures/Methods
☐ Machine/Equipment Guarding
☐ Manual Lifting Equipment (Chain Falls)
☐ Protective Equipment (Specify)
☐ Proper Lifting Techniques
☐ Proper Tool for Job
☐ Radio Communication
☐ Respirator, (Specify Type)
☐ Safety Harness/Lanyard/Scaffold
☐ Sloping, Shoring, Trench Box
☐ Vehicle Inspection
☐ Spill Prevention Measures/Spill Kits
☐ Equipment Manuals/Training
☐ Emergency Procedures/Incident Management Plan
☐ Appropriate Labels/Signage
☐ Derived Waste Management Plan
☐ Visitor Escort/Orientation/Security
☐ Window Cleaning/Defrost
☐ Proper Work Position/Tools

Pre-Task Review (Yes/No/NA)

1. Has Job Hazard Analysis been completed and reviewed? _____
2. Is Job Scope understood by all Personnel? _____
3. Proper Safety Equipment on job site? _____
4. Permit Issued?
   What type?
   ☐ Hot Work ☐ Confined Space
   ☐ Excavation ☐ Other:_____
5. Proper Tools for Job on site? _____
6. Oxygen/Flammability checked? _____
7. Reviewed MSDSs for any hazardous substance that might be present? _____
8. Proper training for all personnel? _____
9. Are there any planned deviations from set procedures for equipment modifications? __ If so, contact supervisor to check applicability of MOC procedures.
10. Is there any work planned that could cause activation of emergency procedures? _____
    If so, have these procedures been discussed and communicated?

Post-Task Review

1. Work area cleaned up?_____
2. All locks and tags removed and signed off by individuals?_____
3. Have Permits been turned in? _____
4. STAR submitted to EHS Department? _____
5. Were there any unplanned deviations from set procedures or equipment modifications? _____
   If so, contact supervisor to check applicability of MOC procedures.

SECTION 01450
QUALITY CONTROL

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Submittals

B. Quality Control Organization

C. Contractor Responsibilities

D. The Engineer's Responsibilities

E. Storage and Protection

F. Materials and Equipment

G. Product Options

H. Substitutions

I. Laboratory and Testing Requirements

1.02 SUBMITTALS:

A. Contractor shall submit one copy of all testing results, quality control reports, and other quality control documentation to the Engineer. The documentation submitted shall be clearly marked as to whether or not the test results meet the requirements of the Specifications.

B. Contractor's Daily Construction Report, as required by Section 01320 – Construction Progress Documentation, shall include daily reporting of quality control information and issues.

1.03 QUALITY CONTROL ORGANIZATION:

A. Contractor's Project Superintendent shall be responsible for coordinating all quality control tests performed by Contractor during the Work, including testing of Work or materials of Contractors and Suppliers.

B. Contractor's Project Superintendent shall report directly to the Engineer with regard to quality control issues.

C. Corrective action shall be undertaken by the Contractor for all Work and test results that do not meet Specifications. Testing shall be repeated at Contractor's cost until

satisfactory results are obtained or Contractor shall correct the Work. The Engineer will determine when results are satisfactory. All results shall be made available to the Engineer for review.

1.04 CONTRACTOR RESPONSIBILITIES:

A. Contractor shall be responsible to obtain and pay for the services of independent laboratories or testing service companies to perform the following testing:

1. Quantitative field density testing and lab compaction testing to document compaction of Backfilling and Grading Work.

2. Geotechnical analysis of soil materials as required in Section 02300 – Backfilling and Grading.

3. Any other tests required by the Specifications or Change Orders.

B. Contractor's Project Superintendent shall control the Work to the extent necessary to achieve specified quality and ensure conformance with the Contract Documents.

C. Contractor's Project Superintendent shall receive testing results and shall ensure that appropriate corrections, including rework if necessary, are made by Contractor.

D. Contractor's Project Superintendent shall ensure that emissions of dust and odors do not exceed the applicable Action Levels described in the CAMP during performance of the Work, and shall take immediate corrective measures, including stopping work, whenever emissions or excessive odors are observed.

E. Contractor's Project Superintendent shall ensure that all materials meet the requirements of the applicable Specifications.

1.05 THE ENGINEER'S RESPONSIBILITIES:

A. The Engineer's control of the Work will include authority for on-the-spot stopping or slowing of Work if it does not conform to quality control or Specification standards. The Engineer's control of the Work will be through Contractor's Project Superintendent.

B. The Engineer will have authority to instruct Contractor to immediately stop work if dust emissions, excessive odors or vapors are detected at any time, or if, in the Engineer's opinion, there exists any imminent threat to the health or safety of any person. The Engineer's authority to stop the Work shall not relieve Contractor of the sole responsibility for observation and control of emissions, and for health and safety.

C. The Engineer will be responsible for reviewing all quality control data generated by the Contractor. The Engineer's review of data does not relieve Contractor of the responsibility to ensure that all Work conforms to the Specifications.

D. The Engineer will be responsible for any collection of samples and analysis of water for discharge.

1.06 STORAGE AND PROTECTION

A. Contractor shall:

1. Store and protect products and materials in accordance with manufacturers' instructions.

2. Store products and materials with seals and labels intact and legible.

3. Provide any necessary sheds or enclosures. Store sensitive products in weather-tight, climate controlled enclosures in an environment favorable to product.

4. For exterior storage of fabricated products, place on sloped supports above ground.

5. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

6. Provide personnel and equipment to remove products from delivery trucks.

7. Arrange storage of products to permit for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

8. Fuel storage and dispensing shall be per Section 01500.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Contractor shall provide all materials and equipment necessary for the Work unless otherwise specified.

2.02 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or descriptions will be acceptable.

B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications; no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions or Equal Products: Submit a written request for substitution for any manufacturer not named in accordance with the following article.

2.03 SUBSTITUTIONS

A. Contractor shall document each request for substitution with complete data substantiating compliance of proposed substitution with the requirements of the Contract Documents.

B. Request for substitution constitutes a representation that the Contractor:

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

2. Shall provide the same warrantee for the substitution as for the specified product.

3. Shall coordinate installation and make changes to other Work as may be required to make the Work complete, with no additional cost to Owner or the Engineer.

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

5. Shall reimburse the Engineer for review or redesign services associated with re-approval by authorities.

C. Substitutions will not be considered when they are indicated or implied on shop drawings or product data submittals, without separate written request, or when acceptance will require revision to the Construction Subagreement Documents.

D. Substitution Submittal Procedure:

1. Submit three copies of request for substitution. Each request shall be limited to one proposed substitution.

2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on the Subcontractor.

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

PART 3 - EXECUTION

3.01 LABORATORY AND TESTING REQUIREMENTS:

A. All laboratories and testing companies selected by Contractor shall be:

1. Certified by the State of New York, if certification for such testing is available.

2. Accepted by the Engineer prior to performing any analyses.

3. Organizations, independent from the Contractor and Subcontractors, unless prior written approval is received from the Engineer.

END OF SECTION

SECTION 01500
MOBILIZATION AND TEMPORARY FACILITIES

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Electric Service

B. Water Service

C. Temporary Sanitary Facilities

D. Traffic Control Signs

E. Work Zones

F. Enclosures and Fencing

G. Protection of the Work

H. Temporary Erosion and Sediment Controls

I. Haul Roads and Access Roads

J. Parking

K. Progress Cleaning and Waste Removal

L. Stockpile Areas

M. Field Offices and Sheds

N. Removal and Restoration of Utilities, Facilities, and Controls

O. Fuel Storage and Dispensing

1.02 ELECTRIC SERVICE:

A. A licensed electrician shall perform all electrical Work.

B. Contractor shall furnish and install electrical and telephone service to all Field Offices, including Engineer's field office, NYSDEC field office and any other location Contractor deemed necessary to complete the Work.

SECTION 01500
MOBILIZATION AND TEMPORARY FACILITIES

C. All electrical connections shall meet appropriate NEMA ratings consistent with the intended service.

D. Contractor shall coordinate with local electric utility (NYSEG) and obtain any necessary inspections and permits.

1.03 WATER SERVICE:

A. Contractor shall provide, maintain, and pay for a suitable quantity of potable drinking water for all on-site employees. Contractor shall furnish drinking water in Contractor's field office trailer and, if necessary at other locations near the Work being conducted.

B. Contractor shall provide, maintain, and pay for a suitable quantity of water service for dust control and decontamination.

C. Contractor shall provide water conveyance from the water service terminal to any locations on the Project Site where water is used.

1.04 TEMPORARY SANITARY FACILITIES:

A. Contractor shall provide a sufficient number of portable toilets for Contractor and Subcontractor Work crews, Engineer, Owner, and visitors in accordance with usage ratings, or as otherwise directed by the Engineer. The facilities shall be provided at time of project mobilization and maintained in clean and sanitary condition until Substantial Completion.

B. Contractor shall provide and maintain in clean, good working order, a water hand washing facility for personnel decontamination.

C. Contractor shall provide and maintain in clean, good working order an emergency decontamination and eye wash station on each side of LaGrange Street at a minimum.

D. Contractor shall provide and maintain, in clean, good working order other personnel decontamination facilities required by the Contract Documents or the HASP.

1.05 TRAFFIC CONTROL SIGNS:

A. Contractor shall furnish, install, and maintain traffic control signs in accordance with requirements of the Niagara County, City of Lockport, NYSDOT, Transportation Plan, the Contractor's traffic plan, and as otherwise deemed necessary by the Engineer for the safety of the public.

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MOBILIZATION AND TEMPORARY FACILITIES

1.06 WORK ZONES:

A. Contractor shall establish a Secured Zone, Support Zone, Exclusion Zone, and Decontamination Zone, as defined herein.

1. Contractor shall lay out the Work Zones and establish boundaries, barriers, facilities, and controls to ensure that all personnel and equipment exiting the Exclusion Zone shall pass through the Decontamination Zone before entering the Support Zone and before exiting the Project Site.

2. Contractor shall furnish, install, and maintain in good condition, orange plastic mesh fencing secured to metal posts to delineate the boundaries between Work Zones, including the Exclusion Zone, Decontamination Zone, and Support Zone and around the lined stockpile area.

B. Secured Zone. Contractor shall establish a general Secured Zone that excludes unauthorized personnel from entering the Project Site.

1. Access to Secured Zone shall be controlled by steel chain link fence and locking gates as shown on the Drawings.

3. Contractor shall furnish locks for Secured Zone gates and provide duplicate keys to Engineer, and Owner.

4. Contractor and Engineer shall control access to the Secured Zone. The Engineer and Owner shall be allowed free access to the Secured Zone 24 hours per day, subject to appropriate safety precautions.

5. Contractor shall maintain a log sheet on which all Contractor personnel and visitors must sign in and out upon entering or leaving the Secured Zone.

6. Contractor shall be responsible for the security and safety of equipment, facilities, personnel, and materials within the Secured Zone.

C. Support Zone. Contractor shall establish a Support Zone for field offices, storage, sanitary facilities, hand washing facilities, and non-construction vehicle parking.

1. The Support Zone shall be an area free of physical and chemical hazards.

2. Contractor shall maintain the Support Zone in a safe, clean, orderly, and sanitary manner at all times.

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MOBILIZATION AND TEMPORARY FACILITIES

D. Exclusion Zone. Contractor shall establish an Exclusion Zone within the Secured Zone using the following criteria and other criteria deemed necessary by the Engineer:

1. Open excavation areas shall be included in the Exclusion Zone.

2. Impacted Material stockpile area shall be designated an Exclusion Zone.

3. Consideration of meteorological conditions and the potential for contaminants or other materials to be blown or washed from the area.

4. OSHA Regulations and other applicable Laws and Regulations.

5. Water treatment areas shall be included in the Exclusion Zone.

E. Temporary Activity Zones within Exclusion Zone. Contractor shall establish Temporary Activity Zones within the Exclusion Zone using high-visibility warning tape fastened to metal posts or weighted barrels to delineate areas where specific Work tasks will take place. Temporary Activity Zones shall be revised as necessary and as the Work progresses. Temporary Activity Zones shall be established to include the following tasks:

1. Excavation: Excavation areas shall be marked with yellow or orange caution tape at all times.

2. Stockpiling: Stockpile areas (i.e., unimpacted stockpiles, import material stockpiles) shall be established as Temporary Activity Zones and signs installed to indicate the type of material stockpiled in each stockpile area. Signs may consist of high visibility spray paint on the plastic membrane stockpile cover.

3. Storage: Storage areas for materials or equipment shall be established and maintained as Temporary Activity Zones.

4. Decontamination: Any temporary decontamination areas shall be marked as Temporary Activity Zones.

F. Decontamination Zone. Contractor shall establish a Decontamination Zone between the Support Zone and the Exclusion Zone.

1. Contractor shall provide suitable facilities for personnel decontamination in the Decontamination Zone, including emergency eyewash, hand washing, and shower facilities.

2. Contractor shall construct a vehicle and equipment decontamination facility, which shall allow for containment and collection of liquid and solid residuals

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MOBILIZATION AND TEMPORARY FACILITIES

from decontamination of construction vehicles and trucks bound for off-site disposal.

3. Contractor shall inspect and document inspection of each truck bound for disposal of Impacted Soil and debris. Contractor shall inspect all vehicles and equipment that have been in the Exclusion Zone prior to exiting the Exclusion Zone. Contractor shall remove loose mud and debris from all vehicles that have been in the Exclusion Zone prior to movement of equipment between the Exclusion Zone and Non-Exclusion Zone areas of the Secured Zone.

4. Contractor shall provide splash protection around the vehicle decontamination facility. Splash protection shall minimize potential contamination from splatter and mist during the vehicle and equipment decontamination process. Splash protection shall be temporary, but stable, and capable of being dismantled in the event of high winds.

5. Contractor shall provide a drainage and collection system for wastewater generated during decontamination procedures.

1.07 ENCLOSURES AND FENCING:

A. Contractor shall furnish, install, and maintain all other proposed temporary fencing, gates and barriers around impacted areas as required by the Contract Documents and to complete the Work.

B. Contractor shall furnish and post signs at every entrance and gate and at least every 50 feet along the fence warning the general public that the Project Site contains physical and chemical hazards and that access is forbidden to unauthorized persons.

C. Contractor shall furnish and post a professionally lettered sign, minimum size 4 feet by 8 feet, at each entrance, or gate to the site with the following text, or other similar text approved by the Engineer.

> "NYSDEC Order on Consent No. DO-0002-9309" in compliance with the NYSDEC specifications"

1.08 PROTECTION OF THE WORK:

A. Contractor shall protect installed Work and provide special protection with regard to preventing the spread of residuals to areas outside the Exclusion Zone.

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MOBILIZATION AND TEMPORARY FACILITIES

B. Contractor shall protect the existing buildings, trees, shrubs, sidewalks, driveways, streets, catch basins, manholes, subsurface facilities, electric lines/facilities, curbs, and gutters by such means as determined by Contractor to be adequate for such protection, unless such facilities are designated on the Drawings for removal. Contractor shall repair or replace any existing buildings, trees, shrubs, sidewalks, driveways, streets, catch basins, manholes, subsurface facilities, electric lines/facilities, curbs, or gutters that are cracked, broken, or otherwise damaged by Contractor, to its original condition, or better, in accordance with City of Lockport and NYSDOT requirements.

1.09 TEMPORARY EROSION AND SEDIMENT CONTROLS:

A. Contractor shall remove all soil, mud, and residuals from vehicle wheels, fenders, and tailgates before exiting to public streets.

B. The Contractor shall provide, install, and maintain all required sediment and erosion controls as specified in Specifications Section 01570 – Erosion and Sediment Controls.

1.10 HAUL ROADS AND ACCESS ROADS:

A. Contractor shall furnish, construct, and maintain on-site haul and access roads as designated on the Drawings, or as necessary to complete the work with Engineer's approval.

1.11 PARKING:

A. Engineer shall designate a parking area to accommodate personal vehicles of Contractor employees, Engineer, Owner, and visitors. Construction vehicles shall not be allowed in the areas designated for parking personal vehicles.

B. Contractor shall designate an area of the Secured Zone to be used for parking and maintenance of construction vehicles and equipment.

1.12 PROGRESS CLEANING AND WASTE REMOVAL:

A. Contractor shall maintain all Work areas free of waste materials, debris, and rubbish, maintain the Work site in a clean and orderly condition, and collect and remove waste materials, debris, and rubbish from the Work site weekly and dispose off site.

1.13 STOCKPILE AREAS:

A. The Stockpile and Staging Area will be constructed by the Contractor. The Contractor shall maintain these facilities during the course of the Work, modify them as required to implement the Work, and remove them when the Work is complete.

SECTION 01500
MOBILIZATION AND TEMPORARY FACILITIES

B. Contractor shall establish individual stockpiles within the stockpile area as necessary for coordination of excavation of non-impacted soils subject to sampling and analysis for potential reuse onsite as backfill.

1.14 FIELD OFFICES AND SHEDS:

A. General requirements for all sheds and offices shall be as follows:

1. Structurally sound, weather tight, with floors raised above ground, with hurricane tie-down straps.

2. Thermal insulation compatible with occupancy and storage requirements.

B. The Contractor shall furnish and maintain a field office for the use of Contractor. Field office shall be at a location coordinated with the Owner and Engineer, during the entire period of Work.

C. Contractor shall furnish and maintain any field offices for use of the Engineer, Owner's Air Monitoring Contractor, Owner and NYSDEC at the Project Site, at a location coordinated with the Owner and Engineer, during the entire period of Work.

1. Field offices shall be located in the Support Zone.

2. Field offices shall be of a size, construction, and outfitted in a manner customary to such facilities at similar construction sites. Trailers may be sized as proposed by Contractor and approved by Engineer but must accommodate separate office space at a minimum of 12' x 15' in dimension for each the Engineer, Air Monitoring Contractor, NYSDEC and Owner.

3. Field offices shall be furnished with appropriate fire extinguishers, first aid supplies, eyes wash stations, and office supplies.

4. Each separate field office will require (1) phone, (1) high speed data (hard line) connections. Supply of wireless modem for entire trailer/ support area will not be considered a substitute; minimum of one hard line shall be installed in each trailer.

1.15 REMOVAL AND RESTORATION OF UTILITIES, FACILITIES, AND CONTROLS:

A. Contractor shall remove temporary utilities, equipment, and construction facilities, prior to submitting final Application for Payment, including those provided or installed by others unless specifically identified for removal by others.

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B. Contractor shall remove from the Work site all materials, equipment, vehicles, construction facilities, temporary controls, rubbish, debris, and wastes.

C. Contractor shall dismantle and remove from the Project Site, as directed by the Engineer, any temporary fencing installed by the Contractor.

1.16 FUEL STORAGE AND DISPENSING:

A. Contractor shall store fuel on site only in approved containers that meet all relevant fire codes.

B. Contractor shall provide secondary containment and spill protection devices at all onsite fueling facilities.

C. Extreme care shall be taken to prevent fuel spills. Contractor's representative shall be present at all time when equipment is being fueled. Subcontractor shall notify the Engineer, the local Fire Department and other authorities as required in the event of a spill. Contractor shall be prepared and shall provide personal equipment and materials to immediately respond to fuel spills, and is responsible for all costs of containing, removing and disposing of materials contaminated by fuel spills.

D. Contractor shall provide and maintain absorbent materials, shovels, containers and other appropriate materials for spill response and cleanup. Cleanup materials shall be appropriate for the type of fuels, oils and other materials used.

E. Contractor shall not commingle waste materials caused by fueling or vehicle maintenance activities with excavated contaminated soil or with impacted water generated by the Work.

F. Contractor shall dispose of waste materials caused by fueling at no expense to the Owner.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION

SECTION 01570
EROSION AND SEDIMENT CONTROL

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Performance Requirements

B. Products

C. Surface Water Run-on/Run-off Control

D. Inspection and Maintenance

1.02 PERFORMANCE REQUIREMENTS:

A. Permits and Approvals: The Engineer will obtain any necessary permit equivalents and approvals for erosion and sediment control.

B. Compliance: Contractor shall be responsible for compliance with requirements of any and all permit equivalents and approvals.

C. Implementation: Contractor shall employ the following general procedures, and other procedures as required by all regulations:

1. Run-on Controls: Contractor shall use ditches, berms, pumps, and other methods necessary to divert and drain surface water away from excavations and other Work areas.

2. Sediment Controls:

a. The sediment and erosion control structures shown on the Drawings shall be installed by the Contractor. The Contractor shall inspect and maintain these facilities in accordance with the Contract Documents.

b. Contractor shall take necessary precautions and implement best management practices to prevent sediment from entering roadways, storm sewers, catch basins, or surface water.

D. Stockpile Management. Contractor shall manage stockpiles in accordance with Specifications Section 01500 – Mobilization and Temporary Facilities.

E. Street Cleanliness:

1. Where construction vehicle access routes intersect public roads, Contractor shall make provisions to mitigate the transport of mud, spoils, soil, or dust onto the

SECTION 01570
EROSION AND SEDIMENT CONTROL

public road. Contractor shall construct haul roads with necessary controls to prevent soil transport to public streets. If soil, spoils, mud, or dust is transported onto a road surface, Contractor shall immediately clean the road thoroughly. Contractor shall remove soil from the roads by shoveling or sweeping and sweepings shall be transported to an on-site soil stockpile area. Street washing with water shall be allowed only after soil is removed to the extent practical by sweeping.

F. Control of Pollutants Other than Soil/Mud/Dust/Sediment:

1. All pollutants that occur on the Project Site during construction shall be handled and disposed in a manner that does not impact stormwater runoff.

2. Fueling of Contractor's equipment shall be performed away from storm drain inlets and catch basins.

PART 2 – PRODUCTS

2.01 SILT FENCE

A. Silt fence shall be as detailed in the Drawings, or equivalent.

2.02 HAY BALES

A. Hay bales shall be installed by the Contractor at the Engineer's discretion, and as detailed in the Drawings.

PART 3 – EXECUTION

3.01 SURFACE WATER RUN-ON/RUN-OFF CONTROL:

A. Contractor shall intercept surface water and divert it away from excavations and Work areas through use of dikes, ditches, curb walls, pipes, sumps, or other Construction Manager's-approved means. The requirement includes temporary measures as required to protect adjoining properties from surface drainage caused by construction operations.

B. Contractor shall prevent surface water run-on/run-off from transporting sediment or other contaminants off site. Any stormwater coming into contact with contaminants shall be stored on-site and shipped off-site for disposal. Should, in the opinion of the Construction Manager, the Contractor fail to provide adequate run-on controls, all costs related to the collection, storage and disposal of the resulting impacted storm water shall be the responsibility of the Contractor.

SECTION 01570
EROSION AND SEDIMENT CONTROL

3.02 INSPECTION AND MAINTENANCE:

A. Contractor shall inspect and repair or replace damaged components of temporary erosion and sediment controls weekly including those installed by others. Inspection and repairs shall be conducted immediately after rain or flooding events, and inspection and repairs shall be conducted at least once each day during prolonged rain events.

B. Contractor shall remove sediment deposits and place them in designated spoil areas. Sediment shall not be allowed to migrate off site. If sediment has been in contact with contaminated materials, it shall be incorporated into material to be disposed or further characterized to determine appropriate disposition.

C. Contractor's equipment and vehicles are prohibited from maneuvering on areas outside of dedicated rights-of-way and easements for construction.

D. Damage to erosion and sediment control systems shall be repaired immediately.

E. Erosion and Sediment Controls that contain impacted materials from excavation activities shall be replaced once excavation activities are complete and backfill activities begin.

END OF SECTION

SECTION 01720
SURVEYING

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Submittals

B. Examination

C. Survey Reference Points

D. Survey Requirements

1.02 SUBMITTALS:

A. Contractor will provide a Land Surveyor licensed in the State of New York.

B. Contractor will submit all field notes, computations, data logger information, and other survey records for the purposes of layout of the Work, or payment quantity estimation, or for final documentation of the Work to the Engineer on a daily basis.

C. Contractor will maintain and submit all survey data and survey Drawings as Record Documents.

1.03 EXAMINATION:

A. Contractor shall verify locations of survey benchmarks shown on the Drawings prior to starting Work.

B. Contractor shall promptly notify the Engineer of any discrepancies discovered.

1.04 SURVEY REFERENCE POINTS:

A. Contractor's surveyor will establish temporary benchmark(s) and horizontal control for the Work.

B. Contractor shall locate and protect survey control and reference points during construction.

PART 2 – PRODUCTS

Not Used.

SECTION 01720
SURVEYING

PART 3 – EXECUTION

3.01. SURVEY REQUIREMENTS:

A. The Contractor's Land Surveyor will conduct an initial survey of boundaries for limits of excavation, VBW Installation, Overburden NAPL Collection Trench, and onsite and offsite Grout Wall installation as shown on the Drawings. This survey shall utilize recognized engineering survey practices appropriate for obtaining the information specified. The Contractor shall conduct additional layout survey during the Work as needed to ensure that the Work performed is to the limits shown on the Drawings.

B. Upon final completion and approval of the project the contractor shall supply the engineer the required as-built drawing documentation as described below in AutoCAD format:

1. Drawing file(s) showing limits of all final restoration elements

2. Drawing file(s) showing limits, depth, invert elevation and sizes of all restored utilities

3. Drawing file(s) showing limits and top elevations (every other pair) of the permanent steel sheet pile cut off walls

4. Drawing file(s), containing contours (0.5 ft. interval) and corresponding survey points and DTM files showing each of the following surfaces:

   a. Final Grading

   b. Top of Overburden NAPL Collection Trench

   c. Top of all back fill material layers

   d. Bottom of Overburden NAPL Collection Trench

C. Surveying personnel shall be in full compliance with all requirements of CFR.1910.120 before entering the Exclusion Zone.

D. Contractor shall preserve the survey stakes, including replacement by a Registered Land Surveyor, at Contractor's expense, if destroyed or moved.

E. During the course of the Work, the Contractor will record final locations and elevations of all excavation work when complete in each area.

F. During the course of the backfilling and site restoration Work, the Contractor will record elevations and locations in completed working areas for each restoration material used.

SECTION 01720
SURVEYING

G. Contractor shall promptly report to Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons. Contractor shall make no changes without prior written notice to the Engineer.

H. The Work shall be executed in conformance with the lines and grades shown on the Drawings, unless otherwise approved by the Engineer.

I. If the Engineer believes that Contractor constructed the VBWs or ISS Treatment outside the limits shown on the Drawings in certain areas, Work in that area shall be temporarily discontinued upon notification to Contractor. The Contractor may then employ a Registered Land Surveyor to determine actual elevations and locations of excavation.

J. At the end of construction, the Contractor's surveyor shall prepare Record Drawings as required by Owner and Engineer.

END OF SECTION

SECTION 01725
WELL PROTECTION AND ABANDONMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Condition of Wells

B. Well Protection

C. Well Repair and Replacement

D. Well Abandonment

1.02 CONDITION OF WELLS:

A. Monitoring well locations and designations are shown in the Drawings.

B. Subcontractor shall protect the wells to ensure that the above and below ground portions of the wells are left unharmed as a result of the Work.

C. Subcontractor shall not inject or place any objects in the wells.

1.03 REFERENCES

A. The most recent version of the following document is incorporated into this Specification.

1. NYSDEC commissioner policy CP-43 – Groundwater Monitoring Well Decommissioning Policy (NYSDEC, 2009).

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

3.01 WELL PROTECTION:

A. Subcontractor shall be responsible for the protection of all wells located outside the horizontal limits of excavation and shown on the Drawings.

B. Subcontractor shall determine appropriate construction methods and means of well protection, which may include hand excavation in areas immediately adjacent to wells.

C. The Subcontractor may convert any aboveground wells, which are at risk of damage to flush-mount wells. Flush mount construction shall include a steel valve cover box with a cover secured by bolts, installed in a 2-foot by 2-foot concrete pad. The well pipe shall

be capped by a lockable expanding well cap. The Subcontractor shall establish and survey a new reference elevation for the top of the well casing, based on the local elevation reference system established for the site.

3.02 WELL REPAIR AND REPLACEMENT:

A. If any well designated to be protected becomes damaged, as determined by the Engineer, as a result of the Work, Subcontractor shall repair the damaged well to the original construction standards at the Subcontractor's sole expense.

B. Any well repair, abandonment, or replacement shall be completed in conformance with NYSDEC commissioner policy CP-43 – Groundwater Monitoring Well Decommissioning Policy (NYSDEC, 2009).

3.03 WELL ABANDONMENT

A. All wells shown on the Drawings located within the horizontal limits of Excavation shall be abandoned in accordance with the requirements of NYSDEC commissioner policy CP-43 – Groundwater Monitoring Well Decommissioning Policy (NYSDEC, 2009).

B. The Contractor shall prepare and submit all required documentation for well abandonment.

END OF SECTION

SECTION 01770
CLOSEOUT PROCEDURES

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Submittals

B. Final Cleanup

C. Contract Closeout Procedures

1.02 SUBMITTALS

A. Contractor shall submit the following in accordance with the Specifications Section 01330 – Submittal Procedures:

1. Contractor shall submit a written statement that the Work has progressed to Substantial Completion.

2. Contractor shall submit a written request for a final inspection after Contractor has determined that the Work is complete in all respects.

3. Contractor shall submit Project Record Documents as described in Specifications Section 01320 – Construction Progress Documentation.

4. Contractor shall submit a final Application for Payment.

5. Contractor shall submit a closeout report.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 FINAL CLEANUP

A. Upon completion of the Work and before final inspection, Contractor shall clean the entire Work premises occupied or used in connection with the Work of all rubbish, surplus, and discarded materials, temporary facilities and controls, equipment, and debris. The entire Work premises shall be left in a clean, neat, and presentable condition.

3.02 CONTRACT CLOSEOUT PROCEDURES

A. Contract closeout procedures shall take place in the following order:

SECTION 01770
CLOSEOUT PROCEDURES

1. The Engineer will perform the final inspection.

2. If necessary, the Engineer shall prepare a punch list of Work items to be completed and transmit a copy of the punch list to Contractor.

3. Contractor shall complete all punch list items expeditiously to the satisfaction of the Engineer.

4. Contractor shall submit final Application for Payment to the Engineer identifying total adjusted Contract Price, previous payments, and amount remaining to be paid.

5. Contractor shall submit Application for Payment for retainage with required affidavits.

6. Contractor shall submit a Project closeout report that shall include:
   a. Description of remediation activities, including total work quantities.
   b. Variations from the Drawings, Plans and Specifications.
   c. Discussion of major problems encountered and the resolutions.
   d. Accident Injury Report summary.
   e. Complete list of all Contractor personnel on the Site during completion of the work.
   f. As-Built Record Drawings from a surveyor licensed in the State of New York.

END OF SECTION

Division 2 Specifications

See Attachment 2 – Remedial Design Report in Appendix A

Appendix A

NYSEG Lockport Transit Street: 100% Remedial Design Report

AECOM Environment

Prepared for:
NYS Electric & Gas Company
Binghamton, NY

Prepared by:
AECOM
Latham, NY
60194949
April 2013

Remedial Design Report
100% Submittal
Lockport Transit Street Former MGP Site
Lockport, New York
NYSDEC Site # 932098

AECOM Environment

Prepared for:
NYS Electric & Gas Company
Binghamton, NY

Prepared by:
AECOM
Latham, NY
60194949
April 2013

Remedial Design Report
100% Submittal
Lockport Transit Street Former MGP Site
Lockport, New York
NYSDEC Site # 932098

Prepared By Samuel Rowe

Reviewed By Scott Underhill, PE

AECOM Environment

Prepared for:
NYS Electric & Gas Company
Binghamton, NY

Prepared by:
AECOM
Latham, NY
60194949
April 2013

Engineering Certification

I hereby certify that the Remedial Design Report for the Lockport Transit Street Former Manufactured Gas Plant Site was prepared in accordance with all applicable statues and regulations and in substantial conformance with the New York State Department of Environmental Conservation Division of Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER10) and that all activities were performed in full accordance with the DER-approved work plan.

Respectfully submitted,
AECOM Technical Services, Inc.

April 19, 2013

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

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List of Acronyms

bgs	below ground surface
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
CAMP	Community Air Monitoring Plan
CY	cubic yards
DOT	Department of Transportation
HASP	Health and Safety Plan
LF	linear feet
MGP	Manufactured Gas Plant
NAPL	Non-Aqueous Phase Liquid
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
NYSEG	New York State Electric & Gas Corporation
OSHA	Occupational Safety and Health Act or Administration
PAHs	Polycyclic Aromatic Hydrocarbons
POTW	Publicly Owned Treatment Works
PPE	Personal Protective Equipment
QC	Quality Control
REC	Renewable Energy Credit
RI	Remedial Investigation
ROD	Record of Decision
SMP	Site Management Plan
SVOCs	Semi-Volatile Organic Compounds
TAGM	Technical and Administrative Guidance Memorandum
TCLP	Toxicity Characteristic Leachate Procedure
TEP	Technical Execution Plan
VOCs	Volatile Organic Compounds

1.0 Introduction

This Remedial Design Report describes the site preparation, excavation of contaminated materials, and site restoration associated with the Lockport Transit Street MGP site located in Lockport, Niagara County, New York (the Site). This project is being proposed in accordance with Section VII of the Order on Consent (Index Number DO-0002-9309) between New York State Electric & Gas Corporation (NYSEG) and the New York State Department of Environmental Conservation (NYSDEC), and the Record of Decision (ROD) for the site dated March 2009 (Site No. 932098).

The remedial components of the Site include:

- Relocation of the Control House and 12kV switchgear from the western portion of the site to the eastern portion of the site.
- Excavation and removal of impacted soils west of the existing substation and parts of LaGrange Street.
- Installation of an overburden NAPL collection trench along the north and west sides of the existing substation.
- Installation of approximately 400 linear feet (LF) of grout wall within the bedrock down gradient of the overburden NAPL collection trench and approximately 200 LF of grout wall within the bedrock along the nearby Barge Canal in the vicinity of seeps recorded during investigation work.
- Installation of a subsurface barrier on the south and east sides of the site.
- Installation of NAPL collection wells both at onsite and offsite locations.
- Excavations and removal of impacted sediments from the Barge Canal.
- To the extent practicable green remediation and sustainability will be considered in the design and implementation of the remedy.
- Site Management Plan (SMP) and environmental easements.

The remedial action will be performed under the approval and oversight of the NYSDEC and the New York State Department of Health (NYSDOH).

1.1 Site Location and Description

The NYSEG Lockport Transit Street MGP Site is located in the City of Lockport in Niagara County. The site is located on a 0.87 acre parcel, which is completely occupied by an active electrical substation. The site is bordered by Transit Street to the west, LaGrange Street to the north, and Saxton Street to the east. Residential properties border the site to the south, and the neighborhood is generally residential to the south and east and commercial to the north and west. The NYSEG State Road Site (Site No. 932109), which was previously investigated and remediated by NYSEG is located south and west of this site.

The New York State Barge Canal is located about 200 feet west of the site. At this location, the canal is cut approximately 45 feet into the bedrock. Groundwater flows generally north and west beneath the MGP site, towards the canal. The water level in the canal is raised and lowered seasonally. While the flow direction remains toward the canal throughout the year, the gradient changes with these variations in canal elevation.

1.2 Site History

The Manufactured Gas Plant operated from 1851 until 1927, producing a combustible gas that was delivered through pipes to local homes and businesses. The gas was originally produced by heating coal. Sometime around 1914, the plant also began using a second method known as the carbureted water gas process, which involved the use of petroleum products for gas making. The waste materials from these two processes are similar with the principle waste being a dark, oily waste commonly known as coal tar. Tars produced by both processes are referred to as NAPL or MGP tar.

Structures present during the operation of the plant included multiple gas holders (15,000, 50,000, and 150,000 cubic feet), retorts for carbonizing the coal, tar tanks, oil tanks, a purifier house, and coal handling and storage. These buildings were demolished between 1928 and 1948.

1.3 Previous Investigations and Remedial Actions

The following provides a brief chronology of the remedial history at the Site to date:

- 1982-1985 – A site screening investigation was conducted and included the collection of groundwater, surface water, and soil samples. Borings, test pits and monitoring wells were utilized during these investigations.
- 1991-1995 – Additional soil sampling was conducted onsite.
- 1994 – Order on Consent, Index No. DO-0002-9309, between the Department and New York State Electric and Gas (NYSEG) executed on March 30.
- 1997 – Soil removal was conducted at the gas station immediately north of the Site. NAPL contaminated soil was removed during a tank removal.
- 2005-2006 – Field work for the remedial investigation.
- 2007 – Final Remedial Investigation Report (URS, August).
- 2009 – Final Feasibility Study Report (URS, January).
- 2009 – Record of Decision (NYSDEC, March)
- 2011 – Remedial Design Work Plan (AECOM, June)
- 2011 – Grout Wall Pilot Test Summary Letter (AECOM, August)

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

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

New York State Department of Environmental Conservation
Region 9 Office, 270 Michigan Avenue
Buffalo, New York 14203
(716) 851-7220
8:30 A.M. – 4:30 P.M.
(By appointment only)

Lockport Public Library
23 East Avenue
Lockport, NY 14095
(716) 433-5935
Mon. – Thur., 10 A.M. – 9 P.M.
Fri. & Sat., 10 A.M. – 5 P.M.

2.0 Remedial Action Objectives

The primary objectives of the remedial action, as required by the ROD (NYSDEC, 2009a), include the elimination or reduction, to the extent practicable:

- Exposures of persons at or around the site to site-related constituents, volatile organic constituents (VOCs), semi-volatile organic constituents (SVOCs) and polycyclic aromatic hydrocarbons (PAHs), in groundwater and subsurface soils;
- The release of contaminants from soil into groundwater that may create exceedances of groundwater quality standards;
- The release of contaminants from subsurface soil under buildings into indoor air through soil vapor; and,
- Migration of coal tar beyond the site boundary.

Further, remediation objectives for the site include to the extent practicable:

- Ambient groundwater quality standards; and,
- Recommended soil cleanup objectives in 6 NYCRR Subpart 375-6 – Remedial program Soil Cleanup Objectives.

3.0 Organizational Structure and Responsibility

NYSEG and New York State regulatory agencies will participate jointly in this remedial action associated with the Lockport Transit Street MGP site. NYSEG has the ultimate responsibility for implementing the remedial action for the project including the community air-monitoring program during construction (see Organization Structure in Appendix A). Approval of this Remedial Design Report by the NYSDEC and the NYSDOH will be secured prior to intrusive activities and site excavation. NYSDEC and NYSDOH personnel are anticipated to be on-site periodically for purposes of general program oversight. The remediation contractor will be responsible for all on-site construction operations during the project, unless otherwise stated in Section 4.0, including: excavation safety and protection of adjacent structures and utilities; construction personnel health and safety; implementation of contingency plans for odor control; management of wastewater and waste-handling operations; maintenance of site controls (i.e., run-off, run-on); the construction, excavation, and material handling activities associated with the remedial action; soil sampling program associated with the remedial action; and documentation of the extent of the removal action. NYSEG will be responsible for the community air monitoring program.

Communication with regulatory agencies and with members of the surrounding community will be managed by NYSEG. The plan for sharing project information with the community is described in the Citizen Participation Plan for the site included in Appendix B.

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

NYSEG:

Mr. Joseph M. Simone, PE: Manager – EH&S Compliance
James A. Carrigg Center, 18 Link Drive, P.O. Box 5224
Binghamton, New York 13902
Phone: (607) 762-7498
Cellular Phone: (607) 427-7498
E-mail: jmsimone@nyseg.com

Mr. Tracy Blazicek, CHMM: Remediation Project Manager
James A. Carrigg Center, 18 Link Drive, P.O. Box 5224
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Phone: (607) 762-8839
Cellular Phone: (607) 237-5325
E-mail: tlblazicek@nyseg.com

NYSDEC:

Mr. Richard Dana: Site Project Manager
NYSDEC
625 Broadway
Albany, New York 12233-7014
Phone: (518) 402-9662
E-mail: rhdana@gw.dec.state.ny.us

NYSDOH:

Matthew Forcucci
NYSDOH
584 Delaware Ave.
Buffalo, NY 14202
Phone: (716) 847-4501
E-mail: mjf13@health.state.ny.us

4.0 Remedial Design

4.1 Introduction

This Remedial Action Design includes a chronological description and performance schedule of anticipated project activities for the Site. Documents include Design Drawings, Specifications and Project Schedule along with the Citizen Participation Plan, Construction Quality Assurance Plan, Quality Assurance Project Plan, Transportation of Solid and/or Liquid Waste Plan, Site Vapor Emission Response Plan, Contingency Plan, and NYSDEC Remedial Action Design approval letter.

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

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

4.2 Summary of Remediation Activities

The primary activities covered under this remedial design include:

- Mobilization and Site Preparation;
- Air monitoring to evaluate potential fugitive emissions;
- Relocation of the Control House and 12 kV switchgear from the western portion of the site to the eastern portion of the site;
- Excavation and removal of impacted soils west of the existing substation and areas of LaGrange Street;
- Installation of a subsurface barrier on the south and east sides of the site;
- Installation of NAPL collection wells both at onsite and offsite locations;
- Installation of an overburden NAPL collection trench along the north and west sides of the existing substation;
- Installation of approximately 400 LF of grout wall within the bedrock down gradient of the overburden NAPL collection trench and approximately 200 LF of grout wall within the bedrock along the nearby Barge Canal in the vicinity of seeps recorded during investigation work;
- Excavation and removal of impacted sediments from the Barge Canal (In order to prevent contamination of the canal following remediation, sediment remediation will not commence until such time in the future when on-site remediation is complete, and observations indicate that NAPL seeps from the Canal face have ceased);
- Management and Transportation of impacted soils to an off-site permitted facility; and,
- Surveying and Site Restoration.

This project is being completed in seven different phases; the first six phases have been sequenced with the necessary transferring of electrical circuits within the substation. Coordination of these activities will be required between the Contractor and NYSEG. These phases include:

- Phase 1: Excavation and backfill in Southern portion of the Site.
- Phase 2: Excavation and backfill of former gas holder located in Eastern portion of the Site.
- Phase 3: Excavation, backfill, and installation of a portion of the NAPL collection trench in Eastern portion of LaGrange Street.
- Phase 4: Excavation, backfill, and installation of a portion of the NAPL collection trench in Western portion of LaGrange Street.
- Phase 5: Excavation, backfill, and installation of a portion of the NAPL collection trench in Western portion of the Substation.
- Phase 6: Installation of the Grout Wall on-site and within LaGrange Street.
- Phase 7: Installation of the Grout Wall along Barge Canal.
- Excavation of sediment in the Barge Canal (to be completed once monitoring indicates seepage of NAPL from canal face has ceased).

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

4.3 Site Preparation

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

- Obtaining necessary permits (see Section 7.0);
- Mobilization;
- Sampling of soils to be excavated for waste disposal characterization;
- Installation of security fencing;
- Installation of erosion and sedimentation controls;
- Set-up of temporary site facilities;
- Surveying to establish baseline conditions and grades;
- Utility location, protection, and relocation;
- Relocation of existing structures as required; and,
- Set-up of traffic management at the project site.

4.3.1 Mobilization

The Contractor will mobilize to the site all necessary manpower, equipment, and materials to initiate the work. The initial mobilization will include the delivery of the materials and equipment for site preparation. This will be followed by delivery of equipment and materials needed for excavation work. Erosion and sediment controls, including silt fences, will be installed prior to any disruption of site soil. The erosion and sediment controls will be maintained throughout the duration of the work. Erosion and sediment controls are further described in Section 4.6.3.

4.3.2 Erosion and Sedimentation Controls

Prior to clearing any vegetation or disturbing any site soils, siltation fence and/or hay bales will be placed around any affected catch basins. During construction, all areas of disturbance shall have silt fence and/or hay bales to control erosion and sedimentation around their entire perimeter. Engineer may direct the

Contractor to install additional erosion and sedimentation controls for surface water runoff (i.e. hay bales and/or earth berms) during construction. The integrity of the siltation fence and earth berm shall be checked daily. Silt fences should be installed in front of hay bales closest to the remediation activities. During all portions of the construction erosion and sediment controls shall be maintained in accordance with the Erosion and Sediment Control Plan (Appendix L). Erosion and sediment controls are further described in Section 4.6.3

4.3.3 Clearing and Placement of Site Facilities

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

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

In addition to the above facilities, all work areas will be secured and barricaded with temporary fencing and caution tape to ensure the safety of the facility workers, visitors, and to prevent vandalism and unauthorized access. Fencing securing the substation shall meet Iberdrola's Substation Yard and Technical Specifications. The fencing will have professionally-made signs stating that access to the site is limited to authorized personnel and work within the site must be done with the appropriate personal protective equipment (PPE). In addition, a 4-foot by 8-foot sign will be posted reading "NYSDEC Order of Consent No. DO-0002-9309" in compliance with the NYSDEC specifications. Small signs containing the NYSDEC trailer phone number will also be posted around the fence.

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

4.3.4 Surveying

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

4.3.5 Protection of Utilities

The Contractor will provide utility clearance for all work at the site. The drawings identify known utilities that are active in the work areas and that must be protected. NYSEG shall provide temporary relocation of those utilities identified in the Drawings and in the sequence provided in the Drawings.

4.3.6 Utility Relocation

During the remedial construction (described in Section 4) multiple overhead and underground electrical lines will be moved in a step-wise operation organized between NYSEG and the Contractor. Electrical lines will be moved in the remedial phase they are disturbed. During phase 1A remedial construction activities, Circuit 114 will be affected. Circuit 114's load will be transferred temporarily to Circuit 113. Once remedial activities are completed, Circuit 113's load will be transferred to Circuit 114 to allow for Phase 1B remedial activities. Once both phases are completed, the Circuits will be restored to their original locations. During construction in the Eastern portion of LaGrange Street (Phase 3) Circuits 414 and 416's loads will be transferred to Circuit 413 until remedial activities are completed, and the Circuits can be restored. New underground conduit will be installed for circuits 108 and 413 after completion of the remediation and bedrock grouting has occurred. Guy wires that support the 34.5 Kv feed poles on the western side of the site will be relocated during Phase 5 construction. Once work is completed, all guy wires will be restored to their original positions. The 34.5 two kV feeds will alternately be de-energized (i.e., one feed de-energized, while the other remains in service) to facilitate remediation in Phase 5.

4.3.7 Decommissioning of Monitoring Wells

Monitoring wells identified in the drawings that will be damaged during the remedy implementation will be removed in their entirety or abandoned during the site preparation activities per NYSDEC commissioner policy CP-43 – Groundwater Monitoring Well Decommissioning Policy (NYSDEC, 2009b).

4.3.8 Traffic Management

A transportation route will be submitted by the Contractor that describes the specific off-site transportation routes that will be followed to manage construction traffic during the work and in a manner that minimizes disturbance to the community. The transportation route shall be approved by NYSEG prior to mobilization. Temporary closure of LaGrange Street will be necessary to complete remediation activities. NYSEG shall coordinate closure with the City of Lockport and New York State Department of Transportation as necessary.

4.4 Excavation

4.4.1 Excavation Objectives

Excavation of contaminated soils and structures will be conducted through the duration of the project. Excavation activities will include:

- Excavation of the 150,000 cubic foot gas holder's foundation, and any impacted soils encountered;
- Excavation of approximately 7,200 cubic yards (CY) will be conducted in the area west of the existing substation, and within LaGrange Street located north of the site;
- Excavation of approximately 1,200 CY of sediment will be conducted in the Barge Canal; and,
- Excavation activities will be conducted to remove soils containing concentrations of PAHs above 500 parts per million (ppm).

4.4.2 Limits of Excavation

The vertical limits of excavation will continue until bedrock is encountered or samples indicate the remaining soils contain PAH concentrations below 500 ppm. The Engineer will complete a pre-remediation sampling event to determine the depth of bedrock and to characterize the wastes present. Sampling will be conducted within the excavation limits.

Excavation of the onsite area west of the existing substation will occur to depths of up to 14 feet below ground surface (bgs) requiring excavation protection and the dewatering of soil. Excavation within LaGrange Street will occur to depths up to 19 feet bgs and will require excavation protection and the dewatering of soil.

The horizontal limits of excavation are shown in the Drawings. The onsite area west of the existing substation will require approximately 4,000 CY of soil to be excavated and removed from the site. Onsite excavation limits will be horizontally bound by the property boundary and include the removal of soils west of the existing substation. Approximately 3,200 CY of soil will be excavated from LaGrange Street. Horizontal limits of excavation will extend to the property boundaries located on Lagrange Street. Asbestos containing materials may be encountered during excavation activities performed on the NYSEG property. Utilities running from the NYSEG control house and other utilities may contain asbestos, and the proper procedures will need to be in place in the event that asbestos is encountered. Additional information regarding asbestos removal is included in Specification 02-8200 – Asbestos Abatement Lockport Site.

Excavation within LaGrange Street will include the protection of both above and below ground utilities, access to offsite properties from LaGrange Street by property owners, and the presence of nearby structures to the excavation area. Excavation materials will be characterized in place by the Contractor prior to disposal offsite.

Soils that are stockpiled onsite must be stored in lined and bermed areas and must be covered to control odor and/or dust. Soil used as backfill is required to meet the requirements of DER-10.

4.4.3 Excavation Support

Due to the various site constraints throughout the remedial excavation areas, temporary excavation support will be installed along the planned horizontal limits of the excavations.

Steel sheetpiles will be used to provide excavation support. All cells located in Phase 3, Phase 4, and Phase 5 excavation areas will require two levels of internal bracing to support the sheet pile wall excavated to bedrock. Phase 3 and Phase 4 will consist of an upper and lower waler system located internally around the perimeter of the sheet pile wall. Phase 5 excavation areas will be internally braced with an upper waler and struts with the sheet pile tips pinned to the bedrock. These cells have been subdivided to facilitate excavation and phasing, as determined during final design.

All utilities within the excavation cells will be relocated or temporarily by-passed. LaGrange Street will be temporarily closed to traffic to facilitate and expedite sheet pile installation and subsequent excavation during Phases 3, 4 and 5.

Excavations are located in close proximity to existing structures. Accordingly, pre-condition surveys will be performed for select buildings to document their condition prior to commencement of the work. In addition, permissible vibration criteria will be established and vibration monitoring will be performed at the closest structure during sheetpile installation to verify that vibration criteria are met. It is anticipated that sheetpiles will be installed using a high frequency, variable moment hammer to minimize vibration impacts to help minimize risk of vibration damage.

The cell sheetpiles will be sealed and driven to the depth of bedrock and facilitate a hydraulic cutoff. This will enhance excavation stability and minimize groundwater inflow.

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

4.4.4 Dewatering

The proposed excavations on-site and within Lagrange Street will extend beneath the existing groundwater table. Steel sheet piles installed around the perimeters of the excavations will help to limit groundwater infiltration, however limited excavation dewatering is anticipated. Excavation dewatering will be performed using dewatering sumps within the excavation area containing trash pumps to remove the water. Due to the nature of the dewatering, this wastewater will be routed through a temporary treatment system to be located in the project staging/support area prior to discharge to a nearby combined sewer manhole. The temporary treatment system shall be capable of treating a flow of 50 gallons per minute and meet the requirements of the Construction Water Treatment specification.

4.4.5 Overburden NAPL Collection Trench

An overburden NAPL collection trench will be installed along the eastern border of the onsite excavation and along the southern border of the excavation within LaGrange Street. The trench will be installed using standard means and methods with the goal of restricting the lateral migration of NAPL into newly placed backfill and to provide a way to secure the most mobile NAPL onsite. Monitoring/collection wells will be installed as indicated in the Drawings.

4.4.6 Grout Wall Installation

An onsite bedrock grout wall will be installed along the northern and western borders of the onsite property boundary as described below. The onsite grout wall will control the lateral migration of mobile NAPL offsite through the fractured Dolomite and Burleigh Hill bedrock. A pilot study was performed in July 2011 to evaluate grout wall implementability at the site to meet the objectives of the ROD: specifically, '*approximately 400 linear feet of grout wall [will be] constructed in the bedrock downgradient of the interceptor trench. It will extend from 1 to 2 feet above the overburden/bedrock interface to an approximate depth of 75 feet to control migration of NAPL through the bedrock.*' The results of the pilot study, presented in Appendix I, recommended the following:

1. A single row of grout holes is sufficient to evaluate bedrock conditions and create a barrier wall. However, a second row of grout holes, possibly angled, may be considered in localized areas with high Lugeon values (e.g., greater than 100) and large grout takes, if any.
2. A primary grout hole spacing of 20 feet is reasonable. Vertical stage lengths of about 20 feet are also reasonable.
3. Cement grouting is appropriate.
4. Type II cement (or Type I/II) should be used to provide sulfate resistance.
5. Grouting is impractical when Lugeon values are less than 2.
6. The water and grout pressures used in the pilot study are reasonable and appropriate for the final design.

An offsite bedrock grout wall will be installed using the same approach as that of the onsite bedrock grout wall. This offsite wall will take into consideration the Barge Canal, where bedrock is exposed at the Canal face. The bedrock grout wall shall be installed some distance upgradient from the Barge Canal wall to ensure the structural integrity of the Canal face and to minimize displacement of grout into the canal. The distance from the Barge Canal wall to the grout wall is estimated at least 20 to 30 feet; actual distance will

be based on field testing during the wall installation. The contractor shall protect all existing utilities during grout wall installation.

NAPL recovery wells will be installed up gradient of each grout wall down to a depth of 75-ft at the locations shown on the Drawings to collect NAPL up-gradient of the grout wall.

The Contractor may install the on-site grout wall (Phase 6) and NAPL recovery wells at any time during Phases 3 through 5. The most critical scheduling will be in Area 5F when the guy lines and anchors have been relocated onto LaGrange Street. This will be the only time when the grout wall and NAPL recovery wells can be installed in this area.

During the off-site grout wall installation (Phase 7), the Barge Canal shall be monitored for any visual impacts including the migration of NAPL or grout into the Canal. The Contractor shall provide controls to contain any NAPL migration during grout wall installation (i.e., oil booms). The off-site grout wall shall only be installed while the Canal is not in operation (i.e., winter months). The Contractor shall not install the offsite grout wall until the on-site grout wall has been completed.

4.4.6.1 Grout Hole Staging

Typical stage lengths in each grout hole may vary from about 10 to 30 feet, generally increasing in length with depth. The upper stage will extend through the dolomite to the top of the shale. The second and third stage will correspond with the upper and lower portions of the Burleigh Hill Shale. If the permeability of the Burleigh Hill shale appears consistent, the second and third stages may be combined and grouted as a single stage.

Upstage grouting with packers will be used. With this method, the lowest stage is grouted first, followed by grouting of subsequent stages, working upwards.

4.4.6.2 Water Pressure Tests

Water pressure tests will be performed in stages as discussed above. All water pressure tests will be performed at a pressure of 15 psi, regardless of depth. All tests will be 15 minutes. The general procedure includes these steps:

1. Set packers.
2. Connect water lines and gradually open valve and increase water pressure to 15 psi.
3. When the test pressure has been reached, start timer and simultaneously read (or zero) water meter.
4. Measure water takes at 5, 10, and 15 minutes.
5. For each 5-minute test interval, record result as a Lugeon value (Neglect hydrostatic correction for water table).

4.4.6.3 Grout Testing

Grouting will be performed in stages, starting at the bottom using the upstage method. Grout stages will correspond to the water pressure test stages previously completed.

Appropriate starting grout mixes will be based on the results of water pressure tests, with thinner mixes used where water takes are low (and fractures are fine) and thicker mixes used where water takes are high (and fractures are wider). The intent is to use the thickest mix practicable, with the aim of getting as much cement into the rock fractures as fast as possible. The following preliminary starting mix guideline (water to cement ratio by volume) will be used and may be adjusted in the field as necessary:

for Lugeon values below 25 a ratio of 2:1 water to cement; for Lugeon above 25, a ratio of 1:1 water to cement.

Grouting will be continued until refusal (i.e., the packered hole stage can no longer accept grout at the proposed injection pressure). If refusal occurs in less than 30 minutes, a thinner starting mix will be used the next time. If grout takes equal or exceed water takes in the first 30 minutes, or if grouting continues for more than 60 minutes without reduction in take, the grout will be thickened. Grout pressure should correspond to 1 psi per foot of depth below the rock surface to the bottom of the grout stage. The general procedure includes these steps:

1. Set packers.
2. Select initial grout mix.
3. Select maximum grout pressure (1 psi per foot of depth below top of rock to bottom of stage).
4. Connect grout lines and gradually open valve and increase grout pressure to the design pressure. Check for leaks.
5. When the test pressure has been reached, start timer and simultaneously read grout tub dip stick.
6. Read grout takes at approximately 15 minutes intervals.
7. Review grout takes and adjust grout mix if appropriate.
8. Continue grouting until refusal, than hold grout pressure for an additional 15 minutes.
9. Move to next upward stage. Continue grouting (no waiting period between stages).

4.4.7 Onsite Overburden Wall Installation

An onsite containment wall constructed of sheet piling will be installed along the eastern and southern boundary of the Site where installation is not affected by the presence of overhead or underground utilities (see Drawings). The objective of the overburden wall is to divert groundwater away from the site where impacted material may remain following remedy implementation.

4.4.8 Sediment Removal in the Barge Canal

The proposed limits of the sediment removal from the Barge Canal are shown in Drawing 12 (taken from Figure 7 of the ROD). The ROD requires a sediment delineation program to be conducted prior to sediment removal. In addition, the ROD states that sediment remediation would not occur until after the on-site remediation is complete and observations indicate that NAPL seeps from the Canal face have ceased. At least 12 months of Canal face observations will occur following the first six phases of remediation to demonstrate NAPL seeps will no longer be impacting Canal sediment.

The sediment delineation program, rather than be performed prior to the on-site remediation, will be delayed until after the off-site grout wall has been installed and NAPL seeps from the Canal face no longer exists. At that time, a sediment delineation program will be initiated to determine the full extent of sediment remediation.

The proposed remediation of the sediment within the Barge Canal will be performed during the winter months when the canal is drained. Sediment will be isolated within a coffer dam in the canal to minimize surface water inflow. The coffer dam will be sized to extent slightly beyond the limits defined during the delineation program. By-pass pumping of the coffer dam will be required. Sediment will be removed by an excavator to a management location where the sediment will be allowed to dewater and mixed with a sorbent such as calciment. The resulting materials will then be shipped to a disposal facility. Once all impacted sediments have been removed the coffer dam will be removed and surface water will be allowed to enter. No restoration of the Barge Canal is anticipated.

4.5 Waste Management

Five potential waste streams have been identified that may be generated during the remedial action:

- Impacted (non-hazardous, but containing visible MGP impacts) soil excavated during remedial excavation activities;
- Impacted (potentially hazardous for Toxic Characteristic Leaching Procedure [TCLP] benzene and containing visible MGP impacts) soil excavated during the remedial excavation activities;
- Construction debris;
- Extracted groundwater; and,
- Incidental project wastes such as PPE.

All excavated material will be disposed of off-site. Excavated material to be sent off-site will be sent to an off-site disposal facility approved by NYSEG.

Waste material details are further described in Appendix E – Transportation Of Solid and/or Liquid Materials, Technical Specifications –02120 Off-site Transportation and Disposal, and the Drawings.

4.5.1 On-site Waste Management

Because of construction sequencing, off-site disposal facility scheduling issues, and in order to consolidate large amounts of waste material for bulk truck shipments, storing impacted material on site prior to loading and shipment may be necessary. To the extent possible, impacted material generated during excavation will be loaded directly into trucks for off-site transportation. To the extent practicable stockpile areas will be located over areas to be excavated, negating the need for liners and berms. The use of liners and berms will be determined by the Engineer based on whether the material underlying the stockpile area will eventually be excavated. Odors leaving the work area are unacceptable. If any odors are detected offsite, operations at the site will be suspended until odor issues are resolved. On-site storage will take place in accordance with all laws and regulations dealing with the type of waste being stored. Liquid wastes will be stored in appropriate tanks or drums. Other (non-soil) solid materials will be stored in roll-off containers or covered stockpiles.

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

Soils not meeting TCLP requirements will be shipped to a thermal facility permitted to accept such soils under the New York State conditional exclusion for soils exhibiting the toxicity characteristic for benzene (DO 18). If the soils are shipped out of state, the handling and disposal of the soil will be in compliance with the regulations of the receiving state.

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

The contractor shall sweep/clean up any off-site tracking of materials immediately.

4.5.2 Pre-Remediation Waste Characterization

The soils to be excavated were pre-characterized in September 2012. This pre-characterization sampling event indicated that out of the 15 sample borings, only one sample WC-06 (0-8) had a TCLP benzene result above 5.0 mg/L. This soil may either be sent to a hazardous waste landfill or thermally-treated as an impacted and conditionally-exempt MGP waste. The other waste characterization soil samples were Non-Hazardous. Eleven of the 15 borings had visual impacts and the soil from these areas will need to be thermally treated. Soils without visual impacts may be disposed at a landfill. The Waste Characterization Summary Report is included in Appendix N.

4.5.3 Off-site Transportation

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

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

Trucks will be loaded in such a way as to avoid contamination of their exteriors including tires. All trucks will be thoroughly inspected for contamination prior to leaving the site. In the case when truck exteriors do become contaminated they will be decontaminated prior to leaving the site.

Hazardous waste shipments will be documented using standard hazardous waste manifests as required by applicable hazardous waste regulations. Other waste materials that have no specific documentation requirements will be documented using waste tracking forms, bills of lading, and receipts. All shipments of waste from the site will be documented describing the type and amount of waste and the receiving facility. NYSEG designated representative will sign the transportation manifests prior to loads leaving the site. Off-site trucking will follow the haul route shown in Appendix E – Transportation and Solid and/or Liquid Material. .

4.5.4 Off-site Disposal or Treatment

All excavated materials will be sent to one of the following off-site disposal facilities approved by NYSEG:

Non-Hazardous Soils:

- High Acres Landfill
  425 Perinton Parkway,
  Fairport, NY 14450

- Mill Seat Landfill
  303 Brew Road
  Bergen, NY 14416

- Seneca Meadows
  1786 Salcman Road
  Waterloo, NY 13165

Hazardous Soils:

- ESMI
  304 Towpath Road
  Fort Edward, NY 12828

- Covanta Niagara
  100 Energy Boulevard at 56th Street
  Niagara Falls, NY 14304

4.5.5 Water Management

Water containing MGP constituents will be generated, collected, and contained during decontamination of debris and equipment. The volume of collected impacted water is expected to be minimal. Although in some cases excavation will take place below the groundwater elevation, the excavation will be dewatered which should help to minimize the water present in the soil removed. The use of proper run-on and runoff controls will further limit the amount of impacted water to be collected. Decontamination water will also require collection and Treatment. Collected water will be treated on-site, tested and discharged to the nearby public combined sewer manhole located at the interstection of LaGrange and Saxton. The discharge requirements will follow the City of Lockport's temporary discharge requirements for discharging to the sanitary sewer. The first 40,000 gallons of water must be treated in batch mode, sampled and have the analytical results approved by the City of Lockport prior to discharging to the sewer. At least 40,000 gallons of effluent storage shall be required during commissioning of the water treatment system. After the first 40,000 gallons have been treated, the remaining water may be discharged continuously as long as the weekly sampling indicates the discharge requirements are being met. The Contractor shall make every attempt to get the first 40,000 gallons of water treated and approved such that no stoppage in excavation is caused due to the inability to dewater cells because of delays in approval of the water discharge.

A temporary construction water treatment system will be established in the project support/staging area to treat dewatering wastewater and other project wastewater streams. The basic components of the construction water treatment system are anticipated to consist of fractionation tank(s) for equalization and initial settling of solids, an oil/water separator and oil storage tank for removal and collection of free phase product, solids filtration (basket filter, bag filter or comparable), organo-clay filtration, granular activated carbon for removal of dissolved organic contaminants and anion resin for treatment of cyanide. If necessary, additional treatment components will also be utilized to achieve the city sanitary sewer effluent limits. Following treatment, the treated dewatering wastewater will be discharged to the public combined sewer via the sanitary sewer manhole located within the intersection of LaGrange Street and Saxton Street.

Additional information regarding the project water treatment system is provided in the attached Drawings and Technical Specifications – Section 02245 Construction Water treatment.

4.5.6 Site Restoration

Following all remedial activities, the affected areas will be restored as shown on the Drawings. Disturbed roadways, walkways, and other public areas shall be restored in accordance with City and State specifications as indicated in the Drawings.

The removal and disposal of trees and tree stumps will be performed by the Contractor. Replacement of trees will be based on equivalent diameter by others.

All imported backfill must meet the requirements of NYSDEC Part 375-6.8(b) requirements for commercial use to be reused as backfill within the site. Per DER-10 requirements the potential re-use soil (if used) and imported backfill material shall be sampled and analyzed for the following analyses –

VOCs, SVOCs, PCBs, Pesticides and Metals (note that both hexavalent chromium and trivalent chromium results will be required). The potential reuse soil and imported backfill shall be sampled at a frequency of 1 sample per 500 cubic yards.

If any backfill material is used in the right-of-way which does not meet NYCRR Part 375 Criteria for Residential Use, a soil cover will be provided over all areas to prevent exposure to underlying soils. In vegetated areas, the two foot thick cover will consist of clean soil in which the top six inches of soil must be of sufficient quality to support vegetation. Clean soil must meet NYCRR Part 375 Criteria for Residential Use. Non-vegetated areas (e.g., buildings, roadways, parking lots) will be covered by either a paving system or concrete at least 4 inches thick. The clean soil cover will be underlain by a demarcation layer (e.g., orange plastic snow fence). The purpose of the demarcation layer is to distinguish between the cover soils, and soils exceeding the requirements for clean cover soils.

4.6 Environmental Monitoring and Controls

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

4.6.1 Odor, Vapor, Dust, and Noise Control

Odor, vapor, and dust control will be conducted for this project due to the sensitive location of the Site and immediate proximity to residential and commercial buildings.

A variety of engineering controls will be available to control odors, vapors, and dust. Those controls will include, but will not necessarily be limited to, wetting soils with water to control dust, limiting the size of excavations, covering contaminated soils with plastic sheeting or foam, and spraying soils with Biosolve™. An adequate supply of odor suppressing foam and a foam applicator will be available onsite at all times when excavation activities are taking place. The Contractor shall provide in the Technical Execution Plan (TEP) detailed descriptions and drawings with the means and methods proposed for controlling and monitoring odors and vapors during the work. All odor and vapor control equipment and materials shall be approved by the Engineer prior to use.

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

Care will also be exercised to mitigate noise impacts during the project activities. Work hours will be limited to routine daytime hours (7 A.M. – 5 P.M.) and equipment will be maintained in proper working order. Where possible, shrouding and/or sound dampening measures will be utilized to minimize noise. All City ordinances and requirements regarding noise will be followed.

4.6.2 Air Monitoring

Site perimeter and work zone air monitoring will be conducted in accordance with Section 5, the site HASP, QAPP, and CAMP. Emergency response measures associated with air monitoring are presented in the site HASP, Vapor Emission Reponses Plan, and Section 5.

Summaries of all air monitoring data will be provided to the appropriate parties' regulatory agencies on a weekly basis to facilitate the transfer of information related to potential health risks.

4.6.3 Erosion and Sediment Control

Erosion will be prevented and sediment will be controlled during all on-site earthwork activities in accordance with the applicable New York State guidance. Storm water run-off will be controlled in a manner to prevent contact with impacted soils. Any storm water that does contact impacted soils will be collected, treated on-site, and transported off-site as discussed in Section 4.8. Hay bales, silt fence, stone, and/or rip rap will be used as necessary to prevent erosion of exposed soils. The erosion control structures will be inspected a minimum of once per week and after significant rainfall events, greater than ½ inch per day. Additional erosion control materials will be kept on site to immediately repair any deficiencies that are discovered during the inspections. A Storm Water Pollution Prevention Plan shall be prepared by the Contractor and submitted to the Engineer for review prior to beginning intrusive work on-site.

5.0 Documentation of Site Activities

5.1 Daily Field Construction Report

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

5.2 Transportation Log

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

5.3 Daily Community Air-monitoring Report

A daily community air-monitoring report will be prepared by NYSEG sampling technician using an on-site computer to document daily air-monitoring results. The daily community air-monitoring report will be submitted at the end of each week in an electronic format to Matthew Forcucci at mjf13@health.state.ny.us, Mr. Richard Dana, NYSDEC at rhdana@gw.dec.state.ny.us, and Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.

5.4 Master Sample Log

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

5.5 Chain of Custody

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

5.6 Waybills

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

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

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

6.0 Permitting and Regulatory Requirements

6.1 Permitting

The substantive requirements of the following permits shall be met prior to initiation of work at the site:

- Lockport Highway Department Application for Street Opening;
- Notice of Intent (NOI) for a General Permit GP- 02-01 for Stormwater Discharges from Construction Activities;
- Army Corps of Engineers Nationwide Permit and a Canal Work Permit for any sediment work in the Barge Canal; and,
- If required, a New York State Department of Transportation Traffic Control Permit.

Blank permit applications are provided in Appendix M – Permit Applications.

6.2 Regulatory Requirements

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

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

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

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

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

The subjects covered in the HASP include:

- Health & Safety Risk Analysis;
- PPE;
- OSHA Air Monitoring & Action Levels;
- Site Control;
- Decontamination;
- Emergency Response Plan;

- Lockout/Tagout;
- Heavy Equipment Operations;
- Excavation and Trenching;
- Material Safety Data Sheets; and,
- Health and Safety Records and Reports.

The Contractor shall prepare, as a bid submittal, their own HASP, which shall be at least as stringent as the Engineer's. The Contractor's HASP will be subject to the Engineer's review and NYSEG's approval. The Contractor shall follow the requirements of their own HASP throughout the work.

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

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

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

6.3 Transportation Requirements

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

Specific requirements for hazardous material shipments include the following:

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

7.0 Quality Assurance

Quality assurance procedures will be implemented during the work to ensure that it is in conformance with the Remedial Design, and to provide the basis for implementation of contingency actions, if necessary, to bring the work into conformance with the Remedial Design. Additional quality assurance measures are detailed in the Construction Quality Assurance Plan (CQAP) (Appendix F).

7.1 General Quality Assurance Procedures

The following quality assurance procedures and tests will be implemented as required under DER_10 (NYSDEC, 2010):

- Submittal by the Contractor of weigh tickets for all earthen materials transported to or from the site;
- Submittal by the Contractor, prior to the work, of sieve analyses for all imported earthen materials;
- Evaluation by the Engineer of the Contractor's proposed borrow source(s) for imported earthen materials. The Contractor will provide to the Engineer analytical data indicating that imported material meets the requirements of DER-10;
- Surveying of the work limits as described in Section 4.4.4;
- Field verification by the Engineer of excavation, grout wall, and placed material depths, areas, and volumes; and,
- Field observations and confirmation sampling by the Engineer of excavation limits as described in Section 4.5.2.

7.2 Grout Wall Quality Assurance

Water pressure testing shall be completed in accordance with the procedure developed during the pilot study. The Contractor will provide a specific grout mix design with identification of the reagents and their sources. The primary means of quality assurance/quality control during the grouting process will be the observations of the on going process by the Engineer. Samples will be collected at a minimum of once per day. To ensure the proper mix design is used for the grouting process, water pressure testing will be conducted in stages. This will allow the Engineer and Contractor to determine which grout mixture will be sufficient for each stage of the grout hole. The Engineer will have the final say in what grout mixture will be used for each grout hole. The Contractor is responsible for meeting the project's performance criteria. Grouting quality assurance procedures and performance requirements are described in the specifications.

7.3 Contingency Plan

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

8.0 Project Reporting

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

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

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

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

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

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

Within 90 days of completion of the remedial activities, the Engineer will prepare a Construction Completion Report (CCR) for Phases 1 through 6 of the remedy, approved by a professional engineer licensed in the State of New York. Due to the scheduling of the work, a separate CCR will be required upon completion of Phase 7 – sediment removal from the Barge Canal.

The following items will be included in the CCR, as required by DER-10:

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

9.0 Green Remediation

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

9.1 Best Practices and Techniques

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

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

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

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

- All vehicles and fuel consuming equipment onsite will be shut off if not in use for more than 5 minutes;

- All electricity use associated with the site (i.e., site trailer) will be minimal and, therefore, RECs will not be purchased to offset that electricity use following construction completion or at the end of each calendar year, whichever comes first;
- Work will be sequenced, to the extent practicable, to allow the direct loading of waste containers for off-site disposal;
- To the extent practicable, energy efficient systems and office equipment will be utilized within the site trailers;
- Where practicable non-impacted excavated soil and construction debris that has been segregated from impacted materials will be reused onsite during backfill and site restoration activities; and,
- All vehicles and equipment that consume diesel fuel will be required to use ULSD.

9.2 Reporting

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

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

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

10.0 Schedule and Hours of Operation

The remedial activities are planned to begin in Fall 2013 and be substantially completed by the end of late Spring 2015. Weather-dependant site restoration activities, such as establishment of vegetative cover, are anticipated to continue periodically through Summer 2015. A detailed schedule provided by NYSEG is included in Attachment 3. The Contractor shall maintain an electronic schedule.

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

The physical characteristics (infrastructure) of the substation and Site require a coordinated and sequenced approach to remediation at the site. Overhead and buried utilities will be temporarily relocated to allow access to areas onsite where feasible. There will be utilities located onsite that cannot be temporarily relocated and these utilities have been identified in the Drawings. The remedial components affected by these utilities have also been identified in the Drawings.

The scheduling of utility infrastructure relocation (temporary or permanent) will coordinated with remediation efforts and will affect the overall schedule of the remediation.

11.0 Bid Package/Technical Execution Plan

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

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

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

12.0 References

AECOM, 2011a. *Remedial Design Work Plan, Lockport Transit Street Former MGP Site*. June 2011.

AECOM, 2011b. *Grout Wall Pilot Study Summary, Lockport Transit Street Former MGP Site*. August 2011.

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

NYSDEC 2006. *NYCRR PART 370 – 374 and PART 376 Environmental Remediation Programs*.

NYSDEC, 2006. *6 NYCRR PART 375 Environmental Remediation Programs Subparts 375-1 to 375- 4 & 375-6.* December.

NYSDEC 2009a. *Record of Decision, NYSEG Lockport Transit Street MGP Site, Site No. 932098, Lockport, Niagara County, New York*, March.

NYSDEC, 2009b. *CP-43: Groundwater Monitoring Well Decommissioning Policy*. November.

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

NYSDEC, 2011. *Final DER-31 Green Remediation*. January.

URS, 2007. *Final Remedial Investigation Report, Transit Street Former Manufactured Gas Plant, Lockport, New York*. August.

URS, 2009. *Final Feasibility Study, Transit Street Former Manufactured Gas Plant, Lockport, New York*. January.

Attachment 1

Design Drawings

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE

LOCKPORT, NEW YORK

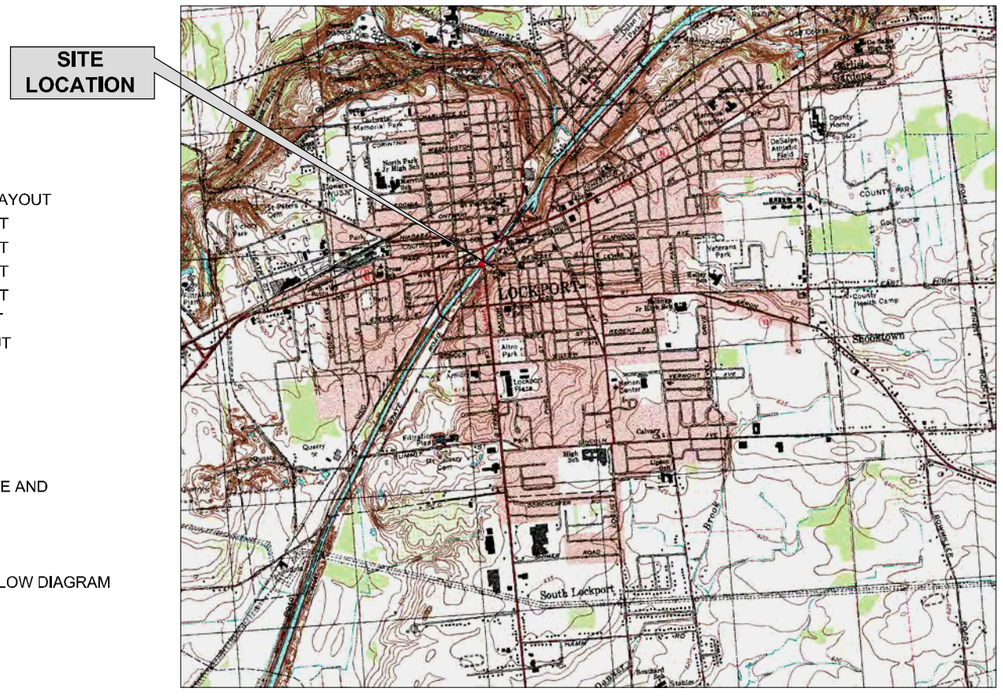
APRIL 2013

INDEX OF DRAWINGS

DWG. NO.	DRAWING TITLE
1	COVER SHEET
2	GENERAL NOTES
3	SUGGESTED CONSTRUCTION SEQUENCE
4	EXISTING CONDITIONS
5	GENERAL PLAN
6	PHASE 1A / 1B REMEDIAL EXCAVATION GENERAL LAYOUT
7	PHASE 2 REMEDIAL EXCAVATION GENERAL LAYOUT
8	PHASE 3 REMEDIAL EXCAVATION GENERAL LAYOUT
9	PHASE 4 REMEDIAL EXCAVATION GENERAL LAYOUT
10	PHASE 5 REMEDIAL EXCAVATION GENERAL LAYOUT
11	PHASE 6 GROUT WALL - ON SITE GENERAL LAYOUT
12	PHASE 7 GROUT WALL - OFF SITE GENERAL LAYOUT
13	EXCAVATION PROTECTION SYSTEM PLAN
14	EXCAVATION PROTECTION SYSTEM DETAILS
15	TYPICAL BACKFILL SECTIONS AND DETAILS
16	SITE RESTORATION PLAN
17	LAGRANGE STREET RESTORATION PLAN
18	LAGRANGE STREET CENTERLINE OF ROAD PROFILE AND RETAINING WALL ELEVATION AND DETAILS
19	RETAINING WALL REINFORCEMENT DETAILS
20	RESTORATION DETAILS
21	GROUNDWATER TREATMENT SYSTEM PROCESS FLOW DIAGRAM
22	TYPICAL CONSTRUCTION DETAILS
23	DETOUR AND ROAD SIGNAGE PLAN

REFERENCE DRAWINGS:

C2099601	C-20,996 - OIL CONTAINMENT PLAN - SHEET 1 OF 3
C2099602	C-20,996 - OIL CONTAINMENT DETAILS - SHEET 2 OF 3
C2099603	C-20,996 - OIL CONTAINMENT DETAILS - SHEET 3 OF 3



SOURCE: USGS LOCKPORT 7.5' SERIES QUADRANGLE

PROJECT LOCATION

0' 1000' 2000' 4000'

100% PLANS

Prepared For:

NYSEG

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

Prepared By:

AECOM

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4/19/2013
Date

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Unauthorized alteration or addition to the document is a violation of section 7209, subdivision 2 of the New York State Education Law.

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GENERAL NOTES

1. THE CONTRACTOR IS ADVISED THAT ADDITIONAL "NOTES" WILL BE FOUND ON SUBSEQUENT SHEETS OF THE CONTRACT PLANS AND SUCH "NOTES", WHILE PERTAINING TO THE SPECIFIC SHEETS ON WHICH THEY APPEAR, ALSO SUPPLEMENT THE GENERAL NOTES LISTED HEREIN.
2. EXISTING CONDITIONS, AS PRESENTED, REPRESENT THOSE CURRENT AS OF THE DATE OF THE FIELD SURVEY. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF SITE CONDITIONS PRIOR TO THE START OF WORK.
3. ALL ON-SITE REMEDIATION ACTIVITIES SHALL BE IN ACCORDANCE WITH THE ENTIRE CONTRACT DOCUMENTS AS DISCUSSED IN THE MSA AND/OR BID FORM AND/OR INSTRUCTIONS TO BIDDERS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY LOCAL, STATE, AND FEDERAL PERMITS REQUIRED THAT HAVE NOT BEEN PREVIOUSLY OBTAINED AND MADE PART OF THE CONTRACT DOCUMENTS.
5. ALL FUEL, OIL, PAINT OR OTHER HAZARDOUS MATERIALS SHALL BE STORED IN A SECONDARY CONTAINMENT AREA AND SECURED IN A LOCKED AREA WITH AN IMPERVIOUS FLOOR DURING NON-WORK HOURS.
6. A SUPPLY OF ABSORBENT SPILL RESPONSE MATERIAL SUCH AS BOOMS OR BLANKETS SHALL BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES.
7. CONTRACTOR TO PERFORM CLEARING AND GRUBBING AS NECESSARY WITHIN PROJECT LIMITS. LIMITS OF CLEARING AND GRUBBING SHALL NOT EXTEND BEYOND THE LIMITS SHOWN. PHASE ALL CLEARING TO MINIMIZE CLEARED AREAS REQUIRED TO COMPLETE SPECIFIED WORK. STUMPS OUTSIDE AREAS OF CONTAMINATED SOIL MAY BE DISPOSED OF AS BULK WASTE AT PERMITTED OFF SITE FACILITY.
8. CONTRACTOR SHALL OBTAIN CITY PERMIT FOR ALL WORK WITHIN THE CITY OF LOCKPORT STREET RIGHT-OF-WAY (R.O.W.).
9. CONTRACTOR SHALL CONTACT DIG-SAFE FOR UTILITY MARK OUTS PRIOR TO ANY SUBSURFACE WORK.
10. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING UTILITY VALVES AND OTHER APPURTENANCES WITHIN PROJECT WORK AREAS.
11. CONTRACTOR SHALL CONTACT NYSEG IMMEDIATELY IF IMPACTED MATERIAL IS ENCOUNTERED OUTSIDE OF IDENTIFIED AREAS.

PROTECTION OF THE TRAVELING PUBLIC

1. ALL WORK AREAS SHALL BE COMPLETELY FENCED, CONFORMING WITH OSHA REGULATIONS AND TO THE SATISFACTION OF THE ENGINEER, TO PROTECT THE PUBLIC AND PREVENT UNAUTHORIZED ENTRY. AT A MINIMUM, ALL TEMPORARY SECURITY FENCE SHALL MEET THE REQUIREMENTS OF THE IBERDROLA USA TECHNICAL MANUAL, YARD AND FENCING STANDARD AND APPLICABLE IBERDROLA USA FENCE GROUNDING STANDARDS.
2. WHILE WORKING WITHIN THE CITY OF LOCKPORT RIGHT OF WAY (R.O.W.), THE CONTRACTOR SHALL FOLLOW MAINTENANCE AND PROTECTION OF TRAFFIC, ITEM 619 OF THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, AND THE LATEST EDITION OF THE NATIONAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS INCLUDING THE NEW YORK STATE SUPPLEMENT.
3. TEMPORARY LANE CLOSURES FOR WORK OUTSIDE THE REMEDIAL EXCAVATION AREAS, IF REQUIRED, SHALL BE APPROVED BY NYSEG. CONTRACTOR SHALL PROVIDE FLAGGING AND CONFORM WITH THE APPLICABLE NEW YORK STATE DEPARTMENT OF TRANSPORTATION US CUSTOMARY STANDARD SHEETS 619-60 AND 619-61.

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

1. ALL ACTIVE AND OPEN PORTIONS OF THE ROADWAYS SHALL BE KEPT CLEAN OF MUD AND DEBRIS AT ALL TIMES.
2. ROADSIDE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES.
3. MATERIALS, EQUIPMENT, AND CONSTRUCTION VEHICLES SHALL NOT BE STORED OR PARKED WITHIN THE CITY OF LOCKPORT RIGHT OF WAY (R.O.W.).
4. ALL BACKFILL MATERIALS SHALL BE TESTED BY THE CONTRACTOR FOR CHEMICAL AND GEOTECHNICAL PARAMETERS AS SPECIFIED IN THE CONTRACT DOCUMENTS. TESTING SHALL CONFORM TO THE APPLICABLE ASTM, NYSDOT, NYSDOH, AND NYSDEC STANDARDS AND SPECIFICATIONS. TESTING LABORATORY SHALL SUBMIT A WRITTEN REPORT DESCRIBING THE TESTS PERFORMED AND THE RESULTS OF SUCH TESTS TO THE CONTRACTOR AND ENGINEER.
5. ALL WORKMANSHIP AND MATERIALS USED FOR BACKFILL AND RESTORATION ITEMS WITHIN THE CITY OF LOCKPORT RIGHT OF WAY (R.O.W.) BOUNDARY SHALL BE IN ACCORDANCE WITH THE REFERENCED NYSDOT STANDARD SPECIFICATION (LATEST EDITION) INCLUDING PLACEMENT, COMPACTION, TESTING AND FINISHING.

CONTRACTOR STAGING

1. THE SITE IS IN A CONGESTED URBAN AREA. AVAILABLE CONTRACTOR STAGING AREAS ARE LIMITED TO THOSE INDICATED ON THE PLANS.
2. CONTRACTOR SHALL OBTAIN USE OF ADDITIONAL OFF SITE STAGING AREAS, AS NEEDED, FOR STORAGE OF EQUIPMENT AND MATERIALS.
3. CONTRACTOR SHALL NOT STAGE CONSTRUCTION VEHICLES AND TRUCKS ON ADJACENT ROADWAYS WHILE WAITING FOR ENTRY TO THE SITE. OBTAIN USE OF OFF SITE STAGING AREAS TO STAGE TRUCK TRAFFIC WAITING TO ACCESS THE SITE.
4. PROVIDE SIGNAGE AND FLAGMEN AS NECESSARY TO ALLOW SAFE SITE ENTRY AND EXIT FROM TRANSIT AVENUE.
5. CONTRACTOR SHALL PROVIDE FOR OFF SITE WORKER PARKING.

GENERAL SUBSURFACE CONDITIONS

1. BORINGS INDICATE THAT OVERBURDEN IS VARIABLE, COMPRISING FILL AND SILTY SAND, WITH CLAY IN SOME AREAS.
2. TOP OF BEDROCK MAY VARY AND IS APPROXIMATELY ELEV. 588.

GENERAL GROUNDWATER CONDITIONS

1. GROUNDWATER DEPTH IS BASED ON AVAILABLE BORING LOGS AND POTENTIMETRIC SURFACE MAPS (URS).
2. THE DESIGN GROUNDWATER LEVEL IS AT A DEPTH OF 5 FEET BELOW EXISTING GRADE. GROUNDWATER LEVELS WILL VARY BY SEASON AND WEATHER CONDITIONS

PROTECTION OF EXISTING FACILITIES

1. PROTECT ADJACENT FACILITIES FROM DAMAGE. THESE INCLUDE, BUT ARE NOT LIMITED TO, EXISTING UTILITIES, SIDEWALKS, CURBS, PAVEMENT, AND LIGHT POLES BEYOND PROJECT AREA. REPAIR AND/OR REPLACE DAMAGED FACILITIES AS APPROVED BY NYSEG AT NO ADDITIONAL COST.
2. PROTECT ALL ADJACENT STRUCTURES FROM DAMAGE.
3. NYSEG WILL PERFORM A PRE-CONSTRUCTION CONDITION SURVEY OF ADJACENT FACILITIES AND STRUCTURES. AT MINIMUM, THESE STRUCTURES SHALL INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING PROPERTIES:
   A.
   B. 36 TRANSIT STREET
   C. 68 SAXTON STREET
   D. 48 LAGRANGE STREET
   E. TIM HORTONS (TRANSIT STREET)
   CHURCH ON OPPOSITE SIDE OF SAXTON STREET
4. MONITOR VIBRATIONS AT ADJACENT STRUCTURES DURING WORK. VIBRATIONS RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL NOT EXCEED A PEAK PARTICLE VELOCITY OF 1 INCH PER SECOND (1 IPS). IF NECESSARY, THE CONTRACTOR SHALL MODIFY THEIR OPERATIONS SO AS TO LIMIT MEASURED PEAK PARTICLE VELOCITY AT THE ADJACENT STRUCTURES TO 1 IPS.

TEMPORARY AND PERMANENT SHEETPILES

1. SHEETPILE LAYOUT AND ASSOCIATED CROSS SECTIONS SHOWN ON THE DRAWINGS WERE DEVELOPED BASED ON THE ASSUMED USE OF AZ 48 SHEETPILES. THIS IS FOR ILLUSTRATION PURPOSES ONLY. ALL REFERENCES ON THE DRAWINGS REGARDING THE USE OF AZ 48 SHEETPILES ARE BASED ON THEIR ASSUMED USE.
2. USE OF AZ 48 SHEETPILES IS NOT REQUIRED. THE SHEETPILE SECTION SHALL BE SELECTED BY THE CONTRACTOR. SHEETPILES SHALL HAVE A MINIMUM SECTION MODULUS OF 24.2 IN /FT (FOR EXAMPLE, AZ 13, OR APPROVED EQUIVALENT). SHEETPILES SHALL HAVE A MINIMUM YIELD STRENGTH OF 50 KSI.
3. THE PLAN DIMENSIONS AND COORDINATES INDICATED ON THE PLANS FOR SHEETPILE LAYOUT AND ASSOCIATED CROSS SECTIONS ARE BASED ON THE ASSUMED USE OF AZ 48 SHEETPILES. ACTUAL PLAN DIMENSIONS AND COORDINATES MAY VARY SLIGHTLY FROM THOSE SHOWN DEPENDING ON THE SHEETPILE SECTION SELECTED BY THE CONTRACTOR. THE INTENT IS TO CONFORM WITH THESE PLAN DIMENSIONS AND COORDINATES TO THE EXTENT PRACTICABLE.
4. CONTRACTOR SHALL PREPARE A SHEETPILE LAYOUT AND CROSS SECTIONS BASED ON THE ACTUAL SHEETPILE SECTION SELECTED FOR THIS PROJECT. SUBMIT LAYOUT AND CROSS SECTIONS TO THE ENGINEER FOR APPROVAL AT LEAST 2 WEEKS PRIOR TO START OF SHEETPILE INSTALLATION.

DEWATERING

1. INSTALL DEWATERING SUMP(S) WITHIN EACH EXCAVATION AREA AND PUMP TO DRAWDOWN THE GROUNDWATER LEVEL.
2. GROUNDWATER LEVEL IN EACH EXCAVATION AREA SHALL BE AT LEAST 1 FOOT BELOW EXCAVATION SUBGRADE LEVEL AT ALL TIMES.
3. ALL WATER REMOVED FROM EXCAVATON AREAS SHALL BE TREATED, SAMPLED, AND DISCHARGED TO THE CITY OF LOCKPORT SEWER SYSTEM AS PER THE WATER TREATMENT SPECIFICATION.

EXCAVATION

1. THE CONTRACTOR SHALL EXCAVATE TO TOP OF ROCK. IF VISIBLE MGP IMPACTS REMAIN AT THIS DEPTH, CONTRACTOR SHALL CONSULT WITH NYSEG TO DETERMINE APPROPRIATE COURSE OF ACTION. ADDITIONAL MEASURES MAY BE NECESSARY, AND SHALL ONLY BE PERFORMED IF DIRECTED BY NYSEG OR ITS DESIGNATED AGENT IN WRITING.
2. CONTRACTOR SHALL PROVIDE DUST AND ODOR CONTROL AS NECESSARY THROUGHOUT DURATION OF ALL PROJECT ACTIVITIES.
3. CONTRACTOR TO SECURE AND MAINTAIN OPEN REMEDIAL EXCAVATIONS AT ALL TIMES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TRANSPORT AND DISPOSAL OF ALL WASTES GENERATED DURING THIS PROJECT.

BACKFILLING EXCAVATION AREAS

1. ALL IMPORTED BACKFILL SHALL BE TESTED BY THE CONTRACTOR PRIOR TO ITS USE ON-SITE. THIS IMPORTED MATERIAL MUST MEET THE REQUIREMENTS OF NYSDEC PART 375-6.8(B) REQUIREMENTS AS SPECIFIED IN THE REMEDIAL DESIGN.
2. IMPORTED BACKFILL SHALL BE SAMPLED AT A FREQUENCY OF 1 SAMPLE PER 500 CUBIC YARDS FOR THIS PURPOSE.
3. IMPORTED BACKFILL PLACED WITHIN THE STREET RIGHT-OF-WAY SHALL MEET THE REQUIREMENTS OF NYSDOT SPECIFICATION SECTION 203.03 - EMBANKMENT IN PLACE.

EROSION AND SEDIMENTATION CONTROL NOTES

1. THE CONTRACTOR SHALL CONSTRUCT ENTRANCE PAD(S) AND TEMPORARY ACCESS/HAUL ROAD(S) WHERE NEEDED TO COMPLETE THE WORK. THE INTENT IS THAT THERE SHALL BE NO OFF-SITE TRACKING OF MATERIAL. CONTRACTOR SHALL IMMEDIATELY SWEEP/CLEAN-UP ANY OFF-SITE TRACKING OF MATERIAL THAT OCCURS.
2. CONTRACTOR SHALL INSTALL AND MAINTAIN FILTER FABRIC ENVELOPES ON ALL EXISTING CATCH BASINS WITHIN THE IMMEDIATE VICINITY OF THE PROPOSED WORK ACTIVITIES.

UTILITIES

1. LOCATION OF EXISTING UTILITIES IS BASED UPON BEST INFORMATION AVAILABLE AT TIME OF DESIGN.
2. CONTRACTOR SHALL COORDINATE WITH OWNERS OF UTILITIES THAT MAY BE IMPACTED BY REMEDIATION CONSTRUCTION.
3. CONTRACTOR TO CONFIRM LOCATION OF ALL UTILITIES PRIOR TO ANY EXCAVATION.
4. GAS LINE ON SOUTH SIDE OF LAGRANGE STREET HAS BEEN ABANDONED IN PLACE BY NYSEG PRIOR TO THE START OF REMEDIAL ACTIVITIES.
5. OVERHEAD UTILITY RELOCATION WILL BE CONDUCTED BY OTHERS PRIOR TO OR DURING REMEDIAL ACTIVITIES. NYSEG WILL COORDINATE WITH OTHER OVERHEAD UTILITY COMPANIES TO ENSURE COMPLETION OF OVERHEAD UTILITY RELOCATION PRIOR TO THE START OF REMEDIAL ACTIVITIES.
6. UNDERGROUND ELECTRIC LINES AND ASSOCIATED MANHOLE STRUCTURES BELOW THE SIDEWALK ON THE SOUTH SIDE OF LAGRANGE STREET SHALL NOT BE DISTURBED.

CONSTRUCTION MONITORING: SETTLEMENT

1. ESTABLISH SURVEYED ELEVATION MONITORING POINTS PRIOR TO COMMENCING WORK AND MONITOR DURING PILE DRIVING OPERATIONS IN ACCORDANCE WITH THE SPECIFICATION. SURVEY ELEVATIONS OF MONITORING POINTS A MINIMUM OF 3 TIMES PRIOR TO THE START OF CONSTRUCTION TO ESTABLISH A BASELINE. MEASURE SURVEY POINTS AND PROVIDE DOCUMENTATION TO THE ENGINEER IN ACCORDANCE WITH THE SPECIFICATIONS.
   A.
   B. 3 POINTS MINIMUM AT 36 TRANSIT STREET
   C. 3 POINTS MINIMUM AT 68 SAXTON STREET
   D. 3 POINTS MINIMUM AT 48 LAGRANGE STREET
   E. 3 POINTS MINIMUM AT TIM HORTONS (TRANSIT STREET)
   3 POINTS MINIMUM AT CHURCH ON OPPOSITE SIDE OF SAXTON STREET

CONSTRUCTION MONITORING: CRACK GAUGES

1. CRACK GAUGES SHALL BE INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS.

CONSTRUCTION MONITORING: VIBRATIONS

1. MONITOR VIBRATIONS ON THE GROUND NEXT TO STRUCTURES CLOSEST TO THE REMEDIATION AREAS TO PROVIDE AMBIENT VIBRATION DATA. POSITION SEISMOGRAPH AT POINT NEAREST PILE DRIVING OPERATIONS.
2. MONITORING VIBRATIONS FOR A MINIMUM OF THREE (3) DAYS PRIOR TO THE START OF THE CONSTRUCTION ACTIVITIES TO ESTABLISH A BASELINE.
3. MONITOR VIBRATIONS AT THE CLOSEST STRUCTURES WHILE DRIVING SHEET PILES, AS APPROVED BY THE ENGINEER. POSITION SEISMOGRAPH AT POINT NEAREST PILE DRIVING OPERATION.
4. IMMEDIATELY NOTIFY ENGINEER OF ANY VIBRATION EXCEEDENCES.
5. TABULATE MONITORING DATA AND PROVIDE SUMMARY TO THE ENGINEER ON A WEEKLY BASIS.

PROJECT COORDINATION

1. ENGINEER SHALL BE RESPONSIBLE FOR ALL WASTEWATER DISCHARGE VERIFICATION AND PERFORMANCE TESTING SAMPLING AND ANALYSIS REQUIRED DURING THE PROJECT. CONTRACTOR SHALL COORDINATE WITH AND ASSIST ENGINEER WITH THESE EFFORTS.
2. ENGINEER SHALL BE RESPONSIBLE FOR PERFORMING PERIMETER AIR MONITORING SPECIFIED IN THE COMMUNITY AIR MONITORING PLAN. CONTRACTOR SHALL COORDINATE WITH AND ASSIST ENGINEER WITH THESE EFFORTS.

CITY OF LOCKPORT - COORDINATION WITH OFFICE OF THE CITY ENGINEER

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

SURVEY AND STAKE-OUT

1. CONTRACTOR SHALL PROVIDE THE SERVICES OF A NEW YORK STATE LICENSED LAND SURVEYOR AS NECESSARY FOR ALL WORK. SURVEYOR SHALL STAKE OUT LIMITS OF EXCAVATION AS SPECIFIED AND OTHER PROJECT LOCATIONS WHERE REQUIRED. SURVEYOR SHALL LOCATE IN THE FIELD ALL SIGNIFICANT PROJECT COMPONENTS AND MILESTONES, INCLUDING BUT NOT LIMITED TO UTILITIES, FINAL LIMITS (VERTICAL AND HORIZONTAL) OF EXCAVATION, AND OTHER APPURTENANT FEATURES. SURVEYOR TO PROVIDE FINAL RECORD DRAWINGS OF THE ACTUAL WORK PERFORMED, INCLUDING A FINAL CONDITIONS SURVEY.
2. THE NEW YORK STATE LICENSED LAND SURVEYOR SHALL STAKEOUT IN THE FIELD THE EDGE OF THE CITY OF LOCKPORT STREET RIGHT-OF-WAY (R.O.W.) ALONG LAGRANGE STREET. THE CONTRACTOR SHALL CONFINE ALL WORK ACTIVITIES WITHIN THE STREET RIGHT-OF-WAY AND PROPERTY CONTROLLED BY NYSEG.

SITE RESTORATION

1. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS WITHIN THE CITY OF LOCKPORT RIGHT-OF-WAY (R.O.W.) TO THE "FINAL REMEDIAL CONSTRUCTION GRADE AND CONDITION" AS DEPICTED ON THE DRAWINGS.
2. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS ON PRIVATE PROPERTY TO PRE-EXISTING GRADE AND CONDITIONS.

AS BUILT / FINAL CONDITIONS SURVEY

1. CONTRACTOR SHALL PROVIDE A FINAL CONDITION SURVEY PREPARED BY A NEW YORK STATE LICENSED LAND SURVEYOR. THE AS BUILT / FINAL CONDITION SURVEY SHALL INCLUDE ALL AREAS DISTURBED BY THE CONTRACTOR, INCLUDING STAGING AREAS.

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

1" — 1INCH — VERIFY SCALE IF PLAN SHEET IS REDUCED

DRN BY: KAM
DES BY: KAM
CHK BY: CHF
APP BY: SAU

AECOM

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE LOCKPORT, NEW YORK

GENERAL NOTES

DATE: APRIL 2013
PROJECT NO.: 60194949
FILENAME: 60194949-LOCKPORT.dwg
SHEET NO.: 2
DRAWING NO.: 2

Plotted By: meisterk
Plot File Date Created: Apr/18/2013 10:04 AM
Layout-Sheet Name: NOTES
Filename: P:\60194949_NYSEGLOCKPORT\CADD\TASK_1\CIVIL\DESIGN\60194949-LOCKPORT.DWG

CONSTRUCTION PHASING

GENERAL

1. REMEDIATION CONSTRUCTION SHALL BE PHASED AS INDICATED IN THE PROJECT SCHEDULE INCLUDED WITH THE DESIGN REPORT. THE FOLLOWING IS A SUMMARY THE REMEDIATION WORK ITEMS AND THE REQUIRED WORK ITEMS BY OTHERS THAT WILL NEED TO BE COMPLETED PRIOR TO THE NEXT REMEDIAL TASK. IF THERE IS A CONFLICT BETWEEN THE FOLLOWING SUMMARY AND THE PROJECT SCHEDULE, THE PROJECT SCHEDULE SHALL PREVAIL.

2. PHASING REQUIRES DETAILED COORDINATION WITH NYSEG, WHO WILL DENERGIZE AND RELOCATE ELECTRICAL EQUIPMENT AND CIRCUITS AS NECESSARY TO ALLOW THE CONTRACTOR TO COMPLETE EACH PHASE OF THE WORK. THIS MAY REQUIRE TEMPORARY WORK STOPPAGES TO ALLOW COMPLETION OF ELECTRICAL WORK BY NYSEG OR OTHER CONTRACTORS BEFORE CONTINUING WITH SUBSEQUENT PHASES OF THE WORK. IT IS STRONGLY RECOMMENDED THAT THE CONTRACTOR REVIEW THE PROJECT SCHEDULED FOR SUCH.

3. THE ESTIMATED TIME REQUIRED FOR NYSEG TO COMPLETE ELECTRICAL WORK FOR EACH WORK PHASE IS INDICATED ON THE DETAILED PROJECT SCHEDULE INCLUDED WITH THE DESIGN REPORT. THE CONTRACTOR SHALL INCORPORATE THESE WORK STOPPAGES INTO THEIR PROPOSED PROJECT SCHEDULE AND TECHNICAL EXECUTION PLAN.

4. PHASING IS DETAILED ON THE DRAWINGS AND SUMMARIZED IN THESE NOTES. THIS SUMMARY IS INTENDED TO OUTLINE THE MAJOR ELEMENTS OF EACH PHASE OF THE WORK. IT DOES NOT NECESSARILY INCLUDE EVERY DETAIL AND ELEMENT OF THE WORK REQUIRED FOR EACH PHASE.

PHASE 1A

1. COORDINATE WITH NYSEG, OTHER CONTRACTORS AND THE CITY OF LOCKPORT FOR THE INSTALLATION OF TEMPORARY DETOUR SIGNS AND TEMPORARILY CLOSE LAGRANGE STREET AND ITS SIDEWALKS AS INDICATED. INSTALL TEMPORARY SECURITY FENCE, GATES AND THEIR REQUIRED GROUNDING. PROVIDE DRIVE-THRU ROUTE TO TIM HORTON'S.
2. RELOCATE THE GARBAGE DUMPSTER AT TIM HORTONS TO THE PROPOSED ADDITIONAL PARKING AREA AS INDICATED.
3. SUBSTATION ACCESS AT SOUTH TRANSIT STREET WILL BE CLOSED. ACCESS TO THE SUBSTATION WILL BE ON LAGRANGE STREET.
4. PRIOR TO PHASE 1A, CIRCUIT 114 WILL BE REMOVED FROM SERVICE BY NYSEG, INCLUDING REMOVAL OF ALL INTERFERING WIRES, POLES AND GUYS.
5. AT MINIMUM, MONITOR AND PROTECT EXISTING CONCRETE RETAINING WALLS AND STRUCTURES ON SOUTH SIDE OF SITE (NO. 36 TRANSIT STREET AND NO. 68 SAXTON STREET).
6. EXCAVATE TEST PITS TO DETERMINE THE EXTENT OF SUBSTRUCTURES, AND FOOTINGS FOR THE RETAINING WALLS ON SOUTH SIDE OF SITE. CONFIRM ALIGNMENT OF THE PERMANENT STEEL SHEETPILE SUBSURFACE BARRIER WALL.
7. INSTALL PHASE 1A PERMANENT STEEL SHEETPILE SUBSURFACE BARRIER WALL ALONG SOUTH SIDE OF SITE AS INDICATED. PROVIDE DRAINAGE HOLES IN SHEETPILES AS INDICATED.
8. SET UP AND INSTALL TEMPORARY GROUNDWATER TREATMENT SYSTEM AND DISCHARGE HOOK UP TO THE CITY OF LOCKPORT MANHOLE AS INDICATED INCLUDING TEMPORARY TRAFFIC CONTROL, BACKFILL AND ROADWAY SURFACE REPAIRS.
9. INSTALL TEMPORARY STEEL SHEETPILES AND SHEETPILE TOE PINS FOR DEEP EXCAVATION CELL OF 5A.
10. DEWATER AND EXCAVATE CELL 5A. PROVIDE BRACING AS INDICATED AS THE EXCAVATION PROGRESSES.
11. INSTALL CLAY CAP OVER BEDROCK, SUBSURFACE COLLECTION TRENCH, BACKFILL CELL 5A TO WITHIN 1.5 FEET OF FINISH GRADE AS INDICATED AND REMOVE BRACING AS THE BACKFILL PROGRESSES.
12. EXTRACT PORTIONS OF CELL 5A SHEETPILES NEAR CIRCUIT 114. LEAVE SHEETING REQUIRED FOR FUTURE DEEP EXCAVATION CELLS IN PLACE.
13. INSTALL CELL 5A PORTION OF THE BEDROCK GROUT CURTAIN WALL.
14. INSTALL BEDROCK EXTRACTION WELL BR-101.
15. INSTALL CELL 5A GROUNDING GRID PORTION, FINISH BACKFILLING AS INDICATED, AND RESTORE SITE PORTION UNDER CIRCUIT 114.
16. COMPLETE PHASE 1A.

PHASE 1B

1. AT COMPLETION OF PHASE 1A AND PRIOR TO STARTUP OF PHASE 1B, CIRCUIT 114 WILL BE RESTORED TO SERVICE BY NYSEG. CIRCUIT 113 WILL THEN BE REMOVED FROM SERVICE, INCLUDING REMOVAL OF ALL INTERFERING WIRES, POLES AND GUYS.
2. DEMOLISH EXISTING STORAGE BUILDING AT SOUTHEAST CORNER OF SITE. PORTIONS OF REAR WALL AND CONCRETE FLOOR SLAB OF STRUCTURE TO REMAIN AS INDICATED. INSTALL SOIL BUTTRESS MATERIALS TO WITHIN 1.5 FEET OF FINISH GRADE TO SUPPORT REMAINING REAR WALL. PROVIDE TEMPORARY SUPPORTS AND SEQUENCE WORK AS NECESSARY TO PRESERVE THE INTEGRITY OF THE REAR WALL AND PREVENT COLLAPSE.
3. CONFIRM GROUND TO WIRE CLEARANCES UNDER CIRCUITS 110, 111, AND 112 FOR TYPE AND HEIGHT OF EQUIPMENT AND MATERIALS TO BE USED.
4. CIRCUITS 110, 111, AND 112 CANNOT BE REMOVED FROM SERVICE AND WILL REMAIN ACTIVE AT ALL TIMES. NYSEG WILL PROVIDE SHIELDING FOR THESE LINES AT CONTRACTOR'S REQUEST.
5. AT MINIMUM, MONITOR AND PROTECT EXISTING CONCRETE RETAINING WALLS AND STRUCTURES ON SOUTH SIDE OF SITE (NO. 36 TRANSIT STREET AND NO. 68 SAXTON STREET). ALSO MONITOR AND PROTECT CHURCH STRUCTURE ON EAST SIDE OF SITE (ACROSS SAXTON STREET) AND NO. 48 LAGRANGE STREET.
6. INSTALL PERMANENT STEEL SHEETPILE BARRIER WALL ALONG SOUTH AND EAST SIDES OF SITE AS INDICATED. PROVIDE DRAINAGE HOLES IN SHEETPILES AS INDICATED. SPLICE SHEETPILES AS NECESSARY TO FACILITATE INSTALLATION OF BARRIER WALL UNDER ACTIVE CIRCUITS 110, 111, 112.
7. INSTALL FILL BUTTRESS GROUNDING GRID PORTION, FINISH BACKFILLING AS INDICATED, AND RESTORE SITE PORTION UNDER CIRCUIT 113.
8. COMPLETE PHASE 1B.

PHASE 2

1. AT COMPLETION OF PHASE 1B, CIRCUIT 113 WILL BE RESTORED TO SERVICE BY NYSEG.
2. CIRCUITS 110, 111, AND 112 CANNOT BE REMOVED FROM SERVICE AND WILL REMAIN ACTIVE AT ALL TIMES. NYSEG WILL PROVIDE SHIELDING FOR THESE LINES AT CONTRACTOR'S REQUEST.
3. REMOVE AT-GRADE CONCRETE HOLDER SLAB AND FOUNDATION AS INDICATED. COMPLETE SHALLOW SOIL EXCAVATION UNDER HOLDER SLAB AS INDICATED. BACKFILL HOLDER EXCAVATION TO WITHIN 1.5 FEET OF FINISH GRADE.
4. EXCAVATE FOR NEW CONTROL BUILDING FOUNDATION AS INDICATED. LEAVE OPEN FOR CONTROL BUILDING INSTALLATION BY OTHERS.
5. EXCAVATE NEW CONDUIT TRENCHES AS INDICATED, PORTION(S) THROUGH ACTIVE SUBSTATION ELECTRICAL EQUIPMENT TO BE EXCAVATED BY HAND. LEAVE OPEN FOR INSTALLATION OF CONDUITS BY OTHERS.
6. UPON COMPLETION OF WORK BY OTHERS, INSTALL PHASE 2 GROUNDING GRID PORTION, FINISH BACKFILLING AS INDICATED.
7. COMPLETE PHASE 2.

PHASE 3

1. AT COMPLETION OF PHASE 2, SUBSTATION ACCESS AT LAGRANGE STREET WILL BE CLOSED. ACCESS TO THE SUBSTATION WILL BE ON SOUTH TRANSIT STREET.
2. THE NEW CONTROL HOUSE AND UNDERGROUND CONDUITS WILL BE INSTALLED BY OTHERS.
3. OVERHEAD ELECTRIC AND COMMUNICATIONS LINES ALONG LAGRANGE STREET, INCLUDING WIRES, POLES AND GUYS, WILL BE REMOVED BY OTHERS PRIOR TO PHASE 3.
4. CIRCUITS 414 AND 416 WILL BE DE-ENERGIZED. HOWEVER, THESE UNDERGROUND CIRCUITS, INCLUDING MANHOLES NO. 64 & 65, WILL NOT BE REMOVED AND MUST BE PROTECTED FROM DAMAGE.
5. COORDINATE WITH NYSEG, OTHER CONTRACTORS AND THE CITY OF LOCKPORT FOR THE CONTINUED TEMPORARY CLOSURE OF LAGRANGE STREET AND ITS SIDEWALKS AS INDICATED. MAINTAIN DETOUR.
6. AT MINIMUM, MONITOR AND PROTECT EXISTING RETAINING WALLS ON NORTH SIDE OF SITE. MONITOR AND PROTECT STRUCTURES ACROSS LAGRANGE STREET (NO. 48 LAGRANGE STREET AND TIM HORTONS). ALSO MONITOR AND PROTECT CHURCH STRUCTURE ON EAST SIDE OF SITE (ACROSS SAXTON STREET).
7. EXCAVATE, REMOVE AND DISPOSE OFF THE PHASE 3 PORTIONS OF EXISTING ASPHALT ROADWAY, CURBS, AND SIDEWALKS ALONG LAGRANGE STREET TAKING CARE NOT TO DISTURB MANHOLES NO. 64 & 65 AND THE CONDUIT BANK FOR CIRCUITS 414 AND 416 THAT WILL REMAIN.
8. EXCAVATE FOR THE PHASE 3 PORTION OF THE NEW RETAINING WALL AND INSTALL REQUIRED MICRO-PILES TAKING CARE NOT TO DISTURB THE CONDUIT BANK FOR CIRCUITS 414 AND 416 THAT WILL REMAIN.
9. INSTALL TEMPORARY STEEL SHEETPILES DEEP EXCAVATION OF CELL 3A.
10. DEWATER AND EXCAVATE CELL 3A. PROVIDE BRACING AS INDICATED AS THE EXCAVATION PROGRESSES.
11. INSTALL CLAY CAP OVER BEDROCK, SUBSURFACE COLLECTION TRENCH, BACKFILL CELL 3A TO BOTTOM OF SUBBASE AND REMOVE BRACING AS THE BACKFILL PROGRESSES.
12. EXTRACT PORTIONS OF CELL 3A SHEETPILES LEAVING SHEETING REQUIRED FOR FUTURE DEEP EXCAVATION CELLS IN PLACE.
13. REPEAT PREVIOUS STEPS FOR CELLS 3B, 3C, AND 3D. LEAVE WESTERN WALL OF CELL 3D IN PLACE FOR USE IN PHASE 4.
14. COMPLETE PHASE 3.

PHASE 4

1. CIRCUITS 414 AND 416 WILL BE RE-ENERGIZED BY NYSEG AT COMPLETION OF PHASE 3.
2. CIRCUIT 108 (BETWEEN MH 65 AND MH66) WILL BE DE-ENERGIZED AT COMPLETION OF PHASE 3 AND PRIOR TO START OF PHASE 4. THIS UNDERGROUND CONDUIT WILL BE ABANDONED. MANHOLE NO. 65 WILL REMAIN AND MUST ALSO BE PROTECTED.
3. COORDINATE WITH NYSEG, OTHER CONTRACTORS AND THE CITY OF LOCKPORT FOR THE CONTINUED TEMPORARY CLOSURE OF LAGRANGE STREET AND ITS SIDEWALKS AS INDICATED. MAINTAIN DETOUR.
4. PROVIDE AND MAINTAIN TEMPORARY DRIVE-THRU DETOUR FOR TIM HORTONS AS INDICATED.
5. AT MINIMUM, MONITOR AND PROTECT EXISTING RETAINING WALLS ON NORTH SIDE OF SITE. MONITOR AND PROTECT STRUCTURES ACROSS LAGRANGE STREET (NO. 48 LAGRANGE STREET AND TIM HORTONS).
6. EXCAVATE, REMOVE AND DISPOSE OFF THE PHASE 4 PORTIONS OF EXISTING ASPHALT ROADWAY, CURBS, AND SIDEWALKS ALONG LAGRANGE STREET TAKING CARE NOT TO DISTURB MANHOLE NO. 65 THAT WILL REMAIN.
7. EXCAVATE FOR THE PHASE 4 PORTION OF THE NEW RETAINING WALL AND INSTALL REQUIRED MICRO-PILES TAKING CARE NOT TO DISTURB MANHOLE NO. 65 THAT WILL REMAIN.
8. RELOCATE TEMPORARY GROUNDWATER TREATMENT SYSTEM.
9. INSTALL TEMPORARY STEEL SHEETPILES DEEP EXCAVATION OF CELL 4A.
10. DEWATER AND EXCAVATE CELL 4A. PROVIDE BRACING AS INDICATED AS THE EXCAVATION PROGRESSES.
11. INSTALL CLAY CAP OVER BEDROCK, SUBSURFACE COLLECTION TRENCH, BACKFILL CELL 4A TO BOTTOM OF SUBBASE AND REMOVE BRACING AS THE BACKFILL PROGRESSES.
12. EXTRACT PORTIONS OF CELL 4A SHEETPILES LEAVING SHEETING REQUIRED FOR FUTURE DEEP EXCAVATION CELLS IN PLACE.
13. REPEAT PREVIOUS STEPS FOR CELLS 4B, 4C, AND 4D. LEAVE SOUTHERN WALL OF CELL 4D IN PLACE FOR USE IN PHASE 4.
14. COMPLETE PHASE 4.

PHASE 5

1. DURING THIS PHASE, THE UNDERGROUND CONDUIT FOR CIRCUIT 108 WILL BE RECONSTRUCTED ALONG A NEW ALIGNMENT BETWEEN MANHOLES NOS. 65 AND 67 ON LAGRANGE STREET BY NYSEG.
2. THE EXISTING METAL CONTROL HOUSE BUILDING AT THE NORTHWEST CORNER OF THE SITE WILL BE REMOVED BY OTHERS PRIOR TO START OF PHASE 5.
3. THE EXISTING TWO-BAY 12 kV AND BUS WORK WILL BE REMOVED BY NYSEG PRIOR TO START OF PHASE 5. THIS INCLUDES DE-ENERGIZING AND ABANDONING ASSOCIATED UNDERGROUND ELECTRIC LINES WITHIN THE PHASE 5 WORK AREA.
4. THE TWO EXISTING 34.5 kV SUBSTATION FEEDS CANNOT BE REMOVED. HOWEVER, ONE OF THE TWO FEEDS CAN BE TEMPORARILY DE-ENERGIZED, WHILE THE OTHER REMAINS ENERGIZED. THIS WILL ALLOW SEQUENTIAL CONSTRUCTION OF DEEP EXCAVATION CELLS IN PHASE 5. CONFIRM ALL WORKING WIRE CLEARANCES WITH PROPOSED LAYOUT. COORDINATE WITH NYSEG FOR ANY MOVING OR SHIELDING OF SUBSTATION FEEDS AND OTHER ELECTRICAL EQUIPMENT.
5. COORDINATE WITH NYSEG, OTHER CONTRACTORS AND THE CITY OF LOCKPORT FOR THE CONTINUED TEMPORARY CLOSURE OF LAGRANGE STREET AND ITS SIDEWALKS AS INDICATED. MAINTAIN DETOUR.
6. MAINTAIN TEMPORARY DRIVE-THRU DETOUR FOR TIM HORTONS AS INDICATED.
7. AT MINIMUM, MONITOR AND PROTECT REMAINING PORTION OF EXISTING RETAINING WALLS ON NORTH SIDE OF SITE. MONITOR AND PROTECT ADJACENT STRUCTURES (NO. 36 TRANSIT STREET AND TIM HORTONS).
8. CONSTRUCT EXCAVATION CELLS IN THE FOLLOWING SEQUENCE:

PHASE 5, EXCAVATION CELL 5B

1. THE SOUTHERLY 34.5 kV SUBSTATION FEED WILL TEMPORARILY BE DE-ENERGIZED BY NYSEG. THE NORTHERLY 34.5 kV SUBSTATION FEED WILL REMAIN ENERGIZED (CONFIRM WORKING WIRE CLEARANCES).
2. UNCOVER AND LOCATE BY SURVEY THE EXISTING OIL COLLECTION SYSTEM FOR REINSTALLATION BACK TO ITS ORIGINAL GRADE AND ALIGNMENT.
3. REMOVE AND STORE THE EXISTING OIL COLLECTION SYSTEM.
4. TIE INTO SHEETPILES LEFT IN PLACE FROM CELL 5A AND INSTALL REMAINING TEMPORARY STEEL SHEETPILES AND SHEETPILE TOE PINS FOR DEEP EXCAVATION OF CELL 5B. SPLICE SHEETPILES, IF NECESSARY, TO FACILITATE INSTALLATION UNDER THE INACTIVE SOUTHERN 34.5 kV FEED.
5. DEWATER AND EXCAVATE CELL 5B. PROVIDE BRACING AS INDICATED AS THE EXCAVATION PROGRESSES.
6. INSTALL CLAY CAP OVER BEDROCK, BACKFILL CELL 5B TO WITHIN 1.5 FEET OF FINISH GRADE AS INDICATED AND REMOVE BRACING AS THE BACKFILL PROGRESSES.
7. EXTRACT PORTIONS OF CELL 5B SHEETPILES LEAVE EASTERN AND NORTHERN PORTION OF SHEETING REQUIRED FOR FUTURE DEEP EXCAVATION OF CELL 5C & CELL 5D IN PLACE.

PHASE 5, EXCAVATION CELL 5C

1. THE SOUTHERLY 34.5 kV SUBSTATION FEED WILL REMAIN DE-ENERGIZED. THE NORTHERLY 34.5 kV SUBSTATION FEED WILL REMAIN ENERGIZED.
2. TIE INTO SHEETPILES LEFT IN PLACE FROM CELL 5A & CELL 5B. INSTALL REMAINING TEMPORARY STEEL SHEETPILES AND SHEETPILE TOE PINS FOR DEEP EXCAVATION OF CELL 5C. SPLICE SHEETPILES, IF NECESSARY, TO FACILITATE INSTALLATION UNDER THE INACTIVE SOUTHERN 34.5 kV FEED.
3. DEWATER AND EXCAVATE CELL 5C. PROVIDE BRACING AS INDICATED AS THE EXCAVATION PROGRESSES.
4. INSTALL CLAY CAP OVER BEDROCK, SUBSURFACE COLLECTION TRENCH, BACKFILL CELL 5C TO WITHIN 1.5 FEET OF FINISH GRADE AS INDICATED AND REMOVE BRACING AS THE BACKFILL PROGRESSES.
5. EXTRACT PORTIONS OF CELL 5C SHEETPILES LEAVING NORTHERN PORTION OF SHEETING REQUIRED FOR FUTURE DEEP EXCAVATION OF CELL 5D IN PLACE.

PHASE 5, EXCAVATION CELL 5D

1. THE SOUTHERLY 34.5 kV SUBSTATION FEED WILL REMAIN DE-ENERGIZED. THE NORTHERLY 34.5 kV SUBSTATION FEED WILL REMAIN ENERGIZED.
2. TIE INTO SHEETPILES LEFT IN PLACE FROM CELL 5B & CELL 5C. INSTALL REMAINING TEMPORARY STEEL SHEETPILES AND SHEETPILE TOE PINS FOR DEEP EXCAVATION OF CELL 5D. SPLICE SHEETPILES, IF NECESSARY, TO FACILITATE INSTALLATION UNDER THE INACTIVE SOUTHERN 34.5 kV FEED.
3. DEWATER AND EXCAVATE CELL 5D. PROVIDE BRACING AS INDICATED AS THE EXCAVATION PROGRESSES.
4. INSTALL CLAY CAP OVER BEDROCK, SUBSURFACE COLLECTION TRENCH, BACKFILL CELL 5D TO WITHIN 1.5 FEET OF FINISH GRADE AS INDICATED AND REMOVE BRACING AS THE BACKFILL PROGRESSES.
5. EXTRACT PORTIONS OF CELL 5D SHEETPILES LEAVING NORTHERN PORTION OF SHEETING REQUIRED FOR FUTURE DEEP EXCAVATION OF CELL 5E & CELL 5F IN PLACE.
6. PLACE CONCRETE, CURE, STRIP AND BACKFILL CONCRETE FOUNDATION FOR SWITCHGEAR AND BREAKER FOUNDATIONS AS INDICATED.
7. INSTALL CELLS 5B, 5C, AND 5D PORTION OF THE BEDROCK GROUT CURTAIN WALL.
8. INSTALL BEDROCK EXTRACTION WELLS BR-102 AND BR-103.
9. INSTALL OIL COLLECTION SYSTEM ORIGINAL LINE AND GRADE.
10. INSTALL CELLS 5B, 5C, AND 5D GROUNDING GRID PORTION. FINISH BACKFILLING AS INDICATED, AND RESTORE SITE PORTION UNDER THE SOUTHERLY 34.5 kV SUBSTATION FEED.
11. COMPLETE CELLS 5B, 5C, AND 5D PORTION OF PHASE 5.

PHASE 5, EXCAVATION CELL 5E

1. THE SOUTHERLY 34.5 kV SUBSTATION FEED WILL BE RE-ENERGIZED. THE NORTHERLY 34.5 kV SUBSTATION FEED WILL BE DE-ENERGIZED BY NYSEG.
2. INSTALL TEMPORARY H-PILE GUY POLE AND ANCHORS AS INDICATED.
3. RELOCATE EXISTING GUY WIRES FOR THE NORTHERLY 34.5 kV SUBSTATION FEED POLE FROM THE EXISTING ANCHORS TO THE TEMPORARY H-PILE GUY POLE AND ANCHORS BY NYSEG.
4. SAW CUT AND REMOVE WESTERLY END OF EXISTING RETAINING WALL ON NORTH SIDE OF SITE TO ALLOW INSTALLATION TEMPORARY SHEETPILES AS INDICATED.
5. TIE INTO SHEETPILES LEFT IN PLACE FROM CELL 5D. INSTALL REMAINING TEMPORARY STEEL SHEETPILES AND SHEETPILE TOE PINS FOR DEEP EXCAVATION OF CELL 5E. SPLICE SHEETPILES, IF NECESSARY, TO FACILITATE INSTALLATION UNDER THE INACTIVE NORTHERN 34.5 kV FEED AND RELOCATED GUY WIRES.
6. DEWATER AND EXCAVATE CELL 5E. PROVIDE BRACING AS INDICATED AS THE EXCAVATION PROGRESSES.
7. INSTALL CLAY CAP OVER BEDROCK, SUBSURFACE COLLECTION TRENCH, BACKFILL CELL 5E TO THE BOTTOM OF THE NEW RETAINING WALL FOOTING GRADE AND SLOPE FILL TO WITHIN 1.5 FEET OF FINISH GRADE AS INDICATED.
8. REALIGN OR ADD BRACING AS REQUIRED AND REMOVE WALE SECTIONS FOR THE INSTALLATION OF THE RETAINING WALL AS THE BACKFILL PROGRESSES.
9. PLACE CONCRETE FOR CELL 5E PORTION OF NEW RETAINING WALL FOOTING AND RETAINING WALL.
10. AFTER CONCRETE CURING TIME(S) ON NEWLY PLACED WALLS AND FOOTINGS INSTALL PORTION OF REMAINING BACKFILL TO WITHIN 1.5 FEET OF FINISH GRADE AND SLOPED TO THE BOTTOM OF FOOTING ELEVATION ON THE WESTERN SIDE.
11. EXTRACT PORTIONS OF CELL 5E SHEETPILES LEAVING WESTERN PORTION OF SHEETING REQUIRED FOR FUTURE DEEP EXCAVATION OF CELL 5F IN PLACE.

PHASE 5, EXCAVATION CELL 5F

1. THE NORTHERLY 34.5 kV SUBSTATION FEED WILL REMAIN DE-ENERGIZED. THE SOUTHERLY 34.5 kV SUBSTATION FEED WILL REMAIN ENERGIZED.
2. TIE INTO SHEETPILES LEFT IN PLACE FROM CELL 5D & CELL 5E. INSTALL REMAINING TEMPORARY STEEL SHEETPILES AND SHEETPILE TOE PINS FOR DEEP EXCAVATION OF CELL 5F. SPLICE SHEETPILES, IF NECESSARY, TO FACILITATE INSTALLATION UNDER THE INACTIVE SOUTHERN 34.5 kV FEED AND RELOCATED GUY WIRES.
3. DEWATER AND EXCAVATE CELL 5F. PROVIDE BRACING AS INDICATED AS THE EXCAVATION PROGRESSES.
4. INSTALL CLAY CAP OVER BEDROCK, BACKFILL CELL 5F TO THE BOTTOM OF THE NEW RETAINING WALL FOOTING GRADE AND SLOPE FILL TO WITHIN 1.5 FEET OF FINISH GRADE AS INDICATED.
5. REALIGN OR ADD BRACING AS REQUIRED AND REMOVE WALE SECTIONS FOR THE INSTALLATION OF THE RETAINING WALL AS THE BACKFILL PROGRESSES.
6. PLACE CONCRETE FOR CELL 5F PORTION OF NEW RETAINING WALL FOOTING AND RETAINING WALL. TIE INTO THE CELL 5E PORTION WITH REINFORCING STEEL MECHANICAL CONNECTORS AS INDICATED.
7. AFTER CONCRETE CURING TIME(S) ON NEWLY PLACED WALLS AND FOOTINGS, INSTALL REMAINING BACKFILL TO WITHIN 1.5 FEET OF FINISH GRADE FOR CELL 5E & CELL 5F.
8. EXTRACT ALL REMAINING SHEET PILE.
9. INSTALL CELL 5E & CELL 5F PORTION OF THE BEDROCK GROUT CURTAIN WALL.
10. INSTALL BEDROCK EXTRACTION WELLS BR-104, BR-105 AND BR-106.
11. INSTALL CELL 5E & CELL 5F GROUNDING GRID PORTION, FINISH BACKFILLING AS INDICATED, AND RESTORE SITE PORTION UNDER THE SOUTHERLY 34.5 kV SUBSTATION FEED.
12. INSTALL NEW GUY WIRE ANCHORS AND RELOCATE GUY WIRES FOR THE NORTHERLY 34.5 kV SUBSTATION FEED BY NYSEG.
13. THE NORTHERLY 34.5 kV SUBSTATION FEED WILL BE RE-ENERGIZED BY NYSEG.
14. COMPLETE PHASE 5.

PHASE 6

1. PHASE 6 WORK IS TO INCLUDE THE INSTALLATION OF THE GROUT CURTAIN WALL ALONG LAGRANGE STREET AND THE INSTALLATION OF BEDROCK EXTRACTION WELLS BR-107 THROUGH BR-112.
2. PHASE 6 SHALL OCCUR CONCURRENTLY WITH THE FIRST PORTION OF PHASE 5.
3. THE PHASE 6 WORK SHALL START AT THE WESTERN END OF CELL 4D AND PRECEDE EASTERLY.
4. UPON COMPLETION OF THE WESTERN PORTION OF PHASE 6 THE UNDERGROUND CONDUIT FOR CIRCUIT 108 WILL BE RECONSTRUCTED ALONG A NEW ALIGNMENT BETWEEN MANHOLES NOS. 65 AND 67 ON LAGRANGE STREET BY NYSEG.
5. COMPLETE PHASE 6.

PHASE 7

1. PHASE 7 WORK IS TO INCLUDE THE INSTALLATION BEDROCK EXTRACTION WELLS BR-201 THROUGH BR-217 AND THE FINAL RESTORATION OF THE SUBSTATION SITE, LAGRANGE STREET AND ANY OTHER DISTURBED AREAS CAUSED BY THE CONTRACTORS OPERATIONS.
2. CONTRACTOR SHALL SCHEDULE THE INSTALLATION FINAL RESTORATION MATERIALS WITH NYSEG AND OTHER CONTRACTORS TO LIMIT ANY DISTURBANCE OF THE FINAL CONDITION.
3. UPON COMPLETION AND ACCEPTANCE OF THE RESTORATION OF LAGRANGE STREET, CONTRACTOR SHALL REMOVE ALL TRAFFIC CONTROL ITEMS, DETOUR SIGNS, TEMPORARY SECURITY FENCING AND SEDIMENT CONTROL FENCES OR HAY BAILS.
4. COMPLETE PHASE 7.

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

AECOM

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE
LOCKPORT, NEW YORK

PROPOSED CONSTRUCTION SEQUENCE

DATE: APRIL 2013
PROJECT NO.: 60194949
FILENAME: 60194949-LOCKPORT.dwg
SHEET NO.: 3
DRAWING NO.: 3

Plotted By: meisterk
Plot File Date Created: Apr/18/2013 10:16 AM
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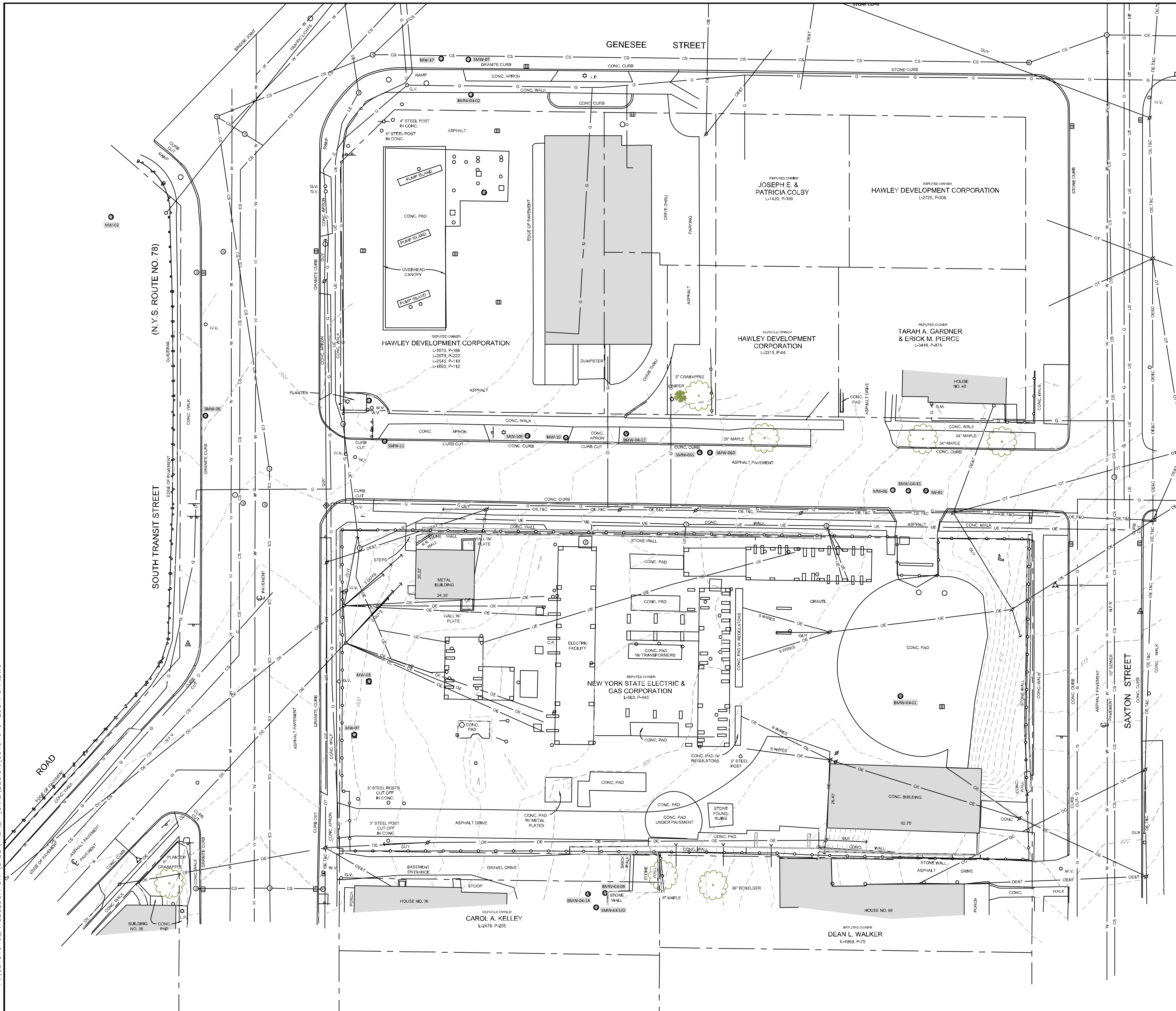
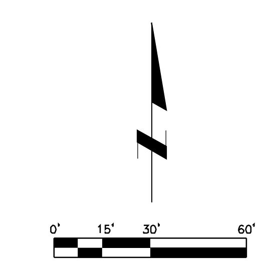


LEGEND

Symbol	Description
UE	UNDERGROUND ELECTRIC
OT	OVERHEAD TELEPHONE
OE,T&C	OVERHEAD ELECTRIC, TELEPHONE & CABLE
OE&T	OVERHEAD ELECTRIC & TELEPHONE
OE&C	OVERHEAD ELECTRIC & CABLE
CS	COMBINATION SEWER
ST	STORM SEWER
W	WATER
G	GAS
	GUIDERAIL
X	FENCE
P.P.	POWER POLE
L.P.	LIGHT POLE
E.B.	ELECTRIC BOX
E.M.	ELECTRIC METER
MON. WELL	MONITORING WELL
D.I.	DROP INLET
C.B.	CATCH BASIN
ST. M.H.	STORM MANHOLE
SAN. M.H.	SANITARY MANHOLE
COMB. M.H.	COMBINATION MANHOLE
GAS M.H.	GAS MANHOLE
D.S.	DOWNSPOUT
Y.D.	YARD DRAIN
G.P.	GATE POST
C.O.	CLEANOUT
G.V.	GAS VALVE
G.M.	GAS METER
W.V.	WATER VALVE
HYD.	HYDRANT
F.C.	GAS FILL CAP
ELEC. M.H.	ELECTRIC MANHOLE
	SIGN
C.P.	CONCRETE PAD
COND.	CONDUIT
N.F.V.	NOT FIELD VERIFIED

MAP REFERENCE:
BASE MAPPING FROM A PLAN TITLED TOPOGRAPHIC/PLANIMETRIC MAP OF PART OF LOT-12, SEC.-14, TWP.-14, R.-6 HOLLAND PURCHASE CITY OF LOCKPORT, NIAGARA COUNTY, NEW YORK, BY MCINTOSH & MCINTOSH, PC, DATED JUNE 1, 2011 AND ALL NOTES AND REFERENCES THEREIN.



VERIFY SCALE IF PLAN SHEET IS REDUCED

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

DRN BY: KAM
DES BY: KAM
CHK BY: CHF
APP BY: SAU

AECOM

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE LOCKPORT, NEW YORK

EXISTING CONDITIONS

DATE: APRIL 2013
PROJECT NO.: 60194949
FILENAME: 60194949-LOCKPORT.dwg
SHEET NO.: 4
DRAWING NO.: 4

Plotted By: meisterk
Plot File Date Created: Apr/18/2013 10:21 AM
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Plotted By: meisterk
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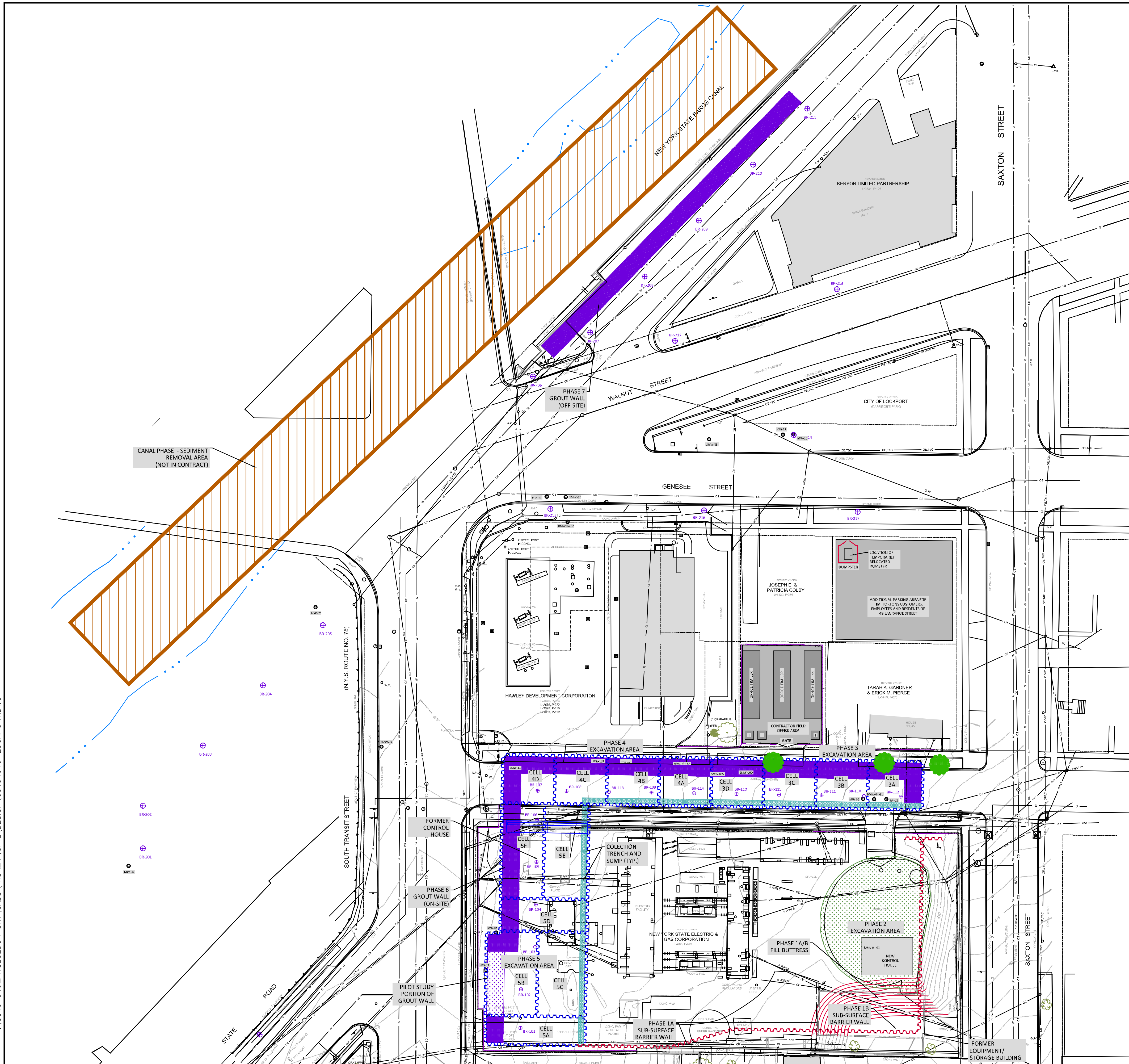

LEGEND

- UE — UNDERGROUND ELECTRIC
- OT — OVERHEAD TELEPHONE
- OE,T&C — OVERHEAD ELECTRIC, TELEPHONE & CABLE
- OE&T — OVERHEAD ELECTRIC & TELEPHONE
- OE&C — OVERHEAD ELECTRIC & CABLE
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- ST — STORM SEWER
- W — WATER
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- L.P. — LIGHT POLE
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- W.V. — WATER VALVE
- HYD. — HYDRANT
- F.C. — GAS FILL CAP
- ELEC. M.H. — ELECTRIC MANHOLE
- SIGN
- C.P. — CONCRETE PAD
- COND. — CONDUIT
- N.F.V. — NOT FIELD VERIFIED
- DEEP EXCAVATION AREA (SHEET PILE)
- SUB-SURFACE BARRIER WALL (SHEET PILE)
- SUBSURFACE COLLECTION TRENCH WITH COLLECTION WELL
- BUTTRESS FILL CONTOUR (1 FT.)
- AREA OF SHALLOW REMEDIAL EXCAVATION
- BEDROCK GROUT WALL
- BR-116 — BEDROCK EXTRACTION WELL
- SEDIMENT REMOVAL AREA
- SILT FENCE (LOCATION VARIES BY PHASE)
- TREE TO BE REMOVED

WELLS TO BE ABANDOND

LOCATION	NAME	OPEN HOLE / SCREEN INTERVAL (FEET BG)	TYPE
PHASE 1	NONE		
PHASE 2	BMW-04-01	30 - 40	BEDROCK
PHASE 3	IW-02	16.5 - 23.5	BEDROCK
	MW-06	24 - 35.5	BEDROCK
	MW-04-11	38.2 - 60	BEDROCK
	SMW-06S	3 - 8.5	OVERBURDEN
	SMW-06D	8.5 - 14	OVERBURDEN
PHASE 4	MW-105	3 - 13	OVERBURDEN
	MW-10	18 - 34.5	BEDROCK
	SMW-11	5 - 10	OVERBURDEN
PHASE 5	MW-03	13.9 - 60	BEDROCK
	MW-07	44.5 - 54.5	BEDROCK

Note - Bedrock Wells area open holes, Overburden Wells are screens

WELL ABANDONMENT NOTE:

MONITORING WELLS SHALL BE ABANDONED IN ACCORDANCE WITH THE NYSDEC COMMISSIONER POLICY CP-43 - GROUNDWATER MONITORING WELL DECOMMISSIONING POLICY (NYSDEC, 2009)

NOTES:

1) A CONTRACTOR FIELD OFFICE AREA HAS BEEN PROVIDED ON THESE PLANS ALONG WITH A SCHEMATIC LAYOUT OF CONSTRUCTION OFFICES.

2) CONTRACTOR SHALL PERFORM A TOPOGRAPHIC SURVEY ON THIS LOT AND PROVIDE THE INFORMATION TO THE ON-SITE ENGINEER. THIS INFORMATION SHALL ALSO INCLUDE PLAN(S) FOR THE USE OF THIS PROPERTY DURING THE REMEDIAL CONSTRUCTION AND ADDITIONAL PLAN(S) SHOWING ITS FINAL RESTORATION .

3) THE ON-SITE ENGINEER SHALL APPROVE THESE PLANS PRIOR TO ANY MATERIALS BROUGHT ONTO THE SITE.

4) LIMITED SPACE IS AVAILABLE ON SITE FOR THIS PROJECT. THE CONTRACTOR SHALL INCLUDE IN THEIR TECHNICAL EXECUTION PLAN (TEP) THE LOCATION(S) OF INTENDED AREAS TO BE USED FOR MATERIAL STORAGE AND/OR STOCKPILES FOR EACH PHASE OF WORK.

5) NO EQUIPMENT OR MATERIALS SHALL BE STORED AND/OR STOCKPILED WITHIN THE SUBSTATION.

6) NO EQUIPMENT OR MATERIALS SHALL BE STORED AND/OR STOCKPILED WITHIN THE CITY OF LOCKPORT R.O.W. BEYOND THE AREA OF WORK.

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

VERIFY SCALE IF PLAN SHEET IS REDUCED — 1-INCH

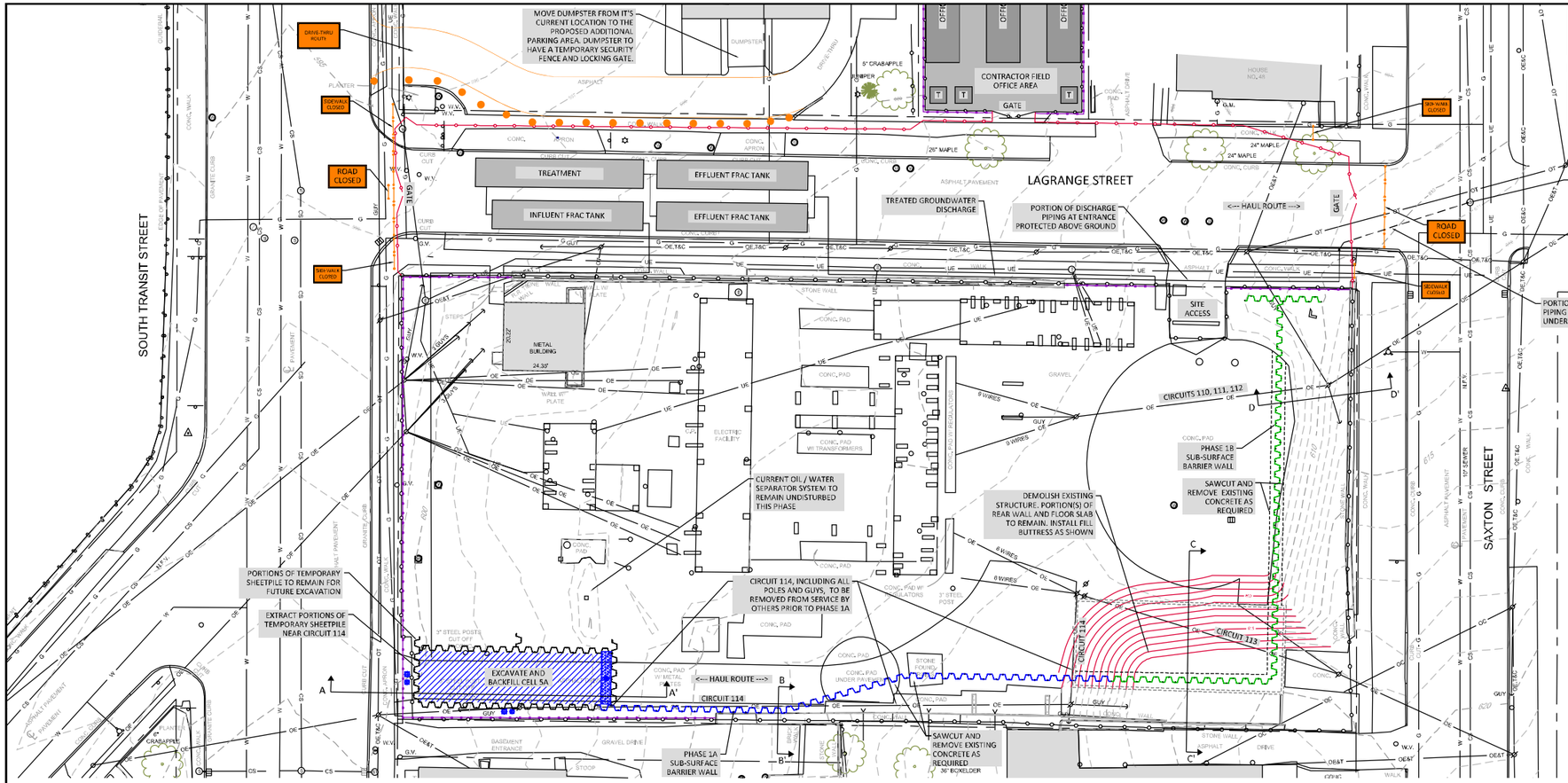
DRN BY: KAM | DES BY: KAM | CHK BY: CHF | APP BY: SAU

AECOM

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE LOCKPORT, NEW YORK

GENERAL PLAN

DATE: APRIL 2013
PROJECT NO.: 60194949
FILENAME: 60194949-LOCKPORT.dwg
SHEET NO.: 5
DRAWING NO.: 5



LEGEND

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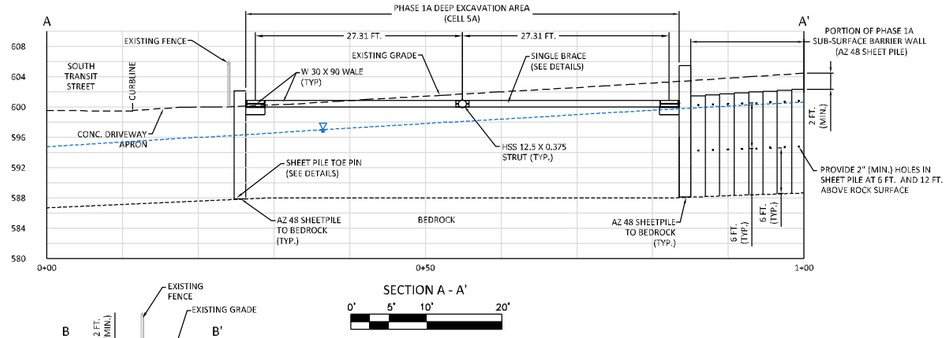
- ELEC. M.H. — ELECTRIC MANHOLE
- SIGN
- C.P. — CONCRETE PAD
- COND. — CONDUIT
- N.F.V. — NOT FIELD VERIFIED
- PHASE 1A - PERMANENT SHEETPILE (SUBSURFACE BARRIER)
- PHASE 1A - TEMPORARY SHEET PILE (FOR DEEP EXCAVATION)
- PHASE 1A - AREA OF DEEP REMEDIAL EXCAVATION
- SUBSURFACE COLLECTION TRENCH WITH COLLECTION WELL
- PHASE 1B - PERMANENT SHEETPILE (SUBSURFACE BARRIER)
- PIEZOMETER
- INCLINOMETER
- BUTTRESS FILL CONTOUR (1 FT.)
- TYPE III BARRICADE
- TRAFFIC BARREL
- TEMPORARY SECURITY FENCE
- SILT FENCE

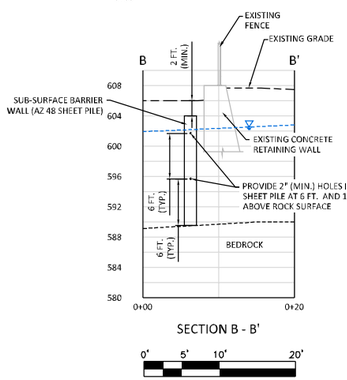
PLAN

0' 10' 20' 40'



SECTION A - A'

0' 5' 10' 20'



SECTION B - B'

0' 5' 10' 20'

PHASE 1A AND 1B NOTES:

1) SHEET PILE EXCAVATION SYSTEM DESIGN AND LAYOUT SHOWN IS BASED ON A AZ-48 SHEET.

2) THE LAYOUT AND DESIGN OF THE SHEET PILE EXCAVATION SYSTEM AND SUBSURFACE BARRIER WALL WAS PERFORMED WITHOUT ANY SUBSURFACE INFORMATION OF EXISTING STRUCTURES AND/OR RETAINING WALLS. THE CONTRACTOR SHALL VERIFY, BY MEANS OF DIGGING EXPLORATORY TEST HOLES, THE EXTENT OF THE EXISTING SUBSTRUCTURES AND THE POSSIBLE PRESENCE OF STRUCTURAL FOUNDATIONS.

3) IF THE EXISTING SUBSTRUCTURE(S) ARE FOUND TO BE IN CONFLICT WITH THE PROPOSED LAYOUT OF THE SHEET PILE EXCAVATION SYSTEM OR SUBSURFACE BARRIER WALL THE CONTRACTOR SHALL ADJUST THE LAYOUT WITH APPROVAL OF THE THE ON-SITE ENGINEER

4) SEE GENERALS NOTES, DWG 2, FOR ADDITIONAL INFORMATION.

5) SEE PROPOSED CONSTRUCTION SEQUENCE, DWG. 3 FOR SUGGESTED CONSTRUCTION SEQUENCING INFORMATION.

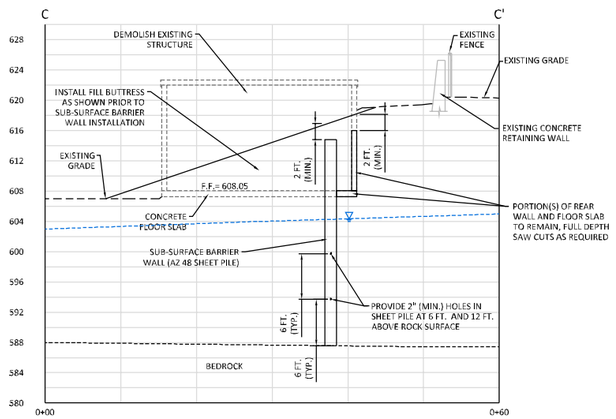
6) FOR CELL SHEETPILE AND SUBSURFACE BARRIER WALL LAY OUT SEE DWG. 13.

7) FOR TYPICAL BACKFILL SECTIONS AND COLLECTION TRENCH DETAILS SEE DWG. 15.

8) FOR TYPICAL CONSTRUCTION DETAILS DWG. 22.

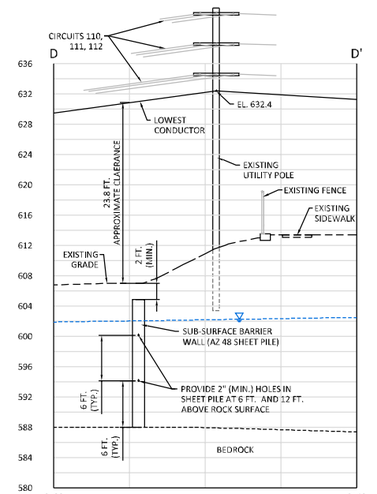
9) FOR RESTORATION INFORMATION SEE DWGS. 16 - 19.

10) SEE GENERAL PLAN DWG. 5, FOR A LIST OF EXISTING MONITORING WELLS TO BE ABANDONED THIS PHASE.



SECTION C - C'

0' 5' 10' 20'



SECTION D - D'

0' 5' 10' 20'

NOTE:

GROUNDWATER INFORMATION FROM REMEDIAL INVESTIGATION REPORT BY URS. INFORMATION FROM JUNE 2005.

DRN BY:	CHK	DATE (M/D/Y)
KAM		
DES BY	DRN	
KAM		
CHK BY:	CHK	
CHF		
APP BY:	REV	DESCRIPTION
SAU		

VERIFY SCALE IF PLAN SHEET IS REDUCED

1" = 1 INCH

AECOM

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE
LOCKPORT, NEW YORK

PHASE 1A / 1B
REMEDIAL EXCAVATION GENERAL LAYOUT

STATE OF NEW YORK — SCOTT ANDREW URBAN — 075290 — LICENSED PROFESSIONAL ENGINEER

DATE	APRIL 2013
PROJECT NO.	60194949
FILENAME	60194949-LOCKPORT.dwg
SHEET NO.	6
DRAWING NO.	6

Plotted By: meisterk
Plot File Date Created: Apr/18/2013 10:26 AM
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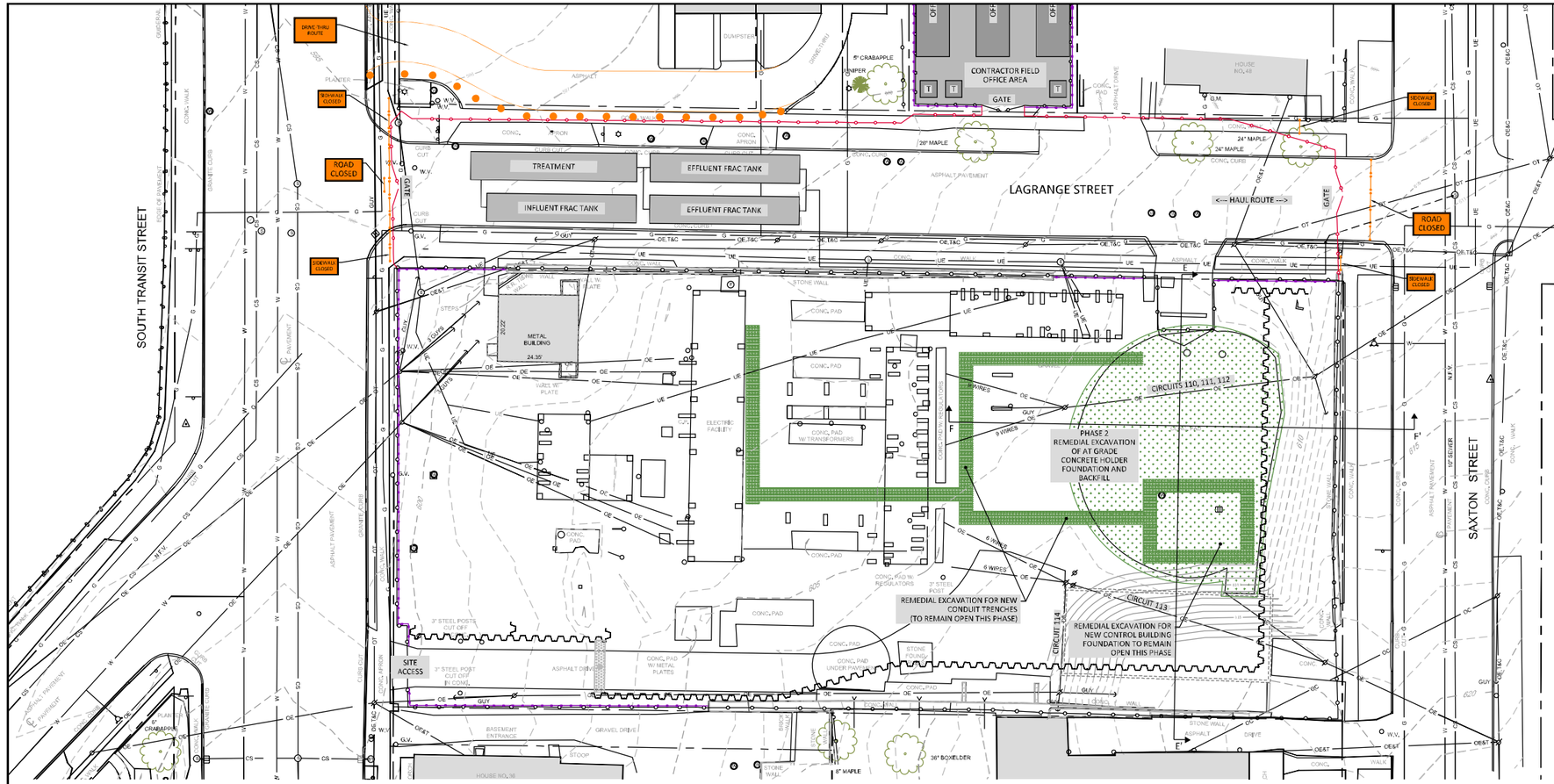

LEGEND

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- ELEC. M.H. — ELECTRIC MANHOLE
- SIGN
- C.P. — CONCRETE PAD
- COND. — CONDUIT
- N.F.V. — NOT FIELD VERIFIED
- PHASE 2 - AREA OF SHALLOW REMEDIAL EXCAVATION
- PHASE 2 - EXCAVATION FOR NEW CONTROL HOUSE FOUNDATION AND CONDUIT TRENCHES
- PERMANENT SHEETPILE (SUBSURFACE BARRIER)
- SUBSURFACE COLLECTION TRENCH WITH COLLECTION WELL
- TYPE III BARRICADE
- TRAFFIC BARREL
- TEMPORARY SECURITY FENCE
- SILT FENCE

PLAN

0' 10' 20' 40'

PHASE 2 NOTES:

1) EXCAVATION FOR THE NEW CONTROL BUILDING AND NEW COMMON CONDUIT TRENCHING SHALL BE LEFT OPEN FOR THE INSTALLATION OF FOUNDATION(S) AND NEW CONTROL CONDUITS TO BE INSTALLED BY OTHERS.

2) THESE OPEN EXCAVATIONS SHALL BE BACKFILLED TO WITHIN 6" OF FINAL GRADE BY OTHERS.

3) CONTRACTOR SHALL BE RESPONSIBLE FOR FILLING REMAINING 6" WITH STONE TOPPING AS SHOWN ON RESTORATION DETAILS.

4) SEE GENERALS NOTES, DWG 2, FOR ADDITIONAL INFORMATION.

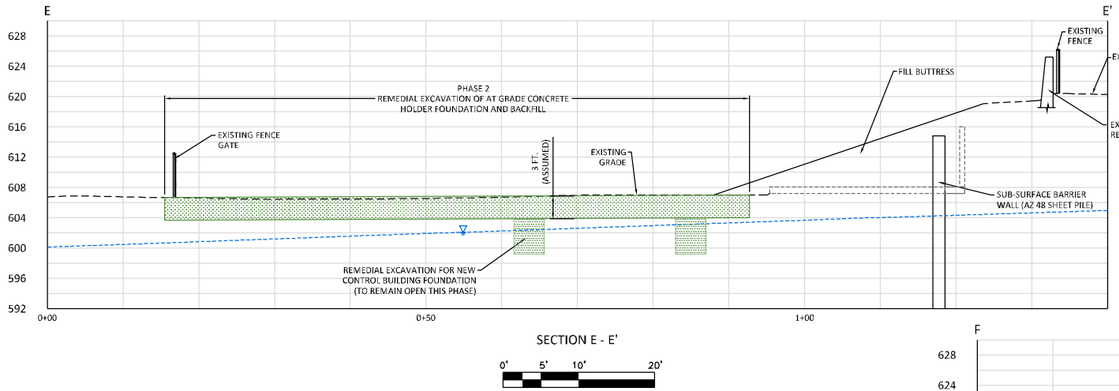
5) SEE PROPOSED CONSTRUCTION SEQUENCE, DWG. 3 FOR SUGGESTED CONSTRUCTION SEQUENCING INFORMATION.

6) FOR TYPICAL CONSTRUCTION DETAILS DWG. 22.

7) FOR TYPICAL BACKFILL SECTIONS SEE DWG. 15.

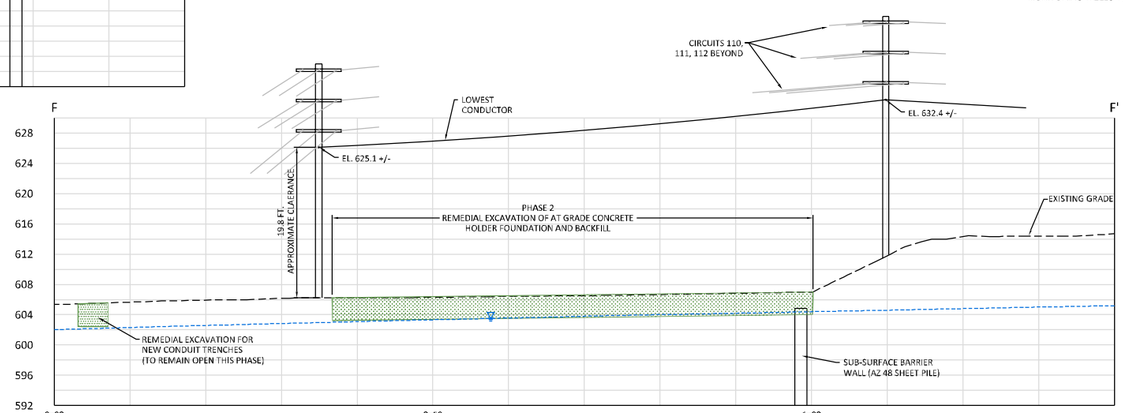
8) FOR RESTORATION INFORMATION SEE DWGS. 16-19.

9) SEE GENERAL PLAN DWG. 5 FOR A LIST OF EXISTING MONITORING WELLS TO BE ABANDONED THIS PHASE.



SECTION E - E'

0' 5' 10' 20'



SECTION F - F'

0' 5' 10' 20'

NOTE:

GROUNDWATER INFORMATION FROM REMEDIAL INVESTIGATION REPORT BY URS. INFORMATION FROM JUNE 2005.

DRN BY:	DES BY	CHK BY:	APP BY:	REV	DESCRIPTION	DRN	CHK	DATE (M/D/Y)
KAM	KAM	CHF	SAU		VERIFY SCALE IF PLAN SHEET IS REDUCED			
					1" HINCH			

AECOM

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE
LOCKPORT, NEW YORK

PHASE 2
REMEDIAL EXCAVATION
GENERAL LAYOUT

STATE OF NEW YORK — SCOTT A. ANDREW UNGER — 075392 — LICENSED PROFESSIONAL ENGINEER

DATE	APRIL 2013
PROJECT NO.	60194949
FILENAME	60194949-LOCKPORT.dwg
SHEET NO.	7
DRAWING NO.	7

Plotted By: meisterk
Plot File Date Created: Apr/18/2013 10:29 AM
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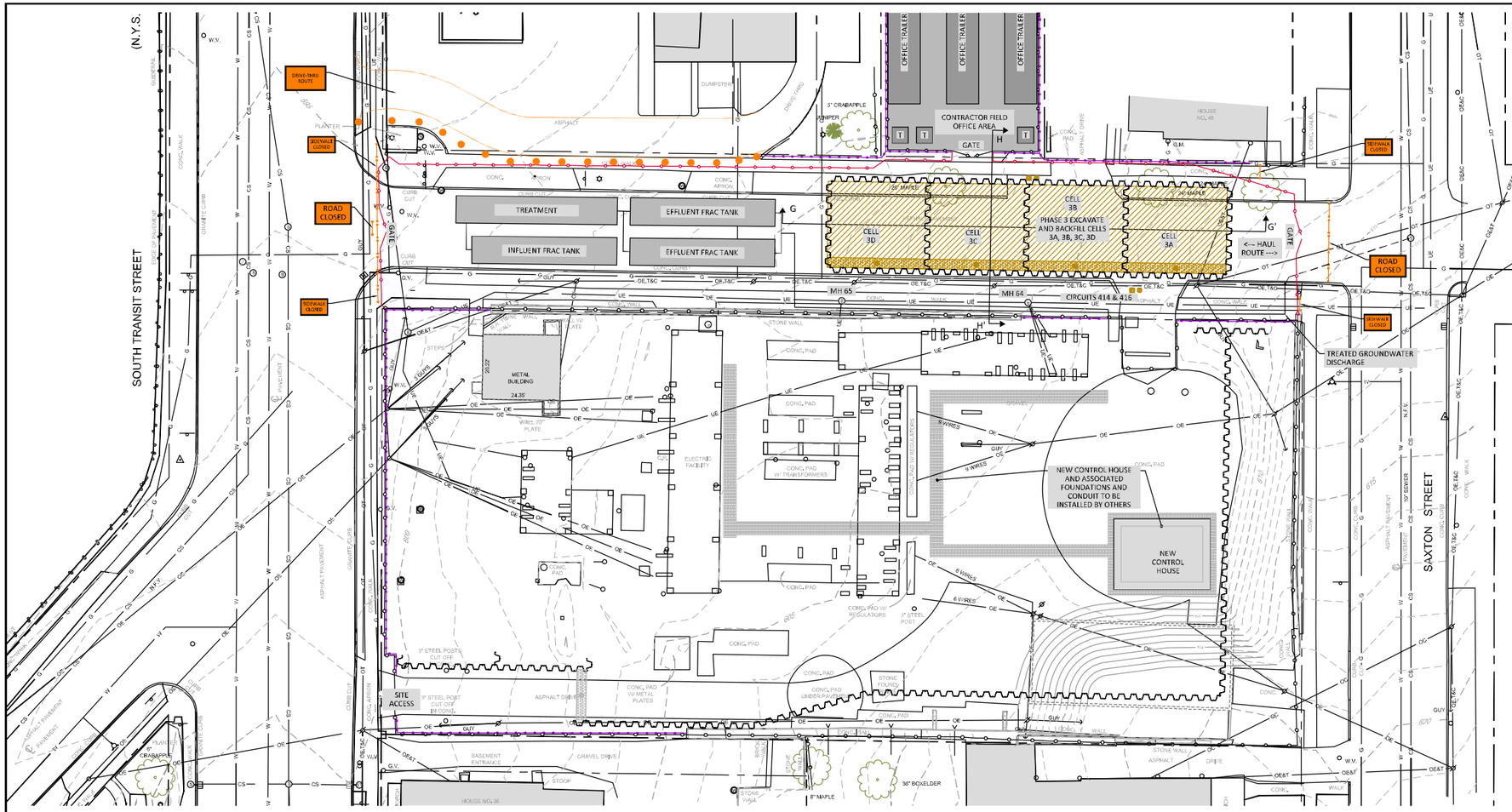

LEGEND

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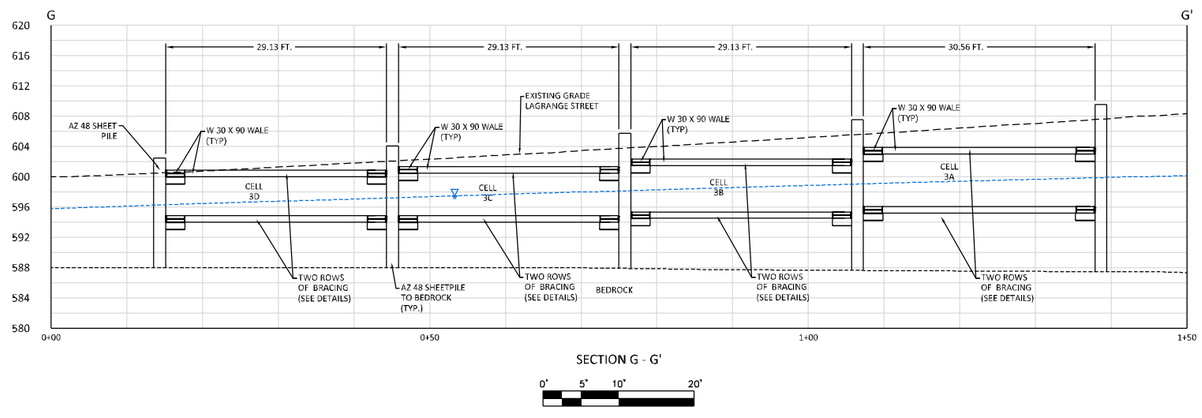
- COND. — CONDUIT
- N.F.V. — NOT FIELD VERIFIED
- PHASE 3 - AREA OF DEEP REMEDIAL EXCAVATION
- PHASE 3 - TEMPORARY SHEET PILE (FOR DEEP EXCAVATION)
- SUBSURFACE COLLECTION TRENCH WITH COLLECTION WELL
- PIEZOMETER
- INCLINOMETER
- TYPE III BARRICADE
- TRAFFIC BARREL
- TEMPORARY SECURITY FENCE
- SILT FENCE

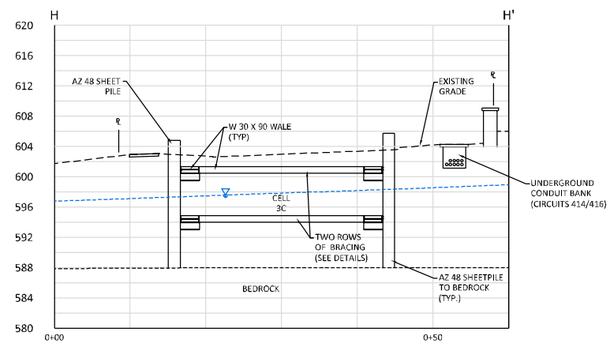
PLAN

0' 10' 20' 40'



SECTION G - G'

0' 5' 10' 20'



SECTION H - H'

0' 5' 10' 20'

NOTE:

GROUNDWATER INFORMATION FROM REMEDIAL INVESTIGATION REPORT BY URS. INFORMATION FROM JUNE 2005.

PHASE 3 NOTES:

1) UTILITIES OUTSIDE OF THE SUB-STATION THAT WILL BE IN CONFLICT WITH THE REQUIRED WORK SHALL BE RELOCATED BY OTHERS.

2) TEMPORARY CLOSURE OF LAGRANGE STREET AND ITS SIDEWALK SHALL BE AS SHOWN.

3) TEMPORARY VEHICLE DETOUR SHALL BE INSTALLED TO THE EXISTING DRIVE-THRU IN THE LOCATION SHOWN. TRAFFIC FLOW SHALL BE MAINTAINED TO THE DRIVE-THRU AT ALL TIMES.

4) SHEET PILE EXCAVATION SYSTEM DESIGN AND LAYOUT SHOWN IS BASED ON A AZ-48 SHEET.

5) SEE GENERALS NOTES, DWG 2, FOR ADDITIONAL INFORMATION.

6) SEE PROPOSED CONSTRUCTION SEQUENCE, DWG. 3 FOR SUGGESTED CONSTRUCTION SEQUENCING INFORMATION.

7) FOR CELL SHEETPILE LAY OUT SEE DWG. 13.

8) FOR TYPICAL BACKFILL SECTIONS AND COLLECTION TRENCH DETAILS SEE DWG. 15.

9) FOR TYPICAL CONSTRUCTION DETAILS DWG. 22.

10) FOR RESTORATION INFORMATION SEE DWGS. 16-19.

11) SEE GENERAL PLAN DWG. 5, FOR A LIST OF EXISTING MONITORING WELLS TO BE ABANDONED THIS PHASE.

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

AECOM

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE LOCKPORT, NEW YORK

PHASE 3

REMEDIAL EXCAVATION GENERAL LAYOUT

STATE OF NEW YORK — SCOTT ANDREW HAUGHT — 075290 — LICENSED PROFESSIONAL ENGINEER

DATE	APRIL 2013
PROJECT NO.	60194949
FILENAME	60194949-LOCKPORT.dwg
SHEET NO.	8
DRAWING NO.	8

Plotted By: meisterk
Plot File Date Created: Apr/18/2013 10:32 AM
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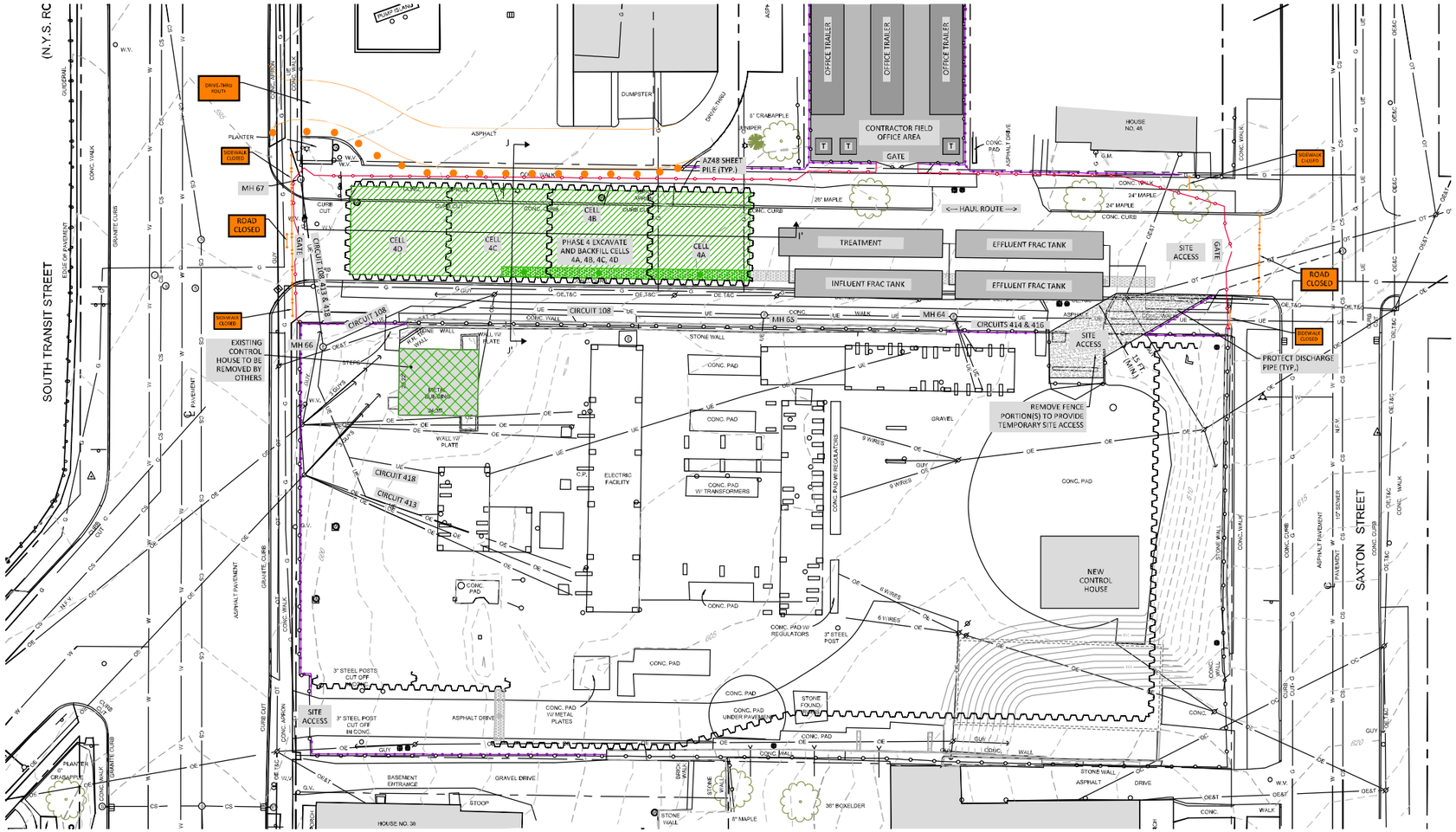

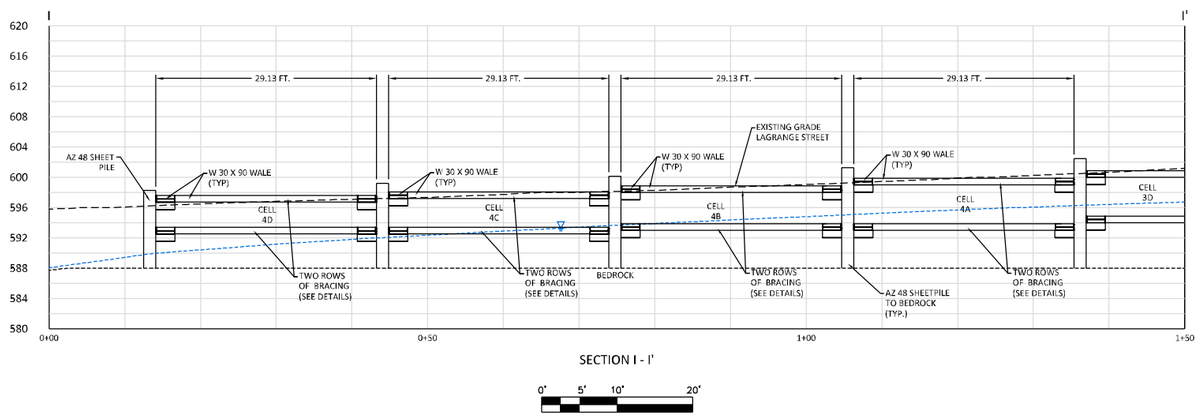

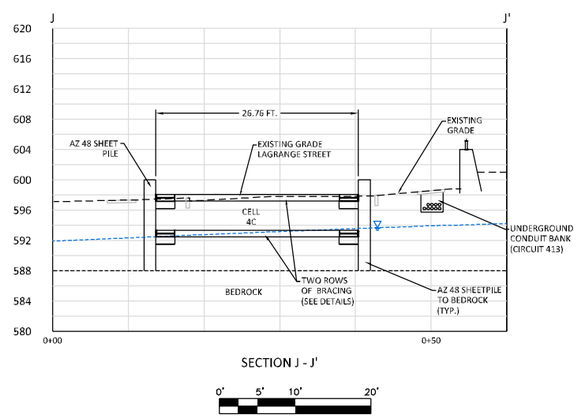

NOTE:

GROUNDWATER INFORMATION FROM REMEDIAL INVESTIGATION REPORT BY URS. INFORMATION FROM JUNE 2005.

LEGEND

- UE — UNDERGROUND ELECTRIC
- OT — OVERHEAD TELEPHONE
- OE,T&C — OVERHEAD ELECTRIC, TELEPHONE & CABLE
- OE&T — OVERHEAD ELECTRIC & TELEPHONE
- OE&C — OVERHEAD ELECTRIC & CABLE
- CS — COMBINATION SEWER
- ST — STORM SEWER
- W — WATER
- G — GAS
- GUIDERAIL
- X — FENCE
- P.P. — POWER POLE
- L.P. — LIGHT POLE
- E.B. — ELECTRIC BOX
- E.M. — ELECTRIC METER
- MON. WELL — MONITORING WELL
- D.I. — DROP INLET
- C.B. — CATCH BASIN
- ST. M.H. — STORM MANHOLE
- SAN. M.H. — SANITARY MANHOLE
- COMB. M.H. — COMBINATION MANHOLE
- GAS M.H. — GAS MANHOLE
- D.S. — DOWNSPOUT
- Y.D. — YARD DRAIN
- G.P. — GATE POST
- C.O. — CLEANOUT
- G.V. — GAS VALVE
- G.M. — GAS METER
- W.V. — WATER VALVE
- HYD. — HYDRANT
- F.C. — GAS FILL CAP
- ELEC. M.H. — ELECTRIC MANHOLE
- SIGN
- C.P. — CONCRETE PAD
- COND. — CONDUIT
- N.F.V. — NOT FIELD VERIFIED
- PHASE 4 - AREA OF DEEP REMEDIAL EXCAVATION
- PHASE 4 - TEMPORARY SHEET PILE (FOR DEEP EXCAVATION)
- SUBSURFACE COLLECTION TRENCH WITH COLLECTION WELL
- TYPE III BARRICADE
- TRAFFIC BARREL
- TEMPORARY SECURITY FENCE
- SILT FENCE

PHASE 4 NOTES:

1) PRIOR TO THE COMPLETION OF PHASE 4 A NEW ALIGNMENT OF UNDERGROUND CIRCUITS 413 AND 108 SHALL BE INSTALLED, BY OTHERS, FROM MANHOLE 65 TO MANHOLE 67 AS SHOWN.

2) TEMPORARY CLOSURE OF LAGRANGE STREET AND ITS SIDEWALK SHALL BE AS SHOWN.

3) TEMPORARY VEHICLE ROUTE SHALL BE INSTALLED TO THE EXISTING DRIVE-THRU IN THE LOCATION SHOWN. TRAFFIC FLOW SHALL BE MAINTAINED TO THE DRIVE-THRU AT ALL TIMES.

4) SHEET PILE EXCAVATION SYSTEM DESIGN AND LAYOUT SHOWN IS BASED ON A AZ-48 SHEET.

5) SEE GENERALS NOTES, DWG 2, FOR ADDITIONAL INFORMATION.

6) SEE PROPOSED CONSTRUCTION SEQUENCE, DWG. 3 FOR SUGGESTED CONSTRUCTION SEQUENCING INFORMATION.

7) FOR CELL SHEETPILE LAY OUT SEE DWG. 13.

8) FOR TYPICAL BACKFILL SECTIONS AND COLLECTION TRENCH DETAILS SEE DWG. 15.

9) FOR TYPICAL CONSTRUCTION DETAILS DWG. 22.

10) FOR RESTORATION INFORMATION SEE DWGS. 16-19.

11) SEE GENERAL PLAN DWG. 5, FOR A LIST OF EXISTING MONITORING WELLS TO BE ABANDONED THIS PHASE.

DRN BY:	CHK	DES BY	CHK BY:	APP BY:	DATE (M/D/Y)
KAM		KAM	CHF	SAU	

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

AECOM

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE
LOCKPORT, NEW YORK

PHASE 4
REMEDIAL EXCAVATION
GENERAL LAYOUT

DATE: APRIL 2013
PROJECT NO.: 60194949
FILENAME: 60194949-LOCKPORT.dwg
SHEET NO.: 9
DRAWING NO.: 9

STATE OF NEW YORK — SCOTT ANDREW UNGER — 075292 — LICENSED PROFESSIONAL ENGINEER

Plotted By: meisterk
Plot File Date Created: Apr/18/2013 10:34 AM
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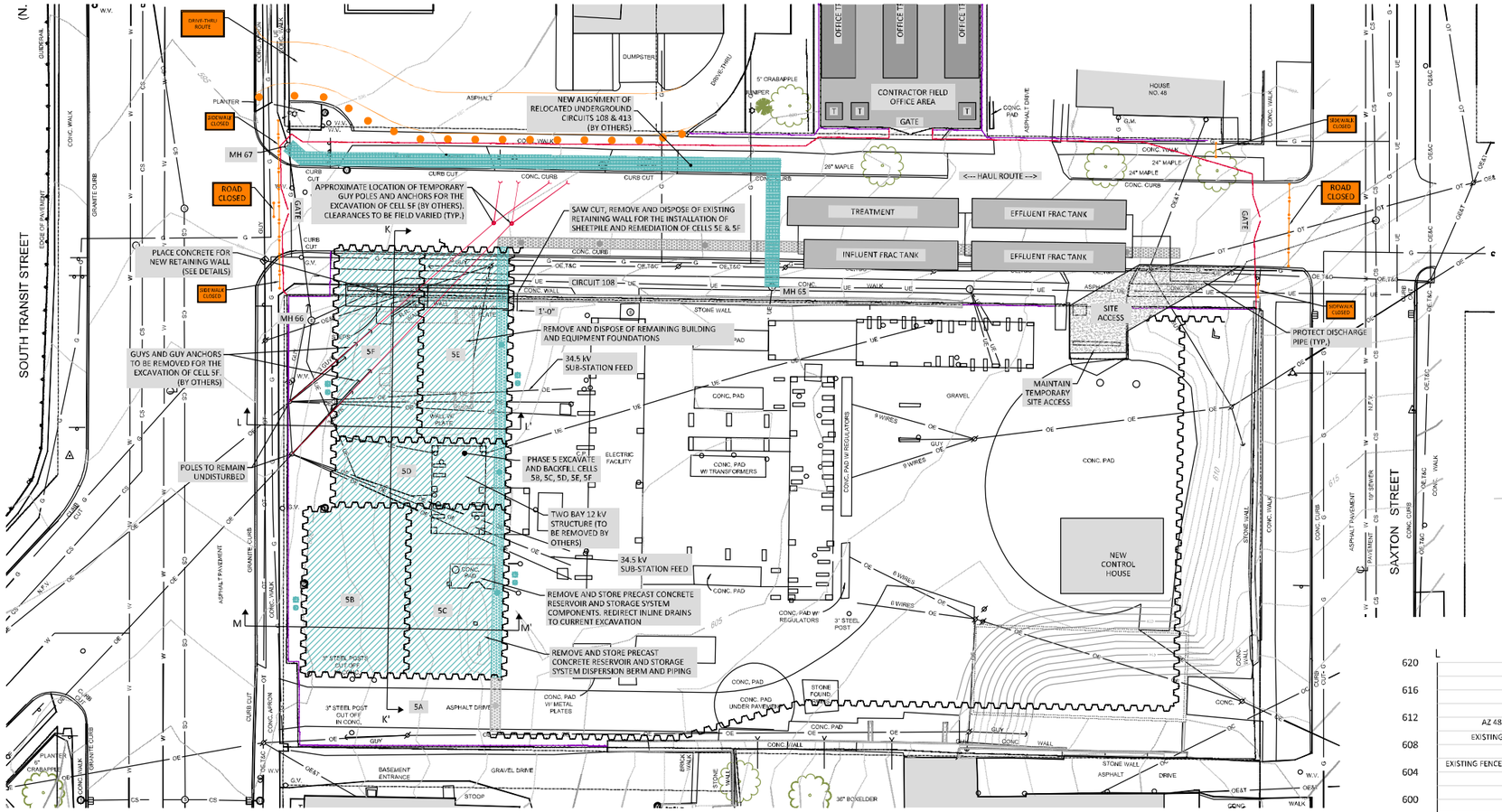


EXISTING PRECAST CONCRETE RESERVOIR AND STORAGE SYSTEM NOTE:

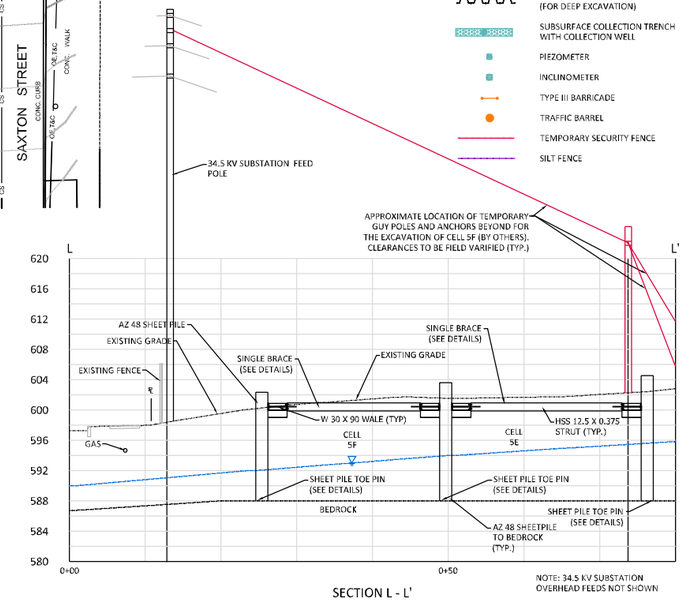
CONTRACTOR SHALL EXPOSE AND LOCATE (VERTICALLY AND HORIZONTALLY) THE EXISTING PRECAST CONCRETE RESERVOIR AND STORAGE SYSTEM. ALL COMPONENTS (WITH EXCEPTION OF EXISTING PIPING) SHALL BE CAREFULLY REMOVED AND STORED FOR FUTURE REINSTALLATION (SEE DRAWING 16 - SITE RESTORATION PLANS AND ATTACHED ORIGINAL INSTALLATION FIGURES - C-20,996 SHEETS 1-3 FOR FURTHER INFORMATION).

PLAN

0' 10' 20' 40'

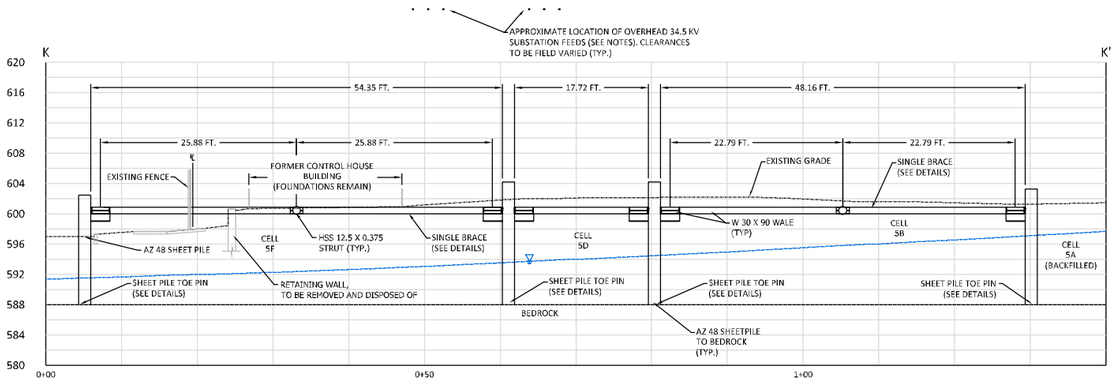
LEGEND

UE	UNDERGROUND ELECTRIC
OT	OVERHEAD TELEPHONE
OE,T&C	OVERHEAD ELECTRIC, TELEPHONE & CABLE
OE&T	OVERHEAD ELECTRIC & TELEPHONE
OE&C	OVERHEAD ELECTRIC & CABLE
CS	COMBINATION SEWER
ST	STORM SEWER
W	WATER
G	GAS
	GUIDERAIL
X	FENCE
P.P.	POWER POLE
L.P.	LIGHT POLE
E.B.	ELECTRIC BOX
E.M.	ELECTRIC METER
MON. WELL	MONITORING WELL
D.I.	DROP INLET
C.B.	CATCH BASIN
ST. M.H.	STORM MANHOLE
SAN. M.H.	SANITARY MANHOLE
COMB. M.H.	COMBINATION MANHOLE
GAS M.H.	GAS MANHOLE
D.S.	DOWNSPOUT
Y.D.	YARD DRAIN
G.P.	GATE POST
C.O.	CLEANOUT
G.V.	GAS VALVE
G.M.	GAS METER
W.V.	WATER VALVE
HYD.	HYDRANT
F.C.	GAS FILL CAP
ELEC. M.H.	ELECTRIC MANHOLE
	SIGN
C.P.	CONCRETE PAD
COND.	CONDUIT
N.F.V.	NOT FIELD VERIFIED
	PHASE 5- AREA OF DEEP REMEDIAL EXCAVATION
	PHASE 5 - TEMPORARY SHEET PILE (FOR DEEP EXCAVATION)
	SUBSURFACE COLLECTION TRENCH WITH COLLECTION WELL
	PIEZOMETER
	INCLINOMETER
	TYPE III BARRICADE
	TRAFFIC BARREL
	TEMPORARY SECURITY FENCE
	SILT FENCE



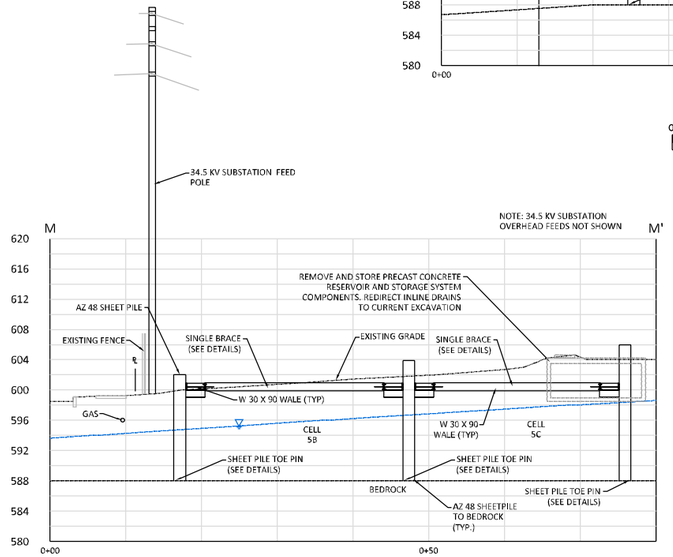
SECTION L - L'

0' 5' 10' 20'



SECTION K - K'

0' 5' 10' 20'



SECTION M - M'

0' 5' 10' 20'

NOTE:

GROUNDWATER INFORMATION FROM REMEDIAL INVESTIGATION REPORT BY URS. INFORMATION FROM JUNE 2005.

PHASE 5 NOTES:

1) THE EXCAVATION OF CELLS 5B, 5C, 5D, 5E & 5F SHALL BE COORDINATED SO THAT THERE WILL BE ONLY ONE INTERRUPTION AT A TIME OF ELECTRICAL SERVICE TO THE SUBSTATION FROM THE EXISTING 34.5kV FEEDS.

2) TEMPORARY RELOCATION OF GUY WIRES WILL BE REQUIRED TO SUPPORT THE 34.5kV FEED POLES DURING PHASE 5F.

3) UTILITIES OUTSIDE OF THE SUB-STATION THAT WILL BE IN CONFLICT WITH THE REQUIRED WORK SHALL BE RELOCATED BY OTHERS.

4) TEMPORARY CLOSURE OF LAGRANGE STREET AND ITS SIDEWALK SHALL BE AS SHOWN.

5) TEMPORARY VEHICLE ROUTE SHALL BE INSTALLED TO THE EXISTING DRIVE-THRU IN THE LOCATION SHOWN. TRAFFIC FLOW SHALL BE MAINTAINED TO THE DRIVE-THRU AT ALL TIMES.

6) SHEET PILE EXCAVATION SYSTEM DESIGN AND LAYOUT SHOWN IS BASED ON A AZ-48 SHEET.

7) SEE GENERALS NOTES. DWG 2, FOR ADDITIONAL INFORMATION.

8) SEE PROPOSED CONSTRUCTION SEQUENCE, DWG. 3 FOR SUGGESTED CONSTRUCTION SEQUENCING INFORMATION.

9) FOR CELL SHEETPILE LAY OUT SEE DWG. 13.

10) FOR TYPICAL BACKFILL SECTIONS AND COLLECTION TRENCH DETAILS SEE DWG. 15.

11) FOR TYPICAL CONSTRUCTION DETAILS SEE DWG. 22.

12) FOR RESTORATION INFORMATION SEE DWGS. 16 & 18.

13) PRECAST CONCRETE RESERVOIR AND DISPERSION BERM AND PIPING SHALL BE RE-INSTALLED PRIOR TO THE BEGINNING OF PHASE 5D.

14) SEE GENERAL PLAN DWG. 5, FOR A LIST OF EXISTING MONITORING WELLS TO BE ABANDONED THIS PHASE.

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

DRN BY: KAM
DES BY: KAM
CHK BY: CHF
APP BY: SAU

AECOM

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE
LOCKPORT, NEW YORK

PHASE 5
REMEDIAL EXCAVATION
GENERAL LAYOUT

DATE: APRIL 2013
PROJECT NO.: 60194949
FILENAME: 60194949-LOCKPORT.dwg
SHEET NO.: 10
DRAWING NO.: 10

Plotted By: meisterk
Plot File Date Created: Apr/18/2013 10:36 AM
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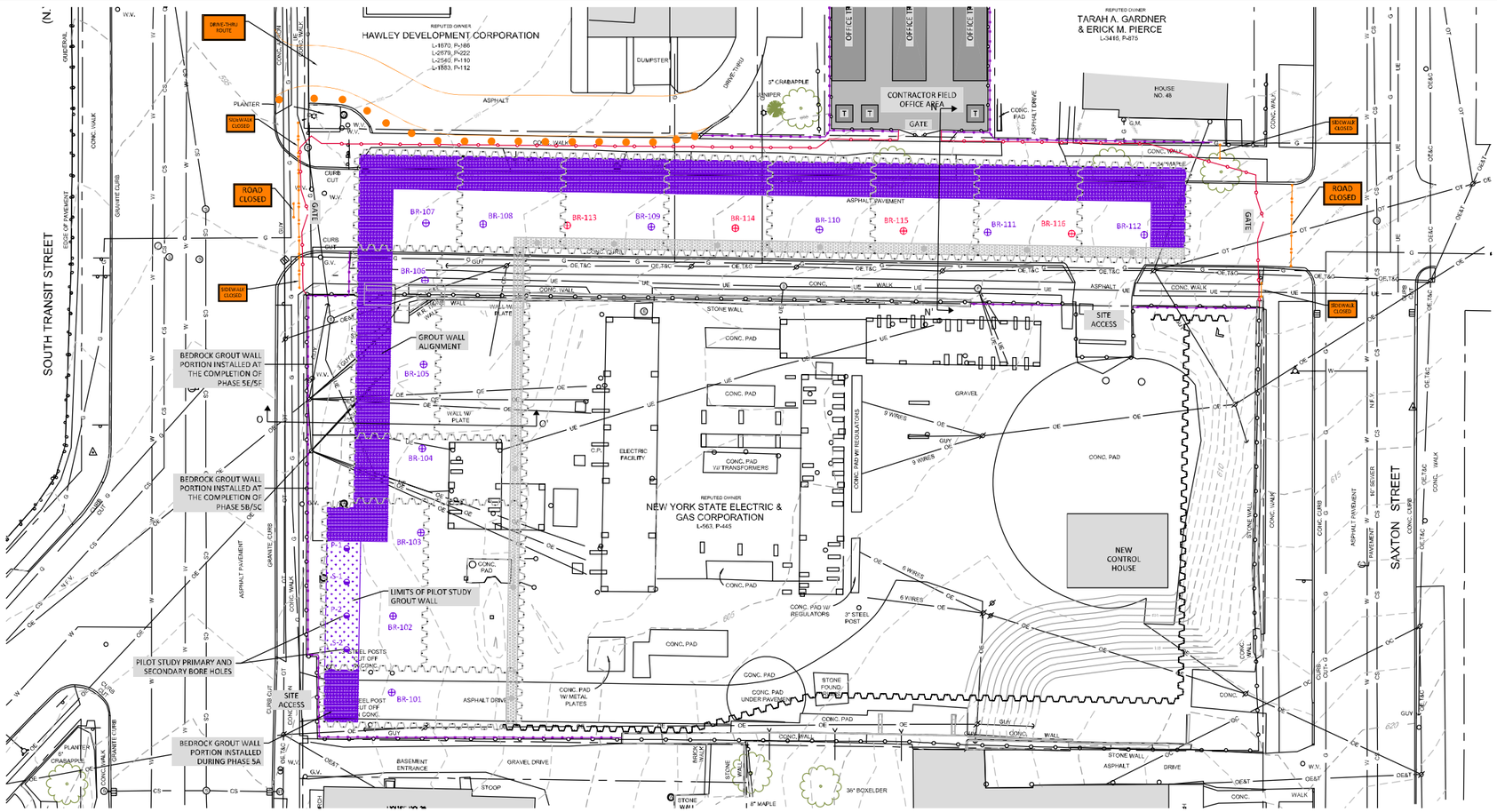


PLAN

0' 10' 20' 40'

LEGEND

- UE — UNDERGROUND ELECTRIC
- OT — OVERHEAD TELEPHONE
- OE,T&C — OVERHEAD ELECTRIC, TELEPHONE & CABLE
- OE&T — OVERHEAD ELECTRIC & TELEPHONE
- OE&C — OVERHEAD ELECTRIC & CABLE
- CS — COMBINATION SEWER
- ST — STORM SEWER
- W — WATER
- G — GAS
- GUIDERAIL
- X — FENCE
- P.P. — POWER POLE
- L.P. — LIGHT POLE
- E.B. — ELECTRIC BOX
- E.M. — ELECTRIC METER
- MON. WELL — MONITORING WELL
- D.I. — DROP INLET
- C.B. — CATCH BASIN
- ST. M.H. — STORM MANHOLE
- SAN. M.H. — SANITARY MANHOLE
- COMB. M.H. — COMBINATION MANHOLE
- GAS M.H. — GAS MANHOLE
- D.S. — DOWNSPOUT
- Y.D. — YARD DRAIN
- G.P. — GATE POST
- C.O. — CLEANOUT
- G.V. — GAS VALVE
- G.M. — GAS METER
- W.V. — WATER VALVE
- HYD. — HYDRANT
- F.C. — GAS FILL CAP
- ELEC. M.H. — ELECTRIC MANHOLE
- SIGN
- C.P. — CONCRETE PAD
- COND. — CONDUIT
- N.F.V. — NOT FIELD VERIFIED
- PHASE 1A / 1B- PERMANENT SHEETPILE (SUBSURFACE BARRIER)
- PHASE 6 BEDROCK GROUT WALL
- BR-111 — PHASE 6 PRIMARY BEDROCK COLLECTION WELL
- BR-116 — PHASE 6 SECONDARY BEDROCK COLLECTION WELL
- SUBSURFACE COLLECTION TRENCH WITH COLLECTION WELL
- TYPE III BARRICADE
- TRAFFIC BARREL
- TEMPORARY SECURITY FENCE
- SILT FENCE

PHASE 6 NOTES:

1) DUE TO THE PHASING OF SUBSTATION EQUIPMENT INSTALLATION AND COORDINATION WITH UTILITIES, PHASE 6A - INSTALLATION OF BEDROCK GROUT WALL AND BEDROCK COLLECTION WELLS SHALL BE INTEGRATED WITH THE OTHER PHASES.

2) UTILITIES OUTSIDE OF THE SUB-STATION THAT WILL BE IN CONFLICT WITH THE REQUIRED WORK SHALL BE RELOCATED BY OTHERS.

3) TEMPORARY CLOSURE OF LAGRANGE STREET AND ITS SIDEWALK SHALL BE AS SHOWN.

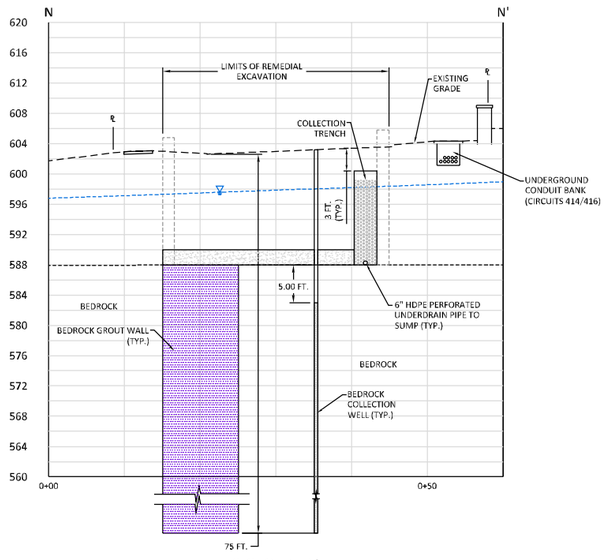
4) TEMPORARY VEHICLE DETOUR SHALL BE INSTALLED TO THE EXISTING DRIVE-THRU IN THE LOCATION SHOWN. TRAFFIC FLOW SHALL BE MAINTAINED TO THE DRIVE-THRU AT ALL TIMES.

5) SEE GENERALS NOTES, DWG 2, FOR ADDITIONAL INFORMATION.

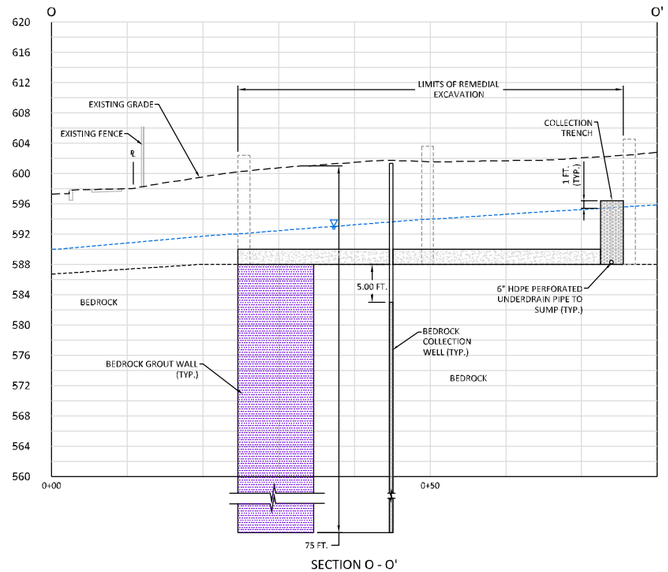
6) SEE PROPOSED CONSTRUCTION SEQUENCE, DWG. 3 FOR SUGGESTED CONSTRUCTION SEQUENCING INFORMATION.

7) FOR TYPICAL CONSTRUCTION DETAILS SEE DWG. 22.

8) SEE GENERAL PLAN DWG. 5, FOR A LIST OF EXISTING MONITORING WELLS TO BE ABANDONED.



SECTION N - N'



SECTION O - O'

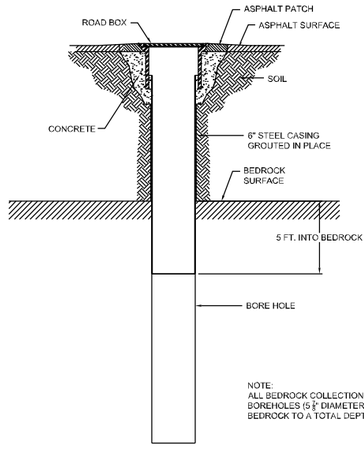
0' 5' 10' 20'

NOTE:

GROUNDWATER INFORMATION FROM REMEDIAL INVESTIGATION REPORT BY URS. INFORMATION FROM JUNE 2005.

BEDROCK COLLECTION WELL SCHEDULE

WELL ID.	NORTH	EAST
BR-101	1153875.77	1118065.68
BR-102	1153898.46	1118066.06
BR-103	1153923.29	1118074.35
BR-104	1153948.28	1118074.76
BR-105	1153973.28	1118075.17
BR-106	1153998.28	1118075.58
BR-107	1154015.28	1118075.85
BR-108	1154015.00	1118092.85
BR-109	1154014.18	1118142.85
BR-110	1154013.36	1118192.84
BR-111	1154012.54	1118242.83
BR-112	1154011.78	1118289.40
BR-113	1154014.59	1118117.85
BR-114	1154013.77	1118167.84
BR-115	1154012.95	1118217.83
BR-116	1154012.14	1118267.83



NOTE:
ALL BEDROCK COLLECTION WELLS SHALL BE OPEN BOREHOLES (5 ½" DIAMETER) 5 FT. INTO TOP OF BEDROCK TO A TOTAL DEPTH OF 75 FT.

BEDROCK COLLECTION WELL DETAIL
NOT TO SCALE

DRN BY:	KAM
DES BY	KAM
CHK BY:	CHF
APP BY:	SAU

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

AECOM

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE
LOCKPORT, NEW YORK

PHASE 6
GROUT WALL - ON SITE
GENERAL LAYOUT

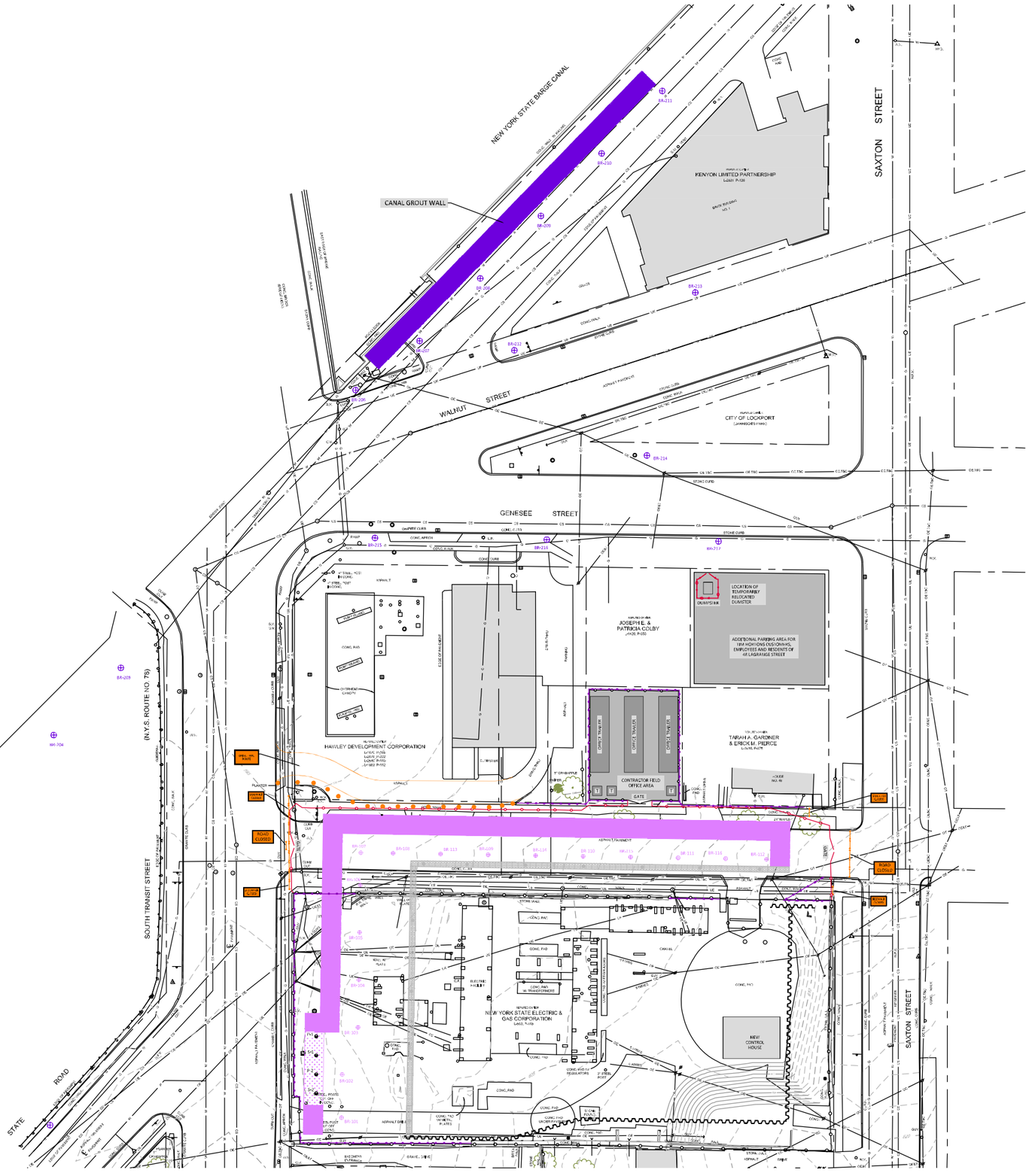
DATE: APRIL 2013
PROJECT NO.: 60194949
FILENAME: 60194949-LOCKPORT.dwg
SHEET NO.: 11
DRAWING NO.: 11

STATE OF NEW YORK — SCOTT ANDREW UHLIG — 075292 — LICENSED PROFESSIONAL ENGINEER

Plotted By: meisterk
Plot File Date Created: Apr/18/2013 10:39 AM
Layout-Sheet Name: PHASE-6
Filename: P:\60194949_NYSEGLOCKPORT\CADD\TASK_1\CIVIL\DESIGN\60194949-LOCKPORT.DWG

BEDROCK COLLECTION WELL SCHEDULE

WELL ID.	NORTH	EAST
BR-201	1153981.35	1117843.60
BR-202	1154006.42	1117843.60
BR-203	1154041.82	1117878.91
BR-204	1154077.23	1117914.22
BR-205	1154112.63	1117949.52
BR-206	1154258.83	1118073.10
BR-207	1154284.73	1118106.79
BR-208	1154317.63	1118138.71
BR-209	1154350.54	1118170.64
BR-210	1154383.45	1118202.56
BR-211	1154416.37	1118234.49
BR-212	1154279.81	1118156.64
BR-213	1154310.23	1118251.90
BR-214	1154224.43	1118226.43
BR-215	1154181.01	1118083.28
BR-216	1154180.11	1118173.71
BR-217	1154179.22	1118264.13



LEGEND

- UE — UNDERGROUND ELECTRIC
- OT — OVERHEAD TELEPHONE
- OE,T&C — OVERHEAD ELECTRIC, TELEPHONE & CABLE
- OE&T — OVERHEAD ELECTRIC & TELEPHONE
- OE&C — OVERHEAD ELECTRIC & CABLE
- CB — COMBINATION SEWER
- ST — STORM SEWER
- W — WATER
- G — GAS
- GUIDERAIL
- X — FENCE
- P.P. — POWER POLE
- L.P. — LIGHT POLE
- E.B. — ELECTRIC BOX
- E.M. — ELECTRIC METER
- MON. WELL — MONITORING WELL
- D.I. — DROP INLET
- C.B. — CATCH BASIN
- ST. M.H. — STORM MANHOLE
- SAN. M.H. — SANITARY MANHOLE
- COMB. M.H. — COMBINATION MANHOLE
- GAS M.H. — GAS MANHOLE
- D.S. — DOWNSPOUT
- Y.D. — YARD DRAIN
- G.P. — GATE POST
- C.O. — CLEANOUT
- G.V. — GAS VALVE
- G.M. — GAS METER
- W.V. — WATER VALVE
- HYD. — HYDRANT
- F.C. — GAS FILL CAP
- ELEC. M.H. — ELECTRIC MANHOLE
- SIGN
- C.P. — CONCRETE PAD
- COND. — CONDUIT
- N.F.V. — NOT FIELD VERIFIED
- PHASE 7 BEDROCK GROUT WALL
- PHASE 7 PRIMARY BEDROCK COLLECTION WELL
- PREVIOUS BEDROCK GROUT WALL
- PREVIOUS BEDROCK COLLECTION WELL
- SUBSURFACE COLLECTION TRENCH WITH COLLECTION WELL
- TYPE III BARRICADE
- TRAFFIC BARREL
- TEMPORARY SECURITY FENCE
- SILT FENCE

PHASE 7 NOTES:

1) PHASE 7 SHALL CONSIST OF THE INSTALLATION OF THE OFF SITE BEDROCK GROUT WALL AND BEDROCK EXTRACTION WELLS ALONG WITH FINAL RESTORATION OF LAGRANGE STREET AND THE SUBSTATION. FOR RESTORATION INFORMATION SEE DWGS. 16 & 18.

2) UTILITIES OUTSIDE OF THE SUB-STATION THAT WILL BE IN CONFLICT WITH THE REQUIRED WORK SHALL BE RELOCATED BY OTHERS.

3) TEMPORARY CLOSURE OF LAGRANGE STREET AND ITS SIDEWALK SHALL BE AS SHOWN.

4) TEMPORARY VEHICLE DETOUR SHALL BE INSTALLED TO THE EXISTING DRIVE-THRU IN THE LOCATION SHOWN. TRAFFIC FLOW SHALL BE MAINTAINED TO THE DRIVE-THRU AT ALL TIMES.

5) SEE GENERALS NOTES, DWG 2, FOR ADDITIONAL INFORMATION.

6) SEE PROPOSED CONSTRUCTION SEQUENCE, DWG. 3 FOR SUGGESTED CONSTRUCTION SEQUENCING INFORMATION.

7) FOR TYPICAL CONSTRUCTION DETAILS SEE DWG. 22.

8) SEE GENERAL PLAN DWG. 5, FOR A LIST OF EXISTING MONITORING WELLS TO BE ABANDONED.

0' 15' 30' 60'

DRN BY:	KAM
DES BY	KAM
CHK BY:	CHF
APP BY:	SAU

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

AECOM

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE LOCKPORT, NEW YORK

PHASE 7

CANAL GROUT WALL - OFF SITE GENERAL LAYOUT

SCOTT ANDREW DIMMICK — LICENSED PROFESSIONAL ENGINEER — STATE OF NEW YORK — 075292

DATE	APRIL 2013
PROJECT NO.	60194949
FILENAME	60194949-LOCKPORT.dwg
SHEET NO.	12
DRAWING NO.	12

Plotted By: meisterk
Plot File Date Created: Apr/18/2013 10:41 AM
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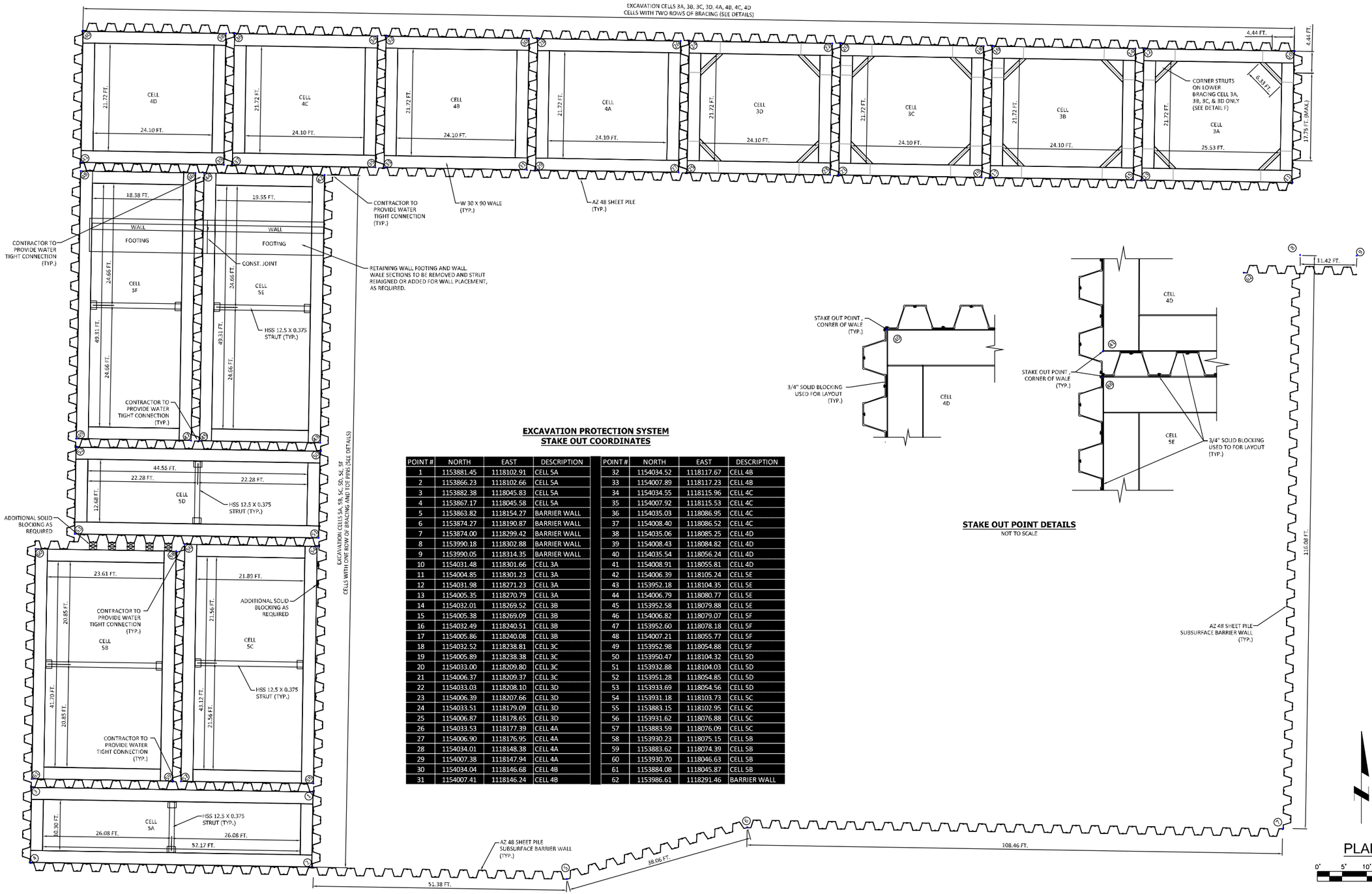

EXCAVATION PROTECTION SYSTEM
STAKE OUT COORDINATES

POINT #	NORTH	EAST	DESCRIPTION	POINT #	NORTH	EAST	DESCRIPTION
1	1153881.45	1118102.91	CELL 5A	32	1154034.52	1118117.67	CELL 4B
2	1153866.23	1118102.66	CELL 5A	33	1154007.89	1118117.23	CELL 4B
3	1153882.38	1118045.83	CELL 5A	34	1154034.55	1118115.96	CELL 4C
4	1153867.17	1118045.58	CELL 5A	35	1154007.92	1118115.53	CELL 4C
5	1153863.82	1118154.27	BARRIER WALL	36	1154035.03	1118086.95	CELL 4C
6	1153874.27	1118190.87	BARRIER WALL	37	1154008.40	1118086.52	CELL 4C
7	1153874.00	1118299.42	BARRIER WALL	38	1154035.06	1118085.25	CELL 4D
8	1153990.18	1118302.88	BARRIER WALL	39	1154008.43	1118084.82	CELL 4D
9	1153990.05	1118314.35	BARRIER WALL	40	1154035.54	1118056.24	CELL 4D
10	1154031.48	1118301.66	CELL 3A	41	1154008.91	1118055.81	CELL 4D
11	1154004.85	1118301.23	CELL 3A	42	1154006.39	1118105.24	CELL 5E
12	1154031.98	1118271.23	CELL 3A	43	1153952.18	1118104.35	CELL 5E
13	1154005.35	1118270.79	CELL 3A	44	1154006.79	1118080.77	CELL 5E
14	1154032.01	1118269.52	CELL 3B	45	1153952.58	1118079.88	CELL 5E
15	1154005.38	1118269.09	CELL 3B	46	1154006.82	1118079.07	CELL 5F
16	1154032.49	1118240.51	CELL 3B	47	1153952.60	1118078.18	CELL 5F
17	1154005.86	1118240.08	CELL 3B	48	1154007.21	1118055.77	CELL 5F
18	1154032.52	1118238.81	CELL 3C	49	1153952.98	1118054.88	CELL 5F
19	1154005.89	1118238.38	CELL 3C	50	1153950.47	1118104.32	CELL 5D
20	1154033.00	1118209.80	CELL 3C	51	1153932.88	1118104.03	CELL 5D
21	1154006.37	1118209.37	CELL 3C	52	1153951.28	1118054.85	CELL 5D
22	1154033.03	1118208.10	CELL 3D	53	1153933.69	1118054.56	CELL 5D
23	1154006.39	1118207.66	CELL 3D	54	1153931.18	1118103.73	CELL 5C
24	1154033.51	1118179.09	CELL 3D	55	1153883.15	1118102.95	CELL 5C
25	1154006.87	1118178.65	CELL 3D	56	1153931.62	1118076.88	CELL 5C
26	1154033.53	1118177.39	CELL 4A	57	1153883.59	1118076.09	CELL 5C
27	1154006.90	1118176.95	CELL 4A	58	1153930.23	1118075.15	CELL 5B
28	1154034.01	1118148.38	CELL 4A	59	1153883.62	1118074.39	CELL 5B
29	1154007.38	1118147.94	CELL 4A	60	1153930.70	1118046.63	CELL 5B
30	1154034.04	1118146.68	CELL 4B	61	1153884.08	1118045.87	CELL 5B
31	1154007.41	1118146.24	CELL 4B	62	1153986.61	1118291.46	BARRIER WALL

STAKE OUT POINT DETAILS
NOT TO SCALE

SHEET PILE NOTES:

1) SHEET PILE EXCAVATION SYSTEM DESIGN AND LAYOUT SHOWN IS BASED ON A AZ-48 SHEET, SEE GENERAL NOTES, DWG. 2.

2) CONTRACTOR SHALL SUPPLY ALL MATERIALS FOR COMPLETION OF THE PROJECT.

3) ALL EXTRACTED SHEET PILES AND REMAINING PARTS OF THE EXCAVATION PROTECTION SYSTEM SHALL BECOME THE PROPERTY OF THE CONTRACTOR AT THE COMPLETION OF THE PROJECT.

DRN BY:	KAM
DES BY	
BKA	
CHK BY:	
CHF	
APP BY:	
SAU	

1" — 1 INCH — VERIFY SCALE IF PLAN SHEET IS REDUCED

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

AECOM

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE
LOCKPORT, NEW YORK

EXCAVATION PROTECTION SYSTEM LAYOUT

DATE: APRIL 2013
PROJECT NO.: 60194949
FILENAME: 60194949-LOCKPORT.dwg
SHEET NO.: 13
DRAWING NO.: 13

Plotted By: meisterk
Plot File Date Created: Apr/18/2013 10:44 AM
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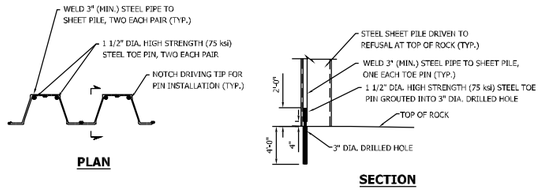
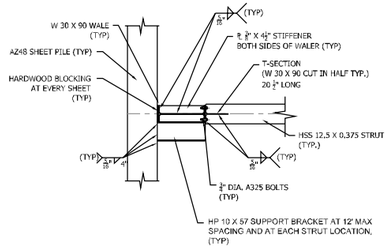
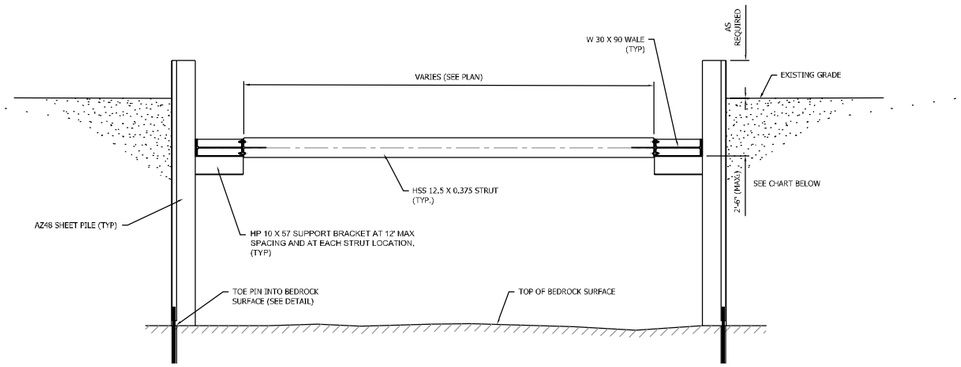


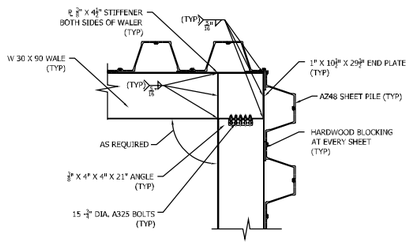
DETAIL A
TOE PIN DETAILS
NOT TO SCALE



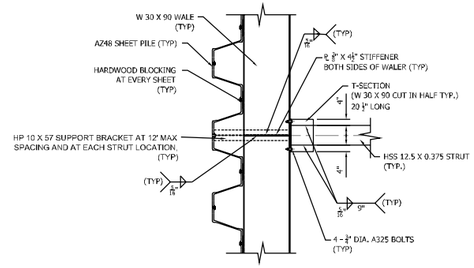
DETAIL C
STRUT CONNECTION
NOT TO SCALE



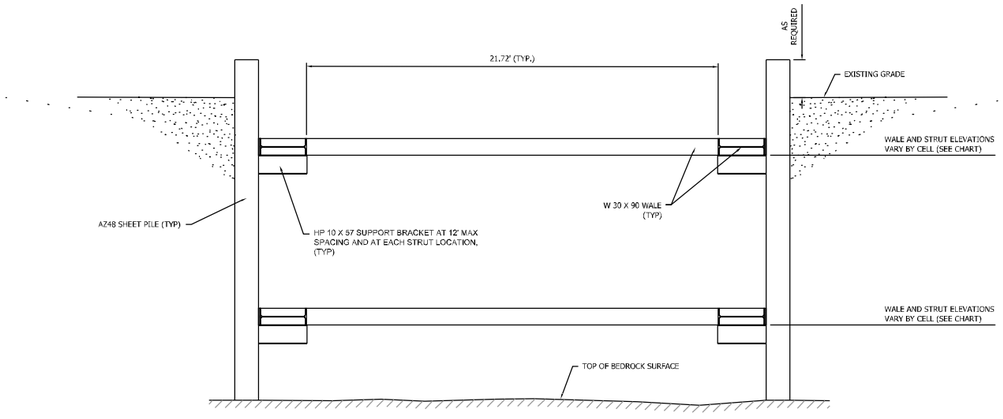
TYPICAL CELL
ONE ROW OF BRACING
NOT TO SCALE



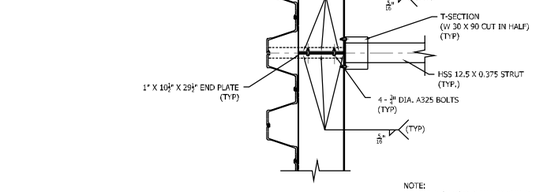
DETAIL B
WALER CORNER CONNECTION
NOT TO SCALE



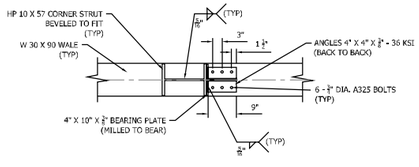
DETAIL D
STRUT CONNECTION
NOT TO SCALE



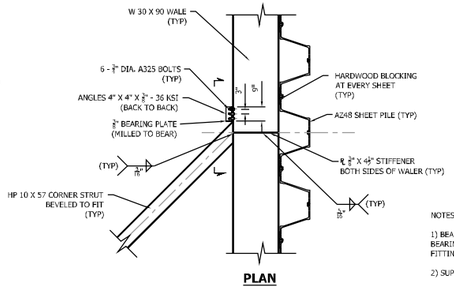
TYPICAL CELL
TWO ROWS OF BRACING
NOT TO SCALE



DETAIL E
WALER SPLICE CONNECTION
NOT TO SCALE



SECTION



PLAN

NOTES:

1) BEARING CONNECTION BETWEEN CORNER STRUT, BEARING PLATE AND ANGLES SHALL BE TIGHT FITTING, WITH NO GAPS.

2) SUPPORT BRACKETS NOT SHOWN FOR CLARITY

DETAIL F
CORNER STRUT CONNECTION DETAILS
NOT TO SCALE

EXCAVATION SUPPORT SYSTEM NOTES:

1. ALL STEEL SHEET PILING SHALL BE AZ13 (OR EQUIVALENT) WITH MINIMUM YIELD STRENGTH OF 50 KSI AND A MINIMUM SECTION MODULUS OF 24.2 IN³/FT.
2. SHEET PILE INTERLOCKS SHALL BE SEALED WITH DENEEF SWELLSEAL PRIOR TO INSTALLATION.
3. ALL WIDE FLANGE SHAPES AND STEEL PLATES SHALL BE NEW OR IN LIKE NEW CONDITION AND SHALL HAVE A MINIMUM YIELD STRENGTH OF 50KSI.
4. ALL PIPE STEEL SHALL BE NEW OR IN LIKE NEW CONDITION AND SHALL HAVE A MINIMUM YIELD STRENGTH OF 42KSI.
5. ALL WELDING SHALL BE PERFORMED WITH E70XX ELECTRODES IN ACCORDANCE WITH THE AISC MANUAL OF STEEL CONSTRUCTION, 13TH EDITION.
6. ALL BOLT HOLES SHALL BE DRILLED OR PUNCHED WITH A MINIMUM OF 1.5 INCH EDGE DISTANCE. ALL BOLTING AND ERECTION SHALL BE PERFORMED IN ACCORDANCE WITH THE AISC MANUAL OF STEEL CONSTRUCTION, 13TH EDITION.
7. THE EXCAVATION SHALL NOT BE PROGRESSED MORE THAN 1.0 FEET BELOW THE SPECIFIED BRACE ELEVATION UNTIL THE BRACING SYSTEM IS IN PLACE.
8. EXCAVATED SOILS SHALL NOT BE STOCKPILED WITHIN 20 FEET OF ANY OPEN EXCAVATION. NO EQUIPMENT SHALL BE ALLOWED WITHIN 5 FEET OF THE EDGES OF THE EXCAVATION.
9. THE WALER ELEVATION FOR EACH CELL SHALL BE LEVEL THROUGHOUT.
10. SHEET PILE EXCAVATION SYSTEM DESIGN AND LAYOUT, AS SHOWN ON THESE DRAWINGS, IS BASED ON A AZ-48 SHEET, SEE GENERAL NOTES, DWG. 2.

BRACING INSTALLATION SUMMARY CHART

	Maximum Depth of Excavation Elevation		Brace Elevation	
Cell	1st Brace Install	2nd Brace Install	1st Brace	2nd Brace
3A	600.4	594.2	603.0	595.2
3B	599.0	593.5	601.5	594.5
3C	598.0	593.0	600.5	594.0
3D	597.2	592.6	600.0	594.0
4A	596.4	592.1	599.0	593.0
4B	595.6	591.8	598.0	593.0
4C	594.7	591.4	597.2	592.5
4D	594.2	591.2	596.7	592.5
5A	597.5	592.8 *	600.0	594.0
5B	597.2	592.7 *	600.0	NA
5C	597.5	592.8*	600.0	NA
5D	597.5	592.8*	600.0	NA
5E	597.5	592.8*	600.0	NA
5F	597.2	592.7*	600.0	NA

* - TOE PIN TO BE INSTALLED PRIOR TO EXCAVATION REACHING THIS ELEVATION

DRN	CHK	DATE (M/D/Y)

VERIFY SCALE IF PLAN SHEET IS REDUCED
1 INCH

REV	DESCRIPTION

DRN BY: KAM
DES BY: BKA
CHK BY: CHF
APP BY: SAU

AECOM

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE
LOCKPORT, NEW YORK

TYPICAL EXCAVATION SUPPORT SYSTEM DETAILS

DATE: APRIL 2013
PROJECT NO.: 60194949
FILENAME: 60194949-LOCKPORT.dwg
SHEET NO.: 14
DRAWING NO.: 14

Plotted By: meisterk
Plot File Date Created: Apr/18/2013 10:46 AM
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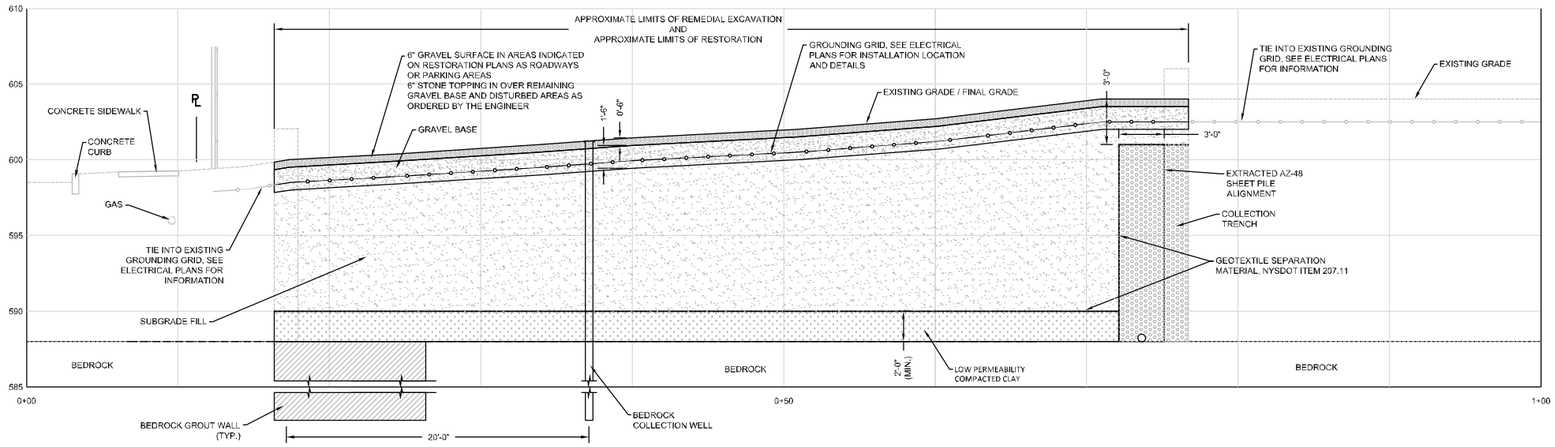
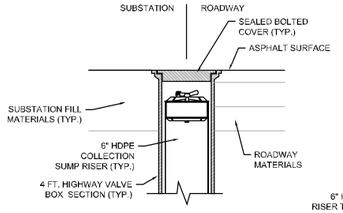


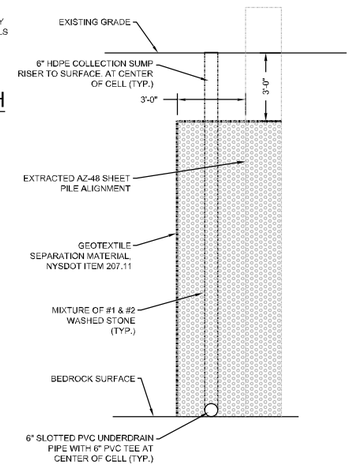
TYPICAL SITE BACKFILL SECTION

0' 2.5' 5' 10'



COLLECTION TRENCH RISER DETAIL

NOT TO SCALE

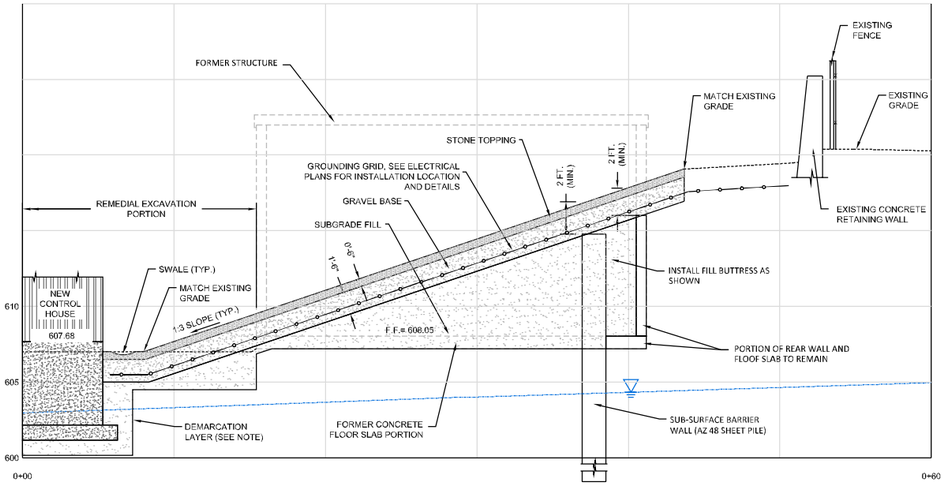


COLLECTION TRENCH DETAIL

NOT TO SCALE

TYPICAL ROADWAY BACKFILL SECTION

0' 2.5' 5' 10'



TYPICAL FILL BUTTRESS BACKFILL SECTION

0' 2.5' 5' 10'

NOTES:

1) ALL BACKFILL AND RESTORATION MATERIALS WITHIN THE SUBSTATION BOUNDARY SHALL BE IN ACCORDANCE WITH IBERDROLA USA TECHNICAL MANUAL YARD & FENCING STANDARD, TM 2.71.09, REVISION 04, DATED 11 - 2011, LAST REVISED 05-30-2012, PREPARED FOR IBERDROLA USA BY TRC ENGINEER LLC., INCLUDING PLACEMENT, COMPACTION, TESTING AND FINISHING.

2) ALL BACKFILL AND RESTORATION MATERIALS OUTSIDE OF THE SUBSTATION BOUNDARY SHALL BE IN ACCORDANCE WITH THE REFERENCED NYSDOT STANDARD SPECIFICATION (LATEST EDITION) INCLUDING PLACEMENT, COMPACTION, TESTING AND FINISHING.

3) FOR SITE RESTORATION PLAN SEE DWG. 16

4) FOR LAGRANGE STREET RESTORATION PLAN SEE DWG. 17.

4) FOR RESTORATION DETAILS SEE DRAWING 20.

6) EMBANKMENT PORTION OF FILL BUTTRESS TO BE INSTALLED PRIOR TO THE INSTALLATION THE SUB-SURFACE BARRIER WALL.

7) DEMARCATION LAYER MATERIAL SHALL BE POLYETHELENE / PLASTIC CONSTRUCTION FENCING, ORANGE IN COLOR, PLACED AT THE BASE AND ALL SIDEWALLS OF THE SHALLOW EXCAVATION AREAS WITH NO GAPS.

DRN BY:	KAM
DES BY	KAM
CHK BY:	CHF
APP BY:	SAU

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

1 INCH — VERIFY SCALE IF PLAN SHEET IS REDUCED

AECOM

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE
LOCKPORT, NEW YORK

TYPICAL BACKFILL SECTIONS AND DETAILS

DATE	APRIL 2013
PROJECT NO.	60194949
FILENAME	60194949-LOCKPORT.dwg
SHEET NO.	15
DRAWING NO.	15

Plotted By: meisterk
Plot File Date Created: Apr/18/2013 10:49 AM
Layout-Sheet Name: BACKFILL-SECTION-DETAILS
Filename: P:\60194949_NYSEG\LOCKPORT\CADD\TASK_1\CIVIL\DESIGN\60194949-LOCKPORT.DWG

LAGRANGE STREET

BR-106 BR-105 BR-104 BR-103 BR-102 BR-101 BR-114 BR-110 BR-115 BR-111 BR-116 BR-112

8 FT. CHAIN LINK FENCE TO END OF NEW RETAINING WALL

NEW RETAINING WALL FOOTINGS AND WALLS

RESTORE DISTURBED PORTION OF SITE TO EXISTING GRADE

4 FT. WIDE PERSONNEL GATE

NEW 6 FT. CHAIN LINK FENCE MOUNTED ON NEW CONCRETE RETAINING WALL (SEE DETAILS)

4.00 FT.

CHAIN LINK FENCE TO END OF NEW RETAINING WALL

4 FT. WIDE PERSONNEL GATE

CONCRETE DRIVEWAY (APRON)

ASPHALT DRIVEWAY

SUBSTATION GATE CONCRETE THRESHOLD (SEE DETAILS)

EXCAVATE AND DISPOSE OF EXISTING MATERIALS FOR THE INSTALLATION THE PROPOSED SURFACE TREATMENTS. SEE DETAILS (TYP.)

REMOVE AND DISPOSE OF EXISTING FENCE, GATES, FENCE POST FOOTINGS AND ALL EXISTING FENCING COMPONENTS (TYP.)

18.0 FT. VEHICLE GATE

RESTORE GUY WIRES AND GUY WIRE ANCHORS TO ORIGINAL POSITION (BY OTHERS)

SWITCH STANDS AND VACUUM BREAKER FOUNDATIONS BY OTHERS. SEE ELECTRICAL DRAWINGS FOR INFORMATION

REINSTALL PRECAST CONCRETE RESERVOIR TO ORIGINAL GRADE(S), SEE ATTACHED REFERENCE DRAWINGS FOR INFORMATION

INSTALL NEW INLET DRAINS AT SAME LOCATION AND GRADE AS EXISTING, SEE ATTACHED REFERENCE DRAWINGS FOR INFORMATION

REPAIR DISTURBED PORTION OF CONTAINMENT BERM, SEE ATTACHED REFERENCE DRAWINGS FOR INFORMATION

INSTALL NEW DISPERSION BERM AND MATERIALS AT SAME LOCATION AND GRADE AS EXISTING, SEE ATTACHED REFERENCE DRAWINGS FOR INFORMATION

ADDITIONAL AREAS, AS INDICATED BEYOND THE REMEDIAL EXCAVATING LIMITS, SHALL BE RESTORED AS FOLLOWS:

ROADWAY:
EXCAVATE AND DISPOSE OF EXISTING TOP 18" (MIN.), RESTORE AS INDICATED IN DETAIL "DRIVEWAY / PARKING AREA WITHIN SUB-STATION - NON-REMEDIATED AREA", DRAWING 20.

STONE TOPPING:
EXCAVATE AND DISPOSE OF EXISTING TOP 6" (MIN.), RESTORE AS INDICATED IN DETAIL "CRUSHED STONE TOPPING WITHIN SUBSTATION - NON-REMEDIATED AREA", DRAWING 20.

LIMITS OF REMEDIAL EXCAVATION

GRAVEL ROADWAY / PARKING LOT

RESTORE DISTURBED PORTION OF SITE TO EXISTING GRADE

30.00 FT.

22.00 FT.

N 1153928.8784 E 1118266.4874

N 1153928.8784 E 1118296.4874

NEW CONTROL HOUSE

N 1153906.8784 E 1118266.4874

N 1153906.8784 E 1118296.4874

TOP OF FOUNDATION WALL = 607.68

REMOVE AND DISPOSE OF STONE CURB UNDER EXISTING FENCE, REGRADE DISTURBED AREA WITH STONE TOPPING MATERIAL

NEW 8 FT. CHAIN LINK FENCE (SEE DETAILS)

ASPHALT DRIVEWAY

SUBSTATION GATE CONCRETE THRESHOLD (SEE DETAILS)

GATE

18.0 FT. VEHICLE GATE

15.0 FT. (TYP.)

GRAVEL ROADWAY

NEW 8 FT. CHAIN LINK FENCE (SEE DETAILS)

SAWCUT AND REMOVE PORTIONS OF EXISTING CONCRETE SLABS AND OTHER OBSTRUCTIONS FOR THE INSTALLATION OF NEW 8 FT. CHAIN LINK FENCE POST FOOTINGS, AS REQUIRED (TYP.)

NEW 8 FT. CHAIN LINK FENCE MOUNTED ON CONCRETE RETAINING WALLS, STEPPED AS REQUIRED

LEGEND

- CONCRETE RETAINING WALL
- CONCRETE SIDEWALK
- CIP CONCRETE CURB
- CONCRETE DRIVEWAY / PARKING AREA
- ASPHALT ROADWAY
- ASPHALT DRIVEWAY
- ESTABLISH TURF
- CHAIN LINK FENCE
- AREA OF GRAVEL SURFACE (SURFACE TREATMENT)
- AREA OF CRUSHED STONE TOPPING (SURFACE TREATMENT)
- PROPOSED CONTOUR (1 FT.)
- PROPOSED SPOT ELEVATION
- LIMITS OF REMEDIAL EXCAVATION
- BEDROCK EXTRACTION WELL
- COLLECTION TRENCH SUMP RISER

SITE RESTORATION NOTES:

1) THIS DRAWING IS INTENDED TO SHOW THE APPROXIMATE LIMITS OF RESTORATION WORK ON THE NYSEG PROPERTY BASED ON REMEDIAL EXCAVATION ACTIVITIES. CONTRACTOR SHALL RESTORE / REPAIR ALL DISTURBED AREAS AS A RESULT OF THEIR OPERATIONS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND TO THE SATISFACTION OF THE ON SITE ENGINEER.

2) CONTRACTOR SHALL RESTORE / REPAIR WORK IN PHASES WHERE ACCESS MAY NOT BE PERMITTED UPON THE RE-ENERGIZING OF CIRCUITS. CONTRACTOR SHALL BE RESPONSIBLE FOR SCHEDULING RESTORATION WORK WITH OWNER AND/OR THEIR APPOINTED REPRESENTATIVE.

3) FINAL GRADE SHALL BE RETURNED TO EXISTING CONDITIONS UNLESS OTHERWISE NOTED.

4) THE REINSTALLATION OF THE EXISTING PRECAST CONCRETE RESERVOIR, COLLECTION BERMS AND DISPERSION BERM SHALL BE IN ACCORDANCE WITH THE ORIGINAL INSTALLATION DRAWINGS (BY OTHERS) INCLUDED IN THESE PROJECT DRAWINGS.

5) FOR RESTORATION DETAILS SEE DRAWING 20.

6) NEW CHAIN LINK PERIMETER SECURITY FENCE SHALL BE INSTALLED IN THE SAME ALIGNMENT AS THE ORIGINAL PERIMETER SECURITY FENCE UNLESS OTHERWISE NOTED. FENCE HEIGHTS SHALL BE AS SHOWN.

6) FOR FENCE GROUNDING REQUIREMENTS SEE ELECTRICAL PLANS AND SPECIFICATIONS.

PLAN

0' 10' 20' 40'

VERIFY SCALE IF PLAN SHEET IS REDUCED — 1 INCH —

DESCRIPTION	DRN	CHK	DATE (M/D/Y)

REV	APP BY:	CHK BY:	DES BY	DRN BY:
SAU	CHF	KAM	KAM	KAM

AECOM

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE
LOCKPORT, NEW YORK

SITE RESTORATION PLAN

DATE: APRIL 2013
PROJECT NO.: 60194949
FILENAME: 60194949-LOCKPORT.dwg
SHEET NO.: 16
DRAWING NO.: 16

Plotted By: meisterk
Plot File Date Created: Apr/18/2013 10:55 AM
Layout-Sheet Name: SITE-RESTORE-PLAN
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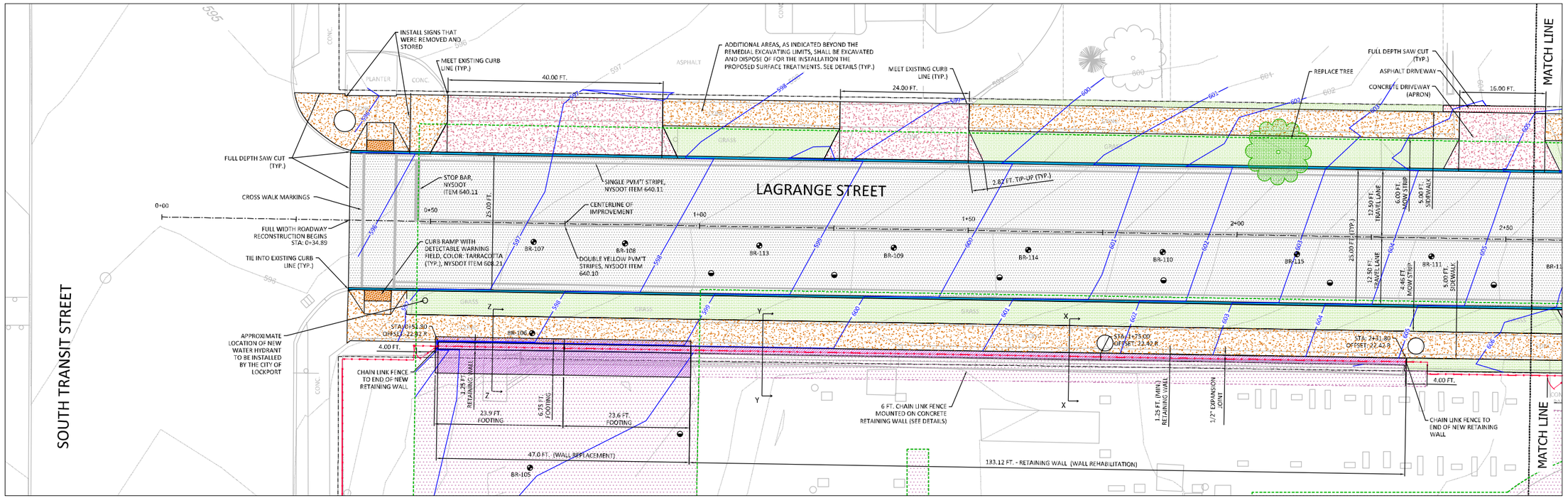
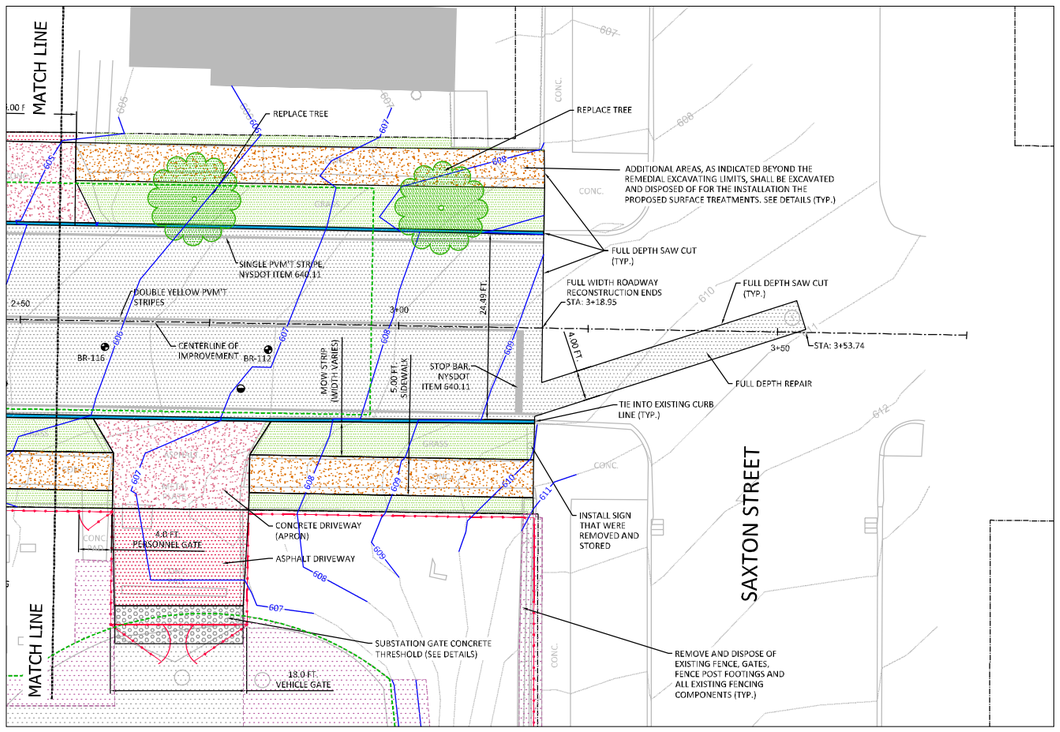




PLAN

0' 5' 10' 20'

LEGEND

- CONCRETE RETAINING WALL
- CONCRETE SIDEWALK
- CIP CONCRETE CURB
- CONCRETE DRIVEWAY / PARKING AREA
- ASPHALT ROADWAY
- ASPHALT DRIVEWAY
- ESTABLISH TURF
- CHAIN LINK FENCE
- AREA OF GRAVEL SURFACE (SURFACE TREATMENT)
- AREA OF CRUSHED STONE TOPPING (SURFACE TREATMENT)
- 606 PROPOSED CONTOUR (1 FT.)
- 606.5 x PROPOSED SPOT ELEVATION
- LIMITS OF REMEDIAL EXCAVATION
- BEDROCK EXTRACTION WELL
- COLLECTION TRENCH SUMP RISER

LAGRANGE STREET RESTORATION NOTES:

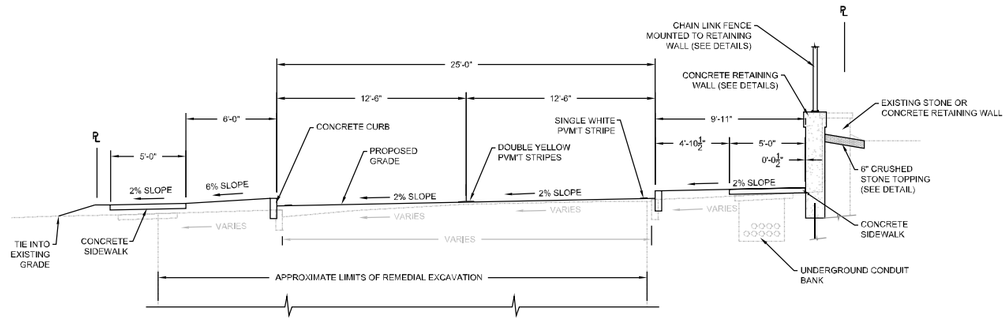
1) THIS DRAWING IS INTENDED TO SHOW THE APPROXIMATE LIMITS OF RESTORATION WORK ON THE CITY OF LOCKPORT RIGHT OF WAY (R.O.W.) BASED ON REMEDIAL EXCAVATION ACTIVITIES. CONTRACTOR SHALL RESTORE / REPAIR ALL DISTURBED AREAS AS A RESULT OF THEIR OPERATIONS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND TO THE SATISFACTION OF THE ON SITE ENGINEER.

2) CONTRACTOR SHALL RESTORE / REPAIR WORK IN PHASES WHERE ACCESS MAY NOT BE PERMITTED UPON THE RE-ENERGIZING OF CIRCUITS. CONTRACTOR SHALL BE RESPONSIBLE FOR SCHEDULING RESTORATION WORK WITH OWNER AND/OR THEIR APPOINTED REPRESENTATIVE.

3) FINAL GRADES SHALL BE AS SHOWN.

4) FOR RESTORATION DETAILS AND APPLICABLE MATERIAL SPECIFICATION INFORMATION SEE DRAWING 20.

5) FOR LAGRANGE STREET CENTERLINE OF ROAD PROFILE AND RETAINING WALL SECTIONS AND DETAILS SEE DRAWING 18.



TYPICAL ROADWAY SECTION

0' 2.5' 5' 10'

AECOM

DRN BY:	KAM
DES BY	KAM
CHK BY:	CHF
APP BY:	SAU

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

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE
LOCKPORT, NEW YORK

LAGRANGE STREET RESTORATION PLAN

DATE: APRIL 2013
PROJECT NO.: 60194949
FILENAME: 60194949-LOCKPORT.dwg
SHEET NO.: 17
DRAWING NO.: 17

Plotted By: meisterk
Plot File Date Created: Apr/18/2013 10:57 AM
Layout-Sheet Name: LAGRANGE-RESTORE-PLAN
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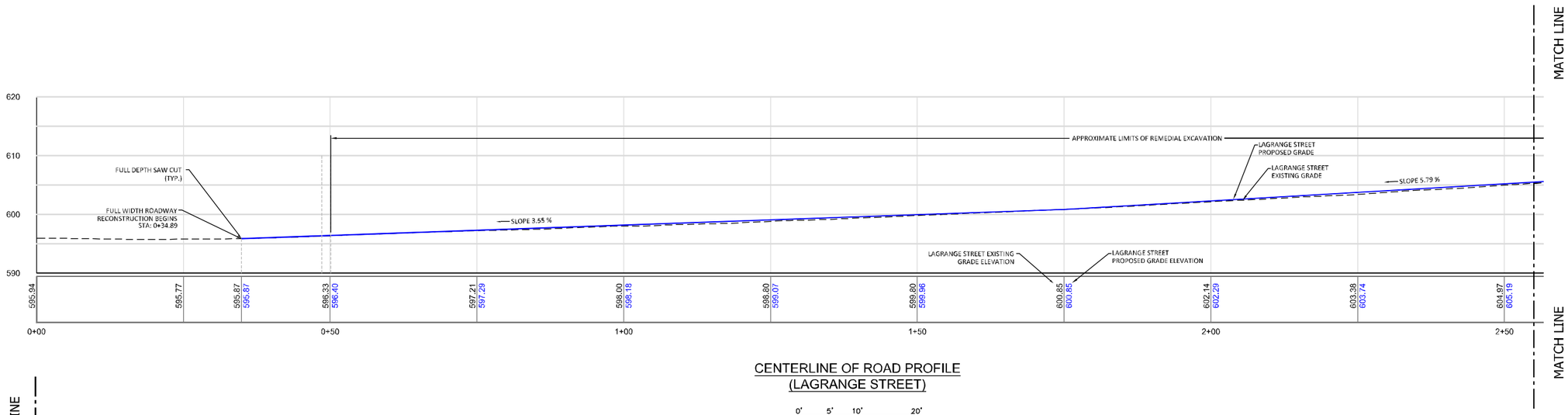
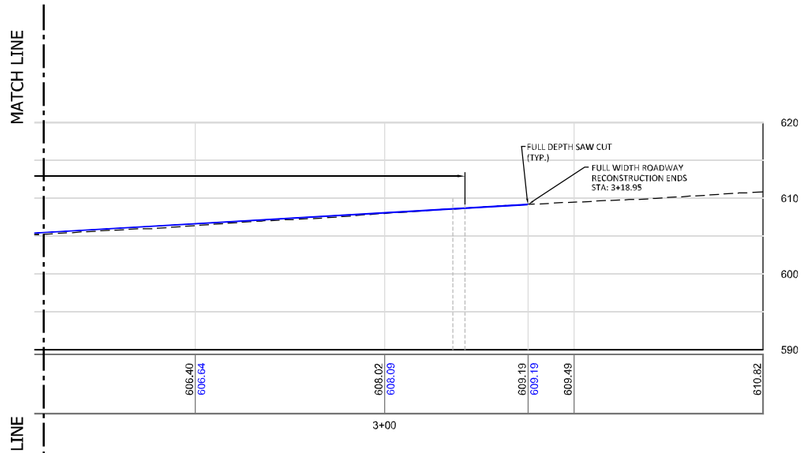


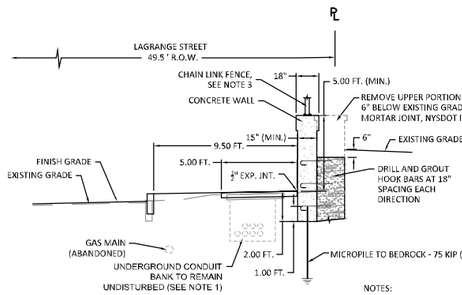
CENTERLINE OF ROAD PROFILE
(LAGRANGE STREET)

0' 5' 10' 20'



CENTERLINE OF ROAD PROFILE
(LAGRANGE STREET)

0' 5' 10' 20'



SECTION X - X
(WALL REHABILITATION AT EXISTING STONE WALL)

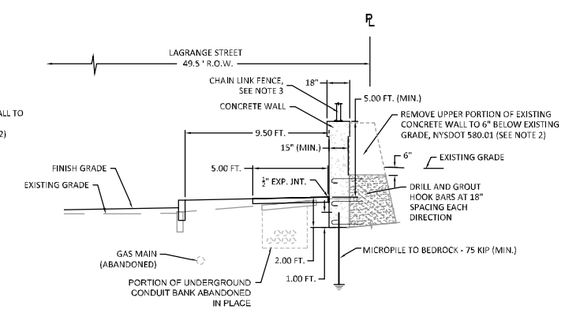
0' 2.5' 5' 10'

NOTES:

1) PORTION OF UNDERGROUND ELECTRICAL CONDUIT BANK BETWEEN MH 64 AND MH 65 TO REMAIN UNDISTURBED. CARE SHALL BE TAKEN WHILE REMOVING EXISTING SIDEWALKS AND EXCAVATING FOR RETAINING WALL REHABILITATION AND REPLACEMENT SOILS.

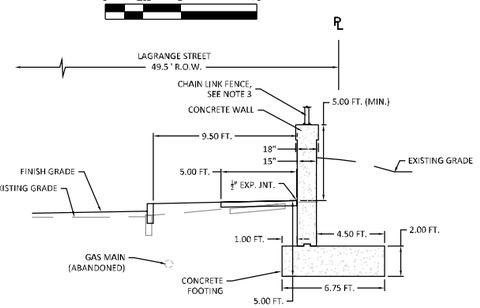
2) UPPER PORTION OF THE EXISTING RETAINING WALL(S) TO BE REMOVED TO THE LIMITS SHOWN IN ACCORDANCE WITH THE APPLICABLE NYSDOT SPECIFICATIONS. CARE SHALL BE TAKEN WHILE REMOVING EXISTING WALL PORTIONS AS NOT TO DISTURB THE PORTIONS TO REMAIN.

3) 6 FT. HIGH CHAIN LINK FENCE TO MOUNTED TO TOP OF RETAINING WALL WITH FENCE POST FLOOR FLANGE (SEE DETAIL, DRAWING 19). FENCE POSTS IN EACH SECTIONS SHALL BE EQUALLY SPACED (8 FT. MAX.). FENCE SECTIONS SHALL BE STEPPED TO MATCH WALL STEPS, AS REQUIRED.



SECTION Y - Y
(WALL REHABILITATION AT EXISTING CONCRETE WALL)

0' 2.5' 5' 10'



SECTION Z - Z
(WALL REPLACEMENT)

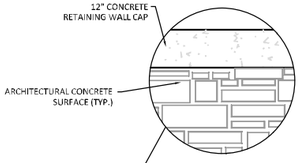
0' 2.5' 5' 10'

CENTERLINE OF ROAD PROFILE
(LAGRANGE STREET)

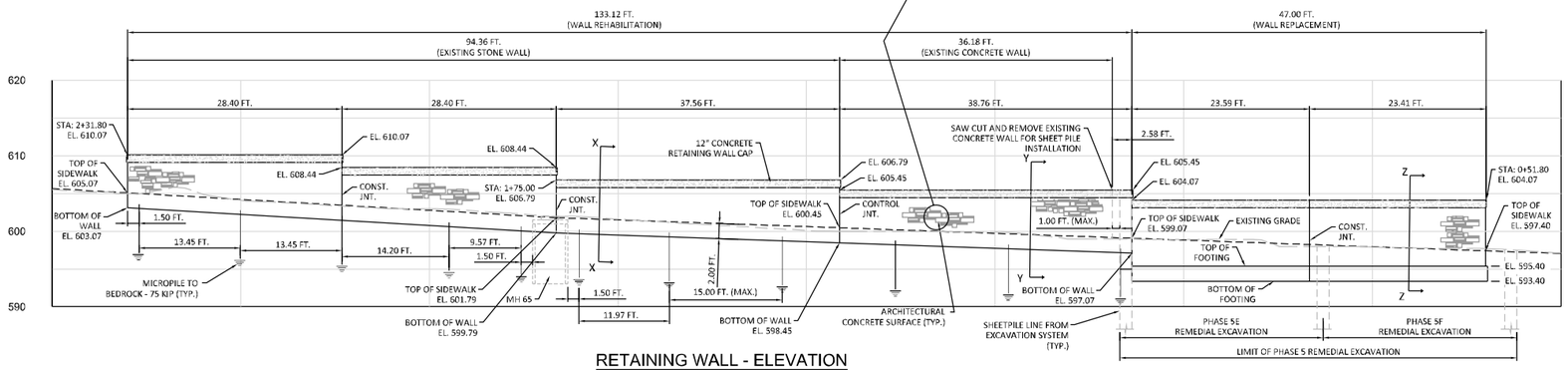
0' 5' 10' 20'

CENTERLINE OF ROAD PROFILE
(LAGRANGE STREET)

0' 5' 10' 20'



DETAIL
NOT TO SCALE



RETAINING WALL - ELEVATION

0' 5' 10' 20'

CONCRETE RETAINING WALL NOTES:

1) CONCRETE FOR RETAINING WALL FOOTINGS AND WALLS SHALL BE IN ACCORDANCE WITH NYSDOT 555.0105 CONCRETE FOR STRUCTURES, CLASS A.

2) REINFORCING STEEL SHALL BE IN ACCORDANCE WITH NYSDOT 556.0201 UNCOATED BAR REINFORCEMENT FOR STRUCTURES AND 556.0202 EPOXY-COATED BAR REINFORCEMENT FOR STRUCTURES.

3) ARCHITECTURAL CONCRETE SURFACE SHALL BE IN ACCORDANCE WITH NYSDOT 555.0194 ARCHITECTURAL TREATMENT - VERTICAL CONCRETE SURFACES.

4) CONTRACTOR SHALL SUBMIT FOR APPROVAL THE PROPOSED ARCHITECTURAL CONCRETE SURFACE FORM LINER THAT MEETS THE REQUIREMENTS OF THE PLANS, SPECIFICATIONS AND DETAILS. NYSEG AND/OR THEIR APPOINTED REPRESENTATIVE SHALL BE RESPONSIBLE FOR GRANTING FINAL APPROVAL OF PATTERN USED.

5) MICROPILES SHALL BE IN ACCORDANCE WITH NYSDOT 551.99400017.

6) DRILL AND GROUT REINFORCING STEEL SHALL BE IN ACCORDANCE WITH NYSDOT 586.01 DRILLING AND GROUTING BOLTS, REINFORCING BARS.

DRN BY:	KAM
DES BY	KAM
CHK BY:	CHF
APP BY:	SAU

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

1 INCH — VERIFY SCALE IF PLAN SHEET IS REDUCED

AECOM

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE
LOCKPORT, NEW YORK

LAGRANGE STREET CENTERLINE OF ROAD PROFILE AND RETAINING WALL ELEVATION AND DETAILS

DATE: APRIL 2013
PROJECT NO.: 60194949
FILENAME: 60194949-LOCKPORT.dwg
SHEET NO.: 18
DRAWING NO.: 18

Plotted By: meisterk
Plot File Date Created: Apr/18/2013 11:02 AM
Layout-Sheet Name: LAGRANGE-RESTORE-PROFILE
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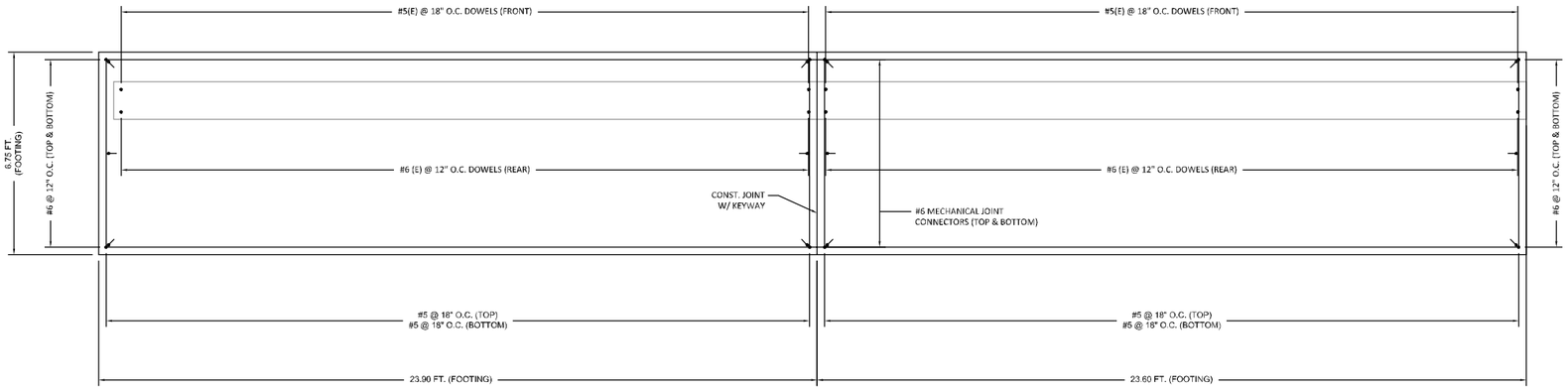
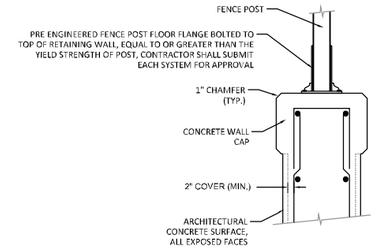
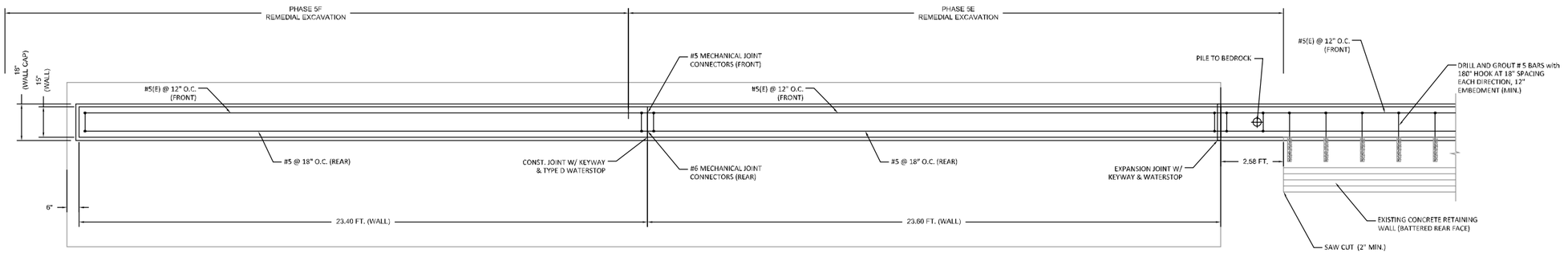


FOOTING REINFORCEMENT

0' 1.25' 2.5' 5'

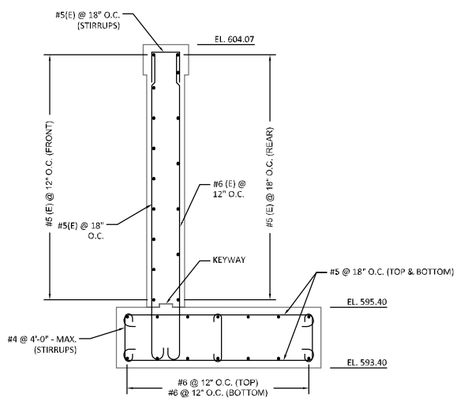


DETAIL
(NOT TO SCALE)



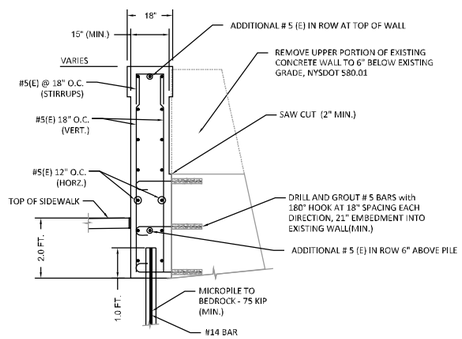
WALL REINFORCEMENT

0' 1.25' 2.5' 5'



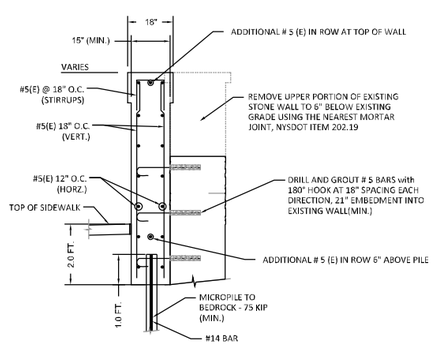
TYPICAL RETAINING WALL REINFORCEMENT SECTION
(WALL REPLACEMENT)

0' 1.25' 2.5' 5'



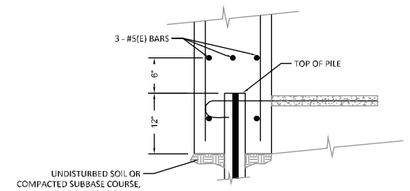
TYPICAL RETAINING WALL REINFORCEMENT SECTION
(WALL REHABILITATION AT EXISTING CONCRETE WALL)

0' 1.25' 2.5' 5'

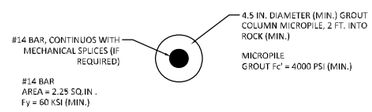


TYPICAL RETAINING WALL REINFORCEMENT SECTION
(WALL REHABILITATION AT EXISTING STONE WALL)

0' 1.25' 2.5' 5'



TYPICAL MICROPILE SECTION
(NOT TO SCALE)



TYPICAL MICROPILE DETAIL
(NOT TO SCALE)

VERIFY SCALE IF PLAN SHEET IS REDUCED
1 INCH

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

DRN BY: KAM
DES BY: BKA
CHK BY: CHF
APP BY: SAU

AECOM

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE
LOCKPORT, NEW YORK

RETAINING WALL REINFORCEMENT DETAILS

DATE: APRIL 2013
PROJECT NO.: 60194949
FILENAME: 60194949-LOCKPORT.dwg
SHEET NO.: 19
DRAWING NO.: 19

Plotted By: meisterk
Plot File Date Created: Apr/18/2013 11:14 AM
Layout-Sheet Name: WALL-REINFORCING
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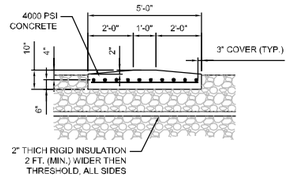
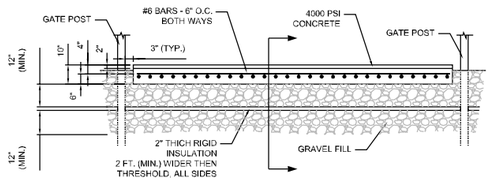


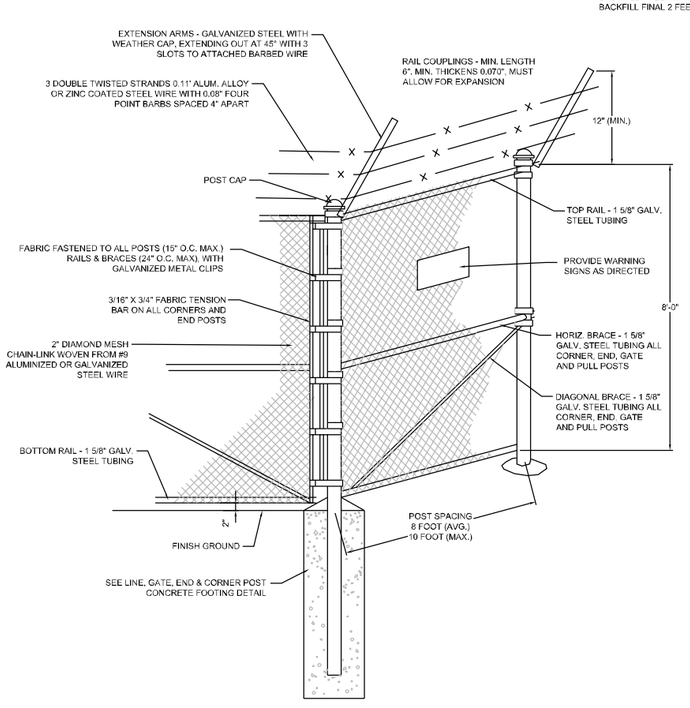
SECTION



ELEVATION

SUBSTATION CONCRETE THRESHOLD DETAIL

NOT TO SCALE



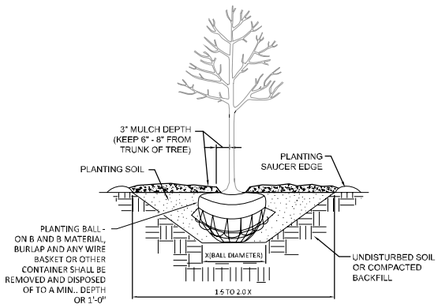
FENCE DETAIL

NOT TO SCALE

NOTES:

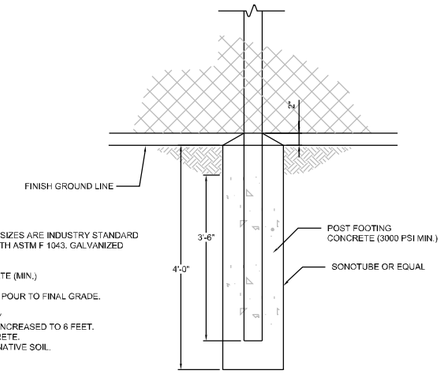
1) SUBSTATION FENCING AND CONCRETE THRESHOLD DETAILS ADOPTED FROM IBERDROLA USA TECHNICAL MANUAL YARD & FENCING STANDARD, TM 2.71.09, REVISION 04, DATED 11 - 2011. LAST REVISED 05-30-2012, PREPARED FOR IBERDROLA USA BY TRC ENGINEER LLC.

2) IF ANY DISCREPANCIES ARE FOUND BETWEEN THESE DETAILS AND THE TECHNICAL SPECIFICATION DESCRIBED ABOVE, THE TECHNICAL SPECIFICATION SHALL PREVAIL.



GENERAL TREE PLANTING DETAIL

NOT TO SCALE



FOOTING NOTES:

1. UNLESS INDICATED, FENCE POST SIZES ARE INDUSTRY STANDARD NOMINAL SIZES IN ACCORDANCE WITH ASTM F 1043, GALVANIZED STEEL PIPE.

2. BACKFILL WITH 3,000 PSI CONCRETE (MIN.)

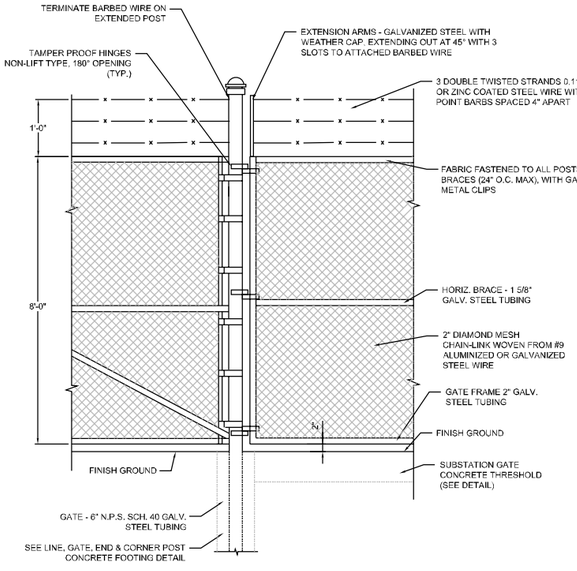
3. ALL CONCRETE SHALL BE SINGLE POUR TO FINAL GRADE.

4. WHEN INSTALLING POSTS IN CLAY
POST HOLE DEPTH SHALL BE INCREASED TO 6 FEET.
BACKFILL 4 FEET WITH CONCRETE.
BACKFILL FINAL 2 FEET WITH NATIVE SOIL.

POST USE	LINE	GATE	CORNER	END
ASTM F 1043 (INCHES)	3	6	4	4
SONOTUBE SIZE (INCHES)	12	24	12	12

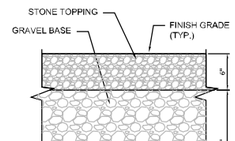
LINE, GATE, CORNER, AND END POSTS DETAIL

NOT TO SCALE



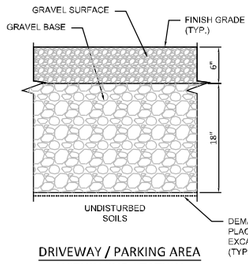
FENCE GATE DETAIL

NOT TO SCALE



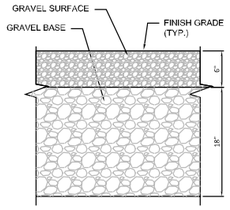
CRUSHED STONE TOPPING WITHIN SUB-STATION (REMEDIATED AREA)

NOT TO SCALE



DRIVEWAY / PARKING AREA WITHIN SUB-STATION (NON-REMEDIATED AREA)

NOT TO SCALE

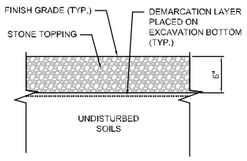


DRIVEWAY / PARKING AREA WITHIN SUB-STATION (REMEDIATED AREA)

NOT TO SCALE

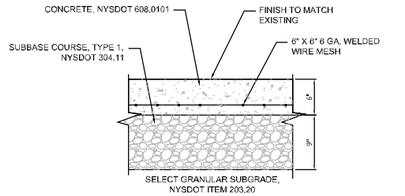
NOTE:

FILL WITHIN THE SUBSTATION BOUNDARY SHALL BE IN ACCORDANCE WITH IBERDROLA USA TECHNICAL MANUAL YARD & FENCING STANDARD, TM 2.71.09, REVISION 04, DATED 11 - 2011, LAST REVISED 05-30-2012. PREPARED FOR IBERDROLA USA BY TRC ENGINEER LLC.



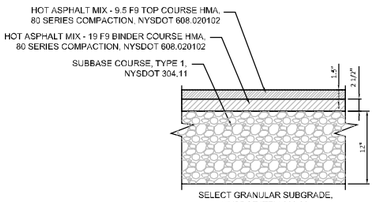
CRUSHED STONE TOPPING WITHIN SUB-STATION (NON-REMEDIATED AREA)

NOT TO SCALE



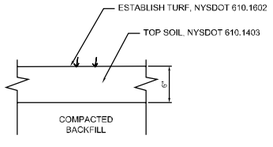
CONCRETE DRIVEWAY / PARKING AREA

NOT TO SCALE



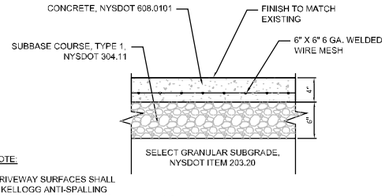
ASPHALT DRIVEWAY / PARKING AREA

NOT TO SCALE



ESTABLISH TURF

NOT TO SCALE

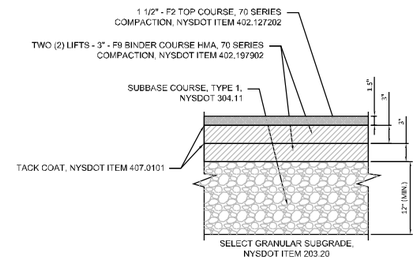


CONCRETE SIDEWALK

NOT TO SCALE

SPECIAL CONCRETE TREATMENT NOTE:

1) ALL CONCRETE SIDEWALK AND DRIVEWAY SURFACES SHALL RECEIVE A TWO (2) COAT SPENCER KELLOGG ANTI-SPALLING TREATMENT, TREATMENT SHALL BE APPLIED BETWEEN 28 - 42 DAYS FROM CONCRETE INSTALLATION. TREATMENT SHALL BE APPLIED IN STRICT COMPLIANCE WITH THE MANUFACTURES INSTRUCTIONS. APPLICATION RATES SHALL BE AS FOLLOWS:
FIRST COAT 360 SF / GAL.
SECOND COAT 600 SF / GAL.

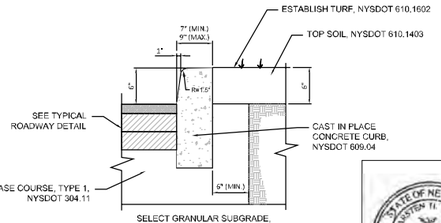


ASPHALT ROADWAY

NOT TO SCALE

SPECIAL SUBBASE NOTE:

SUBBASE COURSE, TYPE 1, NYSDOT ITEM 304.11 SHALL BE MADE OF CRUSHED AGGREGATE / CRUSHER RUN MATERIAL



TYPICAL CIP CONCRETE CURB SECTION

NOT TO SCALE

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KAM	KAM	CHF	SAU

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

AECOM

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE
LOCKPORT, NEW YORK

RESTORATION DETAIL

DATE: APRIL 2013
PROJECT NO.: 60194949
FILENAME: 60194949-LOCKPORT.dwg
SHEET NO.: 20
DRAWING NO.: 20

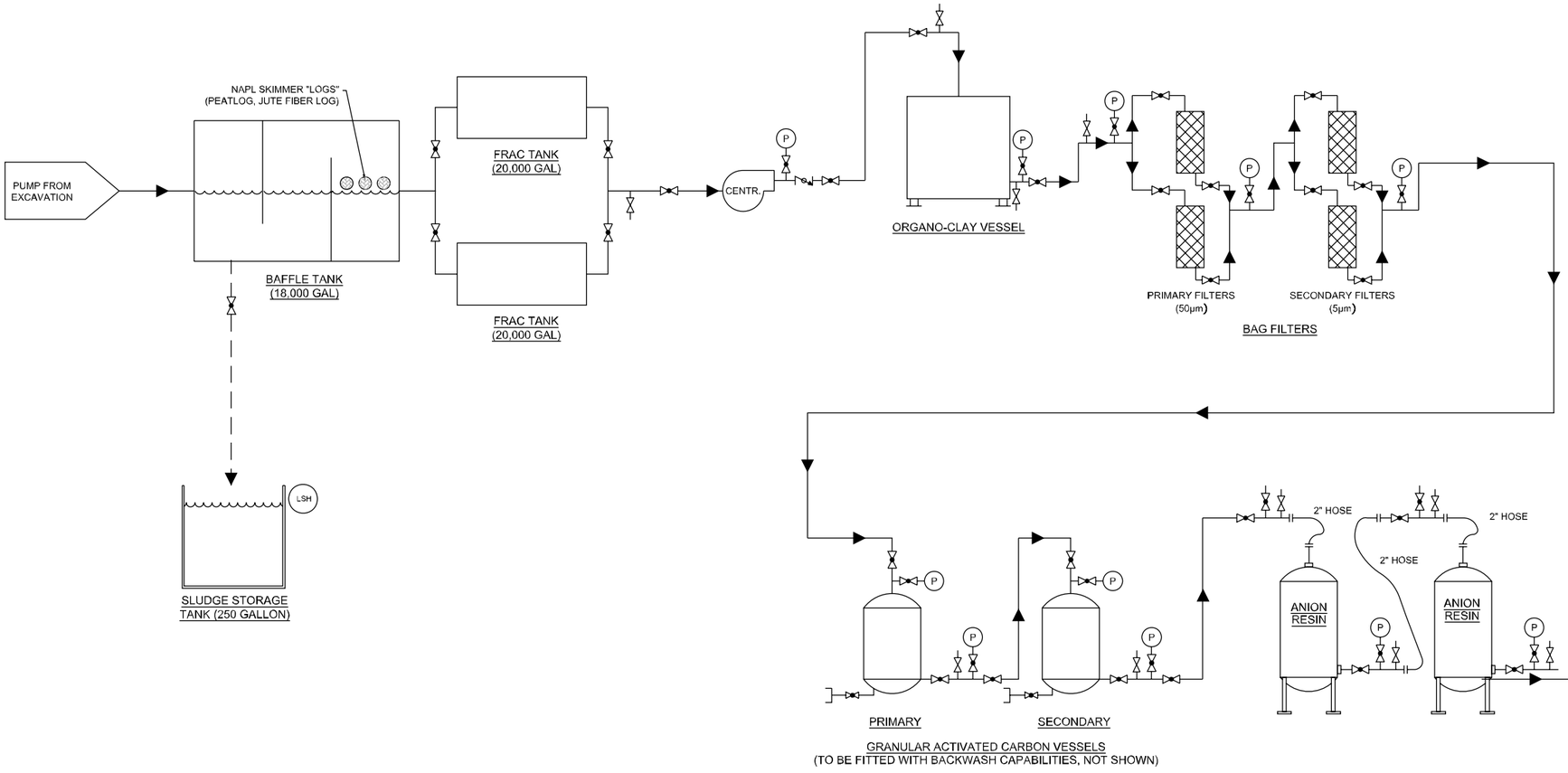
Plotted By: meisterk
Plot File Date Created: Apr/18/2013 11:17 AM
Layout-Sheet Name: RESTORE-DETAILS
Filename: P:\60194949_NYSEGLOCKPORT\CADD\TASK_1\CIVIL\DESIGN\60194949-LOCKPORT.DWG

NOTES:

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

LEGEND:

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



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DES BY	SAU
CHK BY:	CHF
APP BY:	SAU

REV	DESCRIPTION	DRN	CHK	DATE (M/DAY)

VERIFY SCALE IF PLAN SHEET IS REDUCED
1 INCH

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NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE LOCKPORT, NEW YORK

GROUNDWATER TREATMENT SYSTEM PROCESS FLOW DIAGRAM

SCOTT ANDREW UNDERWOOD — LICENSED PROFESSIONAL ENGINEER — STATE OF NEW YORK — 075202

DATE	APRIL 2013
PROJECT NO.	60194949
FILENAME	60194949-LOCKPORT.dwg
SHEET NO.	21
DRAWING NO.	21

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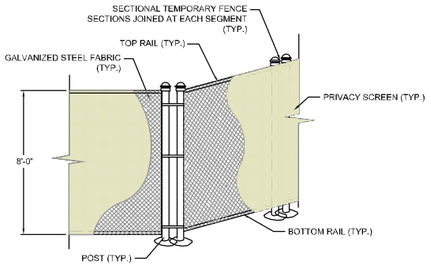
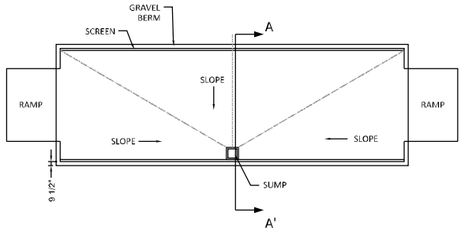


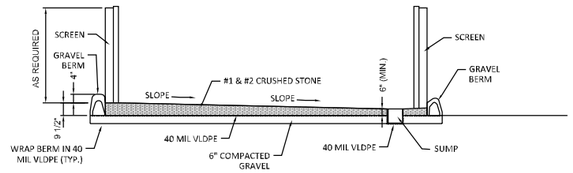
DETAIL

TEMPORARY SECURITY FENCE

NOT TO SCALE



PLAN

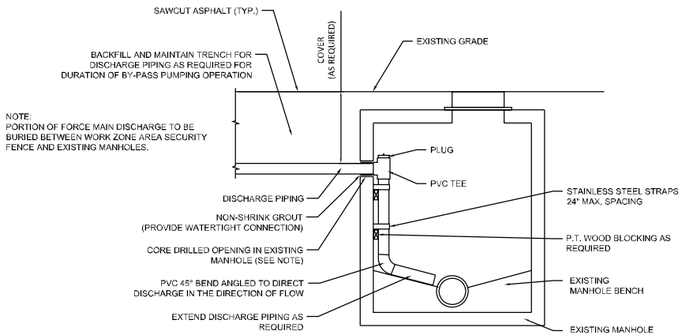


NOTE:
A SUBMERSIBLE PUMP WILL BE PLACED IN SUMP AS REQUIRED. THE PUMP WILL TRANSPORT WASTEWATER VIA HOSE TO DISPOSAL CONTAINERS.

SECTION A - A'

EQUIPMENT CONTAMINATION REDUCTION PAD

NOT TO SCALE

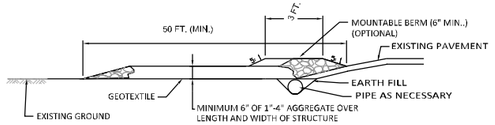


NOTE:
PORTION OF FORCE MAIN DISCHARGE TO BE BURIED BETWEEN WORK ZONE AREA SECURITY FENCE AND EXISTING MANHOLES.

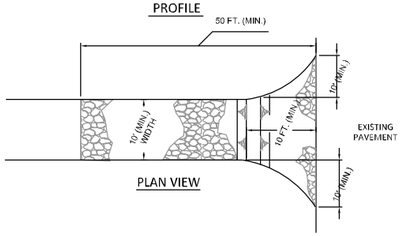
NOTE:
CORE DRILLED OPENINGS IN EXISTING MANHOLES SHALL BE FILLED AND SEALED WITH NON-SHRINK GROUT AT THE DURATION OF THE PUMPING OPERATION.

TYPICAL FORCEMAIN CONNECTION TO EXISTING MANHOLE

NOT TO SCALE



PROFILE



PLAN VIEW

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

STABILIZED CONSTRUCTION ENTRANCE NOTES:

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

2) LENGTH - NOT LESS THAN 50 FT.

3) THICKNESS - NOT LESS THAN 6 INCHES.

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

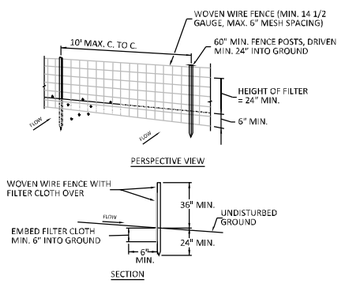
5) GEOTEXTILE - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.

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

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

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

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



SILT FENCE DETAILS

NOT TO SCALE

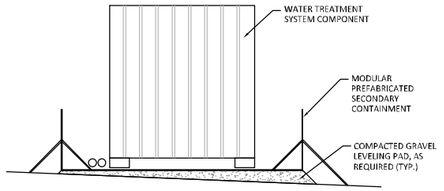
SILT FENCE NOTES:

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

POSTS: TYPE OR 2" HARDWOOD.

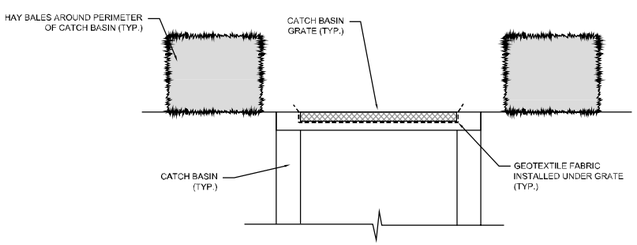
FENCE: WOVEN WIRE, 14 1/2 GA. 6" MAX. MESH OPENING.

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



CONSTRUCTION WATER TREATMENT SYSTEM CONTAINMENT DETAIL

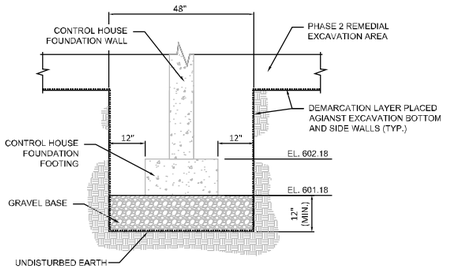
NOT TO SCALE



SECTION

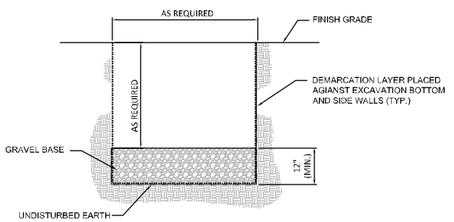
SEDIMENT CONTROL MEASURES AT EXISTING CATCH BASINS

NOT TO SCALE



CONTROL HOUSE FOUNDATION EXCAVATION

NOT TO SCALE



TYPICAL CABLE TRENCH EXCAVATION

NOT TO SCALE

NOTE:

DEMARCATION LAYER MATERIAL SHALL BE POLYETHELENE / PLASTIC CONSTRUCTION FENCING, ORANGE IN COLOR, PLACED AT THE BASE AND ALL SIDEWALLS OF THE SHALLOW EXCAVATION AREAS WITH NO GAPS.

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KAM	VERIFY SCALE IF PLAN SHEET IS REDUCED			
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KAM				
CHK BY:				
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APP BY:	REV			
SAU				

1 INCH

AECOM

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE
LOCKPORT, NEW YORK

TYPICAL CONSTRUCTION DETAILS

DATE: APRIL 2013

PROJECT NO.: 60194949

FILENAME: 60194949-LOCKPORT.dwg

SHEET NO.: 22

DRAWING NO.: 22

Plotted By: meisterk
Plot File Date Created: Apr/18/2013 11:23 AM
Layout-Sheet Name: DETAILS
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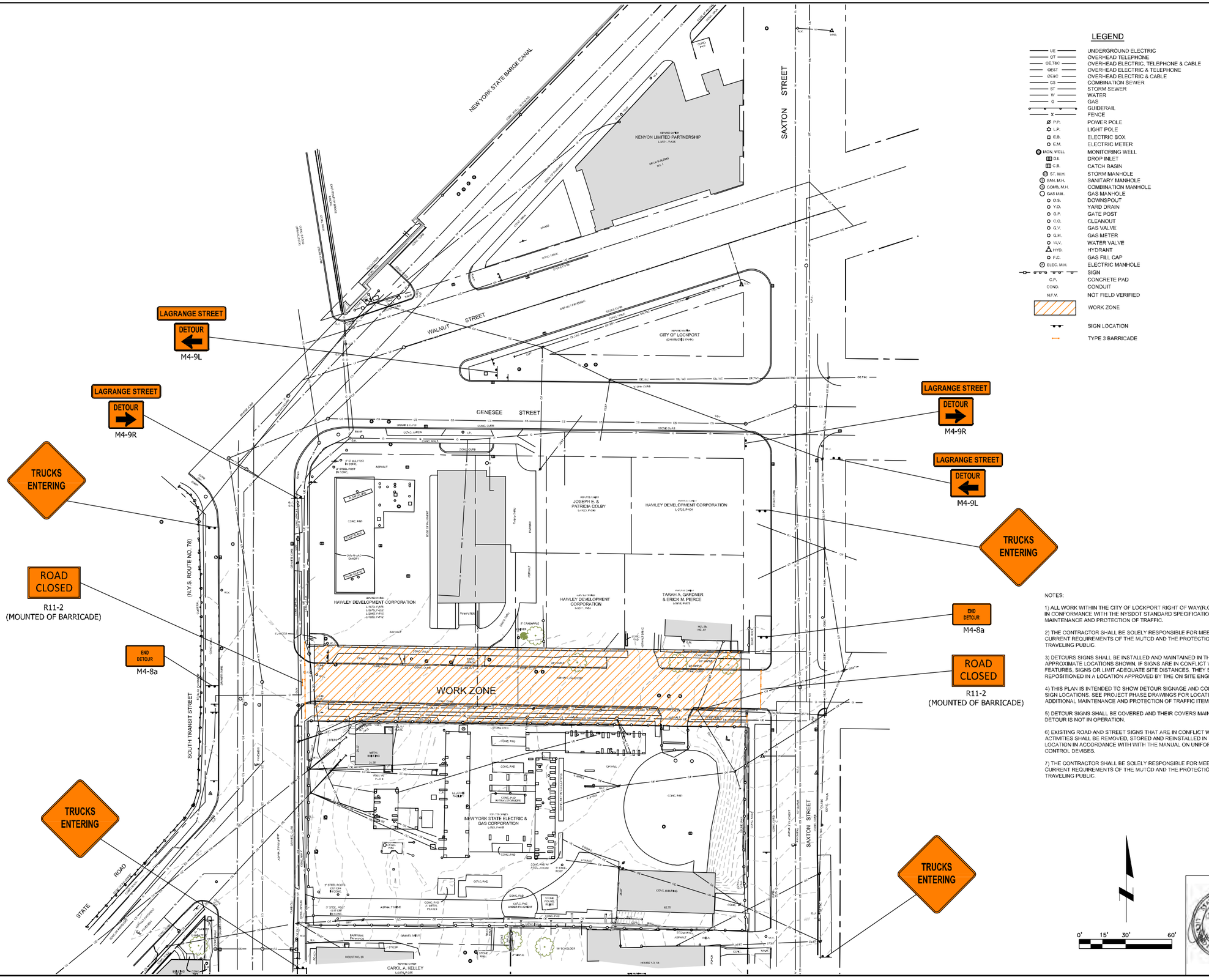

LEGEND

- UE — UNDERGROUND ELECTRIC
- OT — OVERHEAD TELEPHONE
- OE,T&C — OVERHEAD ELECTRIC, TELEPHONE & CABLE
- OE&T — OVERHEAD ELECTRIC & TELEPHONE
- OE&C — OVERHEAD ELECTRIC & CABLE
- CS — COMBINATION SEWER
- ST — STORM SEWER
- W — WATER
- G — GAS
- GUIDERAIL
- X — FENCE
- P.P. — POWER POLE
- L.P. — LIGHT POLE
- E.B. — ELECTRIC BOX
- E.M. — ELECTRIC METER
- MON. WELL — MONITORING WELL
- D.I. — DROP INLET
- C.B. — CATCH BASIN
- ST. M.H. — STORM MANHOLE
- SAN. M.H. — SANITARY MANHOLE
- COMB. M.H. — COMBINATION MANHOLE
- GAS M.H. — GAS MANHOLE
- D.S. — DOWNSPOUT
- Y.D. — YARD DRAIN
- G.P. — GATE POST
- C.O. — CLEANOUT
- G.V. — GAS VALVE
- G.M. — GAS METER
- W.V. — WATER VALVE
- HYD. — HYDRANT
- F.C. — GAS FILL CAP
- ELEC. M.H. — ELECTRIC MANHOLE
- SIGN
- C.P. — CONCRETE PAD
- COND. — CONDUIT
- N.F.V. — NOT FIELD VERIFIED
- WORK ZONE
- SIGN LOCATION
- TYPE 3 BARRICADE

NOTES:

1) ALL WORK WITHIN THE CITY OF LOCKPORT RIGHT OF WAY(R.O.W.) SHALL BE IN CONFORMANCE WITH THE NYSDOT STANDARD SPECIFICATION FOR MAINTENANCE AND PROTECTION OF TRAFFIC.

2) THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MEETING ALL CURRENT REQUIREMENTS OF THE MUTCD AND THE PROTECTION OF THE TRAVELING PUBLIC.

3) DETOURS SIGNS SHALL BE INSTALLED AND MAINTAINED IN THE APPROXIMATE LOCATIONS SHOWN. IF SIGNS ARE IN CONFLICT WITH EXISTING FEATURES, SIGNS OR LIMIT ADEQUATE SITE DISTANCES, THEY SHALL BE BE REPOSITIONED IN A LOCATION APPROVED BY THE ON SITE ENGINEER.

4) THIS PLAN IS INTENDED TO SHOW DETOUR SIGNAGE AND CONSTRUCTION SIGN LOCATIONS. SEE PROJECT PHASE DRAWINGS FOR LOCATION OF ADDITIONAL MAINTENANCE AND PROTECTION OF TRAFFIC ITEMS.

5) DETOUR SIGNS SHALL BE COVERED AND THEIR COVERS MAINTAINED WHEN DETOUR IS NOT IN OPERATION.

6) EXISTING ROAD AND STREET SIGNS THAT ARE IN CONFLICT WITH REMEDIAL ACTIVITIES SHALL BE REMOVED, STORED AND REINSTALLED IN THE FORMER LOCATION IN ACCORDANCE WITH WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVISES.

7) THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MEETING ALL CURRENT REQUIREMENTS OF THE MUTCD AND THE PROTECTION OF THE TRAVELING PUBLIC.

DESCRIPTION	DRN	CHK	DATE (M/D/Y)

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DES BY: KAM
CHK BY: CHF
APP BY: SAU

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NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE LOCKPORT, NEW YORK

DETOUR AND ROAD SIGNAGE PLAN

DATE: APRIL 2013
PROJECT NO.: 60194949
FILENAME: 60194949-LOCKPORT.dwg
SHEET NO.: 23
DRAWING NO.: 23

Plotted By: meisterk
Plot File Date Created: Apr/18/2013 11:26 AM
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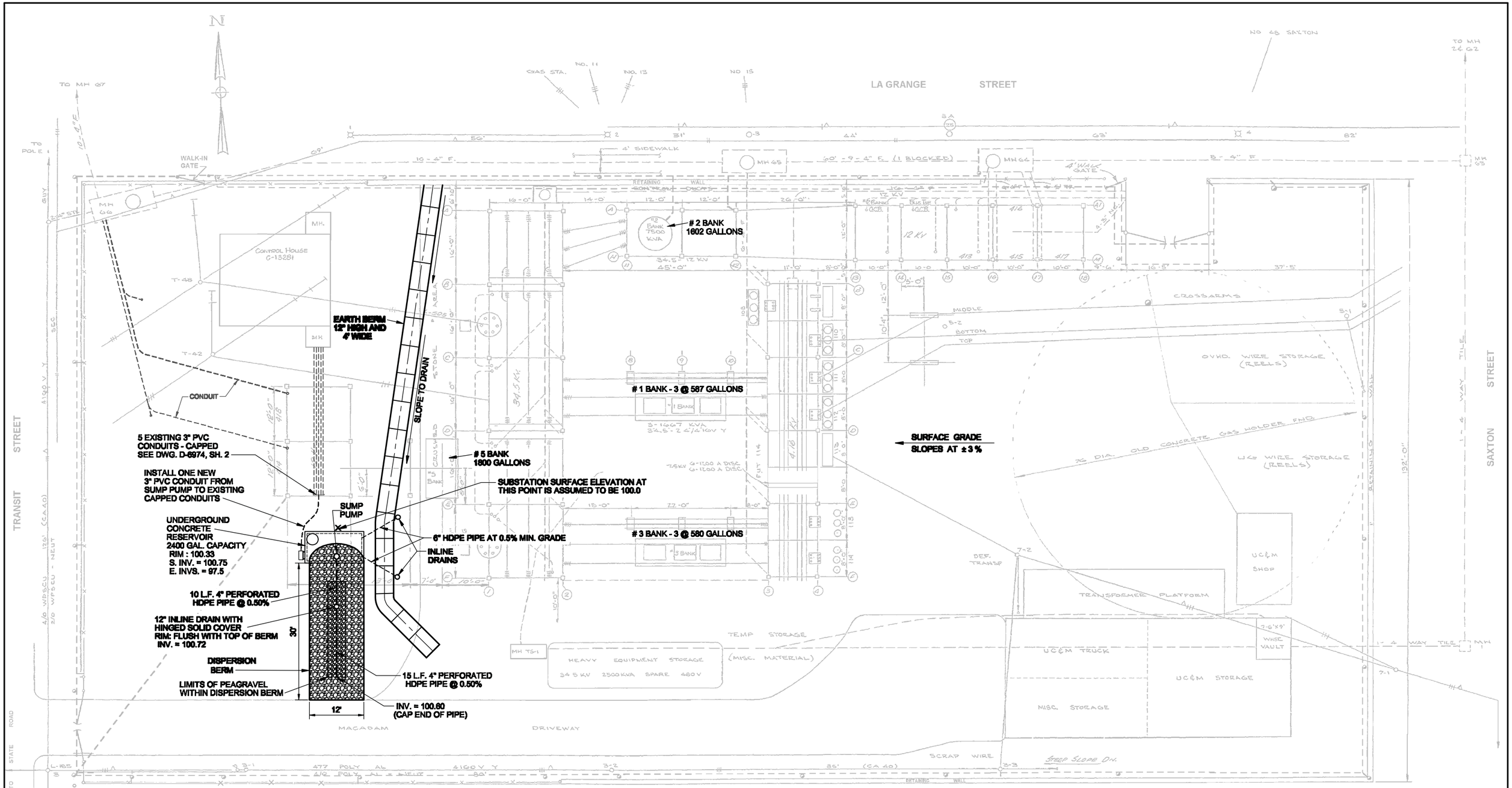

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Property of New York State Electric & Gas Corp.

REV. NO.	DATE	DESCRIPTION	DR.	CK.	APP.

OIL CONTAINMENT PLAN

SHEET 1 CONT ON SHEET 2

TRANSIT STREET LOCKPORT

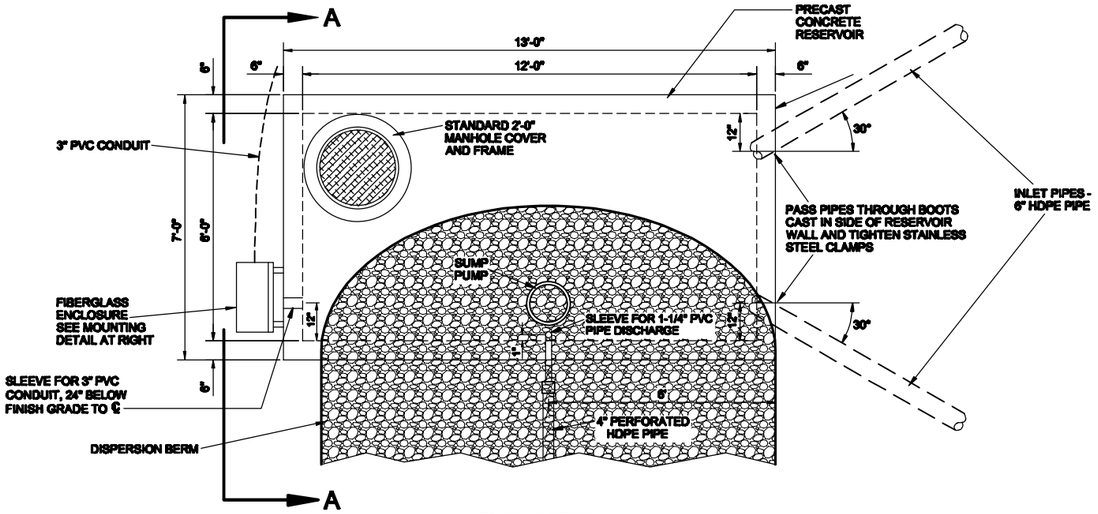
DR. GKL DES. RBB CK. RBB APP.

SCALE: AS SHOWN APPROVAL DATE:

FILE: C2099801.DWG

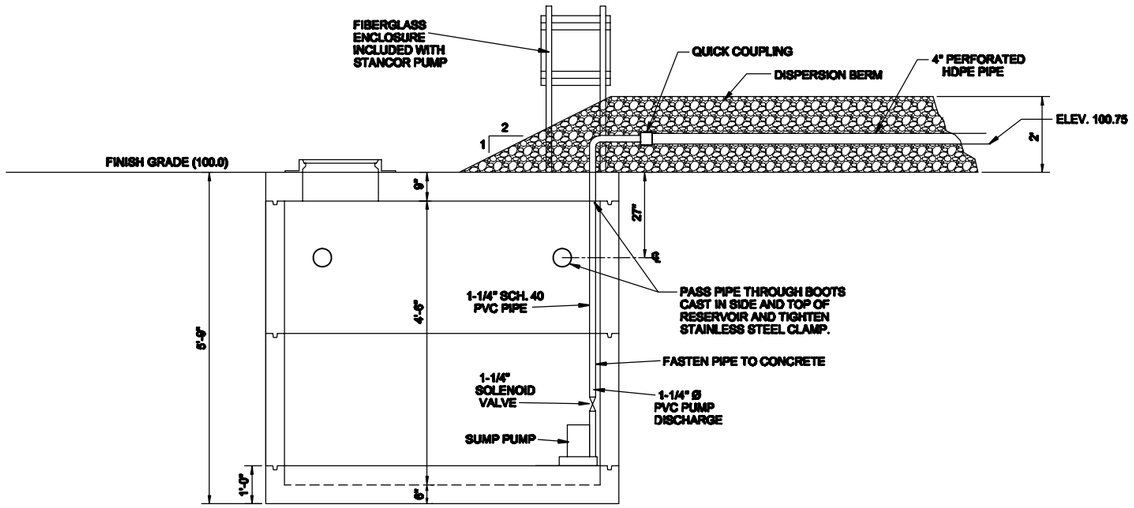
NYSEG C-20,996

RESERVOIR INSTALLATION DETAIL



PLAN VIEW

N.T.S.



ELEVATION A-A

N.T.S.

RESERVOIR INSTALLATION NOTES:

1. THE EXCAVATION FOR THIS RESERVOIR IS GREATER THAN 5 FEET DEEP. SLOPING OR SHORING OF THE SIDES OF THE EXCAVATION IN ACCORDANCE WITH OSHA 29 CFR 1910 SUBPART P WILL BE REQUIRED.
2. BACKFILL WITH SELECTED MATERIAL FROM EXCAVATION. MATERIAL TO BE FREE OF ROOTS, ORGANIC MATERIAL, AND LARGE STONES.
3. RESERVOIR SHALL BE DESIGNED FOR H-20 LOADING.
4. RESERVOIR CAPACITY IS 2400 GALLONS.
5. PIPE BOOTS TO BE SUPPLIED BY PRECAST CONCRETE MANUFACTURER AND CAST IN RESERVOIR WHERE SHOWN.

ENCLOSURE MOUNTING AND PUMP INSTALLATION DETAIL

USE THE FOLLOWING HARDWARE TO ATTACH THE ENCLOSURE TO THE DOUBLE UNISTRUT:

CHANNEL, STEEL STRUT, 1-5/8" X 1-5/8" X 10' LG (CUT TO REQUIRED LENGTH)

SCREW, STEEL, ROUND HEAD, MACHINE, 1/4" X 20 TPI X 1"

NUT, CLAMPING, STEEL, GALV., 1/4" X 20 TPI W/ REGULAR SPRING

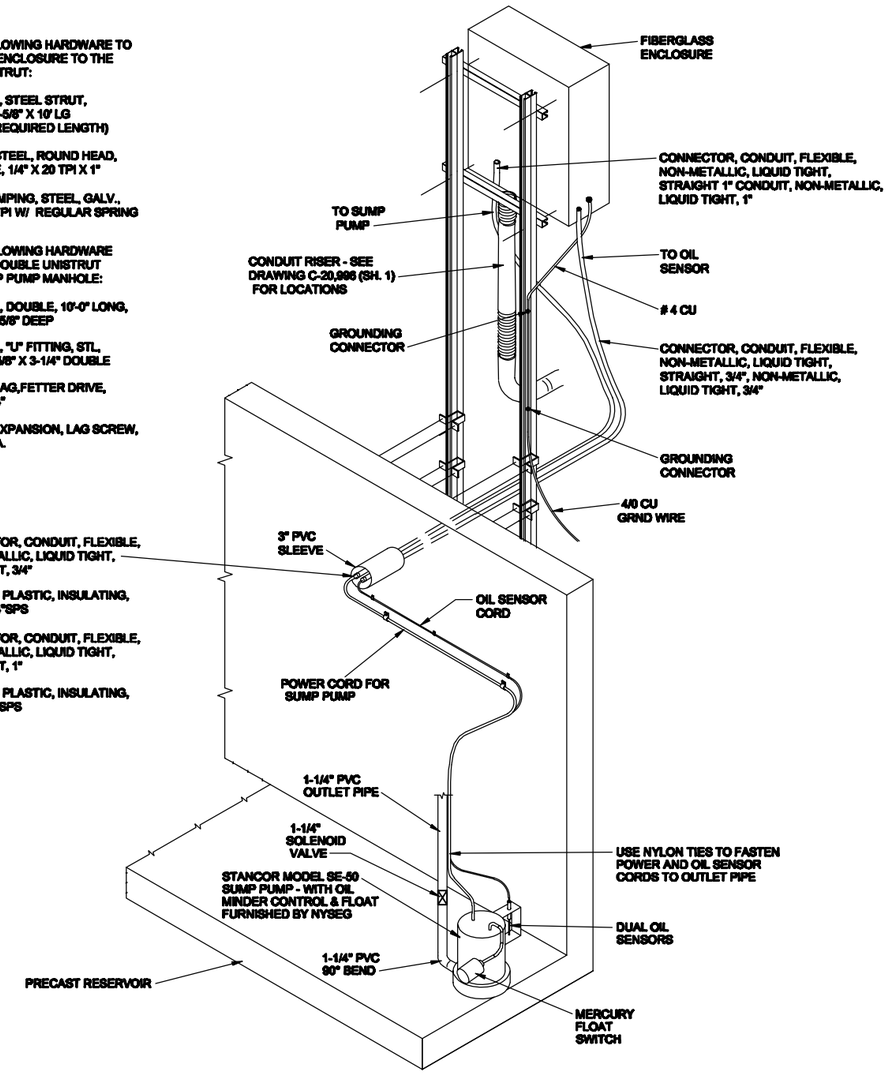
USE THE FOLLOWING HARDWARE TO ATTACH DOUBLE UNISTRUT TO THE SUMP PUMP MANHOLE:

CHANNEL, DOUBLE, 10'-0" LONG, (TWO), 1-5/8" DEEP

CHANNEL, "U" FITTING, STL, GALV, 1-5/8" X 3-1/4" DOUBLE

SCREW, LAG,FETTER DRIVE, 1/2" X 4"

SHIELD, EXPANSION, LAG SCREW, 1/2" DIA.



NOTES:

1. PUMP AND OIL SENSORS TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS TO INSURE PROPER OPERATION.
2. ATTACH POWER AND OIL SENSOR CORDS TO CONCRETE WALL USING WIRE CLIPS, CONCRETE EXPANSION SHIELDS AND LAG SCREWS.
3. FOR LENGTHS AND LOCATION OF DISCHARGE PIPES IN FIELD, REFER TO SHEET #1 OF THIS DRAWING.

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REV. NO.	DATE	DESCRIPTION	DR.	CK.	APP.

OIL CONTAINMENT DETAILS

SHEET 2 CONT ON SHEET 3

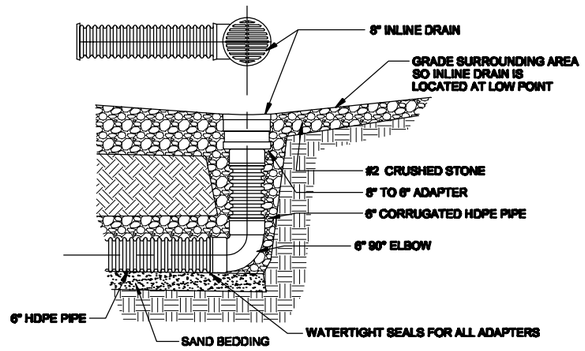
TRANSIT STREET — LOCKPORT

DR. GKL DES. RBB CK. RBB APP.

SCALE: AS SHOWN — APPROVAL DATE:

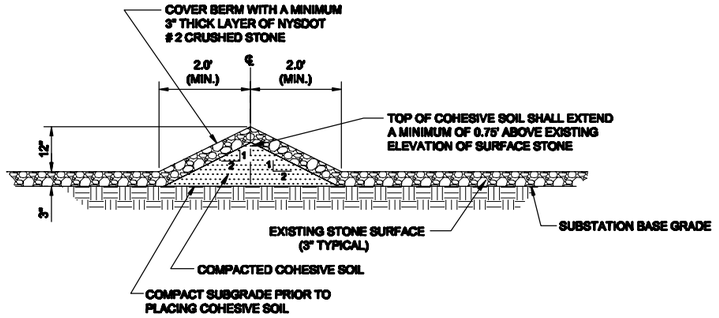
FILE: C2099802.DWG

NYSEG — C - 20,996



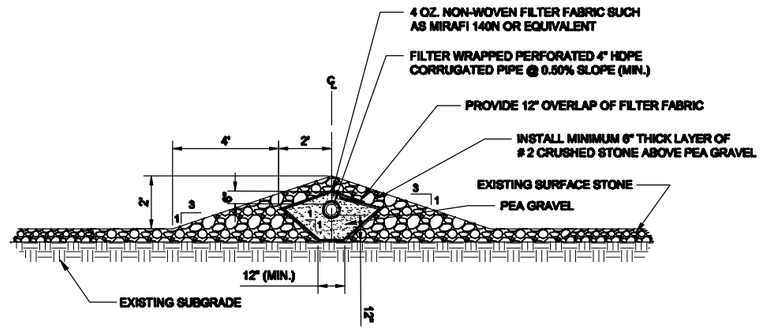
INLINE DRAIN DETAIL

N.T.S.



EARTH BERM CROSS SECTION DETAIL

N.T.S.



DISPERSION BERM

N.T.S.

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REV. NO.	DATE	DESCRIPTION	DR.	CK.	APP.

OIL CONTAINMENT DETAILS

SHEET 3 CONT ON SHEET FINAL

TRANSIT STREET — LOCKPORT

DR. GKL DES. RBB CK. RBB APP.

SCALE: AS SHOWN — APPROVAL DATE:

FILE: C2099603.DWG

NYSEG

C - 20,996

Attachment 2

Specifications

SECTION 02070
DEMOLITION

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Summary

B. Submittals

C. Project Conditions

D. Coordination and Scheduling

E. Preparation

F. Removal

1.02 SUMMARY:

A. This section covers the demolition of portions of the Concrete building located in the Southeast corner of the NYSEG property.

1.03 SUBMITTALS

A. As part of the Technical Execution Plan, the Subcontractor shall describe the sequence for the removal of structures that are described in the Contract Documents including equipment and procedures for breaking and cutting debris.

1.04 COORDINATION AND SCHEDULING

A. Structure and debris removal work shall be coordinated with the excavation activities.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.01 PREPERATION

A. Structures containing Asbestos materials shall comply with the additional requirements in specification XXX - Aesbestos

B. Subcontractor shall comply with all applicable regulations for demolition work, including 29 CFR 1910 and 29 CFR 1926 Subpart T-Demolition.

SECTION 02070
DEMOLITION

C. Subcontractor shall demolish and remove surface and portions of the subsurface structures as shown in the Contract Documents.

D. Subcontractor shall locate and protect nearby utilities, structures, fences, and all other items not designated to be demolished as shown in the contract documents.

3.02 REMOVAL

A. The Subcontractor shall demolish and remove the walls and portions of the foundation of the structure shown in the Contract Documents or as otherwise directed by the Engineer.

B. Subcontractor shall break up or cut up all debris into pieces no greater than two feet in length. For subsurface structures the Subcontractor shall segregate all debris greater than the acceptable size limit for disposal at the landfill. All debris that is an acceptable size to the disposal facility or smaller shall be excavated with the soil and collected in on-site dumpsters for disposal by Owner. The Subcontractor shall be responsible for any delays or changes from the soil disposal facilities due to oversized debris.

END OF SECTION

SECTION 02114
STOCKPILING, AMENDING, AND LOADING SOIL

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Summary

B. Submittals

C. Reference

D. Materials

E. Stockpiling – General

F. Stockpile Construction

G. Stockpile Management

H. Stockpile Inspection

I. Amending

J. Loading

K. Stockpile Removal

1.02 SUMMARY:

A. Section includes on-site temporary stockpiling, amending, and loading of removed impacted materials for off-site transport.

B. Related Sections:

1. Section 01570 - Erosion and Sediment Control

2. Section 02260 – Excavation

3. Section 02120 – Off-Site Transportation and Disposal

4. Section 02130 - Decontamination

1.03 SUBMITTALS:

A. Contractor shall submit plan for temporary stockpiling soil. Stockpile locations and construction to be submitted to Engineer for review and approval.

SECTION 02114
STOCKPILING, AMENDING, AND LOADING SOIL

PART 2 – PRODUCTS

2.01 MATERIALS:

A. Furnish all materials required for construction and maintenance of stockpiles.

B. Stockpile bottom liners shall have a minimum thickness of 20 mils and shall consist of polyethylene or other impermeable geomembrane that is resistant to weathering and degradation due to contact with impacted materials for the duration of the Work. Liner shall be furnished with prefabricated shop welded seams, if required, and dimensions maximized to provide the largest manageable sheet.

C. Stockpile covers shall be 20-mil (minimum thickness) polyethylene sheeting. Stockpile cover sheets shall be of sufficient length and width to cover each stockpile with no more than two sheets.

D. Stockpile covers and liners shall be free of holes or tears. Defective material shall be repaired or replaced, as determined by Engineer.

E. Furnish sand bags or other weights of sufficient quantity and weight to hold the stockpile cover in position. Stockpile materials shall not be used as cover weights.

F. Contractor shall furnish soil additives to be used as the amending material for mixing with impacted soils to allow disposal at a subtitle D non-hazardous landfill.

2.02 LIME

A. The Contractor shall provide soil amendments that contain less than 50% free Lime as required by NYSDEC

PART 3 – EXECUTION

3.01 STOCKPILING – GENERAL:

A. Coordinate stockpiling and loading work with the loading and excavation work.

B. Excavated soils to be disposed of offsite shall be direct loaded from excavation areas to the extent practicable. Amending and dewatering of these soils will be conducted in the excavation cells to the extent practicable.

C. Establish separate stockpiles as necessary for management of excavated materials prior to transport of excavated materials for off-site disposal and stockpiling for potential onsite reuse.

SECTION 02114
STOCKPILING, AMENDING, AND LOADING SOIL

D. Contractor shall be responsible for constructing all stockpiles, furnishing all waste containers, and for inspection, maintenance, modification and repair of stockpiles and waste containers required for the Work.

E. Line and cover impacted material stockpiles, provide runon and runoff controls, manage all liquids that drain from stockpiles, and prevent precipitation, stormwater, and surface water from contacting materials contained in the stockpiles as specified in this Section.

F. Locate and construct impacted material stockpiles as approved by Engineer.

G. Determine the need for impacted material temporary stockpiles based on the sequencing of the Work and required rates of loading trucks. Exert the highest standard of care with respect to stockpiling impacted materials.

H. Contractor shall be responsible to control odors from stockpiles.

I. Stockpile shall not exceed 15 feet in height. Side slopes shall not exceed a slope of 1 horizontal to 1 vertical (1H:1V).

J. Stockpiles shall be located no closer than 50 feet to the site perimeter.

K. Soils that have been amended by addition of admixtures shall be stockpiled separately. Contractor shall not mix or commingle amended materials with soils that have not been amended.

3.02 STOCKPILE CONSTRUCTION

A. Prepare area for stockpile construction. Remove hard stones and other debris from the stockpile footprint and provide a smooth surface to protect the bottom liner from puncture and tearing under anticipated loading.

B. Install bottom liner to fully cover the ground surface for each stockpile without field seams or overlaps. Anchor the liner as required to prevent displacement.

C. Install stockpile cover in a manner that minimizes wrinkles. Overlap adjacent panels of polyethylene sheeting a minimum of 4 feet. Place sandbags or other approved ballast on the cover to prevent uplift from wind. Ballast shall be placed along all edges and overlaps at spacing no greater than 10 feet apart.

D. Protect the cover from damage. Remove and replace damaged polyethylene sheeting as directed by the Engineer.

E. Install erosion and sediment controls to control any surface water run-on away from the stockpile area(s) and any sediment/impacted material run-off.

SECTION 02114
STOCKPILING, AMENDING, AND LOADING SOIL

3.03 STOCKPILE MANAGEMENT:

A. Impacted materials shall be placed only in properly constructed and maintained stockpiles. Do not place any designated non-impacted materials in the impacted material stockpiles.

B. Prevent impacted soil dust from becoming airborne. Place and anchor stockpile covers at the completion of each workday and during periods of rain or wind. Cover the stockpiles whenever the stockpiles are not being used.

C. Provide run-on controls to divert storm water away from stockpiles. Collect accumulated leachate from lined stockpile areas and manage the water as necessary for discharge to on-site treatment system as directed by Engineer.

D. Contractor shall minimize vehicular traffic on the cover and liner.

E. Stockpiles shall be managed to prevent the emission of dust, vapors, or odors.

F. Stockpiles shall be managed to prevent soil erosion or sedimentation in accordance with Section 01570.

3.04 STOCKPILE INSPECTION:

A. Engineer may inspect impacted material stockpiles to verify the integrity of the stockpile liner and cover system.

B. All deficiencies noted by Engineer shall be immediately corrected to the satisfaction of Engineer. If necessary, stockpiled material shall be relocated to another impacted material stockpile so that repairs can be made.

C. The Contractor shall inspect each stockpile daily for damage and immediately repair any deficiencies.

3.05 AMENDING:

A. In the course of the excavation, saturated material may be encountered, which may be deemed by the Engineer unsuitable for shipment for disposal. At the direction of the Engineer, Contractor shall amend this soil.

B. The Contractor shall amend soil with soil additives containing less than 50% free Lime.

C. Contractor shall thoroughly mix soil additives to the saturated soil. If possible, this mixing should be performed within the excavation area where the saturated is encountered.

SECTION 02114
STOCKPILING, AMENDING, AND LOADING SOIL

D. Amended soils shall be covered with poly sheeting and allowed to cure for at least 12 hours prior to offsite disposal.

E. Contractor may dispose of the amended soils off-site upon approval from the Engineer.

3.06 LOADING:

A. The Contractor shall prepare and load all trucks and containers for transport and disposal of materials excavated from the Site as specified in the following paragraphs.

B. Coordinate with the selected waste hauler to furnish all vehicles and containers required for transportation of materials from the Site as specified in Section 02120.

C. Visually inspect and decontaminate the exterior of all vehicles and containers in compliance with all applicable regulations and Section 02130.

D. Coordinate loading operations and hours with the operating hours of the disposal facilities identified in Section 02120.

E. Load all trucks carefully to prevent spills. Stage trucks within the remediation area so that spills shall be contained within the area and easily removed. If required by Engineer, spread polyethylene sheeting over an area sufficient for truck loading.

F. Contractor shall be solely responsible for proper loading of and abiding by the load limits and weight limits for, all vehicles leaving the Site. All fines, taxes, penalties or judgments resulting from overweight or improperly loaded vehicles shall be the Contractor's responsibility.

G. Track-mounted equipment shall undergo decontamination per Section 02130 prior to leaving the Exclusion Zone.

H. Transportation shall be per Section 02120.

I. Contractor shall be responsible for ensuring that all material loaded for off-site disposal meets paint filter criteria in accordance with all applicable transportation laws and regulations and the requirements of the receiving landfill.

3.07 STOCKPILE REMOVAL:

A. After removal and relocation or disposal of stockpiled materials and excavation of the stockpile areas the Contractor shall remove the geomembrane bottom liner and top cover and dispose at the designated off-site disposal facility with the impacted soil and debris at the completion of the Work.

SECTION 02114
STOCKPILING, AMENDING, AND LOADING SOIL

END OF SECTION

SECTION 02120
OFF-SITE TRANSPORTATION AND DISPOSAL

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Summary

B. Submittals

C. Coordination with Waste Management Facilities

D. Designated Haul Routes

E. Shipping Documentation

F. Waste Characterization

G. Truck Bed Liners

H. Preparation for Transport

I. Transportation to Waste Management Facility

J. Manifests

K. Transportation

L. Permits

1.02 SUMMARY:

A. This Section includes transportation of excavated materials and debris to specified disposal facilities. Contractor is responsible for the cost of all material transportation and disposal. The Contractor shall only utilize routes designated in the Transportation of Solid and/or Liquid Materials Plan. It is the responsibility of the Contractor to utilize equipment and personnel capable of navigating the local traffic patterns while maintaining minimum daily production required in order to meet the project milestones. The Contractor shall be responsible for all delays caused as a result of trucks not following approved traffic routes, due to inadequate scheduling of trucks causing traffic delays or from utilizing equipment that cannot safely navigate the local roadways.

B. The Contractor shall provide tracking documentation for each load correlating with the pre-characterization sample ID as shown in the Drawings. During excavation if visual observations indicate that the spoils require re-designation, the Engineer will be consulted

SECTION 02120
OFF-SITE TRANSPORTATION AND DISPOSAL

and provide final determination as to selected disposal facility. Each load shall have tracking documentation identifying the pre-characterization data provided by the Engineer.

C. Contractor shall be solely responsible for proper vehicles loading. The Contractor shall ensure the vehicle contents are properly contained and secured in the vehicle including proper lining and covering of loads. The Contractor shall abide by all load limits and weight limits for all vehicles leaving the Project Site, and is responsible for any fines, taxes, penalties, or judgments resulting from overweight or improperly loaded vehicles

D. Contractor will employ dedicated flaggers to stop and direct all traffic at the location where trucks will exit from the site at all time during soil transportation activities and as needed along the trucking route.

E. Trucks shall only enter and exit the site at locations shown on the Contractor's Traffic Plan unless approved by the Engineer.

F. The requirements specified in the Engineer’s Transportation of Solid and/or Liquid Materials Plan and the Contractor's Traffic Plan shall be implemented including but not limited to:

1. All truck drivers shall undergo an orientation detailing, at a minimum, the Work requirements of the Transportation of Solid and/or Liquid Materials Plan and Traffic Plan, City of Lockport traffic rules and regulations, driver conduct, approved haul routes, approved staging areas, and prohibition to stage or park trucks within Cortland County except in pre-designated areas.

2. All truck drivers shall be required to sign the orientation form.

3. All truck drivers shall be provided with hard copies of the orientation package including the Transportation of Solid and/or Liquid Materials Plan and the Traffic Plan.

4. A hand-out detailing the haul routes, speed limits, warnings, designated staging areas, etc, will be provided to each truck driver.

5. All truck drivers will be required to follow incident reporting requirements detailed in the Traffic Plan.

SECTION 02120
OFF-SITE TRANSPORTATION AND DISPOSAL

1.03 SUBMITTALS:

A. Contractor shall provide a list of proposed waste haulers for approval by Engineer. Contractor shall submit copies of all necessary permits and certifications of listed waste haulers to Engineer before commencing the Work.

B. Contractor shall submit proposed truck route(s) for review and approval by the Engineer prior to any actual trucking activity.

C. The Contractor shall submit written certification of proper transport of Impacted Materials to Engineer within one working day after receipt of the documentation. Contractor shall submit carbon copies (with all signatures affixed) of all waste manifests, weigh tickets, waste tracking logs and other shipping documentation.

D. Daily Construction Report shall include detailed documentation of all loading and transport activities as specified in Specifications Section 01320 – Construction Progress Documentation.

E. Contractor shall provide truck driver orientation signature sheets for all truck drivers.

F. Contractor shall verbally inform the Engineer of any trucking related incident within an hour of the incident and provide any trucking related incident reporting forms to the Engineer within four hours of the incident.

1.04 WASTE CHARACTERIZATION:

A. The Engineer has pre-characterized a majority of the soil at the Site for disposal at the facilities listed in Subsection 1.05 of this section. Additional characterization by the Contractor may be required by the disposal facilities based on actual soil volumes. The data from precharacterization will be provided to the Contractor to obtain final approval from the Owner approved facilities. The Contractor will coordinate with all of the selected facilities and schedule transportation to insure uninterrupted soil removal from the Project Site.

1.05 COORDINATION WITH WASTE MANAGEMENT FACILITIES:

A. The Contractor shall be solely responsible for coordinating waste shipments with the waste management facilities. The Contractor shall utilize one of the following pre-approved facilities for all soil disposal:

1. Non-Hazardous Soils:

    a. High Acres Landfill, located 425 Perinton Parkway, Fairport, NY 14450.

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b. Mill Seat Landfill, located 303 Brew Road, Bergen, NY 14416.

c. Seneca Meadows located 1786 Salcman Road, Waterloo, NY 13165.

2. Conditionally Exempt Soils (Thermal Treatment):

a. ESMI, located 304 Towpath Road, Fort Edward, NY 12828.

b. Convanta Niagara, located 100 Energy Boulevard at 56th Street, Niagara Falls, NY 14304.

B. The Contractor shall prioritize shipping to the lowest cost facility first. Additional approved facilities will then be used based on availability and cost, should the lowest cost facility limit acceptance. The Engineer shall be notified on a daily basis of the anticipated shipping volume and the destination facility.

C. The Bidder's proposal shall identify the names and locations of the debris disposal facilities they plan to use. The Contractor shall list their planned debris disposal facilities in their TEP and in Schedule C.

1.06 DESIGNATED HAUL ROUTES:

A. Contractor shall follow the designated haul routes as outlined in the Transportation of Solid and/or Liquid Materials Plan. The intent is to minimize traffic impacts to residential areas.

1.07 SHIPPING DOCUMENTATION:

A. Shipping documentation shall be performed consistent with federal, state, and local waste management and transportation requirements and the requirements of off-site disposal facilities.

B. The Contractor shall prepare necessary paperwork for transportation and disposal of all materials to the appropriate waste management facilities.

C. A non-hazardous/hazardous waste manifest or other tracking document shall be provided by the Contractor for each individual load depending on material classification. Each manifest shall be signed by designated authorized agent of the Owner, the truck driver as a transporter, and by the disposal facility operator.

D. The Contractor shall not be paid for shipments with unsigned shipping documentation.

E. Daily Trucking Log:

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OFF-SITE TRANSPORTATION AND DISPOSAL

1. The Contractor shall provide a Daily Trucking Log to the Engineer for approval providing information on each off-site shipment from the site, including trucking company, truck and trailer registration number, date, pre-characterization source ID, destination facility, estimated quantity, verification of decontamination, and Contractor personnel's initials.

2. The Contractor shall fill in the Daily Trucking Log for each shipment at the time it leaves the site.

3. The Contractor shall submit the completed Daily Trucking Log to the Engineer electronically as specified in Specifications Section 01320 – Construction Progress Documentation and Section 01330 – Submittal Procedures.

4. The Contractor shall not be paid for any shipment if there are discrepancies between Daily Trucking Logs and facility weigh tickets until the discrepancy is resolved, as determined by the Engineer.

PART 2 – PRODUCTS

2.01 TRUCK BED LINERS:

A. Truck bed liners **for trucks transporting impacted soils** shall be 6-mil (minimum thickness) polyethylene sheets. Polyethylene sheets shall be of sufficient length and width to cover the interior bed of the haul truck with no seams and have sufficient material to completely cover over the load with overlap.

B. Contractor shall provide staging so that workers can place liners in the truck bed safely.

PART 3 – EXECUTION

3.01 PREPARATION FOR TRANSPORT:

A. Contractor shall coordinate transportation Work with excavation, and stockpile management Work to maintain excavation production rates for completion of the Work in accordance with the Contractor's submitted work schedule and the Construction Milestones. Slowing or stopping of Work by Contractor due to lack of transportation, availability of trucks or shipping containers or availability of disposal facility capacity does not release the Contractor for obligations to achieve the documented construction milestones.

SECTION 02120
OFF-SITE TRANSPORTATION AND DISPOSAL

B. Due to site conditions truck staging will be limited prior to loading to the available on-site space. Additionally, trucks will not be allowed to stand on streets adjacent to the site awaiting entrance into the loading area.

C. The Contractor is responsible for identifying an off-site truck staging area outside the City of Lockport as approved by the Engineer. The Contractor is responsible for coordinating, via radio or telephone, careful arrival of trucks to avoid congestion within the City Limits.

D. No loading of soil shall take place in areas outside of the erosion and sediment controls.

E. Tarps shall be placed over loads after liner has been overlapped. All loads shall be secured and tarped prior to exiting the Project Site. All trucks will have a watertight tailgate that has a gasket between the box and tailgate (or driver will apply caulking between the box and the tailgate) with secondary securing devices or "turnbuckles". Turnbuckles shall be in position to lock the tailgate before the truck leaves the site.

F. Loading operations and hours shall be coordinated with the operating hours of the waste management facilities. Loading shall be limited to the hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, or as otherwise specified or approved by the Engineer. Any vehicle loaded after waste management facility hours shall remain parked at the Project Site in a designated area until such time as that truck may reasonably proceed to the designated waste management facility. Contractor shall coordinate earthwork, demolition, stockpiling, loading, and transportation, subject to the Engineer's approval, to efficiently utilize combined resources.

3.02 TRANSPORTATION TO WASTE MANAGEMENT FACILITY:

A. Contractor shall furnish and operate all vehicles and containers for transportation of all waste materials and backfill soils to and from the Project Site.

B. Drivers hauling Impacted Material shall drive directly to disposal facility or approved staging area and shall not stop except in the event of an emergency.

C. Transportation of all Impacted Material shall be in compliance with all pertinent Regulations.

D. Contractor shall visually inspect each truck and fill out a Daily Trucking Log before the truck leaves the site to ensure that the tailgate and tarp are secure. Contractor shall decontaminate vehicles as specified in Section 02130 - Decontamination.

E. Haul trucks shall be lined with polyethylene sheeting and/or decontaminated on site prior to re-use for hauling anything other than material from the site. Contractor shall provide

appropriate staging so that workers can safely line the truck bed. Truck beds shall be included in the decontamination.

F. Contractor's remedial workers will reposition the cover bars over the waste material. **DRIVERS WILL NOT EXIT THEIR VEHICLES ON-SITE AND WALK OVER WASTE MATERIAL.**

G. In the event that a loaded truck is involved in an incident that results in a release of the transported materials, the cleanup shall follow local and State Department of Transportation spill response procedures.

H. Contractor shall promptly clean up any spills on haul routes, if they occur, with suitable equipment at no cost to the Engineer or the Owner.

I. Contractor shall keep all haul routes and public rights-of-way free of any Project Site materials due to the Contractor's operations. To this end, all Contractor trucks shall be covered to prevent any material from leaving the truck, and all vehicles shall be carefully loaded to prevent site materials from coming in contact with the exterior truck surfaces.

J. The load weight shall be documented by the disposal facility scale Weigh Ticket. Contractor shall submit copies of all disposal facility scale Weigh Tickets to the Engineer. Unsigned scale Weigh Tickets will be rejected and the Contractor will not be paid based on these weights.

K. Contractor shall prevent any tracking of Project Site materials onto public rights-of-way.

L. Loaded trucks shall not leave the Site unless they shall arrive at the designated waste management facility before it closes. Loaded trucks shall discharge their loads at the designated waste management facility the same day they are loaded.

M. Truck drivers shall be required to remain inside the truck cab with the windows and doors closed during loading. Drivers shall be instructed to proceed after loading through a decontamination area to a designated area outside the exclusion zone where they will be permitted to exit the truck cab to inspect the load.

N. The Contractor shall address vehicular accidents and the possible release of transported materials in their HASP and Traffic Plan.

3.03 WASTE MANAGEMENT DOCUMENTATION:

A. Contractor will prepare manifests, and prepare necessary paperwork for transportation and disposal of impacted materials and debris.

SECTION 02120
OFF-SITE TRANSPORTATION AND DISPOSAL

B. A non-hazardous/ hazardous waste manifest or other tracking document shall be provided by the Contractor for each individual load depending on material classification. Each manifest shall be signed by designated authorized agent of the Owner, the truck driver as a transporter, and by the disposal facility operator.

C. The Contractor will not be paid for shipments with unsigned manifests.

3.04 TRANSPORTATION:

A. Contractor shall obtain all required transportation permits for shipment of Impacted Materials and debris.

B. Transportation of Impacted Materials and debris shall be in accordance with applicable State, RCRA, US DOT, local, and other applicable Regulations, including: 40 CFR 261, 262, 263 and 49 CFR 171 through 179;

C. Truck drivers using routes other than the routes allowed in the Transportation of Solid and/or Liquid Materials Plan or found upon investigation to be at fault of causing an accident associated with this Project shall be barred from working on the Project Site.

D. Truck drivers not following the requirements detailed during the orientation, in the Transportation of Solid and/or Liquid Materials Plan, or in the Traffic Plan shall be barred from working on the Project Site.

3.05 PERMITS:

A. Contractor shall obtain all required transportation permits for shipment of Impacted Materials and debris. Contractor shall maintain a current copy of all transportation permits for all approved waste haulers on-site in the Contractor's trailer.

END OF SECTION

SECTION 02130
DECONTAMINATION

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Summary

B. Submittals

C. Decontamination Facilities

D. Decontamination of Vehicles and Equipment

E. Personnel Decontamination

F. Truck and Equipment Decontamination Methods

G. Management of Decontamination Residues

1.02 SUMMARY:

A. This section covers the decontamination of personnel and equipment as they move from the Exclusion or Work Zones into the support Zones of the site.

1.03 SUBMITTALS

A. Prior to mobilization, Contractor shall submit personnel decontamination procedures as part of the Contractor's HASP specified in Specifications Section 01415 – Health and Safety Requirements. Contractor shall provide the following information:

1. Number and location of decontamination and wheel wash stations.

2. Decontamination methods and equipment that will be used in accordance with NYSDEC requirements.

3. Procedures to prevent contamination of clean areas including procedures for decontamination of all trucks and equipment.

4. Methods and procedures to minimize worker contact with contaminants during removal of personal protective equipment (PPE).

5. Procedures for inspection and decontamination of vehicles leaving the Site.

6. Procedures for disposal of personal PPE.

7. Procedures for the collection, and off-site treatment and disposal of all decontamination water and residuals.

SECTION 02130
DECONTAMINATION

8. Procedures for minimizing generation of wastewater.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.01 DECONTAMINATION FACILITIES

A. Construct and maintain decontamination facilities and wheel wash stations in accordance with these specifications or as otherwise proposed by Contractor and approved by the Engineer.

3.02 DECONTAMINATION OF VEHICLES AND EQUIPMENT

A. Contractor shall inspect and decontaminate all vehicles and equipment that have entered the Exclusion Zones upon exiting the Exclusion Zone. All decontamination shall take place in the Decontamination Zone as specified in Specifications Section 01500 – Mobilization and Temporary Facilities.

B. Decontamination shall include removal of soil and residues from the chassis (which includes undercarriage, suspension, and tire tracks) and other parts of the vehicle known to have been contaminated or visually appearing to be contaminated.

C. Contractor shall take care while decontaminating vehicles to avoid contaminating personnel, other parts of the vehicle or equipment, or the surroundings. Personnel involved in vehicle and equipment decontamination shall be dressed in the appropriate level of PPE as determined by the HASP. All personnel shall follow all applicable safety procedures described in Specifications Section 01415 – Health and Safety Requirements.

D. Contractor shall decontaminate haul trucks after loading and before the haul trucks exit onto public streets. Contractor shall ensure that all haul trucks exit through the Decontamination Zone and receive proper decontamination and inspection.

E. Contractor shall document decontamination of vehicles and equipment on the Daily Trucking Log as described in Specifications Section 02120 – Off-site Transportation and Disposal.

SECTION 02130
DECONTAMINATION

3.03 PERSONNEL DECONTAMINATION

A. Contractor shall ensure that personnel who have entered the Exclusion Zone perform decontamination as required in the HASP as specified in Specifications Section 01415 – Health and Safety Requirements prior to exiting the Decontamination Zone.

3.04 TRUCK AND HEAVY EQUIPMENT DECONTAMINATION METHODS:

A. Physical removal techniques used to decontaminate materials and wastes shall include, but are not limited to, brushing and spraying with heated-water pressure washer until all visible contamination and debris is removed.

B. Brushing shall consist of removal of loose materials with the use of a broom and/or brushes.

C. A heated water pressure washer shall be used to provide application of water of sufficient temperature, pressure, residence time, and agitation to remove soil and contaminated residuals from surfaces.

D. Surfactants and detergents must be approved by the Engineer prior to use in decontamination operations.

E. All equipment decontamination procedures shall be performed in a decontamination facility.

F. Overspray barriers shall be provided on each side of the decontamination area to prevent re-contamination of adjacent areas.

G. Contractor shall manage decontamination residuals, including water, soil, residues, used PPE, and other materials removed during decontamination as specified in Subsection 3.05 of this section.

3.05 MANAGEMENT OF DECONTAMINATION RESIDUALS

A. Contractor shall collect and settle decontamination liquid to remove solids prior to transfer and treatment at the on-site water treatment system.

B. Contractor shall dewater and collect decontamination solids. Dewatered decontamination solids shall be managed as Impacted Material, as specified in Specifications Section 02120 – Off-site Transportation and Disposal.

END OF SECTION

SECTION 12150
ODOR AND VAPOR CONTROL

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Summary

B. Submittals

C. Quality Control

D. Air Handling Equipment

E. Lighting

F. Air Treatment System

G. Odor Suppressing Foam

H. Air Monitoring Equipment

I. Operation and Maintenance

J. Performance

K. Monitoring

1.02 SUMMARY:

A. The Contractor shall provide all materials, equipment, and labor to provide odor and vapor control at the site during but not limited to all excavation, demolition, steel sheet pile installation, backfilling, stockpiling, loading of impacted soil, or MGP waste handling and transport.

1.03 SUBMITTALS:

A. The Contractor shall provide in the Technical Execution Plan (TEP) detailed descriptions and drawings with the means and methods proposed for controlling and monitoring odors and vapors during the work.

B. Contractor shall submit written documentation showing conformance of the materials and constructed work with the specifications

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

SECTION 12150
ODOR AND VAPOR CONTROL

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

1.04 QUALITY CONTROL:

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

PART 2 – PRODUCTS

A. Contractor shall provide odor suppressant as specified in the Community Air Monitoring Program (CAMP).

PART 3 – EXECUTION

3.01 OPERATION AND MAINTENANCE:

A. The Contractor shall be prepared to operate BioSolve sprayers as required to control odors during soil disturbing operations.

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

3.02 PERFORMANCE:

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

B. The Contractor shall apply odor-suppressing foam to the soil stockpiles, excavations, or loading operations, as directed by the Engineer.

C. The Contractor shall provide labor, equipment, and material required to apply odor and vapor suppressant foam to all exposed soil areas including stockpiles within 5 minutes when directed by the Owner or the Engineer. No separate payment shall be made for supplying and operation of vapor/odor control equipment. Payment for vapor/odor suppression materials will be per the bid unit price. Failure to apply vapor/odor suppression materials within the specified time shall result in all Contractor operations

SECTION 12150
ODOR AND VAPOR CONTROL

being suspended until such time as the Engineer feels the request for controls has been fully satisfied by the Contractor and no additional payment for such downtime shall be due to the Contractor.

D. The Contractor shall provide sufficient material, such as foam or equal, and equipment to deliver and apply odor controls to the excavation face and as directed during the entire period when soil disturbance occurs.

E. All exposed areas and stockpiles left untouched for greater than 2 hours shall be covered with a secured polyethylene tarp. All stockpiles left overnight shall be similarly covered. Vapor suppression foam shall be utilized to cover stockpiles during stockpiling and loading of any soil containing tar like materials or NAPL.

F. The Contractor will be notified when real time monitoring being performed at the site perimeter indicates levels have reached 10% of the action levels specified in the CAMP for a 10 minute period. Upon notification, the Contractor shall begin to implement odor/vapor reduction controls as necessary.

3.03 MONITORING:

A. The Contractor shall monitor the air in the work zone to confirm that the safe work environment standards are met.

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

C. The Engineer will, subsequent to corrective actions, notify the Contractor when work can resume.

END OF SECTION

SECTION 02196
BEDROCK GROUT CURTAIN WALL INSTALLATION

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Summary

B. References

C. Definitions

D. Qualifications

E. Submittals

F. Mix Design

G. Performance Criteria

H. Grouting Equipment

I. Grout Water

J. Grout Reagents

K. Grout Preparation

L. Coordination of Work

M. Field Demonstration

N. Grouting

O. Water Pressure Testing

P. Spoil Management

Q. Quality Assurance and Quality Control

R. Restoration

SECTION 02196
BEDROCK GROUT CURTAIN WALL INSTALLATION

1.02 SUMMARY:

A. Section Includes:

1. Installation of a Grout Wall within the bedrock along the northern and the western borders of the onsite property and along the southern portion of the Barge Canal in the vicinity of seeps recorded during investigation work. The grout wall will be installed approximately 20 to 30 feet from the Barge Canal wall.

B. Related Sections:

2. Section 01150 – Health and Safety

3. Section 01570 – Temporary Sediment and Erosion Control

4. Section 01580 – Environmental Control

5. Section 02110 – Excavation of Impacted Material

C. The Contractor shall provide all designs, submittals, equipment, materials, and manpower to complete the installation of a bedrock grout curtain wall as specified in this section and as shown on the Drawings.

D. Percussion or rotary drilling techniques shall be used provided that water is being used as the drilling fluid. The drilling system must be capable of drilling to full required depth. Grout holes shall be drilled from the surface and extend to a depth of 75 feet below ground surface, as indicated on the Drawings.

E. Grout curtain will typically extend through about 12 feet of overburden and 63 feet into bedrock. Borings indicate that the grout curtain will penetrate dolomite, the Burleigh Hill Shale, and toe into the lower permeability Lewiston shale. Grouting is required only in the bedrock; overburden grouting is not included.

F. Prior to full scale installation of the grout curtain the Contractor shall conduct a Field Demonstration of the proposed grouting procedures and mix design(s).

G. Grout curtain wall shall be installed using the split spacing method.

H. Grout curtain at the onsite property shall be installed in phases as indicated on the Drawings. Phasing shall be coordinated with the Onsite Engineer and shall be

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BEDROCK GROUT CURTAIN WALL INSTALLATION

scheduled to coincide with temporary de-energizing of interfering electrical circuits.

1.03 REFERENCES:

A. American Society for Testing and Materials (ASTM)

1. ASTM C 150: Standard Specification for Portland Cement.

B. American Petroleum Institute (API):

1. 13-A: Specification for Bentonite.

2. 13 B-1: Viscosity and Density.

1.04 DEFINITIONS:

A. The following definitions are used in this section:

1. Grout - The mixture of reagents and water that shall be injected into the bedrock.

2. Lugeon value – 1 Lugeon = a water take of 1 liter per meter of grout hole per minute at an injection pressure of 10 bars (150 psi)

3. Grout Reagent –Type I or Type I/II Portland Cement, Bentonite, potable water, and other materials/reagents approved by the Oversight Engineer for the grout curtain.

4. Grout Wall Design Elevations:

a. Top Elevation for Grout Curtain – the elevation of the top of the grout curtain is top of bedrock.

b. Bottom Elevation for Grout Curtain – the elevation of the bottom of the grout curtain is 75 feet below existing grade.

5. Grout Curtain Working Platform – The graded surface of stable soil on which the grout drilling equipment shall operate.

6. Obstruction – Subsurface manmade or natural object that impedes drill head advancement.

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7. Overlap Ratio – The ratio between the overlap distance between adjacent grout holes and the width of the grout hole.

8. Grout Curtain Area – The portion of the Site, requiring the installation of a grout curtain wall within the existing bedrock.

9. Drill Bit Refusal – a condition that occurs during drilling when the drill head can no longer be advanced either due to an obstruction in the overburden or mechanical reason, defined as less than 6 inches of penetration over a 10-minute period. Contractor shall communicate Refusal conditions.

10. Drilling Spoils – The excess material created during drill activities; e.g., drill cuttings.

11. Bottom of Curtain Elevation – The depth to which the grout curtain was installed as measured to the bottom of the drill holes.

1.05 QUALIFICATIONS:

A. The Contractor or grout curtain wall Subcontractor shall have completed at least three grout curtain wall installation projects of similar size and scope.

B. The Contractor's or grout curtain wall Subcontractor's Project Manager/Superintendent shall have a minimum of 10 years of experience with the grout curtain wall installation projects of similar scope, with a minimum of 5 of those years in the role of project Manager/Superintendent.

C. The Contractor's other Key Personnel shall have a minimum of 10 years of experience with grout curtain wall installation projects of similar scope. Other Key Personnel include equipment operators, drill rig operator, supervisory engineering staff, and technical staff involved with the grout curtain wall drilling operation.

D. Qualifications for Subcontractor and Subcontractor's Key Personnel shall be included in the Technical Execution Plan submitted in the Subcontractor's bid package.

1.06 SUBMITTALS:

A. All submittals shall be completed and submitted in accordance with Section 01330 - Submittal Procedures.

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B. The Contractor shall submit a Technical Execution Plan (TEP) with their bid. At a minimum, the Technical Execution Plan shall include:

1. Description and specifications of grout curtain wall installation, equipment, and processes.

2. Proposed grout hole size(s).

3. Site map showing the proposed layout and pattern of the grout curtain wall.

4. Methods for determining and verifying the coordinates, elevations and depths of the grout holes.

5. Tables showing installation depth, northing and easting, reference vertical and horizontal datum, and required reagent quantities for each grout hole.

6. Proposed grout curtain wall reagents and design mix proportions.

7. Sample calculation for theoretical grout hole indicating required grout quantities.

8. Methods of controlling and mitigating exhaust, dust, and odor emissions and noise levels generated from the grouting equipment.

9. Methods for transporting, storing, protecting, and handling reagents, including controls and mitigation for dust and noise.

10. Detailed description and procedures for preparing reagent batch mixes, including methods to prepare and measure reagents to verify and document proper reagent mix proportions.

11. Detailed descriptions and procedures for controlling, measuring, monitoring, and documenting the injection of grout reagents into the bedrock during grout hole installation.

12. Detailed descriptions and procedures for monitoring and documenting the drill head percussion/rotation speed, penetration rate, and extraction rate during each mixing pass to verify that proper drilling techniques are being utilized.

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13. Detailed description of a field test (Demonstration Test) to demonstrate that the proposed equipment and methods can successfully install grout holes to the specified depths.

14. Total estimated quantity of water and grout reagents required for the Work.

15. Associated dewatering procedures.

16. Contact water management, treatment and disposal procedures.

17. Stormwater run-on controls, management and discharge procedures.

18. Estimated schedule for completion of the Work.

19. Wash out and grout disposal facilities and practices.

20. Procedures and materials for freeze protection of the grout pumping/grouting equipment to include flushing procedures to ensure "antifreeze agent" does not become mixed into grout.

21. Any proposed deviations from the Specifications and Drawings.

22. Spill control measures.

23. Erosion control measures.

24. Quality Control sampling methods, standard operating procedures, personnel, and equipment.

25. Resumes for key personnel assigned to conduct the Work, including Project Superintendent, grout drill rig operator, other equipment operators, supervisory engineering staff, and other technical staff.

26. Equipment manufacturer's specifications and description.

27. Method to manage/remove subsurface obstructions encountered during the grouting process.

C. Contractor shall identify in the TEP and maintain sufficient redundant or backup equipment/spare parts to minimize delays attributable to equipment failures. The Contractor shall include a failure modes and effects analysis and determine

systems or components that are likely to fail or require routine maintenance in the course of normal operation for this project. This analysis should determine credible failure modes or maintenance activities, which, if occurred, would result in the inability to measure parameters critical to the performance of the work, or result in significant delays in the work.

D. Contractor shall provide (electronically, on a form acceptable to Oversight Engineer) a daily grouting report summarizing daily grouting activities including daily totals and running totals for volume of reagents used. Contractor shall attach daily grout mixing forms as required by Section 3. Grouting daily reports shall be submitted daily no later than 10:00 am the following day and shall include at a minimum the following information:

1. Date and Project Identification.

2. Grouting equipment used; Drill head size(s)

3. Equipment problems/failures/maintenance that affected grouting efforts

4. List of grout holes installed. Running total of number of grout holes installed.

5. Grouting log for each grout hole installed. Logs shall include:

    a. Grout hole identification.

    b. Date that work was performed.

    c. Design and actual bottom elevation of grout hole.

    d. Results of water pressure tests.Volume of grout injected into the bedrock/shale (gallons)

    e. Calculation of grout reagents used, including solids (lbs) and water (gallons).

    f. Start and finish time.

    g. Depth to top of rockAny unforeseen Site conditions or equipment problems that affected grouting efforts.

    h. Any modifications or deviations from the Specifications and Drawings or the Technical Execution Plan.

    i. Obstructions encountered.

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j. Depth, location, type, and number of quality assurance/quality control (QA/QC) samples collected.

6. Quantities of grout reagents received and offloaded including total weight received versus stored.

7. A survey data summary including Northing(s), Easting(s) and as-built top and bottom elevations provided for each grout hole completed. This will include rendered CADD "surface" files as well as point files (in a format acceptable to Oversight Engineer) for the installed grout holes.

8. Any modifications to project schedule.

9. Spoils handling/management and quantities disposed offsite.

10. Any unforeseen project or site conditions that affected grouting efforts.

11. Any modifications or deviations from the Contract Documents or the Technical Execution Plan.

E. Contractor shall provide a Final Grouting Job Summary containing, at a minimum, the following information:

1. Quantities of grout reagents delivered to the site and used during the project with backup in the form of certified weigh receipts, bills of lading, flow meter records, or equivalent.

2. Any modifications to the project execution plan.

3. Spoil disposal/handling methods and quantities managed and disposed offsite.

4. Any unforeseen Site conditions or equipment problems that affected grouting efforts.

5. Any modifications to or deviations from the Contract Documents.

6. As-built survey drawings of the lateral extent and top and bottom elevations of the grout holes and all QA/QC sampling locations. Identify any grout holes re-grouted during construction. Show locations and identification of all grout holes on a plan. Provide generated CADD "surfaces" for top and bottom of each grout hole installed.

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7. Summary of grout takes, grout pressure, and other details for each stage of each grout hole.

8. Results of all water pressure tests for each stage of each grout hole.

1.07 PERFORMANCE CRITERIA:

A. Grout holes shall be laid out in a manner to create a continuous curtain wall along the northern and western boundaries of the site and south of the existing New York State Barge Canal and provide an overlap between adjacent grout holes so that the bedrock in proposed locations is continuously grouted to create a cutoff and prevent migration of NAPL.

B. Additional grout holes shall be installed using the split spacing method so as to achieve a target permeability equivalent less than or equal to 5 Lugeons. .

1.08 GROUTING EQUIPMENT:

A. Grouting equipment shall be specifically designed and manufactured for use in grouting operations. Other equipment shall not be used and brought to the site.

B. The grouting equipment shall be of sufficient size and capacity to install grout to the depths indicated on the Drawings within the proposed grouting schedule and meeting the requirements of this specification. The equipment used shall be specified in the Technical Execution Plan and approved by the Oversight Engineer.

C. Semi-Colloidal/Colloidal mixers shall be used and shall be capable of precisely proportioning the mix reagents and thoroughly blending and mixing them into a homogeneous grout of uniform consistency.

D. Grout pumps shall be Moyno type pumps specifically manufactured for grouting operations. Other pumps shall not be used and brought to the site.

E. The grouting contractor shall be prepared to mobilize alternative/additional grouting equipment, if necessary, to complete the grout work as indicated and specified at no additional cost to NYSEG.

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PART 2 – MATERIALS

2.01 GROUT WATER

A. Water shall be obtained from the City of Lockport via a water service connection, on or near the Site. The water service shall be equipped with a backflow preventer. Contractor shall obtain all permits and arrange for temporary hook up of water service and pay all fees for city water usage.

B. Contractor shall not use treated (effluent) water from the onsite Construction Water Treatment Plant. Contractor shall not use any other source of water for grouting without written approval from the Oversight Engineer.

C. Contractor shall provide a means of measuring water for grout mixing. The measuring devices shall measure totalized and instantaneous flows. Measuring Devices shall be calibrated to within +/- 2% to accurately measure the water for each batch. Contractor shall provide documentation for the calibration. Measuring devices shall be recalibrated per the manufacturer's recommendations and monthly during the work.

D. Contractor shall provide and maintain all pipes and hoses used to connect the grout mixing plant to the City of Lockport water supply system.

E. If water for grouting is stored on the site, storage containers shall be free of any waste materials, debris, and other items that may be deleterious to the execution of the grouting processes.

2.02 GROUT REAGENTS:

A. The Contractor will provide Type I or Type I/II Portland Cement, bentonite, or other solidifying reagent approved by the Oversight Engineer for the work.

B. The Contractor shall control all dust during offloading, storage, transportation, mixing, and use of reagents.

C. Reagents:

1. Portland Cement – Type I or Type I/II Portland Cement Meeting the requirements of ASTM C150.

2. Water: Potable

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3. Bentonite - Powdered bentonite meeting the requirements of API 13-A, Section 9 with a yield of 90 barrels of centipoise slurry per ton.

D. Contractor shall coordinate the delivery of all reagents to the site.

E. Contractor shall maintain strict dust control when offloading and handling dry bulk materials and shall meet all particulate control limitations set forth in the perimeter air monitoring plan.

F. Contractor shall, at all times, maintain an adequate quantity of grout materials so that the work is completed without delay. Any delays or costs associated with inadequate supply of grout materials at the Site shall be the responsibility of the Contractor.

G. Containers and locations for materials storage shall be protected from precipitation, moisture, and other potential deleterious events.

H. Containers for reagent storage shall be properly labeled per the supplier's requirements and Contractor shall maintain material safety data sheets for the reagents onsite at all times.

I. The Contractor shall provide measuring equipment that is capable of measuring reagent quantities within a tolerance of +/- 2% by weight.

J. Grout additives such as thinners, retarders, accelerators, etc. shall not be used without prior written approval from the Oversight Engineer.

PART 3 – EXECUTION

3.01 GROUT HOLE DRILLING:

A. Drill overburden soil and bedrock:

1. Number of rows of grout holes: A single row of grout holes shall be created for the bedrock grout curtain. A second row may be added in select locations by the Oversight Engineer, if necessary, depending on results of water pressure tests and grout takes.

2. Grout hole orientation: Vertical

3. Drill cased hole of suitable diameter to top of bedrock,

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4. Grout casing in place to create seal at the interface at top of rock. Allow grout to set for a minimum of 24 hours before continuing drilling into bedrock.

5. Drill 2" minimum diameter grout hole in bedrock,

6. Contain, collect, and dispose all drill cuttings, spoils, drill water, and other debris.

B. At completion of drilling, thoroughly flush grout hole with water to remove cuttings and debris. Use surging action to aid in flushing cuttings from fractures and cracks in the bedrock. Flush for a minimum of 10 minutes and until return water is clear, as approved by the Oversight Engineer. Document flushing operations, including duration of flushing and a qualitative assessment of flush water clarity.

C. Contain, collect, treat, and dispose all flush water and debris.

D. At completion of flushing, grout hole is ready for water pressure testing and grouting as approved by the Oversight Engineer.

3.02 GROUT HOLE SPACING:

A. Grouting shall be performed using the split spacing method, whereby a series of widely spaced primary grout holes is drilled and grouted first, followed by secondary and tertiary grout holes at intermediate locations. If necessary, quaternary and additional grout holes shall be installed and grouted until the water take (i.e., permeability) is reduced to the desired value or cannot be significantly further reduced, as approved by the Oversight Engineer.

1. Primary grout holes shall be spaced at 20 feet, nominal.

2. Secondary grout holes shall be intermediate to primary holes, spaced at 10 feet.

3. Tertiary grout holes shall be intermediate between primary and secondary holes, spaced at 5 feet; and so on.

B. Complete water pressure testing and grouting of primary grout holes prior to drilling secondary grout holes; and so on. Drill secondary, tertiary, etc., grout holes only as approved by the Oversight Engineer.

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3.03 GROUT HOLE STAGING:

A. Grout holes shall be water pressure tested and grouted in stages.

1. Use a minimum of 3 stages in the bedrock.

2. Stage lengths shall typically be about 20 feet, increasing with depth. Typically, the upper stage will extend through the dolomite to the top of shale. Subsequent stages will be in the Burleigh Shale, extending into the upper Lewiston Shale.

B. Upstage grouting methods shall be used, starting at the bottom stage, working upward.

3.04 WATER PRESSURE TESTING:

A. Perform water pressure tests in stages.

B. All water pressure tests shall be performed at a pressure of 15 psi, regardless of depth. All tests shall be performed for a minimum of 15 minutes. The general test procedure includes these steps:

1. Set packers to isolate the stage being tested,

2. Connect water lines and gradually open valve and increase water pressure to 15 psi.

3. When the desired water pressure has been reached, start timer and simultaneously read (or zero) water flow meter,

4. Read water meter at 5, 10, and 15 minutes.

5. Record water takes and pressure for each 5-minute interval for each stage. Convert results to Lugeon values. (Neglect hydrostatic correction for water table.)

C. Monitor water levels in adjacent grout holes to determine whether there is interconnection between grout holes. If necessary, cap adjacent grout holes to prevent water from discharging to the surface. If necessary, contain, collect, treat, and dispose water discharging from adjacent grout holes.

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3.05 GROUT PREPARATION:

A. Starting grout mixes in each stage shall be based on results of water pressure tests, with thinner mixes used where water takes are low (and rock fractures are fine) and thicker mixes used where water takes are high (and rock fractures are wider). The intent is to use the thickest mix practicable, with the aim of getting as much cement into the rock fractures as practicable. The following preliminary starting mix guideline shall be used:

1. If the water pressure test results indicate a Lugeon value < 25, use an initial starting mix of 2water:1cement, by volume, plus bentonite at a rate of 2 lbs bentonite per bag of cement.

2. If the water pressure test results indicate a Lugeon value > 25, use an initial starting mix of 1water:1cement, by volume, plus bentonite at a rate of 2 lbs bentonite per bag of cement.

3. Initial grout mixes may be adjusted by the Contractor, as approved by the Engineer.

B. Contractor shall mix the necessary quantities of reagent and water, as determined by the water pressure test results.

C. Contractor shall thoroughly mix the water and reagent mixture using a high-speed, high-shear mixer (colloidal/semi-colloidal mixer) until it is a consistent and homogenous grout mixture.

D. On completion of mixing, Contractor shall pump or deliver the grout mixture to an agitator holding tank to keep grout particles in suspension and to keep the grout fluid until ready for use.

E. Use dipstick or similar means in the agitator holding tank to measure grout volume and the volume of grout pumped into grout holes. Alternatively, grout volumes shall be metered with a calibrated turbine flow meter properly sized for surrounding piping, or equivalent, modified for grout flow, that has the ability to display or record rate (gpm) and total (gal) injected into each grout hole.

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F. Processed grout that reaches a temperature of more than 80°F or is held for greater than 1 hour prior to use shall be discarded offsite at the Contractor's expense.

G. The Oversight Engineer will periodically visually inspect each batch of mixed grout to ensure that the grout has been sufficiently mixed. Contractor shall continue to mix the grout until it is thoroughly mixed to the satisfaction of the Oversight Engineer.

3.06 COORDINATION OF WORK:

A. Contractor shall coordinate grouting activities with excavation, dewatering, sampling, backfilling, and other Work as necessary. Also coordinate with schedule of de-energizing and energizing nearby electrical circuits.

B. Contractor shall not stop grouting and abandon a grout hole without prior approval from the Oversight Engineer.

C. Protect structures, underground utilities, and other construction from damage caused by grouting operations. Repair any damage as approved by NYSEG.

3.07 FIELD DEMONSTRATION

A. Prior to full scale operations, a Field Demonstration shall be conducted by the Contractor in accordance with the accepted TEP.

B. At least two grout holesshall be drilled to the specified depth using the grouting equipment and procedures proposed by the Contractor in the Technical Execution Plan. Field Demonstration grout holes shall be installed in a location along the proposedgrout wall.

3.08 GROUTING:

A. Contractor shall provide all personnel, equipment, and materials required to conduct the Work identified on the drawings and in these specifications.

B. Appropriate starting grout mixes will be based on the results of water pressure tests, with thinner mixes used where water takes are low (and fractures are fine) and thicker mixes used where water takes are high (and fractures are wider).

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C. Grouting will be performed in stages, starting at the bottom using the upstage method. Depths and lengths of grout stages shall correspond with previously completed water pressure tests.

D. Grouting shall continue until refusal (i.e., the packered grout hole can no longer accept grout at the proposed injection pressure).

1. If refusal occurs in less than 30 minutes, a thinner starting mixture shall be used the next grout hole, as approved by the Oversight Engineer.

2. If grout equals or exceeds water takes in the first 30 minutes, or if grouting continues more than 60 minutes without reduction in take, the grout shall be thickened, as approved by the Oversight Engineer.

3. Grout pressure shall correspond to 1 psi per foot of depth below the rock surface to the bottom of the grout stage.

E. Grouting shall be conducted to the vertical and horizontal extents shown in the drawings.

F. In the event that the drill head meets an obstruction, the Contractor shall notify the Oversight Engineer who will evaluate the following potential actions to be taken:

1. The Obstruction may be deemed unmovable (refusal) and no further action is required. A new hole will be drilled at a location deemed acceptable by the Oversight Engineer that will treat the same area as the previously obstructed grout hole.

2. The Oversight Engineer alone will make the determination when Refusal is reached.

G. The general grouting procedure shall include these steps:

1. Set packer(s).

2. Select initial grout mix.

3. Select grout pressure (1 psi per foot of depth below rock surface to bottom of stage).

4. Connect grout lines and gradually open valve and increase grout pressure to the design pressure. Check for leaks

5. When the test pressure has been reached, start timer and simultaneously read the grout holding tub dipstick. Alternatively, zero the grout flow meter.

6. Read grout takes at approximately 15 minutes. Monitor and adjust grout pressure as needed.

7. Review grout takes and adjust grout mix if appropriate, as approved by the Oversight Engineer.

8. Continue grouting to refusal, then hold pressure for an additional 15 minutes.

9. Mpove to next upward stage. Continue grouting (no waiting period required between stages).

10. Review grout takes aThe Oversight Engineer alone will make the determination when Refusal is reached.

3.09 SPOIL MANAGEMENT:

A. The Contractor shall remove spoils as necessary.

1. The Contractor shall manage spoils so that they do not accumulate in the working area.

2. The Contractor shall dispose all spoils off site.

3.10 QUALITY ASSURANCE AND QUALITY CONTROL:

A. The Contractor shall collect a sample of the mixed grout for density verification testing according to API Method RP 13-B1 at a frequency of every third batch mixed or at the direction of the Oversight Engineer.

B.

C. The Oversight Engineer will solely determine whether the Contractor's grout installation operations meet specified Performance Standards.

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BEDROCK GROUT CURTAIN WALL INSTALLATION

D. The Oversight Engineer may require additional sampling based on the QC and QA test results.

3.11 RESTORATION

E. Following completion of the grout curtain wall the Contractor shall remove all spoils and debris as provided in the drawings.

END OF SECTION

SECTION 02687
COLLECTION AND MONITORING WELLS

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Summary

B. Submittals

C. Dewatering Equipment

D. Dewatering-General

E. Quality Control

F. Sampling and Analysis

1.02 SUMMARY

A. This Specification covers Work required by the Contractor to provide materials necessary to install non aqueous phase liquids (NAPL) collection and monitoring wells. The goal of the collection wells is to capture the most mobile NAPL on-site for removal at a later date if needed. Collected NAPL will be removed from the well using bailers or pumps and stored in appropriate containers for disposal.

1.03 PROJECT CONDITIONS

A. The Contractor shall be required to install NAPL collection and monitoring wells to allow for continual monitoring and the removal of the most mobile NAPL.

1.04 SUBMITTALS

A. Manufacturer literature for well construction materials.

B. Proposed ratios and method of mixing and placement for grouts and concretes.

C. Provide log showing the depth intervals of well components including well screen, casing, sand pack, bentonite seal(s), and surface finish for all wells. Typed logs shall be provided to NYSEG within five days of completion of work.

D. Provide typed log showing soil stratification for a minimum of ten (10) percent of collection wells, at locations indicated in the drawings. Typed logs shall be provided to NYSEG within five days of completion of work.

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COLLECTION AND MONITORING WELLS

1.05 QUALITY ASSURANCE

A. Install in accordance with specifications and the drawings. Provide personnel licensed or qualified in accordance with New York regulations and laws, to drill and construct wells.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Sand: Clean, subgranular to rounded quartz san at least 99% SiO2 by weight. To ensure freedom from organic impurities, loss on ignition (L.O.I.) should not exceed 0.1%. Sand grain shall be as indicated on the drawings.

B. All well materials must be schedule 40 PVC or other approved material by NYSEG or their designated representative compatible with chemical oxidants, pH, and contaminants their materials may come in contact with. Well materials must have strength exceeding the anticipated pressures and temperatures by a minimum of 100 percent.

1. Well Screens: 5 and 10-foot (5 foot preferred) lengths of flush-jointed, threaded, 4-inch inside diameter screen with 0.010-inch slots. Screen is to be capped at lower end. Threaded or mechanical fastening must be capable of achieving a seal that will ensure that the above are satisfied.

2. Well Riser: 5 and 10-foot lengths of flush jointed, threaded, 4-inch inside diameter pipe. Riser shall be completed with threaded caps where possible, else a non-threaded cap (j-plug or similar) shall be used. Thread or mechanical fastening must be capable of achieving a seal that will ensure that the above are satisfied. Do not cut vent hole in PVC riser.

C. Bentonite Chips: Pellets of compressed bentonite, maximum 3/8-inch [1 cm] diameter. Prepackaged bentonite sleeves may be used.

D. Flush-Mount Casing: Flush-mount casings should be a minimum 8-inch diameter, traffic resistant, watertight, steel manhole with a minimum 12-inch long galvanized skirt. The flush-mount casing cover shall be bolted down to the road box. Well riser shall be secured with a gasket security plug with a keyed-alike brass padlock that has a 5/16-inch diameter hardened steel shackle.

E. Protective Casing: No wells with (stick-up) protective casing are currently specified for the work; however, the Subcontractor should have six (6) available in the event of a field change. 5-foot length, nominal 4-inch diameter CPVC or steel pipe with vented locking

SECTION 02687
COLLECTION AND MONITORING WELLS

steel cap. Cap shall slip over protective pipe a minimum of 3-inches and shall be secured with a keyed-alike brass padlock that has a 5/16-inch diameter hardened steel shackle. Smaller diameter protective casing may also be used for 1-inch wells provided tht the smaller diameter protective casing meets the same specifications and provides a cost savings.

F. Concrete: A fine aggregate and cement premix blended with clean, potable water to form a thick concrete slurry.

G. Bentonite slurry (thick) for grout backfill.

H. Cement grout backfill.

I. No solvents or glues shall be used during the construction of monitoring, or collection wells. Glue may be used to attach the well head connectors.

PART 3 - EXECUTION

3.01 COLLECTION AND MONIORING WELLS-GENERAL

A. All well locations shall be hand-cleared to a depth of at least the depth of the top of the deepest nearby utility pipe as shown on the Drawings with a diameter larger than the driller's subsurface equipment.

B. Collection wells shall be off-set from marked out utilities by a minimum of four (4) feet (or to the extent practicable).

C. Install wells using material and equipment as shown on the Drawings and described in the Design and Specifications.

D. Place clean well screen and riser in the borehole.

E. Remove casing simultaneously whenever material is placed down hole.

1. Do not withdraw casing faster than material is placed to prevent collapse of hole.

2. Do not withdraw casing too slowly so that sand will bridge inside and lift well screen.

F. Place sand pack, bentonite chips, and cement grout in accordance with the Drawings.

G. For flush-mount road boxes:

SECTION 02687
COLLECTION AND MONITORING WELLS

1. Secure well with 4-inch diameter expandable security plug with brass lock.

2. Install minimum 8-inch diameter manhole so that it is flush with the above ground surface.

3. Place concrete around manhole extending from bottom of manhole and tapering to a 2-foot diameter concrete pad that slopes away from the well at the surface.

H. For boreholes were a well is not constructed, fill the vacant borehole with hydrated bentonite chips to six inches below surface grade, with the remaining void volume filled with clean sand (or other materials as directed by the City of Lockport) and hot patch.

I. No solvents or glues shall be used during the construction of monitoring or collection wells.

END OF SECTION

SECTION 02240
DEWATERING

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Summary

B. Submittals

C. Dewatering Equipment

D. Dewatering-General

E. Quality Control

F. Sampling and Analysis

1.02 SUMMARY

A. This Specification covers Work required to control and collect surface water, stormwater, and groundwater in disturbed areas and from excavated soil. The goal of the dewatering activities in the excavation area is to dewater the excavation, or to maintain a workable dry excavation area. The collected water shall be treated using the on-site water treatment plant to be provided and operated by the Contractor as part of this Project.

1.03 PROJECT CONDITIONS

A. The Contractor shall be required to design, furnish, install, operate and remove a dewatering system to allow excavation to the depths shown on the Drawings. The system should be designed to keep groundwater levels at least 1 foot below active excavation activities, but should be designed to minimize the amount of water discharged. This system is intended to be basic in design and can utilize sumps trenches.

B. The water to be controlled is groundwater and surface water generated by dewatering of the active excavation areas. The water from the active excavation area or water in contact with exposed impacted soils may contain MGP residuals. This water will be segregated and pumped to a Construction Water Treatment System prior to discharge in accordance with the SPDES Permit. The design of the system shall be in accordance with Section 02245 and the Drawings and shall be provided in the Contractor's Technical Execution Plan (TEP).

1.04 SUBMITTALS

A. Contractor shall submit information in the Dewatering section of the TEP that details the principle components of the system and should contain narratives dealing with the installation, operation and maintenance and removal of the dewatering system. The TEP

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DEWATERING

should detail excavation, backfill, and dewatering sequence that achieves the required level of dewatering. The design should contain drawings of the proposed dewatering system. The design should include a monitoring program so as to demonstrate compliance with these specifications.

B. The Contractor is to visit the site, be aware of its restrictions, review the sub-surface and geotechnical information, and aquifer test data (i.e., slug test data). The Contractor shall submit a detailed dewatering design to the Owner as part of the TEP.

C. Provide weekly Dewatering Logs summarizing the following information at a minimum:

1. Quantity of groundwater and surface water pumped to the wastewater treatments system during the week, in gallons with totalizing flow meters.

2. Condition of the dewatering system.

3. Weekly rainfall measured at the Site.

4. Weekly record of water levels within each excavation area.

1.05 SEQUENCING AND SCHEDULING

A. Dewater in conjunction with water treatment, excavation, and restoration as needed to reduce impacts to project schedule.

B. Coordinate and schedule the dewatering work in a manner that minimizes the quantity of water pumped while not affecting the excavation and restoration schedule.

1.06 QUALITY CONTROL

A. Establish, maintain, and document quality control, in a form acceptable to the Engineer, for all groundwater and surface water control systems, including monitoring equipment. Quality control documentation by the Contractor is required to assure compliance with regulatory requirements. Detailed records of quality control shall be kept by the Contractor for all dewatering operations.

B. Dewatering performance shall meet the following requirements:

1. Dewatering area shall be minimized to the extent necessary to conduct the excavation and backfilling work.

2. Dewater excavations to the extent practical to remove soils and pass the paint filter test and complete backfilling and compaction.

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DEWATERING

3. All tar, oils, or other by-product like material shall be pumped and temporarily stored in on-site tanks. The material should be solidified, managed, and properly disposed.

4. All water collected shall be treated in accordance with Specification Section 02245 – Construction Water Treatment.

PART 2 – PRODUCTS

2.01 DEWATERING EQUIPMENT

A. The Contractor shall furnish, install and operate pumping equipment of sufficient capacities to meet the requirements for the removal of groundwater and surface water from work areas as necessary to complete the excavation and backfilling work.

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

C. Contractor shall provide sufficient suction and discharge hose or piping for transferring pumped liquids without causing erosion, sedimentation, or other adverse consequences.

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

E. Equipment for dewatering may be new or used, but shall be suitable for the Work and be maintained in good condition.

F. Contractor shall repair or replace damaged pumps, piping, hoses, tanks, and all other dewatering equipment and materials within four working hours if damaged. Damage includes any pump and power failures, leaks, breaks, clogs or other conditions that adversely affect the dewatering system or release contaminated water.

G. Contractor shall keep on hand, or have immediate access to, spare components to provide reasonably for any breakdown. Contractor shall maintain on site spare dewatering pumps during the dewatering work.

H. All dewatering equipment shall remain the property of Subcontractor and shall be decontaminated in accordance with Specifications Section 02130 – Decontamination and removed from the Project site at the completion of the Work.

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DEWATERING

PART 3 - EXECUTION

3.01 DEWATERING-GENERAL

A. Contractor shall furnish, at a minimum, all labor, materials, and equipment, and perform all operations required to design furnish, install, test, pump, measure, and maintain the excavation dewatering equipment and water storage systems, including the storage tank, ditches, dikes, sandbags, sumps, electric power supply and distribution as required to dewater the excavations so that the remediation work can be conducted under controlled conditions. Contractor shall demobilize and decontaminate all dewatering equipment and materials after completing the excavation and backfill work.

B. Dewatering, excavation, and backfill shall be coordinated so that the volumes of water generated during dewatering can be treated and discharged without exceeding the treatment system discharge limits.

C. The excavation dewatering system design should have redundant features such as adequate standby pumping capacity, valves and piping so that damage to or failure of a principle component of the system will not result in failure of the entire system.

D. Conduct localized dewatering in work areas as necessary to perform excavation and restoration work

E. Grade the excavation area using run-on/runoff controls including but not limited to slopes, berms and sumps in conjunction with the dewatering systems to channel water away from the immediate work areas to minimize dewatering and prevent undue impediments to soil inspection and excavation progress. Any grading measures shall prevent stormwater from leaving the Project Site.

F. Prevent any impacted water from contacting soils, or water outside of the active excavation area. If environmental contamination results from the Contractor's failure to control impacted water, remove the contamination, to the satisfaction of the Engineer, at no additional cost. Divert surface water away from stockpiles, excavations, and all other impacted materials.

G. Install, operate, and remove the dewatering systems in accordance with applicable federal, state, county, and local Laws and Regulations, Permits and generally accepted industry practices.

H. Provide dewatering of stockpiled soils as required.

I. Safety of personnel, and protection of off-site facilities and designated on-site facilities during dewatering Work, shall be solely the Contractor's responsibility.

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DEWATERING

J. Weather and site conditions shall be monitored 24 hours per day and seven days per week and dewatering conducted at any time to prevent impacted water runoff from the site.

3.02 QUALITY CONTROL

A. Dewatering performance shall meet the following requirements:

1. Dewatering area shall be minimized to the extent necessary for the Work being conducted.

2. Excavations shall be dewatered to maintain a dry work area during the entire period when the excavation remains open.

3. All water shall be pumped to the treatment system or to an on-site temporary storage tank.

4. Contractor shall make reasonable efforts to not pump tar, oils, or other by-product like materials directly to the water treatment system.

3.03 SAMPLING AND ANALYSES

A. Water sampling and analysis will be performed by the Engineer in accordance with Specifications Section 02245 – Construction Water Treatment.

END OF SECTION

SECTION 02245
CONSTRUCTION WATER TREATMENT SYSTEM

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Summary

B. Submittals

C. Project Description and Conditions

D. Primary Water Treatment Equipment and Controls

E. Discharge Limits

F. Testing and Startup Activities

G. Water Quality Testing

H. Routine Monitoring

I. Corrective Actions

J. Documentation

1.02 SUMMARY

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

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

C. The contractor may propose an alternate water treatment system design that, at a minimum, shall meet the performance standards (temporary State Pollution Discharge Elimination System (SPDES) discharge limits) and design, construction, and operational intent established herein.

SECTION 02245
CONSTRUCTION WATER TREATMENT SYSTEM

1.03 SUBMITTALS:

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

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

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

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

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

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

1.04 PROJECT DESCRIPTION AND CONDITIONS:

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

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

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

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

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

E. Contractor is responsible for the disposal fee and associated City of Lockport permits for wastewater to be pretreated to acceptable levels and approved for discharge to the combined sanitary sewer. The amount of water discharged will be determined from the on-site totalization meter provided by the Contractor.

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

G. The Contractor shall provide all manpower, equipment and materials to execute all activities necessary to provide, operate, and maintain a temporary water treatment system. The temporary water treatment system shall include the following major components as depicted in the Drawings:

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

SECTION 02245
CONSTRUCTION WATER TREATMENT SYSTEM

13. Meters and gauges;

14. Air compressor; and

15. Water storage tanks.

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

I. Analytical results for groundwater samples collected within the project area are provided in Appendix N. The proposed temporary water treatment systems shall be capable of reducing these concentrations (i.e., influent characteristics) to the discharge treatment levels required by the temporary SPDES discharge limits as provided in Appendix M.

PART 2 – PRODUCTS: PRIMARY WATER TREATMENT EQUIPMENT AND CONTROLS

2.01 GENERAL

This section specifies the minimum design and construction requirements for major treatment system components. Substitutions of system components other than those specified herein must be submitted for consideration and approval by the Engineer in accordance with the requirements of the Contract Documents. Contractor shall provide freeze protection for all water treatment system equipment, tanks, piping, and pipe connections to allow for operation through the winter months, including but not limited to: insulation, enclosures, heaters, heat tapes, and circulation pumps.

2.02 BERMS AND CONTAINMENT

The temporary water treatment system, exclusive of influent and effluent tanks shall be constructed with a containment area complete with continuous 20-mil HDPE liner and berms to provide containment volume equal to 110% of the largest container within the containment area.

2.03 BAFFLE TANK

The influent baffle tank shall have a minimum of 20, 000 gallon capacity with weirs and NAPL skimmer boom to facilitate removal of coal tar non-aqueous phase liquids.

SECTION 02245
CONSTRUCTION WATER TREATMENT SYSTEM

2.04 INFLUENT SETTLING TANKS

A. The influent settling tanks shall be of steel construction and shall provide, at a minimum, enough storage capacity to store at least 50,000 gallons. The tanks shall allow the water level in the tank to be determined by visual inspection and the use of a stick level indicator.

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

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

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

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

2.05 EFFLUENT STORAGE TANKS

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

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

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

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

2.06 DOUBLE DIAPHRAGM PUMPS

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

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

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

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CONSTRUCTION WATER TREATMENT SYSTEM

2.07 TRANSFER TANK

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

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

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

D. **The "transfer tank" is referred to as the "OIL STORAGE TANK (250 GALLON)" in the Groundwater Treatment System P&ID. This tank is for the storage of sludge pumped from the bottom of the "BAFFLE TANK (18,000 GAL) in the Groundwater Treatment System P&ID.**

2.08 TRANSFER PUMPS

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

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

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

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

2.09 ORGANO-CLAY VESSEL

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

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CONSTRUCTION WATER TREATMENT SYSTEM

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

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

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

2.10 BAG FILTERS

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

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

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

2.11 GRANULAR ACTIVATED CARBON VESSELS

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

B. The vessels shall be designed for a downflow application, a carbon dryfill opening in the top and a carbon discharge connection in the unit bottom. All vessel fittings shall be installed by the GAC vessel manufacturer at the

time and place of manufacturer. The Contractor shall not modify the GAC vessel in the field without written approval from the Manufacturer.

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

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

2.12 PIPING AND APPURTENANCES

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

B. Influent piping from the excavation upstream of the influent tanks and outside the containment berm shall be double walled to ensure containment in the event of a leak. Effluent piping from the treatment system to the point of discharge may be single-wall pipe.

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

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

2.13 METERS AND GAUGES

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

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

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CONSTRUCTION WATER TREATMENT SYSTEM

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

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

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

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

F. Contractor shall provide and maintain at all times a flow meters to record water discharged from both the treatment system to the effluent storage tank(s) and to the manhole located at the intersection of LaGrange Street and Saxton Street. The flow meters shall record instantaneous and totalized flow.

2.14 AIR COMPRESSOR

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

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

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

2.15 ANION RESIN BEDS

A. The anion resin should be capable of treating 50 gpm of groundwater containing up to 10000 ug/L. During the remedial investigation, the concentration of cyanide in groundwater ranged from non-detect to 7,960 ug/L, with an average of 550 ug/L. The discharge criteria is 800 ug/L.

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

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CONSTRUCTION WATER TREATMENT SYSTEM

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

PART 3 - EXECUTION

3.01 GENERAL

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

3.02 DISCHARGE LIMITS

A. The Contractor shall at all times maintain the treatment system so as to not exceed the effluent limits as required for discharge to the Public Combined Sewer System.

B. Treated water will need to be sampled prior to discharge. The Contractor will need to provide sufficient storage to handle the accumulated water while waiting for analytical results.

C. The pH of the discharged effluent shall not be less than 5.5 or greater than 9.5.

D. Metals shall be monitored but will not require treatment unless otherwise specified by the NYSDEC.

3.03 TESTING AND STARTUP ACTIVITIES

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

B. Startup and testing activities shall be in accordance with the manufacturer's recommendations and as indicated in the Contractor-prepared O&M manual that has been reviewed by the Engineer. General startup and testing of the temporary water treatment system shall consist of treating a minimum of 20,000 gallons of water collected from the first proposed excavation area (i.e., water that has been in contact with

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CONSTRUCTION WATER TREATMENT SYSTEM

soil/sediment to be removed). During the startup test, the water treatment system shall be operated at the 50 gpm peak flow rate until the entire 20,000 gallon batch is treated or at the maximum flow obtained from the dewatering. During this time, the Contractor shall continuously monitor and record readings (every 30 minutes minimum) from all gauges and meters as necessary in order to demonstrate that the system is operating as designed to the satisfaction of the Engineer. In addition, the Contractor shall make adjustments to the system as necessary to maintain a continuous flow rate of approximately 50 gpm while meeting the operating requirements of each system component.

C. The Contractor shall assist the Engineer in the collection of start-up testing samples following treatment of approximately 10,000 gallons and 20,000 gallons of water. The entire 20,000 gallons of treated water shall be retained in the effluent storage tanks until analytical results obtained indicate that the Contractor may discharge the water to manhole at the intersection of LaGrange Street and Saxton Street. Samples collected during start-up will be submitted by the Engineer for laboratory testing based on the following parameters (Appendix M):

Parameter	**Influent/Mid-Carbon/Effluent**
Volatile Organic Compounds	Yes
Semi Volatile Organic Compounds	Yes
Cyanide	Yes
pH	Yes
Total Suspended Solids	Yes
Metals	Yes
Phenols	Yes
Turbidity	Yes
Oil & Grease	Yes

D. As required by the temporary SPDES permit equivalent, the Contractor shall assist the Engineer in the collection of weekly grab samples. The samples shall be analyzed for the parameters identified in Appendix M. All analytical results shall be submitted to the Engineer, NYSEG, and the NYSDEC.

SECTION 02245
CONSTRUCTION WATER TREATMENT SYSTEM

3.04 WATER QUALITY TESTING

Contractor shall provide sampling ports for collecting samples in accordance with the discharge permit and upon direction from the Engineer. Contractor shall assist the Engineer in collection of samples as directed by the Engineer. During the system operation, testing will be conducted once for every 10,000 gallons of water treated. The Engineer will collect the water samples for analysis.

3.05 ROUTINE MONITORING

A. The temporary water treatment system will be manually operated and controlled through a series of valves, visual reading gauges, and pump controls as necessary to accommodate system operation. The Contractor shall provide for a water treatment system operator to be on-site at all times during system operation. The system will be manually controlled by the operator. At a minimum, the daily activities to be performed by the system operator (at least once per shift) include at a minimum:

1. Visual inspection of influent and effluent piping to and from the treatment system;

2. Visual inspection of all pumps, tanks, fittings and equipment for leakage;

3. Visual inspection of the sludge storage tank to document storage capacity;

4. Obtaining readings from the system pressure gauges associated with all treatment systems within the treatment train. Pressure gauge readings may be used to determine when a backwash event or filter replacement is required or that a particular treatment unit is not functioning properly;

5. Obtaining readings from the flow meter to monitor the system flow rate;

6. Obtaining readings from the flow totalizer to record the total system flow to date and calculate the daily and weekly flow- totals; and

7. During the operation of the treatment system, the influent tanks shall be visually inspected each time they are emptied to determine the depth of the sediment in the bottom of the tank. If sediment is observed to be 4 inches deep (or if directed by the Engineer) the tank shall be cleaned. Liquids from the cleaning activities shall be treated using the temporary water treatment system, while solids shall be collected and placed into the staging area for subsequent disposal by Owner. The Contractor shall solidify material to make it suitable for off-site disposal as a solid waste.

3.06 CORRECTIVE ACTIONS

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

3.07 DOCUMENTATION

The Contractor shall maintain a daily operations log (i.e., tabulated results) in which the process variables described above will be recorded at a minimum frequency of once per shift or more frequently if requested by the Engineer. In addition, all activities related to O&M of the treatment system will be documented in the daily log. The daily log will be kept on site and will be made available to the Engineer on demand. Copies of each daily log sheet will be submitted to the Engineer on a daily basis.

END OF SECTION

SECTION 02260
EXCAVATION

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Summary

B. References

C. Quality Control

D. Project Conditions

E. Submittals

F. Excavation Requirements

G. Sequencing and Scheduling

H. Materials

I. Preparation

J. Excavation

K. Sloping and Benching

1.02 SUMMARY:

A. Excavation will occur in areas west of the substation, and within LaGrange Street located north of the Site. The vertical limits of excavation will continue until bedrock is encountered or samples indicate the remaining soils contain PAH concentrations below 500 ppm. Excavations on the onsite area west of the existing substation will occur to depths of up to 19 feet below ground surface (bgs). Excavation within LaGrange Street will occur to depths up to 11 feet bgs. The horizontal limits of excavation are shown in the drawings. A total of approximately 7,200 cubic yards of soil is anticipated to be excavated from these areas to be disposed of, or properly treated offsite.

B. Excavation of will occur in the Barge Canal located northwest of the Site. The vertical limit of excavation will occur until all contaminated sediments are removed from the canal. The horizontal limits of excavation are shown in the drawings. A total of approximately 1,200 cubic yards of sediment is anticipated to be excavated from the canal to be disposed of or properly treated offsite.

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EXCAVATION

C. A phased sequenced of progression for the remedial construction is depicted on the Drawings. To the extent possible, excavation, stockpiling and loading of soil and debris, for a portion of the Work designated on the Drawings, shall take place inside of the work limits for that phase of work. The phased sequence requires excavation in LaGrange Street. This portion of the Work will require direct loading of excavated soil with stockpiling of non-impacted soils for possible reuse.

D. Related Sections:

1. Section 01570 – Erosion and Sediment Control
2. Section 02120 – Off-Site Transportation and Disposal
3. Section 02130 – Decontamination
4. Section 02114 – Stockpiling, Amending, and Loading Soil
5. Section 02462 – Excavation Support

1.03 REFERENCES:

A. OSHA 29 CFR 1926 Subpart P – Excavations.

1.04 QUALITY CONTROL:

A. Contractor's Land Surveyor shall stake excavation boundaries indicated on the Drawings and perform initial survey as specified in Specifications Section 01720 - Surveying.

B. Contractor shall perform surveying to record elevations during the course of the excavation Work. During performance of the Work, Contractor shall employ all equipment necessary for control of excavation depths, lines, and grades within required tolerances.

C. Verification of final excavation horizontal limits and depths shall be accomplished by survey provided by Contractor's Land Surveyor and in a manner that is mutually acceptable to the Contractor and the Engineer. During the progress of Work, the Contractor shall provide survey data as the excavation progresses that consist of the following:

1. Horizontal limits of completed excavation in sufficient detail to determine limits of the material removed.
2. Vertical limits of excavation consisting of top of final grade or excavation limit in sufficient detail to verify quadrant elevations and to establish the progress of the completed Work.

SECTION 02260
EXCAVATION

D. Contractor personnel and equipment shall meet the training standards and requirements of OSHA 29 CFR 1926: Subpart P-Excavations.

1.05 PROJECT CONDITIONS:

A. Excavation will occur in a mixed commercial - residential neighborhood. Odors, noise, dust, and vapors must be controlled accordingly and as described in the Contract Documents.

B. Debris, concrete foundations, cable, and abandoned pipe will be encountered in the excavation area.

C. Debris, utility pipes, potential abandoned pipes will be encountered in the onsite excavation areas and LaGrange Street.

D. Overhead and underground utilities will be relocated by others prior to the start of remedial activities.

E. Contractor shall provide materials, and install all necessary controls required for stability of the excavation and to protect adjacent roadways and structures.

1.06 SUBMITTALS:

A. Contractor shall prepare and submit a Technical Execution Plan in accordance with the procedures set forth in Specifications Section 01330 – Submittal Procedures. The Engineer has designed a sloped excavation system around the perimeter of the site as shown on the Drawings. Contractor's Technical Execution Plan shall include a detailed proposal for investigation, design and construction of the excavations.

B. The Technical Execution Plan will document the Contractor's proposed procedures for managing the excavation dewatering, staging, tracking, and stockpiling the excavated soil.

1.07 EXCAVATION REQUIREMENTS:

A. The Drawings show the limits and elevations of the excavation areas for this Work.

B. The Contractor shall lay out the Work and excavate soil to the horizontal and vertical limits of excavation with allowances for stable slopes or use of excavation support.

C. Contractor shall erect and maintain barriers as shown on the drawings and as specified in Specifications Section 01500 – Mobilization and Temporary Facilities and deemed necessary by the Engineer around open excavations to provide any other necessary safety precautions to safely secure the site both during and after Work hours.

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D. The Contractor is responsible for excavation slope stability. Excavation Work shall be in compliance with applicable OSHA Regulations. The Engineer shall have the authority to address concerns or stop Work regarding excavation slope or shoring stability. The Contractor shall immediately notify the Engineer if slope sidewall instability is noticed.

E. Work shall be performed in a manner that does not disturb or damage existing structures, utilities, monitoring wells, or other facilities not indicated to be removed, unless the removal of such items is shown on the Drawings. Damaged facilities shall be repaired or replaced at the Contractor's expense as determined by the Engineer.

F. Contractor shall maintain a written record of daily progress of the excavations, including all survey observations and data, and submit a copy to the Engineer at the Weekly Progress Meetings, or as otherwise requested by the Engineer.

G. The Contractor shall comply with Occupational Safety and Health Act Regulations (29 CFR 1926.651):

1. These regulations include but are not limited to specific excavation requirements including the following:

    a. Removal of surface encumbrances.

    b. Determination of underground installations.

    c. Providing access and egress.

    d. Protection of nearby structures.

    e. Preventing exposure to vehicular traffic.

    f. Preventing exposure to falling loads.

    g. Providing a warning system for mobile equipment.

    h. Preventing exposures to hazardous atmospheres.

    i. Preventing hazards associated with water accumulation.

    j. Protection of employees from loose rock or soil.

    k. Inspections.

2. The Contractor shall be responsible for meeting requirements for excavation protection in OSHA 29 CFR 1926.652, including providing a "competent person" to classify soils and verify that the excavation slopes shown on the Drawings are protective of worker safety.

H. Contractor shall control dust emissions and odors during excavation activities in accordance with the requirements of Specifications including Section 01350.

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I. Contractor shall protect all existing structures outside the limits of excavation areas. If Contractor damages any structures, Contractor shall repair or replace the damaged structure to acceptable construction standards at Contractor's own expense without reimbursement.

J. Contractor shall notify all utility companies and locate all underground utilities prior to starting excavation Work. Contractor shall be responsible for protection of utilities. If Contractor damages any utilities, Contractor shall repair or replace the damaged utility to acceptable construction standards at Contractor's own expense without reimbursement.

K. The Contractor shall sequence and stage excavation operations as specified in the Technical Execution Plan submitted in accordance with Specifications Section 01330 – Submittal Procedures to meet the following requirements:

1. Minimize the amount of water generated by excavation dewatering described in Specifications Section 02240 – Dewatering.

2. Balance the rate of excavation with the rates of on-site material management and off-site transportation operations described in Specifications Sections 02120 – Off-site Transportation and Disposal to ensure sufficient capacity for stockpiling and transportation.

1.08 SEQUENCING AND SCHEDULING:

A. Contractor shall conduct excavation in accordance with the milestones set forth in Bid Form Schedule F, Construction Milestones.

B. Contractor shall conduct excavation support installation and removal activities in coordination with Backfill and Grading Work specified in Specifications Section 02300 – Backfill and Grading.

C. Contractor shall locate excavation support and controls in accordance with the limits of excavation shown on the Drawings.

D. Contractor shall coordinate the installation of excavation supports and controls with the installation and operation of excavation dewatering systems described in Specifications Section 02240 – Dewatering.

E. Contractor shall complete excavation, demolition of subsurface structures and backfilling in accordance with the sequence shown on the Drawings and described in these Specifications.

SECTION 02260
EXCAVATION

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Material and equipment are not specified herein, but shall be furnished as deemed necessary by Contractor. Contractor shall furnish and install all materials necessary for excavation support and controls. The materials and equipment used for excavation support and controls may be new or used but must be suitable for the Work and be maintained in good condition.

B. All temporary excavation support and controls shall remain the property of the Contractor. All temporary excavation support and controls materials shall be decontaminated and removed from the project site at the completion of the Work.

PART 3 – EXECUTION

3.01 PREPARATION:

A. The Contractor shall comply with the requirements of the utility owners for protection of underground utilities.

3.02 EXCAVATION:

A. Excavation:

1. The Contractor shall excavate soil and other material from the existing grade elevations and extents shown on the Drawings.

2. The Contractor shall excavate using the equipment and procedures described in the Technical Execution Plan submitted as specified in Specifications Section 01330 – Submittal Procedures.

3. Excavated material shall be loaded directly into trucks when possible, or placed directly in the excavated material stockpile area.

3.03 SLOPING AND BENCHING:

A. Excavation slopes and benches shall conform to OSHA requirements at all times.

B. Sloping or benching for excavations greater than four feet deep shall be in accordance with the Drawings, unless alternative slopes are deemed appropriate due to site conditions as determined by the Contractor's Competent Person and the Engineer.

SECTION 02260
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C. Contractor shall provide written documentation in Contractor's Daily Report for sloping and benching, including acceptable grades and dimensions, soil types, and soil conditions.

D. Contractor shall inspect excavations daily to verify stability of slopes, benches, and temporary sheet piling.

END OF SECTION

SECTION 02300
BACKFILLING AND GRADING

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Summary

B. References

C. Submittals

D. Quality Control

E. Project Conditions

F. Gravel Backfill

G. Road Base

H. Surveying

I. Preparation

J. Placement of Backfill

K. Site Grading and Restoration

L. Maintenance

1.02 SUMMARY:

A. The Contractor shall provide all materials, equipment, and labor to place and compact backfill and grade to the final elevations in accordance with this section and the Drawings.

1.03 REFERENCES:

A. American Society for Testing and Materials (ASTM):

1. ASTM D 1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (Modified Proctor).

2. ASTM D 2487, Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).

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BACKFILLING AND GRADING

3. ASTM D 2922, Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods.

4. ASTM D 3017, Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

B. New York State Department of Environmental Conservation (NYSDEC):

1. NYSDEC Title 6 of the New York Codes, Rules, and Regulation (NYCRR) Part 375, Environmental Remediation Programs.

1.04 SUBMITTALS:

A. Contractor shall submit written documentation showing conformance of the materials and constructed work with the Specifications within five days after test results are obtained.

B. For backfill, Contractor shall submit written certification, signed by the material supplier, stating that the material meets or exceeds the specified requirements. Information shall be submitted to Engineer for review and approval no less than fourteen calendar days prior to scheduled delivery of specified material to the Project Site.

C. Contractor shall submit samples of imported common backfill material to Engineer for chemical analyses. At least one sample shall be submitted for each borrow source at least three weeks prior to being needed on Project Site.

D. Contractor shall identify primary and backup backfill burrow sources in the TEP.

1.05 QUALITY CONTROL:

A. Contractor shall retain the services of a New York State Department of Transportation (DOT) approved soils testing laboratory to document conformance of material type and compaction of backfill and paving materials with the Specifications.

1.06 PROJECT CONDITIONS:

A. Work shall be performed in a manner that does not disturb existing utilities, structures, or other facilities not indicated to be removed within the project limits.

PART 2 – PRODUCTS

2.01 REUSE SOILS BACKFILL

A. Restoration Reuse Soils shall be those soils excavated from the site free from odor staining and sheens which is hard, durable sand and gravel, and shall be free from ice and snow, roots, sod, rubbish, and any other deleterious or organic matter. It shall be

chemically clean, in accordance with NYSDEC 6 NYCRR Part 375 Subpart 6 (d) (375.6 (d)) values, as sampled and analyzed by the Engineer.

2.02 SELECT FILL:

A. Select Fill (bank run gravel or equivalent) shall be hard, durable sand and gravel, and shall be free from ice and snow, roots, sod, rubbish, and any other deleterious or organic matter. It shall be chemically clean, in accordance with NYSDEC 6 NYCRR Part 375 Subpart 6.7 (d) (375.6.7 (d)) values, as sampled and analyzed by the Engineer. It shall conform to the following gradation requirements:

Sieve Size	**Percent Passing**
3-inch	100
2-inch	90-100
1-inch	70-90
No.4	80-30
No. 200	0-15

2.03 SUBBASE:

A. Subbase (NYSDOT #Type 2) shall be hard, durable sand and gravel, and shall be free from ice and snow, roots, sod, rubbish, and any other deleterious or organic matter. It shall be chemically clean, in accordance with NYSDEC 6 NYCRR Part 375 Subpart 6 (d) (375.6 (d)) values, as sampled and analyzed by the Engineer. It shall be supplied from a NYSDOT approved facility and conform to the following gradation requirements:

Sieve Size	**Percent Passing**
3-inch	100
2-inch	90 - 100
No. 4	30 - 60
No. 40	5 - 40
No. 200	0 – 10

2.04 TOPSOIL:

A. Topsoil shall be fertile, friable, natural loam. Topsoil shall be free from ice and snow, roots, sod, rubbish, and any other deleterious or organic matter. It shall be chemically clean, in accordance with NYSDEC 6 NYCRR Part 375 Subpart 6 (d) (375.6 (d)) values, as sampled and analyzed by the Engineer. It shall have the following approximate analysis, or equivalent approved by Engineer:

Sieve Size	Percent Passing
2-inch	100

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1-inch	85 - 100
¼ inch	65 - 100
No. 200	20 – 80
Organic Matter	2% and <21%
% Passing a 2-inch Sieve	100%
pH	5.5 - 7.6

2.05 ROAD BASE, PARKING BASE MATERIAL:

A. Subbase (NYSDOT #Type 1) shall be hard, durable sand and gravel, and shall be free from ice and snow, roots, sod, rubbish, and any other deleterious or organic matter. It shall be chemically clean, in accordance with NYSDEC 6 NYCRR Part 375 Subpart 6 (d) (375.6 (d)) values, as sampled and analyzed by the Engineer. It shall be supplied from a NYSDOT approved facility and conform to the following gradation requirements:

Sieve Size	Percent Passing
3-inch	100
2-inch	90 - 100
No. 4	30 - 60
No. 40	5 - 40
No. 200	0 – 10

B. Road base material for temporary haul roads and the Soil Stockpile and Staging Area shall be reused as site parking area restoration material.

2.06 CONTROLLED LOW STRENGTH MATERIAL (CLSM):

A. Controlled low strength material (CLSM) shall consists of mixing and placing at the locations shown on the plans or where ordered by the Engineer. CLSM shall be as per NYSDOT Item Specification Section 204. The contractor shall provide the Engineer the certification that the CLSM will have a 28 day compressive strength between 40 psi and 150 psi. It shall be supplied from a NYSDOT approved facility and conform to the following gradation requirements:

Sieve Size	Percent Passing
No. 10	100
No. 200	20 (maximum)

SECTION 02300
BACKFILLING AND GRADING

PART 3 – EXECUTION

3.01 SURVEYING:

A. The Contractor shall survey the final surface elevation of each layer of completed backfill with a New York State Registered Land Surveyor for payment quantity and as-built purposes. Final thickness of placed backfill shall vary no more than 10% from the specified thickness.

3.02 PREPARATION:

A. Backfilling shall not proceed until Engineer has approved the completion of excavation or SMW in each area of the Project Site and documented bottom conditions including sampling as required and as-built survey.

B. Backfilling shall not be done when the ground or backfill is frozen or too wet to compact. The Contractor shall dewater the excavations as necessary to allow backfilling to proceed.

C. **In situations where CLSM is used as backfill around lightweight pipe, take precations to counteract the pipe's buoyancy.**

3.03 PLACEMENT OF BACKFILL:

A. Backfill not within the LaGrange Street right-of-way shall be placed in uniform layers not exceeding 12 inches loose lift thickness.

B. Backfill shall be compacted to a minimum of 90 percent of the material's maximum dry density, and within 3% of optimum moisture as determined by the Modified Proctor.

C. Contractor shall provide field compaction tests for each lift and at a minimum of one per every 1,000 square feet.

D. Contractor shall place and compact Gravel and Topsoil in the excavations up to the final grade as indicated on the Drawings.

3.04 SITE GRADING AND RESTORATION:

A. Contractor shall grade unpaved areas to the contours indicated on the Drawings. The soil surface shall be shaped to provide a smooth transition to existing grade at the limits of the disturbed areas.

B. Contractor shall shape and compact fill with uniform levels or slopes between points where elevations are shown on the Drawings, or between such points and existing grades.

SECTION 02300
BACKFILLING AND GRADING

C. Contractor shall smooth the finished surfaces for general site grading within tolerance of two inches above or below the required elevation.

D. Contractor shall grade areas adjacent to structures to achieve drainage away from the structures and to prevent ponding.

3.05 MAINTENANCE:

A. Contractor shall protect newly graded areas from traffic and erosion. The Work shall be sequenced to minimize disturbance of completed areas.

B. Where completed areas are disturbed by subsequent project operations or adverse weather, fill and reshape eroded areas until acceptance of the Work.

END OF SECTION

SECTION 02460
EXCAVATION PROTECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Installing temporary sheet pile wall, watertight, with sealed interlocks

B. Installing internal bracing (including waler and toe pin supports) as shown on the Drawings

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

D. Removing temporary sheet pile wall and internal bracing

1.02 WORK DESCRIPTION AND GENERAL REQUIREMENTS

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

. Install temporary sheet pile excavation support system for excavating contaminated soil and backfilling the excavation.

A. The Contractor is responsible for all materials, sequencing and methods of construction subject to the Drawings and design criteria. The Contractor shall provide a minimum of AZ-13 steel sheet piles or equal to complete the project. The proposed sheet pile shall be submitted and approved by the Oversight Engineer.

B. Coordinate bracing installation with excavation and backfill staging.

1.03 SUBMITTALS

A. Shop Drawings:

1. Structural steel shop drawings.

2. Internal Bracing (Walers & Toe Pins)

3. Sheet pile interlocks sealant.

4. Pipe / Utilities penetration sleeves, if necessary

SECTION 02460
EXCAVATION PROTECTION

B. Miscellaneous Submittals:

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

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

3. Sheet pile driving hammer(s).

4. Sheet pile driving Logs: Submit records daily. Driving logs shall include:

   Name of CONTRACTOR.
   Project name.
   Date.
   Pile location/number.
   Name of hammer manufacturer/model.
   Pile type and length.
   Ground elevation.
   Final tip elevation.
   Pile deviation from plan location.
   Notes on unusual phenomena.

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

1.04 PROJECT/SITE CONDITIONS

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

B. Before commencing work provide surveyed elevation bench marks on all structures within 100 ft of pile driving operations and elsewhere as noted on the drawings. Record and report elevation of each bench mark after driving piles and at least twice daily while pile driving is in progress. Should bench mark readings indicate displacement, halt driving operations until corrective action has been provided and is acceptable to the Oversight Engineer.

C. Provide crack gauges on structures where required by the Oversight Engineer before commencing work when structures are within 100 ft of pile driving operations. Record and report crack gauge measurements after inserting piles, and at least twice daily while

pile driving is in progress. Should crack gauge readings indicate displacement, halt driving operations until corrective action has been provided and is acceptable to the Oversight Engineer.

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

1. Monitor vibrations at nearest adjacent structures closest to the pile driving operations when installing sheet piles within 100 feet of the structure or as determined by the Oversight Engineer.
2. See vibration section for criteria.

1.05 QUALITY ASSURANCE

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

PART 2 – PRODUCTS

2.01 MATERIALS

A. Piling and Accessories: ASTM A572 or A992, Grade 50

1. Piling shall be continuous interlock type.

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

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

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

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

D. Bolts and Nuts: ASTM A325.

E. Turnbuckles: A668 Class A C1035

F. Sleeve Nuts: ASTM A29.

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EXCAVATION PROTECTION

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

2.02 FABRICATION

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

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

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

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

2.03 DRIVING EQUIPMENT

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

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

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

PART 3 – EXECUTION

3.01 GENERAL:

A. Install, maintain, and remove, excavation support in such a manner to prevent excessive movement, settlement, or loss of ground, removal of soil fines from the adjacent ground,

or damage to or excessive movement of adjacent structures, utilities, roadways and other features.

3.02 DRIVING SHEET PILING

A. Order length of piles shall be determined by the Contractor and approved by the Oversight Engineer. Approval does not relieve the Contractor from obligation to provide piles of sufficient length to achieve proper pile penetration.

B. Once driving for pile is started, pile shall be driven to required penetration without stopping.

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

D. Difficult driving conditions due to dense soil conditions. The Contractor shall be aware of the presence of the medium to highly compacted silty sand with occasional trace of clay observed just above the bedrock elevation. The sheet piles shall be driving to the top of the solid bedrock and toed through any shale/rock fragments. As part of the contingency plan, the Contractor shall include alternative procedure(s) for installing steel sheet piles, such as: pre-trenching/pre-drilling along the alignment to loosen soils and/or remove obstructions, using larger vibratory hammers, additional bias (driving) weights, impact hammers, etc.

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

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

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

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

SECTION 02460
EXCAVATION PROTECTION

I. If sheet piles are bent or buckled below cut-off, Contractor may cut off damaged part and weld new piece as required to complete driving to full penetration.

J. Cut-off tops of driven piles square with pile axis and at elevations indicated. Dispose of excess materials off site.

K. See section 3.07 for special installation requirements regarding Interlock sealant.

3.03 WALES

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

B. Wales that are tilted, bent, or otherwise damaged during progress of construction shall be aligned, straightened or replaced as required by the Oversight Engineer.

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

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

3.04 SHEET PILE TOE PINS

A. Includes all labor, equipment, supplies, and materials to install the sheet pile toe pins as shown on the Drawings.

B. Pin steel, installation guide pipe and grout shall be provided in accordance with details shown on Drawings.

3.05 BOLTING

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

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

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

D. Remove projecting metal and burrs.

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EXCAVATION PROTECTION

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

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

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

3.06 WELDING

A. Welded connections shall be as indicated on Drawings.

B. Weld in accordance with AWS D1.1.

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

3.07 INTERLOCK SEALANT

A. Sealant shall be Swellseal manufactured by deneef or approved equal.

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

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

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

E. Each interlock shall be cleaned during installation.

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

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

H. Special attention shall be given to keep the piles plumb in order to minimize friction during driving. When vibratory hammers are used, special care shall be taken to ensure that the temperature of the interlock does not exceed 130°C to avoid damaging the

sealant. The contractor shall have water readily available at all times to cool the interlock if specified temperatures are exceeded. Sheet piles in which the sealant has smoldered or burned shall be extracted and the defective sealant removed and replaced in accordance with the manufacturer's specifications.

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

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

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

3.08 MISCELLANEOUS STRUCTURAL SHAPES AND PLATES

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

3.09 FIELD QUALITY CONTROL

A. Install piles within following maximum tolerances:

1. Location: 3 in. from location indicated.

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

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

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

3.10 MOVEMENT

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

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

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EXCAVATION PROTECTION

C. Lateral deflection of the sheet pile system shall not exceed 1/2 inch.

3.11 VIBRATION

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

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

C. Vibration Action Levels:

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

3.12 REMOVAL

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

B. When removing the excavation support system, do not disturb or damage adjacent structures, utilities, roadways and other features. Fill voids immediately with well-graded cohesionless sand.

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

END OF SECTION

SECTION 02462
PERMANENT STEEL SHEET PILING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Permanent Steel Sheet Pile (SSP):

1. Driven watertight steel sheet piling with sealed interlocks.

2. Construction Work Plan.

3. Quality Control / Quality Assurance monitoring and testing.

1.02 DESIGN AND PERFORMANCE REQUIREMENTS

A. Watertight steel sheet pile walls or vertical barrier walls (VBW) shall be installed as shown on the Drawings.

B. Contractor shall provide and install AZ-13 steel sheet piles.

C. Contractor shall provide all the required sheet piles to complete the project. The proposed sheet pile shall be submitted and approved by the Oversight Engineer. A minimum section of AZ-13 sheet pile or equivalent shall be used.

D. Contractor shall furnish all attachments, clean-out tools, connections and interlock sealant as necessary.

1.03 SUBMITTALS

A. Qualifications:

1. All submittals shall be completed and submitted in accordance with Section 01330 - Submittal Procedures.

2. Submit qualifications for steel sheet pile wall construction, including previous experience.

3. Submit contact information for at least 3 references. References shall be for projects completed within previous 5 yrs.

4. Submit qualifications of sheet pile wall field supervisor and other key staff.

B. Product Data:

1. Submit manufacturer’s data for additional steel sheet pile materials, attachments, and adaptors (etc.) as needed.

SECTION 02462
PERMANENT STEEL SHEET PILING

2. Submit manufacturer's data for sheet pile interlock sealant.

C. Construction Work Plan:

1. Contractor shall prepare and submit a Technical Execution Plan (TEP) in accordance with the requirements set forth in the specifications. The Engineer has designed the sheet pile walls as shown on the Drawings. The Contractor's TEP subsection "Steel Sheet Piling Plan" shall include, but not be limited to:

   a. Site preparation, construction of working areas, etc.

   b. Pile driving methods and tools, including cranes, vibratory hammers and other construction equipment including driving frame. Provide complete description of pile hammer(s), including manufacturer's name, model number, operational characteristics, rated energy, age, date(s) of last overhaul, etc.

   c. Pile driving templates and guide structures.

   d. Sequence of installation.

   e. Sheet pile driving hammer(s), including Wave Equation Analysis to evaluate sheet pile driving stresses and driveability.

   f. Quality Control, including procedures for maintaining alignment, plumbness, and wall continuity.

D. Contingency Plan:

1. Submit detailed Contingency Plan as an attachment to TEP subsection Steel Sheet Piling Plan. Contingency Plan shall include, but not be limited to:

   a. Work stoppages due to equipment failure, adverse weather, or other unforeseen situations. Include procedures for providing continuity between portions of wall constructed before and after stoppage.

   b. Obstructions, including buried debris, etc. that interferes with installation of steel sheet pile. Include procedures for removal of obstructions.

   c. Difficult driving conditions due to dense soil conditions. The Contractor shall be aware of the presence of the medium to highly compacted silty sand with occasional trace of clay observed just above the bedrock elevation. The sheet piles shall be driving to the top of the solid bedrock and toed through any shale/rock fragments. As part of the contingency plan, the Contractor shall include alternative procedure(s) for installing steel sheet piles, such as: pre-trenching/pre-drilling along the alignment to loosen soils and/or remove obstructions, using larger vibratory hammers, additional bias (driving) weights, impact hammers, etc.

SECTION 02462
PERMANENT STEEL SHEET PILING

E. Construction Records:

1. Driving Logs: Maintain detailed records of each insertion of steel sheet pile. Submit sample log template for approval. Submit records of insertions daily. Driving logs shall include, but not be limited to:

   a. Name of Contractor.

   b. Project name.

   c. Date and time.

   d. Sheet pile identification and location.

   e. Name of hammer manufacturer/model.

   f. Pile dimensions, size and length.

   g. Length of pile.

   h. Ground elevation.

   i. Final tip elevation.

   j. Time at start of sheet /anchor pile placement.

   k. Time to drive sheet /anchor pile to final elevation.

   l. Notes on unusual phenomena.

F. Daily Logs

1. Daily and project totals to include:

   a. Sheet pile insertions.

   b. Range and average depth of penetration in feet.

   c. Linear footage of progress of wall.

   d. Areas of wall that required repair/reinsertion

G. Project Closeout Records

1. Upon final completion and approval of the project the contractor shall supply the Oversight Engineer the required as-built drawing documentation as described below in AutoCAD format:

2. Drawing file(s) showing limits and top elevations (every other pair) of the permanent steel sheet pile cut off walls.

3. Drawing file(s), containing contours (0.5 ft. interval) and corresponding survey points and DTM files showing each of the following surfaces:

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PERMANENT STEEL SHEET PILING

1) Top of steel sheet pile cut off walls

2) Bottom of steel sheet pile cut off walls

4. As-built Drawings shall be sealed by Land Surveyor licensed in the State of New York.

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

1.04 PROJECT/SITE CONDITIONS

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

B. Provide surveyed elevation bench marks on structures where required by the Oversight Engineer before commencing work when structures are within 100 ft of pile driving operations. Record and report elevation of each bench mark after driving piles and at least twice daily while pile driving is in progress. Should bench mark readings indicate displacement, halt driving operations until corrective action has been provided and is acceptable to the Oversight Engineer.

C. Provide crack gauges on structures where required by the Oversight Engineer before commencing work when structures are within 100 ft of pile driving operations. Record and report crack gauge measurements after inserting piles, and at least twice daily while pile driving is in progress. Should crack gauge readings indicate displacement, halt driving operations until corrective action has been provided and is acceptable to the Oversight Engineer.

D. Monitor vibrations of structures at locations approved by the Oversight Engineer before commencing work when structures are within 100 ft of pile driving operations. Record and report vibration measurements while pile driving is in progress. Should measurements indicate excessive vibration, halt driving operations until corrective action has been provided and is acceptable to the Oversight Engineer. Excessive vibrations shall be defined as those with peak particle velocities greater than 1 inch per second.

1.05 QUALITY ASSURANCE

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

PART 2 PRODUCTS

2.01 MATERIALS

A. Piling and Accessories: ASTM A572 or A992, Grade 50

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1. Sheet Piling shall be continuous interlock type.

2. Provide one standard handling hole on each end of each section. Prior to installation any holes (other than as noted by the Drawings – i.e. the minimum 2" dia. located 6 feet above rock surface) in sheeting shall be patched with a steel plate with a minimum thickness the same as the section at the hole location. The patch shall be continuously welded around its entire perimeter.

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

4. A minimum 2" diameter hole shall be located 6 feet above the rock surface as noted on the Drawings.

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

2.02 FABRICATION

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

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

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

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

2.03 DRIVING EQUIPMENT

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

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

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

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PERMANENT STEEL SHEET PILING

PART 3 EXECUTION

3.01 DRIVING SHEET PILING

A. NYSEG shall provide the some AZ-48 SSP sections to the Contractor. Contractor shall be responsible for providing delivery of SSP from NYSEG's storage location to the Site. Contractor shall coordinate with NYSEG the delivery of SSPs to the Site to complete the VBW installation without delay. The Contractor is responsible for any remaining sheet pile sections to complete the project.

B. Once driving for pile is started, pile shall be driven to required penetration without stopping.

C. When high-resistant strata lying near surface must be penetrated, rotary drilling or pretenching may be used to minimize hard driving of long piles during early stages of driving operations, as approved by the Oversight Engineer. Jetting is not allowed.

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

E. Drive sheet piling by approved methods to not subject piles to serious damage and to ensure perfect interlocking with adjoining piles throughout length of piles. Take precautions to ensure piles are within specified tolerance to line and grade as per the Drawings.

F. Sheet pile ruptured in interlock or otherwise considered significantly damaged by the Oversight Engineer shall be removed and new pile driven in its place.

G. See section 3.03 for special installation requirements regarding sheet pile Interlock sealant.

3.02 WELDING

A. Welded connections shall be as indicated on Drawings.

B. Weld in accordance with AWS D1.1.

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

3.03 INTERLOCK SEALANT

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

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B. Sealant shall be field applied. Adhere to all manufacturer's specifications, recommendations, and guidelines.

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

D. Each interlock shall be cleaned during installation with the factory specified cleaning tool (Type D or Type G cleaning tool from C-9-connector). See Attachment A for details.

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

F. Special attention shall be given to keep the piles plumb in order to minimize friction during driving. When vibratory hammers are used, special care shall be taken to ensure that the temperature of the interlock does not exceed 130°C to avoid damaging the sealant. CONTRACTOR shall have water readily available at all times to cool the interlock if specified temperatures are exceeded. Sheet piles in which the sealant has smoldered or burned shall be extracted and the defective sealant removed and replaced in accordance with the manufacturer's specifications.

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

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

I. The sheetpile interlocks shall be sealed over their full length using Swellseal® WA system sheetpile interlock sealant, or equivalent, as approved by the NYSEG.

3.04 FIELD QUALITY CONTROL

A. Drive piles within following maximum tolerances:

1. Location: 3 inches from location indicated.

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

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

4. Final tip elevation of all steel sheet piling shall be to bedrock elevation as referenced in the Drawings.

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B. Damaged piles and piles driven outside required driving tolerances will not be accepted. Withdraw piles rejected after driving and replace with new piles at no additional cost to the NYSEG.

3.05 VIBRATION

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

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

C. Vibration Action Levels:

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

END OF SECTION

SECTION 02821
CHAIN LINK FENCES

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Summary

B. References

C. Submittals

D. Posts

E. Top Rails and Brace Rails

F. Fence Fittings

G. Concrete for Post Footings

H. Preparation

I. Fence Installation

1.02 SUMMARY:

A. The Subcontractor shall install permanent fencing as specified in this Section around the Limits of Remediation shown on the Drawings to restore disturbed permanent fencing areas around the NYSEG property. The permanently installed fencing shall be galvanized or vinyl coated to match the existing fencing.

B. Related Sections:

1. Section 01500 – Temporary Facilities and Control

1.03 REFERENCES:

A. American Society for Testing and Materials (ASTM):

1. ASTM A 90, Standard Test Method for Weight (Mass) of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings

2. ASTM A 121, Standard Specification for Zinc-Coated (Galvanized) Steel Barbed Wire

SECTION 02821
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3. ASTM A 392, Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric

4. ASTM C 33, Standard Specification for Concrete Aggregates

5. ASTM C 150, Standard Specification for Portland Cement

6. ASTM F 567, Standard Practice for Installation of Chain-Link Fence

7. ASTM F 626, Standard Specifications for Fence Fittings

8. ASTM F 900, Standard Specification for Industrial and Commercial Swing Gates

9. ASTM F 1043, Standard Specification for Strength and Protective Coatings on Metal Industrial Chain Link Fence Framework

10. ASTM F 1083, Standard Specification for Pipe, Steel, Hot-Dipped Zinc- Coated (Galvanized) Welded, for Fence Structures

1.04 SUBMITTALS:

A. Submit product data and shop drawings showing materials, finishes and dimensions for fencing.

PART 2 – PRODUCTS

2.01 POSTS:

A. Posts shall conform to one of the following specifications:

1. Round hot-dipped galvanized Schedule 40 steel pipe conforming to ASTM F 1083.

2. Round SS-40 coated steel pipe as manufactured by Allied Tube & Conduit, or approved equal. Pipe shall conform to ASTM F 1043 and have minimum yield strength of 50,000 psi.

B. Line posts shall have a minimum nominal outside diameter (O.D.) of 2-1/2 inches for fabric heights six feet or over.

C. End, Corner, and Pull Posts shall have a minimum nominal O.D. of three inches for fabric heights six feet or over.

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CHAIN LINK FENCES

2.02 TOP RAILS AND BRACE RAILS:

A. Rails shall be either SS-40 coated steel pipe or hot-dipped galvanized Schedule 40 steel pipe. Minimum nominal O.D. shall be 1-5/8 inches.

B. Furnish rails in manufacturer's longest lengths, with expansion type couplings, approximately six inches long, for each joint. Provide means for attaching the top rail securely to each gate, corner, pull, and end post.

2.03 FENCE FITTINGS:

A. Fence fittings shall conform to ASTM F 626, except as modified in this subsection.

B. Post and line caps shall be designed to accommodate passage of top rail through cap, where top rail is required.

C. Tension bars shall be minimum 3/16-inch by 3/4-inch, and length shall be not less than two inches shorter than the fabric height.

D. Truss Rod Assembly: Steel truss rods shall be 3/8-inch diameter.

2.04 CONCRETE FOR POST FOOTINGS:

A. Concrete shall consist of Type I Portland cement complying with ASTM C 150, aggregates complying with ASTM C 33, and clean water. Concrete mix shall be proportioned such that the 28-day compressive strength of moist-cured laboratory samples achieves not less than 3,000 pounds per square inch (psi).

PART 3 – EXECUTION

3.01 PREPARATION:

A. The ground surface along the alignment of the fencing shall be graded to match existing elevations and to provide a relatively even surface for proper fence construction.

B. Do not install replacement fencing until all remediation, backfilling and grading is completed in that area.

3.02 FENCE INSTALLATION:

A. Construct fencing in accordance with ASTM F 567, except as modified in this subsection, and in accordance with the fence manufacturer's recommendations.

SECTION 02821
CHAIN LINK FENCES

B. Install fence at the locations identified in the Specification and any location where fencing is damaged during the Work.

C. Subcontractor shall immediately repair or replace fencing damaged as a result of the Work.

D. Provide all necessary hardware for a complete installation.

E. Install fencing at same locations as removed fencing, unless otherwise directed by Oversight Engineer. Install posts at spacing not greater than ten feet.

F. Fence posts shall have concrete encasement as described below:

1. Excavate holes to a minimum diameter of 12 inches and a minimum depth of 30 inches as shown on the Drawings.

2. Center and align posts in holes three inches above bottom of excavation. Place concrete around posts in a continuous pour to two inches above finish grade. Vibrate or tamp concrete for consolidation. Check each post for vertical and top alignment, and hold in position during placement and finishing operations.

G. Alternate materials and methods of post anchorage may be used if reviewed and approved by Oversight Engineer.

END OF SECTION

SECTION 02900
SEEDING

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Summary

B. Submittals

C. Quality Control

D. Delivery, Storage, and Handling

E. Project Conditions

F. Fertilizer

G. Lime

H. Seed

I. Water

J. Mulch

K. Erosion Control Mat

L. Application of Temporary Grass Seed

M. Application of Seed and Protective Cover

N. Establishment of Grass

1.02 SUMMARY:

A. This section includes establishing a stand of grass on all disturbed work areas not to be paved or graveled.

1.03 SUBMITTALS:

A. Contractor shall submit manufacturer's certification that seed, lime, fertilizer, and mulch binder meet specification requirements. Seed submittal shall include a listing of all seed types and proportions in seed mixtures.

SECTION 02900
SEEDING

B. Contractor shall submit seed bag tags, receipts, truck weight tickets, and other information necessary to confirm application rates and types for all seed, fertilizer, lime and mulch, as applicable.

C. Contractor shall submit actual proposed types and rates of application of lime, fertilizer and seed based on local conditions and planting season.

1.04 QUALITY CONTROL:

A. Contractor shall contact the local agricultural extension office to establish the optimal seed and fertilizer mixes, including any recommended soil testing.

B. Seeding shall be accomplished according to standard local practice and in compliance with requirements of applicable state and federal regulations.

1.05 DELIVERY, STORAGE, AND HANDLING:

A. Contractor shall deliver packaged materials in containers showing weight, analysis and name of manufacturer.

B. Contractor shall protect materials from deterioration during delivery, and while stored at the site.

1.06 PROJECT CONDITIONS:

A. Contractor shall perform seedbed preparation and seeding as soon as possible after completion of remediation, backfilling and grading in disturbed areas.

B. Contractor shall proceed with planting only when existing and forecasted weather conditions permit.

PART 2 – PRODUCTS

2.01 FERTILIZER:

A. Fertilizer requirements shall be specified in the Contractor's Technical Execution Plan (TEP).

2.02 LIME:

A. Lime requirements shall be specified in the Contractor's TEP.

SECTION 02900
SEEDING

2.03 SEED:

A. Seed mixes for permanent vegetation shall be a blend of Red Fescue, Rye, and Kentucky Blue, applied at a rate of 75 lbs/acre, or approved equivalent for the site location.

B. The variety and blends of seed may be added, deleted or substituted as appropriate to take advantage of proven varieties and mixtures and to account for changes of season and weather. Proposed changes to the seed mix shall be submitted to the Engineer for approval prior to use.

C. Seed that has become wet, moldy or otherwise damaged will not be acceptable.

2.04 WATER:

A. Water shall be clean and potable.

2.05 MULCH:

A. Mulch shall be clean long-fibered hay or straw, consisting of stalks of oats, wheat, barley, rye, or excelsior wood fibers, reasonably free of noxious weed seeds. Application rate is 1½ - 2 tons/acre.

2.06 EROSION CONTROL MAT:

A. Erosion control mat shall consist of biodegradable mats made from woven jute, or suitable alternate approved by the Engineer. Erosion control mats shall be utilized wherever planting is required on slopes greater than 5%.

PART 3 – EXECUTION

3.01 APPLICATION OF TEMPORARY GRASS SEED:

A. Temporary seeding shall be applied to areas lacking vegetation if no construction activities will be performed in the area for more than 30 days.

B. Contractor shall uniformly apply seed during optimum planting season and rates indicated on the Drawings, unless otherwise approved by the Engineer.

3.02 APPLICATION OF SEED AND PROTECTIVE COVER:

A. For permanent seeding, apply seed and mulch as specified in the following paragraphs.

B. Contractor shall apply lime at a rate determined based on soil test results and as approved by the Engineer.

SECTION 02900
SEEDING

C. Contractor shall uniformly apply fertilizer at the rates indicated in the TEP or as otherwise determined based on soil test results and approved by the Engineer. Fertilizer shall be applied as not to run-off into local storm sewer system.

D. Fertilizer, seed and mulch may be placed using hydroseeding, or other suitable mechanical methods that will not damage the completed Work.

E. Seeding for permanent vegetation shall be performed during the first optimum planting season following completion of the work in an area.

F. Immediately after seeding, in areas designated for mulch, the Contractor shall spread mulch uniformly over the seeded area

G. Erosion control mat shall be utilized where planted slopes exceed 5%.

3.03 ESTABLISHMENT OF GRASS:

A. Contractor shall begin maintenance of seeded areas immediately after seed placement. Contractor shall water; repair washed or eroded areas, as well as, protect and maintain the seeded areas until a final satisfactory stand of grass is obtained.

B. Engineer will periodically inspect the seeded areas to verify that a satisfactory stand of grass is obtained in all areas seeded. A satisfactory stand of grass is defined as a cover of living plants, after true leaves are formed, of the seed species applied, in which gaps larger than one square foot do not occur. Bare spots shall be reseeded, and the total bare areas shall not comprise more than one percent of the total seeded area. Contractor shall re-seed bare and eroded areas as determined necessary by the Engineer.

C. Contractor shall mow the property twice once a satisfactory stand of grass has been established.

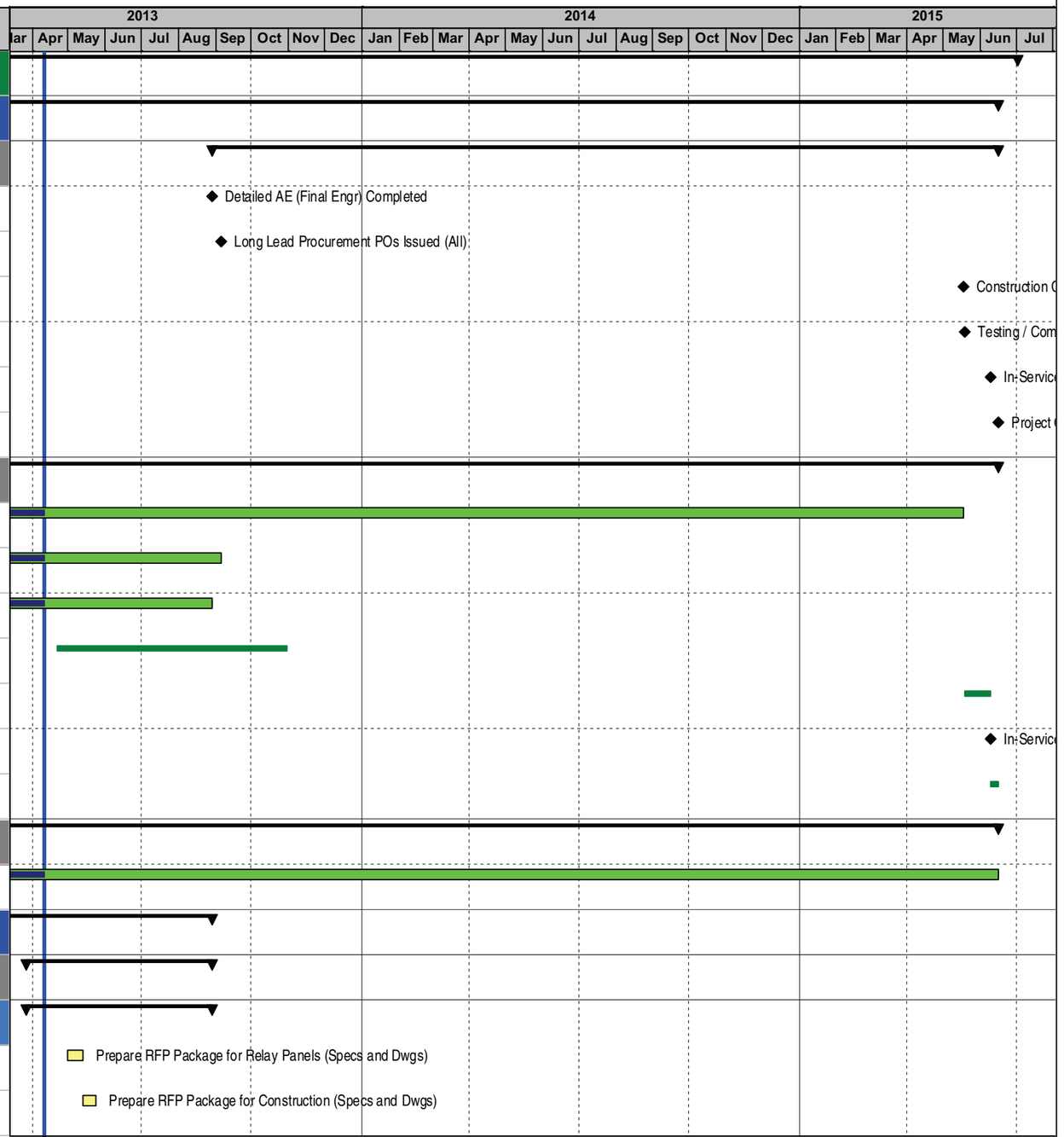
D. Contractor shall warranty planting for 90 days following establishment of a satisfactory stand of grass.

END OF SECTION

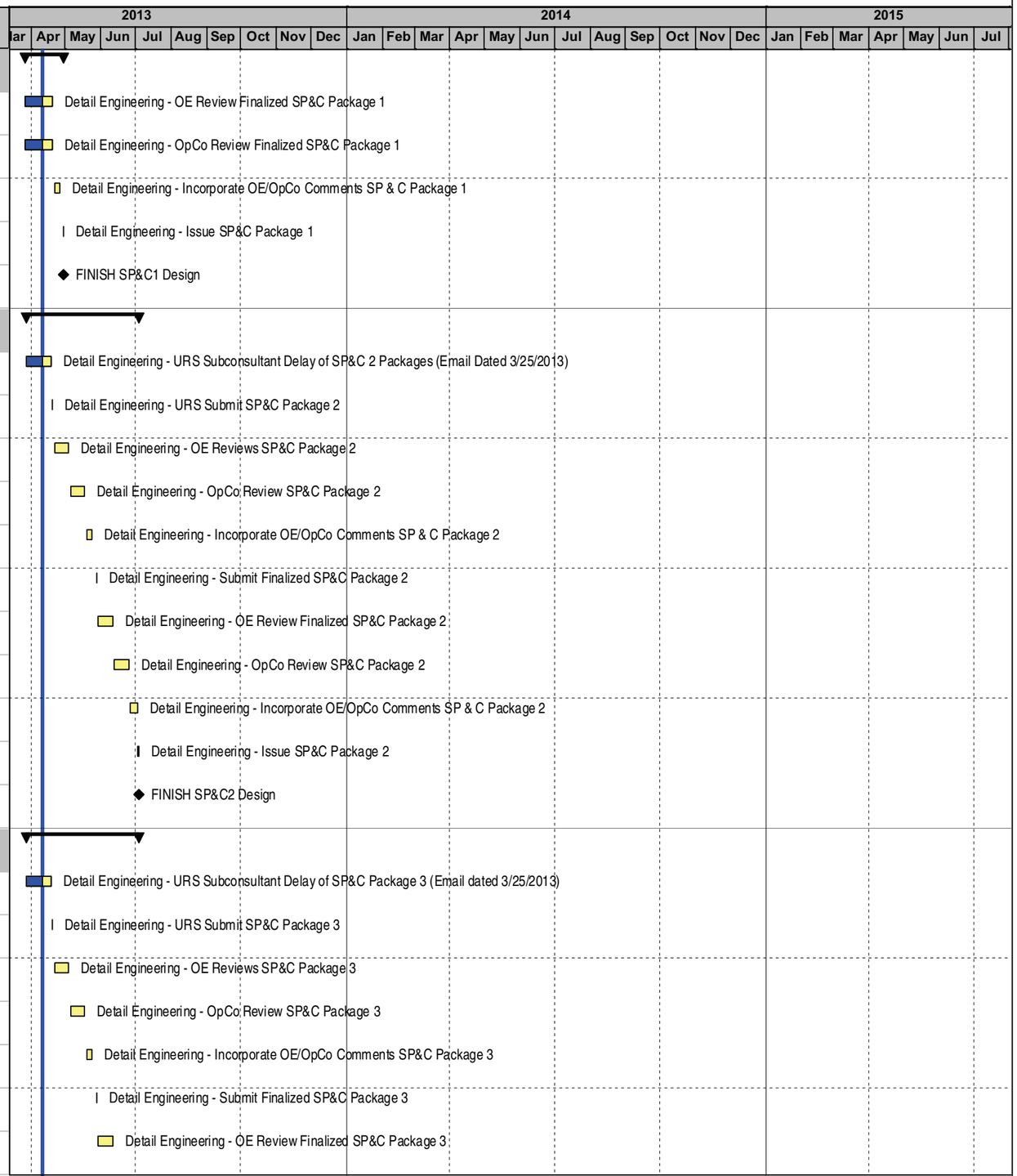
Attachment 3

Project Schedule

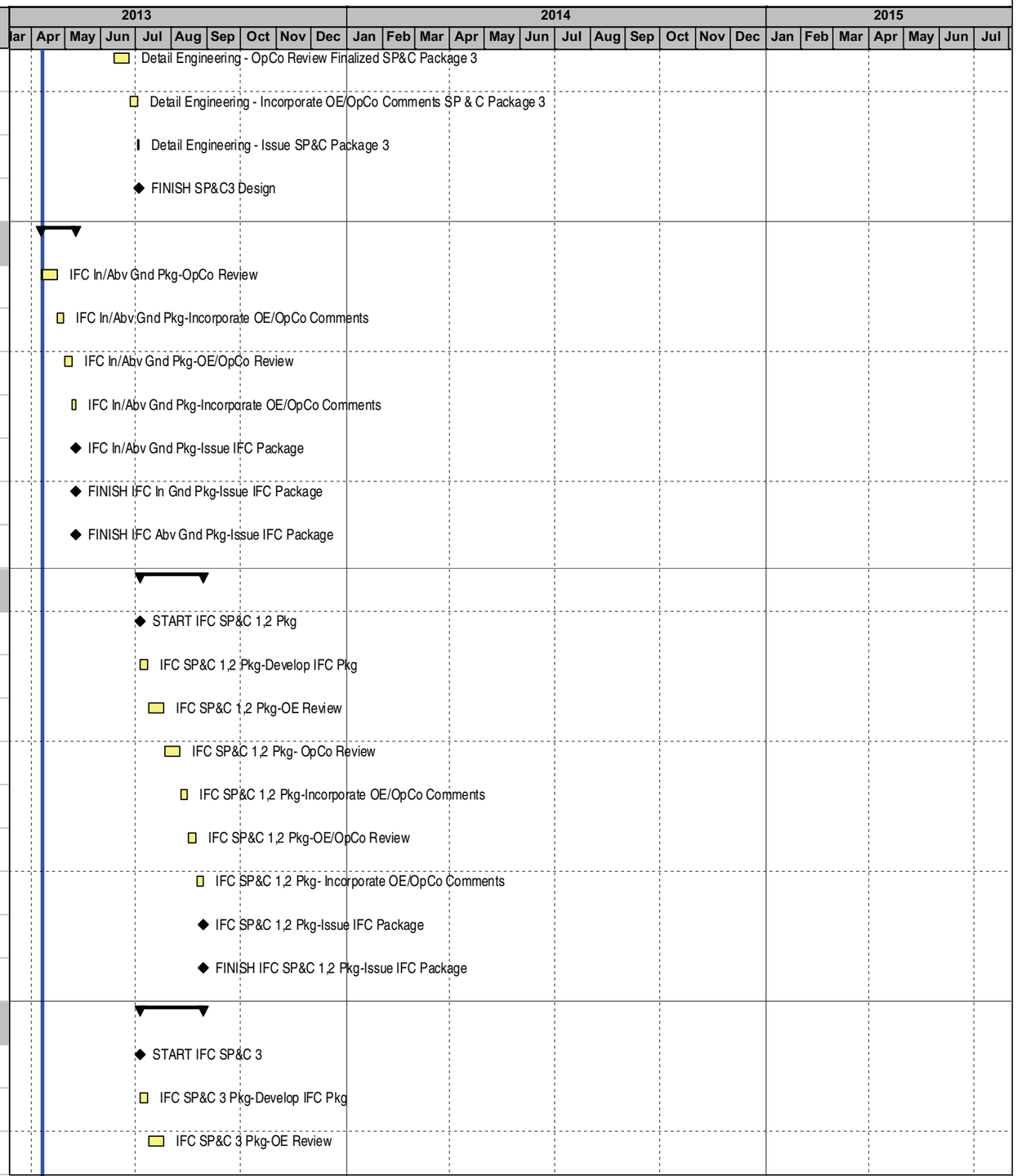
Activity ID	Activity Name	Rem Dur	Start	Finish
Transit St Sub - Relocate 12kV Ckts MGP		564	01-Jun-10 A	02-Jul-15
SUMMARY		552	01-Jun-10 A	16-Jun-15
I-USA Milestones		454	28-Aug-13	16-Jun-15
IUSA 08	Detailed AE (Final Engr) Completed	0		28-Aug-13
IUSA 06	Long Lead Procurement POs Issued (All)	0		05-Sep-13
IUSA 10	Construction Completed	0		18-May-15
IUSA 11	Testing / Commissioning Begins	0	19-May-15	
IUSA 12	In-Service Date	0		09-Jun-15
IUSA 13	Project Close-Out Completed	0		16-Jun-15
I-USA Summary Phases		552	01-Jun-12 A	16-Jun-15
IUSA_S09	Construction Phase	532	01-Jun-12 A	18-May-15
IUSA-S07	Procurement - Ordering of Long Lead Items Phase	103	20-Jul-12 A	05-Sep-13
IUSA-S05	Detailed Engineering Phase	98	07-Aug-12 A	28-Aug-13
IUSA_S08	Procurement of Construction	135	22-Apr-13	30-Oct-13
IUSA_S10	Commissioning Phase	15	19-May-15	09-Jun-15
IUSA_S11	In-Service Date	0		09-Jun-15
IUSA_S12	Close Out Phase	5	10-Jun-15	16-Jun-15
Project Management		552	01-Jun-10 A	16-Jun-15
A4040	Project Management	552	01-Jun-10 A	16-Jun-15
ENGINEERING		98	31-Dec-12 A	28-Aug-13
Substation		98	27-Mar-13 A	28-Aug-13
Substation Detailed Engineering		98	27-Mar-13 A	28-Aug-13
A1880	Prepare RFP Package for Relay Panels (Specs and Dwgs)	10	30-Apr-13	13-May-13
A1900	Prepare RFP Package for Construction (Specs and Dwgs)	10	13-May-13	24-May-13



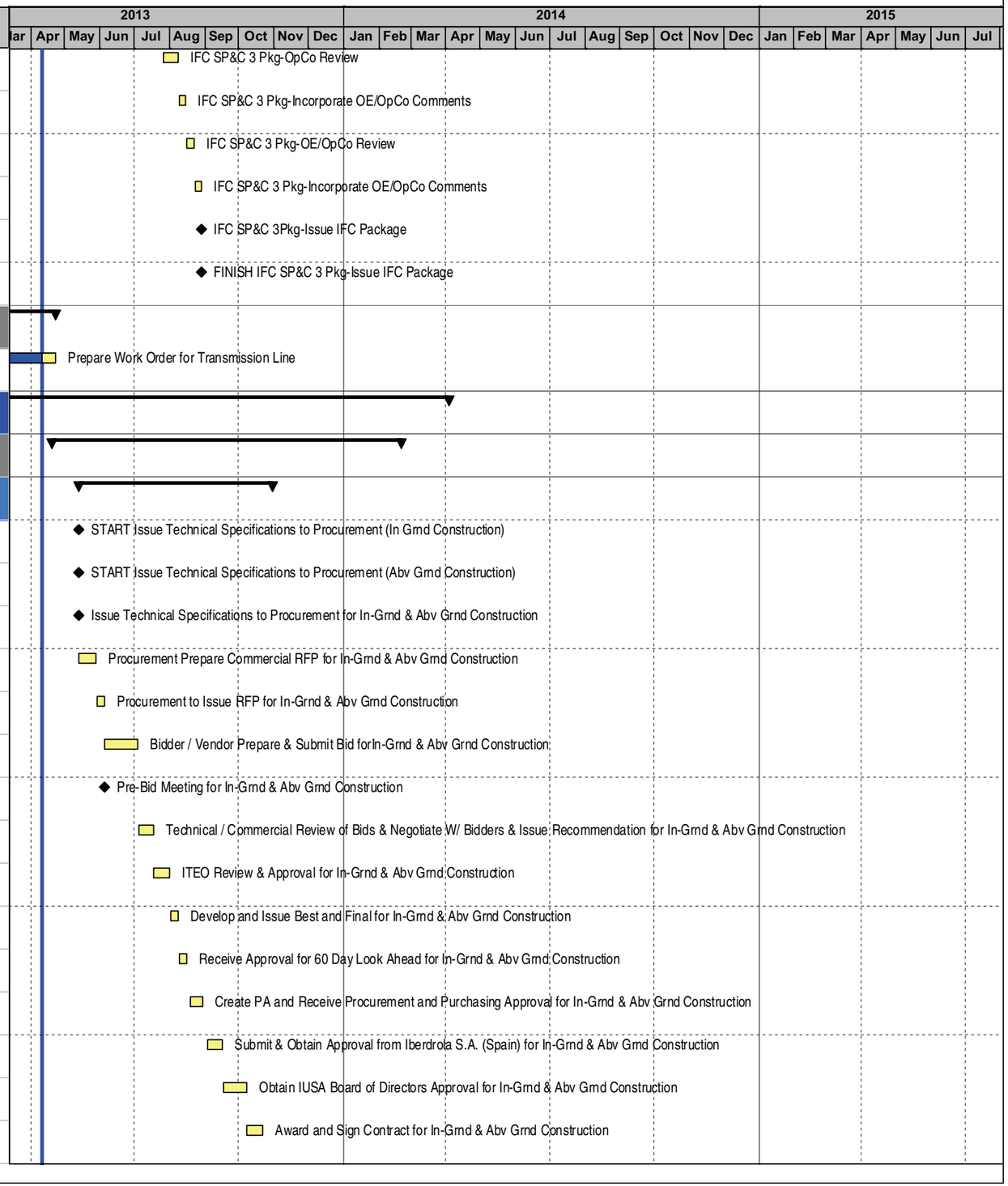
Activity ID	Activity Name	Rem Dur	Start	Finish
SP&C Package 1		13	27-Mar-13 A	29-Apr-13
A1400	Detail Engineering - OE Review Finalized SP&C Package 1	7	27-Mar-13 A	19-Apr-13
A1410	Detail Engineering - OpCo Review Finalized SP&C Package 1	7	27-Mar-13 A	19-Apr-13
A1415	Detail Engineering - Incorporate OE/OpCo Comments SP & C Package 1	5	22-Apr-13	26-Apr-13
A1450	Detail Engineering - Issue SP&C Package 1	1	29-Apr-13	29-Apr-13
EN-DES-MS106	FINISH SP&C1 Design	0		29-Apr-13
SP&C Package 2		59	28-Mar-13 A	03-Jul-13
A1562	Detail Engineering - URS Subconsultant Delay of SP&C 2 Packages (Email Dated 3/25/2013)	6	28-Mar-13 A	18-Apr-13
A1565	Detail Engineering - URS Submit SP&C Package 2	1	19-Apr-13	19-Apr-13
A1570	Detail Engineering - OE Reviews SP&C Package 2	10	22-Apr-13	03-May-13
A1580	Detail Engineering - OpCo Review SP&C Package 2	10	06-May-13	17-May-13
A1585	Detail Engineering - Incorporate OE/OpCo Comments SP & C Package 2	5	20-May-13	24-May-13
A1587	Detail Engineering - Submit Finalized SP&C Package 2	1	28-May-13	28-May-13
A1920	Detail Engineering - OE Review Finalized SP&C Package 2	10	29-May-13	11-Jun-13
A1930	Detail Engineering - OpCo Review SP&C Package 2	10	12-Jun-13	25-Jun-13
A1935	Detail Engineering - Incorporate OE/OpCo Comments SP & C Package 2	5	26-Jun-13	02-Jul-13
A1590	Detail Engineering - Issue SP&C Package 2	1	03-Jul-13	03-Jul-13
EN-DES-MS108	FINISH SP&C2 Design	0		03-Jul-13
SP&C Package 3		59	28-Mar-13 A	03-Jul-13
A6750	Detail Engineering - URS Subconsultant Delay of SP&C Package 3 (Email dated 3/25/2013)	6	28-Mar-13 A	18-Apr-13
A1610	Detail Engineering - URS Submit SP&C Package 3	1	19-Apr-13	19-Apr-13
A1620	Detail Engineering - OE Reviews SP&C Package 3	10	22-Apr-13	03-May-13
A1625	Detail Engineering - OpCo Review SP&C Package 3	10	06-May-13	17-May-13
A1630	Detail Engineering - Incorporate OE/OpCo Comments SP&C Package 3	5	20-May-13	24-May-13
A1635	Detail Engineering - Submit Finalized SP&C Package 3	1	28-May-13	28-May-13
A1940	Detail Engineering - OE Review Finalized SP&C Package 3	10	29-May-13	11-Jun-13



Activity ID	Activity Name	Rem Dur	Start	Finish
A1950	Detail Engineering - OpCo Review Finalized SP&C Package 3	10	12-Jun-13	25-Jun-13
A1955	Detail Engineering - Incorporate OE/OpCo Comments SP & C Package 3	5	26-Jun-13	02-Jul-13
A1640	Detail Engineering - Issue SP&C Package 3	1	03-Jul-13	03-Jul-13
EN-DES-MS110	FINISH SP&C3 Design	0		03-Jul-13
IFC Design Package 1 (In-Gnd, Abv-Gnd)		22	10-Apr-13 A	10-May-13
A5630	IFC In/Abv Gnd Pkg-OpCo Review	9	10-Apr-13 A	23-Apr-13
A5640	IFC In/Abv Gnd Pkg-Incorporate OE/OpCo Comments	4	24-Apr-13	29-Apr-13
A5650	IFC In/Abv Gnd Pkg-OE/OpCo Review	5	30-Apr-13	06-May-13
A5655	IFC In/Abv Gnd Pkg-Incorporate OE/OpCo Comments	4	07-May-13	10-May-13
A5660	IFC In/Abv Gnd Pkg-Issue IFC Package	0		10-May-13
EN-DES-MS112	FINISH IFC In Gnd Pkg-Issue IFC Package	0		10-May-13
EN-DES-MS117	FINISH IFC Abv Gnd Pkg-Issue IFC Package	0		10-May-13
IFC Design Package 2 (SP&C 1& 2)		39	05-Jul-13	28-Aug-13
EN-DES-MS113	START IFC SP&C 1,2 Pkg	0	05-Jul-13	
A5670	IFC SP&C 1,2 Pkg-Develop IFC Pkg	5	05-Jul-13	11-Jul-13
A5680	IFC SP&C 1,2 Pkg-OE Review	10	12-Jul-13	25-Jul-13
A5690	IFC SP&C 1,2 Pkg- OpCo Review	10	26-Jul-13	08-Aug-13
A5695	IFC SP&C 1,2 Pkg-Incorporate OE/OpCo Comments	5	09-Aug-13	15-Aug-13
A5710	IFC SP&C 1,2 Pkg-OE/OpCo Review	5	16-Aug-13	22-Aug-13
A5700	IFC SP&C 1,2 Pkg- Incorporate OE/OpCo Comments	4	23-Aug-13	28-Aug-13
A5720	IFC SP&C 1,2 Pkg-Issue IFC Package	0		28-Aug-13
EN-DES-MS114	FINISH IFC SP&C 1,2 Pkg-Issue IFC Package	0		28-Aug-13
IFC Design Package 3 (SP&C 3)		39	05-Jul-13	28-Aug-13
EN-DES-MS115	START IFC SP&C 3	0	05-Jul-13	
A5730	IFC SP&C 3 Pkg-Develop IFC Pkg	5	05-Jul-13	11-Jul-13
A5740	IFC SP&C 3 Pkg-OE Review	10	12-Jul-13	25-Jul-13

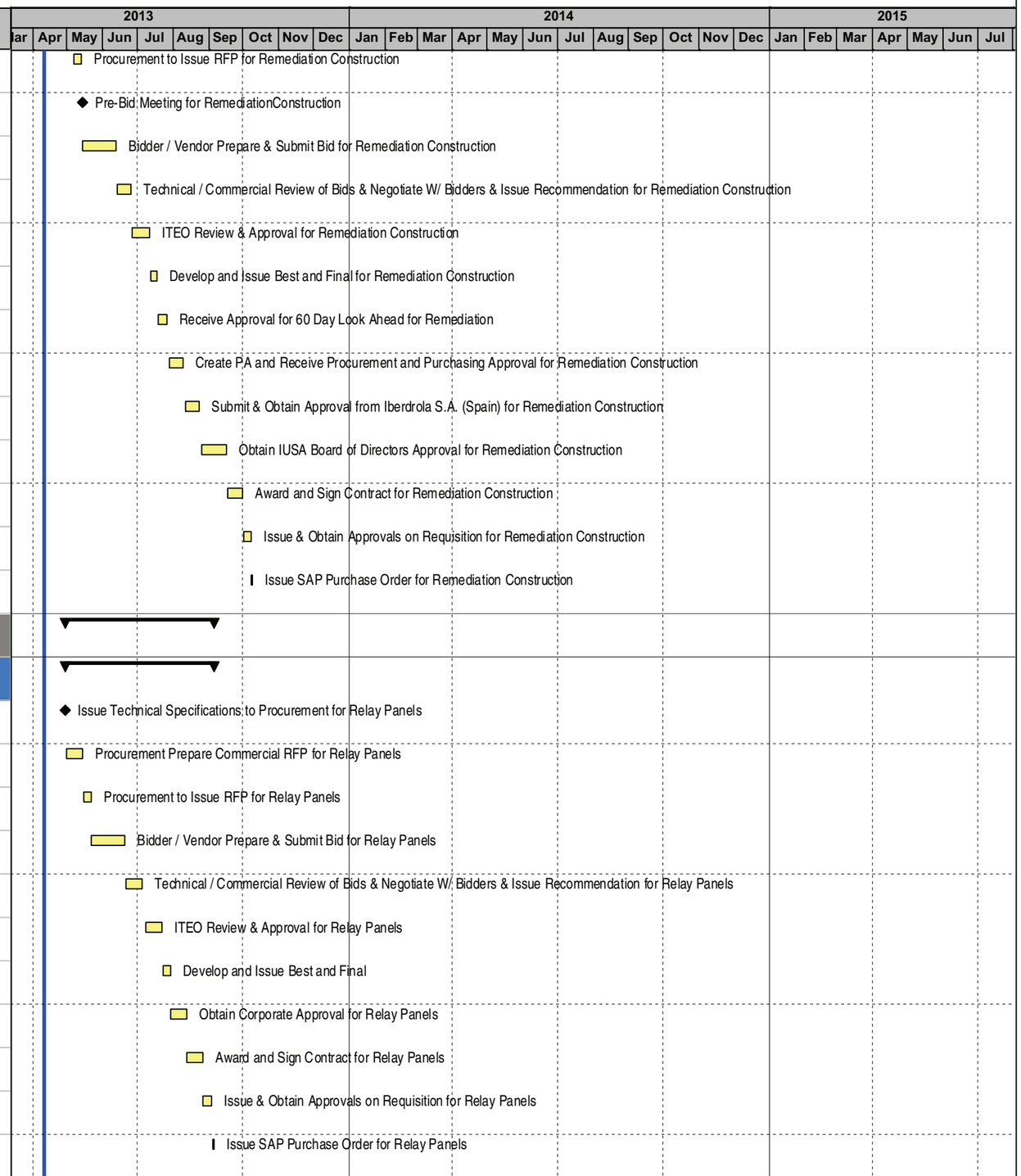


Activity ID	Activity Name	Rem Dur	Start	Finish
A5745	IFC SP&C 3 Pkg-OpCo Review	10	26-Jul-13	08-Aug-13
A5750	IFC SP&C 3 Pkg-Incorporate OE/OpCo Comments	5	09-Aug-13	15-Aug-13
A5770	IFC SP&C 3 Pkg-OE/OpCo Review	5	16-Aug-13	22-Aug-13
A5760	IFC SP&C 3 Pkg-Incorporate OE/OpCo Comments	4	23-Aug-13	28-Aug-13
A5780	IFC SP&C 3Pkg-Issue IFC Package	0		28-Aug-13
EN-DES-MS116	FINISH IFC SP&C 3 Pkg-Issue IFC Package	0		28-Aug-13
Transmission Line		8	31-Dec-12 A	22-Apr-13
A4520	Prepare Work Order for Transmission Line	8	31-Dec-12 A	22-Apr-13
PROCUREMENT		248	17-Jan-13 A	03-Apr-14
Services		211	19-Apr-13	20-Feb-14
In-Ground & Above Ground Construction		120	13-May-13	30-Oct-13
PR-CN-MS1010	START Issue Technical Specifications to Procurement (In Grnd Construction)	0	13-May-13	
PR-CN-MS1050	START Issue Technical Specifications to Procurement (Abv Grnd Construction)	0	13-May-13	
A1110	Issue Technical Specifications to Procurement for In-Grnd & Abv Grnd Construction	0		13-May-13
A1120	Procurement Prepare Commercial RFP for In-Grnd & Abv Grnd Construction	11	13-May-13	28-May-13
A1130	Procurement to Issue RFP for In-Grnd & Abv Grnd Construction	5	29-May-13	04-Jun-13
A4250	Bidder / Vendor Prepare & Submit Bid forIn-Grnd & Abv Grnd Construction	21	05-Jun-13	03-Jul-13
A1135	Pre-Bid Meeting for In-Grnd & Abv Grnd Construction	0	05-Jun-13	
A1185	Technical / Commercial Review of Bids & Negotiate W/ Bidders & Issue Recommendation for In-Grnd & Abv Grnd Construction	9	05-Jul-13	17-Jul-13
A4260	ITEO Review & Approval for In-Grnd & Abv Grnd Construction	11	18-Jul-13	01-Aug-13
A4430	Develop and Issue Best and Final for In-Grnd & Abv Grnd Construction	5	02-Aug-13	08-Aug-13
A4440	Receive Approval for 60 Day Look Ahead for In-Grnd & Abv Grnd Construction	6	09-Aug-13	16-Aug-13
A4450	Create PA and Receive Procurement and Purchasing Approval for In-Grnd & Abv Grnd Construction	10	19-Aug-13	30-Aug-13
A1550	Submit & Obtain Approval from Iberdrola S.A. (Spain) for In-Grnd & Abv Grnd Construction	10	03-Sep-13	16-Sep-13
A4270	Obtain IUSA Board of Directors Approval for In-Grnd & Abv Grnd Construction	15	17-Sep-13	07-Oct-13
A4280	Award and Sign Contract for In-Grnd & Abv Grnd Construction	10	08-Oct-13	21-Oct-13



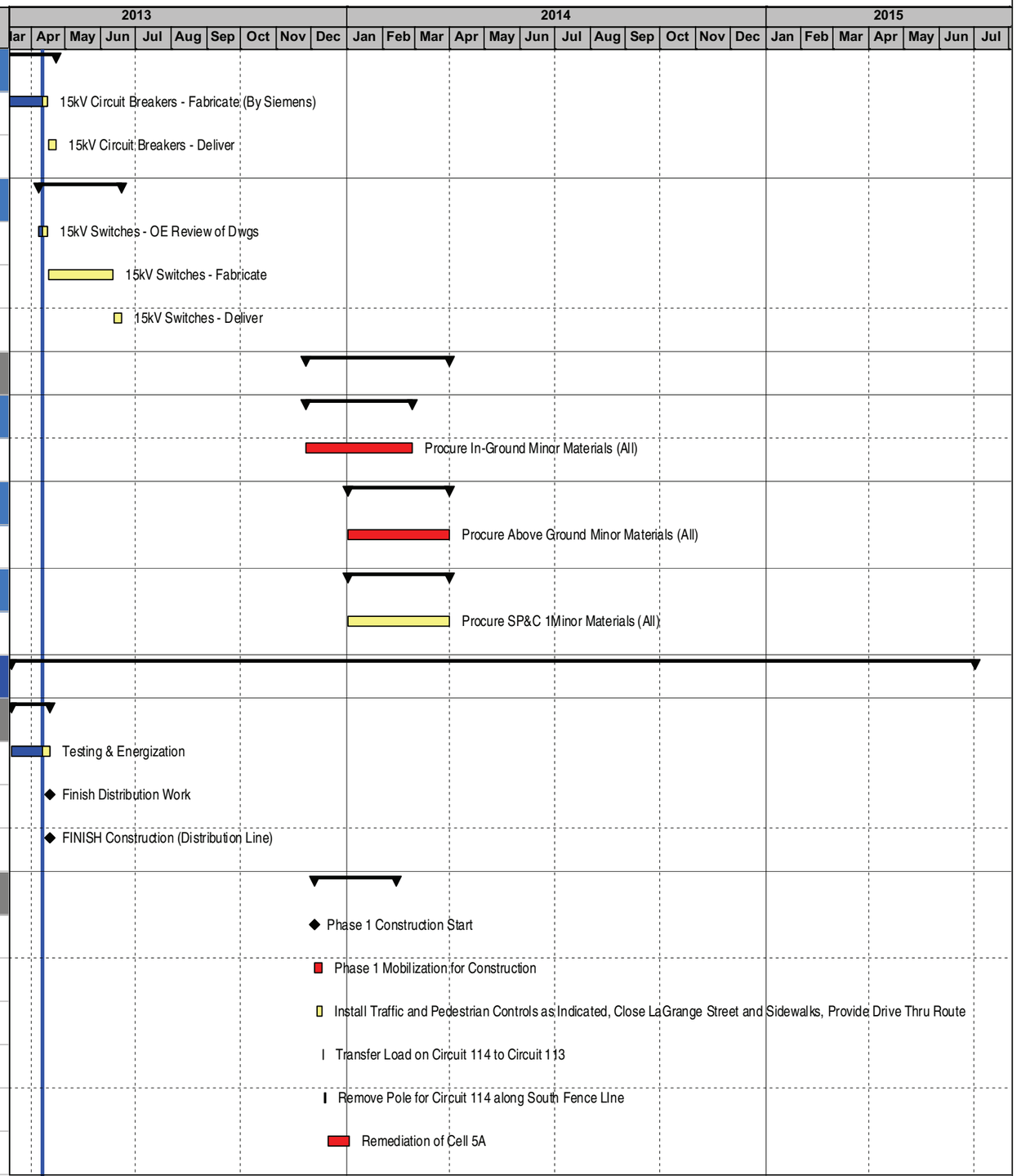
Activity ID	Activity Name	Rem Dur	Start	Finish
A4290	Issue & Obtain Approvals on Requisition for In-Grnd & Abv Grnd Construction	5	22-Oct-13	28-Oct-13
A4300	Issue SAP Purchase Order for In-Grnd & Abv Grnd Construction	2	29-Oct-13	30-Oct-13
PR-CN-MS1020	FINISH Procurement (In Grnd Construction)	0		30-Oct-13
PR-CN-MS1060	FINISH Procurement (Abv Grnd Construction)	0		30-Oct-13
Protection and Control Construction		120	29-Aug-13	20-Feb-14
PR-CN-MS1080	START Issue Technical Specifications to Procurement (Protection and Control)	0	29-Aug-13	
A6560	Issue Technical Specifications to Procurement for SP & C Construction	0		29-Aug-13
A6570	Procurement Prepare Commercial RFP for SP & C Construction	11	29-Aug-13	13-Sep-13
A6580	Procurement to Issue RFP for SP & C Construction	5	16-Sep-13	20-Sep-13
A6590	Pre-Bid Meeting for SP & C Construction	0	23-Sep-13	
A6600	Bidder / Vendor Prepare & Submit Bid for SP & C Construction	21	23-Sep-13	21-Oct-13
A6610	Technical / Commercial Review of Bids & Negotiate W/ Bidders & Issue Recommendation for SP & C Construction	9	22-Oct-13	01-Nov-13
A6620	ITEO Review & Approval for SP & C Construction	11	04-Nov-13	18-Nov-13
A6630	Develop and Issue Best and Final for SP & C Construction	5	19-Nov-13	25-Nov-13
A6640	Receive Approval for 60 Day Look Ahead for SP & C Construction	6	26-Nov-13	05-Dec-13
A6650	Create PA and Receive Procurement and Purchasing Approval for SP & C Construction	10	06-Dec-13	19-Dec-13
A6660	Submit & Obtain Approval from Iberdrola S.A. (Spain) for SP & C Construction	10	20-Dec-13	07-Jan-14
A6670	Obtain IUSA Board of Directors Approval for SP & C Construction	15	08-Jan-14	28-Jan-14
A6680	Award and Sign Contract for SP & C Construction	10	29-Jan-14	11-Feb-14
A6690	Issue & Obtain Approvals on Requisition for SP & C Construction	5	12-Feb-14	18-Feb-14
A6700	Issue SAP Purchase Order for SP & C Construction	2	19-Feb-14	20-Feb-14
PR-CN-MS1110	FINISH Procurement (Protection and Control)	0		20-Feb-14
Remediation Construction		120	19-Apr-13	09-Oct-13
A6240	Issue Technical Specifications to Procurement for Remediation Construction	0		19-Apr-13*
A6245	Bundled	0	22-Apr-13	22-Apr-13
A6250	Procurement Prepare Commercial RFP forRemediation Construction	11	22-Apr-13	06-May-13

Activity ID	Activity Name	Rem Dur	Start	Finish
A6260	Procurement to Issue RFP for Remediation Construction	5	07-May-13	13-May-13
A6270	Pre-Bid Meeting for RemediationConstruction	0	14-May-13	
A6280	Bidder / Vendor Prepare & Submit Bid for Remediation Construction	21	14-May-13	12-Jun-13
A6290	Technical / Commercial Review of Bids & Negotiate W/ Bidders & Issue Recommendation for Remediation Construction	9	13-Jun-13	25-Jun-13
A6300	ITEO Review & Approval for Remediation Construction	11	26-Jun-13	11-Jul-13
A6310	Develop and Issue Best and Final for Remediation Construction	5	12-Jul-13	18-Jul-13
A6320	Receive Approval for 60 Day Look Ahead for Remediation	6	19-Jul-13	26-Jul-13
A6330	Create PA and Receive Procurement and Purchasing Approval for Remediation Construction	10	29-Jul-13	09-Aug-13
A6340	Submit & Obtain Approval from Iberdrola S.A. (Spain) for Remediation Construction	10	12-Aug-13	23-Aug-13
A6350	Obtain IUSA Board of Directors Approval for Remediation Construction	15	26-Aug-13	16-Sep-13
A6360	Award and Sign Contract for Remediation Construction	10	17-Sep-13	30-Sep-13
A6370	Issue & Obtain Approvals on Requisition for Remediation Construction	5	01-Oct-13	07-Oct-13
A6380	Issue SAP Purchase Order for Remediation Construction	2	08-Oct-13	09-Oct-13
Major Equipment (Ordered)		90	29-Apr-13	05-Sep-13
Relay Panels		90	29-Apr-13	05-Sep-13
A4680	Issue Technical Specifications to Procurement for Relay Panels	0		29-Apr-13
A4690	Procurement Prepare Commercial RFP for Relay Panels	11	30-Apr-13	14-May-13
A4700	Procurement to Issue RFP for Relay Panels	5	15-May-13	21-May-13
A4720	Bidder / Vendor Prepare & Submit Bid for Relay Panels	21	22-May-13	20-Jun-13
A4730	Technical / Commercial Review of Bids & Negotiate W/ Bidders & Issue Recommendation for Relay Panels	10	21-Jun-13	05-Jul-13
A4740	ITEO Review & Approval for Relay Panels	11	08-Jul-13	22-Jul-13
A5480	Develop and Issue Best and Final	5	23-Jul-13	29-Jul-13
A4760	Obtain Corporate Approval for Relay Panels	10	30-Jul-13	12-Aug-13
A4770	Award and Sign Contract for Relay Panels	10	13-Aug-13	26-Aug-13
A4780	Issue & Obtain Approvals on Requisition for Relay Panels	5	27-Aug-13	03-Sep-13
A4790	Issue SAP Purchase Order for Relay Panels	2	04-Sep-13	05-Sep-13



Activity ID	Activity Name	Rem Dur	Start	Finish
Relays		90	29-Apr-13	05-Sep-13
A6400	Issue Technical Specifications to Procurement for Relays	0		29-Apr-13
A6410	Procurement Prepare Commercial RFP for Relays	11	30-Apr-13	14-May-13
A6420	Procurement to Issue RFP for Relays	5	15-May-13	21-May-13
A6430	Bidder / Vendor Prepare & Submit Bid for Relays	21	22-May-13	20-Jun-13
A6440	Technical / Commercial Review of Bids & Negotiate W/ Bidders & Issue Recommendation for Relays	10	21-Jun-13	05-Jul-13
A6450	ITEO Review & Approval for Relays	11	08-Jul-13	22-Jul-13
A6460	Develop and Issue Best and Final for Relays	5	23-Jul-13	29-Jul-13
A6470	Obtain Corporate Approval for Relays	10	30-Jul-13	12-Aug-13
A6480	Award and Sign Contract for Relays	10	13-Aug-13	26-Aug-13
A6490	Issue & Obtain Approvals on Requisition for Relays	5	27-Aug-13	03-Sep-13
A6500	Issue SAP Purchase Order for Relays	2	04-Sep-13	05-Sep-13
Major Equipment (Delivery)		248	17-Jan-13 A	03-Apr-14
Control House (Blanket Order)		83	05-Feb-13 A	07-Aug-13
A1850	Fabricate Control House	73	05-Feb-13 A	24-Jul-13
A5060	FOB Site Control House	10	25-Jul-13	07-Aug-13
Relay Panels (Delivery)		145	06-Sep-13	03-Apr-14
A1960	Relay Panels Mfg Design - SECo Provides Schematics	1	06-Sep-13	06-Sep-13
A1970	Relay Panels Mfg Design - Provide Internal Wiring Diagram by Mfg	5	09-Sep-13	13-Sep-13
A1980	Relay Panels Mfg Design - Fabricate	129	16-Sep-13	20-Mar-14
A5110	Relay Panels Mfg Design - Deliver	10	21-Mar-14	03-Apr-14
Relays (Delivery)		145	06-Sep-13	03-Apr-14
A6510	Relays Mfg Design - SECo Provides Schematics	1	06-Sep-13	06-Sep-13
A6520	Relays Mfg Design - Provide Internal Wiring Diagram by Mfg	5	09-Sep-13	13-Sep-13
A6530	Relays Mfg Design - Fabricate	129	16-Sep-13	20-Mar-14
A6540	Relays Mfg Design - Deliver	10	21-Mar-14	03-Apr-14

Activity ID	Activity Name	Rem Dur	Start	Finish
15kV Circuit Breakers		8	17-Jan-13 A	22-Apr-13
A5090	15kV Circuit Breakers - Fabricate (By Siemens)	3	17-Jan-13 A	15-Apr-13
A5100	15kV Circuit Breakers - Deliver	5	16-Apr-13	22-Apr-13
15kV Switches (Blanket Order)		48	08-Apr-13 A	18-Jun-13
A5130	15kV Switches - OE Review of Dwgs	3	08-Apr-13 A	15-Apr-13
A5150	15kV Switches - Fabricate	40	16-Apr-13	11-Jun-13
A5160	15kV Switches - Deliver	5	12-Jun-13	18-Jun-13
Minor Materials (Order/Delivery)		85	26-Nov-13	31-Mar-14
Procure In-Ground Minor Materials		63	26-Nov-13	27-Feb-14
A5790	Procure In-Ground Minor Materials (All)	63	26-Nov-13*	27-Feb-14
Procure Above Ground Minor Materials		63	02-Jan-14	31-Mar-14
A5800	Procure Above Ground Minor Materials (All)	63	02-Jan-14*	31-Mar-14
Procure SP&C 1 Minor Materials		63	02-Jan-14	31-Mar-14
A5810	Procure SP&C 1Minor Materials (All)	63	02-Jan-14	31-Mar-14
CONSTRUCTION		564	15-Mar-13 A	02-Jul-15
Distribution Work		5	15-Mar-13 A	17-Apr-13
A5435	Testing & Energization	5	15-Mar-13 A	17-Apr-13
A5390	Finish Distribution Work	0		17-Apr-13
CN-CNT-MS1020	FINISH Construction (Distribution Line)	0		17-Apr-13
Phase 1 (Remediation/Distribution)		49	04-Dec-13	13-Feb-14
A5170	Phase 1 Construction Start	0	04-Dec-13*	
A3100	Phase 1 Mobilization for Construction	5	04-Dec-13	10-Dec-13
A3108	Install Traffic and Pedestrian Controls as Indicated, Close LaGrange Street and Sidewalks, Provide Drive Thru Route	3	06-Dec-13	10-Dec-13
A3110	Transfer Load on Circuit 114 to Circuit 113	1	11-Dec-13	11-Dec-13
A3120	Remove Pole for Circuit 114 along South Fence LIne	2	12-Dec-13	13-Dec-13
A3140	Remediation of Cell 5A	12	16-Dec-13	03-Jan-14

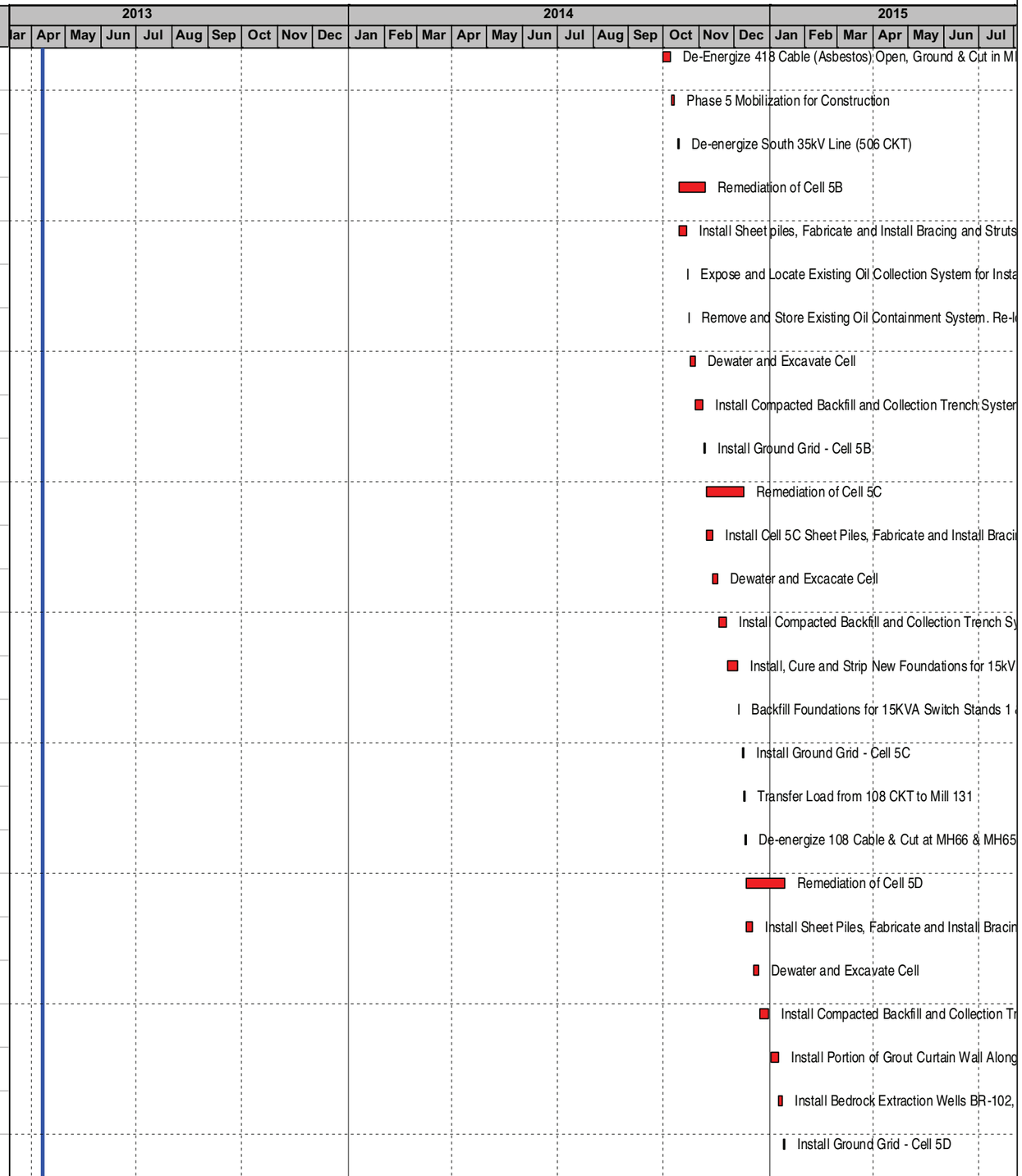


Activity ID	Activity Name	Rem Dur	Start	Finish
A3130	Install Sheet Piles, Fabricate and Install Bracing and Struts, Drill and Install Toe Pins into Bedrock	5	16-Dec-13	20-Dec-13
A3150	Dewater and Excavate Cell	3	23-Dec-13	27-Dec-13
A3160	Install Compacted Backfill and Collection Trench System (Including Low Perm Clay, Embankment in Place, Etc.)	4	30-Dec-13	03-Jan-14
A3161	Install Portion of Grout Curtian Wall Along Transit Street	2	06-Jan-14	07-Jan-14
A3163	Install Ground Grid - Cell 5A	2	08-Jan-14	09-Jan-14
A3165	Installation Bedrock Extraction Wells BR-101	1	10-Jan-14	10-Jan-14
A3200	Install Phase 1A Sheet Pile Subsurface Barrier Wall	5	13-Jan-14	17-Jan-14
A3180	Replace Poles for Circuit 1A and Restore Load to Circuit 114	3	20-Jan-14	22-Jan-14
A3190	Transfer Load from Circuit 113 to Circuit 114	1	23-Jan-14	23-Jan-14
A3220	Remove Extg Storage Bldg/Install Fill Buttress	7	24-Jan-14	03-Feb-14
A3222	Install Ground Grid - Buttress Slope	2	04-Feb-14	05-Feb-14
A3210	Install Phase 1B Sheet Pile Subsurface Barrier wall	5	06-Feb-14	12-Feb-14
A3240	Restore 113 CKT	1	13-Feb-14	13-Feb-14
A3230	Phase 1 Construction Complete	0		13-Feb-14
Phase 2 (Remediation)		16	14-Feb-14	07-Mar-14
A5180	Phase 2 Mobilization for Construction	3	14-Feb-14	18-Feb-14
A4200	Phase 2 Construction Start	0	14-Feb-14	
A3300	Excavate Phase 2 Portion Including Removal of the Existing Holder Slab&Ad'tional Excavate. for the New C'trol Hse, Etc.	7	19-Feb-14	27-Feb-14
A3310	Install Compacted Backfill (Including Embankment in Place, Subbase, and Crushed Stone)	3	28-Feb-14	04-Mar-14
A6740	Install Ground Grid - Former Holder Slab Area / New Entrance Area	3	05-Mar-14	07-Mar-14
A3320	Phase 2 Construction Complete	0		07-Mar-14
Phase 3 (Remediation/Distribution/Substation)		86	10-Mar-14	09-Jul-14
A3350	Phase 3 Construction Start	0	10-Mar-14	
A3104	Phase 3 Mobilization for Construction	5	10-Mar-14	14-Mar-14
CN-SIG-MS1010	START Construction Work (IG)	0	17-Mar-14	
A3330	Install Control House Fnds/Conduit and Grounding	30	17-Mar-14	25-Apr-14

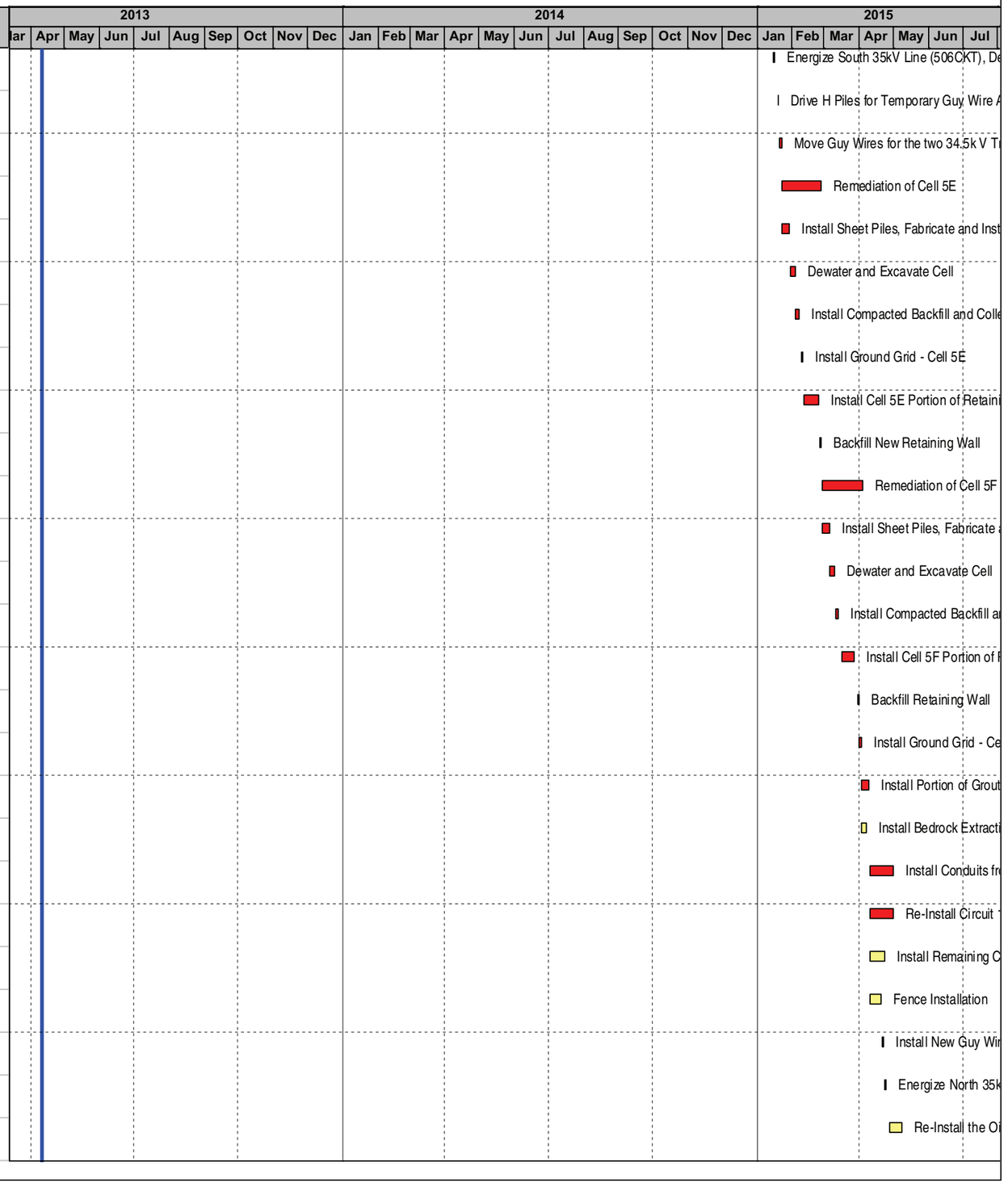
Activity ID	Activity Name	Rem Dur	Start	Finish
CN-SAG-MS1010	START Construction Work (AG)	0	17-Mar-14	
A3360	Replace Former Bkr for Circuit 415 with New Breaker for Circuit 413	15	17-Mar-14	04-Apr-14
A3410	Transfer Load from Circuit 416 to Circuit 413 and from 414 to 418	1	17-Mar-14	17-Mar-14
A3415	Remediation of Cell 3A	13	18-Mar-14	03-Apr-14
A3420	Cell 3A-Install Sheet Piles, Fabricate and Install Two Rows of Bracing and Corner Struts	5	18-Mar-14	24-Mar-14
A3430	Cell 3A-Dewater and Excavate Cell	3	25-Mar-14	27-Mar-14
A3432	Install Retaining Wall Micro-Piles Between MH-64 and MH-65	3	25-Mar-14	27-Mar-14
A3390	Cell 3A-Install Compacted Backfill and Collection Trench System (Including Low Perm Clay, Embankment in Place, Etc)	5	28-Mar-14	03-Apr-14
A5850	Remediation of Cell 3B	12	04-Apr-14	21-Apr-14
A5840	Cell 3B-Install Sheet Piles, Fabricate and Install Two Rows of Bracing and Corner Struts	4	04-Apr-14	09-Apr-14
A3370	Pull Control Cables and Terminate	15	07-Apr-14	25-Apr-14
A5860	Cell 3B-Dewater and Excavate Cell	3	10-Apr-14	14-Apr-14
A5870	Cell 3B-Install Compacted Backfill and Collection Trench System (Including Low Perm Clay, Embankment in Place, Etc)	5	15-Apr-14	21-Apr-14
A5890	Remediation of Cell 3C	12	22-Apr-14	07-May-14
A5880	Cell 3C-Install Sheet Piles, Fabricate and Install Two Rows of Bracing and Corner Struts	4	22-Apr-14	25-Apr-14
A3340	Install Control House and Associated Components	20	28-Apr-14	23-May-14
A5900	Cell 3C-Dewater and Excavate Cell	3	28-Apr-14	30-Apr-14
A5910	Cell 3C-Install Compacted Backfill and Collection Trench System (Including Low Perm Clay, Embankment in Place, Etc)	5	01-May-14	07-May-14
A5930	Remediation of Cell 3D	12	08-May-14	23-May-14
A5920	Cell 3D-Install Sheet Piles, Fabricate and Install Two Rows of Bracing and Corner Struts	4	08-May-14	13-May-14
A5940	Cell 3D-Dewater and Excavate Cell	3	14-May-14	16-May-14
A5950	Cell 3D-Install Compacted Backfill and Collection Trench System (Including Low Perm Clay, Embankment in Place, Etc)	5	19-May-14	23-May-14
A3570	Replace Former 12k V Brkr with New Breaker for Bank 5 Townside Bank Bkr	15	27-May-14	16-Jun-14
A3380	Transfer Load from Old Control Houses to New Control Houses	15	17-Jun-14	08-Jul-14
A3470	Restore Circuits 414 and 416/Transfer Load	1	09-Jul-14	09-Jul-14
A3580	Phase 3 Construction Complete	0		09-Jul-14

Activity ID	Activity Name	Rem Dur	Start	Finish
Phase 4 (Remediation/Distribution/Substation)		53	10-Jul-14	23-Sep-14
A3490	Phase 4 Construction Start	0	10-Jul-14	
A5190	Phase 4 Mobilization for Construction	4	10-Jul-14	15-Jul-14
A3610	De-Energize Bank #5	1	16-Jul-14	16-Jul-14
A5970	Remediation of Cell 4A	13	16-Jul-14	01-Aug-14
A5960	Cell 4A-Install Sheet Piles, Fabricate and Install Two Rows of Bracing and Corner Struts	5	16-Jul-14	22-Jul-14
A3630	Remove Existing Control Houses, Brkrs and Switiches, As Specified	25	17-Jul-14	20-Aug-14
A5980	Cell 4A-Dewater and Excavate Cell	3	23-Jul-14	25-Jul-14
A5982	Install Retaining Wall Micro-Piles Between MH-65 and End of Wall	3	23-Jul-14	25-Jul-14
A5990	Cell 4A-Install Compacted Backfill and Collection Trench System (Including Low Perm Clay, Embankment in Place, Etc)	5	28-Jul-14	01-Aug-14
A6010	Remediation of Cell 4B	12	04-Aug-14	19-Aug-14
A6000	Cell 4B-Install Sheet Piles, Fabricate and Install Two Rows of Bracing and Corner Struts	4	04-Aug-14	07-Aug-14
A6020	Cell 4B-Dewater and Excavate Cell	3	08-Aug-14	12-Aug-14
A6030	Cell 4B-Install Compacted Backfill and Collection Trench System (Including Low Perm Clay, Embankment in Place, Etc)	5	13-Aug-14	19-Aug-14
A6050	Remediation of Cell 4C	12	20-Aug-14	05-Sep-14
A6040	Cell 4C-Install Sheet Piles, Fabricate and Install Two Rows of Bracing and Corner Struts	4	20-Aug-14	25-Aug-14
A6060	Cell 4C-Dewater and Excavate Cell	3	26-Aug-14	28-Aug-14
A6070	Cell 4C-Install Compacted Backfill and Collection Trench System (Including Low Perm Clay, Embankment in Place, Etc)	5	29-Aug-14	05-Sep-14
A6090	Remediation of Cell 4D	12	08-Sep-14	23-Sep-14
A6080	Cell 4D-Install Sheet Piles, Fabricate and Install Two Rows of Bracing and Corner Struts	4	08-Sep-14	11-Sep-14
A6100	Cell 4D-Dewater and Excavate Cell	3	12-Sep-14	16-Sep-14
A6110	Cell 4D-Install Compacted Backfill and Collection Trench System (Including Low Perm Clay, Embankment in Place, Etc)	5	17-Sep-14	23-Sep-14
A3500	Phase 4 Construction Complete	0		23-Sep-14
Phase 5 (Remediation/Transmission/Substation)		196	24-Sep-14	02-Jul-15
A3510	Phase 5 Construction Start	0	24-Sep-14	
A3511	Transfer Load From 413 to 414CKT & Open 413 & Cut ST MH66	5	24-Sep-14	30-Sep-14

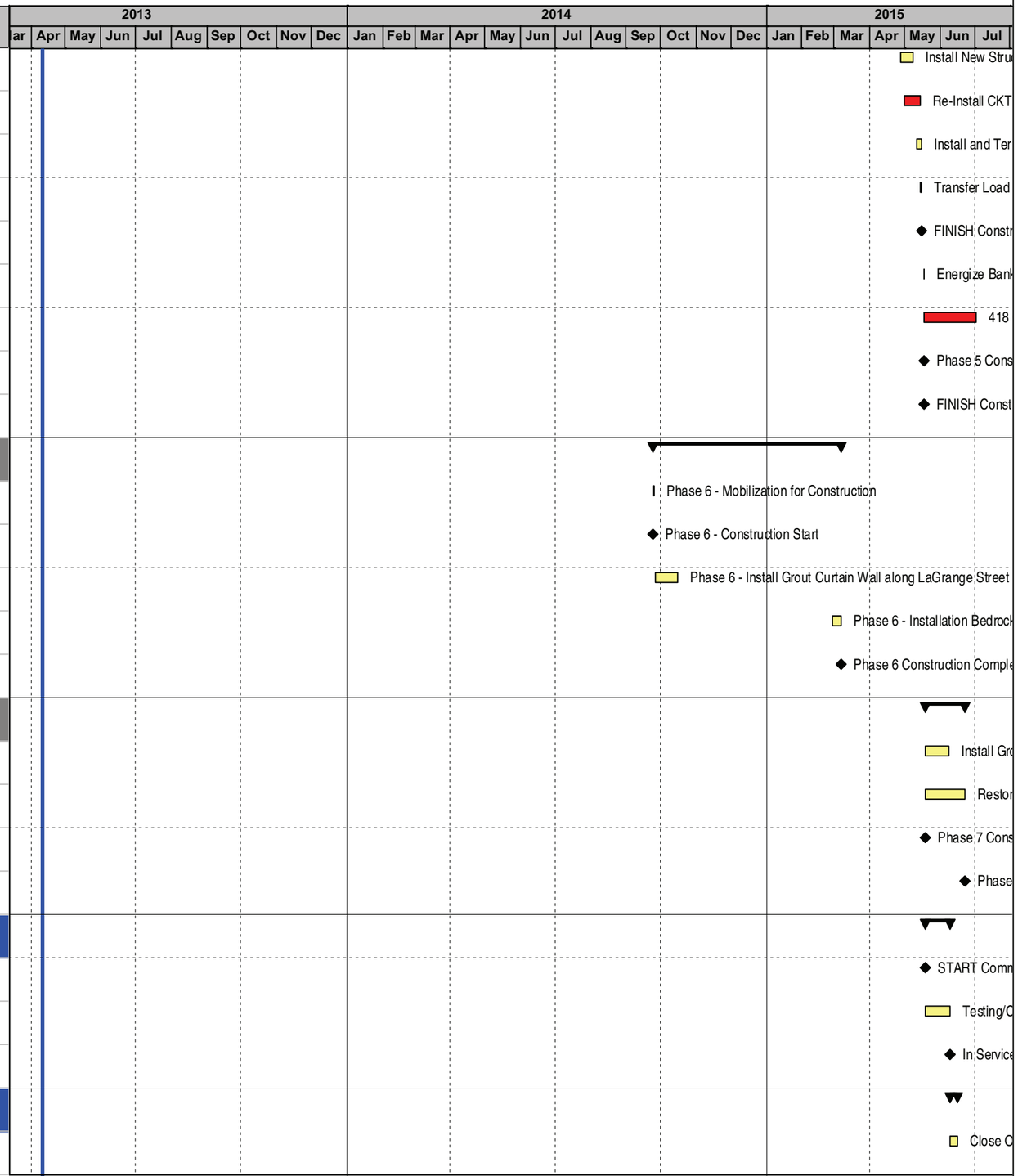
Activity ID	Activity Name	Rem Dur	Start	Finish
A3512	De-Energize 418 Cable (Asbestos) Open, Ground & Cut in MH66	5	01-Oct-14	07-Oct-14
A5200	Phase 5 Mobilization for Construction	3	08-Oct-14	10-Oct-14
A5201	De-energize South 35kV Line (506 CKT)	2	13-Oct-14	14-Oct-14
A6130	Remediation of Cell 5B	17	15-Oct-14	06-Nov-14
A6131	Install Sheet piles, Fabricate and Install Bracing and Struts, drill and Installl Toe Pins Into Bedrock	5	15-Oct-14	21-Oct-14
A6135	Expose and Locate Existing Oil Collection System for Installation	1	22-Oct-14	22-Oct-14
A6132	Remove and Store Existing Oil Containment System. Re-located Discharge to Current Excavation	1	23-Oct-14	23-Oct-14
A6133	Dewater and Excavate Cell	3	24-Oct-14	28-Oct-14
A6134	Install Compacted Backfill and Collection Trench System (Including Low Perm Clay, Embankment in Place, Geotextile, etc.)	5	29-Oct-14	04-Nov-14
A6136	Install Ground Grid - Cell 5B	2	05-Nov-14	06-Nov-14
A6170	Remediation of Cell 5C	21	07-Nov-14	09-Dec-14
A6171	Install Cell 5C Sheet Piles, Fabricate and Install Bracing and Struts, Drill and Install Toe Pins into Bedrock	4	07-Nov-14	12-Nov-14
A6172	Dewater and Excacate Cell	3	13-Nov-14	17-Nov-14
A6173	Install Compacted Backfill and Collection Trench System. (Including Low Perm Clay, Embankment in Place, Geotextile, etc)	5	18-Nov-14	24-Nov-14
A4111	Install, Cure and Strip New Foundations for 15kVA Awitch Stands 1 & 2 and 15KVA Vacuum Breaker	6	25-Nov-14	04-Dec-14
A4112	Backfill Foundations for 15KVA Switch Stands 1 & 2 and 15KVA Vacuum Breaker	1	05-Dec-14	05-Dec-14
A6174	Install Ground Grid - Cell 5C	2	08-Dec-14	09-Dec-14
A3600	Transfer Load from 108 CKT to Mill 131	1	10-Dec-14	10-Dec-14
A3601	De-energize 108 Cable & Cut at MH66 & MH65	1	11-Dec-14	11-Dec-14
A6210	Remediation of Cell 5D	21	12-Dec-14	14-Jan-15
A6213	Install Sheet Piles, Fabricate and Install Bracing and Struts, Drill and Install Toe Pins into Bedrock	4	12-Dec-14	17-Dec-14
A6214	Dewater and Excavate Cell	3	18-Dec-14	22-Dec-14
A6215	Install Compacted Backfill and Collection Trench System. (Including Low Perm Clay, Embankment in Place, Geotextile, etc)	5	23-Dec-14	31-Dec-14
A4170	Install Portion of Grout Curtain Wall Along Transit Street	5	02-Jan-15	08-Jan-15
A4171	Install Bedrock Extraction Wells BR-102, BR-103	2	09-Jan-15	12-Jan-15
A6216	Install Ground Grid - Cell 5D	2	13-Jan-15	14-Jan-15



Activity ID	Activity Name	Rem Dur	Start	Finish
A6211	Energize South 35kV Line (506CKT), De-energize North 35kV Line (505 CKT)	2	15-Jan-15	16-Jan-15
A4071	Drive H Piles for Temporary Guy Wire Anchors	1	19-Jan-15	19-Jan-15
A4060	Move Guy Wires for the two 34.5k V Transmission Poles to H Poles	3	20-Jan-15	22-Jan-15
A4062	Remediation of Cell 5E	25	23-Jan-15	26-Feb-15
A4063	Install Sheet Piles, Fabricate and Install Bracing and Struts, Drill and Install Toe Pins into Bedrock	5	23-Jan-15	29-Jan-15
A4065	Dewater and Excavate Cell	3	30-Jan-15	03-Feb-15
A4066	Install Compacted Backfill and Collection Trench System. (Including Low Perm Clay, Embankment in Place, Geotextile, etc)	3	04-Feb-15	06-Feb-15
A4067	Install Ground Grid - Cell 5E	2	09-Feb-15	10-Feb-15
A4068	Install Cell 5E Portion of Retaining Wall Footing, Retaining Wall, Concrete Cure (7 Day/Backfill)	10	11-Feb-15	24-Feb-15
A4069	Backfill New Retaining Wall	2	25-Feb-15	26-Feb-15
A4064	Remediation of Cell 5F	26	27-Feb-15	03-Apr-15
A4072	Install Sheet Piles, Fabricate and Install Bracing and Struts, Drill and Install Toe Pins into Bedrock	5	27-Feb-15	05-Mar-15
A4073	Dewater and Excavate Cell	3	06-Mar-15	10-Mar-15
A4074	Install Compacted Backfill and Collection Trench System. (Including Low Perm Clay, Embankment in Place, Geotextile, etc)	3	11-Mar-15	13-Mar-15
A4075	Install Cell 5F Portion of Retaining Wall Footing, Retaining Wall, Concrete Cure (7 Day/Backfill)	10	16-Mar-15	27-Mar-15
A4076	Backfill Retaining Wall	2	30-Mar-15	31-Mar-15
A4100	Install Ground Grid - Cell 5F	2	01-Apr-15	02-Apr-15
A4102	Install Portion of Grout Curtain Wall Along Transit Street	5	03-Apr-15	09-Apr-15
A4172	Install Bedrock Extraction Wells BR-104, BR-105, BR-106	3	03-Apr-15	07-Apr-15
A3690	Install Conduits from MH 67 to MH 65	15	10-Apr-15	30-Apr-15
A3670	Re-Install Circuit 108 by Installing Cable Directly from MH 67 to MH 65	15	10-Apr-15	30-Apr-15
A4130	Install Remaining Conduit for the Power Cables from Bank #5 to Lower Side of Breaker	10	10-Apr-15	23-Apr-15
A6720	Fence Installation	7	10-Apr-15	20-Apr-15
A6721	Install New Guy Wire Anchors and Cables for Northern 15KVA Feed Pole. Put Northern 34.5KVA Feed Back into Service	2	21-Apr-15	22-Apr-15
A4061	Energize North 35kV Line (505 CKT)	2	23-Apr-15	24-Apr-15
A4110	Re-Install the Oil Containment System	10	27-Apr-15	08-May-15



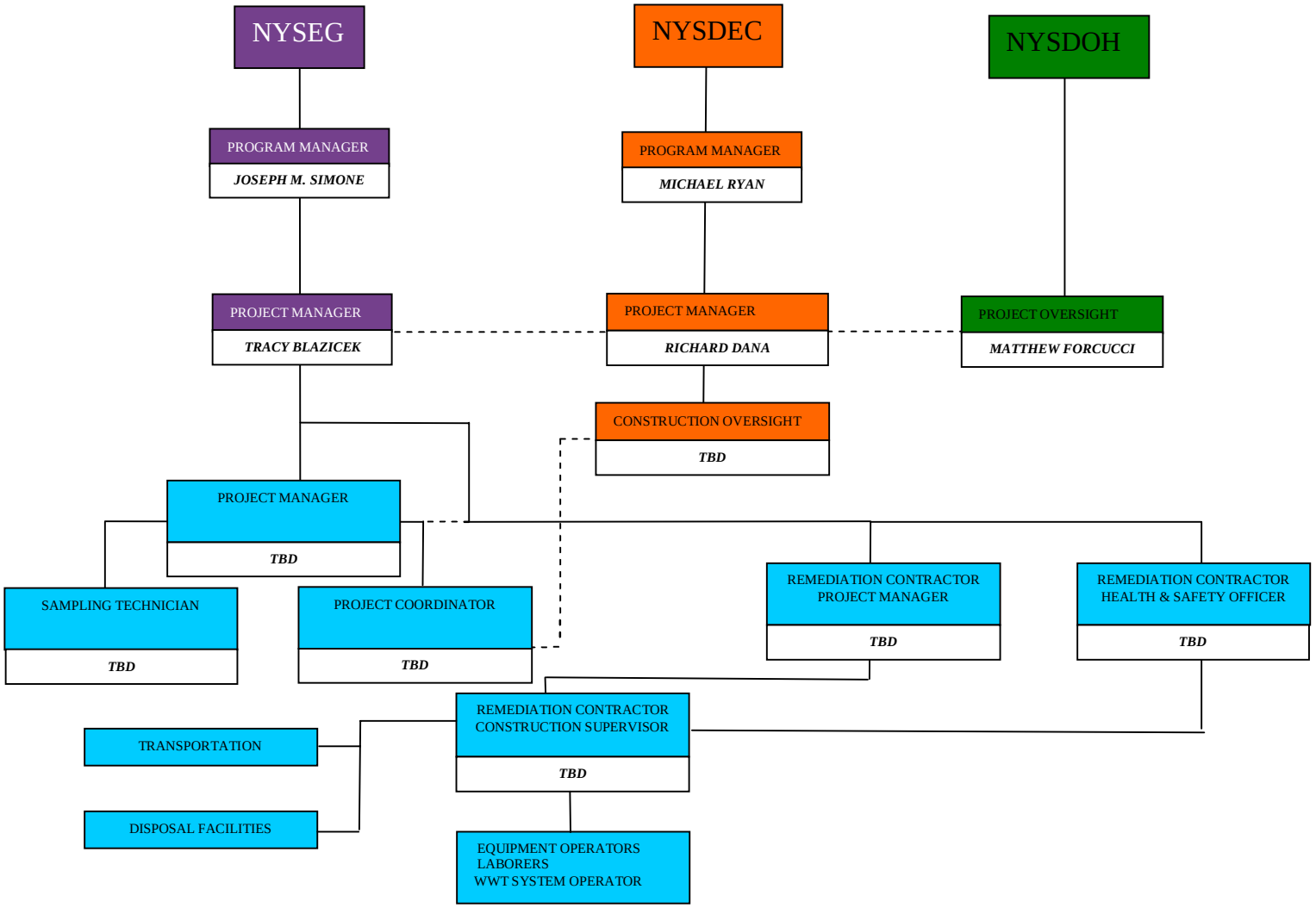
Activity ID	Activity Name	Rem Dur	Start	Finish
A4120	Install New Structure on Low Side of Bank #5 for Underground Cable Termination	10	27-Apr-15	08-May-15
A3675	Re-Install CKT 413 By Inst Cable From MH67 to MH64 to Sub, Remove Old Cables	10	01-May-15	14-May-15
A4140	Install and Terminate Power Cable for Low Side of Bank #5	5	11-May-15	15-May-15
A3680	Transfer Load Back onto Circuit 108 & onto Circuit 413	1	15-May-15	15-May-15
CN-SIG-MS1020	FINISH Construction Work (IG)	0		15-May-15
A4150	Energize Bank #5	1	18-May-15	18-May-15
A3700	418 Circuit - Remove 3000' of Lead Cable	33	18-May-15	02-Jul-15
A3520	Phase 5 Construction Complete	0		18-May-15
CN-SAG-MS1020	FINISH Construction Work (AG)	0		18-May-15
Phase 6 (Remediation)		113	24-Sep-14	06-Mar-15
A5210	Phase 6 - Mobilization for Construction	2	24-Sep-14	25-Sep-14
A3530	Phase 6 - Construction Start	0	24-Sep-14	
A4160	Phase 6 - Install Grout Curtain Wall along LaGrange Street	14	26-Sep-14	15-Oct-14
A6710	Phase 6 - Installation Bedrock Extraction Wells BR-107 thru BR-112	6	27-Feb-15	06-Mar-15
A3540	Phase 6 Construction Complete	0		06-Mar-15
Phase 7 (Remediation)		24	19-May-15	22-Jun-15
A4180	Install Grout Curtain Wall along Canal	14	19-May-15	08-Jun-15
A6730	Restoration of the Site/LaGrange Street	24	19-May-15	22-Jun-15
A3550	Phase 7 Construction Start	0	19-May-15	
A3560	Phase 7 Construction Complete	0		22-Jun-15
COMMISSIONING		15	19-May-15	09-Jun-15
PR-CNT-MS1030	START Commissioning	0	19-May-15	
A1340	Testing/Commissioning	15	19-May-15	09-Jun-15
COM-1004	In Service Date	0		09-Jun-15
CLOSE OUT		5	10-Jun-15	16-Jun-15
A1360	Close Out	5	10-Jun-15	16-Jun-15



Appendix A

Organization Structure

APPENDIX A
ORGANIZATIONAL CHART



Appendix B

Citizen Participation Plan

Environment

Prepared for:
NYS Electric & Gas Company

Prepared by:
AECOM
Latham, NY
60194949
April 2013

Remedial Design
100% Submittal
Lockport Transit Street Former MGP Site
Lockport, New York
NYSDEC Site # 932098
Citizen Participation Plan

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1.0 Introduction

New York State Electric & Gas Corporation (NYSEG) is preparing to implement a Remedial Action Design involving the excavation and off-site disposal of coal tar impacted soil, and the installation of a NAPL collection trench and grout barrier wall associated with the Lockport Former Manufactured Gas Plant (MGP) site located in Lockport, Niagara County, New York. This *Citizen Participation Plan (CPP)* will detail citizen participation activities that will be implemented for this remediation project.

The proposed *Remedial Action Design* will involve excavation of coal tar impacted soil and debris, the installation of a subsurface barrier wall on the south and eastern sides of the site, the installation of a overburden NAPL collection trench and NAPL collection wells along the north and west sides of the existing electrical substation, and the installation of a grout barrier wall within the bedrock along the barge canal and down gradient of the barge canal. The *Remedial Action Design* will be conducted according to the requirements of an Order on Consent between NYSEG and the New York State Department of Environmental Conservation (NYSDEC). The Order on Consent is a legal document that defines the obligations of each party for conducting site investigations and remediation. The Order on Consent requires that all work by NYSEG at the site be performed under the oversight of the NYSDEC and the New York State Department of Health (NYSDOH).

2.0 Remedial Action Objectives

The primary objectives of the remedial action, as required by the Record of Decision (ROD) issued March 2009, include the elimination or reduction, to the extent practicable:

- Exposures or persons at or around the site to site-related constituents, volatile organic constituents (VOCs), Semi-volatile constituents (SVOCs) and polycyclic aromatic hydrocarbons (PAHs), in groundwater and subsurface soils;
- The release of contaminants from soil into groundwater that may create exceedances of groundwater quality standards;
- The release of contaminants from subsurface soil under buildings into indoor air through soil vapor; and
- Mitigation of coal tar beyond the site boundary.

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

- Ambient groundwater quality standards; and
- Recommended soil cleanup objectives in 6 NYCRR Subpart 375-6 – Remedial program Soil Cleanup Objectives.

3.0 Previous Investigations and Reports

- 1982-1985 – A site screening investigation was conducted and included in the collection of groundwater, surface water, and soil samples. Borings, test pits and monitoring wells were utilized during these investigations.
- 1991-1995 – Additional soil sampling was conducted onsite.
- 1994 – Order on Consent, Index No. DO-0002-9309, between the Department and New York State Electric and Gas (NYSEG) executed on March 30.
- 1997 – Soil removal was conducted at the gas station immediately north of the Site. NAPL contaminated soil was removed during the tank removal.
- 2005-2006 – Field work for the remedial investigation.
- 2007 – Final Remedial Investigation Report issued in August (URS).
- 2009 – Final Feasibility Study Report issued in January (URS.
- 2009 – Record of Decision issued in March (NYSDEC).
- 2011 – Remedial Design Work Plan issued in June (AECOM).
- 2011 – Grout Wall Pilot Test Summary Letter issued in August (AECOM).

4.0 Document Repository

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

New York State Department of Environmental Conservation
Central Office, 625 Broadway 11th Floor
Albany, New York 12233-7014
Attn: Mr. Richard Dana
(866) 520-2334
8:30 A.M. – 4:30 P.M.
(By appointment only)

New York State Department of Environmental Conservation
Region 9 Office, 270 Michigan Avenue
Buffalo, New York 14203
(716) 851-7220
8:30 A.M. – 4:30 P.M.
(by appointment only)

Lockport Public Library
23 East Avenue
Lockport, NY 14095
(716) 433-5935
Mon. – Thur., 10 A.M. – 9 P.M.
Fri. & Sat., 10 A.M. – 5 P.M.

5.0 Interested/Affected Public

A mailing list has been developed that includes adjacent property owners and businesses, local and state elected officials, local media, and other identified interested parties. Names can be added to the mailing list by contacting any of the individuals listed in Section 7, or by completing an “interested party mailer” that is included with all NYSEG mailings for this site.

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

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

- Distribution of a fact sheet prepared by either NYSDEC or NYSEG describing the planned remedial activities.
- A public availability session will be held by NYSDEC, in conjunction with NYSDOH and NYSEG, prior to Remedial Action Design finalization, to describe the planned activities at the site.
- Notice of public availability session will be provided by either the NYSDEC or NYSEG via mailing list and notices through the local media.

The primary activities covered under this remedial design include:

- Mobilization and Site Preparation;
- Air monitoring to evaluate potential fugitive emissions;
- Relocation of the Control House and 12 kV switchgear from the western portion of the site to the eastern portion of the site;
- Excavation and removal of impacted soils west of the existing substation and areas of LaGrange Street;
- Excavation and removal of impacted sediments from the barge canal;
- Installation of a subsurface barrier on the south and east sides of the site;
- Installation of NAPL collection wells both at onsite and offsite locations;
- Installation of an overburden NAPL collection trench along the north and west sides of the existing substation;
- Installation of approximately 400 LF of grout wall within the bedrock down gradient of the overburden NAPL collection trench and approximately 200 LF of grout wall within the bedrock along the nearby Barge Canal in the vicinity of seeps recorded during investigative work;
- Management and transportation of impacted soils to an off-site permitted facility; and
- Surveying and site restoration.

7.0 Additional Information

For additional information about this project you may contact any of the following individuals:

NYSEG: Mr. Joseph M. Simone, P.E. Manager – EH&S Compliance
James A. Carrigg Center, 18 Link Drive, P.O. Box 5224
Binghamton, New York 13902
Phone: (607) 762-7498
Cellular Phone: (607) 427-7498
E-mail: jmsimone@nyseg.com

Mr. Tracy Blazicek, CHMM: Remediation Project Manager
James A. Carrigg Center, 18 Link Drive, P.O. Box 5224
Binghamton, New York 13902
Phone: (607) 762-8839
Cellular Phone: (607) 237-5325
E-mail: tlblazicek@nyseg.com

NYSDEC: Mr. Richard Dana: Site Project Manager
NYSDEC
625 Broadway
Albany, New York 12233-7014
Phone: (518) 402-9662
E-mail: rhdana@gw.dec.state.ny.us

NYSDOH: Matthew Forcucci: Public Health Specialist
NYSDOH
547 Delaware Ave.
Buffalo, New York 14202
Phone: (716) 847-4501
E-mail: mjf13@health.state.ny.us

Appendix C

Community Air Monitoring Plan

Environment

Prepared for:
NYS Electric & Gas Company

Prepared by:
AECOM
Latham, NY
60194949
April 2013

Remedial Design
100% Submittal
Lockport Former MGP Site
Lockport, New York
NYSDEC Site # 932098
Community Air Monitoring Program

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1.0 Introduction

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of the site when certain activities are in progress at contaminated sites. This CAMP was prepared for work associated with the Lockport Former Manufactured Gas Plant (MGP) site located in the City of Lockport,

2.0 Purpose

This CAMP is a companion document to the site-specific Health and Safety Plan (HASP), which will be developed by the Contractor. The HASP is directed primarily toward the protection of workers within the designated work zones. The CAMP is directed primarily toward the protection of the community downwind of site activities (i.e., off-site receptors including residences and businesses). This CAMP identifies action levels and subsequent responses to insure the safety of the downwind community. In addition, the CAMP aids in affirming that work activities do not spread constituents off site through the air.

The CAMP was established to address the following objectives:

- To ensure that concentrations of VOCs and total suspended particulates are minimized to protect human health and environment;
- To provide an early warning system so engineering controls can be enacted to prevent unnecessary exposure of emissions resulting from project activities; and
- To measure and document the concentrations of VOCs and total suspended particulates for determining compliance with the established air-monitoring limits.

The CAMP is intended to be a discrete program, which will be operated in conjunction with the Exclusion Zone air-monitoring program. The Exclusion Zone monitoring established to protect workers health and safety during construction and materials handling. The CAMP will include real time air quality data, which will be collected throughout the duration of all excavation activities and will include upwind, downwind, and nearest receptor measurements. Wind direction will be determined using a weather station or equivalent device.

3.0 Air Monitoring

The constituents of concern at the Lockport former MGP site are volatile VOCs and particulates. VOCs will be monitored using a photo-ionization detector (PID) with a 10.2 eV lamp. Particulates will be monitored using a particulate air monitor equipped with a micro-processor to measure real-time measurements of airborne particulate concentrations in micrograms per cubic meter ($\mu g/m^3$).

Real-time air monitoring field logs will be maintained to allow for future interpretation of the logged data. Site conditions, weather conditions, work activities, implemented engineering controls, and periodic real-time VOC and total particulate readings will be recorded on field logs. Copies of all field logs will be available for review on a daily basis.

3.1 Exclusion Zone Air Monitoring

The air quality within the exclusion zone, including inside transporter's trailer and/or roll-off container, will be monitored to ensure worker health and safety in accordance with requirements specified in 29 Code of Federal Regulations (CFR) 1910.120 as described in the HASP for the Lockport Former MGP Site to be developed by the Contractor.

3.2 VOC Monitoring, Response Levels, and Actions

VOCs will be monitored at the upwind and downwind perimeter of the site on a continuous basis or as otherwise specified. Upwind concentrations will be measured to establish site specific background concentrations. In the event of minimal wind or frequent changes in wind direction, multiple locations will be monitored (i.e., three monitoring locations surrounding the work area).

Monitoring instrumentation will include a real-time PID monitor for VOCs equipped with a 10.2-eV lamp, which will be calibrated daily with a 100 parts per million (ppm) isobutylene air standard. Monitoring will be continuously logged by each of the air monitoring instruments during the course of daily operations and each instrument will have an visible light and telemetry/pager system to indicate when an action level has been exceeded. Each air monitoring instrument will be continuously downloaded and saved electronically to a dedicated computer located on-site. Each 15 minute average reading will be recorded during working hours along with the date, time, sampling location, wind direction, and weather conditions. A daily community air-monitoring report will be maintained in the on-site project trailer.

Based on data published by OSHA, American Congress of Government Industrial Hygienists (ACGIH) and National Institute for Occupational Safety and Health (NIOSH), a short-term quality action level of 5 ppm for total VOCs has been established for air emissions action in the Exclusion Zone. NYSEG will use an action level of 2.5 ppm above the existing ambient conditions (background) in the Exclusion Zone. Engineering control measures will be initiated for VOC levels greater than 2.5 ppm at the work zone. If actions to control VOCs emissions are not effective and concentrations continue to increase to 5 ppm (above background), the excavation and waste handling activities will be halted.

The 5 ppm action level (above background) at the perimeter of the Exclusion Zone is based on an estimated concentration for benzene, which is one of the VOCs included in the volatile organic

analyzer reading. Since the volatile organic analyzer detects volatile compounds other than benzene, the 5 ppm action level is considered to be conservative.

In addition an action level of 2.5 ppm above background will be used in the Exclusion Zone where workers have the potential for continuous exposure. The 2.5 ppm limit is OSHA's short-term exposure limits (STEL) for benzene, which was established to insure workers health and safety (29 CFR 1910.1028). If the total VOCs concentration exceeds 2.5 ppm, the worker PPE will be upgraded from modified Level D to Level C. which requires the use of respirators as specified in the HASP.

3.3 Particulate Monitoring, Response Levels, and Actions

Particulate concentrations will be monitored at the upwind and downwind perimeter of the site on a continuous basis or as otherwise specified. Upwind concentrations will be measured to establish site-specific background concentrations. In the event of minimal wind or frequent changes in wind direction, multiple locations will be monitored (i.e., three monitoring locations surrounding the work area).

Particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. Each particulate monitor will be calibrated daily with a filtered air sample. Each air monitoring instrument will be continuously downloaded and saved electronically to a dedicated computer located on-site.

The NYSDOH Generic CAMP recommended action level of 0.10 mg/m^3 above background for particulate matter less than 10 micrometers in size (PM-10) will be used to determine whether modifications to given processes are required. If the downwind particulate measurement of particulates less than 10 micrometers in size (PM-10) is greater than 0.10 mg/m^3 above the upwind background level, or if dust is observed leaving the project area, dust suppression techniques (i.e., misting surfaces with water, or covering open piles) will be implemented to reduce the generation of fugitive dust. If the action level of 0.15 mg/m^3 (above background) is exceeded, work activities will be ceased and the NYSEG, the NYSDEC on-site representative, and the NYSEG project manager will be notified.

The table below describes the action levels for perimeter particulate air monitoring and the associated responses to each level.

Table 3-1 Action Levels for Perimeter Particulate Air Monitoring

Action Level	Response
Downwind particulate concentrations 0.10 mg/m^3 greater than upwind particulate monitor sustained over 15 minute average	Dust suppression techniques are employed
Downwind particulate concentrations 0.15 mg/m^3 greater than upwind particulate monitor sustained over 15 minute average	Work halted and dust suppression techniques evaluated. Work continues once dust suppression techniques are proven successful

3.4 Odor Monitoring Program

The nature of MGP site residues pose a concern regarding the generation of nuisance odors during excavation and material handling. As such, an odor control and monitoring plan has been developed for the project. For an odor complaint resident may speak with the NYSEG project coordinator or the NYSDEC on-site representative. A 24-hours per day hot-line will be established to allow registration of odor complaints. The hot-line operator will document the caller's concern and contact the appropriate project team members who will assess the reason for concern and apply the appropriate engineering controls.

A project fact sheet will be reviewed by the NYSDEC and the NYSDOH before distribution to adjacent property owners explaining the remediation work to occur on the Site, the potential for odors and how the phone system works. This will be distributed prior to beginning any excavation work.

If the site personnel detect a significant odor or a complaint is received, engineering controls will be implemented as outline in the Vapor Emission Response Plan (Section 3.6) to reduce odor-causing emissions. Once odors become non-discernible, normal operations may continue. This determination will be subject to the approval of the on-site NYSDEC representative. If in the opinion of the on-site NYSDEC representative, the concentration of the site related odors are unacceptable, the on-site NYSDEC representative will instruct the NYSEG project coordinator to implement odor control measures.

3.5 Documentation for Air Quality Monitoring

An essential part of any sampling/analytical scheme is to ensure the integrity of the sample from collection to data reporting. Sample integrity includes the possession and handling of a sample that is traceable from the time of collection, through analysis and final disposition.

Sample Labels: Unique sample identification codes will be assigned at the time of collection to prevent misidentification of samples. The identification codes will include the following information:

- Project/name/number;
- Sample location;
- Date of collection;
- Time of collection;
- Initials of sampler; and
- Analytical method.

Field Log Book: All information pertinent to sampling will be recorded in a logbook. Sufficient information must be recorded so that the sampling event can be reconstructed without reliance on the collector's memory. Information will be entered into a bound notebook and at a minimum; entries will include the following:

- Location of sample point;
- Sample identification code;
- Sample collection date and time;
- Sample methodology;
- Sample analysis;
- Sampler's field observations, if any; and
- Field measurements if any.

Dedicated field logbooks will be maintained on-site to document the daily calibration of the real-time air-monitoring equipment.

3.6 Vapor Emissions Response Plan

The Lockport Former MGP site Vapor Emission Response Plan (See Appendix G of the Remedial Design) will be triggered by either an exceedance of the 15-minute average VOCs concentration of 5 ppm (above background) at the perimeter of the Exclusion Zone or odor complaint. If the Vapor Emission Response Plan is triggered all excavation activities will be stopped and the following actions will be taken:

- Continue total VOC monitoring at the perimeter of the work area. If the total VOC level drops below 5 ppm (above background) then excavation activities can resume with the addition of engineering controls or modifications to the excavation process to minimize VOC emissions. However, if the VOC level persist above 5 ppm, based on continual observance of the meter, then the construction supervisor will immediately implement engineering controls such as misting the area with a vapor suppression solution of BioSolve© covering, backfilling, etc., to reduce emissions and at the same time notify the site project manager, and the Project Health & Safety Coordinator.
- If the total VOC level drops below 5 ppm (above background), after the implementation of engineering controls at the perimeter of the Exclusion Zone, then the excavation activity can resume provided process and work activities were adjusted to reduce emission levels.
- If the total VOC level continues to be greater than 5 ppm (above background) at the perimeter of the Exclusion Zone after the implementation of engineering controls, then all the site activities must be discontinued. When the work is shut down, downwind air-monitoring as direct by the Project Health and Safety Coordinator will be implemented to ensure that the emission does not impact the nearest residential or commercial structure at levels exceeding these specified in the Major Vapor Emission Response Plan.
- If the total VOC levels are above 25 ppm at the perimeter of the Exclusion Zone, site activities must be shut down and corrective measures taken.

Primary engineering controls, which may be implemented to reduce emission levels if the site personnel detect a significant odor or when odor complaints are received, include:

- Adding a vapor suppression solution of BioSolve© to impacted media;
- Applying an odor suppressing foam, such as Rusma, to the impacted media;
- Limiting excavation size and surface area of exposed coal tar impacted soil; and
- Covering coal tar impacted soil with polyethylene sheeting.

3.7 Major Vapor Emissions Response Plan

If after the session of the work activities and implementation of engineering controls, total VOC levels, exceed 5 ppm (above background) at the nearest receptor or at the perimeter of the Exclusion Zone, then the following actions will be immediately taken.

- Cover the excavated area with polyethylene sheeting or clean soil. Notify Lockport Police Department at (716) 433-7700, Lockport Fire Department (716) 439-6724; NYSEG, Tracy Blazicek at (607) 762-8839; the NYSDEC, Mr. Richard Dana at (518) 402-9662 and the NYSDOH, Matthew Forcucci at (716) 847-4501.
- Total VOC levels will be monitored at the nearest downwind residential or commercial structure.

- Continuously monitor air quality until VOC levels drop below 5 ppm.

If total VOC levels persist above 5 ppm (above background), the construction supervisor, Project Health and Safety Coordinator, and NYSEG project manager will consult with each other and the Emergency Response agencies to determine the appropriate actions to be implemented. NYSEG project management personnel will have the authority to make the final decision during major vapor emissions emergencies.

Work shall not resume without approval of the NYSDEC.

3.8 Daily Community Air-Monitoring Reporting

A daily air-monitoring report will be prepared by the NYSEG sampling technician using an on-site computer to document daily air-monitoring results. The daily community air-monitoring reports will be summarized each week and the weekly air-monitoring report will be submitted by close of business on the following Tuesday in an electronic format to Matthew Forcucci, NYSDOH at mjf13@health.state.ny.us, Mr. Richard Dana, NYSDEC at rhdana@dec.state.ny.us, and Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.

Appendix D

Quality Assurance Project Plan

AECOM Environment

Prepared for:
NYS Electric & Gas Company

Prepared by:
AECOM
Latham, NY
60194949
April 2013

Remedial Design Report
100% Design Submittal
Lockport Former MGP Site
Lockport, New York
NYSDEC Site # 932098
Quality Assurance Project Plan

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1.0 Introduction

This Quality Assurance Project Plan (QAPP) provides a description of the sampling and laboratory procedures/protocols to be used in support of the Remedial Design associated with the Lockport Former Manufactured Gas Plant (MGP) site located in the City of Lockport, Niagara County, New York. The fundamental purpose of the QAPP is to ensure that quality analytical data will be generated to support the project in a manner consistent with the Data Quality Objectives as specified herein. This QAPP is designed to be used in conjunction with a New York State Department of Environmental Conservation (NYSDEC) approved Remedial Design with regards to specific project objectives and field sampling activities. To the extent that discrepancies exist between this QAPP and the Remedial Design, the Remedial Design shall control.

2.0 Data Quality Objectives

Data quality objectives are statements, expressed in either qualitative or quantitative terms, which address the appropriate level of data quality for a project. The quality of data generated must be suitable to support the decisions used to achieve the overall goals as delineated in the Remedial Design. The general project data quality objectives are summarized in this section, with detailed information given throughout this QAPP and associated sections of the Remedial Design. The overall data quality objectives of the project are:

- To ensure that samples collected are representative of the sample population.
- To provide detection limits for the selected analytical methods, which are below the established cleanup objectives or regulatory limits.
- To measure and document precision and accuracy using procedures established by the laboratories, the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) and U.S. Environmental Protection Agency (EPA) approved analytical methods.
- To ensure that a NYSDOH ELAP and NYSDOH ELAP CLP certified laboratory will conduct all soil/residues and wastewater analyses.

3.0 Soil Collections

3.1 Soils

Soil samples will be collected as described in the appropriate sections of the Remedial Design or Sampling Analysis Plan. These sections describe the collection procedures, sampling equipment, locations, and frequencies for the soil samples. These schedules are based on the requirements for soil disposal or reuse on site.

All sampling equipment will be properly disposed or decontaminated before being reused (see Section 8.1.1). Samples will be collected and placed in pre-cleaned sample containers provided by the laboratory performing the analysis. All necessary preservatives will be added to the sample containers at the laboratory prior to being shipped to the site (see Section 3.3). Samples will be stored at 4° Celsius until delivered to and analyzed by the laboratory. This will be accomplished by utilization of an on-site refrigerator and/or coolers with ice. (When collecting composite samples for toxicity characteristic leachate procedure [TCLP] volatile analysis, volatilization will be minimized by covering the sample compositing container and placing it within a cooler filled with ice between grab sample additions.)

3.2 Wastewater Sampling

Wastewater samples will be collected as described in the appropriate sections of the *Remedial Design.* These sections describe the collection procedures, sampling equipment, locations, and frequencies for the wastewater samples. Samples of wastewater will be analyzed before being transported to a permitted facility for proper treatment and disposal.

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. This will be accomplished by utilization of an on-site refrigerator and/or coolers with ice.

3.3 Sample Containers and Preservatives

Sample containers and preservatives will be provided by the contracted laboratories and stored on site in a clean and dry location. Sample containers and preservatives by matrix and analysis are listed in Table A.

Table 1: Sample Containers & Preservatives

TABLE 1 SAMPLE CONTAINERS & PRESERVATIVES			
Analysis	**Matrix**	**Container**	**Preservative**
TCLP Semivolatiles	Soil	500 ml glass*	4° Celsius
TCLP Metals	Soil	500 ml glass*	4° Celsius
TCPL Pesticides/Herbicides	Soil	500 ml glass*	4° Celsius
Reactive Cyanide	Soil	500 ml glass*	4° Celsius
Reactive Sulfide	Soil	500 ml glass*	4° Celsius
TCLP Volatiles	Soil	20 ml glass	4° Celsius
Total PAHs	Soil	250 ml glass	4° Celsius
Total BTEX	Soil	125 ml glass	4° Celsius
Total Metals	Soil	250 ml glass**	4° Celsius
Percent Sulfur	Soil	250 ml glass**	4° Celsius
PCBs	Soil	500 ml glass***	4° Celsius
Ignitability	Soil	500 ml glass***	4° Celsius
BTU/lb	Soil	500 ml glass***	4° Celsius
Flashpoint	Soil	500 ml glass***	4° Celsius
Percent Solids	Soil	500 ml glass***	4° Celsius
pH	Soil	500 ml glass***	4° Celsius
Reactivity	Soil/Water	500 ml glass***	4° Celsius
Corrosivity	Soil/Water	500 ml glass***	4° Celsius
Total Metals	Water	500 ml Plastic	HNO_3 to pH < 2
Semivolatiles	Water	1000 ml amber glass	4° Celsius
Pesticides/Herbicides	Water	1000 ml amber glass	4° Celsius
Volatiles	Water	40 ml glass	4° Celsius or HCl to pH > 12
Paint Filter	Water	500 ml glass	4° Celsius
Total Cyanide	Water	500 ml Plastic	4° Celsius NaOH to pH > 12

* May be analyzed from same sample container and/or extract.
** May be analyzed from same container.
*** May be analyzed from same container.
Note: All glass containers will be sealed with Teflon liner caps. All water samples for organic fractions will be collected in duplicate.

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The following Tables identify samples by type and matrix and their related holding times.

Table 2: Waste Characterization Samples

TABLE 2 WASTE CHARACTERIZATION SAMPLES		
Sample Type	**Matrix**	**Holding Time***
TCLP Pesticides/Herbicides	Soil	5 days (extraction) 40 days (after extraction)
TCLP Semivolatiles	Soil	5 days (extraction) 40 days (after extraction)
TCLP Mercury	Soil	5 days (extraction) 28 days (after extraction)
TCLP Metals	Soil	180 days
TCLP Volatiles	Soil	14 days
Reactive Sulfide	Soil	7 days
Reactive Cyanide	Soil	14 days
PCBs	Soil	5 days (extraction) 40 days (after extraction)
Ignitability	Soil	NA
Reactivity	Soil	Cyanide 14 days Sulfide 7 days
Corrosivity	Soil	2 days
Percent solids	Soil	NA
* Samples will be analyzed on a priority basis and reported within 10 days of collection or the maximum holding time, whichever is less.		

Table 3: Wastewater Samples

TABLE 3 WASTEWATER SAMPLES		
Sample Type	**Matrix**	**Holding Time***
Semivolatiles	Water	5 days to extraction 40 days after extraction
Metals	Water	180 days
Total Cyanide	Water	14 days
Paint Filter	Water	NA
Reactivity	Water	Cyanide 14 days Sulfide 7 days
Corrosivity	Water	Analyze immediately
Volatiles	Water	14 days
* Samples will be analyzed on a priority basis and reported within 5 days or the maximum holding time, whichever is less.		

4.0 Sample Custody, Identification, & Tracking

4.1 Holding Times and Sample Transport

Since the samples will be analyzed at priority turn around, no exceedance of holding time is expected. Holding times will be calculated from the time the sample is collected to the subsequent extraction, if necessary, or analysis. All samples will be delivered to the laboratory by same day courier or overnight delivery in sealed coolers with ice.

4.2 Chain of Custody

A Chain-of-Custody will accompany all samples from the point of sampling to delivery of the samples to the laboratory. The Chain-of-Custody will be a record of the location where the sample was collected, the date and time collected, the number of containers collected, the type(s) of analyses requested, special remarks or requests, and the signature of each custodian of the samples. The complete Chain-of-Custody will be included in all hard copies of reports. See Attachment A for sample Chain-of-Custody Form.

Upon sample receipt, laboratory personnel will be responsible for sample custody. The laboratory sample custodian will verify sample integrity and compare the cooler contents against the field Chain-of-Custody. If a sample container is broken or leaking it will be noted on the Chain-of-Custody form and NYSEG project personnel will be immediately notified. If the sample custodian observes any labeling or descriptive errors, NYSEG project personnel will be contacted immediately to resolve any discrepancies. After all discrepancies (if any) are resolved, the laboratory will acknowledge receipt of the samples (i.e., by signing and dating the Chain-of-Custody) and the completed Chain-of-Custody will be included in all hard copies of reports and become a permanent part of the project records.

4.2.1 Sample Identification

Each sample collected during the project will have a unique identification number. This number, date of collection, and type of analysis will be placed on each sample container after the sample is collected. See Attachment B for sample identification naming convention for air, water, and confirmatory samples. A site map will be used throughout the project to denote the area or point that a soil disposal or reuse sample represents.

4.3 Laboratory Sample Tracking

Each laboratory has an internal tracking mechanism to ensure that each sample received has a unique identification number and that results generated and reported for each sample correspond to the identification number assigned at the laboratory.

5.0 Calibration Procedures

Each analysis will be performed in accordance with NYSDOH ELAP (Environmental Laboratory Approval Program) sanctioned methods or equivalent U.S. EPA analytical procedures. Each procedure specifies the method of frequency of calibration necessary to perform accurate and precise analyses. Each analytical instrument verifies the Minimum Detection Limit at least every six months as prescribed by the NYSDOH ELAP. The calibration of the instruments is verified at the beginning and end of each auto sampler run.

All field equipment, for real-time and speciated 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) will be 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.

5.1 Analytical Procedures

5.1.1 Laboratory Analyses

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

Table 4: Analytical Methods

TABLE 4 ANALYTICAL METHODS	
Analyte	**Analytical Method**
TCLP Extractions	SW 846 Method 1311
TCLP Volatiles	SW 846 Method 8260
TCLP Semivolatiles	SW 846 Method 8270
TCLP Metals	SW 846 Method 6000/7000 Series
TCLP Pesticides/Herbicides	SW846 Method 8080/8151
Polycyclic Aromatic Hydrocarbons	SW 846 Method 8270
Total Volatiles	SW 846 Method 8260
Total Semivolatiles	SW 846 Method 8270
Total Metals	SW 846 Method 6000/7000 Series
Hexavalent/Trivalent Chromium	SW 846 Method 7196
PCBs	SW 846 Method 8082
Reactive Sulfide	SW 846 Chapter 7.3.3.2
Reactive Cyanide	SW 846 Section 7.3.3.2
Percent Sulfur	ASTM D-129
BTU/lb	ASTM D-215
Flashpoint	ASTM D-93
Ignitability	SW 846 Method 1030
Reactivity	SW 846 Section 7

Corrosivity	SW 846 Section 7
Percent Solids	ASP Method D-V-Section IX
pH	SW 846 Method 9045
Total Cyanide	SW 846 9012
Paint Filter Test	SW 846 9095

Table 5: Polycyclic Aromatic Hydrocarbon (PAH) Analyte List

TABLE 5 POLYCYCLIC AROMATIC HYDROCARBON (PAH) ANALYTE LIST
Parameter
Naphthalene
2-Methylnaphthalene
Acenaphthalene
Acenaphthylene
Fluorene
Phenanthrene
Anthracene
Fluoranthene
Dibenzofuran
Pyrene
Benzo (g,h,i) perylene
Benzo (a) anthracene*
Chrysene*
Benzo (b) fluoranthene*
Benzo (k) fluoranthene*
Benzo (a) pyrene*
Indeno (1,2,3 cd) pyrene*
Dibenzo (a,h) anthracene*
***Carcinogenic PAHs (cPAHs)**

5.2 Laboratory Selection

The laboratory chosen for the project must be certified, and maintain certification, under the NYSDOH ELAP and the 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 this Remedial Design.

6.0 Data Reduction Validation and Reporting

6.1 Data Reduction

6.1.1 Field Data Collection

Real time field data collected during sampling events will include qualitative information regarding the texture, appearance, odors, and any other observations made while soil and water samples are being collected. Meteorological data and current site activity will be noted while collecting data for real time air monitoring. These observations will be recorded in the field logbook.

6.1.2 Laboratory Data Collection

A significant portion of the analyses performed requires the use of automated laboratory instrumentation. Raw data collected from the instruments detectors will be converted to standard units of mg/Kg for solid matrices and mg/L for water. All raw data will be stored in electronic form and in laboratory notebooks, in case the analysis needs to be recreated. Raw data for all analyses will be archived for a minimum of four years.

6.2 Data Review

All analytical data will be verified for precision and accuracy utilizing the laboratory's in-house Quality Assurance/Quality Control programs. In addition, all data packages will be reviewed by NYSEG project personnel to insure that all data deliverables have been properly provided.

6.3 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 7.3. 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 collected samples will be performed at NYSEG's discretion. Confirmatory sampling data will be archived as necessary to perform a full data validation at a future date.

6.4 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
- Field log sheets (if available)

7.0 Quality Control Checks

7.1 Field Quality Control

7.1.1 Documentation procedures for Confirmation 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.
- The equipment will be rinsed with a reagent grade methanol solution diluted with analyte-free water.
- If the equipment is being used for the collection of samples for metals analyses it will then be rinsed with a 10% reagent grade nitric acid solution.
- The equipment will be rinsed with analyte-free water.

After decontamination, equipment will be carefully stored to avoid contamination between sampling events.

7.2 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 the 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
- Duplicates
- Surrogate Spikes
- Internal Standards
- Laboratory Duplicates
- Calibration Check Standards
- Laboratory Control Samples

8.0 Preventative Maintenance

8.1 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.

8.2 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.

8.2.1 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.

8.2.2 Equipment Monitoring

On a daily basis, the operation of the laboratory equipment (i.e., balances, ovens, refrigerators, water purification systems, etc.) will be checked and documented. Any discrepancies will be immediately reported to the appropriate laboratory personnel for resolution.

Attachment A

Sample Chain of Custody Form

Attachment B

Sample Identification Naming Convention

SAMPLE IDENTIFICATION

NAMING CONVENTION FOR SOIL AND WATER SAMPLES

SYSTEM CODING

First & Second = Site	Lockport Site	LT
Third & Fourth = Source	Excavation	EX
	Stockpile	SP
	Frac Tank	FT
	Poly Container	PC
	Metal Barrel	MB
	Roll Off Container	RO
	Waste Wrangler	WW
	Test Pit	TP
	Boring	BO
	Geoprobe	GP
Fifth & Sixth = Location	Sidewall Sample	SW
	Bottom Sample	BM
	Waste Soil	WS
	Wastewater	WW
	Debris	DB
Seventh & Eighth = Relative Depth	Surface Soil	00
	Depth below Ground	02
	Non-Applicable	NA
Ninth, Tenth & Eleventh =	Sample Number	005

EXAMPLE: Lockport Site; Excavation; Sidewall; 2 ft below ground; and sample number

SAMPLE IDENTIFICATION: NBEXSW02005

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 E

Transportation of Solid and/or Liquid Waste

Environment

Prepared for:
NYS Electric & Gas Company

Prepared by:
AECOM
Latham, NY
60194949
April 2013

Remedial Design
100% Submittal
Lockport Former MGP Site
Lockport, NY
NYSDEC Site # 932098
Transportation of Solid and/or Liquid Material

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3.0 General Work Conditions 3

4.0 Truck Route 5

1.0 Introduction

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

2.0 Work by Transportation Contractor

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

3.0 General Work Conditions

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

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

- The transporter shall comply with all applicable provisions of New York State Department of Transportation (NYSDOT), the New York State Department of Motor Vehicle (NYSDMV), and/or any other applicable federal, state, and local laws.

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

- The transporter shall develop and implement a written Health & Safety Plan for their drivers that address potential exposure to MGP site residuals.

- The transporter shall adhere to the following rules while working on a MGP site project and waste disposal facility:

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

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

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

    - Truck drivers will don **HARD HATS, SAFETY GLASSES, and STEEL TOE BOOTS,** as a minimum for personal protection.

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

    - All trucks require working audible and visual backup signals.

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

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

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

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

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

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

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

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

- No children under 16 years of age are allowed on MGP site projects.

- No passengers are allowed in the Contamination reduction Zone (loading area).

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

- Take extra care around blind corners (watch for pedestrians, park vehicles, and construction equipment).

- Eating, and/or drinking are not permitted. Eating, and/or drinking are permitted in designated areas of the Support Zone.

- Smoking is not allowed on NYSEG Properties.

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

4.0 Truck Route

The truck route for arrival and departure at the Lockport former MGP site will be as follows:

High Acres Landfill:

- **Arrival:** From I-90 (west); take Exit 49 toward Depew/Lockport; Turn left (north) onto Route 78/Transit Street; turn right (east) onto LaGrange Street; enter site from Truck Gate on LaGrange Street.
- **Departure from Site:** Exit the Site by the truck gate; turn right (south) on Saxton Street; turn right (west) on High Street. Turn left onto Route 78/Transit Street (south); Proceed to I-90.

Mill Seat Landfill:

- **Arrival:** From I-90 (west); take Exit 49 toward Depew/Lockport; Turn left (north) onto Route 78/Transit Street; turn right (east) onto LaGrange Street; enter site from Truck Gate on LaGrange Street.
- **Departure from Site:** Exit the Site by the truck gate; turn right (south) on Saxton Street; turn right (west) on High Street. Turn left onto Route 78/Transit Street (south); Proceed to I-90.

Seneca Meadows:

- **Arrival:** From I-90 (west); take Exit 49 toward Depew/Lockport; Turn left (north) onto Route 78/Transit Street; turn right (east) onto LaGrange Street; enter site from Truck Gate on LaGrange Street.
- **Departure from Site:** Exit the Site by the truck gate; turn right (south) on Saxton Street; turn right (west) on High Street. Turn left onto Route 78/Transit Street (south); Proceed to I-90.

ESMI:

- **Arrival:** From I-90 (west); take Exit 49 toward Depew/Lockport; Turn left (north) onto Route 78/Transit Street; turn right (east) onto LaGrange Street; enter site from Truck Gate on LaGrange Street.
- **Departure from Site:** Exit the Site by the truck gate; turn right (south) on Saxton Street; turn right (west) on High Street. Turn left onto Route 78/Transit Street (south); Proceed to I-90.

Covanta Niagara:

- **Arrival:** From Route 31 (east); turn right (south) onto South Transit Street; Turn left (east) onto LaGrange Street; enter site from Truck Gate on LaGrange Street.

- **Departure:** Exit the site by the truck gate; turn right (south) onto Saxton Street; turn right (west) onto High Street; turn right (north) onto Route 78/Transit Street; Turn left (west) onto Route 31 (west).

Appendix F

Construction Quality Assurance Plan

Environment

Prepared for:
NYS Electric & Gas Company

Prepared by:
AECOM
Latham, NY
60194949
April 2013

Remedial Design
100% Submittal
Lockport Former MGP Site
Lockport, New York
NYSDEC Site # 932098
Construction Quality Assurance Plan

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1.0 Introduction

This Construction Quality Assurance Plan (CQAP) is designed to assure the quality of the project by monitoring, inspecting, and testing the processes and materials associated with the remediation to be completed at New York State Electric and Gas Corporation's (NYSEG's) Lockport Former Manufacturing Gas Plant (MGP) site, City of Lockport, Niagara County, New York. This CQAP supplements the Remedial Design.

2.0 Construction Quality Assurance Plan Objectives

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

1. Responsibility and Authority - The responsibility and authority of the key personnel involved in the completion of the project.

2. Inspection and Testing Activities - Establish the observations and implement inspections and tests that will be used to ensure that the construction activities for the project meet or exceed all design criteria, (i.e., Remedial Design, and local, state, and federal regulations).

3. Sampling Strategies - Establish responsibility for sampling activities and methods including frequency and acceptance criteria for ensuring that sampling meets criteria in the Remedial Design, local, state, and federal regulations.

4. Appropriate field documents (i.e. Grout mix reports, photographic log, sampling log, and variances to the Remedial Design).

3.0 Responsibility and Authority

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

3.1 Contractor (To be Determined)

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

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

3.2 Construction Quality Assurance Officer (Tracy Blazicek, NYSEG Remediation Manager)

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

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

3.3 Sample Quality Assurance Officer (To Be Determined)

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

Specific responsibilities of the sampling quality assurance officer include:

- Confirming that the test data are properly recorded and maintained (this may involve selecting reported results and back tracking them to the original observation and test data sheets).
- Confirming that the testing equipment, personnel, and procedures do not change over time or making sure that any changes do not adversely impact the inspection process.

- Confirming that regular calibration of testing equipment occurs and is properly recorded.
- Providing the construction quality control officer with up to date sampling results.

3.4 Construction Quality Control Representative (To Be Determined)

A construction quality control representative, supplemented as necessary by additional personnel, is to be on the work site during the construction process, with complete authority to take any action necessary to ensure compliance with the Remedial Design as necessary to achieve quality in the constructed facility. The construction quality control representative will be the field engineer. Specific responsibilities of the construction quality control representative include:

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

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

3.5 Sampling Representative (To be Determined)

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

- Set up and operation of the weather station.
- Daily recording of meteorological data.
- Daily calibration and operation of real time total volatile organic compound (VOCs), suspended particulate, and benzene monitoring equipment.

- Daily recording of real-time air quality data. Informs project coordinator and on-site New York State Department of Health (NYSDOH) representatives when concentration of air contaminants approaches or exceeds action levels specified in the Remedial Design. Submit real-time air quality data in an electronic format to Matthew Forcucci, NYSDOH at: mjf13@health.state.ny.us, Mr. Richard Dana, NYSDEC at rhdana@gw.dec.state.ny.us and Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com as required by the site Community Air Monitoring Plan (CAMP).
- Daily calibration and operation of the portable gas chromatograph per guidelines specified in the QAPP and Remedial Design. Compiling calibration and results data onto spreadsheets. E-mailing compiled data to sampling quality assurance officer daily.
- Collection, packaging, and shipment of soil and water samples per guidelines specified in the QAPP and Sampling Analysis Plan. Maintaining a master log of all air, water, and soil samples collected. Faxing copies of the chain-of-custody sheets to the sampling quality assurance officer daily. Tracking confirmation sample points and construction of a map depicting confirmation sample point locations.
- Consultation with sampling quality assurance officer for all technical questions, problems, considerations, or requests for supplies or equipment.
- Maintaining and organizing on-site field specialist equipment and supplies storage area.
- Performing the duties of assistant health & safety officer.

4.0 Field Quality Control Inspection, Testing, and Sampling Requirements

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

4.1 Site Preparation

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

4.2 Equipment Set-up

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

4.3 Staging of Materials

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

4.4 Excavation of Existing MGP Impacted Soils

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

4.5 Loading of Materials for Transportation

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

4.6 Relocation and Restoration of Utilities

All relocation/restoration activities will be inspected to ensure that the relevant utility company requirements (details and specifications) have been properly addressed and coordinated. This will require extensive communication to ensure notices are given prior to the start of utility relocation and restoration activities.

4.7 Emergency Access Construction

Construction of emergency access ways will be inspected to ensure confirmation with the contract drawings and design. Communication and notification with the local emergency responders (i.e. police, ambulance, and fire) shall be a continuing focus throughout the project phases.

4.8 Site Restoration

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

Final restoration within the public street right of ways (pavement, sidewalks) will be in accordance with the Remedial Design. Restoration of affected utilities will be in accordance with the City of Lockport requirements. Disturbed private properties will be restored to the conditions set forth in the Remedial Design. All affected areas will be graded to match the specification in the Remedial Design. The finished surface will be as defined in the Remedial Design. Visual inspections will confirm that the various site restoration activities meet the relevant requirements.

5.0 Documentation and Reporting Requirements for CQAP Activities

The value of the CQAP will be assured by proper documentation techniques. The construction quality assurance plan inspection team will be guided by data sheets, schedules and checklists. The documentation of the inspection activities will facilitate and adherence to the design documents and maintain the level of reporting required by the parties involved in the project.

5.1 Daily Field Construction Report

A Daily Field Construction Report shall be prepared identifying work force and their labor hours, location, and description of work performed, lost time accidents, equipment left on the job site, equipment/materials received and if applicable, submittal status, non- compliance notices received, errors and/ omission in plans and specifications, visitors to the job site, weather conditions and temperatures, and any other pertinent information. The Daily Field Construction Report will be submitted at the end of the week in an electric format to Mr. Tracy Blazicek, NYSEG project manager at tlbblazicek@nyseg.com

5.2 Transportation Log

A Transportation Log will remain in the field office to record all loads of solid or liquid waste that are transported off-site. The Transportation Log will be submitted at the end of the week in an electronic format to Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.

5.3 Photographic Log

The photographic log is designed to document construction activities by still photos. The photographic log may also be used to photographically record activities recorded in a daily construction log or an as-built sketch log. The construction quality control representative will collect photographs.

5.4 Daily Field Construction Report

The construction quality control representative shall prepare a Daily Field Construction Report (DFCR) identifying work force and their labor hours, location and description of the work performed, lost time accidents, equipment left of the job site, equipment/materials received and if applicable, submittal status, non-compliance notices received, errors and/or omissions in plans and specifications, visitors to the job site, weather conditions and temperatures, and any other pertinent information.

5.5 Daily Community Air-Monitoring Report

The Daily Community Air Monitoring Report is designed to document all sampling activities and how they correspond to the Remedial Design. All observations, field and/or laboratory tests will be recorded on a daily sampling log. It is important to note recorded field observations may take the form of notes, charts, sketches, or photographs. Each Daily Community Air-Monitoring Report for the week will be summarized and submitted no later than the following Tuesday in electronic format to Mr. Mr. Matthew Forcucci, NYSDOH at mjf13@health.state.ny.us, Mr. Richard Dana, NYSDEC at rhdana@gw.dec.state.ny.us, and Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.

5.6 Master Sample Log

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

5.7 Chain-of-Custody

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

5.8 Waybill

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

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

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

5.10 Variances to Remedial Design

Required changes to the Remedial Design will be processed through the use of a variance log. Approval from the NYSEG project manager is required to recommend a change to the Remedial Design. At amendment to the Remedial Design will be develop for acceptance and the approval by NYSDEC and NYSDOH.

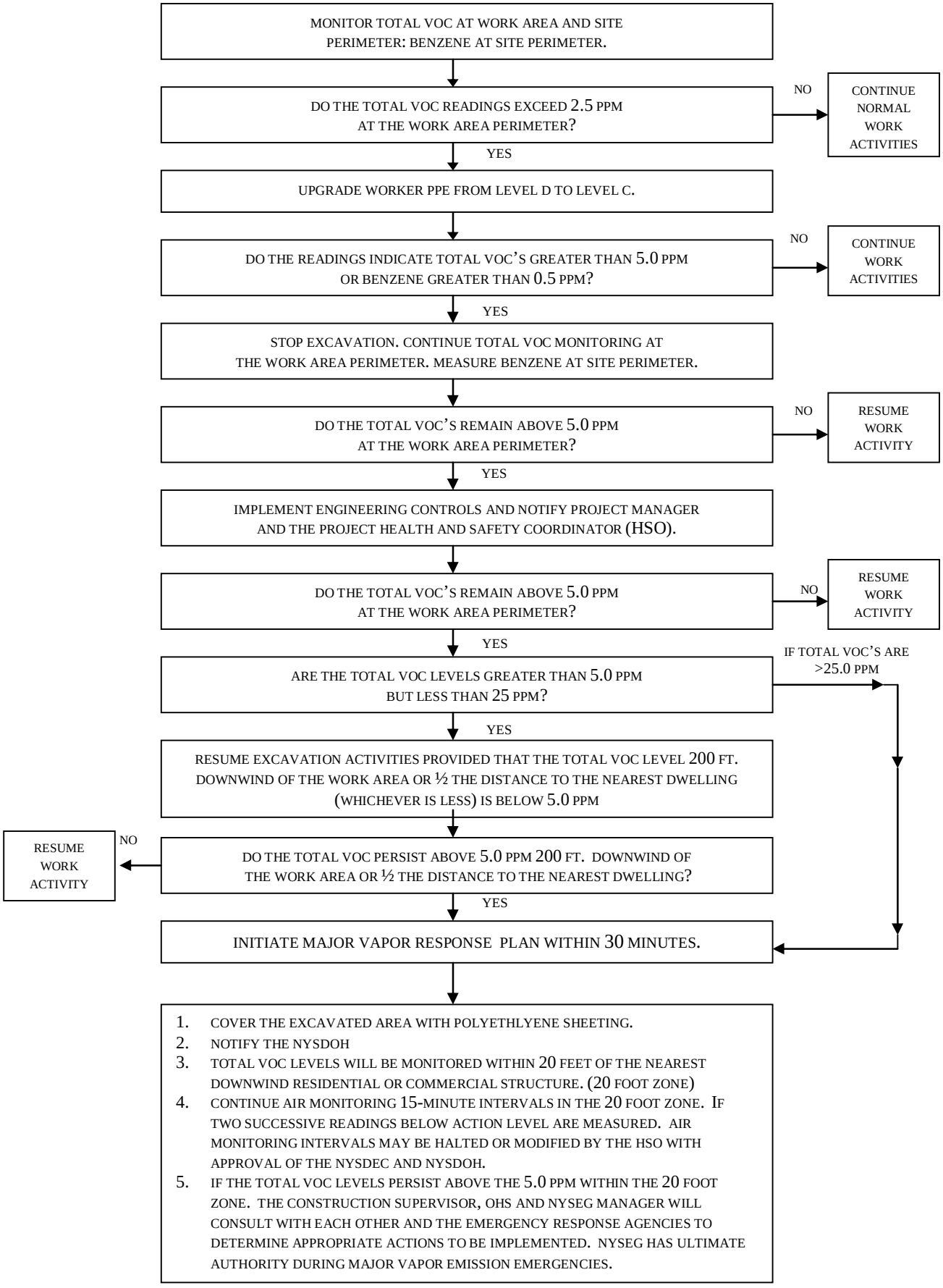
5.11 Construction Completion Report

At the completion of the project the Project Manager/Construction Quality Assurance Officer will prepare and submit a Construction Completion Report to the NYSDEC. This report will include a summary of all of the Daily Field Construction Reports, Daily Community Air-Monitoring Report's, Photographic Log, Sampling Log, Material Disposition Log, and Variances to Remedial Design. The Construction Completion Report will be signed and certified by a professional engineer that all activities that comprised in full accordance with NYSDEC approved Remedial Design and the NYSDEC Order of Consent Index #DO-0002-9309.

Appendix G

Site Vapor Emission Response Plan

LOCKPORT FORMER MGP REMEDIATION
VAPOR EMISSION RESPONSE PLAN



Appendix H

Contingency Plan

AECOM Environment

Prepared for:
NYS Electric & Gas Company

Prepared by:
AECOM
Latham, NY
60194949
April 2013

Remedial Design
100% Submittal
Lockport Former MGP Site
Lockport, New York
NYSDEC Site # 932098
Contingency Plan

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1.0 Introduction

This construction contingency plan (CCP) has been developed for personnel to follow during the performance of the remediation project at the New York State Electric & Gas Corporation (NYSEG) Lockport Site, in the City of Lockport, Niagara County, New York. The focus of the work is to mitigate the impacts of manufactured gas plant (MGP) by-product associated with the site. The project will consist of mobilization, excavation of contaminated soils, grouting of the bedrock, installation of a NAPL collection trench and NAPL collection wells, material handling, staging, loading, restoration, equipment decontamination, and demobilization. Soils contain contaminants that may be considered non-Resource Conservation and Recovery Act (RCRA) and RCRA hazardous waste. This CCP provides procedures and guidelines that will be implemented in the event of a spill, release, fire, explosion, or other emergency. The CCP includes information necessary to prevent or minimize hazards to human health and the environment.

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

2.0 Known Contaminants of Concern

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

3.0 Planned Field Activities

The planned field activities include the following:

- Site preparation (installation of support facilities);
- Construction of decontamination pad;
- Construction of staging areas;
- Utility Relocation;
- Excavation of soils;
- Installation of a subsurface barrier on the south and east sides of the site;
- Installation of an overburden NAPL collection trench along the north and west sides of the existing substation;
- Installation of approximately 400 LF of grout wall within the bedrock down gradient of the overburden NAPL collection trench and approximately 200 LF of grout wall within the bedrock along the nearby Barge canal in the vicinity of seeps recorded during investigation work;
- Material Handling and dewatering activities;
- Water disposal;
- Driving Sheet Piling
- Loading of soils;
- Equipment Decontamination;
- NAPL Recovery; and
- Demobilization.

4.0 Responsibilities and Designation Of Emergency Coordinator

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

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

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

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

5.0 Communications

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

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

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

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

The EC/HSO will notify emergency personnel or designate an alternate to do so. A portable telephone will be used for this purpose. The portable telephone will be located in the clean zone. Emergency telephone numbers are included at the back of this plan.

6.0 Evacuation

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

7.0 Safe Distance and Refuge

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

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

8.0 Emergency Response Procedures

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

9.0 Minor Spills during Drum Handling and Removal

For purposes of the CCP, minor spills would be those that consist of 5 gallons or less. Minor spills will be remediated by removing spill debris with any underlying or surrounding contaminated soil. The spilled material will be handled as hazardous waste. If leaking, the container will be placed in an overpack drum. Additional emergency measures would not be implemented, unless needed. The contractor will have empty drums, speedi-dri, miscellaneous hand tools, fire extinguishers, absorbent pads, and booms to deal with minor spills that occur on site.

10.0 Minor Spills in the Drum Staging or Storage Areas

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

11.0 Major Spills

For purposes of this CCP, a major spill is defined as those that involve greater than 5 gallons of material. In the event of a major spill, communication and notification procedures will be implemented. The response will depend on the nature of the release. Attempts will be made to control the release by diking and draining the area. An absorbent pad, Oil Dry, or soil will be used to absorb the release. The removed material will be placed into appropriate drums and sealed to prevent hazards. Employees should note that absorbents solidify the liquid, but do not remove the fire or exposure hazards. Solvents will volatilize from the absorbent and can ignite. Therefore, a fire extinguisher will be brought to the area of the release by the emergency response team until the material is secured inside a drum. In the event that the release is of sufficient magnitude and cannot be controlled by diking, damming, absorbing, or other method, the local fire department, the NYSDEC, and National Response Center shall be notified.

The local responders would be notified through 911. The Lockport Fire Department would be the first responders. The City of Lockport has a Hazardous Materials Team and has capabilities of performing Level A and Level B response actions. If the incident requires Haz Mat response, 911 should be called and the appropriate emergency response personnel will be contacted.

12.0 Confined Space Emergencies

All personnel entering a confined space will have the appropriate training as required under 29 CFR 1910.146. Each employee entering a confined space will wear a safety harness equipped with a lifeline for evacuation purposes in the case of an emergency, unless the lifeline creates more of a hazard for the individual in the space. Emergency equipment such as lifelines, breathing equipment, fire extinguishers and harnesses will be ready for immediate response in case an emergency situation arises.

13.0 Fire

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

14.0 Explosion

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

15.0 Medical

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

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

16.0 Training

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

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

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

17.0 Severe Weather Conditions

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

18.0 Emergency Telephone Numbers

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

Name	**Telephone Numbers**
NYSG Site	TBD
Ambulance	911
Police Departments	911 (716) 433-7700
Niagara County Sheriff	911 (716) 439-6724
Eastern Niagara Hospital	(716) 514-5700
National Response Center	(800) 424-8802
New York Department of Environmental Conservation	(800) 457-7362
Chemtrec (Emergency Technical Information)	(800) 424-9300

Appendix I

Grout Wall Pilot Study Summary Letter

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

518-951-2200 tel
518-951-2300 fax

August 17, 2011 **SENT VIA ELECTRONIC MAIL**

Mr. Richard Dana
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7014

Subject: **Grout Wall Pilot Study Summary**
Site #: 9-32-098
NYSEG – Lockport Transit Street Former MGP Site

Dear Mr. Dana:

AECOM has prepared this letter to describe events associated with the Grout Wall Pilot Study performed at the Lockport Transit Street Former Manufactured Gas Plant (Site) in Lockport, NY.

The Record of Decision (ROD) for the Site (NYSDEC, 2009) requires that a grout wall be constructed to isolate tar in the bedrock from migrating off-site and to the canal wall. Grout will be injected into the bedrock fractures through a row of grout holes. Upon hardening, the grout will prevent the migration of nonaqeuous phase liquids (NAPL) in the bedrock. Recovery wells will be installed upgradient of the grout wall to capture remaining NAPL to the extent practicable.

Specifically, the ROD specifies '*approximately 400 linear feet of grout wall [to be] constructed in the bedrock downgradient of the interceptor trench. It will extend from 1 to 2 feet above the overburden/bedrock interface to an approximate depth of 75 feet to control migration of NAPL through the bedrock.*' In addition, the ROD requires that the '*bedrock grouting will require further evaluation and pilot testing to refine techniques, materials, monitoring, and implementability*." The objective of the pilot study is to evaluate grout wall implementability at the site and develop a grout wall design that meets the objective of the ROD.

PILOT TEST ACTIVITIES

AECOM conducted the Grout Wall Pilot Test from July 11, 2011 to July 19, 2011. Work was performed in general accordance with the approved Grout Treatability Study Work Plan (Appendix A of the Remedial Design Work Plan, AECOM, June 2011). The following activities were performed as part of the pilot study:

- Utility markout and drilling clearance;
- Drilling of the pilot test grout holes within the NYSEG property along Transit Street;
- Water pressure testing of pilot test grout holes and adjacent monitoring well MW-3; and,
- Grouting of holes that took water.

DRILLING SUMMARY

A total of four grout holes were drilled through the overburden and into rock. All wells drilled for this pilot study terminated in rock at 75-ft below ground surface (bgs). All grout holes were vertical.

Prior to drilling, NYSEG checked for underground ulitlities within the property. Following ultility clearance the locations for two primary holes were marked out. These locations were placed 20-ft apart and 12-ft from the western property fence (Figure 1.) These were labeled Primary-1 (P-1) and Primary-2 (P-2), with P-1 being to the north. After drilling and water pressure testing the two primary holes (P-1 and P-2), two secondary wells were installed (S-1 and S-2). S-1 was located between and in line with P-1 and P-2 as planned in the Grout Wall Pilot Study Work Plan (AECOM, June 2011). Since P-1, P-2 and S-1 holes did not take water, an additional secondary hole, S-2 located 10 ft south of P-2., was drilled to extend the pilot study grout wall and see if water-transmitting fractures could be intersected. Note that secondary grout hole S-2 was not included in the planned pilot study, but was added in the field because P-1, P-2, and S-1 did not take water. Drilling of additional holes further north or south was not possible due to overhead lines and blocking the site access gate.

Drilling and grouting work was performed by Nothnagle Drilling, Inc of Scottsville, New York using a CME-75 truck-mounted drill rig. Hollow stem augers were used within the overburden and rotary methods were used for bedrock drilling. Four-inch steel casing was placed within each grout hole from top of bedrock to ground surface and grouted in place prior to bedrock drilling. A 3-7/8 inch rollerbit was used for bedrock drilling, and recirculated water was used as drilling fluid. There was no loss of water into the bedrock in any of the grout holes. There was no visible NAPL or sheen observed during drilling.

The table below provides additional information for each pilot study grout hole

Drilling Information							
Hole No.	**Date Started**	**Date Completed**	**Top of Rock (ft bgs)**	**Depth of Grout Hole (ft bgs)**	**Depth of Rock (ft)**	**Water Loss (gal)**	**Bedrock Drilling Rates (min/ft)**
P-1	7/11/2011	7/13/2011	12.8	75	62.2	0	1-2
P-2	7/11/2011	7/12/2011	12	75.2	63.2	10*	1-3
S-1	7/13/2011	7/18/2011	12	75	63	0	1-2
S-2	7/13/2011	7/14/2011	12	75	63	0	1.5-2

* Water loss believed to be due to leakage around the grouted casing.

WATER PRESSURE TESTING SUMMARY

AECOM performed water pressure testing for each pilot grout hole (P-1, P-2, S-1, and S-2) in three stages (approximately 20-ft of rock per stage). Each stage was drilled and subsequently pressure tested with a single Tams International packer (2-ft long with 2.63-ft diameter) set at the top of the stage. The water pressure (gauge pressure at top of hole) was set to 15 pounds per square inch (psi) for all tests regardless of depth. The first stage started 2 feet below the top of rock to allow the packer to set completely in rock. Water takes (i.e., the amount of water the stage consumes) were measured at 5, 10, and 15 minutes. The test was terminated after 15 minutes. Water takes were converted to Lugeon Units. One Lugeon is equal to a water take of one liter per meter of grout hole per minute. A Lugeon value was calculated for each 5 minute interval of each stage.

Water pressure testing was also conducted at the exising well MW-3 (located 13 feet north of P-1). A smaller 2-ft long by 1.75-ft diameter packer was used for the water pressure test in MW-3.

During the water pressure tests, water levels in nearby existing monitoring wells (i.e., MW-3 and MW-7) were monitored along with any of the primary or secondary holes that had been completed.

Water Levels Collected During Water Pressure Testing								
				Depth to Water (below top of casing, ft)				
Hole No.	Stage	Date	Time	MW-3	MW-7	P-1	P-2	S-2
P-1	1	7/13/2011	8:25	7.25	22	-	-	-
P-1	2	7/13/2011	9:46	7.35	22	-	4.7	-
P-1	3	7/13/2011	11:28	7.45	22	-	4.63	-
P-2	initial	7/12/2011	7:50	7.55	22	-	-	-
P-2	1	7/12/2011	10:15	7.2	22	-	-	-
P-2	2	7/12/2011	12:01	7.15	22	-	-	-
P-2	3	7/12/2011	14:10	7.3	22	-	-	-
S-1	1	7/18/2011	7:58	7.89	16.25*	7.41	4.85	7.95
S-1	2	7/18/2011	9:13	7.7	16.25	7.35	4.8	7.95
S-1	3	7/18/2011	11:05	7.76	16.25	7.25	4.75	7.95
S-2	initial	7/14/2011	7:45	7.6	15.75*	7.05	4.72	-
S-2	1	7/14/2011	9:25	7.43	15.77*	7	4.52	-
S-2	2	7/14/2011	10:58	7.41	15.78*	6.97	4.95	-
S-2	3	7/14/2011	12:55	7.44	15.78*	6.91	4.7	-
MW-3	1	7/14/2011	14:04	-	15.79*	6.85	4.75	-
MW-3	2	7/14/2011	14:50	-	15.79*	6.4	4.75	-
MW-3	2	7/14/2011	15:01	-	15.8*	5.9	4.7	-
MW-3	2	7/14/2011	15:05	-	-	5.72	-	-
MW-3	2	7/14/2011	15:13	-	-	5.5	-	-

* water added to well MW-7 on 7/13/11 to test water draw, water raised 15ft, little recovery

For all four pilot grout holes, there was minimal or no water take in all stages. All primary and secondary grout holes had Lugeon values between 0 and 0.3. Water take in Stage 1 of MW-3 was somewhat greater, between 0.8-2.1 Lugeons. Water takes in stage 2 of MW-3 was minimal (0.4-0.5 Lugeons).

The table below provides test results and parameters for the water pressure tests.

Water Pressure (Packer) Testing									
Grout Hole No.	Stage No.	Stage Interval (feet)		Stage Length (feet)	Minute Interval	Flow Volume (gallons)	Flow Rate (gallons/ min/ft)	Flow Rate (cubic ft/min/ft)	Lugeon Value
		Top	Bottom						
P-1	1	15	33	18	5	0.2	0.002	0.0003	0.3
P-1	1	15	33	18	5	0.1	0.001	0.0001	0.1
P-1	1	15	33	18	5	0.1	0.001	0.0001	0.1
P-1	2	33	53	20	5	0	0.000	0.0000	0.0
P-1	2	33	53	20	5	0.2	0.002	0.0003	0.2
P-1	2	33	53	20	5	0.1	0.001	0.0001	0.1
P-1	3	53	75	22	5	0.1	0.001	0.0001	0.1
P-1	3	53	75	22	5	0	0.000	0.0000	0.0
P-1	3	53	75	22	5	0	0.000	0.0000	0.0
P-2	1	14	32	18	5	0.05	0.001	0.0001	0.1
P-2	1	14	32	18	5	0.05	0.001	0.0001	0.1
P-2	1	14	32	18	5	0.05	0.001	0.0001	0.1
P-2	2	32	52	20	5	0.2	0.002	0.0003	0.2
P-2	2	32	52	20	5	0	0.000	0.0000	0.0
P-2	2	32	52	20	5	0	0.000	0.0000	0.0
P-2	3	52	75	23	5	0.1	0.001	0.0001	0.1
P-2	3	52	75	23	5	0	0.000	0.0000	0.0
P-2	3	52	75	23	5	0	0.000	0.0000	0.0
S-1	1	14	33	19	5	0	0.000	0.0000	0.0
S-1	1	14	33	19	5	0	0.000	0.0000	0.0
S-1	1	14	33	19	5	0	0.000	0.0000	0.0
S-1	2	33	53	20	5	0.1	0.001	0.0001	0.1
S-1	2	33	53	20	5	0.1	0.001	0.0001	0.1
S-1	2	33	53	20	5	0	0.000	0.0000	0.0
S-1	3	53	75	22	5	0	0.000	0.0000	0.0
S-1	3	53	75	22	5	0.1	0.001	0.0001	0.1
S-1	3	53	75	22	5	0	0.000	0.0000	0.0
S-2	1	14	33	19	5	0	0.000	0.0000	0.0
S-2	1	14	33	19	5	0	0.000	0.0000	0.0
S-2	1	14	33	19	5	0	0.000	0.0000	0.0
S-2	2	33	53	20	5	0.2	0.002	0.0003	0.2
S-2	2	33	53	20	5	0.2	0.002	0.0003	0.2
S-2	2	33	53	20	5	0.2	0.002	0.0003	0.2
S-2	3	53	75	22	5	0	0.000	0.0000	0.0
S-2	3	53	75	22	5	0	0.000	0.0000	0.0
S-2	3	53	75	22	5	0	0.000	0.0000	0.0

Water Pressure (Packer) Testing									
Grout Hole No.	Stage No.	Stage Interval (feet)		Stage Length (feet)	Minute Interval	Flow Volume (gallons)	Flow Rate (gallons / minute / foot)	Flow Rate (cubic feet / minute / foot)	Lugeon Value
MW-3	2	35.7	61.5	25.8	5	0.4	0.003	0.0004	0.4
MW-3	2	35.7	61.5	25.8	5	0.5	0.004	0.0005	0.5
MW-3	2	35.7	61.5	25.8	5	0.4	0.003	0.0004	0.4
MW-3	1	14.5	61.5	47	5	3.6	0.015	0.0020	1.8
MW-3	1	14.5	61.5	47	5	2.6	0.011	0.0015	1.3
MW-3	1	14.5	61.5	47	5	4.2	0.018	0.0024	2.1
MW-3	1	14.5	61.5	47	5	1.5	0.006	0.0009	0.8
MW-3	1	14.5	61.5	47	5	1.6	0.007	0.0009	0.8
MW-3	1	14.5	61.5	47	5	1.6	0.007	0.0009	0.8

GROUT SUMMARY

Grout injection was determined only feasible on MW-3 since the Lugeon value in Stage 2 was between 1 and 2. Grouting was not done on the primary and secondary holes as these grout holes accepted only minimal water (Lugeon of less than 1).

The grout mix used for pressure grouting acitivies included bagged Portland Type I/II (Quickcrete) and bentonite (Volclay) mixed with water. Type II cement was specified for the pilot study because it provides resistance to the moderate sulfate concentrations found in ground water at this site. (Remedial Investigation Report (2005 samples) indicates sulfate concentrations averaging 630 mg/L in shallow bedrock wells, 909 mg/L in intermediate bedrock wells, and 315 mg/L in deep bedrock wells.)

For pressure grouting of MW-3 grout was mixed using a high-speed, high-shear mixer (High Shear 714). In accordance with the guidelines outlined in the Grout Wall Pilot Study Work Plan, a grout mix (2:1 water:cement by volume, plus bentonite at 2± pounds bentonite per bag of cement) was used for pressure grouting of MW-3. The same mix was also used for tremie grouting the primary and secondary grout holes.

MW-3 was pressure grouted in 2 stages. The bottom stage was grouted first and included placement of grout from 36- to 60.5-ft bgs. This interval was grouted at a pressure of 45 psi following the guidelines outlined in the Grout Wall Pilot Study Work Plan of 1 psi per foot of depth below top of rock to the bottom of the stage. At this pressure there was initially 7-12 gallons of grout take – assumed to be grout to fill the hole – and then no further grout injection. The test was terminated after 15 minutes with no measureable grout take.

The top stage(15- to 36-ft bgs) was grouted at a constant pressure of approximately 24 psi. There was no grout take for the top stage. The test was terminated after 30 minutes without grout take.

During the grout injections, the water level in grout hole P-1 slowly, and continuously rose, indicating minor intercommunication with MW-3. The results are shown in the table below.

MW-3 Stage	Time Interval	Groundwater Level in P-1 (ft btoc)
1	0	7.32
1	15	7.19
2	0	7.20
2	15	6.70

Following the pressure grouting of MW-3, the four primary and secondary holes were tremie grouted to the surface and the casings were pulled. The casing for MW-3 was cut even with the concrete pad. The concrete pad and casing for MW-3 were left in place for removal during future excavation of the site.

AIR MONITORING

A MiniRAE 2000 Photo Ionization Detector (PID) was used to conduct workzone air monitoring during the pilot study. No workzone PID readings exceeded 5 parts per million (ppm). Drumed drilling soil and sediment cuttings were checked with the PID. Drum readings ranged from 0 ppm – 4.6 ppm during drilling activities.

WASTE MANAGEMENT

Overburden soil and drilling sediment was collected in 55 gallong drums. Twelve drums of soil/sediment and one drum of well tubing/poly was collected. Soil and sediment were tested for TCLP Benzene and TCL PCBs on July 22, 2011. Analytical results are presented in Attachment A.

Approximately 2,500 gal of water and fine sediment produced during drilling activities were pumped to a 10,000 gallon frac tank and stored onsite for proper disposal. The water was tested for benzene and TCL PCBs on July 22, 2011. Analytical results are presented in Attachment A.

CONCLUSIONS

1. Water takes in the four pilot grout holes was minimal in all stages. Corresponding Lugeon values ranged from zero (i.e., no water take) to 0.3. These low values indicate that the rock at the location of the pilot study grout holes is tight with low hydraulic conductivity. This rock is not groutable with cement grout.
2. Return drill wash water typically did not have a sheen, indicating that NAPL is not likely to be present in the tight bedrock fractures in the area of the pilot study.
3. Water takes in existing monitoring well MW-3 ranged from 1 to 2 Lugeons in the upper stage. Attempts to pressure grout this hole resulted in no measureable grout take (i.e., based on measurements in the grout holding tank). However, it appears that minor quantites of grout penetrated into fine bedrock fractures, evidenced by a small rise in water level in adjacent primary grout hole P-1 during grouting operations.
4. The pilot study confirms that it is impracticable to grout holes with cement grout if measured Lugeon values are less than 1 to 2. This is the lower practical limit for a cement grout barrier wall.
5. Previous bedrock packer testing performed for the Remedial Investigation in the vicinity of the site (i.e., BMW-04-01, BMW-04-03, BMW-04-09, and MW-15) indicated measured Lugeon values generally ranging from about 0 to 130 Lugeons. One test in the Dolomite indicated a Lugeon value of about 1900. A total of 13 packer tests were performed for the Remedial Investigation, with a median value of 9 Lugeons. The bedrock at the location of the pilot

study is at the low end of this range. However, more permeable bedrock, with wider fractures, may occur along portions of the remaining grout wall alignments.

6. The pilot study portion of the barrier wall (30+/- lineal feet) has been adequately tested and grouted, and can be incorporated into the final grout barrier wall without need for additional water pressure testing or grouting.

RECOMMENDATIONS

Although the pilot study was located in an area where the bedrock is tight, with little water and grout take, the resulting data are judged sufficient to aid in the final design of the proposed bedrock grout curtain barrier walls. Specifically:

1. A single row of grout holes is sufficient to evaluate bedrock conditions and create a barrier wall. However, a second row of grout holes, possibly angled, may be considered in localized areas with high Lugeon values (e.g., > 100) and large grout takes, if any.
2. The split spacing method of grouting is appropriate. A primary grout hole spacing of 20 feet is reasonable. Stage lengths of about 20 feet are also reasonable.
3. Cement grouting is appropriate. The absence of sheen in drill wash water return indicates that the tight rock in the area of the pilot study does not have fractures of sufficient size capable of transmitting significant NAPL. Therefore use of low viscosity chemical grouts that could potentially penetrate into such fine fractures is not warranted.
4. Type II cement (or Type I/II) should be used to provide sulfate resistance.
5. Grouting is impractical (and not necessary) when measured Lugeon values are less than about 1 to 2.
6. The water and grout pressures used in the pilot study are reasonable and appropriate for the final design.

Should you have any questions or require additional information in the meantime, please do not hesitate to contact Scott Underhill at (518) 951-2208.

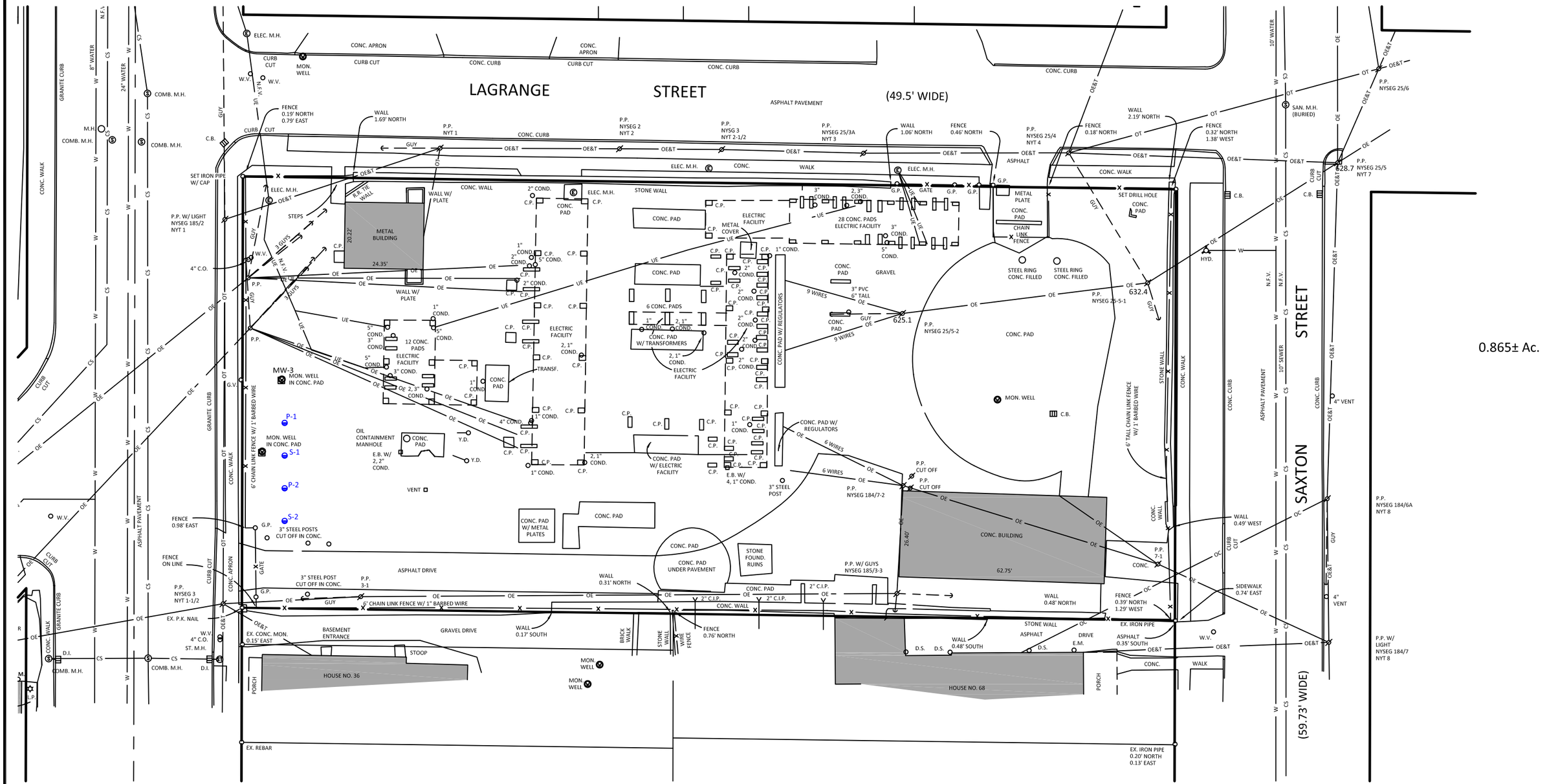
Yours sincerely,

Carsten H. Floess, P.E.
Senior Engineer

Scott Underhill, P.E.
Project Manager

cc: T. Blazicek, NYSEG

FIGURE



LEGEND

- P-1 PRIMARY BORE HOLE
- S-1 SECONDARY BORE HOLE

MAPPING REFERENCE:

BASE MAPPING FROM A PLAN TITLED TOPOGRAPHICAL/PLANIMETRIC MAP OF PART OF LOT-12, SEC.-14, TWP.-14, R.-6, HOLLAND PURCHASE BY McINTOSH & McINTOSH, P.C., DATED JUNE 1, 2011, INCLUDING ALL NOTES AND REFERENCES THEREIN.

AECOM

LOCATION OF TEST PILOT GROUT HOLES

NYSEG - FORMER LOCKPORT MGP SITE
LOCKPORT, NEW YORK

FILE NAME:	DRN	PROJECT NO.	DATE	FIGURE NO.
	—	60194949	MO/YEAR	1

Plotted By: meisterk
Layout-Sheet Name: --1 (2)
Plot File Date Created: Aug/11/2011 10:41 AM

Filename: L:\WORK\60194949_NYSEGLOCKPORT\CADD\TASK_1\GEN\FIGURES\60194949-LOCKPORT-GROUT_PILOT.DWG

ATTACHMENT A

WASTE CHARACTERIZATION ANALYTICAL RESULTS

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-7644-1
Client Project/Site: NYSEG Lockport, NY site

For:
AECOM, Inc.
100 Corporate Parkway
Suite 341
Amherst, New York 14226

Attn: Emily Laity

Authorized for release by:
07/30/2011 11:50:42 AM

Ryan VanDette
Project Manager I
ryan.vandette@testamericainc.com

LINKS

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Results relate only to the items tested and the sample(s) as received by the laboratory. The test results in this report meet all 2003 NELAC requirements for accredited parameters, exceptions are noted in this report. Pursuant to NELAC, this report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis.
EPA	United States Environmental Protection Agency
ND	Not Detected above the reporting level.
MDL	Method Detection Limit
RL	Reporting Limit
RE, RE1 (etc.)	Indicates a Re-extraction or Reanalysis of the sample.
%R	Percent Recovery
RPD	Relative Percent Difference, a measure of the relative difference between two points.

Client: AECOM, Inc.
Project/Site: NYSEG Lockport, NY site

TestAmerica Job ID: 480-7644-1

Job ID: 480-7644-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-7644-1

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

GC/MS VOA
Method(s) 8260B: The following sample(s) was diluted due to the nature of the TCLP sample matrix: (LB 480-25116/1-A), DRUMS-TCLP BENZENE-072211 (480-7644-5). Elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

GC Semi VOA
No analytical or quality issues were noted.

Organic Prep
Method(s) 3550B: A significant amount of liquid was present in the following samples: DRUMS-PCBS-072211 (480-7644-3). These samples were decanted prior to preparation.

No other analytical or quality issues were noted.

Detection Summary

Client: AECOM, Inc.
Project/Site: NYSEG Lockport, NY site

TestAmerica Job ID: 480-7644-1

Client Sample ID: FRAC TANK-PCBS-072211 — Lab Sample ID: 480-7644-1

No Detections.

Client Sample ID: FRAC TANK-BENZENE-072211 — Lab Sample ID: 480-7644-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	32		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: DRUMS-PCBS-072211 — Lab Sample ID: 480-7644-3

No Detections.

Client Sample ID: TRIP BLANK — Lab Sample ID: 480-7644-4

No Detections.

Client Sample ID: DRUMS-TCLP BENZENE-072211 — Lab Sample ID: 480-7644-5

No Detections.

Client Sample ID: FRAC TANK-PCBS-072211

Lab Sample ID: 480-7644-1

Date Collected: 07/22/11 09:25

Matrix: Water

Date Received: 07/22/11 18:10

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.48		ug/L		07/26/11 15:57	07/27/11 15:03	1
PCB-1221	ND		0.48		ug/L		07/26/11 15:57	07/27/11 15:03	1
PCB-1232	ND		0.48		ug/L		07/26/11 15:57	07/27/11 15:03	1
PCB-1242	ND		0.48		ug/L		07/26/11 15:57	07/27/11 15:03	1
PCB-1248	ND		0.48		ug/L		07/26/11 15:57	07/27/11 15:03	1
PCB-1254	ND		0.48		ug/L		07/26/11 15:57	07/27/11 15:03	1
PCB-1260	ND		0.48		ug/L		07/26/11 15:57	07/27/11 15:03	1

Surrogate	*% Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*19*		*12 - 137*	*07/26/11 15:57*	*07/27/11 15:03*	*1*
Tetrachloro-m-xylene	*69*		*35 - 121*	*07/26/11 15:57*	*07/27/11 15:03*	*1*

Client Sample ID: FRAC TANK-BENZENE-072211

Lab Sample ID: 480-7644-2

Date Collected: 07/22/11 09:30

Matrix: Water

Date Received: 07/22/11 18:10

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**32**		1.0		ug/L			07/26/11 14:56	1

Surrogate	*% Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*66 - 137*		*07/26/11 14:56*	*1*
Toluene-d8 (Surr)	*104*		*71 - 126*		*07/26/11 14:56*	*1*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*		*07/26/11 14:56*	*1*

Client Sample ID: DRUMS-PCBS-072211

Lab Sample ID: 480-7644-3

Date Collected: 07/22/11 09:45

Matrix: Solid

Date Received: 07/22/11 18:10

Percent Solids: 77.1

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		220		ug/Kg	☼	07/26/11 08:37	07/26/11 13:03	1
PCB-1221	ND		220		ug/Kg	☼	07/26/11 08:37	07/26/11 13:03	1
PCB-1232	ND		220		ug/Kg	☼	07/26/11 08:37	07/26/11 13:03	1
PCB-1242	ND		220		ug/Kg	☼	07/26/11 08:37	07/26/11 13:03	1
PCB-1248	ND		220		ug/Kg	☼	07/26/11 08:37	07/26/11 13:03	1
PCB-1254	ND		220		ug/Kg	☼	07/26/11 08:37	07/26/11 13:03	1
PCB-1260	ND		220		ug/Kg	☼	07/26/11 08:37	07/26/11 13:03	1

Surrogate	*% Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*101*		*34 - 148*	*07/26/11 08:37*	*07/26/11 13:03*	*1*
Tetrachloro-m-xylene	*92*		*35 - 134*	*07/26/11 08:37*	*07/26/11 13:03*	*1*

Client: AECOM, Inc.
Project/Site: NYSEG Lockport, NY site

TestAmerica Job ID: 480-7644-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-7644-4

Date Collected: 07/22/11 00:00
Matrix: Water
Date Received: 07/22/11 18:10

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			07/26/11 15:18	1

Surrogate	*% Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*66 - 137*		*07/26/11 15:18*	*1*
Toluene-d8 (Surr)	*103*		*71 - 126*		*07/26/11 15:18*	*1*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*		*07/26/11 15:18*	*1*

Client Sample ID: DRUMS-TCLP BENZENE-072211

Lab Sample ID: 480-7644-5

Date Collected: 07/22/11 09:50
Matrix: Solid
Date Received: 07/22/11 18:10

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.010		mg/L			07/28/11 06:46	10

Surrogate	*% Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*66 - 137*		*07/28/11 06:46*	*10*
Toluene-d8 (Surr)	*111*		*71 - 126*		*07/28/11 06:46*	*10*
4-Bromofluorobenzene (Surr)	*103*		*73 - 120*		*07/28/11 06:46*	*10*

Surrogate Summary

Client: AECOM, Inc.
Project/Site: NYSEG Lockport, NY site

TestAmerica Job ID: 480-7644-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		12DCE	TOL	BFB
Lab Sample ID	Client Sample ID	(66-137)	(71-126)	(73-120)
LCS 480-25271/4	Lab Control Sample	92	112	106
MB 480-25271/5	Method Blank	93	113	104

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)		
		12DCE	TOL	BFB
Lab Sample ID	Client Sample ID	(66-137)	(71-126)	(73-120)
480-7644-5	DRUMS-TCLP BENZENE-072211	94	111	103
LB 480-25116/1-A LB	Method Blank	96	111	103

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		12DCE	TOL	BFB
Lab Sample ID	Client Sample ID	(66-137)	(71-126)	(73-120)
480-7644-2	FRAC TANK-BENZENE-072211	101	104	102
480-7644-4	TRIP BLANK	100	103	98
LCS 480-24945/3	Lab Control Sample	99	104	99
MB 480-24945/5	Method Blank	97	105	99

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB1	TCX1
Lab Sample ID	Client Sample ID	(34-148)	(35-134)
480-7644-3	DRUMS-PCBS-072211	101	92
LCS 480-24946/2-A	Lab Control Sample	107	123
LCSD 480-24946/3-A	Lab Control Sample Dup	108	124
MB 480-24946/1-A	Method Blank	96	103

Surrogate Legend

DCB = DCB Decachlorobiphenyl
TCX = Tetrachloro-m-xylene

Surrogate Summary

Client: AECOM, Inc.
Project/Site: NYSEG Lockport, NY site

TestAmerica Job ID: 480-7644-1

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)											
Lab Sample ID	Client Sample ID	DCB1 (12-137)	TCX1 (35-121)										
480-7644-1	FRAC TANK-PCBS-072211	19	69										
LCS 480-25069/2-A	Lab Control Sample	47	54										
MB 480-25069/1-A	Method Blank	54	62										

Surrogate Legend

DCB = DCB Decachlorobiphenyl

TCX = Tetrachloro-m-xylene

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 480-24945/5
Matrix: Water
Analysis Batch: 24945

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			07/26/11 10:29	1

Surrogate	*MB % Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*66 - 137*		*07/26/11 10:29*	*1*
Toluene-d8 (Surr)	*105*		*71 - 126*		*07/26/11 10:29*	*1*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*07/26/11 10:29*	*1*

Lab Sample ID: LCS 480-24945/3
Matrix: Water
Analysis Batch: 24945

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Benzene			25.0	25.1		ug/L		100	71 - 124		

Surrogate	*LCS % Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*99*		*66 - 137*
Toluene-d8 (Surr)	*104*		*71 - 126*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*

Lab Sample ID: MB 480-25271/5
Matrix: Solid
Analysis Batch: 25271

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/L			07/27/11 21:19	1

Surrogate	*MB % Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*66 - 137*		*07/27/11 21:19*	*1*
Toluene-d8 (Surr)	*113*		*71 - 126*		*07/27/11 21:19*	*1*
4-Bromofluorobenzene (Surr)	*104*		*73 - 120*		*07/27/11 21:19*	*1*

Lab Sample ID: LCS 480-25271/4
Matrix: Solid
Analysis Batch: 25271

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Benzene			0.0250	0.0238		mg/L		95	71 - 124		

Surrogate	*LCS % Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*92*		*66 - 137*
Toluene-d8 (Surr)	*112*		*71 - 126*
4-Bromofluorobenzene (Surr)	*106*		*73 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LB 480-25116/1-A LB
Matrix: Solid
Analysis Batch: 25271

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.010		mg/L			07/28/11 04:55	10

Surrogate	*LB % Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*66 - 137*		*07/28/11 04:55*	*10*
Toluene-d8 (Surr)	*111*		*71 - 126*		*07/28/11 04:55*	*10*
4-Bromofluorobenzene (Surr)	*103*		*73 - 120*		*07/28/11 04:55*	*10*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 480-24946/1-A
Matrix: Solid
Analysis Batch: 25002

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 24946

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		210		ug/Kg		07/26/11 08:37	07/26/11 12:15	1
PCB-1221	ND		210		ug/Kg		07/26/11 08:37	07/26/11 12:15	1
PCB-1232	ND		210		ug/Kg		07/26/11 08:37	07/26/11 12:15	1
PCB-1242	ND		210		ug/Kg		07/26/11 08:37	07/26/11 12:15	1
PCB-1248	ND		210		ug/Kg		07/26/11 08:37	07/26/11 12:15	1
PCB-1254	ND		210		ug/Kg		07/26/11 08:37	07/26/11 12:15	1
PCB-1260	ND		210		ug/Kg		07/26/11 08:37	07/26/11 12:15	1

Surrogate	*MB % Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*96*		*34 - 148*	*07/26/11 08:37*	*07/26/11 12:15*	*1*
Tetrachloro-m-xylene	*103*		*35 - 134*	*07/26/11 08:37*	*07/26/11 12:15*	*1*

Lab Sample ID: LCS 480-24946/2-A
Matrix: Solid
Analysis Batch: 25002

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 24946

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
PCB-1016			2380	3170		ug/Kg		133	59 - 154		
PCB-1260			2380	2670		ug/Kg		112	51 - 179		

Surrogate	*LCS % Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*107*		*34 - 148*
Tetrachloro-m-xylene	*123*		*35 - 134*

Lab Sample ID: LCSD 480-24946/3-A
Matrix: Solid
Analysis Batch: 25002

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 24946

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
PCB-1016			1850	2480		ug/Kg		134	59 - 154	24	50
PCB-1260			1850	2160		ug/Kg		117	51 - 179	21	50

Surrogate	*LCSD % Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl	*108*		*34 - 148*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: LCSD 480-24946/3-A
Matrix: Solid
Analysis Batch: 25002

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 24946

Surrogate	LCSD % Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	124		35 - 134

Lab Sample ID: MB 480-25069/1-A
Matrix: Water
Analysis Batch: 25123

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25069

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.50		ug/L		07/26/11 15:57	07/27/11 09:56	1
PCB-1221	ND		0.50		ug/L		07/26/11 15:57	07/27/11 09:56	1
PCB-1232	ND		0.50		ug/L		07/26/11 15:57	07/27/11 09:56	1
PCB-1242	ND		0.50		ug/L		07/26/11 15:57	07/27/11 09:56	1
PCB-1248	ND		0.50		ug/L		07/26/11 15:57	07/27/11 09:56	1
PCB-1254	ND		0.50		ug/L		07/26/11 15:57	07/27/11 09:56	1
PCB-1260	ND		0.50		ug/L		07/26/11 15:57	07/27/11 09:56	1

Surrogate	MB % Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	54		12 - 137	07/26/11 15:57	07/27/11 09:56	1
Tetrachloro-m-xylene	62		35 - 121	07/26/11 15:57	07/27/11 09:56	1

Lab Sample ID: LCS 480-25069/2-A
Matrix: Water
Analysis Batch: 25123

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25069

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
PCB-1016	5.00	4.57		ug/L		91	51 - 123
PCB-1260	5.00	3.98		ug/L		80	52 - 128

Surrogate	LCS % Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	47		12 - 137
Tetrachloro-m-xylene	54		35 - 121

QC Association Summary

Client: AECOM, Inc.
Project/Site: NYSEG Lockport, NY site

TestAmerica Job ID: 480-7644-1

GC/MS VOA

Analysis Batch: 24945

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 480-24945/3	Lab Control Sample	Total/NA	Water	8260B	
MB 480-24945/5	Method Blank	Total/NA	Water	8260B	
480-7644-2	FRAC TANK-BENZENE-072211	Total/NA	Water	8260B	
480-7644-4	TRIP BLANK	Total/NA	Water	8260B	

Leach Batch: 25116

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 480-25116/1-A LB	Method Blank	TCLP	Solid	1311	
480-7644-5	DRUMS-TCLP BENZENE-072211	TCLP	Solid	1311	

Analysis Batch: 25271

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 480-25271/4	Lab Control Sample	Total/NA	Solid	8260B	
MB 480-25271/5	Method Blank	Total/NA	Solid	8260B	
LB 480-25116/1-A LB	Method Blank	TCLP	Solid	8260B	
480-7644-5	DRUMS-TCLP BENZENE-072211	TCLP	Solid	8260B	

GC Semi VOA

Prep Batch: 24946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-24946/1-A	Method Blank	Total/NA	Solid	3550B	
LCS 480-24946/2-A	Lab Control Sample	Total/NA	Solid	3550B	
LCSD 480-24946/3-A	Lab Control Sample Dup	Total/NA	Solid	3550B	
480-7644-3	DRUMS-PCBS-072211	Total/NA	Solid	3550B	

Analysis Batch: 25002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-24946/1-A	Method Blank	Total/NA	Solid	8082	24946
LCS 480-24946/2-A	Lab Control Sample	Total/NA	Solid	8082	24946
LCSD 480-24946/3-A	Lab Control Sample Dup	Total/NA	Solid	8082	24946
480-7644-3	DRUMS-PCBS-072211	Total/NA	Solid	8082	24946

Prep Batch: 25069

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-25069/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-25069/2-A	Lab Control Sample	Total/NA	Water	3510C	
480-7644-1	FRAC TANK-PCBS-072211	Total/NA	Water	3510C	

Analysis Batch: 25123

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-25069/1-A	Method Blank	Total/NA	Water	8082	25069
LCS 480-25069/2-A	Lab Control Sample	Total/NA	Water	8082	25069
480-7644-1	FRAC TANK-PCBS-072211	Total/NA	Water	8082	25069

General Chemistry

Analysis Batch: 25275

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-7644-3	DRUMS-PCBS-072211	Total/NA	Solid	Moisture	

Lab Chronicle

Client: AECOM, Inc.
Project/Site: NYSEG Lockport, NY site

TestAmerica Job ID: 480-7644-1

Client Sample ID: FRAC TANK-PCBS-072211

Lab Sample ID: 480-7644-1
Matrix: Water
Date Collected: 07/22/11 09:25
Date Received: 07/22/11 18:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			25069	07/26/11 15:57	DE	TAL BUF
Total/NA	Analysis	8082		1	25123	07/27/11 15:03	JM	TAL BUF

Client Sample ID: FRAC TANK-BENZENE-072211

Lab Sample ID: 480-7644-2
Matrix: Water
Date Collected: 07/22/11 09:30
Date Received: 07/22/11 18:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	24945	07/26/11 14:56	TRB	TAL BUF

Client Sample ID: DRUMS-PCBS-072211

Lab Sample ID: 480-7644-3
Matrix: Solid
Date Collected: 07/22/11 09:45
Date Received: 07/22/11 18:10
Percent Solids: 77.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			24946	07/26/11 08:37	TR	TAL BUF
Total/NA	Analysis	8082		1	25002	07/26/11 13:03	JM	TAL BUF
Total/NA	Analysis	Moisture		1	25275	07/27/11 21:13	AS	TAL BUF

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-7644-4
Matrix: Water
Date Collected: 07/22/11 00:00
Date Received: 07/22/11 18:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	24945	07/26/11 15:18	TRB	TAL BUF

Client Sample ID: DRUMS-TCLP BENZENE-072211

Lab Sample ID: 480-7644-5
Matrix: Solid
Date Collected: 07/22/11 09:50
Date Received: 07/22/11 18:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
TCLP	Leach	1311			25116	07/27/11 01:32	LT	TAL BUF
TCLP	Analysis	8260B		10	25271	07/28/11 06:46	DC	TAL BUF

Laboratory References:
TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Certification Summary

Client: AECOM, Inc.
Project/Site: NYSEG Lockport, NY site

TestAmerica Job ID: 480-7644-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Buffalo	Arkansas	State Program	6	88-0686
TestAmerica Buffalo	California	NELAC	9	1169CA
TestAmerica Buffalo	Connecticut	State Program	1	PH-0568
TestAmerica Buffalo	Florida	NELAC	4	E87672
TestAmerica Buffalo	Georgia	Georgia EPD	4	N/A
TestAmerica Buffalo	Georgia	State Program	4	956
TestAmerica Buffalo	Illinois	NELAC	5	100325 / 200003
TestAmerica Buffalo	Iowa	State Program	7	374
TestAmerica Buffalo	Kansas	NELAC	7	E-10187
TestAmerica Buffalo	Kentucky	Kentucky UST	4	30
TestAmerica Buffalo	Kentucky	State Program	4	90029
TestAmerica Buffalo	Louisiana	NELAC	6	02031
TestAmerica Buffalo	Maine	State Program	1	NY0044
TestAmerica Buffalo	Maryland	State Program	3	294
TestAmerica Buffalo	Massachusetts	State Program	1	M-NY044
TestAmerica Buffalo	Michigan	State Program	5	9937
TestAmerica Buffalo	Minnesota	NELAC	5	036-999-337
TestAmerica Buffalo	New Hampshire	NELAC	1	68-00281
TestAmerica Buffalo	New Hampshire	NELAC	1	2337
TestAmerica Buffalo	New Jersey	NELAC	2	NY455
TestAmerica Buffalo	New York	NELAC	2	10026
TestAmerica Buffalo	North Dakota	State Program	8	R-176
TestAmerica Buffalo	Oklahoma	State Program	6	9421
TestAmerica Buffalo	Oregon	NELAC	10	NY200003
TestAmerica Buffalo	Pennsylvania	NELAC	3	68-00281
TestAmerica Buffalo	Tennessee	State Program	4	TN02970
TestAmerica Buffalo	Texas	NELAC	6	T104704412-08-TX
TestAmerica Buffalo	USDA	USDA		P330-08-00242
TestAmerica Buffalo	Virginia	State Program	3	278
TestAmerica Buffalo	Washington	State Program	10	C1677
TestAmerica Buffalo	West Virginia	West Virginia DEP	3	252
TestAmerica Buffalo	Wisconsin	State Program	5	998310390

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Method Summary

Client: AECOM, Inc.
Project/Site: NYSEG Lockport, NY site

TestAmerica Job ID: 480-7644-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL BUF
8082	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL BUF
Moisture	Percent Moisture	EPA	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: AECOM, Inc.
Project/Site: NYSEG Lockport, NY site

TestAmerica Job ID: 480-7644-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-7644-1	FRAC TANK-PCBS-072211	Water	07/22/11 09:25	07/22/11 18:10
480-7644-2	FRAC TANK-BENZENE-072211	Water	07/22/11 09:30	07/22/11 18:10
480-7644-3	DRUMS-PCBS-072211	Solid	07/22/11 09:45	07/22/11 18:10
480-7644-4	TRIP BLANK	Water	07/22/11 00:00	07/22/11 18:10
480-7644-5	DRUMS-TCLP BENZENE-072211	Solid	07/22/11 09:50	07/22/11 18:10

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☐

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124 (1007)

Client	Project Manager	Date	Chain of Custody Number
AECOM	Scott Underhill	7-22-11	195964
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
100 Corporate Pkwy Suite 341	(716) 836-4506 / (716) 834-8785		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
Amherst / NY / 14226	Emily Laity	Ryan Van Dette	
Project Name and Location (State)	**Carrier/Waybill Number**		
NYSEG Lockport MGP, New York			
Contract/Purchase Order/Quote No.			
60194949.1			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: 8260B - Benzene	PCBs - 8082	TCLP Benzene	TCL PCBs	Special Instructions/ Conditions of Receipt
Fractank-PCBs-072211	7-22-11	9:25		X										2			
Fractank-benzene-072211	7-22-11	9:30		X						X			3				
Drums-PCBs-072211	7-22-11	9:45			X										~~1~~	1	
TRIP BLank	7-22-11	—		X						X					1	~~1~~	
Drums-TCLP Benzen-072211	7-22-11	9:50			X								1				

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months
(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Standard

QC Requirements (Specify)

	Date	Time
1. Relinquished By (AECOM)	7-22-11	18:10
2. Relinquished By		
3. Relinquished By		

	Date	Time
1. Received By	7/22/11	1810
2. Received By		
3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

4.7

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 480-7644-1

Login Number: 7644
List Number: 1
Creator: Janish, Carl

List Source: TestAmerica Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background		
The cooler's custody seal, if present, is intact.		
The cooler or samples do not appear to have been compromised or tampered with.		
Samples were received on ice.		
Cooler Temperature is acceptable.		
Cooler Temperature is recorded.		
COC is present.		
COC is filled out in ink and legible.		
COC is filled out with all pertinent information.		
Is the Field Sampler's name present on COC?		
There are no discrepancies between the sample IDs on the containers and the COC.		
Samples are received within Holding Time.		
Sample containers have legible labels.		
Containers are not broken or leaking.		
Sample collection date/times are provided.		
Appropriate sample containers are used.		
Sample bottles are completely filled.		
Sample Preservation Verified		
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs		
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.		
If necessary, staff have been informed of any short hold time or quick TAT needs		
Multiphasic samples are not present.		
Samples do not require splitting or compositing.		
Sampling Company provided.		
Samples received within 48 hours of sampling.		
Samples requiring field filtration have been filtered in the field.		
Chlorine Residual checked.		

Appendix J

NYSDEC Approval Letter

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway, Albany, New York 12233-7014
Phone: (518) 402-9662 • **Fax:** (518) 402-9679
Website: www.dec.ny.gov

Joe Martens
Commissioner

April 10, 2013

Tracy L. Blazicek, CHMM
New York State Electric & Gas Corporation
P.O. Box 5224
James A. Carrigg Center, 18 Link Drive
Binghamton New York 13902-5224

Re: Letter Response from Scott Underhill dated April 4, 2013, to Comments on Remedial Design Report 95% Submittal and Waste Characterization Summary Report both dated September 2012
Lockport Transit Street Former MGP Site
Site ID No. 932098
Lockport, Niagara County

Dear Mr. Blazicek:

The State has reviewed the letter dated April 4, 2013 from Scott Underhill, responding to the State's comments dated March 25, 2013 on the Remedial Design Report 95% Submittal and the Waste Characterization Summary Report both dated September 2012 for the Lockport Transit Street Former MGP Site. The response is acceptable provided the following issues are addressed to our satisfaction.

Regarding the issue of the definition of work hours in the design document, your language characterizing my interpretation is incorrect. My interpretation is that "hours will be limited to daylight hours between 7 A.M. and 5 P. M.," not as you stated that "hours will be limited to 7 A.M. to 5 P.M." As long as this is your interpretation as to how the design document will be interpreted, then it is acceptable as is.

Regarding odor suppression addressed in Attachment 2, Technical specifications 012150 page 2 of 3, in addition to the changes proposed in your letter to address my concerns, the statement "Foam must be onsite along with the equipment necessary to deliver it to the excavation face whenever excavation is taking place in areas known or suspected to contain impacted materials" must also be included in the design specifications.

Provided the above addition to the design document is made and that you agree with my interpretation of the language of the design document in reference to work hours, please provide me with a PE-stamped Final 100% Remedial Design.

If you have any questions concerning the technical aspects of this matter, please contact me at 518-402-9662.

Sincerely,

Richard H. Dana, CPG
Engineering Geologist
MGP Remediation Section

ec: Scott Underhill, AECOM
Matthew Forcucci, NYSDOH
Glenn May, Region 9

Appendix K

Biosolve© Product Information

BioSolve®
Hydrocarbon Mitigation Technology

...Is Making A Difference!

VAPOR SUPPRESSION / ODOR CONTROL

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

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

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

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

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

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

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

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

This material is made available or use by professionals or persons having technical skill to be used at the own discretion and risk. These protocols are guidelines only and may need to be modified to site specific conditions. Nothing included herein is a warrantee or to be taken as a license to use **BioSolve** without the proper permits, approvals, etc. of the appropriate regulatory agencies, nor are the protocols provided as instructions for any specific application of **BioSolve**.

SOIL VAPOR SUPPRESSION UTILIZING BIOSOLVE

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

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

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

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

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

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

MATERIAL SAFETY DATA SHEET

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

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

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

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

SECTION I - IDENTITY

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

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SECTION II - HAZARDOUS INGREDIENTS

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

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

SECTION III - PHYSICAL - CHEMICAL CHARACTERISTICS

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

SECTION IV - FIRE AND EXPLOSION DATA

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

SECTION V - SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

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

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

Waste Disposal Procedures -

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

SECTION VI - HEALTH HAZARDS

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

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

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

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

SECTION VII - SPECIAL PROTECTION INFORMATION

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

SECTION VIII - PHYSICAL HAZARDS

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

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SECTION IX - TRANSPORT & STORAGE

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

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SECTION X - REGULATORY INFORMATION

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

Appendix L

Erosion and Sediment Controls

Environment

Prepared for:
NYS Electric & Gas Company

Prepared by:
AECOM
Latham, NY
60194949
April 2013

Remedial Design
100% Submittal
Lockport Former MGP Site
Lockport, New York
NYSDEC Site # 932098
Erosion and Sediment Control Plan

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3.3 Storm Water Management 3

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1.0 Introduction

New York State Electric & Gas Corporation (NYSEG) is preparing to implement a Remedial Design involving the excavation of coal tar impacted soil associated with the Lockport Former Manufactured Gas Plant (MGP) site located in Lockport, Niagara County, New York. This Erosion and Sediment Control Plan will detail planned erosion and sediment control activities and practices that will be implemented for this remediation project. This Erosion and Sediment Control Plan is designed to be used in conjunction with a New York State Department of Environmental Conservation (NYSDEC) approved Remedial Design with regards to specific project objectives and field sampling activities. To the extent that discrepancies exist between this Erosion and Sediment Control Plan and the Remedial Design, the Remedial Design shall control.

The proposed Remedial Design will involve excavation of coal tar impacted soil and debris. The Remedial Design will be conducted according to the requirements of an Order on Consent between NYSEG and the NYSDEC. The Order on Consent is a legal document that defines the obligations of each party for conducting site investigations and remediations. The Order of Consent requires that all work by NYSEG at the site be performed under the oversight of the NYSDEC and the New York State Department of Health (NYSDOH).

The NYSEG Lockport Former Manufacturing Gas Plant (MGP) Site is bordered by Transit Street to the West, LaGrange Street to the North and Saxton Street to the East, in the City of Lockport, Niagara County, New York. The site is approximately 0.87 acres in area and consists of a single parcel of land occupied by an active substation.

The Site is bordered by residential properties to the south, and the neighborhood is generally residential to the south and east, and commercial to the north and west.

The New York State Barge Canal is located about 200 feet west of the site. At this location, the canal is cut approximately 45 feet into bedrock (through the dolomite into the Lewiston member of the Rochester shale). Groundwater flows generally north and west beneath the MGP site, towards the canal. The water level in the canal is raised and lowered seasonally. While the flow direction remains toward the canal throughout the year, the gradient changes significantly with these variations in canal elevation.

2.0 Site Preparation

All erosion control measures shall be installed prior to clearing and grubbing of the site, prior to the first phase of construction. These measures shall consist of installing silt fence and hay bales. The silt fence and hay bales shall be installed around the entire project site. This system will reduce the velocity of runoff from the site.

All permanent on-site storm water management facilities (i.e. outfall pipes and the storm water inlets) shall be plugged and covered prior to the start of clearing operations to minimize the amount of sediment from impacting the waterway. All storm water inlets that are made operable during construction shall be protected so that sediment-laden water cannot enter the conveyance system without first being filtered or otherwise treated to remove sediment.

3.0 Remedial Activities

The Contractor shall provide temporary drainage to relieve areas that may cause damage to the roadways, and erosion protection during construction. All erosion and sedimentation control devices shall be installed prior to any land disturbance activities.

3.1 Earth Moving Activities

All earth moving activities will incorporate best management practices to minimize accelerated erosion and sedimentation. Cut and fill slopes shall be designed and constructed in such a manner that erosion will be minimized. All earth moving activities will be conducted in such a manner as to minimize the extent and duration of disturbed land.

Where construction vehicles access routes intersect paved roads, provisions shall be made to minimize the transport of soils onto paved soils. Where soils are transported onto a public road surface, the road shall be cleaned thoroughly as soon as soil accumulations appear. If soil accumulates on a paved road in any significant amount then the accumulated soil shall be immediately removed by manual shoveling and transporting to an on-site material handling area. Street washing by street cleaning vehicles shall be allowed only after accumulated soils of significant thickness have been manually removed.

Slopes that are found to be eroding excessively within one year of permanent stabilization shall be provided with additional slope stabilization measures until the problem is corrected at no additional cost to NYSEG.

3.2 General Housekeeping

All heavy equipment shall be decontaminated in one of the on-site truck and equipment decontamination pads prior to going off site. These equipment pads shall be constructed such that any runoff or water draining out of the removed material shall be collected in the sump area.

Where construction vehicle access routes intersect paved public roads, provisions shall be made to minimize the transport of sediment onto the paved surface. Where sediment and excavated soils are transported onto a public road surface, the road shall be cleaned thoroughly as soon as soil accumulations appear. Sediment and soil residuals shall be removed from the road by shoveling or sweeping and transported to an on-site material handling area. Contractor shall conduct street cleaning when soils are observed in roadways or at the direction of the Engineer.

Construction traffic shall be limited to access roads. All traffic is prohibited from crossing drainage swales unless where absolutely necessary.

3.3 Storm Water Management

As shown on the Design Drawings, hay bales and silt fence shall be placed around the entire site. The Contractor shall ensure storm water will not be permitted to flow onto or from the site.

Operation and Maintenance Periodic inspections and required maintenance shall be conducted, especially after each significant storm event. The Subcontractor shall be responsible for the installation and maintenance of all erosion and sedimentation control practices.

In general, all erosion and sedimentation control measures shall be checked daily and after each rainfall, whichever is most frequent, and shall be cleaned and repaired according to the following schedule:

- The storm water inlets and outfall pipes will be checked regularly to ensure that they are still covered and sediment is not building up around the openings. If necessary, corrective action shall be taken immediately.
- The sump areas shall be cleaned out when the level of sediment buildup is half way up the riser pipe.
- Erosion and sediment control shall be checked regularly for undermining or deterioration and buildup or clogging with sediment. If necessary, corrective action shall be taken immediately.

All temporary erosion and sedimentation control measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer necessary. Trapped sediment and the disturbed soil areas resulting from the deposition caused by the temporary control measures shall be permanently stabilized to prevent further erosion and sedimentation.

All erosion and sedimentation control measures shall be maintained until the permanent stabilization measures are completed.

4.0 Site Restoration

All disturbed areas will be stabilized as soon as possible after the final grade has been achieved for the project site. As shown on the Design Drawings, the site will be restored with a combination of vegetative cover and stone; those areas covered with vegetation will have a uniform coverage and density of at least 80% perennial vegetation.

The vegetative cover shall be a mixture of native grasses. A local landscape professional shall determine the type and quantity necessary to provide a permanently stabilized bank.

A silt fence shall be installed downgradient of all reseeded areas. The silt fence shall remain in place until healthy vegetation is established.

4.1 Operations and Maintenance

Periodic inspections and required maintenance shall be conducted, especially after each significant storm event. The Subcontractor shall be responsible for the installation and maintenance of all erosion and sedimentation control practices.

- All seeded areas shall be checked regularly to see that a good stand of grass is maintained. Areas should be fertilized and reseeded as necessary.
- All temporary erosion and sedimentation control measures shall be removed and disposed of within 30 days after the final site stabilization is achieved and vegetation is established.
- Trapped sediment and the disturbed soil areas resulting from the deposition caused by the temporary control measures shall be permanently stabilized to prevent further erosion and sedimentation.

5.0 References

NYSDEC, 2005. New York State Standards and Specifications for Erosion and Sediment Control. New York State Soil and Water Conservation Committee for New York State Department of Environmental Conservation, August.

Appendix M

Permit Applications

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT *(33 CFR 325)*	OMB APPROVAL NO. 0710-0003 EXPIRES: 31 August 2012

Public reporting burden for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003) Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity

PRIVACY ACT STATEMENT

Authorities. Rivers and Harbors Act, Section 10, 33 USC 403, Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413, Regulatory Programs of the Corps of Engineers, Final Rule 33 CFR 320-332 Principal Purpose: Information provided on this form will be used in evaluating the application for a permit Routine Uses: This Information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1 APPLICATION NO	2 FIELD OFFICE CODE	3. DATE RECEIVED	4 DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required)
First - Middle - Last –	First - Middle - Last –
Company –	Company –
E-mail Address –	E-mail Address –
6. APPLICANT'S ADDRESS	9. AGENT'S ADDRESS
Address -	Address -
City – State – Zip – Country –	City – State – Zip – Country –
7. APPLICANT'S PHONE NOs. W/AREA CODE	10. AGENT'S PHONE NOs. W/AREA CODE
a. Residence b. Business c. Fax	a. Residence b. Business c. Fax

STATEMENT OF AUTHORIZATION

11. I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application

_____

APPLICANT'S SIGNATURE DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
	Address
15. LOCATION OF PROJECT	
Latitude °N Longitude °W	City - State – Zip -

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)
State Tax Parcel ID Municipality
Section – Township – Range –

17. DIRECTIONS TO THE SITE

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres

Or

Liner Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

24. Is Any Portion of the Work Already Complete? Yes ☐ No ☐ IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered here, please attach a supplemental list)

Address –

City – State – Zip –

26. List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT _____ DATE _____ SIGNATURE OF AGENT _____ DATE _____

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both

PERMIT # _____

CITY OF LOCKPORT
DEPARTMENT OF PUBLIC WORKS
APPLICATION FOR STREET OPENINGS

TO: City Engineer
City of Lockport, New York

Application is hereby made by the undersigned _____
Whose residence or principal place of business is located at _____
_____ **To** _____
On or across a City thoroughfare, located at _____
In accordance with details of work and pursuant to the conditions and regulations, whether general or special, which are hereto attached or hereinafter set forth; all forming a part hereof. This applicant will obtain any other consents or permits that may be necessary to accomplish the purposes set forth herein. We have on file with the Department of Public Works, Public Liability Insurance.
Policy No: _____ **which expires** _____

Dated: _____

_____
Name of Applicant

By: _____
Title of signed by representative

Recommended: _____

PERMIT FOR WATER / SEWER SERVICE INVOLVING STREET OPENING
Permission is hereby granted to: _____
Whose residence or principal place of business is at _____
_____ **to proceed as set forth and represented in the foregoing application and at the particular location described therein, in** _____ **accordance with details of work hereto attached and pursuant to Local Law No. 1 for the year 1962, and to any special conditions which are hereinafter set forth; all forming a part hereof, to wit:**

SPECIAL CONDITIONS

DATED:_____ N.Y. this _____ day of_____

City Engineer
By: _____

Supervisor of Highways & Parks Dept.
By:_____

In consideration of the granting of the within permit, the undersigned hereby accepts the same, subject to the restrictions and regulations therein described.
Dated this_____ day of_____

_____
Signature of Applicant

By:_____
Title if signed by representative

Inspected for compliance with Plumbing code and Regulations and conditions set forth in permit, and for compliance with regulations affecting sewers.

_____
Plumbing Inspector

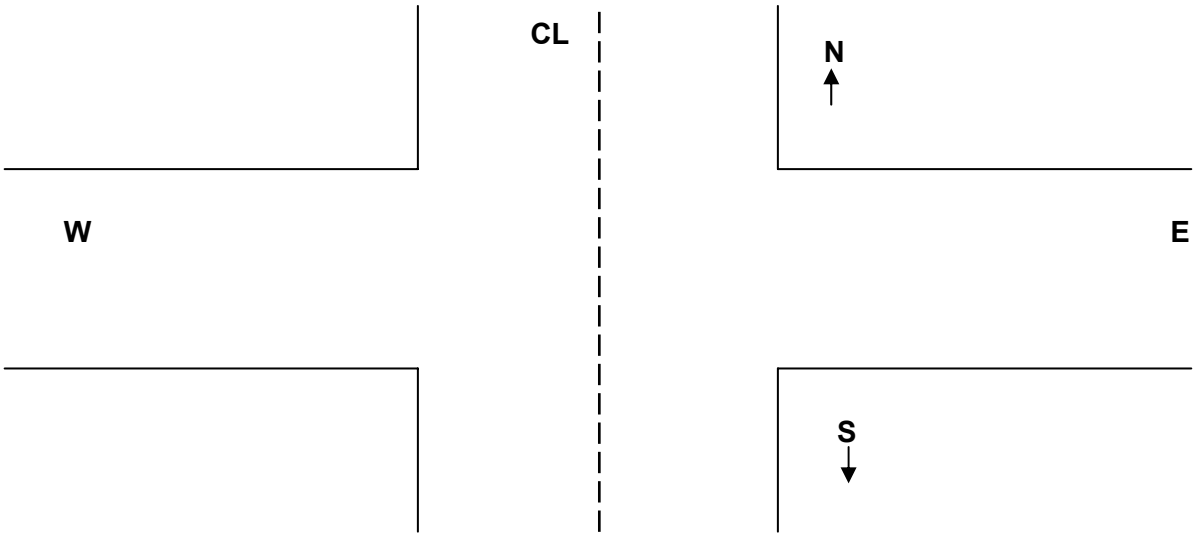
Inspected for compliance with regulations affecting streets.

_____
Supervisor of Highways & Parks Dept.

EXCAVATION NOTIFICATION RECORD

Permit No. _____

Date_____ By _____
Excavator _____
Address _____
Telephone_____ Cell Phone_____
Notified By_____
Policy No._____ Expiration Date_____
Field Representative_____
Date & Time of proposed excavation or demolition_____
Job Description_____
Location of excavation (address-side of street-distance from curb or CL)



Method of excavation of demolition_____
Use of explosives _____ Yes _____ No
Departments Notified
_____Engineering _____ Inspection
_____Streets _____Fire Dept.
_____Sewer _____Water
Utility Marked _____ Yes _____No

1358331598

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR ☐☐☐☐☐☐
(for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-10-001

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

-IMPORTANT-
RETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)

Owner/Operator Contact Person Last Name (NOT CONSULTANT)

Owner/Operator Contact Person First Name

Owner/Operator Mailing Address

City

State ☐☐ Zip ☐☐☐☐☐ - ☐☐☐☐

Phone (Owner/Operator) ☐☐☐ - ☐☐☐ - ☐☐☐☐

Fax (Owner/Operator) ☐☐☐ - ☐☐☐ - ☐☐☐☐

Email (Owner/Operator)

FED TAX ID ☐☐ - ☐☐☐☐☐☐☐ (not required for individuals)

Project Site Information

Project/Site Name

Street Address (NOT P.O. BOX)

Side of Street

○ **North** ○ **South** ○ **East** ○ **West**

City/Town/Village (THAT ISSUES BUILDING PERMIT)

State N Y Zip - County DEC Region

Name of Nearest Cross Street

Distance to Nearest Cross Street (Feet)

Project In Relation to Cross Street

○ **North** ○ **South** ○ **East** ○ **West**

Tax Map Numbers
Section-Block-Parcel

Tax Map Numbers

1. Provide the Geographic Coordinates for the project site in NYTM Units. To do this you **must** go to the NYSDEC Stormwater Interactive Map on the DEC website at:

www.dec.ny.gov/imsmaps/stormwater/viewer.htm

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located your project site, go to the tool boxes on the top and choose "i"(identify). Then click on the center of your site and a new window containing the X, Y coordinates in UTM will pop up. Transcribe these coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)

Y Coordinates (Northing) **4**

2. What is the nature of this construction project?

○ **New Construction**

○ **Redevelopment with increase in imperviousness**

○ **Redevelopment with no increase in imperviousness**

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use

- ○ FOREST
- ○ PASTURE/OPEN LAND
- ○ CULTIVATED LAND
- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ LINEAR UTILITY
- ○ PARKING LOT
- ○ OTHER

Post-Development Future Land Use

- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION

Number of Lots

- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ MUNICIPAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ LINEAR UTILITY (water, sewer, gas, etc.)
- ○ PARKING LOT
- ○ CLEARING/GRADING ONLY
- ○ DEMOLITION, NO REDEVELOPMENT
- ○ WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
- ○ OTHER

***note: for gas well drilling, non-high volume hydraulic fractured wells only**

4. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law ? ○ **Yes** ○ **No**

5. Is this a project which does not require coverage under the General Permit (e.g. Project done under an Individual SPDES Permit, or department approved remediation)? ○ **Yes** ○ **No**

6. Is this property owned by a state authority, state agency, federal government or local government? ○ **Yes** ○ **No**

7. In accordance with the larger common plan of development or sale, enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage)within the disturbed area. Round to the nearest tenth of an acre.

Total Site Acreage	**Acreage To Be Disturbed**	**Existing Impervious Area Within Disturbed**	**Future Impervious Area Within Disturbed**
.	.	.	.

8. Do you plan to disturb more than 5 acres of soil at any one time? ○ **Yes** ○ **No**

9. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	**B**	**C**	**D**
%	%	%	%

10. Is this a phased project? ○ **Yes** ○ **No**

11. Enter the planned start and end dates of the disturbance activities

Start Date __/__/____ - **End Date** __/__/____

12. Identify the nearest, natural, surface waterbody(ies) to which construction site runoff will discharge.

Name

12a. Type of waterbody identified in Question 12?

- ○ Wetland / State Jurisdiction On Site (Answer 12b)
- ○ Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 12b)
- ○ Wetland / Federal Jurisdiction Off Site
- ○ Stream / Creek On Site
- ○ Stream / Creek Off Site
- ○ River On Site
- ○ River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ○ Other Type Off Site

12b. How was the wetland identified?

- ○ Regulatory Map
- ○ Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ○ Other (identify)

13. Has the surface waterbody(ies) in question 12 been identified as a 303(d) segment in Appendix E of GP-0-10-001? ○ **Yes** ○ **No**

14. Is this project located in one of the Watersheds identified in Appendix C of GP-0-10-001? ○ **Yes** ○ **No**

15. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? **If no, skip question 16.** ○ **Yes** ○ **No**

16. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? **If Yes, what is the acreage to be disturbed?** ○ **Yes** ○ **No**

.

17. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ○ **Yes** ○ **No**

18. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ○ **Yes** ○ **No** ○ **Unknown**

19. What is the name of the municipality/entity that owns the separate storm sewer system?

20. Does any runoff from the site enter a sewer classified as a Combined Sewer? ○ **Yes** ○ **No** ○ **Unknown**

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book) ? ○ **Yes** ○ **No**

22. Does this construction activity require the development of a SWPPP that includes Water Quality and Quantity Control components (Post-Construction Stormwater Management Practices) **(If No, skip questions 23 and 27-35)** ○ **Yes** ○ **No**

23. Have the Water Quality and Quantity Control components of the SWPPP been developed in comformance with the current NYS Stormwater Management Design Manual ? ○ **Yes** ○ **No**

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ○ **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer

Contact Name (Last, Space, First)

Mailing Address

City

State Zip -

Phone - - Fax - -

Email

SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-10-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name **MI**

Last Name

Signature

Date / /

25. Has a construction sequence schedule for the planned management practices been prepared? ○ Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ○ Check Dams
- ○ Construction Road Stabilization
- ○ Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ○ Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ○ Silt Fence
- ○ Stabilized Construction Entrance
- ○ Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ○ Mulching
- ○ Protecting Vegetation
- ○ Recreation Area Improvement
- ○ Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ○ Temporary Swale
- ○ Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ○ Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Other

Water Quality and Quantity Control

Important: Completion of Questions 27-35 is not required if response to Question 22 is No.

Post-Construction Stormwater Management Practices

27. Indicate **all** Stormwater Management Practice(s) that will be installed/constructed on this site:

Ponds
- ○ **Micropool Extended Detention (P-1)**
- ○ **Wet Pond (P-2)**
- ○ **Wet Extended Detention (P-3)**
- ○ **Multiple Pond System (P-4)**
- ○ **Pocket Pond (P-5)**

Filtering
- ○ **Surface Sand Filter (F-1)**
- ○ **Underground Sand Filter (F-2)**
- ○ **Perimeter Sand Filter (F-3)**
- ○ **Organic Filter (F-4)**
- ○ **Bioretention (F-5)**
- ○ **Other**

Alternative Practice
- ○ **Rain Garden**
- ○ **Cistern**
- ○ **Green Roof**
- ○ **Stormwater Planters**
- ○ **Permeable Paving (Modular Block)**

Wetlands
- ○ **Shallow Wetland (W-1)**
- ○ **Extended Detention Wetland (W-2)**
- ○ **Pond/Wetland System (W-3)**
- ○ **Pocket Wetland (W-4)**

Infiltration
- ○ **Infiltration Trench (I-1)**
- ○ **Infiltration Basin (I-2)**
- ○ **Dry Well (I-3)**
- ○ **Underground Infiltration System**

Open Channels
- ○ **Dry Swale (O-1)**
- ○ **Wet Swale (O-2)**

Verified Proprietary Practice
- ○ **Hydrodynamic**
- ○ **Wet Vault**
- ○ **Media Filter**

28. Describe other stormwater management practices not listed above or explain any deviations from the technical standards.

29. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ○ **Yes** ○ **No**

If Yes, Identify the entity responsible for the long term Operation and Maintenance

30. Provide the total water quality volume required and the total provided for the site.

WQv Required ☐☐☐.☐☐☐ **acre-feet**

WQv Provided ☐☐☐.☐☐☐ **acre-feet**

31. Provide the following Unified Stormwater Sizing Criteria for the site.

Total Channel Protection Storage Volume (CPv) - Extended detention of post-developed 1 year, 24 hour storm event

CPv Required ☐☐☐.☐☐☐ **acre-feet**

CPv Provided ☐☐☐.☐☐☐ **acre-feet**

31a. The need to provide for channel protection has been waived because:

○ **Site discharges directly to fourth order stream or larger**

Total Overbank Flood Control Criteria (Qp) - Peak discharge rate for the 10 year storm

Pre-Development ☐☐☐.☐☐☐ **CFS**

Post-development ☐☐☐.☐☐☐ **CFS**

Total Extreme Flood Control Criteria (Qf) - Peak discharge rate for the 100 year storm

Pre-Development ☐☐☐.☐☐☐ **CFS**

Post-development ☐☐☐.☐☐☐ **CFS**

31b. The need to provide for flood control has been waived because:

○ **Site discharges directly to fourth order stream or larger**

○ **Downstream analysis reveals that flood control is not required**

IMPORTANT: For questions 31 and 32, impervious area should be calculated considering the project site and all offsite areas that drain to the post-construction stormwater management practice(s). (Total Drainage Area = Project Site + Offsite areas)

32. Pre-Construction Impervious Area - As a percent of the Total Drainage Area enter the percentage of the existing impervious areas before construction begins. ☐☐☐%

33. Post-Construction Impervious Area - As a percent of the Total Drainage Area, enter the percentage of the future impervious areas that will be created/remain on the site after completion of construction. ☐☐☐%

34. Indicate the total number of post-construction stormwater management practices to be installed/constructed. ☐☐

35. Provide the total number of stormwater discharge points from the site. (include discharges to either surface waters or to separate storm sewer systems) ☐☐

36. Identify other DEC permits that are required for this project.

DEC Permits

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Other SPDES
- ○ Solid Waste
- ○ None
- ○ Other
- ○ Navigable Waters Protection / Article 15
- ○ Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ○ Freshwater Wetlands/Article 24
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers
- ○ Stream Bed or Bank Protection / Article 15

37. Does this project require a US Army Corps of Engineers Wetland Permit? ○ **Yes** ○ **No**
If Yes, Indicate Size of Impact. _____.__

38. Is this project subject to the requirements of a regulated, traditional land use control MS4? ○ **Yes** ○ **No**
(If No, skip question 39)

39. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ○ **Yes** ○ **No**

40. If this NOI is being submitted for the purpose of continuing coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. NYR_____

Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name **MI**

Print Last Name

Owner/Operator Signature

Date __ / __ / ____

State of New York
Department of Transportation

Form PERM 33 (8/01)

Highway Work Permit Application for Non-Utility Work

Instructions and Form

Submit three copies (photocopies acceptable)

INSTRUCTIONS FOR COMPLETING THE APPLICATION FOR HIGHWAY WORK PERMIT – NON-UTILITY

FRONT OF APPLICATION

An Applicant may not have all pertinent information at the time of completing the application form since certain information relative to fees, insurance and guarantee deposits may be contingent upon determinations to be made by the Department. In such cases, the information may be left blank and remittance withheld until the information is determined by the Department.

Please complete the following:

- Permittee's name and address. For more than one applicant, also fill in the joint applicant's name and address.
- Federal Identification Number of the company or individual Social Security Number.
- Applicant's telephone number. A telephone number where applicant can be contacted concerning the application. Please include area code.
- Project Identification No. and Highway Work Permit No. will be completed by the issuing office.
- Name of Contact person and their telephone number in case of emergency.
- If Highway Work Permit is to be returned to someone other than the applicant, complete this section.
- Estimate the cost of work being performed in the State highway right-of-way and place this figure on the blank line.
- Indicate anticipated duration of work to be performed with starting date and ending date on this line.
- You may provide your own insurance, purchase insurance through the Department, if available, or provide an Undertaking (for Utilities and Municipalities only). If you choose to provide your own insurance, a PERM 17 will be necessary. The PERM 17 may be obtained at the office you obtained this form from. It must be completed by your insurance company and accompany the permit application upon submission. The Policy number and expiration date of the PERM 17 should be shown on this line.
- Give a brief description of the proposed work that is to be done under this permit
- Plans and specifications should accompany this application for any work that involves construction within the State highway right-of-way. Place a check mark on the lines for plans and specifications if they are attached.
- Location of the project should be identified by: State Route; State Highway Number, if known; State Highway reference markers and Town and County in which work area is located.
- SEQR requirements: This may be required for larger projects – Contact the Regional Office of the Department of Transportation to determine if these requirements are necessary.
- Signature of applicant (permittee) and date.
- Signature of second applicant, if any, and date.

BACK OF APPLICATION

- Check type of work that will be performed.
- In the appropriate column indicate:
  - Manner in which insurance coverage is furnished the Department, i.e., PERM 17 (P17) or Under-Taking (UT) or Insurance Fee (IF), if available (N/A means the Department's insurance is not available).
- Indicate total amount of permit fee and insurance fee, if applicable.
- Indicate check number of Guarantee Deposit or Bond Number, if required. This will be determined by the Department upon submission of application.

Shaded areas will be completed by the Department of Transportation.

Remove the application form from the back of this packet and submit 3 copies to the Department for approval.

RESPONSIBILITIES OF PERMITTEE
PURSUANT TO NON-UTILITY HIGHWAY WORK PERMITS

FAILURE TO OBTAIN A PERMIT OR FAILURE TO COMPLY WITH THE TERMS OF A PERMIT MAY RESULT IN THE DEPARTMENT HALTING THE ACTIVITY FOR WHICH A PERMIT IS REQUIRED UNTIL ADEQUATE CORRECTIONS HAVE BEEN MADE.

PROTECTIVE LIABILITY INSURANCE COVERAGE

Permittee must have protective liability insurance coverage in accordance with Department requirements. See "Certificate of Insurance for Highway Permits" (Form PERM 17, NYSDOT).

Expiration of, or lack of, liability insurance automatically terminates the permit. Insurance coverage may be provided by furnishing the Department with one of the following:

1. A completed Certificate of Insurance for Highway Permits (Form PERM 17, NYSDOT).
2. Purchase the Department Blanket Policy for Highway Work Permits from the Department, if available. N/A shown on the Application in the insurance column means Department insurance coverage is not available for that type of project.
3. Provide an Undertaking. Undertakings are limited to Public Service Corporations and government units.

COMPENSATION INSURANCE AND DISABILITY COVERAGE

The permittee is required to have compensation insurance and disability coverage as noted in the provisions of the Worker's Compensation Law and Acts amendatory thereof for the entire period of the permit, or the permit is invalid.

NOTIFICATION

The following should be notified at the appropriate time as shown below:

1. Commissioner of Transportation, through Regional Office, one week prior to commencing work.
2. Area gas distributors 72 hours prior to any blasting.
3. Utility companies with facilities in work areas before starting work, in accordance with Industrial Code 53 (permission from utility company must be obtained before commencing work affecting utilities' facilities).
4. New York State Department of Transportation, Regional Signal Maintenance Shop, 3 days prior to starting work.
5. New York State Department of Transportation Regional Office at conclusion of work and return original copy of permit to Resident Engineer.

Permit Notification for Annual Permits: Notify by telephone, the Regional or Resident Engineer's Office in advance, when work is to be performed.

SITE CARE AND RESTORATION

An Undertaking, a bond or a certified check in an amount designated by the Department of Transportation may be required by the Regional Office, before a permit is issued, to guarantee restoration of the site to its original condition. If the Department is obliged to restore the site to its original condition, the costs to the Department will be deducted from the amount of the permittee's guarantee deposit at the conclusion of the work. Costs in excess of the Bond/guarantee deposit on file will be billed directly to the permittee.

The permittee is responsible for traffic protection and maintenance including adequate use of signs and barriers during work and evening hours. Anyone working within the State highway right-of-way will wear high visibility apparel (orange/yellow) and hard hat.

No unnecessary obstruction is to be left on the pavement or the State highway right-of-way or in such a position as to block warning signs during non-working hours.

No work shall be done to obstruct drainage or divert creeks, water courses or sluices onto the State highway right-of-way.

All false work must be removed and all excavations must be filled in and restored to the satisfaction of the Regional Maintenance Engineer.

COSTS INCURRED BY ISSUANCE OF THIS PERMIT

All costs beyond the limits of the protective liability insurance, surety deposits, etc. are the responsibility of the permittee. The State shall be held free of any costs incurred by the issuance of this permit, direct or indirect.

SUBMITTING WORK PLANS

The applicant will submit work plans and/or a map as required by the Department. This shall include such details as measurements of driveways with relation to nearest property corner, positions of guys supporting poles and a schedule of the number of poles and feet of excavation necessary for completion of the work on the State right-of-way. A description of the proposed method of construction will be included.

Plan work with future adjustments in mind, as any relocation, replacement or removal of the installation authorized by this permit and made necessary by future highway maintenance, reconstruction or new construction, will be the responsibility of the permittee.

Driveway plans should be prepared in accordance with the POLICY AND STANDARDS FOR ENTRANCES TO STATE HIGHWAYS.

The permittee must coordinate the work with any state construction being conducted.

TRAFFIC MAINTENANCE

A plan detailing how the permittee intends to maintain and protect traffic shall be submitted with work plans. Traffic shall be maintained on the highway in a safe manner during working and non-working hours until construction is completed. The permittee is responsible for traffic protection and maintenance, including adequate use of signs, barriers, and flag persons during working and non-working hours until construction is completed.
All sketches will be stamped with "MAINTENANCE OF TRAFFIC SHALL BE IN CONFORMANCE WITH THE NEW YORK STATE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES."

COST OF INSPECTION AND SUPERVISION

Prior to issuance of the Highway Work Permit, the permittee may be required to sign an INSPECTION PAYMENT AGREEMENT FOR HIGHWAY WORK PERMITS (FORM PERM 50) agreeing to the payment of inspection charges and/or PAYMENT OF AGREEMENT FOR HIGHWAY WORK PERMITS DESIGN REVIEW (FORM PERM 51) for Department employees. Inspection charges will be based on number of work days. Design Review charges will be based on number of work hours.

SCOPE

Areas Covered: Permits issued are for highways, bridges and culverts over which the New York State Department of Transportation has jurisdiction. (Local governments issue permits for highways under their jurisdiction.)

Legal: The privilege granted by the permit does not authorize any infringement of federal, state or local laws or regulations, is limited to the extent of the authority of this Department in the promises and is transferable and assignable only with the written consent of the Commissioner of Transportation.

Commissioner's Reservation: The Commissioner of Transportation reserves the right to modify fees and to revoke or annul the permit at any time, at his discretion without a hearing or the necessity of showing cause.

Locations: Work locations must be approved by the Department.

Maintenance: Property owners having access to a state highway shall be fully responsible for the maintenance of their driveway in accordance with POLICY AND STANDARDS FOR ENTRANCES TO STATE HIGHWAYS.

Work Commencement: The Permittee shall have a copy of the permit available at the site during the construction period. Work should start within 30 days from validation date of permit or said permit may be revoked.

COMPLETION OF PROJECT

Upon completion of the work within the state highway right-of-way authorized by the work permit, the person and his or its successors in interest, shall be responsible for the maintenance and repair of such work or portion of such work as set forth within the Terms and Conditions of the Highway Work Permit.

PERM 33 (8/01)

STATE OF NEW YORK DEPARTMENT OF TRANSPORTATION
HIGHWAY WORK PERMIT APPLICATION FOR NON-UTILITY WORK

PREPARE 3 COPIES
(photocopies acceptable)

Application is hereby made for a highway work permit:

Name _____

Address _____

City _____ State _____ Zip _____

Federal I.D. No. or Social Security No. _____

Applicant Telephone No. _____

Contact person in case of emergency _____

Telephone No. of contact person _____

For Joint application, name and address of Second Applicant below:

Name _____

Address _____

City _____ State _____ Zip _____

Project Identification No. _____

Highway Work Permit No. _____

RETURN PERMIT TO (If different from above):

Name _____

Address _____

City _____ State _____ Zip _____

RETURN OF DEPOSIT/BOND TO (Complete only if different from permittee):

Name _____

Address _____

City _____ State _____ Zip _____

1. Estimated cost of work being performed in state highway right-of-way $ _____

2. Anticipated duration of work: From _____ 20, _____ thru _____, 20 _____, to apply to the operation(s) checked on the reverse side.

3. Protective Liability Insurance covered by Policy No. _____ ; expires on _____ 20 _____

4. A $20.00 fee will be charged for checks returned by the bank.

PROPOSED WORK (Brief description): _____

_____

_____

_____

ATTACHED: Plans _____ Specifications _____ LOCATION: State Route _____ State Highway _____

between Reference Marker _____ and Reference Marker _____

Town of: _____ County of: _____

SEQR REQUIREMENTS (Check appropriate item):

☐ Exempt ☐ Ministerial ☐ Type 11 ☐ EIS or DEIS Lead Agency _____

If project is identified to be ministerial, exempt, or TYPE 11, no further action is required.

If project is determined to be other than ministerial, exempt, or TYPE 11, refer to M.A.P.7.12-2, Appendix A SEQR REQUIREMENTS FOR HIGHWAY WORK PERMITS.

Acceptance of the requested permit subjects the permittee to the restrictions, regulations and obligations stated on this application and on the permit.

Applicant Signature _____ Date _____ 20 _____.

Second Applicant Signature _____ Date _____ 20 _____.

Approval recommended _____ 20 ____, By Resident Engineer _____ Residency No. _____

Approved _____ 20 ____, By Regional Traffic Engineer _____ Region No. _____

PERMIT IS ISSUED CONTINGENT UPON LOCAL REQUIREMENTS BEING SATISFIED.

CHECK TYPE OF OPERATION	Permit Fee	Insurance Fee	Perm 17 or Under Taking	Total Amount of Fee and/or Insurance	Guarantee Deposit and/or Bond Amount
5. ☐ Single job – Permit issued for each job					
a. ☐ Driveway or roadway					
1. ☐ Residential	$ 15	$ 25			
2. ☐ Commercial – Minor	550	175			
a. ☐ Home Business	100	75			
3. ☐ Commercial – Major – (Less than 100,000 square feet Gross Building Area)	1400	N/A			
4. ☐ Commercial – Major – (100,000 square feet Gross Building Area and Greater)	Actual cost with Minimum of $2000 upon permit app.	N/A			
5. ☐ Subdivision Street	900	N/A			
6. ☐ Temporary access road or street	200	150			
b. ☐ Improvement					
1. ☐ Residential	15	25			
2. ☐ Commercial					
Check additional description below:					
a. ☐ Install sidewalk, curb paving, stabilized shoulder, drainage, etc.	200	150			
b. ☐ Grade, seed, improve land contour, clear land of brush, etc.	100	75			
c. ☐ Resurface existing roadway or driveway	50	50			
d. ☐ Annual resurfacing of residential and commercial roadways or driveways.					
1. ☐ Per County	150	N/A			
2. ☐ Per Region	400	N/A			
c. ☐ Tree Work					
1. ☐ Residential	15	25			
2. ☐ Commercial (not required for pruning if utility has annual maintenance permit)	25	50			
Check additional description below:					
a. ☐ Removal or planting					
b. ☐ Pruning, applying chemicals to stumps, etc.					
3. ☐ Vegetation control for advertising signs	150/sign	75			
d. ☐ Miscellaneous Construction					
1. ☐ Beautifying ROW – (for Civic Groups only)	NC	25			
2. ☐ Temporary signs, banners, holiday decorations					
a. ☐ Not-for-profit organizations	NC	25			
b. ☐ Organizations other than not-for-profit	25	25			
3. ☐ Traffic control signals	500	175			
4. ☐ Warning and entrance signs	25	50			
5. ☐ Miscellaneous – Requiring substantial review	400	175			
6. ☐ Miscellaneous	25	50			
6. ☐ Encroachment caused by D.O.T. acquisition of property	25	50			
7. ☐ Compulsory permit required for work performed at the request of D.O.T.					
a. ☐ Building demolition or moving requested by D.O.T.	NC	25			
1. ☐ Demolition 2. ☐ Moving					
b. ☐ Improvement to meet Department standards	NC	25			
8. ☑ Miscellaneous	25	25			
9. ☐ Adopt a Highway	NC	N/A			

Guarantee Deposit Check Number or Bond Number _____

Appendix N

Waste Characterization Summary Report

AECOM Environment

Prepared for:
NYS Electric & Gas Company

Prepared by:
AECOM
Latham, NY
60194949
April 2013

Remedial Design Report
100% Design Submittal
Lockport Transit Street Former MGP Site
Lockport, New York
Site #932098
Waste Characterization Summary Report

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1 Waste Characterization Sampling Plan

1.0 Introduction

This report summarizes the pre-design investigation performed by AECOM at the Lockport Transit Street manufactured gas plant (MGP) OU-2 site in September 2012. The work was conducted in general accordance with the approved "Remedial Design Work Plan" (AECOM, July 2011) and the Waste Characterization Addendum Work Plan (AECOM, September 2012). The objective is the waste characterization of the soil to be removed and disposed of off-site during the remedial action.

1.1 Field Sampling Summary

AECOM and its contractor, Zebra Environmental Corporation (Zebra), mobilized to the site and installed a total of 15 soil borings between September 24 and 26, 2012. Soil boring locations are depicted on Figure 1. The borings were completed using a direct-push (Geoprobe™) drilling rig equipped with Macro-Core™ samplers.

2.0 Investigation Activities

A total of 15 soil borings were advanced at the Site: nine within LaGrange Street and six within the substation property (Figure 1). Continuous samples were collected from ground surface to the top of bedrock (refusal). For the most part, two sets of samples were collected from each borehole: a upper sample collected from ground surface to approximately 8-feet below ground surface (ft bgs) and a lower sample collected from 8-ft bgs to top of competent rock. Only one sample was collected from WC-3, WC-4 and WC-5 due to shallow refusal and only one sample was collected from WC-13 due to poor recovery. The average refusal depth of soil borings was 11.3-ft (for all samples) and 13-ft bgs (excluding WC-3, WC-4 and WC-5). Table 1 presents the depth of visual staining and the depth of refusal for each of the soil borings.

Samples located within LaGrange Street were intended to be collected along the street centerline, however, shallow refusal was encountered (from 1 to 3 feet bgs) along the western half of the street. After several unsuccessful attempts at penetrating deeper than 3-ft bgs, the sample locations were moved to the northern side of the street. No shallow refusal was encountered. The refusals were believed to be caused by concrete debris/boulders since Geoprobe™ borings were successfully completed along the southern sidewalk during the remedial investigation; therefore these shallow refusals are not believed to be indicative of a buried object(s) that would impede the driving of sheets. Three borings from within the substation (WC-3, WC-4 and WC-5) had shallow refusals (less than 6-ft bgs).

Soil characteristics such as odor, photo ionization detector (PID) readings, and visual evidence of MGP impacts were noted on field documentation by an AECOM geologist. A summary of visual observations and boring logs were completed and are provided in Attachment A.

A total of 26 soil samples representative of the soil from soil borings were collected to characterize this material for waste disposal purposes. Soil samples were submitted for laboratory analysis of the following waste disposal parameters:

- Volatile Organic Compounds (VOCs) Toxicity Characteristic Leaching Procedure (TCLP) United States (US) Environmental Protection Agency (EPA) Method 8260B
- Semi-Volatile Organic Compounds (SVOCs) TCLP US EPA Method 8270C
- Metals – 8 Resource Conservation and Recovery Act (RCRA) – US EPA Method 6010B/7471A
- Total Cyanide US EPA Method 9010
- Total Petroleum Hydrocarbon (TPH) 8100 or 8015DRO
- Total Polychlorinated Biphenyl (PCBs) US EPA Method 8082
- % Sulfur American Society for Testing and Materials (ASTM) D129-64
- British Thermal Unit (BTU) Content ASTM D240-87
- TCLP VOCs US EPA Method 1311/8260B
- TCLP SVOCs US EPA Method 1311/8270C

- TCLP Metals US EPA Method 1311/6010B
- TCLP Pesticide/Herbicide US EPA Method 1311/8151A/8081A
- Flashpoint (Ignitability) US EPA Method 1010
- Percent solids
- pH US EPA Method 9045C
- Paint Filter
- Reactivity

3.0 Investigation Results

The observations and analytical results of this investigation are being used to characterize materials for disposal. As described in the approved work plan, excavated soils will be managed in accordance with the following categories:

- **Non-Impacted Soils** – excavated soil found not to contain any visual impacts of coal tar.
- **Impacted, Non-hazardous Waste** – excavated soil containing visual impacts of coal tar and found not to exceed the TCLP limits or reactivity limits (Table 2 shows the limits).
- **Impacted and Conditionally Exempt Manufactured Gas Plant Remediation Waste** – excavated soil containing visual impacts and exceedence of TCLP limits for benzene only and therefore conditionally exempt as defined per NYSDEC Department of Environmental Remediation (DER) Program Policy DER-4, Management of Coal Tar Wastes and Coal Tar Contaminated Soils and Sediment from Former Manufactured Gas Plants.
- **Hazardous Waste** – Coal tar soil found to exceed the TCLP limits or reactivity limits.

Analytical results are shown in Table 3 (Totals) and Table 4 (TCLP). Only sample WC-04 (0-6) had a TCLP benzene result above 5.0 mg/L. This soil may either be sent to a hazardous waste landfill or thermally-treated as an impacted and conditionally-exempt MGP waste. The other waste characterization soil samples were Non-Hazardous. Eleven of the 15 borings had visual impacts and the soil from these areas will need to be thermally treated. Soils without visual impacts may be disposed at a landfill.

PDI Summary Report
Tables

Table 1
Soil Boring Summary

Soil Boring	Depth of Visual Impacts (feet below ground surface)	Refusal Depth (feet below ground surface)
WC-1	3.5-8.5	12.4
WC-2	4-11	12.5
WC-3	None	4.0
WC-4	3.5-6.5	6.0
WC-5	4.0	4.0
WC-6	None	14.5
WC-7	1.5-2.5	17.5
WC-8	None	16.5
WC-9	3-4; 10-11	16.0
WC-10	4.5-13.5	13.5
WC-11	5.5-10.5	10.5
WC-12	5-7.5; 11.5-12	12.0
WC-13	None	11.5
WC-14	8.5-9	10.0
WC-15	6-9	9.0

Table 2
Hazardous Characteristic Regulatory Limits

TCLP Analyte	Regulatory Limit (mg/L)
Arsenic	5.0
Barium	100.0
Benzene	0.5
Cadmium	1.0
Carbon tetrachloride	0.5
Chlordane	0.03
Chlorobenzene	100.0
Chloroform	6.0
Chromium	5.0
Cresols (total of o, m, p)	200.0
2,4-D	10.0
1,4-Dichlorobenzene	7.5
1,2-Dichloroethane	0.5
1,1-Dichloroethylene	0.7
2,4-Dinitrotoluene	0.13
Endrin	0.02
Heptachlor	0.008
Hexachlorobenzene	0.13
Hexachlorobutadiene	0.5
Lead	5.0
Lindane	0.4
Mercury	0.2
Methoxychlor	10.0
Methyl ethyl ketone	200.0
Nitrobenzene	2.0
Pentachlorophenol	100.0
Pyridine	5.0
Selenium	1.0
Silver	5.0
Silvex	1.0
Tetrachloroethylene	0.7
Toxaphene	0.5
Trichloroethylene	0.5
2,4,5-Trichlorophenol	400.0
2,4,6-Trichlorophenol	2.0
Vinyl chloride	0.2
Other Analytes	**Regulatory Limits (units noted)**
Corrosivity (pH)	Non- Corrosive (pH must be >2 or <12.5)
Ignitability	Must be > 60 deg. C
% SOLIDS	Must be > 20%
PCBs (Total)	<50 mg/Kg

Table 3
Waste Characterization Analytical Results – Totals
NYSEG Lockport Transit Street Former MGP Site

Sample ID	WC-1 (0-6)		WC-1 (6-12)		WC-2 (0-4)		WC-2 (4-12.5)		WC-3 (0-4)		WC-4 (0-6)		WC-5 (0-4)		WC-6 (0-8)		WC-6 (8-14.5)		WC-7 (0-8)		WC-7 (8-17.5)		WC-8 (0-8)		WC-8 (8-16.5)		WC-9 (0-8)		WC-9 (8-16)	
Lab Sample Number	480-25563-5		480-25563-6		480-25563-1		480-25563-2		480-25563-3		480-25563-7		480-25563-4		480-25588-1		480-25588-2		480-25588-3		480-25588-4		480-25588-5		480-25588-6		480-25588-7		480-25588-8	
Sampling Date	9/24/2012		9/24/2012		9/24/2012		9/24/2012		9/24/2012		9/24/2012		9/24/2012		9/24/2012		9/25/2012		9/25/2012		9/25/2012		9/25/2012		9/25/2012		9/25/2012		9/25/2012	
Volatiles - 8260B (ug/kg)																														
1,1,1-Trichloroethane	52	U	57	U	1.3	J	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
1,1,2,2-Tetrachloroethane	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
1,1,2-Trichloroethane	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
1,1,2-Trichloro-1,2,2-trifluoroethane	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
1,1-Dichloroethane	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
1,1-Dichloroethene	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
1,2,4-Trichlorobenzene	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
1,2-Dibromo-3-Chloropropane	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
1,2-Dibromoethane	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
1,2-Dichlorobenzene	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
1,2-Dichloroethane	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
1,2-Dichloropropane	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
1,3-Dichlorobenzene	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
1,4-Dichlorobenzene	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
2-Hexanone	260	U	290	U	27	U	320	U	29	U	23000	U	28	U	28	U	30	U	29	U	30	U	28	U	30	U	30	U	29	U
2-Butanone (MEK)	260	U	290	U	27	U	320	U	29	U	23000	U	28	U	28	U	30	U	29	U	30	U	28	U	30	U	4.0	J	29	U
4-Methyl-2-pentanone (MIBK)	260	U	290	U	27	U	320	U	29	U	23000	U	28	U	28	U	30	U	29	U	30	U	28	U	30	U	30	U	29	U
Acetone	51	J	110	J	27	U	320	U	29	U	23000	U	28	U	28	U	30	U	5.1	J	30	U	16	J	12	J	23	J	29	U
Benzene	28	J	15	J	5.5	U	4500		5.8	U	230000		5.7	U	5.7	U	6.0	U	1.9	J	6.0	U	2.2	J	3.0	J	1.1	J	5.9	U
Bromodichloromethane	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
Bromoform	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
Bromomethane	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
Carbon disulfide	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
Carbon tetrachloride	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
Chlorobenzene	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
Dibromochloromethane	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
Chloroethane	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	6.4		6.1	U	6.0	U	5.9	U
Chloroform	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
Chloromethane	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
cis-1,2-Dichloroethene	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
cis-1,3-Dichloropropene	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
Cyclohexane	52	U	57	U	5.5	U	19	J	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
Dichlorodifluoromethane	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
Ethylbenzene	170		1800		5.5	U	12000		5.8	U	45000		5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	8.4		5.9	U
Isopropylbenzene	31	J	330		5.5	U	1400		5.8	U	1800	J	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	1.2	J	6.1	U	5.3	J	5.9	U
Methyl acetate	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
Methyl tert-butyl ether	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
Methylcyclohexane	52	U	57	U	5.5	U	650	J	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
Methylene Chloride	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
Styrene	52	U	57	U	5.5	U	1700		5.8	U	250000		5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
Tetrachloroethene	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
Toluene	120		690		1.6	J	28000		1.4	J	380000		2.0	J	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
trans-1,2-Dichloroethene	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
trans-1,3-Dichloropropene	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
Trichloroethene	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
Trichlorofluoromethane	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
Vinyl chloride	52	U	57	U	5.5	U	64	U	5.8	U	4600	U	5.7	U	5.7	U	6.0	U	5.7	U	6.0	U	5.6	U	6.1	U	6.0	U	5.9	U
Xylenes, Total	460		4000		11	U	100000		12	U	350000		11	U	11	U	12	U	11	U	12	U	2.4	J	1.2	J	1.6	J	12	U
Total Conc	860		6945		2.9		146550		1.4		1256800		2						7				28.2		16.2		43.4			
Semivolatiles - 8270C (ug/kg)																														
2,4-Dichlorophenol	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
2,4-Dimethylphenol	380	U	750	U	380	U	8100	U	390	U	2200	J	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
2,4-Dinitrophenol	1100	U	2300	U	1100	U	24000	U	1200	U	23000	U	1100	U	1200	U	1200	U	1200	U	1200	U	1100	U	1300	U	1200	U	1200	U
2,4-Dinitrotoluene	77	U	150	U	76	U	1600	U	79	U	1600	U	76	U	77	U	82	U	77	U	82	U	76	U	85	U	81	U	81	U
2,6-Dinitrotoluene	77	U	150	U	76	U	1600	U	79	U	1600	U	76	U	77	U	82	U	77	U	82	U	76	U	85	U	81	U	81	U
2-Chloronaphthalene	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
3-Methylphenol	NR		NR		NR		NR		NR		NR		NR		NR		NR		NR		NR		NR		NR		NR		NR	
2-Chlorophenol	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
2-Methylnaphthalene	440		7100		170	J	19000		110	J	63000		110	J	380	U	400	U	380	U	400	U	380	U	420	U	400	U	57	J
1,4-Dichlorobenzene	NR		NR		NR		NR		NR		NR		NR		NR		NR		NR		NR		NR		NR		NR		NR	

Table 3
Waste Characterization Analytical Results – Totals
NYSEG Lockport Transit Street Former MGP Site

Sample ID	WC-1 (0-6)		WC-1 (6-12)		WC-2 (0-4)		WC-2 (4-12.5)		WC-3 (0-4)		WC-4 (0-6)		WC-5 (0-4)		WC-6 (0-8)		WC-6 (8-14.5)		WC-7 (0-8)		WC-7 (8-17.5)		WC-8 (0-8)		WC-8 (8-16.5)		WC-9 (0-8)		WC-9 (8-16)	
Lab Sample Number	480-25563-5		480-25563-6		480-25563-1		480-25563-2		480-25563-3		480-25563-7		480-25563-4		480-25588-1		480-25588-2		480-25588-3		480-25588-4		480-25588-5		480-25588-6		480-25588-7		480-25588-8	
Sampling Date	9/24/2012		9/24/2012		9/24/2012		9/24/2012		9/24/2012		9/24/2012		9/24/2012		9/24/2012		9/25/2012		9/25/2012		9/25/2012		9/25/2012		9/25/2012		9/25/2012		9/25/2012	
2-Methylphenol	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
2-Nitroaniline	770	U	1500	U	760	U	16000	U	790	U	16000	U	760	U	770	U	820	U	770	U	820	U	760	U	850	U	810	U	810	U
2-Nitrophenol	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
Pyridine	NR		NR		NR		NR		NR		NR		NR		NR		NR		NR		NR		NR		NR		NR		NR	
3,3'-Dichlorobenzidine	770	U	1500	U	760	U	16000	U	790	U	16000	U	760	U	770	U	820	U	770	U	820	U	760	U	850	U	810	U	810	U
2,4,5-Trichlorophenol	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
3-Nitroaniline	770	U	1500	U	760	U	16000	U	790	U	16000	U	760	U	770	U	820	U	770	U	820	U	760	U	850	U	810	U	810	U
2,4,6-Trichlorophenol	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
4,6-Dinitro-2-methylphenol	1100	U	2300	U	1100	U	24000	U	1200	U	23000	U	1100	U	1200	U	1200	U	1200	U	1200	U	1100	U	1300	U	1200	U	1200	U
4-Bromophenyl phenyl ether	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
4-Chloro-3-methylphenol	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
4-Chloroaniline	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
4-Chlorophenyl phenyl ether	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
4-Methylphenol	380	U	750	U	380	U	8100	U	390	U	3200	J	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
4-Nitroaniline	770	U	1500	U	760	U	16000	U	790	U	16000	U	760	U	770	U	820	U	770	U	820	U	760	U	850	U	810	U	810	U
4-Nitrophenol	1100	U	2300	U	1100	U	24000	U	1200	U	23000	U	1100	U	1200	U	1200	U	1200	U	1200	U	1100	U	1300	U	1200	U	1200	U
Acenaphthene	420		3500		59	J	12000		390	U	9900		380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
Acenaphthylene	440		790		520		31000		220	J	61000		300	J	380	U	400	U	380	U	400	U	380	U	420	U	400	U	220	J
Acetophenone	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
Anthracene	1100		3400		730		47000		360	J	46000		390		380	U	400	U	380	U	400	U	380	U	420	U	400	U	660	
Atrazine	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
Benzaldehyde	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
Benzo[a]anthracene	990		2100		2600		48000		1300		36000		1700		140		40	U	38	U	40	U	38	U	42	U	40	U	590	
Benzo[a]pyrene	1000		1500		2600		37000		1600		34000		1800		180		40	U	38	U	40	U	38	U	42	U	40	U	480	
Benzo[b]fluoranthene	830		1300		3100		36000		1800		31000		2100		240		40	U	38	U	40	U	38	U	42	U	40	U	310	
Benzo[g,h,i]perylene	810		500	J	2300		17000		1300		20000		1400		150	J	400	U	380	U	400	U	380	U	420	U	400	U	210	J
Benzo[k]fluoranthene	390		460		1100		14000		690		14000		730		93		40	U	38	U	40	U	38	U	42	U	40	U	140	
bis (2-chloroisopropyl) ether	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
Bis(2-chloroethoxy)methane	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
Bis(2-chloroethyl)ether	38	U	75	U	38	U	810	U	39	U	770	U	38	U	38	U	40	U	38	U	40	U	38	U	42	U	40	U	40	U
Bis(2-ethylhexyl) phthalate	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
Butyl benzyl phthalate	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
Caprolactam	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
Carbazole	150	J	990		110	J	15000		100	J	15000		75	J	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
Chrysene	970		2000		2500		42000		1300		30000		1600		210	J	400	U	380	U	400	U	380	U	420	U	400	U	510	
Dibenz(a,h)anthracene	180		140		550		4800		260		3100		260		38	U	40	U	38	U	40	U	38	U	42	U	40	U	40	U
Dibenzofuran	580		2100		120	J	44000		88	J	29000		92	J	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
Diethyl phthalate	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
Dimethyl phthalate	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
Di-n-butyl phthalate	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
Di-n-octyl phthalate	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
Diphenyl	170	J	1200		380	U	11000		390	U	12000		380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	88	J
Fluoranthene	1700		4000		4700		110000		2200		94000		3000		310	J	400	U	380	U	400	U	380	U	420	U	400	U	940	
Fluorene	1200		5600		140	J	70000		150	J	43000		100	J	380	U	400	U	380	U	400	U	380	U	420	U	400	U	240	J
Hexachlorobenzene	38	U	75	U	38	U	810	U	39	U	770	U	38	U	38	U	40	U	38	U	40	U	38	U	42	U	40	U	40	U
Hexachlorobutadiene	77	U	150	U	76	U	1600	U	79	U	1600	U	76	U	77	U	82	U	77	U	82	U	76	U	85	U	81	U	81	U
Hexachlorocyclopentadiene	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
Hexachloroethane	38	U	75	U	38	U	810	U	39	U	770	U	38	U	38	U	40	U	38	U	40	U	38	U	42	U	40	U	40	U
Indeno[1,2,3-cd]pyrene	680		610		2500		22000		1500		23000		1600		160		40	U	38	U	40	U	38	U	42	U	40	U	190	
Isophorone	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
Naphthalene	610		6400		250	J	31000		190	J	120000		360	J	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
Nitrobenzene	38	U	75	U	38	U	810	U	39	U	770	U	38	U	38	U	40	U	38	U	40	U	38	U	42	U	40	U	40	U
N-Nitrosodi-n-propylamine	38	U	75	U	38	U	810	U	39	U	770	U	38	U	38	U	40	U	38	U	40	U	38	U	42	U	40	U	40	U
N-Nitrosodiphenylamine	380	U	750	U	380	U	8100	U	390	U	7700	U	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
Pentachlorophenol	1100	U	2300	U	1100	U	24000	U	1200	U	23000	U	1100	U	1200	U	1200	U	1200	U	1200	U	1100	U	1300	U	1200	U	1200	U
Phenanthrene	2800		14000		2100		180000		1400		150000		1000		210	J	400	U	380	U	400	U	380	U	420	U	400	U	1900	
Phenol	380	U	750	U	380	U	8100	U	390	U	1600	J	380	U	380	U	400	U	380	U	400	U	380	U	420	U	400	U	400	U
Pyrene	1500		5100		3400		80000		1900		84000		2900		330	J	400	U	380	U	400	U	380	U	420	U	400	U	1400	
Total Conc	16960		62790		29549		870800		16468		925000		19517		2023														7935	
Diesel Range Organics (mg/kg)																														
DRO [C10-C28]	3300		990		77		8500		74		10000		38		10	J	20	U	19	U	20	U	19	U	21	U	20	U	75	

Table 3
Waste Characterization Analytical Results – Totals
NYSEG Lockport Transit Street Former MGP Site

Sample ID	WC-1 (0-6)		WC-1 (6-12)		WC-2 (0-4)		WC-2 (4-12.5)		WC-3 (0-4)		WC-4 (0-6)		WC-5 (0-4)		WC-6 (0-8)		WC-6 (8-14.5)		WC-7 (0-8)		WC-7 (8-17.5)		WC-8 (0-8)		WC-8 (8-16.5)		WC-9 (0-8)		WC-9 (8-16)	
Lab Sample Number	480-25563-5		480-25563-6		480-25563-1		480-25563-2		480-25563-3		480-25563-7		480-25563-4		480-25588-1		480-25588-2		480-25588-3		480-25588-4		480-25588-5		480-25588-6		480-25588-7		480-25588-8	
Sampling Date	9/24/2012		9/24/2012		9/24/2012		9/24/2012		9/24/2012		9/24/2012		9/24/2012		9/24/2012		9/25/2012		9/25/2012		9/25/2012		9/25/2012		9/25/2012		9/25/2012		9/25/2012	
PCBs (mg/kg)																														
PCB-1016	0.26	U	0.22	U	0.24	U	0.28	U	0.23	U	0.24	U	0.23	U	0.22	U	0.25	U	0.20	U	0.24	U	0.23	U	0.27	U	0.30	U	0.23	U
PCB-1221	0.26	U	0.22	U	0.24	U	0.28	U	0.23	U	0.24	U	0.23	U	0.22	U	0.25	U	0.20	U	0.24	U	0.23	U	0.27	U	0.30	U	0.23	U
PCB-1232	0.26	U	0.22	U	0.24	U	0.28	U	0.23	U	0.24	U	0.23	U	0.22	U	0.25	U	0.20	U	0.24	U	0.23	U	0.27	U	0.30	U	0.23	U
PCB-1242	0.26	U	0.22	U	0.24	U	0.28	U	0.23	U	0.24	U	0.23	U	0.22	U	0.25	U	0.20	U	0.24	U	0.23	U	0.27	U	0.30	U	0.23	U
PCB-1248	0.26	U	0.22	U	0.24	U	0.28	U	0.23	U	0.24	U	0.23	U	0.22	U	0.25	U	0.20	U	0.24	U	0.23	U	0.27	U	0.30	U	0.23	U
PCB-1254	0.26	U	0.22	U	0.24	U	0.28	U	0.23	U	0.24	U	0.23	U	0.22	U	0.25	U	0.20	U	0.24	U	0.23	U	0.27	U	0.30	U	0.23	U
PCB-1260	0.26	U	0.22	U	0.24	U	0.28	U	0.23	U	0.24	U	0.23	U	0.22	U	0.25	U	0.20	U	0.24	U	0.23	U	0.27	U	0.30	U	0.23	U
Metals (mg/kg)																														
Arsenic	9.7		2.5		4.0		5.2		3.9		4.2		3.1		4.4		1.9	J	1.4	J	1.5	J	6.0		3.7		3.2		3.8	
Mercury	0.058		0.022	U	0.030		0.025		0.022		0.69		0.023	U	0.021	U	0.024	U	0.023	U	0.025	U	0.010	J	0.025	U	0.024	U	0.022	U
Barium	64.8		21.8		61.1		43.6		49.0		64.6		53.4		89.9		76.8		47.8		35.5		121		44.1		56.8		74.4	
Cadmium	0.73		0.17	J	0.38		0.21	J	0.18	J	0.37		0.18	J	0.17	J	0.078	J	0.11	J	0.080	J	0.14	J	0.26	J	0.098	J	0.13	J
Chromium	14.6		6.6		12.0		8.4		8.4		10.9		12.9		11.1		5.1		7.2		7.4		8.1		9.9		7.5		7.8	
Lead	115000		13.9		61.2		15.2		18.1		152		12.2		16.0		2.3		9.7		3.0		5.9		4.9		9.0		3.4	
Selenium	0.63	J	4.7	U	4.3	U	1.0	J	4.9	U	4.4	U	5.0	U	4.7	U	4.9	U	4.4	U	3.5	U	4.0	U	5.7	U	3.2	U	0.84	J
Silver	1.3		0.59	U	0.53	U	0.64	U	0.61	U	0.56	U	0.63	U	0.58	U	0.61	U	0.55	U	0.43	U	0.49	U	0.72	U	0.40	U	0.60	U
Wet Chemistry																														
BTU - BTU/lb	DNF		DNF		DNF		DNF		DNF		1710		DNF		DNF		DNF		DNF		DNF		DNF		DNF		DNF		DNF	
Cyanide, Reactive - mg/Kg	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	7.4	J	10.0	U	0.60	J	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Cyanide, Total - mg/Kg	1.2		1.1	U	2.1		9.0		1.0	J	9.1		2.2		1.1	U	1.2	U	1.1	U	1.1	U	1.1	U	1.2	U	1.1	U	1.2	U
Flashpoint - Degrees F	>176.0		>176.0		>176.0		>176.0		>176.0		>176.0		>176.0		>176.0		>176.0		>176.0		>176.0		>176.0		>176.0		>176.0		>176.0	
Paint Filter - mL/100g	passed		passed		passed		passed		passed		passed		passed		passed		passed		passed		passed		passed		passed		passed		failed	
Percent Total Sulfur - Percent	0.035		0.046		0.019		0.081		0.037		0.17		0.019	U	0.020	U	0.021	U	0.020	U	0.026	U	0.089		0.14		0.070		0.022	
pH - SU	8.38		8.83		7.98		8.50		10.8		8.96		9.21		8.12		8.95		8.88		9.03		8.39		8.04		8.54		7.70	
Sulfide, Reactive - mg/Kg	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Moisture Content (%)	14.1		14.3		14.1		22.6		17.4		16.1		13.9		15.3		22.7		15.8		22.1		14.4		26.1		21.1		20.8	

B : Compound was found in the blank and sample.
E : Result exceeded calibration range.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U : Indicates the analyte was analyzed for but not detected.

Table 3
Waste Characterization Analytical Results – Totals
NYSEG Lockport Transit Street Former MGP Site

Sample ID	WC-10 (0-8)		WC-10 (8-13.5)		WC-11 (0-6)		WC-11 (6-10.5)		WC-12 (0-8)		WC-12 (8-12)		WC-13 (0-11.5)		WC-14 (0-5)		WC-14 (5-10)		WC-15 (0-4)		WC-15 (4-9)	
Lab Sample Number	480-25588-9		480-25588-10		480-25686-3		480-25686-4		480-25686-1		480-25686-2		480-25686-5		480-25686-8		480-25686-9		480-25686-6		480-25686-7	
Sampling Date	9/25/2012		9/25/2012		9/26/2012		9/26/2012		9/26/2012		9/26/2012		9/26/2012		9/26/2012		9/26/2012		9/26/2012		9/26/2012	
Volatiles - 8260B (ug/kg)																						
1,1,1-Trichloroethane	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
1,1,2,2-Tetrachloroethane	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
1,1,2-Trichloroethane	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
1,1,2-Trichloro-1,2,2-trifluoroethane	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
1,1-Dichloroethane	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
1,1-Dichloroethene	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
1,2,4-Trichlorobenzene	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
1,2-Dibromo-3-Chloropropane	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
1,2-Dibromoethane	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
1,2-Dichlorobenzene	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
1,2-Dichloroethane	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
1,2-Dichloropropane	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
1,3-Dichlorobenzene	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
1,4-Dichlorobenzene	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
2-Hexanone	290	U	300	U	290	U	590	U	30	U	290	U	28	U	30	U	290	U	28	U	290	U
2-Butanone (MEK)	35	J	300	U	290	U	590	U	30	U	290	U	14	J	30	U	290	U	28	U	290	U
4-Methyl-2-pentanone (MIBK)	290	U	300	U	290	U	590	U	30	U	290	U	28	U	30	U	290	U	28	U	290	U
Acetone	170	J	64	J	130	J	590	U	18	J	290	U	83		30	U	290	U	28	U	290	U
Benzene	910		1500		9.2	J	630		5.9	U	660		5.5	U	6.0	U	58	U	5.7	U	57	U
Bromodichloromethane	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
Bromoform	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
Bromomethane	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
Carbon disulfide	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
Carbon tetrachloride	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
Chlorobenzene	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
Dibromochloromethane	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
Chloroethane	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
Chloroform	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
Chloromethane	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
cis-1,2-Dichloroethene	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
cis-1,3-Dichloropropene	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
Cyclohexane	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
Dichlorodifluoromethane	57	U	59	U	57	U	120	U	5.9	U *	58	U	5.5	U *	6.0	U	58	U *	5.7	U *	57	U
Ethylbenzene	26000		17000		620		34000		5.9	U	4300		5.5	U	6.0	U	58	U	5.7	U	88	
Isopropylbenzene	820		1600		200		2600		5.9	U	49	J	5.5	U	6.0	U	58	U	5.7	U	8.9	J
Methyl acetate	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
Methyl tert-butyl ether	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
Methylcyclohexane	57	U	14	J	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
Methylene Chloride	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
Styrene	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
Tetrachloroethene	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
Toluene	3700		3500		9.3	J	2100		5.9	U	1900		5.5	U	6.0	U	58	U	5.7	U	36	J
trans-1,2-Dichloroethene	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
trans-1,3-Dichloropropene	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
Trichloroethene	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
Trichlorofluoromethane	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
Vinyl chloride	57	U	59	U	57	U	120	U	5.9	U	58	U	5.5	U	6.0	U	58	U	5.7	U	57	U
Xylenes, Total	20000		13000		900		24000		12	U	2700		11	U	12	U	22	J	11	U	530	
Total Conc	49700		33500		1868.5		63330		18		9609		97				22				662.9	
Semivolatiles - 8270C (ug/kg)																						
2,4-Dichlorophenol	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
2,4-Dimethylphenol	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
2,4-Dinitrophenol	1200	U	13000	U	5600	U	5900	U	1200	U	12000	U	1100	U	1200	U	1100	U	2200	U	1300	U
2,4-Dinitrotoluene	80	U	840	U	380	U	400	U	79	U	790	U	76	U	83	U	75	U	150	U	85	U
2,6-Dinitrotoluene	80	U	840	U	380	U	400	U	79	U	790	U	76	U	83	U	75	U	150	U	85	U
2-Chloronaphthalene	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
3-Methylphenol	NR		NR		NR		NR		NR		NR		NR		NR		NR		NR		NR	
2-Chlorophenol	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
2-Methylnaphthalene	1900		11000		6200		8900		390	U	23000		370	U	410	U	54	J	120	J	1700	
1,4-Dichlorobenzene	NR		NR		NR		NR		NR		NR		NR		NR		NR		NR		NR	

Table 3
Waste Characterization Analytical Results – Totals
NYSEG Lockport Transit Street Former MGP Site

Sample ID	WC-10 (0-8)		WC-10 (8-13.5)		WC-11 (0-6)		WC-11 (6-10.5)		WC-12 (0-8)		WC-12 (8-12)		WC-13 (0-11.5)		WC-14 (0-5)		WC-14 (5-10)		WC-15 (0-4)		WC-15 (4-9)	
Lab Sample Number	**480-25588-9**		**480-25588-10**		**480-25686-3**		**480-25686-4**		**480-25686-1**		**480-25686-2**		**480-25686-5**		**480-25686-8**		**480-25686-9**		**480-25686-6**		**480-25686-7**	
Sampling Date	**9/25/2012**		**9/25/2012**		**9/26/2012**		**9/26/2012**		**9/26/2012**		**9/26/2012**		**9/26/2012**		**9/26/2012**		**9/26/2012**		**9/26/2012**		**9/26/2012**	
2-Methylphenol	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
2-Nitroaniline	800	U	8400	U	3800	U	4000	U	790	U	7900	U	760	U	830	U	750	U	1500	U	850	U
2-Nitrophenol	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
Pyridine	NR		NR		NR		NR		NR		NR		NR		NR		NR		NR		NR	
3,3'-Dichlorobenzidine	800	U	8400	U	3800	U	4000	U	790	U	7900	U	760	U	830	U	750	U	1500	U	850	U
2,4,5-Trichlorophenol	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
3-Nitroaniline	800	U	8400	U	3800	U	4000	U	790	U	7900	U	760	U	830	U	750	U	1500	U	850	U
2,4,6-Trichlorophenol	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
4,6-Dinitro-2-methylphenol	1200	U	13000	U	5600	U	5900	U	1200	U	12000	U	1100	U	1200	U	1100	U	2200	U	1300	U
4-Bromophenyl phenyl ether	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
4-Chloro-3-methylphenol	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
4-Chloroaniline	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
4-Chlorophenyl phenyl ether	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
4-Methylphenol	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
4-Nitroaniline	800	U	8400	U	3800	U	4000	U	790	U	7900	U	760	U	830	U	750	U	1500	U	850	U
4-Nitrophenol	1200	U	13000	U	5600	U	5900	U	1200	U	12000	U	1100	U	1200	U	1100	U	2200	U	1300	U
Acenaphthene	1600		3400	J	1800	J	8400		390	U	7200		370	U	410	U	430		740	U	150	J
Acenaphthylene	280	J	12000		1900	U	1200	J	390	U	5500		370	U	410	U	640		740	U	1100	
Acetophenone	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
Anthracene	850		9200		670	J	4500		390	U	4400		370	U	410	U	1100		740	U	780	
Atrazine	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
Benzaldehyde	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
Benzo[a]anthracene	510		4900		860		2900		39	U	2600		19	J	210		660		120		2000	
Benzo[a]pyrene	350		4400		810		2000		39	U	2000		20	J	230		540		170		2000	
Benzo[b]fluoranthene	280		3000		650		1500		39	U	1500		18	J	240		510		130		1800	
Benzo[g,h,i]perylene	150	J	2200	J	470	J	1200	J	390	U	1100	J	370	U	140	J	220	J	210	J	650	
Benzo[k]fluoranthene	140		1300		330		580		39	U	590		37	U	120		240		76		930	
bis (2-chloroisopropyl) ether	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
Bis(2-chloroethoxy)methane	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
Bis(2-chloroethyl)ether	39	U	410	U	190	U	190	U	39	U	390	U	37	U	41	U	37	U	74	U	42	U
Bis(2-ethylhexyl) phthalate	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
Butyl benzyl phthalate	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
Caprolactam	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
Carbazole	65	J	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	420		740	U	220	J
Chrysene	430		4700		870	J	2700		390	U	2300	J	370	U	230	J	590		150	J	1800	
Dibenz(a,h)anthracene	47		710		190	U	190	U	39	U	390	U	37	U	58		37	U	74	U	270	
Dibenzofuran	110	J	1000	J	1900	U	490	J	390	U	900	J	370	U	410	U	760		740	U	460	
Diethyl phthalate	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
Dimethyl phthalate	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
Di-n-butyl phthalate	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
Di-n-octyl phthalate	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
Diphenyl	450		2900	J	530	J	1800	J	390	U	2900	J	370	U	410	U	270	J	740	U	230	J
Fluoranthene	1000		9600		880	J	3800		390	U	4500		370	U	160	J	1400		120	J	2600	
Fluorene	1100		9600		590	J	5100		390	U	5900		370	U	410	U	1200		740	U	700	
Hexachlorobenzene	39	U	410	U	190	U	190	U	39	U	390	U	37	U	41	U	37	U	74	U	42	U
Hexachlorobutadiene	80	U	840	U	380	U	400	U	79	U	790	U	76	U	83	U	75	U	150	U	85	U
Hexachlorocyclopentadiene	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
Hexachloroethane	39	U	410	U	190	U	190	U	39	U	390	U	37	U	41	U	37	U	74	U	42	U
Indeno[1,2,3-cd]pyrene	140		2100		510		1100		39	U	880		37	U	170		270		170		830	
Isophorone	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
Naphthalene	2600		7800		30000		8000		390	U	50000		370	U	410	U	890		220	J	6300	
Nitrobenzene	39	U	410	U	190	U	190	U	39	U	390	U	37	U	41	U	37	U	74	U	42	U
N-Nitrosodi-n-propylamine	39	U	410	U	190	U	190	U	39	U	390	U	37	U	41	U	37	U	74	U	42	U
N-Nitrosodiphenylamine	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
Pentachlorophenol	1200	U	13000	U	5600	U	5900	U	1200	U	12000	U	1100	U	1200	U	1100	U	2200	U	1300	U
Phenanthrene	3400		34000		2100		17000		390	U	16000		370	U	410	U	2700		120	J	1800	
Phenol	390	U	4100	U	1900	U	1900	U	390	U	3900	U	370	U	410	U	370	U	740	U	420	U
Pyrene	1500		15000		1400	J	9000		390	U	7800		370	U	210	J	1400		150	J	2600	
Total Conc	16902		138810		48670		80170				139070		57		1768		14294		1756		28920	
Diesel Range Organics (mg/kg)																						
DRO [C10-C28]	1200		1500		94		570		13	J	180		13	J	6.2	J	14	J	17	J	150	

Table 3
Waste Characterization Analytical Results – Totals
NYSEG Lockport Transit Street Former MGP Site

Sample ID	WC-10 (0-8)		WC-10 (8-13.5)		WC-11 (0-6)		WC-11 (6-10.5)		WC-12 (0-8)		WC-12 (8-12)		WC-13 (0-11.5)		WC-14 (0-5)		WC-14 (5-10)		WC-15 (0-4)		WC-15 (4-9)	
Lab Sample Number	**480-25588-9**		**480-25588-10**		**480-25686-3**		**480-25686-4**		**480-25686-1**		**480-25686-2**		**480-25686-5**		**480-25686-8**		**480-25686-9**		**480-25686-6**		**480-25686-7**	
Sampling Date	**9/25/2012**		**9/25/2012**		**9/26/2012**		**9/26/2012**		**9/26/2012**		**9/26/2012**		**9/26/2012**		**9/26/2012**		**9/26/2012**		**9/26/2012**		**9/26/2012**	
PCBs (mg/kg)																						
PCB-1016	0.26	U	0.26	U	0.25	U	0.23	U	0.22	U	0.28	U	0.26	U	0.21	U	0.26	U	0.20	U	0.24	U
PCB-1221	0.26	U	0.26	U	0.25	U	0.23	U	0.22	U	0.28	U	0.26	U	0.21	U	0.26	U	0.20	U	0.24	U
PCB-1232	0.26	U	0.26	U	0.25	U	0.23	U	0.22	U	0.28	U	0.26	U	0.21	U	0.26	U	0.20	U	0.24	U
PCB-1242	0.26	U	0.26	U	0.25	U	0.23	U	0.22	U	0.28	U	0.26	U	0.21	U	0.26	U	0.20	U	0.24	U
PCB-1248	0.26	U	0.26	U	0.25	U	0.23	U	0.22	U	0.28	U	0.26	U	0.21	U	0.26	U	0.20	U	0.24	U
PCB-1254	0.26	U	0.26	U	0.25	U	0.23	U	0.22	U	0.28	U	0.26	U	0.21	U	0.26	U	0.20	U	0.24	U
PCB-1260	0.26	U	0.26	U	0.25	U	0.23	U	0.22	U	0.28	U	0.26	U	0.21	U	0.26	U	0.20	U	0.24	U
Metals (mg/kg)																						
Arsenic	4.9		5.6		2.4		1.9	J	2.7		2.3	J	3.5		9.7		3.2		5.8		5.3	
Mercury	0.057		0.013	J	0.029		0.022	U	0.020	J	0.022	U	0.018	J	0.047		0.022	U	0.041		0.015	J
Barium	173		50.9		57.6	B	42.3	B	39.1	B	38.4	B	47.8	B	132	B	69.2	B	58.1	B	48.3	B
Cadmium	0.24		0.14	J	0.18	J	0.11	J	0.17	J	0.12	J	0.56		0.33		0.096	J	0.25		0.18	J
Chromium	10.5		7.3		6.0		7.6		6.3		7.3		7.5		9.4		5.2		6.8		5.9	
Lead	42.1		6.4		27.5		5.2		5.1		5.8		24.2		27.2		5.0		38.6		7.1	
Selenium	4.4	U	4.7	U	4.8	U	4.3	U	4.4	U	4.8	U	4.4	U	5.4	U	4.4	U	4.8	U	5.5	U
Silver	0.55	U	0.58	U	0.59	U	0.54	U	0.54	U	0.60	U	0.55	U	0.68	U	0.55	U	0.60	U	0.69	U
Wet Chemistry																						
BTU - BTU/lb	DNF		DNF		DNF		DNF		DNF		DNF		DNF		DNF		DNF		DNF		DNF	
Cyanide, Reactive - mg/Kg	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Cyanide, Total - mg/Kg	1.2	U	1.2	U	1.0	U	1.2	U	1.0	U	1.2	U	0.70	J	1.1	U	1.0	U	1.1	U	1.6	
Flashpoint - Degrees F	>176.0		>176.0		>176.0		>176.0		>176.0		>176.0		>176.0		>176.0		>176.0		>176.0		>176.0	
Paint Filter - mL/100g	passed		passed		passed		passed		passed		passed		passed		passed		passed		passed		passed	
Percent Total Sulfur - Percent	0.075		0.021	U	0.10		0.050		0.040		0.055		0.078		0.023		0.019	U	0.051		0.041	
pH - SU	8.47		8.67		8.37		8.39		8.53		8.66		9.48		8.68		8.89		9.69		8.51	
Sulfide, Reactive - mg/Kg	10.0	U	10.0	U	10.0	U	4.0	J	4.0	J	10.0	U	10.0	U	6.0	J	10.0	U	4.0	J	10.0	U
Moisture Content (%)	19.0		25.7		12.6		17.9		18.0		17.9		13.9		24.0		11.8		12.1		26.3	

B : Compound was found in the blank and sample.
E : Result exceeded calibration range.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U : Indicates the analyte was analyzed for but not detected.

Table 4
Waste Characterization Analytical Results – TCLP
NYSEG Lockport Transit Street Former MGP Site

Table 4
Waste Characterization Analytical Results – TCLP

Sample ID	Regulatory	WC-1 (0-6)		WC-1 (6-12)		WC-2 (0-4)		WC-2 (4-12.5)		WC-3 (0-4)		WC-4 (0-6)		WC-5 (0-4)		WC-6 (0-8)		WC-6 (0-8)		WC-6 (8-14.5)		WC-7 (0-8)		WC-7 (8-17.5)		WC-8 (0-8)		WC-8 (8-16.5)	
Lab Sample Number	**Limit**	**480-25563-5**		**480-25563-6**		**480-25563-1**		**480-25563-2**		**480-25563-3**		**480-25563-7**		**480-25563-4**		**480-25588-1**		**480-25588-1**		**480-25588-2**		**480-25588-3**		**480-25588-4**		**480-25588-5**		**480-25588-6**	
Sampling Date	**(mg/L)**	**9/24/2012**		**9/24/2012**		**9/24/2012**		**9/24/2012**		**9/24/2012**		**9/24/2012**		**9/24/2012**		**9/25/2012**		**9/25/2012**		**9/25/2012**		**9/25/2012**		**9/25/2012**		**9/25/2012**		**9/25/2012**	
TCLP VOCs (mg/L)																													
1,1-Dichloroethene	0.7	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
1,2-Dichloroethane	0.5	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
2-Butanone (MEK)	200	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Benzene	0.5	0.010	U	0.010	U	0.010	U	**0.015**		0.010	U	**9.2**		0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Carbon tetrachloride	0.5	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Chlorobenzene	100	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Chloroform	6	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Tetrachloroethene	0.7	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Trichloroethene	0.5	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Vinyl chloride	0.2	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
TCLP SVOCs (mg/L)																													
2,4-Dinitrotoluene	0.13	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U
Pyridine	5	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	**0.15**		0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U
2,4,5-Trichlorophenol	400	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U
2,4,6-Trichlorophenol	2	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U
Hexachlorobenzene	0.13	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U
Hexachlorobutadiene	0.5	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U
Nitrobenzene	2	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U
Pentachlorophenol	100	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.0050	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
TCLP Pesticides (mg/L)																													
gamma-BHC (Lindane)	0.4	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U
Chlordane (technical)	0.03	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U
Endrin	0.02	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U
Heptachlor	0.008	**0.000036**	**J**	**0.000037**	**J**	0.00020	U	0.00020	U	0.00020	U	**0.00012**	**J**	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U
Methoxychlor	10	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U
Toxaphene	0.5	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.00020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U
Silvex (2,4,5-TP)	1	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U
2,4-D	10	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U *	0.0020	U *	0.0020	U *	0.0020	U *	0.0020	U *	0.0020	U *	0.0020	U *
TCLP Metals (mg/L)																													
Arsenic	5	0.010	U	0.010	U	**0.0074**	**J**	**0.017**		0.010	U	0.010	U	0.010	U	**0.0073**	**J**	**0.0073**	**J**	0.010	U	0.010	U	0.010	U	**0.0094**	**J**	**0.0072**	**J**
Mercury	0.2	0.00020	U	0.00020	U	0.00020	U	0.00018	J	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U
Barium	100	**1.0**	**B**	**0.91**	**B**	**0.66**	**B**	**0.66**	**B**	**0.58**	**B**	**0.63**	**B**	**0.58**	**B**	**1.1**	**B**	**1.1**	**B**	**1.4**	**B**	**1.2**	**B**	**1.8**	**B**	**2.7**	**B**	**1.4**	**B**
Cadmium	1	**0.00063**	**J B**	0.0010	U	**0.0016**	**B**	**0.00072**	**J B**	**0.0012**	**B**	**0.0027**	**B**	**0.0043**	**B**	**0.0024**		**0.0024**		**0.0015**		**0.0014**		**0.0015**		**0.00052**	**J**	**0.00086**	**J**
Chromium	5	**0.0011**	**J B**	0.0011	J B	**0.0014**	**J B**	**0.021**	**B**	**0.0034**	**J B**	**0.0014**	**J B**	**0.0042**	**B**	**0.0045**	**B**	**0.0045**	**B**	**0.0057**	**B**	**0.0032**	**J B**	**0.0032**	**J B**	**0.0062**	**B**	**0.0056**	**B**
Lead	5	**0.010**		0.0050	U	**0.073**		**0.073**		**0.0081**		**0.031**		**0.012**		**0.0037**	**J**	**0.0037**	**J**	0.0050	U	0.0050	U	**0.0037**	**J**	**0.0036**	**J**	0.0050	U
Selenium	1	0.015	U	0.015	U	**0.014**	**J**	**0.013**	**J**	0.015	U	**0.011**	**J**	0.015	U	0.015	U	0.015	U	0.0094	J	0.015	U	0.015	U	0.015	U	0.015	U
Silver	5	0.0030	U	0.0030	U	0.0030	U	0.0030	U	0.0030	U	0.0030	U	0.0030	U	0.0030	U	0.0030	U	0.0030	U	0.0030	U	0.0030	U	0.0030	U	0.0030	U

B : Compound was found in the blank and sample.
E : Result exceeded calibration range.
J : Result is less than the RL, greater than MDL and an approximate value.
U : Indicates the analyte was analyzed for but not detected.
* : LCS or LCSD exceeds the control limits

Table 4
Waste Characterization Analytical Results – TCLP
NYSEG Lockport Transit Street Former MGP Site

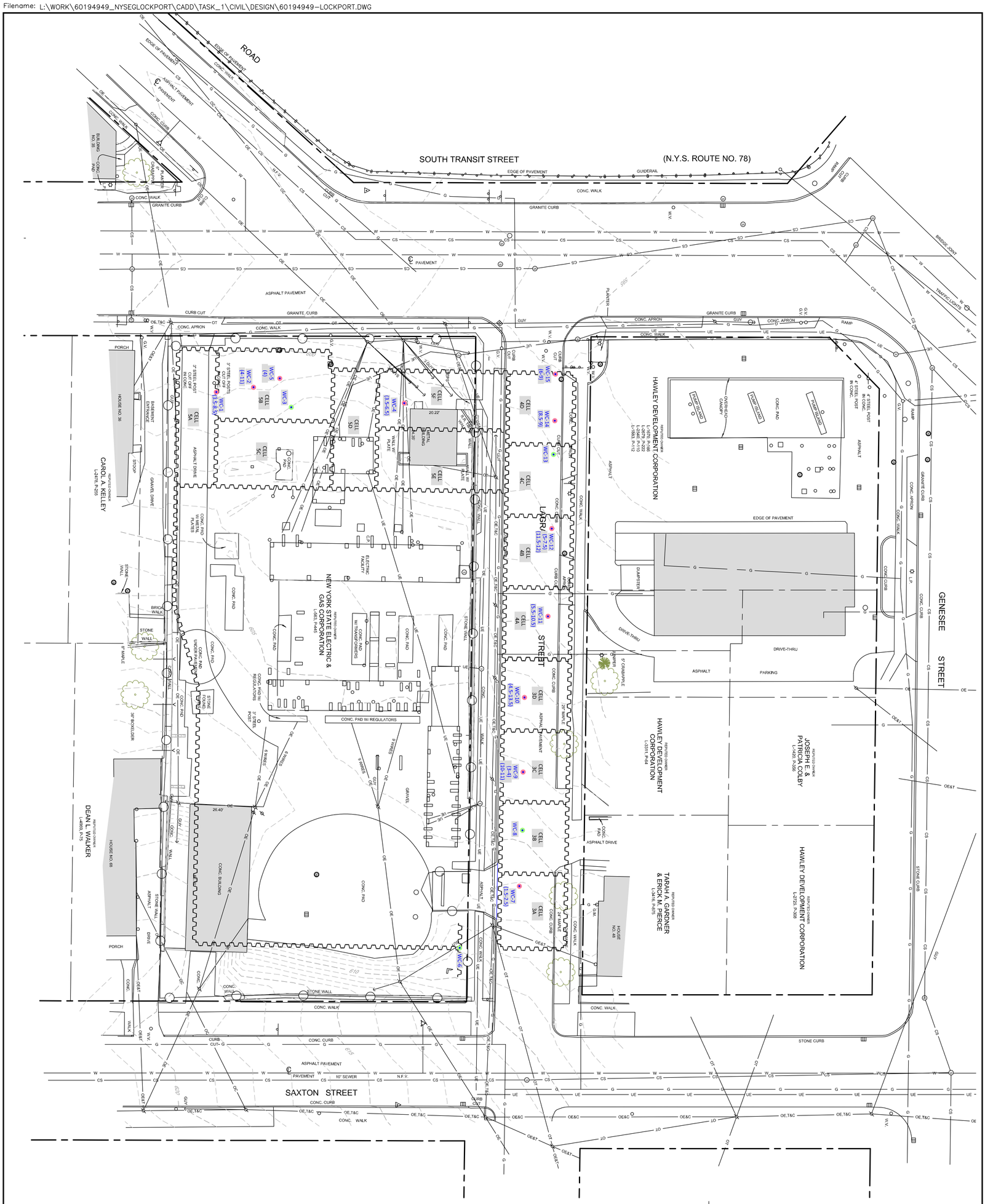
Table 4
Waste Characterization Analytical Results – TCLP

Sample ID	Regulatory	WC-9 (0-8)		WC-9 (8-16)		WC-10 (0-8)		WC-10 (8-13.5)		WC-11 (0-6)		WC-11 (6-10.5)		WC-12 (0-8)		WC-12 (8-12)		WC-13 (0-11.5)		WC-14 (0-5)		WC-14 (5-10)		WC-15 (0-4)		WC-15 (4-9)	
Lab Sample Number	**Limit**	**480-25588-7**		**480-25588-8**		**480-25588-9**		**480-25588-10**		**480-25686-3**		**480-25686-4**		**480-25686-1**		**480-25686-2**		**480-25686-5**		**480-25686-8**		**480-25686-9**		**480-25686-6**		**480-25686-7**	
Sampling Date	**(mg/L)**	**9/25/2012**		**9/25/2012**		**9/25/2012**		**9/25/2012**		**9/26/2012**		**9/26/2012**		**9/26/2012**		**9/26/2012**		**9/26/2012**		**9/26/2012**		**9/26/2012**		**9/26/2012**		**9/26/2012**	
TCLP VOCs (mg/L)																											
1,1-Dichloroethene	0.7	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
1,2-Dichloroethane	0.5	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
2-Butanone (MEK)	200	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Benzene	0.5	**0.011**		0.010	U	**0.0042**	**J**	**0.017**		**0.0085**	**J**	**0.015**		0.010	U	**0.015**		0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Carbon tetrachloride	0.5	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Chlorobenzene	100	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Chloroform	6	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Tetrachloroethene	0.7	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Trichloroethene	0.5	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Vinyl chloride	0.2	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
TCLP SVOCs (mg/L)																											
2,4-Dinitrotoluene	0.13	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U
Pyridine	5	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U
2,4,5-Trichlorophenol	400	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U
2,4,6-Trichlorophenol	2	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U
Hexachlorobenzene	0.13	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U *	0.0050	U *	0.0050	U *	0.0050	U *	0.0050	U *	0.0050	U *	0.0050	U *	0.0050	U *	0.0050	U *
Hexachlorobutadiene	0.5	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U
Nitrobenzene	2	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U	0.0050	U
Pentachlorophenol	100	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
TCLP Pesticides (mg/L)																											
gamma-BHC (Lindane)	0.4	0.00020	U	0.00020	U	**0.000066**	**J**	**0.000076**	**J**	0.00020	U	0.00020	U	0.00020	U	**0.000043**	**J**	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U
Chlordane (technical)	0.03	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U
Endrin	0.02	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U
Heptachlor	0.008	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	**0.000093**	**J**	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U
Methoxychlor	10	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U
Toxaphene	0.5	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U
Silvex (2,4,5-TP)	1	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U
2,4-D	10	0.0020	U *	0.0020	U *	0.0020	U *	0.0020	U *	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U
TCLP Metals (mg/L)																											
Arsenic	5	**0.012**		**0.0072**	**J**	**0.012**		**0.0096**	**J**	0.010	U	**0.0059**	**J**	**0.0071**	**J**	**0.0060**	**J**	**0.0076**	**J**	**0.0071**	**J**	0.010	U	0.010	U	0.010	U
Mercury	0.2	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U
Barium	100	**2.5**	**B**	**1.2**	**B**	**1.2**	**B**	**1.3**	**B**	**0.88**	**B**	**0.77**	**B**	**0.90**	**B**	**0.89**	**B**	**1.4**	**B**	**1.0**	**B**	**1.5**	**B**	**0.52**	**B**	**0.74**	**B**
Cadmium	1	**0.00074**	**J**	**0.0014**		0.0010	U	0.0010	U	**0.00053**	**J**	**0.0011**		**0.00093**	**J**	**0.00082**	**J**	**0.00086**	**J**	**0.0015**		**0.0016**		**0.0011**		**0.0015**	
Chromium	5	**0.014**	**B**	**0.0030**	**J B**	**0.0094**	**B**	**0.0012**	**J B**	**0.0041**		**0.0025**	**J**	**0.0021**	**J**	**0.012**		**0.015**		**0.0096**		**0.011**		**0.0019**	**J**	**0.0043**	
Lead	5	0.0050	U	0.0050	U	**0.023**		0.0050	U	**0.014**		0.0050	U	0.0050	U	**0.0066**		**0.018**		**0.0083**		**0.0044**	**J**	**0.0084**		0.0050	U
Selenium	1	**0.010**	**J**	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	**0.0098**	**J**	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U
Silver	5	0.0030	U	0.0030	U	0.0030	U	0.0030	U	0.0030	U	0.0030	U	0.0030	U	0.0030	U	0.0030	U	0.0030	U	0.0030	U	0.0030	U	0.0030	U

B : Compound was found in the blank and sample.
E : Result exceeded calibration range.
J : Result is less than the RL, greater than MDL and an approximate value.
U : Indicates the analyte was analyzed for but not detected.
* : LCS or LCSD exceeds the control limits

Figure

Plotted By: meisterk
Plot File Date Created: Oct/22/2012 8:11 AM
Layout-Sheet Name: WASTE-DATA
Filename: L:\WORK\60194949_NYSEGLOCKPORT\CADD\TASK_1\CIVIL\DESIGN\60194949-LOCKPORT.DWG



LEGEND

UE — UNDERGROUND ELECTRIC
OT — OVERHEAD TELEPHONE
OE,T&C — OVERHEAD ELECTRIC, TELEPHONE & CABLE
OE&T — OVERHEAD ELECTRIC & TELEPHONE
OE&C — OVERHEAD ELECTRIC & CABLE
CS — COMBINATION SEWER
ST — STORM SEWER
W — WATER
G — GAS
X — GUIDERAIL
P.P. — FENCE
L.P. — POWER POLE
E.B. — LIGHT POLE
E.M. — ELECTRIC BOX
M.M. — ELECTRIC METER
MON. WELL — MONITORING WELL
D.I. — DROP INLET
C.B. — CATCH BASIN
ST. M.H. — STORM MANHOLE
SAN. M.H. — SANITARY MANHOLE
COMB. M.H. — COMBINATION MANHOLE
GAS M.H. — GAS MANHOLE
D.S. — DOWNSPOUT
Y.D. — YARD DRAIN
G.P. — GATE POST
G.V. — GAS VALVE
C.O. — CLEANOUT
G.M. — GAS METER
W.V. — WATER VALVE
HYD. — HYDRANT
F.C. — GAS FILL CAP
ELEC. M.H. — ELECTRIC MANHOLE
G.P. — GAS
CONC. — CONCRETE PAD
N.F.V. — CONDUIT
NOT FIELD VERIFIED
SHEETPILE FOR TEMPORARY EXCAVATION CELL

KEY

WC-8 — WASTE CHARACTERIZATION SAMPLE LOCATION
(6-9) — VISUAL IMGP IMPACTS WITH DEPTH INTERVAL OF IMPACTS (FT. BG)
NO VISUAL IMPACTS

MAP REFERENCE:
BASE MAPPING FROM A PLAN TITLED TOPOGRAPHICAL PLANIMETRIC MAP OF PART OF LOT 12, SEC. 14, TWP. 14, R. 6, HOLLAND PURCHASE, CITY OF LOCKPORT, NIAGARA COUNTY, NEW YORK, BY MCINTOSH & MCINTOSH, PC, DATED JUNE 1, 2011 AND ALL NOTES AND REFERENCES THEREIN.

0' 10' 20' 40'

NYSEG - REMEDIAL DESIGN FOR FORMER LOCKPORT MGP SITE LOCKPORT, NEW YORK

WASTE CHARACTERIZATION SAMPLE LOCATIONS

AECOM

DATE	OCTOBER 2012
PROJECT NO.	60194949
FILENAME	60194949-LOCKPORT.dwg
SHEET NO.	1
DRAWING NO.	1

DRN BY:	----
DES BY:	----
CHK BY:	----
APP BY:	----

1-INCH — VERIFY SCALE IF PLAN SHEET IS REDUCED

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

Attachment A

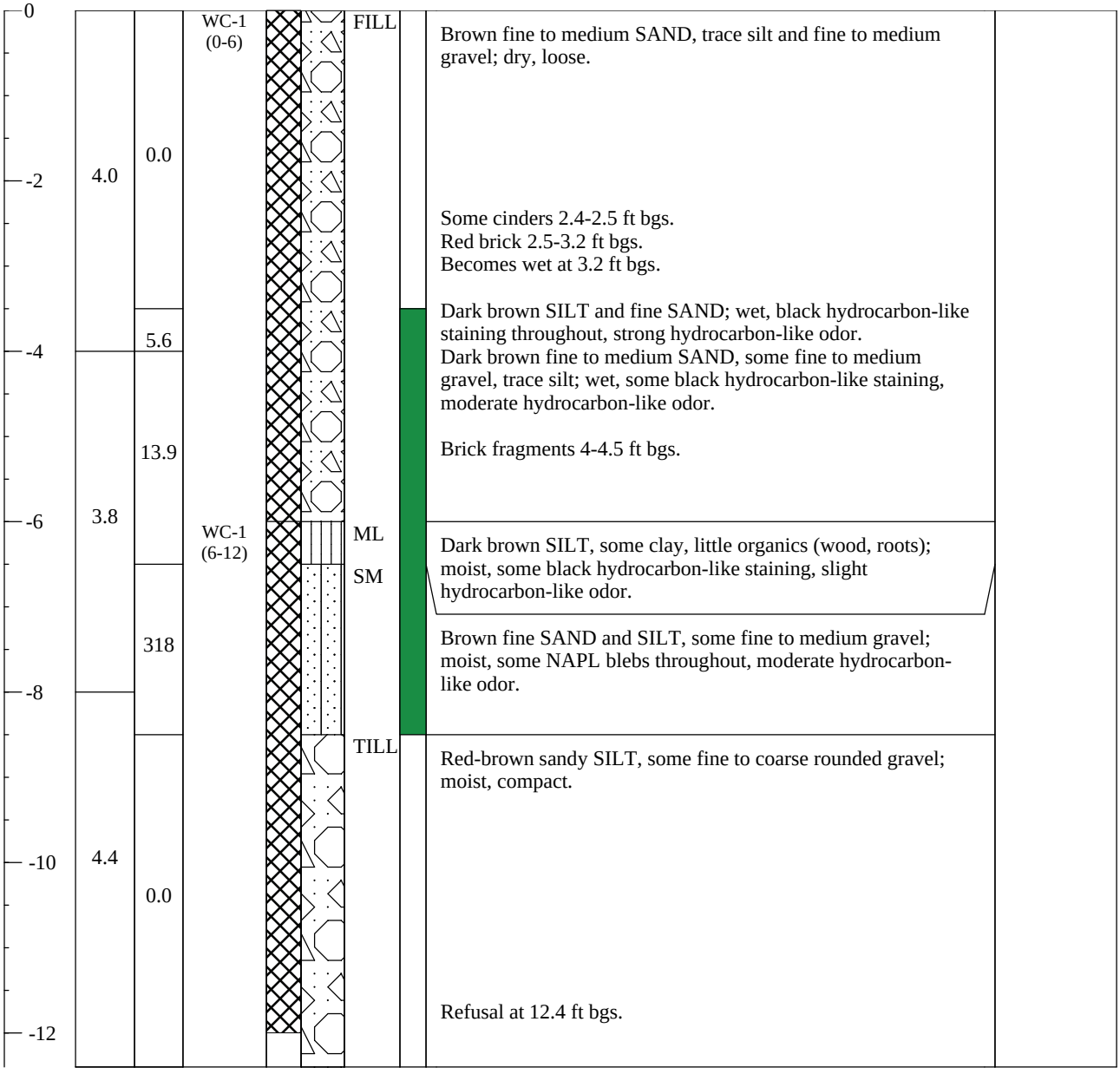
Boring Logs

AECOM
40 British American Blvd.
Latham, New York, 12110

Boring ID: WC-1

Project Name: Lockport Transit Street MGP Site
Client/Project Number: NYSEG/60194949.2
Date Started/Completed: 9/24/12
Boring Location: Substation
Drilling Company: Zebra Environmental

Drilling Method: Geoprobe
Sampling Method: 4 ft Macro-core
Ground Elevation (ft/msl, NAVD 88): NA
Total Depth: 12.4
Logged By: H. Jones



Coal Tar or Coal Tar NAPL Saturated Soil

Hydrocarbon Staining, Hydrocarbon Sheen or NAPL Blebs

Comments: Samples WC-1(0-6) and WC-1(6-12) collected for waste characterization.

AECOM
40 British American Blvd.
Latham, New York, 12110

Boring ID: WC-2

Project Name: Lockport Transit Street MGP Site
Client/Project Number: NYSEG/60194949.2
Date Started/Completed: 9/24/12
Boring Location: Substation
Drilling Company: Zebra Environmental

Drilling Method: Geoprobe
Sampling Method: 4 ft Macro-core
Ground Elevation (ft/msl, NAVD 88): NA
Total Depth: 12.5
Logged By: H. Jones

Depth (Feet)	Recovery (Feet)	PID (ppm)	Sample ID	Sample Interval	Lithology	USCS	Visual Impacts	Geologic Description	Remarks
0	4.0	0.0	WC-2 (0-4)	0-4	FILL	FILL		Brown medium SAND, some fine to coarse gravel; dry, loose.	
-2					ML	ML		Red-brown SILT, trace fine sand; moist.	
-4	2.0	0.0	WC-2 (4-12.5)	4-12.5	SM	SM		Dark brown fine to medium SAND, some silt, trace fine gravel; moist, black hydrocarbon-like staining. Becomes wet at 4 ft bgs. Heavy hydrocarbon-like sheen and moderate hydrocarbon-like odor from 4-8 ft bgs. Cobble fragments at 4.5 and 8 ft bgs.	
-6									
-8	4.0	10.2			OL	OL		Black hydrocarbon-like staining from 8-8.8 ft bgs. Brown silty CLAY; wet, some hydrocarbon-like staining.	
-10								Some viscous coal tar from 10-11 ft bgs.	
-12		0.0			TILL	TILL		Brown SILT, some fine gravel; moist, compact, trace black staining. Refusal at 12.5 ft bgs.	

Coal Tar or Coal Tar NAPL Saturated Soil

Hydrocarbon Staining, Hydrocarbon Sheen or NAPL Blebs

Comments: Samples WC-2(0-4) and WC-2(4-12.5) collected for waste characterization.

AECOM
40 British American Blvd.
Latham, New York, 12110

Boring ID: WC-3

Project Name: Lockport Transit Street MGP Site
Client/Project Number: NYSEG/60194949.2
Date Started/Completed: 9/24/12
Boring Location: Substation
Drilling Company: Zebra Environmental

Drilling Method: Geoprobe
Sampling Method: 4 ft Macro-core
Ground Elevation (ft/msl, NAVD 88): NA
Total Depth: 4.0
Logged By: H. Jones

Depth (Feet)	Recovery (Feet)	PID (ppm)	Sample ID	Sample Interval	Lithology	USCS	Visual Impacts	Geologic Description	Remarks
0			WC-3 (0-4)			FILL		Brown fine to medium SAND, some fine to medium gravel, few cobbles; dry, loose.	
								Some cinders and red brick fragments from 1.5-1.8 ft bgs.	
	3.6	0.0				ML		Brown SILT, trace coarse gravel; dry.	
-2								Becomes moist at 2.5 ft bgs.	
								Rock fragments from 3-4 ft bgs.	
-4								Refusal at 4 ft bgs.	

Coal Tar or Coal Tar NAPL Saturated Soil

Hydrocarbon Staining, Hydrocarbon Sheen or NAPL Blebs

Comments: Sample WC-3(0-4) collected for waste characterization.
Made three attempts, all hit refusal at 4 ft bgs.

AECOM
40 British American Blvd.
Latham, New York, 12110

Boring ID: WC-4

Project Name: Lockport Transit Street MGP Site
Client/Project Number: NYSEG/60194949.2
Date Started/Completed: 9/24/12
Boring Location: Substation
Drilling Company: Zebra Environmental

Drilling Method: Geoprobe
Sampling Method: 4 ft Macro-core
Ground Elevation (ft/msl, NAVD 88): NA
Total Depth: 6.0
Logged By: H. Jones

Depth (Feet)	Recovery (Feet)	PID (ppm)	Sample ID	Sample Interval	Lithology	USCS	Visual Impacts	Geologic Description	Remarks
0	3.6	0.0	WC-4 (0-6)			FILL		Brown medium to coarse SAND, some fine to medium gravel, brick fragments, and cinders; dry, loose.	
								Brown fine SAND and SILT; moist, compact.	
-2								Dark brown medium SAND; moist. Brick fragments from 2.5-2.7 ft bgs and 2.9-3.5 ft bgs. Cinders with slight hydrocarbon-like odor from 2.7-2.9 ft bgs.	
		12.7						Some black hydrocarbon-like staining with slight hydrocarbon-like odor from 3.5-4.8 ft bgs.	
-4	2.0	471						Becomes wet at 4.5 ft bgs. Cobble fragments from 4.6-4.8 ft bgs. Wood fragments from 4.8-5 ft bgs.	
						SM		Non-viscous tar saturated fine to medium SAND, some medium gravel; wet.	
-6								Refusal at 6 ft bgs.	

Coal Tar or Coal Tar NAPL Saturated Soil

Hydrocarbon Staining, Hydrocarbon Sheen or NAPL Blebs

Comments: Sample WC-4(0-6) collected for waste characterization.

AECOM
40 British American Blvd.
Latham, New York, 12110

Boring ID: WC-5

Project Name: Lockport Transit Street MGP Site
Client/Project Number: NYSEG/60194949.2
Date Started/Completed: 9/24/12
Boring Location: Substation
Drilling Company: Zebra Environmental

Drilling Method: Geoprobe
Sampling Method: 4 ft Macro-core
Ground Elevation (ft/msl, NAVD 88): NA
Total Depth: 4.0
Logged By: H. Jones

Depth (Feet)	Recovery (Feet)	PID (ppm)	Sample ID	Sample Interval	Lithology	USCS	Visual Impacts	Geologic Description	Remarks
0			WC-5 (0-4)			FILL		Brown fine to medium SAND, some fine to medium gravel and cinders; dry, loose.	
								Brick and rock fragments from 1 to 1.2 ft bgs.	
	4.0	0.0				ML		Red-brown SILT, trace fine sand and gravel and organics (roots); moist, compact.	
-2									
								Black hydrocarbon-like staining and becomes wet at 4 ft bgs. Refusal at 4 ft bgs.	
-4									

Coal Tar or Coal Tar NAPL Saturated Soil

Hydrocarbon Staining, Hydrocarbon Sheen or NAPL Blebs

Comments: Sample WC-5(0-4) collected for waste characterization.

AECOM
40 British American Blvd.
Latham, New York, 12110

Boring ID: WC-6

Project Name: Lockport Transit Street MGP Site
Client/Project Number: NYSEG/60194949.2
Date Started/Completed: 9/25/12
Boring Location: Northeast corner of substation
Drilling Company: Zebra Environmental

Drilling Method: Geoprobe
Sampling Method: 4 ft Macro-core
Ground Elevation (ft/msl, NAVD 88): NA
Total Depth: 14.5
Logged By: H. Jones

Depth (Feet)	Recovery (Feet)	PID (ppm)	Sample ID	Sample Interval	Lithology	USCS	Visual Impacts	Geologic Description	Remarks
0			WC-6 (0-8)			FILL		Dark brown medium to coarse SAND, some fine to medium gravel; dry, loose.	
						ML		Red-brown SILT, some fine sand, trace medium gravel; moist, compact.	
-2	3.8	0.0							
-4								Becomes wet at 4 ft bgs.	
						SM		Red-brown fine to medium silty SAND; wet, dense, homogeneous.	
-6	4.0	0.0							
-8			WC-6 (8-14.5)					Lense of fine gravel from 8-8.1 ft bgs.	
								Red-brown fine silty SAND; wet, dense, homogeneous.	
-10	4.0	0.0							
-12						TILL		Red-brown fine silty SAND, trace fine rounded gravel; moist, very dense.	
	2.5	0.0							
-14								Refusal at 14.5 ft bgs.	

Coal Tar or Coal Tar NAPL Saturated Soil

Hydrocarbon Staining, Hydrocarbon Sheen or NAPL Blebs

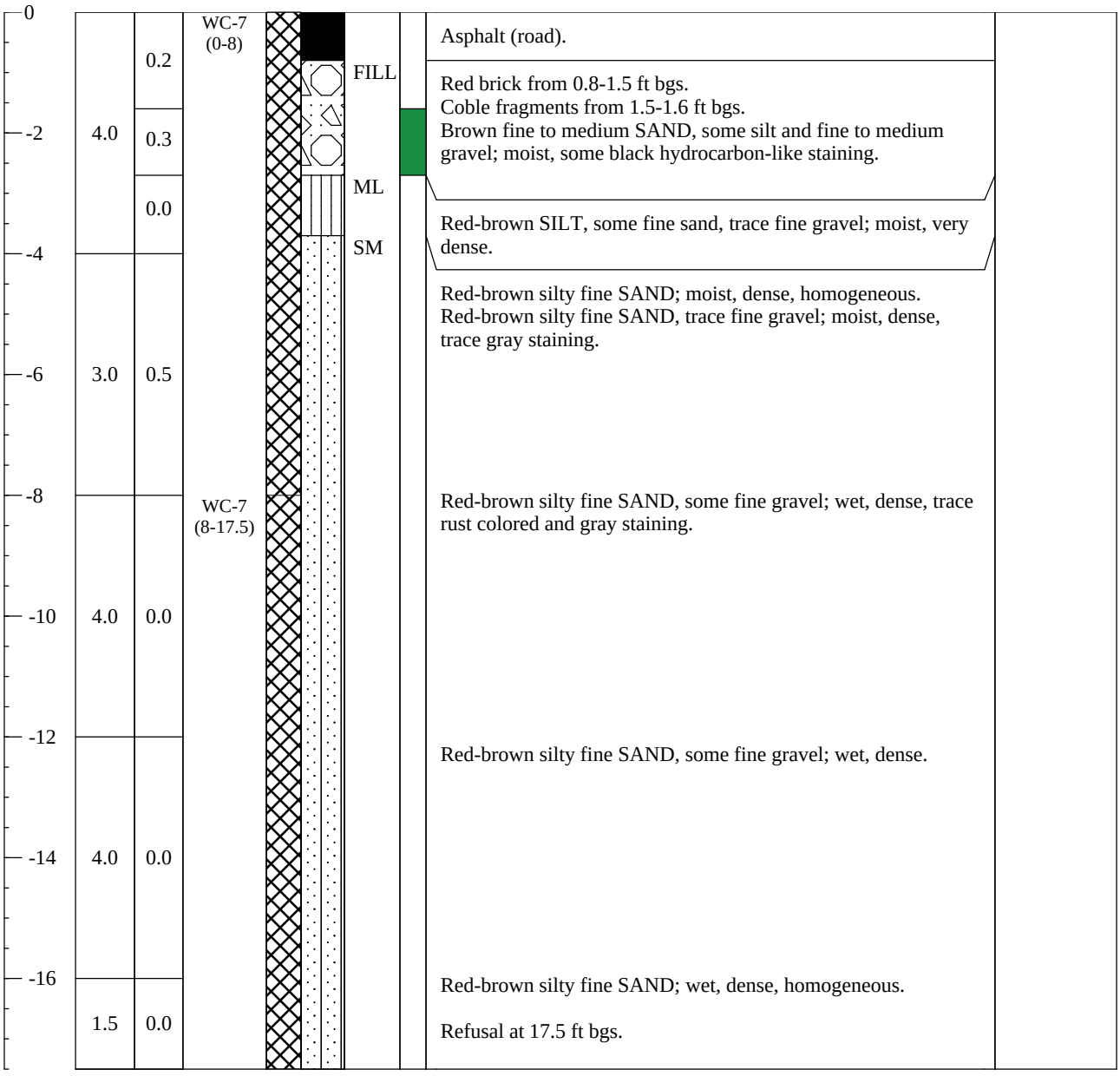
Comments: Samples WC-6(0-8) and WC-6(8-14.5) collected for waste characterization.

AECOM
40 British American Blvd.
Latham, New York, 12110

Boring ID: WC-7

Project Name: Lockport Transit Street MGP Site
Client/Project Number: NYSEG/60194949.2
Date Started/Completed: 9/25/12
Boring Location: La Grange Street
Drilling Company: Zebra Environmental

Drilling Method: Geoprobe
Sampling Method: 4 ft Macro-core
Ground Elevation (ft/msl, NAVD 88): NA
Total Depth: 17.5
Logged By: H. Jones



Coal Tar or Coal Tar NAPL Saturated Soil

Hydrocarbon Staining, Hydrocarbon Sheen or NAPL Blebs

Comments: Samples WC-7(0-8) and WC-7(8-17.5) collected for waste characterization.

AECOM
40 British American Blvd.
Latham, New York, 12110

Boring ID: WC-8

Project Name: Lockport Transit Street MGP Site
Client/Project Number: NYSEG/60194949.2
Date Started/Completed: 9/25/12
Boring Location: La Grange Street
Drilling Company: Zebra Environmental

Drilling Method: Geoprobe
Sampling Method: 4 ft Macro-core
Ground Elevation (ft/msl, NAVD 88): NA
Total Depth: 16.5
Logged By: H. Jones

Depth (Feet)	Recovery (Feet)	PID (ppm)	Sample ID	Sample Interval	Lithology	USCS	Visual Impacts	Geologic Description	Remarks
0		0.2	WC-8 (0-8)					Asphalt (road).	
						FILL		Brown fine to medium SAND, some fine to medium gravel; dry, loose.	
-2	3.5	0.0							
						ML		Red-brown SILT, little fine sand; moist, compact, some black mottling. Red-brown SILT, little fine sand and clay; wet, medium hard.	
-4									
-6	3.5	0.0							
-8			WC-8 (8-16.5)					Red-brown SILT, little fine sand; wet, soft to medium hard.	
-10	3.5	0.0						Some gray staining and wood chips from 10-10.5 ft bgs.	
						SM		Red-brown fine to medium SAND, some fine gravel, trace silt; wet, loose. Red-brown fine silty SAND; wet, homogeneous, medium dense.	
-12									
-14	3.5	0.0							
						TILL		Red-brown silty fine SAND, some fine to medium rounded gravel; wet, medium dense. Refusal at 16.5 ft bgs.	
-16	0.5								

Coal Tar or Coal Tar NAPL Saturated Soil

Hydrocarbon Staining, Hydrocarbon Sheen or NAPL Blebs

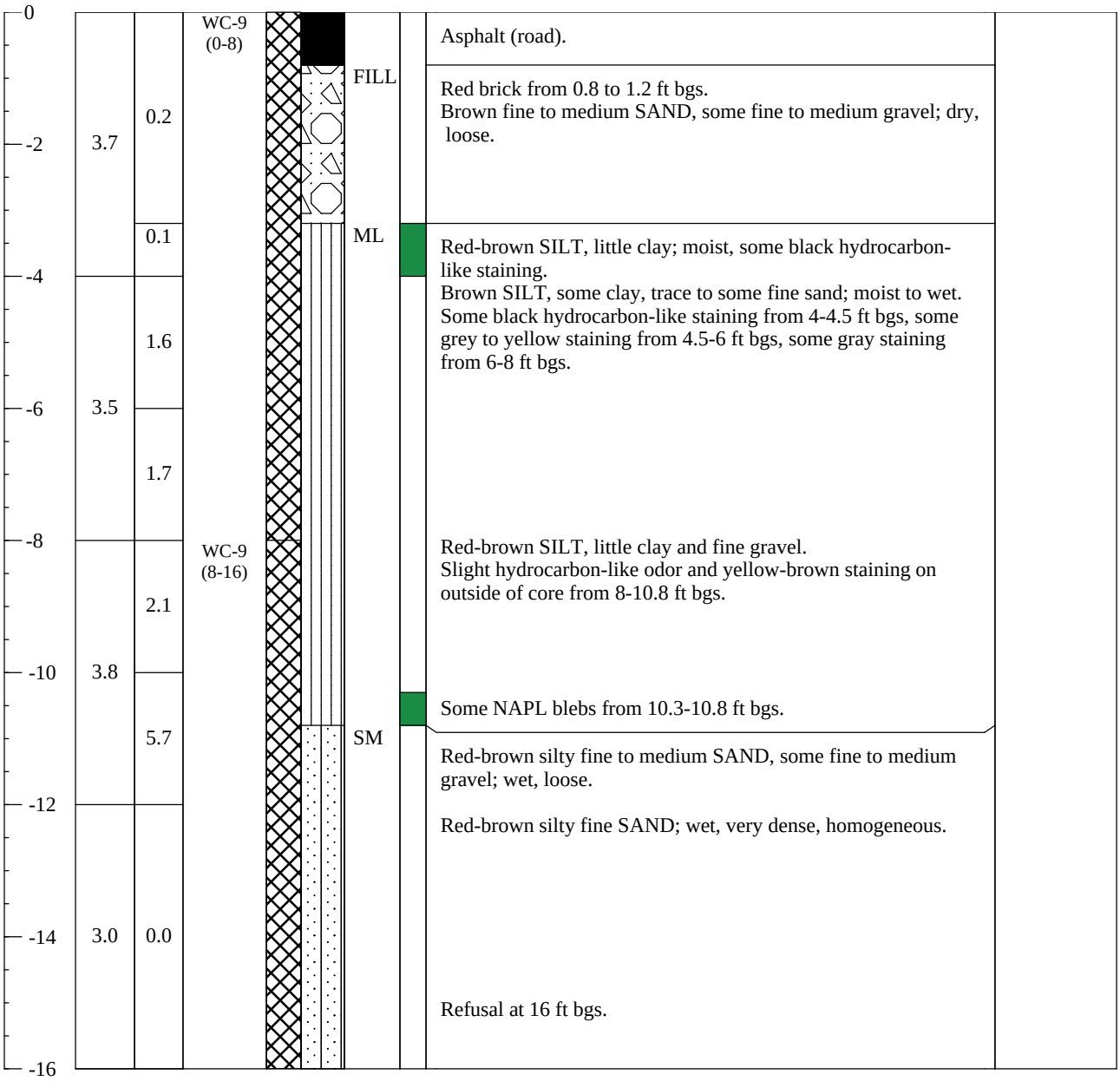
Comments: Samples WC-8(0-8) and WC-8(8-16.5) collected for waste characterization.

AECOM
40 British American Blvd.
Latham, New York, 12110

Boring ID: WC-9

Project Name: Lockport Transit Street MGP Site
Client/Project Number: NYSEG/60194949.2
Date Started/Completed: 9/25/12
Boring Location: La Grange Street
Drilling Company: Zebra Environmental

Drilling Method: Geoprobe
Sampling Method: 4 ft Macro-core
Ground Elevation (ft/msl, NAVD 88): NA
Total Depth: 16.0
Logged By: H. Jones



Coal Tar or Coal Tar NAPL Saturated Soil

Hydrocarbon Staining, Hydrocarbon Sheen or NAPL Blebs

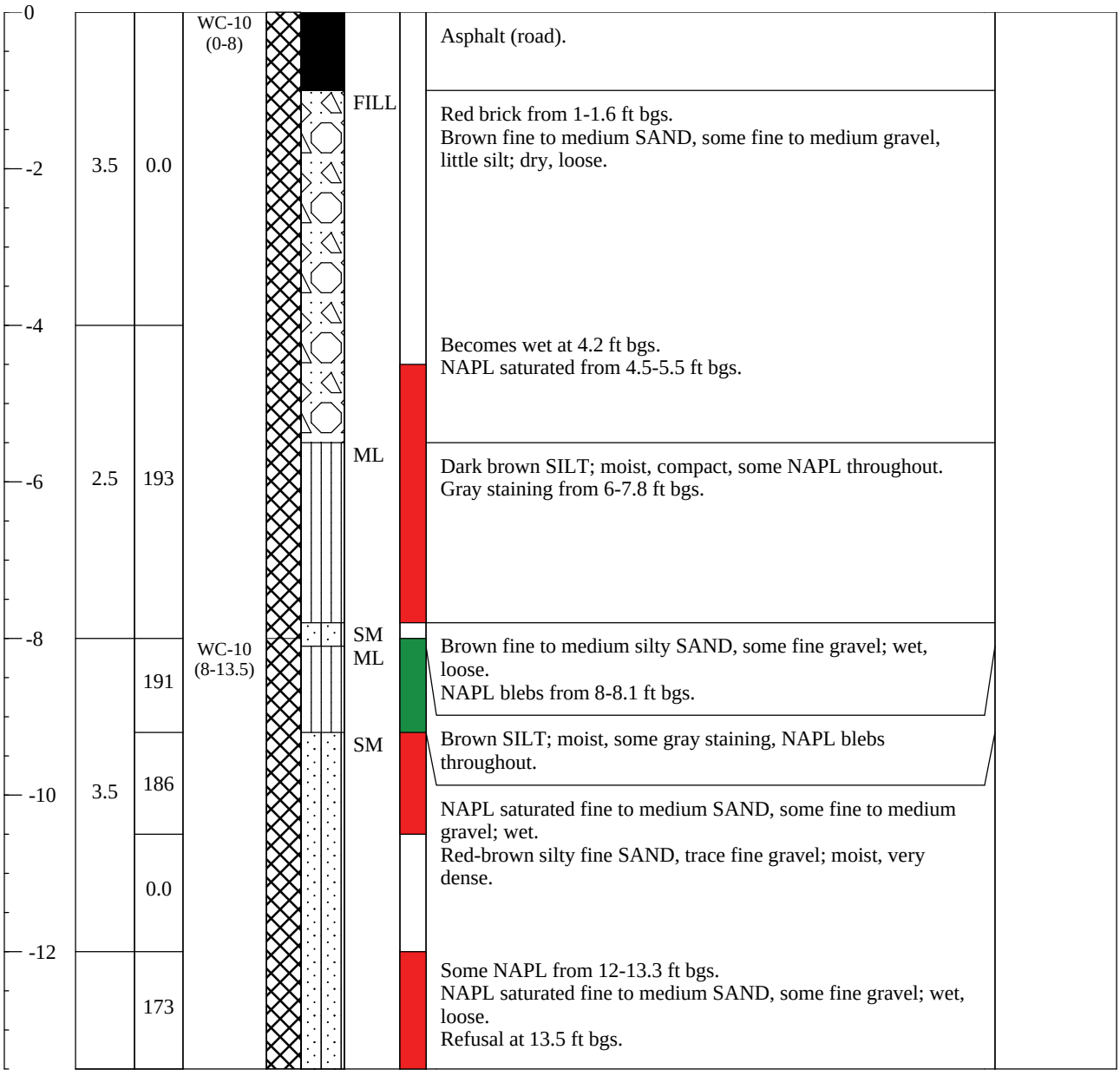
Comments: Samples WC-9(0-8) and WC-9(8-16) collected for waste characterization.

AECOM
40 British American Blvd.
Latham, New York, 12110

Boring ID: WC-10

Project Name: Lockport Transit Street MGP Site
Client/Project Number: NYSEG/60194949.2
Date Started/Completed: 9/25/12
Boring Location: La Grange Street
Drilling Company: Zebra Environmental

Drilling Method: Geoprobe
Sampling Method: 4 ft Macro-core
Ground Elevation (ft/msl, NAVD 88): NA
Total Depth: 13.5
Logged By: H. Jones



Coal Tar or Coal Tar NAPL Saturated Soil

Hydrocarbon Staining, Hydrocarbon Sheen or NAPL Blebs

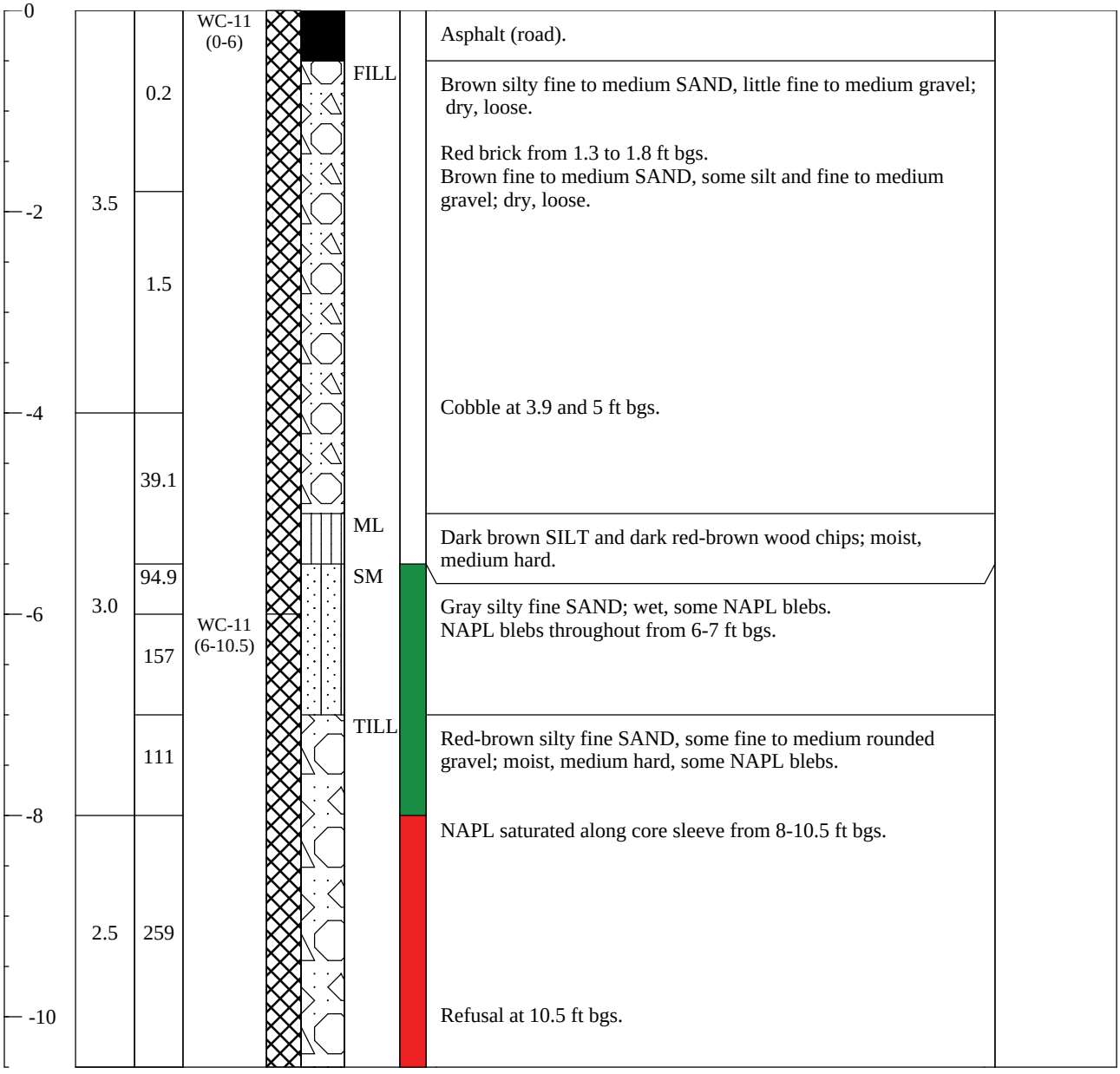
Comments: Samples WC-10(0-8) and WC-10(8-13.5) collected for waste characterization.

AECOM
40 British American Blvd.
Latham, New York, 12110

Boring ID: WC-11

Project Name: Lockport Transit Street MGP Site
Client/Project Number: NYSEG/60194949.2
Date Started/Completed: 9/26/12
Boring Location: La Grange Street
Drilling Company: Zebra Environmental

Drilling Method: Geoprobe
Sampling Method: 4 ft Macro-core
Ground Elevation (ft/msl, NAVD 88): NA
Total Depth: 10.5
Logged By: H. Jones



Coal Tar or Coal Tar NAPL Saturated Soil

Hydrocarbon Staining, Hydrocarbon Sheen or NAPL Blebs

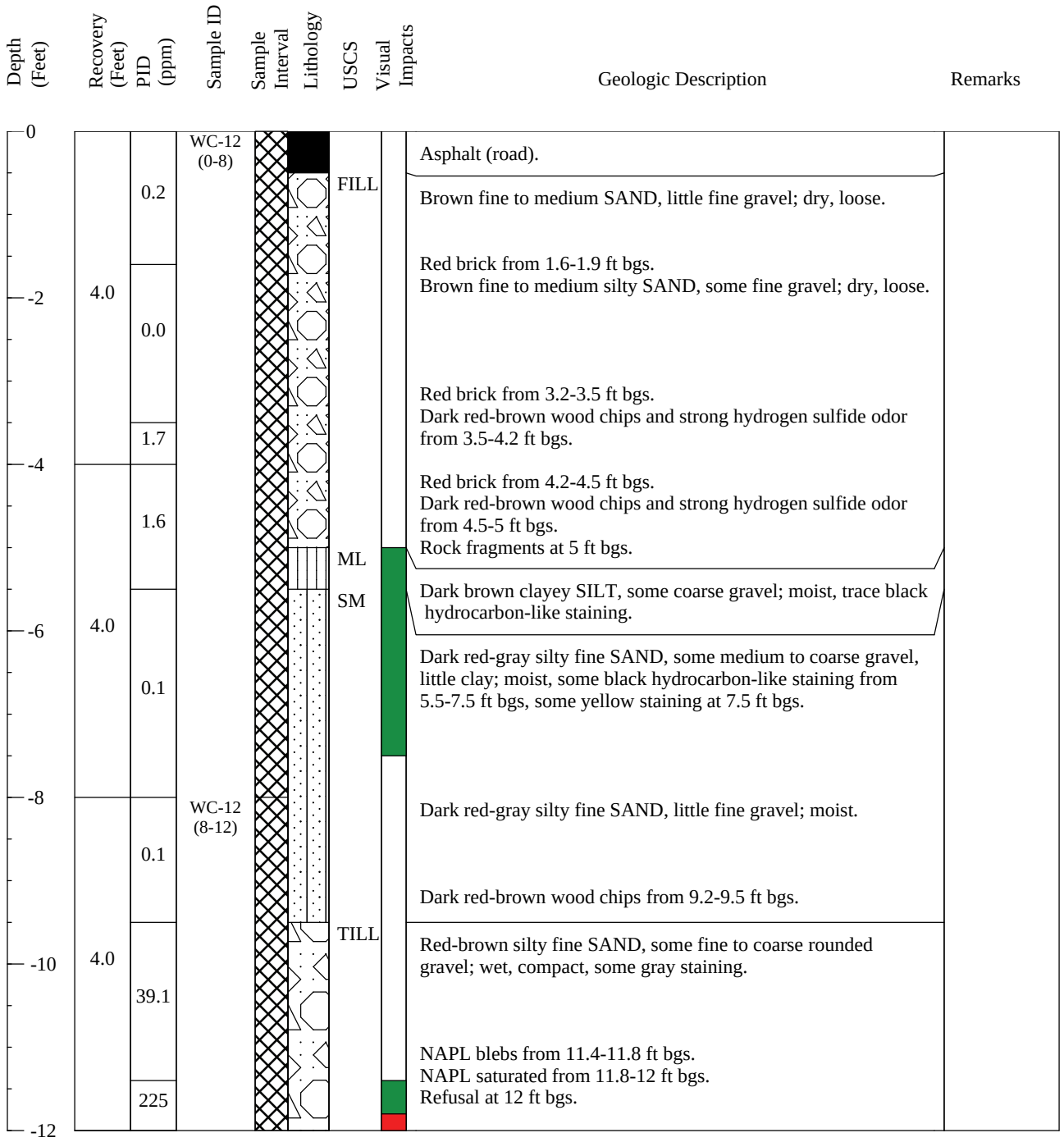
Comments: Samples WC-11(0-6) and WC-11(6-10.5) collected for waste characterization.

AECOM
40 British American Blvd.
Latham, New York, 12110

Boring ID: WC-12

Project Name: Lockport Transit Street MGP Site
Client/Project Number: NYSEG/60194949.2
Date Started/Completed: 9/26/12
Boring Location: La Grange Street
Drilling Company: Zebra Environmental

Drilling Method: Geoprobe
Sampling Method: 4 ft Macro-core
Ground Elevation (ft/msl, NAVD 88): NA
Total Depth: 12
Logged By: H. Jones



Coal Tar or Coal Tar NAPL Saturated Soil

Hydrocarbon Staining, Hydrocarbon Sheen or NAPL Blebs

Comments: Samples WC-12(0-8) and WC-12(8-12) collected for waste characterization.

AECOM
40 British American Blvd.
Latham, New York, 12110

Boring ID: WC-13

Project Name: Lockport Transit Street MGP Site
Client/Project Number: NYSEG/60194949.2
Date Started/Completed: 9/26/12
Boring Location: La Grange Street
Drilling Company: Zebra Environmental

Drilling Method: Geoprobe
Sampling Method: 4 ft Macro-core
Ground Elevation (ft/msl, NAVD 88): NA
Total Depth: 11.5
Logged By: H. Jones

Depth (Feet)	Recovery (Feet)	PID (ppm)	Sample ID	Sample Interval	Lithology	USCS	Visual Impacts	Geologic Description	Remarks
0								Asphalt (road).	
		0.3	WC-13 (0-11.5)			FILL		Brown fine to medium SAND, some fine to coarse gravel; dry, loose. Red brick fragments from 1-1.5 ft bgs.	
-2	2.5	0.0						Brown fine to medium SAND, some fine to coarse gravel; dry, loose	
-4		0.1							
-6	2.0	1.7				ML		Red-brown SILT, trave fine sand and fine to coarse gravel; wet, some gray and black staining.	
-8									
-10	2.0	0.0				SM		Red-brown silty fine SAND; moist, dense, some black staining. Cobble fragments at 10.5 ft bgs. Refusal at 11.5 ft bgs.	

Coal Tar or Coal Tar NAPL Saturated Soil

Hydrocarbon Staining, Hydrocarbon Sheen or NAPL Blebs

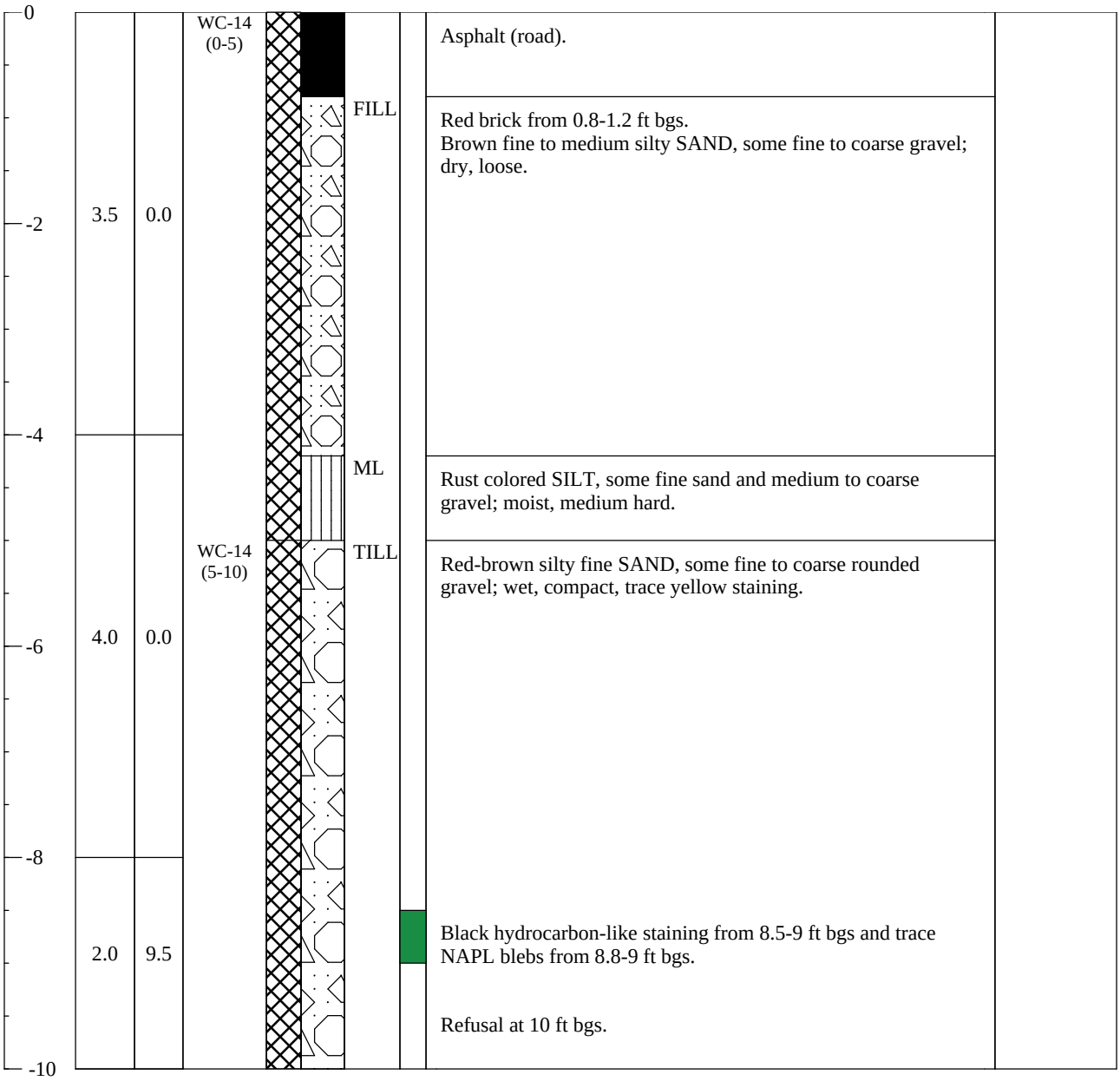
Comments: Sample WC-13(0-11.5) collected for waste characterization.

AECOM
40 British American Blvd.
Latham, New York, 12110

Boring ID: WC-14

Project Name: Lockport Transit Street MGP Site
Client/Project Number: NYSEG/60194949.2
Date Started/Completed: 9/26/12
Boring Location: La Grange Street
Drilling Company: Zebra Environmental

Drilling Method: Geoprobe
Sampling Method: 4 ft Macro-core
Ground Elevation (ft/msl, NAVD 88): NA
Total Depth: 10.0
Logged By: H. Jones



Coal Tar or Coal Tar NAPL Saturated Soil Hydrocarbon Staining, Hydrocarbon Sheen or NAPL Blebs

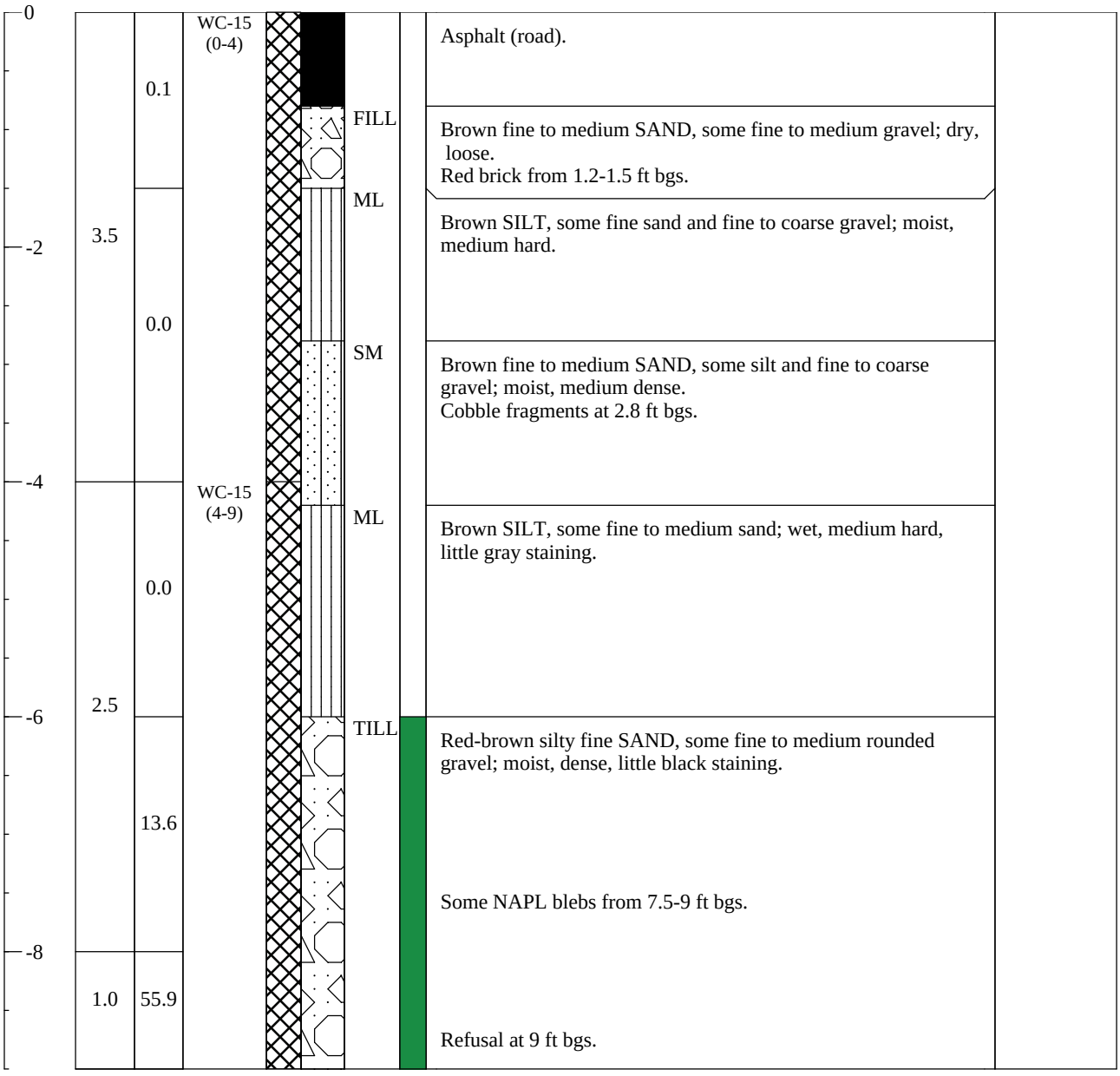
Comments: Samples WC-14(0-5) and WC-14(5-10) collected for waste characterization.

AECOM
40 British American Blvd.
Latham, New York, 12110

Boring ID: WC-15

Project Name: Lockport Transit Street MGP Site
Client/Project Number: NYSEG/60194949.2
Date Started/Completed: 9/26/12
Boring Location: La Grange Street
Drilling Company: Zebra Environmental

Drilling Method: Geoprobe
Sampling Method: 4 ft Macro-core
Ground Elevation (ft/msl, NAVD 88): NA
Total Depth: 9.0
Logged By: H. Jones



Coal Tar or Coal Tar NAPL Saturated Soil

Hydrocarbon Staining, Hydrocarbon Sheen or NAPL Blebs

Comments: Samples WC-15(0-4) and WC-15(4-9) collected for waste characterization.

Appendix B

Overburden Groundwater Analytical Data Summary

TABLE 4-8
STATISTICAL SUMMARY OF RI GROUNDWATER ANALYTICAL RESULTS
OVERBURDEN AND INTERFACE WELLS
NYSEG - FORMER TRANSIT STREET MGP SITE

Parameter	Units	Criteria*	No. of Samples	No. of Detections	Range of Detections					No. Exceed	Dist	Location of Max Value	Depth Of Max
					Min	Max	Avg	StdDev	UCL95				
Volatile Organic Compounds													
Acetone	UG/L	50	12	2	4.90	29.00	16.95	17.04	40.57	0	Non-Normal	SMW-06S	3-8.5
Benzene	UG/L	1	12	5	10.00	5,500	1,510	2,257	3,488	5	Non-Normal	MW-10S	3-13
Ethylbenzene	UG/L	5	12	5	12.00	2,400	916.8	984.7	1,780	5	Non-Normal	MW-10S	3-13
Isopropylbenzene (Cumene)	UG/L	5	12	3	1.10	41.00	22.37	20.08	45.09	2	Non-Normal	SMW-06D	8.5-14
Methyl tert-butyl ether	UG/L	10	12	3	0.500	62.00	21.83	34.81	61.22	1	Non-Normal	SMW-03D	17-22.6
Methylene chloride	UG/L	5	12	1	2.50	2.50	2.50	-	-	0	Non-Normal	SMW-06S	3-8.5
Styrene	UG/L	5	12	3	0.600	750.0	252.1	431.2	740.1	2	Non-Normal	SMW-11	5-10
Toluene	UG/L	5	12	5	6.70	3,400	1,515	1,711	3,014	5	Non-Normal	SMW-11	5-10
Xylene (total)	UG/L	5	12	5	16.00	4,300	1,363	1,766	2,912	5	Non-Normal	SMW-11	5-10
Semivolatile Organic Compounds													
1,1-Biphenyl	UG/L	5	12	4	2.00	44.00	25.00	17.47	42.12	3	Non-Normal	SMW-06D	8.5-14
2,4-Dimethylphenol	UG/L	50	12	2	32.00	150.0	91.00	83.44	206.6	1	Non-Normal	MW-10S	3-13
2-Methylnaphthalene	UG/L	50	12	4	2.00	490.0	258.0	212.8	466.5	3	Non-Normal	SMW-11	5-10
2-Methylphenol (o-cresol)	UG/L	1	12	3	4.00	130.0	49.67	69.79	128.6	3	Non-Normal	MW-10S	3-13
4-Methylphenol (p-cresol)	UG/L	1	12	3	7.00	240.0	87.33	132.3	237.0	3	Non-Normal	MW-10S	3-13
Acenaphthene	UG/L	20	12	4	5.00	210.0	79.00	93.53	170.7	2	Non-Normal	SMW-06D	8.5-14
Acenaphthylene	UG/L	50	12	5	4.00	230.0	78.20	94.99	161.5	2	Non-Normal	SMW-11	5-10

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. April 2000, Class GA.

Concentration Exceeds Criteria

Only Detected Results Reported.

TABLE 4-8
STATISTICAL SUMMARY OF RI GROUNDWATER ANALYTICAL RESULTS
OVERBURDEN AND INTERFACE WELLS
NYSEG - FORMER TRANSIT STREET MGP SITE

Parameter	Units	Criteria*	No. of Samples	No. of Detections	Range of Detections					No. Exceed	Dist	Location of Max Value	Depth Of Max
					Min	Max	Avg	StdDev	UCL95				
Semivolatile Organic Compounds													
Anthracene	UG/L	50	12	3	6.00	11.00	8.33	2.52	11.18	0	Non-Normal	SMW-06D	8.5-14
Carbazole	UG/L	50	12	3	8.00	160.0	59.00	87.47	158.0	1	Non-Normal	SMW-11	5-10
Dibenzofuran	UG/L	50	12	3	5.00	36.00	16.00	17.35	35.63	0	Non-Normal	SMW-11	5-10
Di-n-butylphthalate	UG/L	50	12	1	7.00	7.00	7.00	-	-	0	Non-Normal	IW-02	16.5-21.5
Fluoranthene	UG/L	50	12	4	2.00	5.00	3.25	1.50	4.72	0	Normal	MW-10S	3-13
Fluorene	UG/L	50	12	4	3.00	55.00	33.00	22.11	54.66	1	Non-Normal	SMW-06D	8.5-14
Naphthalene	UG/L	10	12	5	2.00	1.60E+04	4,329	6,671	1.02E+04	4	Non-Normal	SMW-11	5-10
N-Nitrosodiphenylamine	UG/L	50	12	1	2.00	2.00	2.00	-	-	0	Non-Normal	SMW-11	5-10
Phenanthrene	UG/L	50	12	5	4.00	60.00	20.80	22.83	40.81	1	Non-Normal	SMW-06D	8.5-14
Phenol	UG/L	1	12	3	3.00	95.00	36.00	51.22	93.96	3	Non-Normal	MW-10S	3-13
Pyrene	UG/L	50	12	5	1.00	6.00	3.20	1.92	4.89	0	Non-Normal	MW-10S	3-13
Metals													
Aluminum	UG/L	-	12	4	246.0	4,790	2,605	2,363	4,921	0	Non-Normal	SMW-01D	44.5-51
Arsenic	UG/L	25	12	2	27.80	29.70	28.75	1.34	30.61	2	Non-Normal	MW-10S	3-13
Barium	UG/L	1000	12	12	25.80	581.0	161.6	199.2	274.2	0	Non-Normal	MW-10S	3-13
Cadmium	UG/L	5	12	2	2.60	5.50	4.05	2.05	6.89	1	Non-Normal	SMW-01D	44.5-51
Calcium	UG/L	-	12	12	8.94E+04	3.60E+05	1.61E+05	7.32E+04	2.02E+05	0	Non-Normal	IW-01	6-11

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. April 2000, Class GA.

(oval) Concentration Exceeds Criteria

Only Detected Results Reported.

Advanced Selection: Transit_Table4-
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WHERE ([LOCID] LIKE 'IW-*' OR [LOCID] = 'MW-10S' OR [LOCID] LIKE 'SMW-*') AND [MATRIX] = 'WG' AND [LOGDATE] BETWEEN #6/13/05# AND #8/20/05

TABLE 4-8
STATISTICAL SUMMARY OF RI GROUNDWATER ANALYTICAL RESULTS
OVERBURDEN AND INTERFACE WELLS
NYSEG - FORMER TRANSIT STREET MGP SITE

Parameter	Units	Criteria*	No. of Samples	No. of Detections	Range of Detections					No. Exceed	Dist	Location of Max Value	Depth Of Max
					Min	Max	Avg	StdDev	UCL95				
Metals													
Chromium	UG/L	50	12	6	5.20	294.0	94.88	105.7	179.5	3	Non-Normal	SMW-03S	6.5-17
Cobalt	UG/L	-	12	2	6.90	9.70	8.30	1.98	11.04	0	Non-Normal	SMW-06S	3-8.5
Copper	UG/L	200	12	1	10.60	10.60	10.60	-	-	0	Non-Normal	SMW-01D	44.5-51
Iron	UG/L	300	12	12	202.0	1.10E+04	3,272	3,572	5,293	10	Non-Normal	SMW-06S	3-8.5
Magnesium	UG/L	35000	12	12	2.17E+04	9.97E+04	4.35E+04	2.22E+04	5.60E+04	7	Non-Normal	IW-01	6-11
Manganese	UG/L	300	12	12	32.30	681.0	274.5	231.6	405.5	5	Normal	SMW-06S	3-8.5
Nickel	UG/L	100	12	4	86.70	748.0	303.4	303.5	600.8	3	Non-Normal	SMW-06S	3-8.5
Potassium	UG/L	-	12	12	3,590	3.06E+04	1.06E+04	8,049	1.51E+04	0	Non-Normal	IW-01	6-11
Sodium	UG/L	20000	12	12	2.92E+04	9.02E+05	2.65E+05	2.78E+05	4.22E+05	12	Non-Normal	IW-01	6-11
Vanadium	UG/L	-	12	2	7.60	10.00	8.80	1.70	11.15	0	Non-Normal	SMW-01D	44.5-51
Zinc	UG/L	2000	12	7	25.20	387.0	122.2	146.3	230.5	0	Non-Normal	SMW-06D	8.5-14
Miscellaneous Parameters													
Total Cyanide	UG/L	200	12	4	11.10	127.0	52.25	51.14	102.4	0	Non-Normal	SMW-11	5-10
pH	S.U.	8.5	12	12	7.21	8.59	7.73	0.395	7.96	1	Normal	SMW-03D	17-22.6
Phenolics, Total Recoverable	MG/L	0.001	12	6	0.011	0.640	0.145	0.249	0.344	6	Non-Normal	MW-10S	3-13
Temperature	DEG C	-	12	12	11.84	18.92	14.47	2.07	15.64	0	Normal	SMW-11	5-10
Specific Conductance	MS/CM	-	12	12	0.707	7.11	2.85	2.13	4.06	0	Non-Normal	IW-01	6-11

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. April 2000, Class GA.

(oval) Concentration Exceeds Criteria

Only Detected Results Reported.

Advanced Selection: Transit_Table4-
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WHERE ([LOCID] LIKE 'IW-*' OR [LOCID] = 'MW-10S' OR [LOCID] LIKE 'SMW-*') AND [MATRIX] = 'WG' AND [LOCDATE] BETWEEN #6/13/054 AND #9/20/05

TABLE 4-8
STATISTICAL SUMMARY OF RI GROUNDWATER ANALYTICAL RESULTS
OVERBURDEN AND INTERFACE WELLS
NYSEG - FORMER TRANSIT STREET MGP SITE

Parameter	Units	Criteria*	No. of Samples	No. of Detections	Range of Detections					No. Exceed	Dist	Location of Max Value	Depth Of Max
					Min	Max	Avg	StdDev	UCL95				
Miscellaneous Parameters													
Dissolved Oxygen	MG/L	-	12	5	0.570	6.28	2.08	2.43	4.21	0	Non-Normal	SMW-01S	22.5-33
Oxidation Reduction Potential	MILLIVOLTS	-	12	12	-2.69E+02	62.00	-1.00E+02	90.28	-4.92E+01	0	Normal	SMW-04S/D	8-18
Turbidity	NTU	-	12	12	1.00	471.0	60.00	137.1	137.6	0	Non-Normal	SMW-10	10.5-20.5

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. April 2000, Class GA.

Concentration Exceeds Criteria

Only Detected Results Reported.

Advanced Selection: Transit_Tables4-
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WHERE ([LOCID] LIKE 'IW-%' OR [LOCID] = 'MW-10S' OR [LOCID] LIKE 'SMW-%') AND [MATRIX] = 'WG' AND [LOGDATE] BETWEEN #6/13/05# AND #9/20/05

Appendix C

Asbestos Abatement

SECTION 02-8200
ASBESTOS ABATEMENT

PART 1.00 - GENERAL

1.1 SCOPE OF WORK

A. The extent of asbestos-containing material (ACM) to be removed and disposed under this project is indicated in building pre-demolition survey letter (April 10, 2013) provided at the end of this Section. The work shall be conducted in accordance with all applicable codes, rules, and regulations including, but not limited to, New York State Industrial Code Rule 56 (Cited as 12 NYCRR Part 56).

1. The abatement work area is the storage building roof at the NYSEG Lockport Transit Street Substation. The ACM is approximately 1500 square feet of roller roofing. The Abatement Contractor shall refer to, the building pre-demolition letter and drawings.

2. The work consists of the removal and disposal of ACM found during excavation. Dispose of all removed ACM material and debris as asbestos-contaminated debris in accordance with applicable regulations.

B. Asbestos analysis results of the ACMs identified for this project are summarized below:

LOCATION	ACM MATERIAL	% ASBESTOS	APPROXIMATE QUANTITY
Roof	Rolled Roofing	3.5% Chrysotile	Approximately 1500 SF

Note:

1. The quantities indicated above are estimates. Accordingly, variations (±20%) in quantities of ACM within the limits of containment are to be expected and shall be considered as having no impact on contract price or schedule. The *Abatement Contractor must satisfy himself as to the quantities and conditions of all asbestos-containing materials required to be removed and disposed and base his contract bid accordingly. All asbestos-containing materials slated for removal shall be removed in their entirety down to an ACM free substrate. Any and all underlying materials such as floor leveling compounds, underlayment, vapor barriers and other materials and/or debris shall removed completely and disposed of.*

2. For the purpose of bidding, the Abatement Contractor shall provide a bid that includes all labor, expenses, fees, insurance, bonding, disposal,

overhead and profit to complete the removal and disposal of materials specified herein. The Abatement Contractor shall also submit unit pricing for removal of ACM materials within the scope of work that may not have been identified during the design phase.

3. Any discrepancies in quantities or locations noted by the Abatement Contractor in excess of the above percentage must be noted in writing and given to the Oversight Engineer before materials are removed so quantities can be independently verified.

C. General Conditions

1. The Remedial Contractor will make necessary arrangements prior to the start of asbestos abatement work to remove moveable objects (i.e., equipment, appliances, desks, chairs, casework, etc.) from proposed work areas where ACM is scheduled to be removed, as necessary, to provide the Abatement Contractor with sufficient access to specified work areas to construct required critical barriers which adjoin the work areas.

2. The asbestos abatement work shall be conducted by a New York State licensed asbestos Abatement Contractor in accordance with all applicable codes, rules, and regulations including, but not limited to, New York State Industrial Code Rule 56 and the Site Specific Variance.

3. The Abatement Contractor shall employ only New York State Department of Labor (NYSDOL) certified Asbestos Supervisors and Handlers. The Abatement Contractor shall provide the appropriate quantity of certified personnel to work as many shifts and as many hours as needed to complete the work within the specified time period as scheduled.

4. The Asbestos Survey Letter indicates the extent of the removal and disposal and is to be used as a guideline. *The Abatement Contractor shall field verify to his satisfaction all quantities, locations, and conditions of ACMs to be removed and disposed under this project.* The Abatement Contractor shall review all information as to the extent, location and configuration of the abatement work areas. Such as, but not limited to, a detailed representation of the general layout of the site buildings, building access, the extent of asbestos removal specified per work area, and ancillary machinery or equipment (i.e., mechanical, electrical, landscaping, etc.) located within each specific work area.

5. The Abatement Contractor shall conduct or otherwise provide for

personnel air sampling of abatement personnel employed on the project, including daily 8-hour Time-Weighted Average (TWA) and 30-minute Short Term Excursion Limit (STEL) air sampling, as required by OSHA 29 CFR Part 1926.1101. *Personnel 8-hr. TWA and 30-min. STEL samples shall be analyzed for asbestos fibers by Phase Contrast Microscopy (PCM) and the results shall be conspicuously posted at the project site within 72-hours of collection.*

6. The Abatement Contractor shall protect architectural finishes, landscaping, and equipment outside the abatement work area and all adjacent non-work areas from damage and, if any damage occurs, the Abatement Contractor shall be held liable for all costs related to the repair, restoration, or replacement of the damaged fixtures or structures at no cost to the Owner.

D. Asbestos abatement activities shall include:

1. Removal and disposal of rolled roofing and any debris. Dispose of all removed ACM material and associated debris as asbestos-contaminated debris.

2. Furnish all labor, materials, licenses/permits, facilities, equipment, services, employee training and testing necessary to perform the work required in accordance with these specifications, the latest regulations from the U.S. Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the State of New York, the recommendations of the National Institute of Occupational Safety and Health (NIOSH), Standard 241 of the National Fire Protection Association (NFPA) and any other applicable federal, state, and local government regulations that apply to this project.

3. The work specified herein shall be performed by competent persons trained, knowledgeable and qualified in state-of-the-art technologies of asbestos abatement, handling, and the subsequent cleaning and disposal of contaminated areas. An accredited asbestos abatement supervisor shall be on-site during all phases of asbestos abatement activities.

1.2 SUBMITTALS

A. Approval by the Owner is required of the experience of the Abatement Contractor and will be based upon submission by the Abatement Contractor evidence of the following.

SECTION 02-8200
ASBESTOS ABATEMENT

1. The Abatement Contractor shall submit a listing of projects indicating skills and experience with all phases of abatement work as evidenced through participation in at least five asbestos abatement projects of comparable complexity with this project. Include a list of project/location names, project-monitoring firm and phone numbers of references.

2. The Abatement Contractor shall submit a *notarized statement*, signed by an officer of the company, containing the following information:

a. A record of any citations, penalties, orders to comply, notices of deficiency, or notices of violations issued by Federal, State, or local regulatory agencies related to asbestos abatement activities. Include projects, dates and resolutions.

b. A list of penalties incurred through non-compliance with asbestos project specifications including liquidated damages, overruns in scheduled time limitations and resolutions.

c. Situations in which asbestos related contracts have been terminated including projects, dates and reasons for terminations.

d. A listing of any asbestos-related legal proceedings/claims in which the Abatement Contractor (or employees scheduled to participate in this project) has participated or are currently involved. Include descriptions of role, issue and resolution to date.

B. Prior to the start of the asbestos abatement work, the Abatement Contractor shall submit the following Pre-Abatement Submittals at least 10 days prior to the pre-construction meeting. The Owner or Owner's representative will review, for approval, the Abatement Contractor's submittal package prior to commencing asbestos abatement work. *Asbestos abatement work shall not commence until approval of the Pre-Abatement Submittal package has been obtained*.

1. Abatement Contractor's NYSDOL Asbestos License.

2. Asbestos Plan:

a. Submit a detailed plan of the work procedures to be used in the removal and disposal of ACM and asbestos-contaminated debris. The work plan shall include location of control areas, layout of decontamination chambers, sequencing of asbestos related work,

negative air pressure filtration system plan, disposal plan, type of wetting agent, asbestos sealer to be used, personal air monitoring program, and a detailed description of the method to be employed in order to control pollution, including but not limited to emergency procedures for fire and medical emergencies. *This plan must be approved by the Owner prior to the start of any asbestos work.*

b. Submit a negative air pressure filtration system plan, *if applicable to the project*, which includes method of providing air into the work area, the anticipated location of the high efficiency purified air (HEPA) filtration system, anticipated HEPA filtration exhaust location(s), negative air pressure to be maintained in the work area, the method to control this pressure, and provision for maintaining effectiveness of the pre-filters.

c. Submit a copy of the forms to be used for maintenance of waste shipment records in compliance with USEPA NESHAPS regulations.

d. Submit manufacturer's certification that vacuums, filtration units, and other equipment required to contain airborne asbestos fibers conform to HEPA filtration requirements.

3. Waste Transporter Permit:

a. Submit a Waste Transporter Permit issued by the New York State Department of Environmental Conservation (NYSDEC) pursuant to 6 NYCRR Part 364 specifically for transporting asbestos waste and debris to an approved treatment, storage, or disposal facility. *The permit shall include the name and location of each treatment, storage, or disposal facility, and a list of vehicles permitted to haul/transport asbestos waste in New York State.*

4. Wastewater Discharge Permit:

a. The Abatement Contractor shall filter wastewater in accordance with Industrial Code Rule 56. If the Abatement Contractor is going to generate wastewater he will be responsible for the collection and disposal of wastewater via off-site transportation and disposal or the wastewater shall be treated onsite and discharged under a SPDES permit.

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ASBESTOS ABATEMENT

5. Work Schedule:

a. The Abatement Contractor shall submit written notification to the Oversight Engineer of his intent to start work at least 10 days in advance. *The Abatement Contractor shall not start work or post a notification until authorization to proceed is received from the Oversight Engineer.*

b. The Abatement Contractor shall submit a bar-chart schedule, or similar, indicating each significant asbestos abatement phase and associated activity.

6. Emergency Telephone Numbers:

a. Submit the names and telephone numbers of personnel (e.g., Supervisor, Project Manager) to contact in the event of an emergency. A representative of the Abatement Contractor shall be available at all times during the course of the project.

7. Asbestos Project Notifications:

a. The Abatement Contractor shall submit, *if applicable to the project*, notification to:

U.S. Environmental Protection Agency - Region II
Air & Hazardous Material Division
Room 1011
26 Federal Plaza
New York, New York 10278

b. The Abatement Contractor shall submit, *if applicable to the project*, notification to:

NYS Department of Labor
Division of Safety & Health
Asbestos Control Bureau
State Office Building Campus
Building 12 - Room 454
Albany, New York 12240

c. The Abatement Contractor shall prepare a written notification to

occupants of the site for the asbestos abatement work, and post such notifications where the work will be performed in accordance with Industrial Code Rule 56.

d. The Abatement Contractor shall prepare a written notification to the local fire/rescue department for the asbestos abatement work.

8. Legible copy (front and back) of each asbestos abatement supervisor's Asbestos Handling Certificate anticipated to be working at the project. *An asbestos abatement supervisor shall be on site during all abatement activities.*

9. Legible copy (front and back) of each asbestos abatement project personnel's Asbestos Handling Certificate that is anticipated to be working on the project.

10. Legible copy of each asbestos abatement project personnel anticipated to be working at the project of having been trained in an EPA approved Supervisor or Handler course within the past 12 months (DOSH 2832).

11. Legible copy of each asbestos abatement project personnel anticipated to be working at the project of having been fit-tested within the past 12 months for using a negative-pressure air purifying respirator equipped with a high efficiency particulate air (HEPA) filter cartridges.

12. Legible copy of each asbestos abatement project personnel anticipated to be working on the project of having been examined by a qualified physician within the past 12 months, being capable of wearing respiratory protection and able to perform asbestos abatement work.

13. Submit Material Safety Data Sheets (MSDS) for all materials and equipment as specified in this Section or otherwise proposed for use on the project by the Abatement Contractor.

C. Upon completion of the asbestos abatement work and as a condition of acceptance, the Abatement Contractor shall submit the following Post-Abatement (Project Close-out) Submittals:

1. All waste manifests and landfill receipts detailing disposal of all asbestos waste generated by the work at the Project.

2. All certified analytical results of all personal air samples collected as

required by OSHA to document the 8-hour TWA and 30-minute STEL concentrations of asbestos fibers in the breathing zone of the asbestos abatement project personnel.

3. A legible copy of the Abatement Contractor's project logbook containing the day-to-day record of personnel entering the project site as well as the regulated asbestos work area(s), and any significant events occurring during the project.

1.3 QUALITY ASSURANCE

A. The Abatement Contractor shall assume full responsibility for compliance with all applicable codes, rules, regulations, and standards pertaining to asbestos work practices, transport and disposal of asbestos waste, and protection of workers, visitors, and public from the work site. The Abatement Contractor shall comply with all aspects of the Asbestos Hazard Emergency Response Act (AHERA) regulations as governed by the USEPA that are applicable to the project.

B. Except to the extent that more stringent requirements are written directly into the Contract Documents, the following regulations shall have the same force and effect as if copied directly into the Contract Documents, or as if copies were bound herewith:

1. OSHA 29 CFR Part 1910.134 - Respiratory Protection

2. OSHA 29 CFR Part 1910.145 - Accident Prevention

3. OSHA 29 CFR Part 1926.1101 - Asbestos

4. OSHA 29 CFR Part 1910.1200 - Hazard Communication

5. USEPA 40 CFR Part 61 - Asbestos National Emission Standards Hazardous Air Pollutants

6. USEPA 40 CFR Part 763 - Asbestos Abatement Projects Rule

C. New York State regulations, which govern asbestos abatement, hauling, and disposal of asbestos waste materials include, but are not limited to, the following:

1. Official Compilation of Codes, Rules and Regulations of the State of New York, cited as 12 NYCRR Part 56.

2. NYSDOL Article 30 of the New York State Consolidated Laws, Asbestos or Products Containing Asbestos; Licensing, as amended and effective July 16, 1989.

3. NYSDEC Title 6 Part 364 of the New York State Official Compilation of Codes, Rules and Regulations, cited as 6 NYCRR Part 364.

D. Consult with the local fire/rescue department in the preparation of the Emergency Procedures Plan for fire and medical emergencies. Notify the local fire/rescue department at least seven days prior to the start of abatement work. The Plan should, at a minimum, establish a system for alerting project personnel of fire or other hazards that require escape routes, development of an assigned meeting place, development of a building floor plan showing work areas and emergency exists, mark arrows on floor and/or walls in the work areas to show all emergency exits, provide an on-site telephone for emergency notification to authorities, provide a person who is trained in First Aid, and chemical fire extinguishers on site for emergencies. In case of emergency due to fire, shut off all negative air machines during the fire.

E. The Project Monitor is authorized by the Owner to oversee all removal work, interpret all procedures and enforce all provisions of the Contract Documents pertaining to asbestos removal and disposal. The Project Monitor is authorized to stop work if, in their judgment, there is substantial non-compliance with Contract Documents, or there is a situation of serious health risk to workers or occupants due to the performance of work by the Abatement Contractor. Such stop work order shall be effective immediately and remain in effect until corrective measures have been taken and the situation has been remedied to the satisfaction of the Owner. *Standby time required to resolve such situations shall be at the Abatement Contractor's own expense.*

F. Upon completion of asbestos abatement work, the Project Monitor shall submit to the Owner a full report of daily job events.

G. Negative Air Pressure Filtration System Monitoring shall include the following:

1. Continuous 24-hour per day monitoring of pressure differential relative to adjacent unsealed areas shall be performed by automatic recording instruments, *if applicable to the project*.

2. Pressure differential recordings for each day the negative air pressure filtration system shall be reviewed by the Project Monitor, *if applicable to the project*. The Project Monitor shall immediately notify the Abatement

Contractor and the Owner of any variance in the pressure differential, which could cause exposure of adjacent unsealed areas to asbestos fiber contamination.

1.4 PRE-BID MEETING

A. At the time of bid opening, each bidder shall acknowledge that he has investigated and satisfied himself as to:

1. Conditions affecting scope of work, including but not limited to, physical condition of the site, handling and storage of tools and materials, access to utilities.

2. Characteristics and quantity of all materials and obstacles encountered in so far as this information is reasonably ascertainable from an inspection of the site.

3. Condition, location and extent of ACM to be removed and disposed. The Owner is not responsible for any conclusions or interpretations made by the Abatement Contractor.

B. The asbestos abatement work shall be conducted by a NYS licensed asbestos Abatement Contractor employing trained and certified personnel as required by all applicable codes and regulations. After the Contract has been awarded, no subcontracting of the abatement work to another Abatement Contractor will be permitted.

1.5 PRE-CONSTRUCTION CONFERENCE

A. Prior to start of any preparatory work under this Contract, the Abatement Contractor shall attend a pre-construction conference attended by Owner or designated representative, Environmental Consultant for the Owner, Project Oversight Engineer and Project Monitor.

B. Agenda for this conference will include but not necessarily be limited to:

1. Abatement Contractor's scope of work, work plan, schedule and list of required submittals.

2. Abatement Contractor's safety and health plan, PPE and decontamination procedures.

3. Project Monitor's air monitoring plan, if applicable to the project.

4. Abatement Contractor's work procedures including, job site preparation, decontamination chamber set-up, wetting agents, methods of handling removed ACM, disposal procedures; cleanup procedures and equipment; signs and labels; fire exits; and emergency procedures.

5. Abatement Contractor's plan for 24-hour job security both for prevention of theft and for barring entry of curious, unprotected personnel or the public into work areas.

6. Location of temporary utilities.

7. Handling of mechanical, electrical, HVAC systems, and other moveable objects.

1.6 DELIVERY AND STORAGE

A. Store all materials at the job site in a suitable and designated area. Store materials subject to deterioration or damage away from wet or damp surfaces and under cover.

B. Remove damaged or deteriorated materials from the job site. Materials contaminated with asbestos shall be disposed of as asbestos debris as herein specified.

1.7 TEMPORARY UTILITIES

A. Electric:

1. Provide required temporary electric service with Ground Fault Circuit Interrupters (GFCI) for all electric requirements within each asbestos abatement work area. Provide temporary wiring and receptacles in sufficient quantity to serve all negative air units, HEPA vacuums, tools and air monitoring equipment. Obtain electrical power from Owner's existing power distribution system providing: 1) Abatement Contractor provides moisture barriers around all electrical conduits and junction boxes that remain energized and pass through work areas and, 2) Abatement Contractor shall provide a back-up emergency generator for the duration of the abatement project to be used should failure of the normal power source occur.

2. Provide temporary lighting, *if required*, for all work areas. Lighting shall provide adequate intensity so the Project Monitor can perform daily monitoring procedures and abatement personnel can perform removal activities safely, efficiently and completely.

3. All temporary devices and wiring used in the work area shall be capable of decontamination procedures including HEPA vacuuming and wet-wiping.

B. Water:

1. Provide temporary source of water with separate valves for hot and cold water from Owner's existing system. *In the event of hot water shut off from Owner's system, the Remediation Contractor shall be prepared to provide hot water to meet all regulation requirements.* Hot and cold water service shall be provided to showers in the decontamination chamber.

1.8 ELECTRICAL CODES, STANDARDS, AND NOTIFICATIONS

A. Perform all electrical installation and removal work, *if required*, in accordance with applicable requirements of:

1. National Electrical Code (NEC)

2. New York State Uniform Fire Prevention and Building Code

3. NFPA 101, "Life Safety Code".

B. All electrical devices, materials, and equipment shall meet the requirements of a recognized testing agency, such as the Underwriters' Laboratories, Incorporated, and shall bear its label.

C. If requested by the Owner, where equipment other than that specified is proposed for use under this Contract, submit a list of installations within New York State where the proposed equipment has operated satisfactorily for a period of at least five years.

D. Notify and obtain permission from the Owner 48 hours in advance of interrupting any utilities.

1.9 DEFINITIONS

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A. The following definitions apply throughout the Contract Documents:

1. Aggressive Air Sampling - Air sampling technique whereby air samples are collected while fans are operated in work area, and while floors, walls, and other structural surfaces are swept with constant air movement to entrain any particles that may be present. Aggressive air sampling shall be used at the completion of abatement to obtain clearance air data.

2. Airlock - a system (consisting of three curtained doorways) for permitting ingress or egress without permitting air movement between any two adjacent areas.

3. Air Monitoring - The process of measuring the fiber content of a specific volume of air in a stated period of time. Analysis of air samples shall be by Phase Contrast Microscopy (PLM) in accordance with NIOSH Method 7400, or Transmission Electron Microscopy (TEM) in accordance with EPA methodology.

4. Asbestos Amended Water - Water to which a surfactant has been added at a ratio according to the manufacturer's directions.

5. Area Air Sampling - Any form of air sampling or monitoring where the sampling device is placed at a stationary location.

6. Asbestos Handler - An individual, who installs, removes, applies, encapsulates, or encloses asbestos or asbestos material or who disturbs friable asbestos.

7. Asbestos Handling Certificate - Certificate issued by the New York State Commissioner of Labor to a person who has satisfactorily completed an approved asbestos safety program.

8. Asbestos Handling License - A license issued by the New York State Commissioner of Labor pursuant to the provisions of Part 56, Title 12, NYCRR to an Abatement Contractor engaged in the installation, removal, application, enclosure or encapsulation of asbestos or asbestos material or the disturbance of friable asbestos.

9. Asbestos Project - Work undertaken by an Abatement Contractor, which involves the installation, removal, encapsulation, enclosure of asbestos or asbestos material, or the disturbance of friable asbestos. At the time that such disturbance occurs, the project shall become an asbestos project and

all further work on that portion of the project, which resulted in such disturbance, shall be conducted in accordance with the requirements of this specification. Where asbestos work is subcontracted to an Abatement Contractor with an asbestos handling license, only that part of work involving asbestos shall be deemed to be an asbestos project.

10. Asbestos Work Area - A work space as indicated in the contract drawings within which all exposed surfaces, except those covered with asbestos-containing materials being removed, or unless otherwise specified and fixed equipment have been sealed with intact layer(s) of polyethylene sheeting. Any work resulting in the release of asbestos fibers must be performed in the asbestos work area.

11. Authorized Visitor - A representative of the building owner, or a representative of any regulatory or other agency having jurisdiction over the project.

12. Background Monitoring - Method used to determine airborne asbestos fiber concentrations inside and outside of an abatement work area prior to starting an asbestos project.

13. Building Owner - The person or agency in which legal title to the premises is vested unless the premises are held in a land trust, in which instance Building Owner means the person to whom beneficial title is vested.

14. Equipment Room - A room between the holding room and non-work area, which is part of the equipment/waste decontamination enclosure system. The clean equipment room comprises an airlock and must be maintained in uncontaminated condition at all times.

15. Clean Room - An uncontaminated room, which is part of the worker decontamination enclosures system, with provisions for storage of workers' street clothes and protective equipment.

16. Critical Barrier - A unit of temporary construction, which provides separation of an asbestos work area and an adjacent, potentially occupied space. The critical barrier will be composed of at least two independent and intact sheets of 6-mil fire-retardant polyethylene. All seams shall be sealed airtight. Where applicable, barriers shall be framed and sheathed as described by NYS ICR-56.

17. Curtained Doorway - A device, which is constructed, of three overlapping

sheets of fire retardant 6-mil polyethylene sheeting over an existing or temporarily framed doorway.

18. Differential Air Pressure System - A portable, powered HEPA-filtered system used to exhaust air from the work area to outside the building. A differential pressure must be maintained at any point in the work areas no less than -0.025 inches water gauge relative to the pressure at any point outside the work area.

19. Encapsulant - A liquid material which can be applied to asbestos-containing material and which controls the release of asbestos fibers from the material by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant).

20. Encapsulation - all herein specified procedures necessary to coat asbestos-containing material or asbestos contaminated surfaces with an encapsulant to control the possible release of asbestos fibers into the ambient air.

21. Enclosure - The construction of airtight walls, ceiling and floors between the asbestos material and the facility environment, or around surfaces coated with asbestos materials, which prevents the release of asbestos materials.

22. Environmental Consultant – A technical representative of/for the Owner.

23. Equipment/Waste Decontamination Enclosure System - A decontamination system for materials and equipment consisting of a designated area of the work area for a washroom, and holding room separated from the work area and from each other by two airlocks.

24. Equipment Room - A room, which is part of the personal decontamination enclosure system, with, provisions for storage of contaminated clothing or equipment. The equipment room shall be HEPA vacuumed and/or wet cleaned at the end of each shift.

25. Final Clearance Level - Air samples for analysis using PCM and/or TEM collected under aggressive sampling conditions. The airborne asbestos level will be considered acceptable upon meeting the criteria specified.

26. Glove Bag Technique - A method for removing asbestos material from heating, ventilating, and air conditioning ducts, piping runs, valves, joints,

elbows, and other non-planar surfaces in a non-contained work area. The glove bag assembly is a manufactured device consisting of a glove bag construction of at least 6-mil transparent plastic, two inward-projecting long sleeve gloves, which may contain an inward-projecting water-wand sleeve, internal tool pouch, and an attached, labeled receptacle or portion for asbestos waste. The glove bag is constructed and installed in such a manner that it surrounds the area to be contaminated and to contain all asbestos fibers released during the abatement process.

27. Grade D Air - Breathing air which has between 19.5% - 23% oxygen, no more than 5 mg/m^3 of condensed hydrocarbons, no more than 20 ppm of carbon monoxide, no pronounced odor, and a maximum of 1000 ppm carbon dioxide.

28. Ground Fault Circuit Interrupter - A circuit breaker that is sensitive to very low levels of current leakage from a fault in an electrical system.

29. HEPA Filter - A high efficiency particulate air (HEPA) filter, which has a tested and documented efficiency for trapping and retaining a minimum of 99.97% of a 0.3-micrometer (aerodynamic diameter) dioctylpthalate (DOP) test aerosol.

30. HEPA Vacuum Equipment - vacuuming equipment with a HEPA filtration system capable of collecting and retaining asbestos fibers.

31. Holding Room - A room between the washroom and a non-contaminated work area.

32. Large Asbestos Project - An asbestos project involving the installation, removal, disturbance, enclosure, or encapsulation of 160 square feet or more of asbestos or asbestos material or 260 linear feet or more of asbestos or asbestos material as defined by the New York State Industrial Code Rule 56.

33. Minor Asbestos Project - An asbestos project involving the installation, removal, disturbance, repair, encapsulation or enclosure of 10 square feet or less of asbestos material or 25 linear feet or less of asbestos or asbestos material.

34. Negative Pressure - An atmosphere created in a work area enclosure such that airborne fibers tend to be drawn through a filtration system rather than leak out into the surrounding areas. Air pressure inside the work area is

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less than that outside the work area.

35. Personal Air Monitoring - A method used to determine an individual's exposure to airborne fibers. The sample is collected outside the respirator in the person's breathing zone and analyzed in accordance with the OSHA reference method.

36. Personal Decontamination Enclosure System - A decontamination system for workers consisting of a clean room, a shower room, an equipment room, separated from each other and from the work area by three air locks.

37. Plasticize - To cover floors, walls, ceilings and other surfaces with fire retardant 6-mil polyethylene sheeting as herein specified.

38. Pre-cleaning - The process of cleaning all non-contaminated objects, ceilings, wall and floors of a proposed work area using wet cleaning methods, HEPA vacuuming equipment, etc., before abatement work commences.

39. PCM-Clearance Level - A maximum total fiber concentration achieved under aggressive sampling conditions deemed acceptable in a work area at the completion of asbestos-related work. The PCM-clearance level criteria of less than 0.01 total fibers longer than or equal to 5 micrometers per cubic centimeter of air (f/cc) is required as determined by PCM in accordance with NIOSH Method 7400.

40. Shower Room - A room between the clean room and the equipment room in the worker decontamination enclosure system equipped with a shower with hot and cold or warm running water. The shower will be suitably arranged for complete showering during decontamination with a sufficient supply of soap at all times.

41. Small Asbestos Project - A project involving the installation, removal, disturbance, enclosure, or encapsulation of more than 10 and less than 160 square feet of asbestos or asbestos material or more than 25 and less than 260 linear feet of asbestos material.

42. Surfactant - Water used for wetting asbestos-containing materials and for wet wiping asbestos-contaminated material/debris during cleanup operations shall be amended with a commercially available wetting agent (surfactant) per the manufacturer’s instructions. The surfactant used shall be non-carcinogenic and non-toxic under normal use.

43. Washroom - A room between the work area and holding area in the equipment/waste decontamination enclosure system. The washroom is separated from the work area and holding area by two air locks.

44. Wet Cleaning - The process of eliminating asbestos and particulate contamination from building surfaces and objects by using cloths, mops, or other cleaning tools, which have been dampened with amended water, and by afterwards disposing of these cleaning tools as asbestos-contaminated waste.

45. Work Area - Designated room, space, or area of the project in which asbestos abatement actions are to be undertaken or which may become contaminated as a result of such abatement actions. A contained work area is a work area, which has been sealed, plasticized, and equipped with a decontamination enclosure system. A non-contained work area is an isolated or controlled-access work area which has not been plasticized nor equipped with a decontamination enclosure system.

1.10 ASBESTOS AIR MONITORING

A. Air monitoring, where applicable to the project, shall be completed by a NYSDOL licensed Project Monitor or Air Sampling Technician retained by the Owner. The Air Monitoring Firm shall have a minimum of 5-years experience as a N.Y. State Department of Labor licensed firm and shall not be permitted to utilize subcontractors with less than 5 years experience as a N.Y. State Department of Labor licensed firm to conduct the work or work under a subcontractor's license.

B. The air monitoring firm will collect air samples (i.e., background, work area preparation, asbestos handling, final cleaning & clearance) in accordance with Industrial Code Rule 56. Samples shall be analyzed using PCM methodology and/or TEM methodology, *if required*, by a New York State Department of Health Certified Laboratory.

C. When final visual inspections and/or clearance air monitoring is required, the Abatement Contractor shall notify the Air Monitoring Firm 48 hours, excluding weekends and holidays, in advance of the day and time when the Abatement Contractor will be ready for such visual inspections or air monitoring events to be performed.

D. Air monitoring results generated by the air-monitoring firm shall not be used by

the Abatement Contractor to represent compliance with regulatory agency requirements for monitoring of worker's exposure to airborne asbestos, nor shall any other activity on the part of the Air Monitoring Firm represent the Abatement Contractor's compliance with applicable health and safety regulations.

1.11 ENVIRONMENTAL CONSULTANT

A. An Environmental Consultant will be employed to advise the Owner in matters pertaining to the progress and/or completion status of the abatement procedures and will act as the Owner's liaison in technical matters involving the asbestos-related work.

B. The Environmental Consultant is authorized by the Owner to have unlimited access to all asbestos work areas while conducting visual inspections or other requirements of his duty.

C. The Environmental Consultant may stop the Abatement Contractor's work if in the course of performing their inspection duties, they observe an instance of substantial non-conformance with the contract documents and/or a situation presenting a health hazard to workers or Building Owner employees. Work shall not resume until corrective measures have been carried out.

D. Any stop work orders issued by the owner or the Environmental Consultant pursuant to the above provisions will not be grounds for claims to be made by the Abatement Contractor for damages caused by the associated delay nor will it extend the contract completion date.

E. When visual inspections are specified, the Abatement Contractor shall notify the Environmental Consultant 48 hours, excluding weekends and holidays, in advance of the day and time when the Abatement Contractor will be ready for such inspections. The Abatement Contractor's supervisor must conduct a thorough inspection of work area prior to requesting review by the Environmental Consultant.

F. The Environmental Consultant's role in advising the Building Owner does not relieve the Abatement Contractor's obligation to comply with all applicable health and safety regulations promulgated by the federal, state, and local governments.

1.12 LICENSING AND CERTIFICATION – NYS DEPARTMENT OF LABOR REQUIREMENTS

A. The Abatement Contractor must hold a current, valid asbestos-handling license

issued by the New York State Commissioner of Labor.

B. A copy of the Abatement Contractor's license shall be conspicuously displayed proximate to but outside the work area during the duration of the project.

C. The Abatement Contractor shall permit only those persons who hold valid asbestos handling certificates to engage in work on this project.

PART 2.00 – PRODUCTS

2.1 RESPIRATORS

A. Select respirators from those approved by Mine Safety and Health Administration (MSHA) or National Institute for Occupational Safety & Health (NIOSH) as required by 29 CFR 1926.1101. Abatement Contractor shall comply with Section 3.2 of this specification and shall produce historical data representative of employee exposure, and shall use historical data to determine requirements for initial respiratory protection. Provide replacement HEPA cartridges to assure a change of filters at each decontamination shower procedure. *Single use, disposable-type respirators shall not be used.*

B. Whenever type "C" respirator protection is used, compressed air systems shall be designed to provide air volumes and pressures to accommodate respirator manufacturer's specifications. Compressors must meet the requirements of 29 CFR 1910.134(d) and must have an in-line carbon monoxide monitor equipped with an audible alarm.

C. Whenever powered purifying respirator protection is used, a sufficient supply of replacement batteries and HEPA filter cartridges shall be provided to the workers.

E. During encapsulation operations or use of organic based aerosols, *if required*, the Abatement Contractor shall provide workers with type GMB-H combination cartridges or equivalent respirator filters.

2.2 PROTECTIVE CLOTHING

A. The Abatement Contractor shall provide a sufficient quantity of protective clothing to all authorized persons entering regulated work areas until the work has been completed.

B. The Abatement Contractor shall provide fire retardant disposable whole body

clothing, head coverings, gloves and foot coverings. Provide sufficient quantities to assure a minimum of four complete disposable outfits per day for each individual performing abatement related work.

2.3 TOOLS AND EQUIPMENT

A. Store materials subject to damage off the ground, away from wet or damp surfaces, and under cover to prevent damage or contamination. Materials not capable of being decontaminated shall be disposed of in accordance with applicable regulations.

B. Provide suitable tools for removal of asbestos-containing materials. Damaged materials shall not be used and shall be removed from the work site. *Wire brushes and pressure washers shall not be used as a means of removing or cleaning asbestos-containing materials.*

C. Airless sprayers capable of spraying amended water shall be provided in sufficient number to allow continuous uninterrupted work.

D. Transportation equipment, as required, shall be suitable for loading, temporary storage, and unloading of contaminated waste without exposure to persons or property.

E. Power tools used to drill, cut, saw or otherwise disturb asbestos material shall be equipped with HEPA filtered local exhaust ventilation.

F. The Abatement Contractor shall make available to authorized visitors, ladders and/or scaffolds of sufficient dimension and quantity so that all work areas can be easily and safely reached. Scaffolds and ladders shall comply with all applicable codes.

2.4 PERSONAL DECONTAMINATION SYSTEM ENCLOSURE

A. Personal decontamination enclosures shall be constructed and functional prior to commencing regulated abatement work area preparation activities.

B. Large Project

1. General: A remote personal decontamination system enclosure shall be provided outside the regulated abatement in accordance with ICR 56. The personal decontamination system enclosure shall be sized to accommodate the number of workers and equipment required for the intended purpose. At least one layer of six-mil fire-retardant plastic sheeting shall be

installed on the ceiling, and walls of the enclosure system. At least two layers of six-mil fire-retardant reinforced plastic sheeting shall be used for flooring protection of this area. This system must be kept clean, sanitary and climate controlled at all times. This system shall remain on-site, operational and be used until completion of the asbestos project.

2. Rooms and Configuration: The personal decontamination system enclosure shall consist of a clean room, a shower room and an equipment room connected in series but separated from each other by airlocks. There shall be a curtained doorway separation between the equipment room and the regulated abatement work area, and there shall be a lockable door to the outside.

3. Curtained Doorway: An assembly which consists of at least three overlapping sheets of six-mil fire retardant plastic over an existing or temporarily framed doorway. One sheet shall be secured at the top left side, the second sheet at the top right side, and the third sheet at the top left side. All sheets shall have weights attached to the bottom.

4. Framing: Enclosures systems accessible to the public shall be fully framed; hard-wall sheathed, such as plywood or oriented strand board (OSB) sheathing material of at least 3/8-inch thickness.

5. Plastic Sheeting: Enclosure systems constructed at the work site shall use at least one layer of six-mil fire-retardant plastic sheeting on walls and ceiling. At least two layers of six-mil fire-retardant reinforced plastic sheeting shall be used for floor protection.

6. Prefabricated or Trailer Units: A completely watertight prefabricated unit does not require plasticizing. All prefabricated or trailer decontamination units shall be kept in good condition, and shall be decontaminated after final cleaning and immediately prior to clearance air sampling. Upon receiving satisfactory clearance air results of the regulated abatement work area, the prefabricated units shall be sealed then separated from the regulated abatement work area.

7. Clean Room: The clean room shall be sized to accommodate a full work shift of asbestos abatement personnel, as well as the project monitor. The clean room shall be a minimum of six feet in height. A minimum of thirty-two square feet of floor space shall be provided for every six full shift abatement workers. If the largest work shift consists of three or less full shift abatement workers, the minimum clean room size requirement is

reduced to twenty-four (24) square feet of floor space. Benches, lockers and hooks shall be provided for street clothes. Shelves for storing respirators shall be provided. *The clean room shall not be used for storage of tools, equipment or used for office space.* A lockable door shall be provided to permit access to the clean room from outside the regulated abatement work area or enclosure and shall be used to secure the regulated abatement work area and decontamination enclosure during non-work hours.

8. Shower Room: The shower room shall contain one shower per every six full shift abatement worker, calculated on the basis of the largest work shift. Multiple showers shall be simultaneously accessible (installed in parallel) to certified personnel. Each showerhead shall be supplied with hot and cold water adjustable at the tap. The shower enclosure shall be constructed to ensure against leakage of any kind. Uncontaminated soap, shampoo and towels shall be available at all times. Shower water shall be drained, collected and filtered through a system with at least 5.0-micron particle size collection capability. Filtered wastewater shall be discharged in accordance with applicable codes. Contaminated filters shall be disposed of as asbestos contaminated waste.

9. Equipment Room: The equipment room shall be used for the storage of decontaminated equipment and tools. A one day supply of replacement filters for HEPA-vacuums and negative pressure ventilation equipment in sealed containers, and other materials that may be required during the abatement project may also be stored here. A container lined with a labeled, at least six-mil plastic bag for collection of clothing shall be located in this room. Contaminated footwear and work clothes shall be stored in this area.

10. Airlocks: Airlock construction shall consist of two curtained doorways with three alternating six-mil fire retardant polyethylene curtains per doorway, separated by a distance of at least three feet, such that one passes through one doorway into the airlock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the next doorway.

C. Small Project

1. General: A remote personal decontamination system enclosure for a Small asbestos project shall consist of, at a minimum, an equipment room, a shower room and a clean room separated from each other and from the

regulated abatement work area and other areas by curtained doorways as defined in Section 56-2.1. All other provisions for personal decontamination system for a Large asbestos project shall apply. Equipment storage, personal gross decontamination and removal of clothing shall occur in the equipment room just prior to entering the shower.

D. Remote

1. General: If a personal decontamination system cannot be attached to the regulated abatement work area, due to available space restrictions or other building and fire code restrictions, a remote personal decontamination system enclosure may be used for limited Special Projects as per subpart 56-11. If during abatement activities, non-friable ACM becomes friable during the removal process, and it is logistically possible to attach the decontamination system enclosure, abatement work must stop immediately while the remote personal decontamination system is relocated to be attached and contiguous to the regulated abatement work area.

2. Protective Clothing: Workers shall don two (2) sets of disposable protective clothing and a supply of protective clothing shall be kept in the airlocks attached to the regulated abatement work area.

3. Location: The remote personal decontamination system shall be constructed as close to the regulated abatement work area as physically possible. If the remote personal decontamination system must be located at the exterior of the building due to space or code restrictions, it shall be constructed within fifty feet of the building exit used for access by the asbestos abatement personnel. The decontamination unit shall be cordoned off at a distance of twenty-five feet to separate it from public areas/access.

4. Airlocks: At a minimum, two extra airlocks as defined in Section 56-2.1 shall be constructed. One shall be constructed at the entrance to the equipment room or equipment/washroom. The other extra airlock shall be constructed at the entrance to the containment or regulated abatement work area(s). These airlocks shall have lockable doorways at the entrance to the airlock from uncontaminated areas. These airlocks shall be cordoned off at a distance of twenty-five feet and appropriately signed in accordance with Section 56-7.4(c). *Airlocks shall not be used as a waste*

decontamination area and shall be kept clean and free of asbestos containing material.

5. Designated Pathway: The walkway from the regulated abatement work area to the personal decontamination system or next regulated abatement work area shall be cordoned off and signage installed as per Section 56-7.4(c).

6. Travel Through Uncontaminated Areas: If at any time a worker must travel through an uncontaminated area to access the personal decontamination area, the worker shall HEPA-vacuum and/or wet wipe his/her outer protective clothing while in the regulated abatement work area, then proceed into the airlock, which serves as a changing area, where he/she shall remove the outer clothing and don a clean set of protective clothing. The worker may then proceed to the personal decontamination system enclosure only along a designated pathway as described above.

7. Removal: The remote personal decontamination unit shall be removed only after satisfactory clearance air sampling results have been achieved.

2.5 WASTE DECONTAMINATION SYSTEM ENCLOSURE

A. General: A waste decontamination system enclosure shall be provided outside the regulated abatement work area and shall be remote to the regulated abatement work area. The waste decontamination system enclosure shall be sized to accommodate the number of workers and equipment for the intended purpose. Such system may consist of existing attached rooms outside of the regulated abatement work area, if the layout is appropriate, that can be plasticized and are accessible from the regulated abatement work area. This system must be kept clean, sanitary and climate controlled at all times.

B. Waste Decontamination System Enclosure - Large Asbestos Project

1. Rooms and Configuration: A waste decontamination system enclosure shall consist of a washroom and a holding area connected in series but separated from each other by an airlock. There shall be a lockable door to the outside, and there shall be a curtained doorway between the washroom and the regulated abatement work area.

2. Curtained Doorway: One sheet shall be secured at the top left side, the second sheet at the top right side, and the third sheet at the top left side. All sheets shall have weights attached to the bottom.

3. Washroom: A room/chamber between the regulated abatement work area and the holding area in the waste decontamination system enclosure, where equipment and waste containers are wet cleaned or HEPA vacuumed.

4. Equipment/Washroom Alternative: Where there is only one exit from the regulated abatement work area, the holding area of the waste decontamination system enclosure may branch off from the equipment room of the personal decontamination system enclosure. The equipment room will also be used as a waste washroom.

5. Plastic Sheeting: Waste decontamination system enclosures constructed at the work site shall use at least one layer of six-mil fire-retardant plastic sheeting on walls and ceiling. At least two layers of six-mil fire-retardant reinforced plastic sheeting shall be used for flooring protection of these areas.

6. Enclosure Security: The waste decontamination system enclosure and regulated abatement work area airlock(s) shall be constructed with lockable doors to prevent unauthorized entry. Enclosures systems located within twenty-five feet of an area of public access shall be fully framed and hard-wall sheathed for safety.

7. Drains: The waste washroom shall be equipped with a wash bin of sufficient size to perform waste container washing operations and shall have a submersible pump installed to collect waste water and deliver it to the shower wastewater filtration system where it shall be filtered in accordance with 56-7 (b)(9).

C. Waste Decontamination System Enclosure - Small Asbestos Project

1. For Small asbestos projects with only one exit from the regulated abatement work area, the shower room may be used as a waste washroom. The clean room shall not be used for waste storage, but shall be used for waste transfer to carts, which shall be immediately removed from the enclosure. Waste shall be transferred only during times when the showers are not in use.

D. Waste Decontamination System Enclosure – With Remote Personal: When a remote personal decontamination system enclosure is allowed and utilized for a regulated abatement work area, the following requirements shall apply:

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1. Minor Size Asbestos Project: No specific waste decontamination system enclosure is required for minor size regulated abatement work areas. The waste generated shall be immediately bagged or containerized within the regulated abatement work area.

2. Small & Large Size Asbestos Project

(i) Washroom: An additional chamber shall be constructed within the regulated abatement work area, attached to the existing airlock used to access the work area. The washroom/airlock combination shall be utilized as the contiguous waste decontamination enclosure for waste bagging and transfer activities.

(ii) Removal: The washroom chamber shall be removed only after satisfactory clearance air sampling results have been achieved.

2.6 SIGNAGE AND LABELS

A. Provide (bilingual) caution signs and barrier tapes at all approaches to regulated work areas. Locate signs at such distance that personnel may read the sign and take the necessary protective steps required before entering the area. Provide caution signs in vertical format conforming to 29 CFR 1910.145(d) (4), and 1926.1101, minimum 20" x 14" displaying the following:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING ARE
REQUIRED IN THIS AREA

B. Provide asbestos caution labels affixed to all disposable 6-mil plastic bags, drums or containers for waste containerization, asbestos scrap, waste, debris, and other products/materials contaminated with asbestos displaying the following:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

C. The Abatement Contractor shall provide a daily entry/exit log, which shall be posted at the entrance to each regulated work area. All persons entering a

regulated work area shall sign the entry/exit log upon every entry/exit. All persons, before entering a regulated work area, shall read and be familiar with all posted regulations and personal protection requirements. A copy of a valid asbestos-handling license of the Abatement Contractor and all abatement personnel who are performing the work shall be conspicuously displayed at the work site.

2.7 TEMPORARY ENCLOSURES (CRITICAL BARRIERS)

A. The framework and associated plywood sheeting (or similar) of the temporary enclosures shall be provided by the Abatement Contractor. The Abatement Contractor shall use these enclosures to completely isolate the asbestos work area from other non-work/unsealed parts of the building so as to prevent asbestos-containing dust or debris from passing beyond the isolated area.

B. Enclosures and/or critical barriers shall consist of double layer minimum 6-mil fire retardant polyethylene sheeting for wall, floor and ceiling surfaces and reinforced 6-mil fire retardant polyethylene sheeting for application to temporary framing. Vertical sheeting shall be secured to walls and/or temporary framing with spray adhesive then sealed with duct tape. Provide sheeting of up to 20' widths for floor and wall surfaces to minimize the number of joints. Smoke test all sealed openings for airflow.

C. Critical barriers shall be constructed by the Abatement Contractor at the interior side of all work areas and/or other required work areas such as but not limited to, classrooms, hallways, entrance/exit ways, and other rooms which adjoin specified work areas, and openings at windows, vents, ducts, near specified work areas in accordance with Industrial Code Rule 56.

D. Access to enclosure shall be through the decontamination chamber only.

F. Emergency fire exits shall be framed out and taped, and posted as emergency exits only. Use of emergency exits for other than fire emergencies shall constitute non-compliance with the Contract Documents resulting in a stop work order by the Project Monitor.

2.8 NEGATIVE AIR PRESSURE FILTRATION SYSTEM

A. Negative Air Pressure Equipment: All OSHA Class I, Class III, and interior Class II asbestos abatement projects shall employ negative air pressure equipment ventilation.

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1. Operation: The negative air pressure equipment shall operate continuously from startup of negative pressure equipment until satisfactory clearance air sampling results are obtained.

2. Timing of Installation: The negative air ventilation units shall be installed and made operational after the critical barriers and isolation barriers are installed.

3. Negative Air Pressure: A negative air pressure, relative to areas outside of the enclosure, shall be maintained at all times in the regulated abatement work area to ensure that contaminated air does not escape back to an uncontaminated area.

4. Manometer: A manometer shall be used to document the pressure differential for all OSHA Class I Large and Small size asbestos projects. A minimum of –0.02 column inches of water pressure differential, relative to pressure outside the regulated work area, shall be maintained within the regulated work area, as evidenced by manometric measurements. The manometer shall be installed and made operational once the negative air has been established in the regulated abatement work area. *Once installed, at least twice per workshift, the Abatement Contractor shall document the manometer reading within the daily project log.*

5. Ventilation Units: If more than one primary HEPA-filtered ventilation unit is installed, the units shall be turned on one at a time and the integrity of temporary hardwall isolation barriers checked for secure attachment. A minimum of one additional unit having a capacity of at least equal to that of the primary unit shall be installed, as a backup unit to be used upon primary unit failure, or if necessary during primary unit filter changes. *Ventilation exhaust ducting shall not exceed twenty-five (25) feet in length.*

6. Power Failure: In the event of electric power supply failure, abatement shall stop immediately and not resume until power is restored and exhaust units are operational. In the event of extended power failure (longer than one hour), the decontamination system enclosure facilities shall be sealed airtight.

7. Air Changes: Negative air pressure ventilation equipment shall be installed and operated continuously to provide at least four air changes in the regulated abatement work area every hour including during clearance air sampling.

8. Openings in Enclosure: Openings made in the enclosure system to accommodate these units shall be made airtight with duct tape or caulking or both.

9. Installation and Care: Proper installation procedures, including use of appropriate filters and manufacturer's recommended operating procedures shall be followed as stated in Industrial Code Rule 56-7(10)(i-viii).

10. Exhaust Location: Each negative pressure ventilation unit exhaust duct shall not terminate less than fifteen feet from a receptor or adversely affect the air intake of any building or structure. If the exhaust duct termination location for this Section cannot be met due to allowable space restrictions or the regulated abatement work area being located above the ground floor, the exhaust shall terminate at the exterior of the building, and all receptors less then fifteen feet from the exterior exhaust duct termination location shall be plasticized with two layers of at least six-mil polyethylene. Exhaust tubes may be grouped together in banks of no more than five tubes, with each tube exhausting separately and the bank of tubes terminating together at the same controlled area.

2.9 ABATEMENT CONTRACTOR DAILY PROJECT LOG

A. The Abatement Contractor shall maintain a daily project log of all pertinent events that occur throughout the asbestos project. This project log shall be updated daily by the on-site supervisor, and shall be kept on-site for the duration of the asbestos project. This log shall be made available upon verbal request of the Commissioner or his or her duly authorized representative.

B. The following list summarizes various items that require entries into the daily project log by the asbestos Abatement Contractor supervisor:

1. High air result(s) shall be noted with the time of work cessation, results of barrier and negative air system inspection, summary of any necessary repairs and required cleaning.

2. Manometer Readings which are to be documented twice per work shift.

3. Daily inspection results of the negative air system (*even days without work shifts*) and any necessary repairs to be documented.

4. Daily inspection results of HVAC System Positive Pressurization (*even days without work shifts*) and any necessary repairs to be documented.

5. Daily inspection results of barrier inspections (*even days without work shifts*) and any necessary repairs to be documented. Inspections shall be twice per work shift on days with scheduled work.

6. Daily testing results of barriers and enclosures and any necessary repairs shall be documented.

7. Documented daily cleaning of enclosures at the end of each work shift.

8. Results of each visual inspection and time of each intermediate completion shall be documented by the supervisor in the daily project log.

9. Visual inspections conducted by Project Monitor prior to Clearance Air Sampling.

10. Visual inspection conducted by Project Monitor for regulated abatement work areas exempt from Clearance Air Sampling.

11. Final Inspection, air sampling or visual, conducted by Project Monitor.

2.10 SCAFFOLDING

A. Provide scaffolding, if required, and/or staging as necessary to accomplish the work. The type, erection and use of scaffolding shall comply with all applicable OSHA provisions.

B. Scaffolding legs shall be provided with lockable rubber casters or equal means to protect plastic floor covering from damage. Scaffold joints and ends shall be sealed to prevent incursion of asbestos debris.

2.11 CHEMICAL REMOVAL AGENT (WETTING AGENT)

A. Sufficiently wet all ACMs prior to removal with a non-toxic, non-combustible chemical agent mixed and applied in accordance with manufacturer's printed instructions. Chlorinated removal agents shall not be used at this Project.

2.12 ENCAPSULANT

A. After first cleaning and prior to first sheeting removal, and after the work area has been rendered free of visible residues, a thin coat of an encapsulating agent may be applied to surfaces in the work area that were not the subject of removal.

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B. Surfaces indicated on the Contract Drawings to be "encapsulated", *if any*, shall be sealed with a bridging encapsulant. The encapsulant shall be applied at an application rate recommended by the product manufacturer and in accordance with Industrial Code Rule 56. The bridging type encapsulant with the following characteristics:

1. Shall not be solvent-based or utilize hydrocarbons in the liquid in which the solid parts of the encapsulant are suspended and be compatible with the anticipated replacement product.

2. Shall be non-flammable, compatible with concrete, metals, wood, cable jacketing, etc. and shall prevent fire, smoke, water and toxic fumes from penetrating through sealants.

C. Encapsulant shall be applied only after all specified asbestos materials have been removed and work area cleaned of all loose debris.

D. Where encapsulation is used to supplement removal of ACM pipe/pipefitting, a non-hardening lagging sealer shall be used for sealing all raw exposed edges and surfaces.

2.13 GLOVE BAGS

A. Glove bag removal, *if applicable to the project*, may be conducted in accordance with Industrial Code Rule 56-8.4. The following procedures must be followed for glovebag use:

1. Size: When abating pipe or duct insulation, the pipe or duct insulation diameter worked shall not exceed one half the bag working length.

2. Sealing: Duct tape shall be placed securely around the area of abatement to form a smooth seal. The glovebag shall then be secured to the duct tape and sealed airtight.

3. Seal Testing: After placement, each glovebag shall be subjected to and pass a smoke test in accordance with 56-8.4(3).

4. Surface Irregularities: If material adjacent to the work section is damaged, or if it terminates, is jointed or contains an irregularity adjacent to the work section, the material shall be wrapped in at least six-mil fire-retardant plastic sheeting and sealed airtight.

5. Post-Stripping Wetting: After the asbestos material has been stripped, the surface from which it has been removed shall be wetted with amended water and scrubbed with a brush or abrasive pad to remove all visible asbestos material.

6. Sealing of Pipe Ends: When abating pipe insulation, any pipe insulation ends created shall be sealed or otherwise encapsulated with a non-asbestos product.

7. Collapsing of the Glovebag: A HEPA-vacuum shall be used to collapse the glovebag.

8. Tool Segregation: With glovebag collapsed and ACM in the bottom of the bag, twist the bag several times and duct tape the twist to seal that section. The tool pouch shall be separated from the bag by twisting it several times, taping the twist and thus sealing the pouch. The glove(s) shall then be twisted several times, duct taped and thus sealed.

9. Sealing the Contaminated Items: The glovebag shall be tied off to contain the asbestos material prior to the glovebag being detached from the area where the asbestos was removed within the bag.

10. Containerizing the Glovebag: The sealed glovebag shall be placed into at least a six-mil plastic bag, sealed airtight and transferred from the regulated abatement work area as per Section 56-8.9, for disposal as asbestos waste.

11. Failure: The requirements of Section 56-8.2(g) shall be complied with in the event of glovebag losing seal or integrity.

2.14 DISPOSAL BAGS, DRUMS, AND PLASTIC SHEETING

A. Provide, at a minimum, 6-mil polyethylene bags pre-printed with caution labels for asbestos debris. Provide, at minimum, 6-mil polyethylene plastic sheeting, affix asbestos caution labels accordingly. Provide clean 30 or 55-gallon fiber, plastic or metal drums capable of being sealed water tight for asbestos waste and debris. Affix asbestos caution labels accordingly.

2.15 HEPA VACUUM EQUIPMENT

A. Vacuuming performed under this Contract shall be performed with HEPA filter

equipped industrial vacuums conforming to ANSI Z9.2. Wet-Vac units, when utilized, shall be exhausted to the manifold of the Negative Air Filtration Unit

B. Provide tools and specialized equipment including scraping nozzles with integral vacuum hoods connected to a HEPA vacuum with flexible hose. Power tools used to drill, cut, or otherwise disturb ACM shall be equipped with HEPA filtered local exhaust ventilation.

PART 3.00 - EXECUTION

3.1 GENERAL REQUIREMENTS

A. Perform asbestos related work in accordance with 29 CFR 1926.1101, 40 CFR 61 and, 12 NYCRR 56 and as specified herein. Where more stringent requirements are specified, adhere to the more stringent requirements.

B. During the progress of the work, other contractors may be engaged in performing work. The Abatement Contractor shall coordinate his work with the work of other contractors in such a manner as the Owner or his Construction Manager may direct.

C. The Abatement Contractor shall complete all asbestos work within the accepted schedule, and shall provide staffing as necessary to complete the scope of work awarded by the Owner. This shall include working multiple shifts Monday through Friday, Saturday, and Sunday, if necessary. The Abatement Contractor's bid shall be inclusive of these costs.

D. In the event an area beyond the asbestos work area becomes contaminated with asbestos-containing dust or debris as a consequence of the work, immediately institute emergency procedures. Contaminated non-work areas shall be isolated and decontaminated in accordance with procedures established for asbestos removal. *All costs incurred in decontaminating such non-work areas and the contents thereof shall be the responsibility of the Abatement Contractor, at no additional cost to the Building Owner.*

E. In the event of electric power failure while abatement is in process, abatement activities shall stop immediately and shall not resume until power is restored and exhaust units are fully operational. On extended power failure, longer than one hour, the decontamination facilities, after the evacuation of all abatement personal from the work area, shall be sealed airtight.

F. Water services will be made available by the Remediation Contractor. The Abatement Contractor shall secure and maintain all hoses and connections in a

leak-free state at all times.

G. Perform asbestos removal work using wet removal procedures. Avoid excessive water use as to not cause water damage. Mix and apply surfactant and chemical agents in accordance with manufacturer's instructions. *Dry removal of asbestos-containing materials is not permitted.*

3.2 EXPOSURE ASSESSMENT MONITORING

A. The Abatement Contractor shall perform exposure assessment air monitoring as required by OSHA 29 CFR Part 1926.1101 to determine the airborne concentrations of asbestos to which workers may be exposed. Exposure shall be made from air samples that are representative of an 8-hour TWA exposure and a 30-minute Excursion Limit (EL) exposure to workers.

B. Representative TWA worker exposures shall be determined on the basis of one or more samples representing full-shift exposure for workers in each regulated work area. Representative short-term worker exposures shall be determined on the basis of one or more samples representing 30-minute exposures associated with operations that are most likely to produce exposures above the EL for workers in each regulated work area.

C. For any one specific operation, which will be performed by certified workers, the Abatement Contractor may demonstrate that worker exposures will be below the PELs by data, which conform to the following criteria:

1. Objective data demonstrating that the material containing asbestos or the activity involving such product or material cannot release airborne fibers in concentrations exceeding the TWA and EL under those work conditions; or

2. Where the Abatement Contractor has monitored prior asbestos jobs for the PELs within 12 months of the current job; the data were obtained during work operations conducted under workplace conditions "closely resembling" the processes, type of material, control methods, work practices, and the data show that under the conditions prevailing and which will prevail in the current workplace there is a high degree of certainty that worker exposures will not exceed the TWA and EL; or

3. The results of initial monitoring of the current job made from breathing zone air samples that are representative of the TWA and EL exposures of each worker covering operations, which are likely during the performance

of the entire asbestos job to result in exposures over the PELs.

D. The Abatement Contractor shall conduct daily air monitoring that is representative of the exposure of each worker who is assigned to work within a regulated work area, unless the Abatement Contractor has made a negative exposure assessment for the entire operation.

E. The Abatement Contractor shall institute the exposure monitoring whenever there is a significant change in process, control equipment, personnel, or work practices that may result in new or additional exposures above the PELs or when there is any reason to suspect that a change may result in new or additional exposures above the PELs.

3.3 PRE-ABATEMENT REQUIREMENTS

A. The Abatement Contractor shall take all necessary measures to protect workers, subcontractors, consultants, authorized visitors, and building occupants from exposure to asbestos and shall limit use of the site to only those areas where the asbestos abatement work is required.

B. Decontamination Enclosure Systems shall be constructed prior to removal preparation activities. Personal Decontamination Enclosure Systems shall be provided outside the work area and attached to locations where persons will enter/exit the regulated work area(s).

C. Post warning signs at all appropriate work area barriers in accordance with 29 CFR 1910.145(d) (4), and 29 CFR 1926.1101 and Industrial Code Rule 56.

D. The Abatement Contractor shall coordinate with the Owner or Owner's representative to lock out electric power to the work area, and then connect required temporary electrical service. Provide grounded temporary electrical service of sufficient size, capacity, and power to accommodate work, and provide overload-protected disconnect switches for each temporary circuit.

E. Provide lighting in the Decontamination Enclosure System as required supplying a 50-foot candle minimum light level. Provide a minimum of one, 200-watt incandescent lamp per 1,000 SF of floor area to provide uniform lighting throughout each work area.

F. When applicable, maintain a minimum temperature of 70 degrees Fahrenheit throughout the work area and Decontamination Enclosure Systems.

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3.4 WORK AREA PREPARATION

A. Regulated Work Area: The asbestos abatement work shall be conducted within regulated work areas which shall be demarcated in a manner that minimizes the number of persons within the area and protects persons outside the area from exposure to asbestos. Access to regulated work areas shall be limited to certified persons and authorized visitors.

B. Critical Barriers: Critical barriers shall be constructed at the interior side of the work areas such as but not limited to, offices, hallways, entrance/exit ways, and other rooms which adjoin specified work areas as indicated on the Contract Drawings, and at all openings at windows, doors, vents, ducts, louvers and grilles near specified work areas.

C. Isolation Barriers: Isolation barriers that seal off openings in the work area including, but not limited to, windows, corridors, doorways, skylights, ducts, grilles, diffusers and any other penetrations of the work area, shall be constructed using two layers of 6-mil fire-retardant plastic sheeting sealed with duct tape. All seams in system components that pass through the work area shall be sealed. Doorways and corridors, which will not be used for passage during the abatement work, shall be sealed. Construction of isolation barriers to separate the work area from the remainder of the site shall be accomplished as follows:

1. Walls shall be constructed of wood or metal framing to support barriers in all openings larger than 32 square feet.

2. Sheathing material of at least 3/8-inch thickness shall be applied to the work side of the barrier.

3. Edges of the partition shall be caulked at the floor, ceiling, walls, and fixtures to form an airtight seal.

4. The work side of the partition shall be covered with two layers of 6-mil fire-retardant plastic sheeting with staggered joints and sealed.

5. All floor, wall and ceiling surfaces shall be covered with two layers of 6-mil fire-retardant plastic sheeting. The floor shall be plasticized first and the plastic sheeting shall extend up the walls at least 12 inches on all sides. The walls shall then be plasticized by applying plastic sheeting from ceiling to floor, and overlapping the floor sheeting by at least 12 inches. This process shall be repeated for the second layer of plastic sheeting for the floor and walls. All seams within a layer shall be

separated by a distance of at least six feet and sealed airtight, and all seams between layers shall be staggered.

D. After completion of the decontamination enclosure, critical barriers and polyethylene sheeting applications, a minimum of 12 hours settling period is required before abatement work will be allowed to commence. Damage and defects in the barriers and/or enclosure system shall be repaired immediately upon discovery and prior to resumption of abatement activities.

E. Enclosure Inspections: *Daily inspections and smoke testing of all barriers shall be performed by the Abatement Contractor and shall be recorded in the daily project log.* These daily inspections shall occur prior to the start of a work shift and upon the completion of the same work shift. Inspections and observations shall be documented in a daily project log. If, at any time during abatement activities, visible emissions are observed outside the work area or if damage occurs to the barriers, work shall be stopped, repairs made, and visible residue immediately cleaned using HEPA vacuuming and/or wet cleaning methods prior to the resumption of abatement activities.

F. Personal/Waste Decontamination Enclosure System: The Abatement Contractor shall place all tools, equipment, and other materials in the work area, then construct or provide for a Personal/Waste Decontamination Enclosure System which complies with Industrial Code Rule 56.

1. Construct a Clean Room sized to accommodate all personnel/authorized persons. Benches, lockers, and hooks shall be provided for street clothes, and shelves shall be provided for storing respirators. The Clean Room shall not be used for the storage of tools, equipment, or materials, and shall not be used for office space. The Clean Room shall be locked during non-work hours.

2. Construct a Shower Room containing one showerhead per every six workers, supplied with hot and cold water adjustable at the tap. The Shower Room shall be separated from the Clean Room and the Equipment/Waste Wash Room by airlocks constructed of 6-mil, fire-retardant plastic sheeting. Soap, shampoo, and towels shall be available at all times. All used 5.0 micron filters used to filter wastewater from the shower units shall be treated as asbestos contaminated waste and disposed of as asbestos waste. Disposable towels shall be disposed of as asbestos waste. The Abatement Contractor shall provide temporary water heaters that are sufficient to provide hot water service to the decontamination chambers upon demand.

3. Construct an Equipment/Waste Wash Room for the storage of equipment and tools after decontamination. The Equipment/Waste Wash Room shall be separated from the Work Area and the Holding Area by airlocks constructed of 6-mil fire-retardant plastic sheeting. A walk-off pan filled with water shall be located outside the Equipment/Waste Wash Room for personnel to clean foot coverings. A drum lined with a 6-mil plastic bag shall be located in the Equipment/Waste Wash Room to contain clothing.

4. Construct a Holding Area as a drop location for bagged asbestos waste passed from the Equipment/Waste Wash Room. The Holding Area shall be located so that bagged asbestos waste can be passed from the Equipment/Waste Wash Room into the Holding Area. The Holding Area shall be separated from the Equipment/Waste Wash Room by an airlock constructed of 6-mil, fire-retardant plastic sheeting. A lockable door shall be installed to permit removal of containerized asbestos waste from the Holding Area to a storage facility for transport to a disposal site. The Holding Area shall be locked during non-work hours.

G. Pre-clean fixed objects within the work area using HEPA filtered equipment and/or wet wiping methods as appropriate. Enclose with two layers of 6-mil fire retardant polyethylene sheeting sealed with duct tape and/or spray adhesive in accordance with Industrial Code Rule 56.

H. All electrical conduit joints, boxes, devices and cable systems within the work area, shall be sealed with tape and polyethylene sheeting sufficient to prevent water penetration during asbestos abatement operations. All loose cables and wiring present in the work area shall be supported so that they do not become disconnected or otherwise damaged during removal operations. Any damage to this wiring will become the responsibility of the Abatement Contractor to repair at his expense.

3.5 WORK AREA ENTRY/EXIT

A. The Abatement Contractor shall restrict all unauthorized persons from entering the regulated work areas and avoid asbestos-containing dust or debris from passing beyond the critical barriers of the regulated work areas. Should areas beyond a regulated work area become contaminated with asbestos or debris as a result of the work, the Abatement Contractor shall clean those areas in accordance with the applicable regulations. Such cleaning and/or decontamination of these non-work areas by the Abatement Contractor shall be performed at no additional cost to the Owner.

B. Authorized persons shall enter/exit regulated work areas through a Decontamination Enclosure System. Each time a regulated work area is entered, street clothes shall be removed in the Clean Room and disposable clothes and clean respirators shall be worn. Respirators shall be inspected prior to each use and fit-checked for proper seal. Personnel shall then proceed through the Shower Room to the Equipment/Waste Wash Room, and into the work area.

3.6 ASBESTOS REMOVAL

A. The abatement work area is located outside and the sewer and water lateral pipes run from the control house under Transit Street. The ACM sewer and water lateral are approximately 8' underground, and are approximately 60. The Abatement Contractor shall refer to, at a minimum, the drawings.

B. The Owner, Owner's representative or other authorized personnel shall be allowed unlimited access to all specified work areas located throughout the site building.

C. The work consists of the removal and disposal of ACM sewer and water lateral pipes and associated debris. Dispose of all removed material and debris as asbestos-contaminated.

D. The Abatement Contractor shall provide appropriate means (i.e., scaffolding, ladders, etc.) to access the work areas. The Abatement Contractor shall decontaminate equipment prior to moving it from one work area to another and at the completion of the Project.

E. Asbestos contaminated debris shall be cleaned using wet cleaning methods and/or HEPA vacuuming equipment. *Asbestos contaminated debris and water shall be placed in appropriate bags or containers, sealed, and removed from the work area daily or after each work shift.* Decontamination enclosure systems, clean room, shower, and equipment room shall be cleaned daily. The clean room shall be kept clean, dry and free of any waste.

3.7 EQUIPMENT & WASTE MATERIAL DECONTAMINATION

A. The Abatement Contractor shall remove equipment and asbestos-contaminated waste material from the regulated work area(s) through the Equipment/Waste Room according to the following:

1. At the wash down station, thoroughly wet-clean contaminated equipment and waste disposal bags and pass into the Equipment/Waste Wash Room.

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2. When passing equipment or containers into the Equipment/Waste Wash Room, close all doorways of the Decontamination Enclosure System.

3. Once inside the Equipment/Waste Wash Room wet-clean bags, containers, and equipment.

4. When cleaning is complete, pass items into the Holding Area and close all doorways, except the doorway between the Equipment/Waste Wash Room and the Holding Area.

5. Workers from the exterior shall enter the Holding Area and remove decontaminated equipment and waste. The Abatement Contractor *shall require* these workers to wear protective clothing and appropriate respiratory protection.

6. Workers shall not use the Equipment/Waste Wash Room system as a means to leave or enter the washroom or the work area.

B. Clean debris from the inside of the Decontamination Enclosure System on a daily basis. All surfaces shall be wet-wiped and/or HEPA vacuumed after each shift change. The Abatement Contractor shall clean debris from shower pans on a daily basis.

C. Remove asbestos waste from the work area into the Decontamination Enclosure System at least at the end of each work shift, then directly into the waste storage container. Containerized asbestos waste shall not be stored outside of the work area or outside of the waste storage container.

D. If required, provide a dust tight, enclosed, inclined chute for dropping asbestos material a distance greater than 10 feet. Drop asbestos-containing materials directly into a secured, labeled, container.

3.8 PERSONAL DECONTAMINATION

A. The Abatement Contractor shall require workers to follow a specified decontamination procedure, as a minimum requirement, when exiting a regulated work area:

1. Remove gross contamination while still in the work area. Gross removal shall be conducted by wet cleaning and/or HEPA vacuuming.

2. Remove disposable coveralls, head covers, and foot covers/boots in the

Equipment/Waste Wash Room and deposit into a labeled container. Reusable contaminated clothing, footwear, headgear and gloves shall remain on in the Equipment Room.

3. While still wearing the respirator enter the shower room and clean the outside of the respirator and the exposed face area under running water prior to removal of the respirator, and then shower completely with soap and water to remove residual asbestos contamination.

4. Respirator filter cartridges shall be removed, wetted and disposed of in a container provided for the purpose.

5. Rinse the Shower Room walls and floor prior to exiting. After showering proceed to the Clean Room and don street clothes.

3.9 WORK AREA DECONTAMINATION

A. First Cleaning For Large Asbestos Projects

1. External surfaces of containers, bags, and equipment shall be cleaned by wet cleaning and/or HEPA vacuuming in the work area before moving such items into the waste decontamination enclosure system washroom by persons assigned to this duty.

2. Once in the waste decontamination enclosure system, external surfaces of contaminated containers, bags, and equipment shall be cleaned of all visible debris, asbestos or otherwise, by wet cleaning.

3. The cleaned containers of asbestos material and equipment are to be dried of any excessive liquid, placed in uncontaminated plastic bags or sheeting and sealed airtight by workers in the holding room. Workers in the holding room may not enter the washroom area.

4. The clean re-containerized items shall be moved into the holding area. The washroom persons shall not enter this airlock. Workers shall exit the waste decontamination system through the work area and personnel decontamination system.

5. Containers and equipment shall be moved from the airlock and into the holding area by persons dressed in clean personal protective equipment, who have entered from uncontaminated areas.

6. The cleaned containers of asbestos material and equipment shall be placed in water tight carts with doors or tops that shall be closed and secured. These carts shall be held in the holding area pending removal. The carts shall be wet cleaned and/or HEPA vacuumed at least once each day.

7. Where the waste removal enclosure is part of the personal decontamination enclosure, waste removal shall not occur during shift changes or when otherwise occupied. The exits from the decontamination enclosure system shall be secured to prevent unauthorized entry.

B. Second Cleaning and Sheeting Removal

1. After the first cleaning, at least twelve hours shall be allowed for asbestos to settle.

2. Thereafter, all objects and surfaces in the work area shall be HEPA vacuumed and/or wet cleaned. The remaining plastic on the walls and floors only, shall then be removed. All critical barriers on windows, doors, HVAC systems, and other openings shall remain sealed.

3. The negative pressure ventilation units shall remain in continuous operation during the second cleaning and sheet removal activities.

C. Third Cleaning

1. After the second cleaning, at least twelve hours shall elapse before HEPA vacuuming and/or wet cleaning all surfaces in the work area, in accordance with Industrial Code Rule 56.

2. The negative pressure ventilation units shall remain in continuous operation during the settling periods and the third cleaning activities.

3. Remove all containerized waste, tools and equipment from the work area and the holding area. All tools, equipment, and containerized waste shall be removed from the work area and decontaminated at an appropriate time in the final cleaning sequence.

4. The Abatement Contractor shall perform a complete visual inspection of the work area under adequate lighting to ensure the work area is free of visible ACM material, and debris.

D. The Environmental Consultant shall verify the cleanliness of the work area by

conducting a final clearance inspection. If any visible asbestos material, debris, dust or water is found in the work area, the Abatement Contractor shall repeat the final cleaning process as prescribed herein.

E. Critical barriers and work area enclosures shall be removed only after satisfactory clearance air sampling results have been achieved. Any residual material found upon removal of the critical barriers shall be removed with a HEPA vacuum and/or wet cleaning methodology.

3.10 WASTE STORAGE, TRANSPORT & DISPOSAL

A. Provide a rigid, enclosed, and lockable waste storage container (i.e., dumpster, trailer, etc.) at the site to contain removed asbestos-containing material/debris which has been double-bagged or double-wrapped. The interior floor and walls of the waste storage container shall be lined with two layers of at least 6-mil plastic sheeting and shall be properly labeled on the exterior sides. The container shall be locked at the end of each workday and during non-work shifts.

B. Do not store containerized waste outside of a regulated work area or outside of the waste storage container. Load all containerized asbestos waste onto trucks, dumpsters, or other appropriate containers for storage prior to transport. The containerized asbestos waste shall be placed in an enclosed, locked truck or dumpster for storage. The waste storage/transport unit shall be locked when not in use to prevent unauthorized access to the waste material.

C. Double-bagged and/or double-wrapped asbestos waste may be transported on open trucks if loaded into rigid, steel drums that are properly closed and sealed. The Abatement Contractor shall label all waste disposal drums with the same warning labels as on the waste disposal bags. Drums that have been contaminated shall be disposed of as asbestos-containing waste.

D. The Abatement Contractor shall establish a manifest system that accounts for all ACM waste. The manifest system shall be described in writing and will be subject to the approval of the Owner. The Abatement Contractor shall retain receipts from the landfill where the asbestos waste is disposed. Separate waste disposal receipts shall be retained for each load of asbestos waste removed from the work site. The Abatement Contractor shall demonstrate custody over all asbestos waste from the time it is removed from the work area until it is deposited at the landfill.

E. Final manifests and landfill receipts shall be provided to the Owner within 15 working days of the removal of the asbestos waste from the site by the waste

hauler. Preliminary (field copies) of manifests\landfill receipts shall be provided to the Owner daily. The Abatement Contractor shall comply with current Federal, State and local regulations governing the handling, transportation and disposal of asbestos waste.

F. Contaminated water from the asbestos work area shall not be disposed of through the shower. Contaminated water must be filtered through a separate 5.0 micron filter system and discharged into the municipal sanitary sewer system, if allowed. If filtered waste water is not allowed to be discharged in the sanitary sewer system, contaminated water, filtered or not, shall be disposed of as asbestos contaminated waste.

3.11 FINAL CLEARANCE TESTING

A. Clearance air sampling, *if applicable to the project*, may be performed using PCM methodology utilizing aggressive air sampling techniques as required by Industrial Code Rule 56. The clearance air samples shall be considered satisfactory when every PCM air sample result demonstrates an airborne concentration of total fibers below 0.01 fibers per cubic centimeter (f/cc), or background level, whichever is greater.

1. If any PCM clearance air sample result indicates an airborne asbestos fiber concentration at or above 0.01 f/cc or the background level, whichever is greater, than the Abatement Contractor shall re-clean the affected work area in accordance with Industrial Code Rule 56, and another set of PCM clearance air samples shall be collected and analyzed.

2. When PCM clearance tests indicate non-compliance with Contract Documents, the Abatement Contractor shall incur all costs associated with re-cleaning of the work area, additional air sampling and analysis until compliance is achieved.

B. Final clearance air sampling *if applicable to the project* shall be performed using TEM methodology in lieu of or in addition to PCM clearance sampling, utilizing aggressive air sampling techniques as required by Industrial Code Rule 56. The final clearance air samples shall be considered satisfactory when the average TEM asbestos fiber concentration for five air samples collected inside a large work area does not exceed 70 structures per square millimeter (s/mm^2).

1. If the average TEM asbestos fiber concentration for five air samples collected inside a large work area exceeds 70 s/mm^2 then the Abatement Contractor shall re-clean the affected work area in accordance with

Industrial Code Rule 56, and another set of TEM clearance air samples shall be collected and analyzed.

2. When TEM clearance tests indicate non-compliance with Contract Documents, the Abatement Contractor shall incur all costs associated with re-cleaning of the work area, additional air sampling and analysis until compliance is achieved.

C. Testing requested by the Abatement Contractor for his information and/or convenience shall be paid for by the Abatement Contractor.

3.12 RESTORATION OF FINISHES

A. After clearance air testing has been achieved, the Abatement Contractor shall remove critical barriers, decontamination enclosure systems, negative air exhaust systems, and restore power affected by the abatement work.

B. Temporary power shall be disconnected, power lock-outs removed and power restored. All temporary plumbing shall be removed.

C. After the Abatement Contractor has completely removed equipment and materials from the work area, the Owner and/or the Environmental Consultant shall conduct an inspection (final walk-through) of the work area(s) to ensure it is in an acceptable condition.

D. Finishes, landscaping, structures and/or equipment damaged by the Abatement Contractor shall be restored. Finishes unable to be restored shall be replaced by the Abatement Contractor under this Contract at no additional cost to the Owner.

3.13 SATISFACTORY COMPLETION OF WORK

A. The asbestos abatement work is complete upon fulfilling the following:

1. Removal of identified ACM and other related materials, and equipment as specified in this Section and the Asbestos Removal Plans**.**

2. Achieving satisfactory PCM/TEM clearance air sampling analytical results as specified by the Contract Documents and as required by all applicable codes, rules, and regulations, *if applicable to the project,* or satisfactory visual inspection of the work area(s).

3. Removing all asbestos abatement equipment and materials from the site.

SECTION 02-8200
ASBESTOS ABATEMENT

4. Disposing of all removed asbestos waste material and related construction and demolition debris at an approved waste disposal landfill/facility. Submit waste shipment record forms signed by the Abatement Contractor, waste hauler, and landfill operator for each shipment of asbestos waste removed from the site.

B. Repairing and/or replacing damaged architectural finishes, mechanical systems, and/or equipment, except those which are specified for demolition, alteration, or removal.

C. The work under this section shall include but is not limited to the execution of the following principal items as they apply to Prime Contractors for Project Closeout:

1. Consent of surety for final payments.

2. Assurance, satisfactory to the Owner that unsettled claims will be settled and that work not completed and accepted will be completed without any undue delay.

3. Guaranties, Warranties and Bonds required by the General Conditions and any other extended guaranties or warranties stated in the Technical Sections of the Specifications.

END OF SECTION

April 18, 2013

State of New York – Department of Labor
Division of Safety and Health
Asbestos Control Bureau – Buffalo District
65 Court Street, Rm. 405
Buffalo, NY 14202

Jason C. Dool
Chief Building Inspector, City of Lockport
One Locks Plaza
Lockport, New York 14094
716.439.6754

Subject: **Building Pre-Demolition Survey – NYSEG Transit Road Substation Storage Building**

The survey in the attached report was performed in accordance with New York State Industrial Code Rule 56 (12 NYCRR 56), Section 56-5.1. This information is required to be submitted to you prior to issuing a demolition permit.

It is also understood that abatement of asbestos-containing materials (materials containing >1% asbestos by weight) must be completed before this building is demolished.

Sincerely,

Rudolph J. Kunz, CIH
NYSEG

Attachments

cc: P. Corney

Building Pre-Demolition Survey Report

Name: NYSEG Transit Street Substation Storage Building

Address: 18 Transit Street
Lockport, NY

Owner: P. Corney
New York State Electric & Gas Corporation
150 Erie Street
Lancaster, NY 14086

Inspector: Rudolph J. Kunz, CIH
Inspector Certificate #AH 88-07306
New York State Electric & Gas Corporation
Asbestos Handling License #99-0849

Survey Date: July 11, 2012

Report Date: April 18, 2013

Reference: NYS Department of Labor Industrial Code Rule 56 (12 NYCRR 56), Section 56-5.1

Laboratory: Galson Laboratories, E. Syracuse, NY (ELAP #11626)
AMA Analytical Services, Lanham, MD (ELAP #10920)

Executive Summary

A building pre-demolition survey was performed July 11th, 2012, to determine if any asbestos-containing materials were present. Materials surveyed included the rolled roofing.

Building plans were not available for review. The structure was mapped out, suspect materials were visually identified and sampled, and the samples were sent out for laboratory analysis for asbestos content. The floor plans, sample chain-of-custody forms and laboratory data sheets are attached.

Analysis results indicated asbestos in the rolled roofing.

See the table in the Results section for further details.

Background

The one-story building has a concrete floor, walls and roof (the front wall is metal clad). There is rolled roofing over the concrete. There are no interior walls; the ceiling is constructed of wood planks. There are no windows, and the overhead door is metal.

Suspect Materials – Surfacing Treatments

None.

Suspect Materials – Thermal System Insulation

None.

Suspect Materials – Miscellaneous

Material	Location	Quantity	Friable	Condition	ACM
Rolled roofing	Roof	1500 sq. ft.	No	Good	Yes

Sampling and Analysis Results

Sample #	Material – Location	Results
07111205	Rolled roofing – Roof	3.5% Chrysotile

07111206 Rolled roofing – Roof Trace Chrysotile

Methodology

All samples were sent to Galson Laboratories for analysis by polarized light microscopy (PLM). Non-friable organically bound (NOB) samples which did not test positive for asbestos by PLM were then sent to AMA Analytical Services for analysis by transmission electron microscopy (TEM).

Asbestos-containing materials are defined as materials containing >1% asbestos by weight.

Laboratory data sheets and chain of custody forms are attached.

Asbestos-Containing Materials – Summary

The rolled roofing contains asbestos.

April 18, 2013

State of New York – Department of Labor
Division of Safety and Health
Asbestos Control Bureau – Buffalo District
65 Court Street, Rm. 405
Buffalo, NY 14202

Jason C. Dool
Chief Building Inspector, City of Lockport
One Locks Plaza
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AMA Analytical Services, Lanham, MD (ELAP #10920)

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Suspect Materials – Miscellaneous

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07111206 Rolled roofing – Roof Trace Chrysotile

Methodology

All samples were sent to Galson Laboratories for analysis by polarized light microscopy (PLM). Non-friable organically bound (NOB) samples which did not test positive for asbestos by PLM were then sent to AMA Analytical Services for analysis by transmission electron microscopy (TEM).

Asbestos-containing materials are defined as materials containing >1% asbestos by weight.

Laboratory data sheets and chain of custody forms are attached.

Asbestos-Containing Materials – Summary

The rolled roofing contains asbestos.

Appendix D

Iberdrola USA Yard & Fencing Specification (November 2011)

YARD AND FENCING STANDARD

Reviewed By (CMP): *Zainabu, Kyosima*	Date: 9-7-2011
Approved By: Javier Bonilla	Date: 9-27-2011

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Revision	Date	Description	Author
00	8/31/11	Issued Final	IUSA standardization Department
01	11/07-2011	Corrected thickness of the road gravel base to 18” (page 10)	IUSA standardization Department
03	05-30-2012	Revised standards ref on fence requirements.	IUSA standardization Department
04	05-30-2012	Revised standards to reflect NESC clearance requirement section 1.4.5.3	IUSA standardization Department

1.0 GENERAL

1.1 SCOPE

1.1.1 This standard provides general design and construction guidelines, standards and criteria for development of new Iberdrola USA owned substations within the Maine and New York operating area.

1.1.2 Where appropriate, these standards, criteria and guidelines may be applied to existing substations or modifications of existing facilities.

1.1.3 This standard shall also apply to other facilities such as switchyards. Within this standard no distinction between switchyards and substations has been made.

1.1.4 These standards shall apply to Large, Medium and Small Switchyards, where criteria differ; the differences are noted within the text of the standard.

1.1.5 This standard addresses:

- 1.1.5.1 Environmental Controls
- 1.1.5.2 Clearing
- 1.1.5.3 Site Design
- 1.1.5.4 Surface and Subsurface Drainage
- 1.1.5.5 Earthwork
- 1.1.5.6 Fencing

1.1.6 The site specific work will vary from location to location. The Engineer shall refer to the project Scope of Work for specific requirements. The Engineer shall not deviate from the criteria provided without written approval. With I-USA approval, specific design features may deviate from those presented herein.

1.1.7 The Engineer shall be responsible for the development of detailed plans and specifications for the facility and location of the construction. The design shall include reference to appropriate, up-to-date company, industry and regulatory requirements.

1.2 REFERENCES

1.2.1 Iberdrola USA Standards:

- 1.2.1.1 TM 2.71.13-Cable Trench Systems
- 1.2.1.2 TM 2.61.0000-Technical Specification for Substation Foundations

1.2.2 ASTM International:

- 1.2.2.1 ASTM A 53-Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc Coated, Welded and Seamless
- 1.2.2.2 ASTM A 121 Specification for Metallic-Coated Carbon Steel Barbed Wire

1.2.2.3 ASTM A 392 Specification for Zinc-Coated Steel Chain-Link Fence Fabric"
1.2.2.4 ASTM A 152-Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
1.2.2.5 ASTM A252-Standard Specification for Welded and Seamless Steel Pipe Piles.
1.2.2.6 ASTM A 491-Specificaton for Aluminum-Coated Steel Chain-Link Fence
1.2.2.7 ASTM A 702-Standard Specification for Steel Fence Posts and Assemblies, Hot Wrought
1.2.2.8 ASTM C 33-Standard Specification for Concrete Aggregates
1.2.2.9 ASTM C 923-Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals
1.2.2.10 ASTM D 946-Penetration-Graded Asphalt Cement for Use in Pavement Construction
1.2.2.11 ASTM D 997-Emulsified Asphalt
1.2.2.12 ASTM D1557-Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3)
1.2.2.13 ASTM D 2397-Standard Specification for Cationic Emulsified Asphalt
1.2.2.14 ASTM D 2487-Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
1.2.2.15 ASTM D 3381-Viscosity-Graded Asphalt Cement for Use in Pavement Construction
1.2.2.16 ASTM F 567-Practice for Installation of Chain-Link Fence
1.2.2.17 ASTM F 626-Specification for Fence Fittings
1.2.2.18 ASTM F 900-Specification for Commercial and Industrial Swing Gates
1.2.2.19 ASTM F 1043-Standard Specification for Strength and Protective Coatings on Steel Industrial Chain Link Fence Framework
1.2.2.20 ASTM F1083-Standard Specification for Pipe, Steel, Hot-Dipped Zinc Coated (Galvanized) Welded, for Fence Structures

1.2.3 American Society of Civil Engineers (ASCE):
1.2.3.1 ASCE 32-01–Design and Construction of Frost-Protected Shallow Foundations

1.2.4 American Society of Heating Refrigeration and Air-Conditioning Engineers (ASHRAE):
1.2.4.1 ASHRAE Fundamentals Handbook (2009 or Later)

1.2.5 American Society of State Highway Transportation Officials (AASHTO):
1.2.5.1 A Policy on Geometric Design of Highways and Streets
1.2.5.2 Standard Specification for Highway Bridges

1.2.6 American Water Works Association:
1.2.6.1 AWWA C 150-A21.5.1

1.2.7 State Department of Transportation Specifications:
- 1.2.7.1 State of Maine Department of Transportation Standard Specifications (Latest Revision)
- 1.2.7.2 NYSDOT Standard Specifications (Latest Revision)

1.3 SUBSTATION AND YARD STANDARD DRAWINGS

1.3.1 Typical Security Fence Details

1.3.2 Typical Site Layout and Cross Sections

1.4 SERVICE CONDITIONS

1.4.1 Where site development work is to be performed at an existing substation site, the design shall take into account the existing grading, drainage systems, fills, access roads, and other features as necessary. Where the existing design deviates from the requirements of this specification, the Engineer shall obtain guidance from the Owner before proceeding.

1.4.2 The Project General Locale shall be as indicated by the Owner and may be located anywhere within the New York State or the State of Maine.
- 1.4.2.1 Applicability of Regional, State and municipal codes shall be verified by the Engineer prior to commencing facility design. Currently both States have adopted the 2009 International Building Code and Energy Conservation Codes with supplemental conditions and clarifications, including the ASCE Structural Code entitled, **MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES**.
- 1.4.2.2 Regions of these two states have special design requirements due to heavy wind load, snow loads or others. Care shall be taken to ensure these special design considerations are considered in the design.

1.4.3 Climactic data shall be based on information obtained from established authorities. The following shall form the basis of climactic data used for Iberdrola designs in this region:
- 1.4.3.1 Frost Penetration-Written standards of Local building officials
- 1.4.3.2 Interior and Exterior ambient conditions-ASHRAE Fundamentals Handbook

1.4.4 Each substation facility shall be designed to accommodate transport of the largest piece of equipment anticipated, and its transport vehicle. The largest single piece of equipment is usually the power transformer. Within this standard general reference to delivery of the power transformer shall apply to the largest single piece of equipment which may be reasonably anticipated to be delivered or removed from the site.
- 1.4.4.1 Power Transformer delivery design considerations need only be applied to the substation access road, interior substation travel lanes approaching the final resting location for the equipment, and other locations the equipment may have to traverse to access the site.

1.4.4.2 Minimum site access road travel lane width shall be not less than 15 feet. Additional cleared width shall be provided for drainage structures, utilities and road shoulders as required.

1.4.4.3 Site access and Power Transformer delivery road structural design shall be the more stringent of the indicated road section or a custom design sufficient to support wheel loads allowed on State DOT highways, without rutting or pumping. Minimum design wheel loads shall be the equivalent of HS20 at a traffic density of not less than 100 vehicles per day. Geometric design for the power transformer delivery road / route through the substation shall accommodate a WB-50 design vehicle as defined by AASHTO.

1.4.4.4 Station access road shall be limited to less than a 5% grade.

1.4.4.5 Geometric design for all other substation roads shall accommodate a Single Unit Truck (SU) as defined by AASHTO.

1.4.5 Site Access shall include but is not limited to:

1.4.5.1 At least one access road from a public street or roadway. Main access road shall be designed per 1.4.4 above. Additional access roads shall be provided when advantageous for maintenance or operations.

1.4.5.2 When practical, provide access around entire substation perimeter. Perimeter access need not be an established roadway, but shall be of sufficient width and grade to permit the occasional transit by two wheel drive vehicles.

1.4.5.3 When specifically required, a minimum clear distance of ten (10) feet shall be maintained to the interior of the substation fence. Otherwise, the Iberdrola USA minimum clearance to the fence shall be five (5) feet. No substation equipment, buildings, or storage facilities shall be located within the established clear zone. Minimum NESC Safety clearances shall be coordinated along with this requirement for the different voltage class requirements.

1.4.5.4 Entire substation exterior perimeter, including drainage ditches, embankments and other features shall be accessible to grounds keeping equipment without the use of specialty, long reach equipment or extension arms.

1.4.5.5 Site entrance road shall be gated to prevent unauthorized vehicle entry. Access gate shall be located at the intersection with the public thoroughfare. Where Site Access Road is short, with approval of the Owner, the site entrance gate may be deleted.

1.4.5.6 Provide a vehicle gate within the substation fence system. The vehicle gate shall not be in-line with the access road, requiring the equivalent of one 90 degree turn within 100 feet of the gate.

1.4.5.7 Additional vehicle gates may be provided within the substation fence where portions of the yard are inaccessible from the main gate, or are otherwise required for access.

1.4.5.8 Unless directed otherwise, provide one personnel gate adjacent to the main vehicle gate.

1.4.5.9 Additional vehicle and personnel access gates will only be provided when directed by the Owner.

2.0 TECHNICAL REQUIREMENTS

2.1 ENVIRONMENTAL CONTROLS

2.1.1 Design of erosion control measures shall meet applicable federal, state and local ordinances.

2.1.2 The environmental protection requirements and erosion control measures designed into the project shall be based on the applicable state Best Management Practices; utilizing similar details, definitions and identification names for each devise depicted in the design drawings.

2.1.3 The Engineer shall develop Erosion Control plan drawings and specifications that identify at least the minimum environmental and erosion control protection required. The plan shall specify the control device construction, location, inspection, maintenance requirements and final disposition. The Erosion Control design shall include, but is not limited to:

- 2.1.3.1 Show placement of silt fence as required for sediment control.
- 2.1.3.2 Show placement of hay/straw bales as required around drop inlets and as ditch checks.
- 2.1.3.3 Show placement of erosion control soil/bark mix as required.
- 2.1.3.4 Show clearing limits.
- 2.1.3.5 Placement of erosion control mesh and other measures necessary during turf establishment.
- 2.1.3.6 Interception trenches, flow distributors, plunge pools and other devices as appropriate for the site development and work scope.
- 2.1.3.7 Integration of Landscape Development and permanent erosion prevention materials and plantings.

2.1.4 Trees in the vicinity of construction operations and designated to remain shall be protected from damage using wood fender system or other approved methods.

2.1.5 All site access shall utilize a stabilized construction entrance throughout the duration of development and construction.

2.1.6 Environmental controls shall be erected and in place at the earliest practical time in the construction as reasonable and shall be maintained throughout the construction process until permanent erosion control measures are in-place and functioning.

2.2 CLEARING

2.2.1 Where required, site clearing limits shall be indicated in the field by unique color flagging. The flagging shall be located in the field using GPS coordinates, prior to the start of clearing operations.

2.2.2 All select clearing operations shall be performed using low impact equipment.

2.2.3 Clearing limits shall ensure sufficient access road width for equipment transport as defined above.

2.2.4 All limbs and vegetation which extends over or within ten (10) feet of the perimeter fence shall be removed.

2.2.5 A clear zone outside the perimeter fence of not less than ten (10) feet wide shall be developed. The clear zone shall be cleared and grubbed to remove stumps, cobbles and stones that may hamper or damage landscape maintenance equipment.

2.2.6 Unless otherwise directed all clearing debris not utilized for indicated erosion control measures, including saleable lumber shall be disposed of off-site at an approved disposal facility.

2.3 SITE DESIGN

2.3.1 All site grading design shall be developed from a recent site topographical survey map. Preliminary site information in the form of LiDar survey data may be provided by the Owner. When provided by the Owner, the Engineer shall supplement the Owner's LiDar data with conventional land surveying methods as necessary to obtain site data of the accuracy required for the design scope and construction.

2.3.2 All potential obstructions, existing substation grades, adjacent property, and contours shall be considered in designing the grading and drainage.

2.3.3 Grading and site design shall be coordinated with the cable trench design (Reference Iberdrola Standard TM 271.13). Cable trench shall be bedded on a six (6) inch layer of three-quarter (¾) inch nominal crushed stone (trap rock) to form a smooth, uniform, stable, free draining surface on which to construct the cable trench.

2.3.4 Within the substation, the yard shall generally be designed with a uniform slope of between 1-2%. A uniform single sloped plane is preferred, however, for larger facilities and modifications to existing yards, grading may be designed to provide a crown near the center of the yard. With Owner approval, large yards may be designed with a slope as low as 0.2%.

2.3.5 It is preferred that the yard be designed with limited grades and topographic variation such that each yard structure top of foundation is at a common elevation with foundation reveals above the finished grade varying from three (3) inches to eighteen (18) inches.

2.3.6 The site design shall include a drainage ditch on the exterior of the substation fence in areas of cut, or level grade. The ditch shall be sloped to drain, not less than eighteen (18) inches deep with 3:1 side slopes. The top edge of the ditch shall be not less than five (5) feet from the base of the fence. The minimum design depth of the ditch shall be coordinated with the yard subgrade elevation (interface between the yard Gravel Base and Subgrade fill) to ensure yard drainage into the perimeter ditch.

2.3.7 In developed urban areas, trench catchments, storm drains, french drains and other drain structures designed to drain the yard subgrade and surface water may be utilized.

2.3.8 Existing surfaces designated to be modified shall be uniformly graded to consistent slopes and directions. The modified grades outside the substation fence shall generally slope away from the substation where practical. When not practical the grades shall slope toward established drainage structures.

2.3.9 Slopes outside of the substation fence shall be designed with a maximum grade of 3:1. Slopes steeper than 3:1 may be permitted with Owner approval.

2.4 SURFACE AND SUBSURFACE DRAINAGE

2.4.1 Surface Water:

- 2.4.1.1 Surface water shall be directed toward the exterior of the substation by means of a uniform slope as defined above.
- 2.4.1.2 Design and construction of the substation yard shall be such that the yard subbase and subgrade slope shall match that of the finish grade thereby promoting drainage to the perimeter drainage ditch on the exterior of the yard.
- 2.4.1.3 Use of manhole structures and catchments on the interior of the substation yard generally will not be permitted.
- 2.4.1.4 Manholes and catchments when used, shall meet the requirements of the State DOT Specifications. Manhole covers within the yard shall be gasketed and bolted down. Outside the yard, manhole covers shall be cast iron. Manholes having connected pipes in excess of twelve (12) inch diameter leading into the yard, shall be fitted with bolted covers and security grates at the first outlet outside the yard.
- 2.4.1.5 Except as specifically approved by the Owner, storm water catch basins shall not be employed within the yard.
- 2.4.1.6 When approved catch basins shall be fitted with cast iron gratings. Other security provisions applicable to manholes shall also apply to catchments.

2.4.1.7 The following design parameters shall apply to Storm Drains, Subdrain, and Sewage systems (Refer to Iberdrola Standard TM 2.61.0000, Technical Specification for Substation Foundations, for subdrain construction requirements).

2.4.1.7.1 Limit flow velocity to not less than one and one-half (1.5) feet per second, nor more than ten (10) feet per second.

2.4.1.7.2 Limit free flow vertical drop within manholes to not more than five (5) feet. Drops of more than five (5) feet shall be guided by internal flumes.

2.4.1.7.3 Manhole connections shall utilize resilient rubber connectors meeting requirements of ASTM C 923.

2.4.1.7.4 Piping shall be bedded within crushed stone.

2.4.1.7.5 Piping shall be buried within compacted fill to a depth sufficient to protect the piping from crushing under design wheel loads. Wheel loads transferred to piping buried three (3) feet or less to the top of the pipe shall be verified using the AASHTO procedures outlined in the Standard Specification for Highway Bridges (No vehicle impact load need be considered). For all buried piping under the Substation Access Road the wheel loads transferred to the pipe shall be verified.

2.4.1.7.6 Underdrain and storm drain systems shall either daylight outside of the substation yard or direct collected water to storm drainage structures, when permitted by the local utility. The drain pipe system shall be protected from UV light degradation by encasing in concrete to form a headwall or by replacing the last six (6) feet with corrugated galvanized steel pipe or other suitable, non-UV sensitive material.

2.4.1.7.7 Storm drains and Subdrain system outlets shall direct flow onto splash blocks, rip-rap aprons or plunge pools as necessary to minimize erosion.

2.4.1.8 Manholes when used shall be pre-cast concrete of not less than four (4) foot diameter. The base and first riser section shall be monolithic with ship-lap upper edge for joining to subsequent sections and anti-floatation lip at the exterior base perimeter. Catchment manholes shall include a two (2) foot deep sump below the lowest outlet pipe. Sewage manholes shall be flat bottomed for field casting of channels.

2.4.1.9 Manhole tops shall be flat, pre-cast units designed to mate with the ship-lap joint on the riser barrel. Manhole frames shall be fitted to the cover by brick and mortar.

2.4.1.10 Manholes, frames and covers shall be rated for H20 wheel loads unless installed in remote locations outside the substation fence, removed from the vicinity of the substation access road, private drive or public roadway.

2.4.1.11 Sewage piping and storm drain piping shall have a minimum diameter of twelve (12) inches to limit the potential for plugging by debris.

2.4.1.12 Piping material for sewage systems shall be SDR-35 PVC pipe, storm drain systems may be smooth bore corrugated HDPE or SDR-35 PVC.

2.4.2 Subsurface Water:

2.4.2.1 Where subsurface drainage is required, the underdrain system shall be designed utilizing sound engineering practice, taking into considerations soil material gradations, particularly the fine soil fraction (Standard Sieve size less than 40).

2.4.2.2 Refer to Iberdrola Standard TM 2.61.0000, Technical Specification for Substation Foundations, for subdrain construction requirements.

2.4.2.3 The subdrain filter shall be comprised of graduated sized sand particles to form a filter pack or a combination of graduated sand and non-woven geosynthetic material (Mirafi 140N or equal). The filter fabric or filter pack shall be designed to permit the passage of water and limit passage of fine soil particles.

2.4.2.4 Underdrain systems shall be constructed in accordance with the applicable State DOT Specifications utilizing perforated, corrugated HDPE or PVC piping systems.

2.4.2.5 Provide surface clean-outs within the subdrain system to permit flushing and snaking of each branch of the system.

2.5 EARTHWORK

2.5.1 All material listed within this section defined using a table of the percent passing a US Standard Sieve, shall consist of well-graded screened or crushed gravel of hard, durable particles, free of organic and frozen materials, lumps or balls of clay, roots, topsoil, loam, trash, snow, ice, and other deleterious materials. The percent fraction of the sample shall not be on the high end of one gradation band and on the low side of the adjacent gradation band.

2.5.2 The Engineer is encouraged to select standard materials defined by the State DOT highway specifications which closely match the properties defined herein. Those materials may be specified in lieu of the gradations provided here.

2.5.3 Earthwork design documents shall utilize, but is not limited to use of the following materials and descriptions. For consistency between designs the Engineer shall use these designations, descriptions, definitions and applications unless proven unsuitable for one or more of the listed applications. Additional material designations, descriptions and specifications will be required for general earthwork and incidental requirements.

2.5.3.1 General Fill-Unclassified fills, general fills and fills not adjacent to or under pavements, structures or traveled ways.

2.5.3.2 Subgrade Fill-Fills within the yard, roadway subgrades, utility trench backfill, general backfill for non-critical structures.

2.5.3.3 Gravel Surface-Access road travel surface, general fill in areas requiring higher strength materials.
2.5.3.4 Gravel Base-Roadway base, drainage blanket at the toe of embankments, Yard base located directly under the stone topping.
2.5.3.5 Sand-Bedding of conduit and waterlines.
2.5.3.6 Geotextile fabric-road and yard reinforcement, filter, and segregation between soil products.
2.5.3.7 Crushed Stone-Structural fill, drain pipe bedding.
2.5.3.8 Stone Topping-Finish surface material within the substation yard.
2.5.3.9 Riprap-Erosion control and stabilization.
2.5.3.10 Sand Seal-Surface treatment for travel lanes within substation.
2.5.3.11 Trap Rock-French drains, general subgrade stabilization.

2.5.4 General Fill:
2.5.4.1 Material classified in accordance with ASTM 2487 as GW, GP, GM, SW, SP, SM, GW-GM, or GP-GM with rocks and cobbles not exceeding two thirds (2/3) of the loose fill thickness, Liquid Limit (LL) less than twenty five (25), Plasticity Index (PI) less than twelve (12) and not more than twenty five (25) percent by weight passing the No. 200 sieve.

2.5.5 Subgrade Fill:
2.5.5.1 Material classified in accordance with ASTM 2487 as GW, GP, SW, or SP and passing the six (6) inch sieve. The fraction passing the No. 200 sieve shall not exceed seven (7) percent by weight of the sample. Rocks and cobbles shall not exceed two thirds (2/3) of the loose fill thickness.

2.5.6 Gravel Surface:
2.5.6.1 Gravel access road surface shall be constructed of not less than six (6) inches of the indicated granular material. Thicker surface layers may be required to meet wheel loads.
2.5.6.2 Gravel Surface material shall meet the gradation requirements provided in Table 1.

TABLE 1
GRAVEL SURFACE

US Standard Sieve Size	Percent by Weight Passing Sieve
2”	100
1/2”	45-70
1/4”	30-55
#40	0-20
#200	0-5

2.5.7 Gravel Base:

2.5.7.1 Gravel road base shall be constructed of not less than a eighteen (18) inch lift in the roadway cross section directly under the gravel surface. Gravel base within the substation yard shall be constructed on not less than an eighteen (18) inch lift under the entire substation. Thickness of Gravel Base may be increased to meet specific project requirements.

2.5.7.2 Gravel base shall be a crushed stone passing the two (2) inch sieve and conforming to the gradation requirements of Table 2:

TABLE 2. GRAVEL BASE	
US Standard Sieve Size	Percent by Weight Passing Sieve
2”	100
1-1/2”	90-95
½”	45-70
1/4”	30-55
#40	0-20
#200	0-5

2.5.8 Sand:

2.5.8.1 Sand utilized within the design shall meet the requirements of ASTM C 33 for Fine Aggregate and shall conform to the gradation of Table 3:

TABLE 3. SAND	
US Standard Sieve Size	Percent by Weight Passing Sieve
3/8”	100
#4	95-100
#8	80-100
#16	50-85
#30	25-60
#50	10-30
#100	0-10
#200	0-5

2.5.9 Geotextile:

2.5.9.1 Geotextile products for soil stabilization shall only be utilized upon approval of the Owner.

2.5.9.2 Non-woven geotextile fabric shall be Mirafi 140N or equivalent.

2.5.9.3 Woven geotextile fabric shall be Mirafi 600X or equivalent.

2.5.10 Crushed Stone:

2.5.10.1 Crushed stone shall be obtained from rock of uniform quality, comprised of clean angular fragments of quarried rock, free from soft disintegrated pieces or objectionable matter and conforming to the gradation of Table 4:

TABLE 4. CRUSHED STONE	
US Standard Sieve Size	Percent by Weight Passing Sieve
1”	100
3/4”	90-100
3/8”	20-55
#4	0-10
#8	0-5
#200	0-5

2.5.11 Stone Topping:

2.5.11.1 Topping Stone shall consist of angular fragments of broken sound rock blended to provide a uniform mix comprised of fifty percent (50%) each of one and half (1 ½) inch and three quarter (¾) inch stone fragments.

2.5.11.2 Stone shall be washed after blending to remove fines.

2.5.12 Trap Rock:

2.5.12.1 Trap rock shall consist of angular fragments of broken sound three quarter (¾) inch stone fragments.

2.5.13 Rip-Rap:

2.5.13.1 Stone for rip rap shall be sound, durable rock that will not deteriorate when exposed to water or weather. Field stone, rough quarry stone, blasted ledge rock or tailings may be used.

2.5.13.2 The rock shall conform to the gradations of Table 5:

TABLE 5 RIP RAP	
US Standard Sieve Size	Percent by Weight Passing Sieve
12”	90-100
4”	0-10

2.5.13.3 No Rip-Rap stone shall exceed eighteen (18) inches when measured along its longest axis, nor more than one and half (1.5) times the D_{50} Dimension, the average stone size by weight of sample.

2.5.14 Sand Seal:

2.5.14.1 Sand Seal shall be applied to all designated travel ways within the substation fence.

2.5.14.2 The sand seal shall consist of a triple surface treatment of bituminous material followed by aggregate application and light consolidation by steel wheel and rubber tire rollers.

2.5.14.3 Asphalt shall be selected based on site temperature, moisture, aggregate selection and application conditions. The asphalt shall be an emulsified asphalt (ASTM D 977, RS-1 or RS-2; ASTM D 2397, CRS-1 or CRS-2) or Asphalt Cement (ASTM D 946 Penetration Grade; ASTM D 3381 Viscosity Grade).

2.5.14.4 Sound durable aggregate meeting the gradations of Table 6A shall be applied to the asphalt treated surfaces. The aggregate and application rates shall be pre-tested to confirm asphalt adherence, cementing action, proper gradation for bridging gaps in the substrata, and potential for asphalt bleeding. Engineer shall make adjustments to the asphalt application rate, mineral product supply source, gradation and application rate as appropriate.

TABLE 6A
BITUMINOUS SURFACE TREATMENT AGGREGATE GRADATION

Gradation	A	B	C
U.S. Standard Sieve	Percent by Weight Passing	Percent by Weight Passing	Percent by Weight Passing
¾ inch	100		
½ inch	90-100	100	
3/8 inch	40-70	85-100	100
No.4	0-15	10-30	85-100
No. 8	0-5	0-10	10-40
No. 16		0-5	0-10
No. 50			0-5

2.5.14.5 Asphalt and aggregate shall be applied in accordance with Table 6B.

TABLE 6B
APPLICATION QUANTITIES PER SQUARE YARD

Application	First		Second		Third	
	Bituminous Material	Aggregate	Bituminous Material	Aggregate	Bituminous Material	Aggregate
Gradation	(Gallons)	(Pounds)	(Gallons)	(Pounds)	(Gallons)	(Pounds)
A	0.2-0.3	28-34				
B			0.2-0.3	20-25		
C					0.15-0.2	10-15

2.5.15 The Engineer shall define, and specify provisions for the removal and replacement of unsuitable materials found at the project site. Corrective measures shall include the use of proof rolling for areas under structural foundations, equipment pads, travel lanes and pavement. Unsuitable materials include but is not limited to:

2.5.15.1 Saturated fine grain soils
2.5.15.2 Frozen earth
2.5.15.3 Structural fills and crushes stone containing organic matter or debris
2.5.15.4 Contaminated soils

2.5.16 The Engineer shall specify the percent compaction for all graded soil products and applications. Compaction shall reference the maximum density at optimum moisture as determined in accordance with the Modified Proctor test ASTM D 1557. Structural fills, select fill, roadway base and travel surface shall be specified at not less than ninety five (95) percent of the maximum density.

2.6 FENCING

2.6.1 General:

2.6.1.1 Physical security of Critical Electric Infrastructure sites is regulated by the North American Electric Reliability Council (NERC) per mandates established by the President of the United States in response to the attacks of September 11, 2001. The standards provided herein reflect the NERC security requirements as implemented by Iberdrola USA. The Iberdrola security implementation directive and criteria is not available for public release. Specific questions regarding these standards should be directed to the Owner's representative.

2.6.1.2 Where the site is an existing substation and the yard fence has already been established, expansion of the fence should typically match the design of the existing fencing, provided that the existing fence is at least six (6) feet high with three (3) stands of barbed wire on outriggers which effectively extend the fence an additional twelve (12) inches vertically.

2.6.1.3 Specific sites may require privacy fencing (in addition to the chain link fence) to comply with state or local requirements. The type of privacy fence shall be subject to approval from the appropriate governing bodies and shall meet the NERC security standards as implemented for the Iberdrola facilities.

2.6.1.4 Refer to the drawing entitled Typical Security Fence Details included as part of this standard for typical fence construction details and requirements.

2.6.2 Fence Products:

2.6.2.1 Fence Fabric-

2.6.2.1.1 The standard station fence shall be aluminized steel, or galvanized steel chain link fence fabric manufactured from #9 AWG wire stock in accordance with ASTM A 392 or A

491 as appropriate. The fabric shall be eight (8) feet high except where six (6) foot height is permitted under Paragraph 2.6.1.2 above.

2.6.2.1.2

2.6.2.1.3 Provide fence fabric with two (2) inch diamond pattern, twisted and barbed top selvage and knuckled bottom selvage.

2.6.2.1.4 Fabric shall be one (1) piece from top to bottom of fence.

2.6.2.2 Posts-

2.6.2.2.1 Fence posts and frame components shall be fabricated from pipe stock in accordance with ASTM F 1043, for Group 1A products (Standard weight pipe).

2.6.2.2.2 Reference within this standard and the accompanying drawings to fence pipe dimensions are to nominal trade size pipe as listed in Table 1 of ASTM F 1043. Gate and corner posts larger than listed in ASTM F 1043 shall be ASTM A 53, Grade B galvanized NPS standard weight pipe.

2.6.2.2.3 Top and Bottom Rails, ASTM A 53 Grade B, NPS Standard weight galvanized pipe.

2.6.2.2.4 Gate posts shall include a domed top.

2.6.2.3 Components-

2.6.2.3.1 Fence components shall be fabricated in accordance with minimum requirements as specified in ASTM F 626 and ASTM A 702 as applicable unless otherwise indicated.

2.6.2.3.2 Barbed wire shall be ASTM A 121 galvanized dual strand with four (4) point barbs every five (5) inches.

2.6.2.3.3 Barbed wire shall be galvanized dual strand with four (4) point barbs every five (5) inches.

2.6.2.3.4 Barbed wire extension arms shall be Type I steel arms extending at forty five (45) degrees toward the exterior of the yard, and having clips for three (3) strands of barbed wire. In areas of high rates of vandalism or substations requiring extra security double extension arm (Type III) may be provided which extend to the interior and exterior of the yard.

2.6.2.3.5 Pipe caps shall be galvanized iron or steel with brackets for top rails and extension arm mounting. Caps shall be fitted to the posts and secured in place with tamper proof attachments.

2.6.2.3.6 Rail ends and brace ends shall be steel.

2.6.2.3.7 Rail sleeves shall be steel and not less than six (6) inches long.

2.6.2.3.8 Fabric fasteners shall be interlocking flat wire ties preformed to fit completely around the post or rail. The tie shall be designed to mechanically interlock and lay flat against the pipe.

2.6.2.3.9 Tension bars shall be galvanized steel three sixteenth (3/16) inch by three quarter (¾) inch and extending the full height of the fence fabric.

2.6.2.3.10 Truss rod assembly shall be five sixteenth (5/16) inch galvanized steel.

2.6.2.4 Gates-

2.6.2.4.1 Gates shall be fabricated in accordance with ASTM F 900 from steel tubular stock.

2.6.2.4.2 All gates will be a length of eighteen (18) to twenty (20) feet according to access requirements. Gates will be fabricated from a two (2) inch minimum diameter galvanized Schedule 40 pipe frame with fabric inside the frame and barbed wire on the top. Gates will be constructed with sufficient braces and truss work to prevent any sagging of the gate; in no case shall gate framing members be placed farther than nine (9) feet apart. A fabric to match the main fence shall be installed in the gate frame by means of tension bars and required connectors.

2.6.2.4.3 Gates shall be supplied with the following hardware:

2.6.2.4.3.1 Hinges: Size and material to suit gate size, non lift off type, offset to permit 180 degree gate opening. Provide 1 1/2 pair of hinges for each leaf over 6' nominal height. Main gate hinges will be arranged for the gate to swing out and secondary gates will be arranged to swing inward. Hinges shall be secured with tamper resistant fasteners or welded.

2.6.2.4.3.2 Latch: Forked type to permit operation from either side of gate, with padlock eye as integral part of latch. High security chain will be used to secure the gate with a standard Iberdrola USA padlock.

2.6.2.4.3.3 Keeper: Provide keeper for vehicle gates, which automatically engages gate leaf and holds it in open position until manually released.

2.6.2.4.3.4 Double Gates: Include locking device and drop tube with padlock eyes as integral part of latch, permitting both gate leaves to be locked with single padlock and the gate secured with the drop tube engaged in the threshold stop.

2.6.2.4.3.5 Concrete Thresholds: Contractor shall supply and install concrete threshold in accordance with the Typical Security Fence

Details drawing, attached. Threshold shall include a gate stop cast integral with the threshold.

2.6.2.4.4 When directed, a driveway security gate shall be required at the entrance to the substation access road. The gate shall consist of welded galvanized steel pipe, with 4" diameter gate posts as indicated by the attached Typical Security Fence Details drawing.

2.6.3 Fence Installation:

2.6.3.1 Fence and components shall be installed in accordance with ASTM F 900.

2.6.3.2 Fence fabric shall be secured with interlocking clips at the top and bottom rails, line posts and end posts at not more than twenty four (24) inches on center. Secure the fabric to the gates and gate post at not more than fifteen (15) inches on center.

2.6.3.3 Fence fabric and yard shall be designed such that clearance under the fence will not exceed two (2) inches at any location, including access gates.

2.6.3.4 Fence posts shall be anchored in concrete of not less than 3000 psi compressive strength. The concrete shall be cast in place using round fiber forms such as Sonotube concrete forms. Depth of concrete post foundations shall not be less than four feet unless underlain by ledge.

2.6.3.5 Where ledge is encountered into the ledge not less than two (2) feet and grouted into place.

2.6.3.6 Gate thresholds shall be pre-cast or cast in place and extend not less than twelve (12) inches beyond each face of the gate.

2.6.3.7 The threshold shall be constructed as indicated in the Typical Fence Details drawing attached. The design Engineer shall determine the design details including insulation requirements, cover depth and soil properties necessary to ensure frost heaving is within tolerable limits. Frost heave control shall be determined in accordance ASCE 32-01.

2.7 LANDSCAPE DEVELOPMENT

2.7.1 Refer to earthwork sections for requirements of general excavation, filling, and grading in areas to receive landscape work.

2.7.2 Quality Assurance:

2.7.2.1 Design shall comply with applicable federal, state, county, and local regulations and permits governing landscape materials and work. Permit requirements may supersede this specification.

2.7.2.2 Products incorporated into the design shall be as recommended by the Local County Extension Service or a Registered Landscape Architect.

2.7.3 Seeds-Selection of grass seed mixture shall be made in accordance with seeding requirements as specifically required by the approved project permits, or as provided in the State Best Management Practices for the substation locale.

2.7.4 Site grading shall be designed in such a way as to utilize as much existing topsoil as possible for use as loam. Additional topsoil meeting the State DOT material specifications shall be provided.

2.7.5 Topsoil shall be from local sources or from areas having similar soil characteristics to that found at the Site of work. Topsoil shall be from naturally well drained sites where topsoil occurs in depth of not less than four inches. Topsoil shall not be obtained from bogs or marshes.

2.7.6 The natural topsoil and topsoil imported to the site shall be fortified with soil amendments including Lime, Fertilizer, and trace minerals meeting the material specifications of the State DOT. Application rates of soil amendments shall be per County Extension Service test results from representative topsoil samples or as otherwise recommended by testing performed by a Registered Landscape Architect. For small sites less than one acre of landscape development, apply the soil amendments at a rate as recommended by the local county extension service, soil testing is not required.

2.7.7 Prepare planting beds in accordance with the Best Management Practices requirement if provided, or as specified by the State DOT Specifications.

2.7.8 Apply seeds and mulch at rates as required by the Best Management Practices if provided, or as recommended by a Registered Landscape Architect, or the local County Extension Service.

2.7.9 Engineer shall specify that the site shall be maintained by the contractor throughout the "turf establishment period" until a satisfactory stand of plant life has been established to permanently stabilize the soil. Engineer shall determine through consultation with the local County Extension Service the appropriate planting seasons, maintenance requirements and define the "suitable stand" for the particular species and locale.

3.0 DESIGN CRITERIA

3.1 The following design criteria were considered during the development of this standard. The design criteria and assumptions listed shall be verified for applicability by the Design Engineer:

3.1.1 Frost depth not exceeding 4'-0".

3.1.2 Yard subgrade is not expansive soil.

3.1.3 Subgrade soil is inorganic clay, granular soil or rock having a bearing capacity of 2000 lb/sf or more.

3.2 SCHEDULE OF REQUIREMENTS

The following check list is provided for design QC and coordination. Any line item marked "No" or Not Applicable (N/A) shall be supported by a detailed explanation and make reference to the specific coordination with and approval by Iberdrola USA.

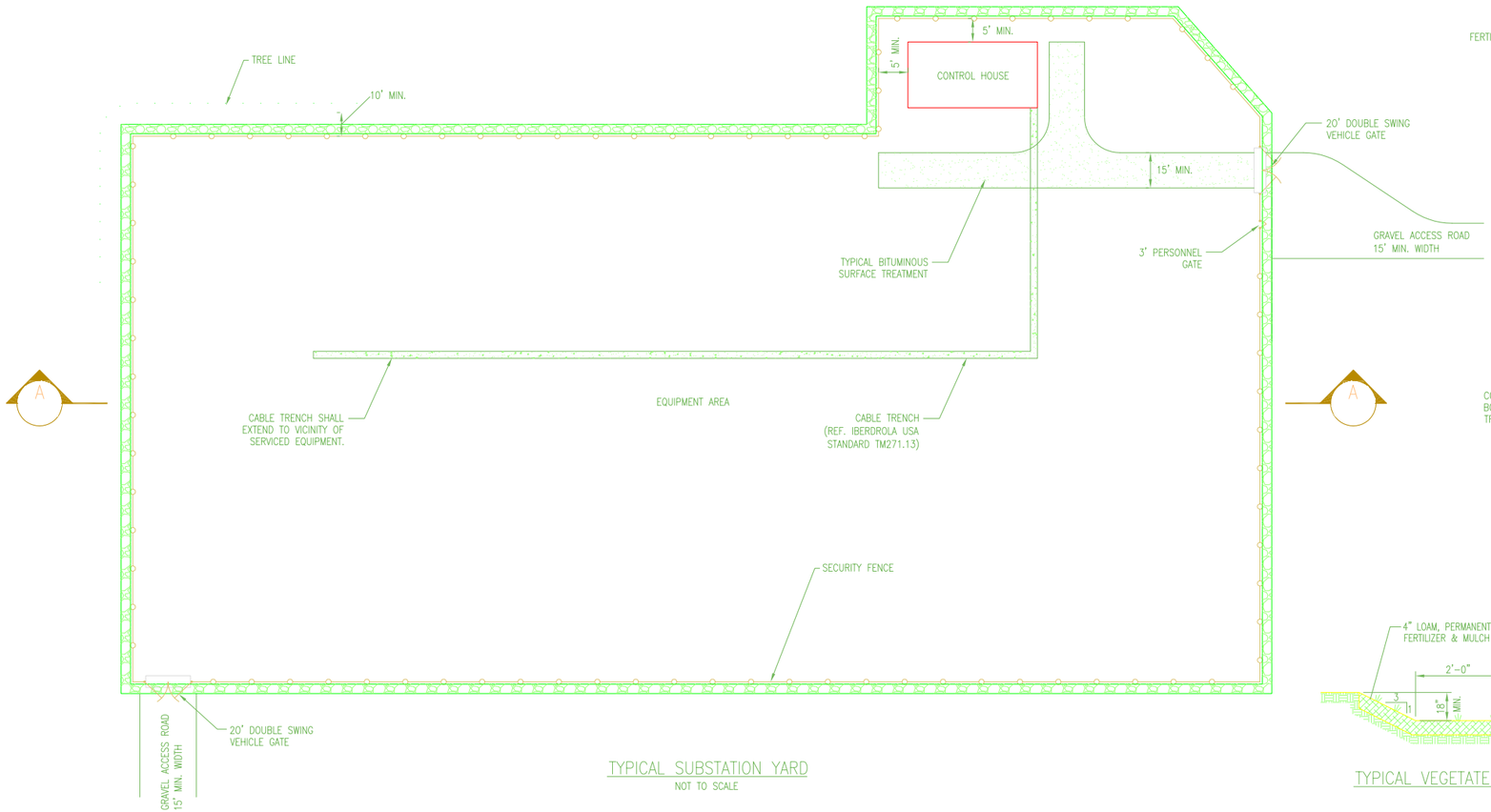
Determine whether the following design criteria can be applied to the site, based on site-specific conditions:

	Reference	Yes	No	N/A
Environmental Controls	2.1			
Clearing	2.2			
Site Design	2.3			
Surface and Subsurface Drainage	2.4			
Earthwork	2.5			
Fencing	2.6			
Landscape Development	2.7			
Frost depth does not exceed 4'-0"	3.1.1			
Yard subgrade is not expansive soils	3.1.2			
Subgrade soil is inorganic clay, granular soil, or rock having a bearing capacity of 2000 lb/sf or more	3.1.3			

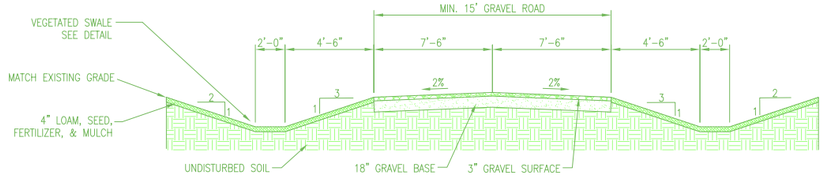
For any design criterion above that cannot be applied to the site, please provide the following:

1. Provide an explanation for why the criterion cannot be applied.
2. Describe the proposed alternative design to address the condition.

END OF STANDARD



TYPICAL SUBSTATION YARD
NOT TO SCALE



TYPICAL ACCESS ROAD SECTION
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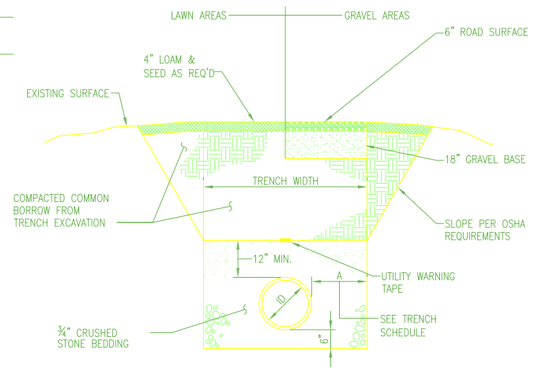


TRENCH SCHEDULE

ID	A (MIN.)
4"–12"	0'–10"
15"	0'–10"
18"	0'–10"
24"	0'–6"
30"	0'–6"
36"	0'–6"

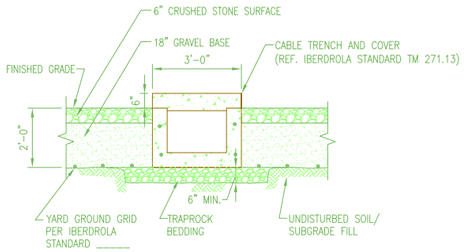
NOTE: SHORE TRENCH EXCAVATION AS REQUIRED TO MINIMIZE EXCAVATION AND IMPACTS TO ADJACENT UTILITIES STRUCTURES OR PAVEMENT. TRENCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH OSHA REQUIREMENTS.

TYPICAL PIPE TRENCH SECTION
NOT TO SCALE

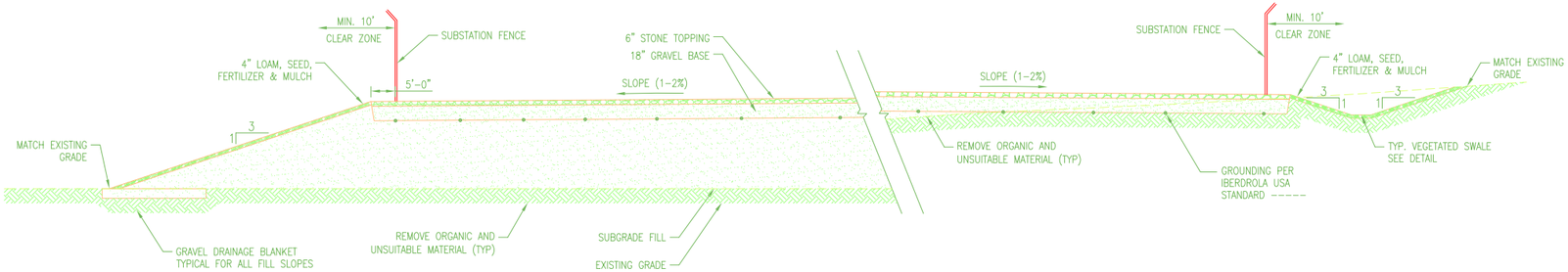
TYPICAL VEGETATED SWALE

NOTE:

1. PROVIDE SWALE AT ALL CUT AREAS. SWALE NOT REQUIRED AT FILL SLOPES.



TYPICAL CABLE TRENCH INSTALLATION
NOT TO SCALE



A TYPICAL YARD SECTION
NOT TO SCALE

NOTES:

1. THE SUBSTATION DEPICTED IS FICTITIOUS AND USED ONLY TO CONVEY CONCEPTS AND CRITERIA ADDRESSED IN THE YARD AND FENCING STANDARD (TM 2.71.09).
2. REFER TO IBERDROLA USA STANDARD 2.61.00 FOR TYPICAL FOUNDATION AND SUBDRAIN CONSTRUCTION REQUIREMENTS.

REV. NO.	DATE	BY	DESCRIPTION	APP.

IBERDROLA USA

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Property of Iberdrola, USA

TYPICAL SITE LAYOUT AND CROSS SECTIONS

STATION 816 ----------, MAINE

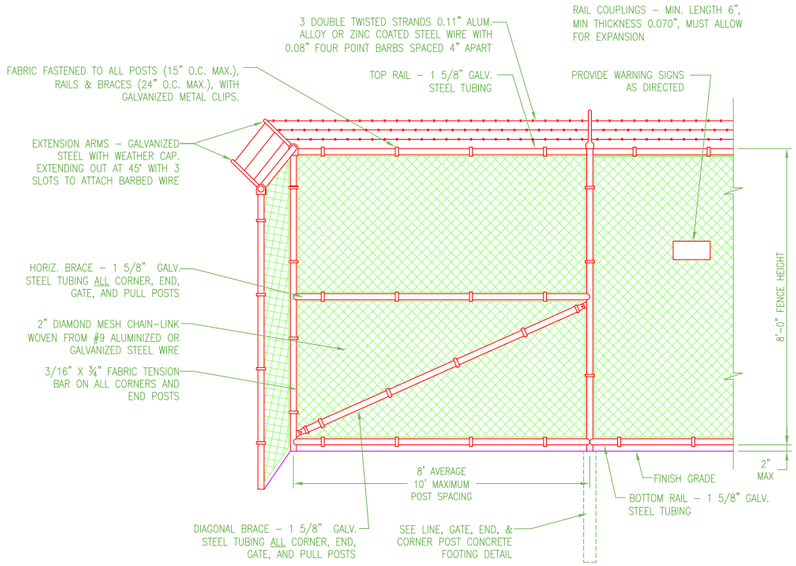
DR. TRC	DES. TRC	CK. TRC	APP. -

SCALE: AS NOTED | APPROVAL DATE: 07/15/11

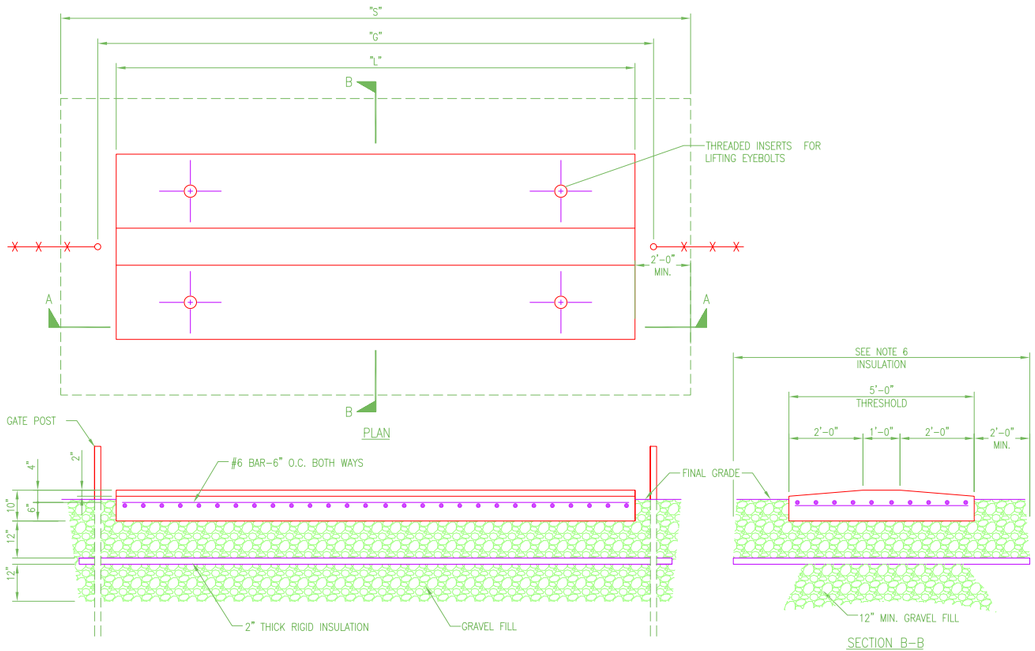
FILE: CMP - Site Layout & Details.dwg

SUBSTATION ENGINEERING | TM 2.71.09 | REV. A

VENDOR NAME: TRC SOLUTIONS, (207) 621-7089
VENDOR DRAWING #: D-1234567.DWG
CADD Drawing, DO NOT REVISE MANUALLY.



MATERIAL AND STRUCTURAL DETAILS
NOT TO SCALE

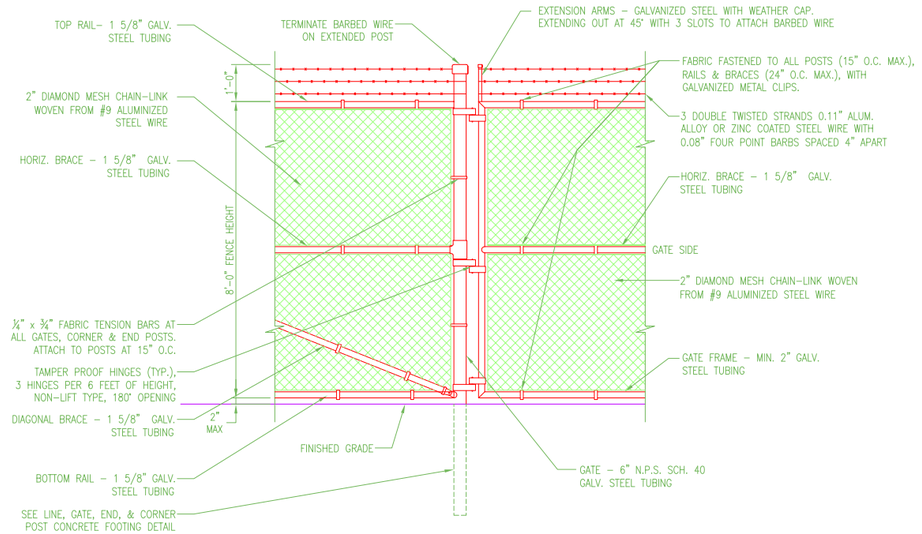


SECTION A–A

"G" GATE WIDTH (FT.)	"L" LENGTH (FT.)	"S" INSULATION (FT.)	CONCRETE VOLUME (CU YDS)	REBAR (FT.)	THRESHOLD WEIGHT (LBS.)
20	19	SEE NOTE 6	2.70	337	10350

NOTES:
1. CONCRETE FOR THRESHOLD MAY BE PRE–CAST OR CAST IN PLACE.
2. CHAMFER ALL EXPOSED EDGES 1".
3. 2" MINIMUM COVER ALL GRADE 60 REBAR.
4. CONCRETE SHALL BE MINIMUM 4000 P.S.I. AT 28 DAYS.
5. RIGID INSULATION: EXTRUDED POLYSTYRENE INSULATING BOARD CONFORMING TO AASHTO M230, TYPE V.
6. INSULATION SHALL BE DESIGNED PER ASCE 32–01.
7. MAX. CLEARANCE TO GATE SHALL BE 2".

SUBSTATION GATE CONCRETE THRESHOLD DETAIL
NOT TO SCALE



GATE FRAME DETAIL
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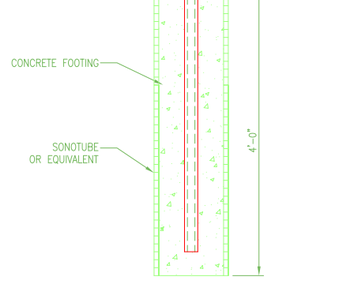
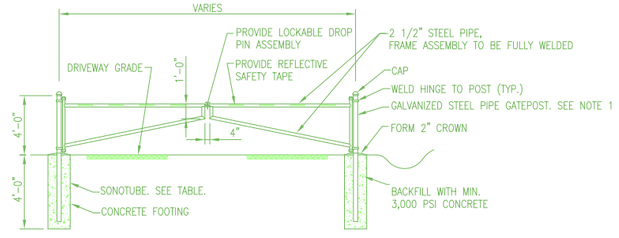


POST USE	LINE	GATE	CORNER	END
ASTM F 1043 (INCHES)	3	6	4	4
SONOTUBE SIZE (INCHES)	12	24	12	12

FOOTING NOTES:
1. UNLESS OTHERWISE INDICATED, FENCE POST SIZES ARE INDUSTRY STANDARD NOMINAL SIZES IN ACCORDANCE WITH ASTM F 1043, GALVANIZED STEEL PIPE.
2. BACKFILL SONOTUBE WITH MIN. 3,000 PSI CONCRETE.
3. ALL CONCRETE SHALL BE SINGLE POUR TO FINAL GRADE.
4. WHEN INSTALLING POSTS IN CLAY:
   - POST HOLE DEPTH SHALL BE INCREASED TO 6 FEET.
   - BACKFILL 4 FEET WITH CONCRETE.
   - BACKFILL FINAL 2 FEET WITH NATIVE SOIL.

LINE, GATE, END, & CORNER POST CONCRETE FOOTING DETAIL
NOT TO SCALE



NOTES:
1. GATE POST SHALL BE MINIMUM 4–INCH DIAMETER. LARGER POST DIAMETER SHALL BE PROVIDED IN ACCORDANCE WITH ASTM F900.

ACCESS ROAD VEHICLE GATE DETAIL
NOT TO SCALE

FENCE AND GATE NOTES:
1. ALL ITEMS SHALL BE GALVANIZED AND ZINC COATED TO ASTM SPECIFICATIONS, INCLUDING ALL POSTS, RAILS, GATES, AND HARDWARE.
2. FENCES AT CRITICAL FACILITIES SHALL INSTALL A DUAL TOP GUARD WITH ARMS EXTENDING INWARD AND OUTWARD.
3. RAZOR WIRE MAY BE USED IN PLACE OF BARBED WIRE IN HIGH RISK AREAS.
4. GATE FENCE FABRIC SHALL BE MOUNTED INSIDE THE FRAME.
5. BOLTS AND HINGES SHALL BE OF A TAMPER–PROOF TYPE.
6. EXPOSED BOLTS AND NUTS SHALL BE SPOT WELDED.
7. PROVIDE GROUNDING PER IBERDROLA STANDARD _____
8. REFER TO IBERDROLA STANDARD TM 271.13 FOR ADDITIONAL FENCE AND GATE REQUIREMENTS.

VENDOR DRAWING #: D-1234567.DWG

VENDOR NAME: TRC-SOLUTIONS, (207) 621-7089

CADD Drawing, DO NOT REVISE MANUALLY.

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REV. NO.	DATE	BY	DESCRIPTION	APP.

TYPICAL SECURITY FENCE DETAILS

STATION 816 ----------, MAINE

DR. TRC	DES. TRC	CK. TRC	APP. -

SCALE: AS NOTED APPROVAL DATE: 07/15/11

FILE: CMP - Fence Details 2011.dwg

SUBSTATION ENGINEERING | TM 2.71.13 | REV. A

Appendix E

NYSDEC Sign Requirements

SIGNS FOR REMEDIAL PROGRAMS

Instructions

Signs are required at sites where remedial activities are being performed under one of the following remedial programs: State Superfund, Voluntary Cleanup Program (VCP), Brownfield Cleanup Program (BCP), Environmental Restoration Program (ERP), Brownfield Opportunity Area (BOA) Program (note: activities under this program would be for investigation). The cost of the sign will be borne by the parties performing the remedial activities based on the legal document the activities are being performed under (i.e. volunteers/participants would pay 100% of the cost under the BCP; municipalities would be reimbursed for 90% of the cost under the ERP).

Sign Requirements

Size: Horizontal format - 96" wide by 48" high

Construction Materials: Aluminum or wood blank sign boards with vinyl sheeting.

Inserts: "Site Name", "Site Number", "Name of Party Performing Remedial Activities" and "Municipal Executive".
Indicate position, size and topography for specific inserts.

Color Scheme: Copy surrounding DEC logo - "NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION" - PMS 355

DEC logo: PMS 301 Blue
PMS 355 Green

Text:

Program (choose one):	PMS 301
Brownfield Cleanup Program	
Voluntary Cleanup Program	
Brownfield Opportunity Areas Program	
Petroleum Remediation Program	
State Superfund Program	
1996 Clean Water/Clean Air Bond Act - Environmental Restoration Program	
Site Name, Site Number, Party Performing Remedial Activities	PMS 355
Names of Governor, Commissioner, Municipal Executive	PMS 301
Transform the Past.....Build for the Future	PMS 355

Type Specifications: All type is Caslon 540, with the exception of the logotype.
Format is: center each line of copy with small caps and initial caps.

Production Notes: 96" wide x 48" high aluminum blanks will be covered with vinyl sheeting to achieve background color. Copy and logo will be silk screened on this surface.

See attached format

Program Name

Site Name

Site Number

Name of Party Performing Remedial Activities

Governor
Commissioner
Municipal Executive

Transform the Past....Build for the Future