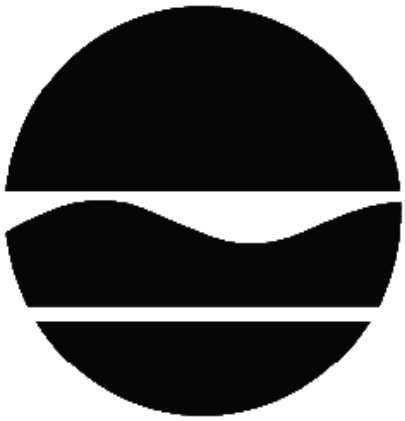
PROPOSED REMEDIAL ACTION PLAN

NYSEG - Clyde MGP
Clyde, Wayne County
Site No. 859019
December 2013



Prepared by
Division of Environmental Remediation
New York State Department of Environmental Conservation

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SECTION 1: SUMMARY AND PURPOSE OF THE PROPOSED PLAN

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), is proposing a remedy for the above referenced site. The disposal of hazardous wastes at the site has resulted in threats to public health and the environment that would be addressed by the remedy proposed by this Proposed Remedial Action Plan (PRAP). The disposal of hazardous wastes at this site, as more fully described in Section 6 of this document, has contaminated various environmental media. The proposed remedy is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This PRAP identifies the preferred remedy, summarizes the other alternatives considered, and discusses the reasons for the preferred remedy.

The New York State Inactive Hazardous Waste Disposal Site Remedial Program (also known as the State Superfund Program) is an enforcement program, the mission of which is to identify and characterize suspected inactive hazardous waste disposal sites and to investigate and remediate those sites found to pose a significant threat to public health and environment.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York; (6 NYCRR) Part 375. This document is a summary of the information that can be found in the site-related reports and documents in the document repository identified below.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all PRAPs. This is an opportunity for public participation in the remedy selection process. The public is encouraged to review the reports and documents, which are available at the following repository:

Clyde Savannah Public Library
Attn: Sue Ayers
204 Glasgow Street
Clyde, NY 14433
Phone: 315-923-7767

A public comment period has been set from:

12/23/2013 to 1/21/2014

A public meeting is scheduled for the following date:

1/8/2014 at 7:00 PM

Public meeting location:

Clyde Savannah Public Library, 204 Glasgow Street, Clyde, NY 14433

At the meeting, the findings of the remedial investigation (RI) and the feasibility study (FS) will be presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period will be held, during which verbal or written comments may be submitted on the PRAP.

Written comments may also be sent through 1/21/2014 to:

Anthony Karwiel
NYS Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, NY 12233
alkarwie@gw.dec.state.ny.us

The Department may modify the proposed remedy or select another of the alternatives presented in this PRAP based on new information or public comments. Therefore, the public is encouraged to review and comment on the proposed remedy identified herein. Comments will be summarized and addressed in the responsiveness summary section of the Record of Decision (ROD). The ROD is the Department's final selection of the remedy for this site.

Receive Site Citizen Participation Information By Email

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: The Clyde Former Manufactured Gas Plant (MGP) site is located in the Village of

Clyde. The site is 0.16 miles west of Rt.414 on the north side of the NYS Barge Canal. The property is bounded by Sodus Street to the east, Columbia Street to the north, Lock Street to the west, and the railroad to the south. The New York State Barge Canal lies on the other side of the railroad tracks.

Site Features: The site consists of two parcels of land that are owned by the New York State Electric and Gas (NYSEG). The western parcel is the location of the NYSEG Clyde Electrical Substation. The eastern parcel is vacant land and is covered by weeds, brush, and small trees. The northwestern corner of the parcel is covered by a portion of the gravel roadway which is used to access the substation. A concrete building foundation exists in the southwestern area of the parcel.

Current Zoning/Use(s): A portion of the site is an active electrical substation adjacent to vacant land and the entire site is zoned for commercial land use. The surrounding parcels are currently used for a combination of commercial and residential purposes. The nearest home is approximately 360 feet to the north on Columbia Street. Access to the site is restricted by fencing.

Past Use of the Site: The Clyde MGP was constructed in 1856 and operated as a coal gas plant until it was decommissioned in 1908. The operation of the former MGP resulted in soil and groundwater contamination at the site.

Site Geology and Hydrogeology: Unconsolidated materials consisting of fill and alluvium underlie the site. Shale bedrock is present beneath the alluvium at depths ranging from 13 to 25 feet. The depth to the groundwater table at the site ranges from 1 to 7 feet below the ground surface (bgs). The groundwater flows from north to the south across the site towards the NYS Barge Canal.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to commercial use (which allows for industrial use) as described in Part 375-1.8(g) are/is being evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the investigation to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is included in the Tables for the media being evaluated in Exhibit A.

SECTION 5: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The PRPs for the site, documented to date, include:

NYSEG

The Department and the New York State Electric and Gas (NYSEG) entered into a multi-site Consent Order on March 30, 1994. The Order obligates the responsible parties to implement a full remedial program.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A Remedial Investigation (RI) has been conducted. The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The field activities and findings of the investigation are described in the RI Report.

The following general activities are conducted during an RI:

- Research of historical information,
- Geophysical survey to determine the lateral extent of wastes,
- Test pits, soil borings, and monitoring well installations,
- Sampling of waste, surface and subsurface soils, groundwater, and soil vapor,
- Sampling of surface water and sediment,
- Ecological and Human Health Exposure Assessments.

The analytical data collected on this site includes data for:

- groundwater
- surface water
- soil
- sediment
- soil vapor

6.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform to promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, Criteria and Guidance are hereafter called SCGs.

To determine whether the contaminants identified in various media are present at levels of

concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. The tables found in Exhibit A list the applicable SCGs in the footnotes. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

6.1.2: RI Results

The data have identified contaminants of concern. A "contaminant of concern" is a hazardous waste that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized in Exhibit A. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

COAL TAR	benzene, toluene, ethylbenzene and xylenes
NAPHTHALENE	(BTEX)

As illustrated in Exhibit A, the contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil

6.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Record of Decision.

There were no IRMs performed at this site during the RI.

6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water.

Based upon the resources and pathways identified and the toxicity of the contaminants of ecological concern at this site, a Fish and Wildlife Resources Impact Analysis (FWRIA) was deemed not necessary for OU 01.

Based upon the resources and pathways identified and the toxicity of the contaminants of ecological concern at this site, a Fish and Wildlife Resources Impact Analysis (FWRIA) was deemed not necessary for OU 01.

Based on investigations conducted to date, the primary contaminants of concern at this site include coal tar, BTEX, and polycyclic aromatic hydrocarbon (PAHs).

Surface Soil – No BTEX, other volatile organic compounds (VOCs) or cyanide were detected in any of the on-site surface soil samples at concentrations greater than the commercial use soil cleanup objectives (SCOs). Total PAHs were detected at concentrations ranging from 4.8 ppm to 79 ppm, while arsenic was detected at concentrations ranging from 19 ppm to 40 ppm (vs. the SCO of 16 ppm). Surface soil contamination does not appear to extend off-site.

Subsurface Soil – Coal tar impacts were found in subsurface soil primarily at areas near the former MGP structure foundations. Fifty six of 74 samples analyzed had concentrations of individual VOCs exceeding the Protection of Groundwater SCOs. The highest total BTEX concentration detected was 1,298 ppm for a sample located in the central area of the MGP building foundation. The highest total PAH concentrations found in the subsurface soil is 7,113 ppm. Five of the 74 samples had metals concentrations exceeding the commercial use SCOs. Two of the samples had total cyanide in concentrations exceeding the commercial use SCOs. The highest concentration of total cyanide (47 ppm vs. the SCO of 27 ppm) was found in the former gas holder foundation. Subsurface soil contamination does not appear to extend off-site.

Groundwater - Twelve of 36 samples collected at the site had concentrations of individual VOCs exceeding the SCGs. Eight of the 36 samples collected at the site had concentrations of individual SVOCs exceeding the SCGs. The highest concentrations of total BTEX (14,600 ppb) and total PAHs (3,412 ppb) were detected near and down-gradient of the former MGP building and gas holder foundation. None of the groundwater samples collected at the site had concentrations of cyanide above the SCGs. With one exception, PAHs and BTEX compounds were not detected at any of the off-site wells locations. PAHs and total BTEX were detected on the railroad parcel approximately 75 feet downgradient of the site boundary. At this location total BTEX was present at a concentration of 27 ppm. All PAH concentrations were below their respective groundwater standard or guidance values.

Soil Vapor - A soil gas survey was performed in October 1991. The survey was conducted to delineate potential zones of VOC contamination associated with past MGP activities. Eighty five samples were collected, from a 25 foot on-center grid pattern, and analyzed by comparing headspace photovac meter values to chromatogram standards. There are no existing structures at the site and the current site use as an electric substation is anticipated to remain the same in the foreseeable future. Therefore additional soil vapor samples were not obtained during the remedial investigations. Soil vapor evaluation will be conducted if and when there is future site development.

Surface water and Sediment: Three samples each were collected from the NYS Barge Canal surface water and sediment and analyzed for PAHs and VOCs. The sampling results indicate that PAHs and VOCs were not detected in any of the samples.

6.4: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure.*

Access to the site is unrestricted. However, contact with contaminated soil or groundwater is unlikely unless people dig below the ground surface. People are not drinking contaminated groundwater associated with the site because the area is served by a public water supply that obtains its water from a different source not affected by this contamination. Volatile organic compounds in the groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. The inhalation of site-related contaminants due to soil vapor intrusion does not represent a current concern because the site is not occupied. Environmental sampling indicates soil vapor intrusion is not a concern for off-site buildings.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil Vapor

RAOs for Public Health Protection

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

SECTION 7: SUMMARY OF THE PROPOSED REMEDY

To be selected, the remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. The remedy must also attain the remedial action objectives identified for the site, which are presented in Section 6.5. Potential remedial alternatives for the Site were identified, screened and evaluated in the FS report.

A summary of the remedial alternatives that were considered for this site is presented in Exhibit B. Cost information is presented in the form of present worth, which represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved. A summary of the Remedial Alternatives Costs is included as Exhibit C.

The basis for the Department's proposed remedy is set forth at Exhibit D.

The proposed remedy is referred to as the Soil Removal, Cover System, Enhanced Biodegradation, and Institutional Controls remedy.

The estimated present worth cost to implement the remedy is $3,520,000. The cost to construct the remedy is estimated to be $2,660,000 and the estimated average annual cost is $14,000.

The elements of the proposed remedy are as follows:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;

- considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- reducing direct and indirect greenhouse gases and other emissions;
- increasing energy efficiency and minimizing use of non-renewable energy;
- conserving and efficiently managing resources and materials;
- reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- maximizing habitat value and creating habitat when possible;

- fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Excavation and off-site disposal of on-site contaminant source areas, including grossly contaminated soil as defined in 6NYCRR Part 375-1.2(u); soil containing SVOCs exceeding 500 ppm; and soils that create a nuisance condition, as defined in Commissioner Policy CP-59, Section G. Approximately 7,000 cubic yards of soil will be removed from the ground surface to the top of bedrock, which is located approximately 19 feet below grade, and treated off-site at a low temperature thermal desorption (LTTD) facility. The excavation will require the relocation of overhead and underground utilities and removal of the former MGP building and gas holder foundations, including associated piping.

3. Clean fill meeting the requirements of 6NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil or complete the backfilling of the excavation and established the designed grades at the site. On-site soil which does not exceed SCOs, for the use of the site and/or the protection of groundwater, may be used to backfill the excavation below the cover system described in remedy element 5. The site will be re-graded to design grade and to accommodate installation of a cover system as described in remedy element number 5. Soil derived from the re-grading at other areas of the site not subject to excavation, meeting the requirements of 6NYCRR 375-6.7(d), may be used to backfill the excavation.

4. In-situ enhanced biodegradation will be employed to treat contaminants in groundwater in an area to be determined following the removal described in remedy element number 2. The biological breakdown of contaminants through aerobic respiration will be enhanced by the placement of an oxygen release compound (ORC), or similar material, into the subsurface. The method and depth of injection will be determined during the remedial design.

5. A site cover will be required to allow for commercial use of the site. The cover will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where the soil cover is required it will be a minimum of one foot of soil meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for commercial use. The soil cover will be placed over a demarcation layer as necessary, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

6. Imposition of an institutional control in the form of an environmental easement for the controlled property that:
a) requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
b) allows the use and development of the controlled property for commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;

c) restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
d) requires compliance with the Department approved Site Management Plan.

7. A Site Management Plan is required, which includes the following:

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

Institutional Controls: The Environmental Easement discussed in Paragraph 6 above.

Engineering Controls: The site cover discussed in Paragraph 5 above.

This plan includes, but may not be limited to:

•an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;

•a provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site in the future, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;

•descriptions of the provisions of the environmental easement, including any land use and groundwater use restrictions;

•provisions for the management and inspection of the identified engineering controls;

•maintaining site access controls and Department notification; and

•the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

•monitoring of groundwater to assess the performance and effectiveness of the remedy;

•monitoring for vapor intrusion for any buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above;

•a schedule of monitoring and frequency of submittals to the Department;

•maintaining site access controls and Department notification; and

•providing the Department access to the site and O&M records.

Exhibit A

Nature and Extent of Contamination

This section describes the findings of the Remedial Investigation for all environmental media that were evaluated. As described in Section 6.1, samples were collected from various environmental media to characterize the nature and extent of contamination.

For each medium for which contamination was identified, a table summarizes the findings of the investigation. The tables present the range of contamination found at the site in the media and compares the data with the applicable SCGs for the site. The contaminants are arranged into volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and inorganics (metals and cyanide). For comparison purposes, the SCGs are provided for each medium that allows for unrestricted use. For soil, if applicable, the Restricted Use SCGs identified in Section 4 and Section 6.1.1 are also presented.

Waste/Source Areas

As described in the RI report, waste/source materials were identified at the site and are impacting groundwater and soil.

Wastes are defined in 6 NYCRR Part 375-1.2(aw) and include solid, industrial and/or hazardous wastes. Source Areas are defined in 6 NYCRR Part 375(au). Source areas are areas of concern at a site were substantial quantities of contaminants are found which can migrate and release significant levels of contaminants to another environmental medium. Wastes and source areas identified at the site include black, hardened coal tar observed from 1 to 1.3 feet below ground surface (bgs), and coal tar saturated soil observed from 4 to 6 feet bgs. Test pit TP11 was excavated in the central area of the MGP building, in the former retort and generator areas. Coal tar non-aqueous phase liquid (NAPL) mixed within the soil matrix was observed from 4.5 to 6 feet bgs at this location. Coal tar NAPL mixed in the fill material was observed inside the former holder foundation, at the floor of the holder. Subsurface sampling has identified coal tar NAPL mixed in the fill and soil matrix in the former gas production area. Soil borings advanced in all directions from this area have defined the horizontal extent of the coal tar NAPL impacts. Coal tar NAPL mixed in the fill or soil matrix was not observed off-site (see Figure 5).

The waste/source areas identified will be addressed in the remedy selection process.

Groundwater

Groundwater at the site was observed to occur at a depth of about 1 to 7 feet bgs, with flow to the south, towards the NYS Barge Canal. Groundwater samples were collected from overburden and bedrock monitoring wells to assess groundwater conditions on and off-site. The sampling results indicate that contamination in shallow groundwater and in bedrock at the site, exceed the SCGs for volatile organic compounds and semi-volatile organic compounds (see Figure 5). The footprint of the impacted groundwater plume generally corresponds to the area where coal tar NAPL was observed in subsurface soil (see Figure 3). Groundwater impacts are limited to on-site, with the exception of one downgradient area on the adjacent railroad corridor where a low level groundwater impact was detected. Groundwater is not used for potable water supply. The Village of Clyde obtains its drinking water from an upgradient source approximately five miles from the site.

Table #1 - Groundwater

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG (ppb)[b]	Frequency Exceeding SCG
VOCs			
Benzene	ND – 9000	1	10/36
Ethyl benzene	ND - 1100	5	5/36
Toluene	ND –2000	5	4/ 36
Xylenes	ND - 2500	5	7/36
Isopropyl bezene	ND - 39	5	3/20
SVOCs			
Acenaphthene	ND - 100	20	5/36
Benz[a]anthracene	ND - 12	0.002	3/36
Benzo[a]pyrene	ND - 12	ND	2/36
Naphthalene	ND - 3000	10	7/36
Phenanthrene	ND - 120	50	3/36
Pyrene	ND - 70	50	1/36
2,4Dimethylphenol	ND - 4100	50	1/36

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.
b- SCG: Standard Criteria or Guidance - Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1), 6 NYCRR Part 703, Surface water and Groundwater Quality Standards, and Part 5 of the New York State Sanitary Code (10 NYCRR Part 5).

Based on the findings of the RI, the past disposal of hazardous waste has resulted in the contamination of groundwater. The site contaminants that are considered to be the primary contaminants of concern which will drive the remediation of groundwater to be addressed by the remedy selection process are: benzene, toluene, ethylbenzene, xylene and naphthalene.

Soil

Surface and subsurface soil samples were collected at the site during the RI. Surface soil samples were collected from depths of 0-6 inches in 1991-1992, and 0-2 inches in 2011 to assess direct human exposure. Subsurface soil samples were collected from depths of 4-21 feet bgs to assess the nature and extent of soil impacts. The sampling results indicate that soils at the site exceed the unrestricted SCOs and in some areas exceed the commercial SCOs for volatile and semi-volatile organics (SVOCs) and metals. Coal tar impacted soils were

found at depths ranging from 4 feet bgs to the bedrock (bedrock was found at depths ranging from 12 feet to 24.8 feet bgs). The concentrations of SVOCs in subsurface soil ranged from 820 to 7,113 ppm. The site contaminants identified in soil which are considered to be the primary contaminants of concern; to be addressed by the remedy selection process are, polycyclic aromatic hydrocarbons (PAHs); and benzene, toluene, ethylbenzene, xylene (BTEX).

Table #2 - Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Commercial Use SCG[c] (ppm)	Frequency Exceeding Commercial SCG
VOCs					
Benzene	ND - 150	0.06	18/87	44	2/87
Toluene	ND - 420	0.7	12/87	500	0/87
Ethylbenzene	ND - 50	1	12/87	390	0/87
Total Xylene	ND - 680	0.26	17/87	500	2/87
Acetone	ND - 0.54	0.05	14/87	500	0/87
PAHs					
Acenaphthnene	ND - 120	20	5/87	500	0/87
Acenaphthylene	ND - 490	100	3/87	500	0/87
Anthracene	ND -410	100	3/87	500	0/87
Benz(a)anthracene	ND -260	1	31/87	5.6	19/87
Benzo(a)pyrene	ND -170	1	29/87	1	29/87
Benzo(b)fluoranthene	ND -170	1	30/87	5.6	18/87
Benzo(k)fluoranthene	ND -88	0.8	27/87	56	1/87
Chrysene	ND -210	1	30/87	56	2/87
Dibenz(a,h)anthracene	ND -23	0.33	18/87	0.56	15/87
Fluoranthene	ND - 570	100	4/87	500	1/87
Fluorene	ND - 460	30	6/87	500	0/87
Indeno(1,2,3-cd)pyrene	ND -74	0.5	29/87	5.6	13/87
Naphthalene	ND -1900	12	15/87	500	3/87
Phenanthrene	ND -910	100	6/87	500	2/87
Pyrene	ND-430	100	4/87	500	0/87
Total PAH	**ND- 10,642**	NA	NA	**500**	**8/87**
Inorganics					
Arsenic	0.61-19.2	13	6/87	16	3/87
Barium	13.6 - 6120	350	2/87	400	2/87
Cadmium	0.089 - 12.6	2.5	2/87	9.3	1/87
Copper	2.4 - 1840	50	8/87	270	3/87
Lead	0.79 - 13600	63	18/87	1000	1/87
Mercury	0.0089 - 0.6	0.18	12/87	2.8	0/87

Total Cyanide	0.68 - 47	27	2/87	27	2/87

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.
c - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Public Health for Commercial Use, unless otherwise noted.
d - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Groundwater.

The primary soil contaminants are PAHs associated with residues from the operation of the former MGP. The primary soil contamination is detected in close proximity to the former MGP structures including the gas holders, tar tanks, and area of coal usage/storage.

Metals contamination in soil is associated with historic fill activity at the site. Disposal of ash, clinker, and coal has resulted in inorganic soil contamination above the unrestricted SCGs. However, the inorganic concentrations are consistent with commonly measured urban background concentrations and are not necessarily associated with the coal tar constituents. Therefore, metals contamination is not considered site specific contaminant of concern.

Based on the findings of the Remedial Investigation, the past disposal of hazardous waste has resulted in the contamination of soil. The site contaminants identified in soil which are considered to be the primary contaminants of concern, to be addressed by the remedy selection process are BTEX and PAHs.

Surface Water

Surface water sampling was performed in the NYS Barge Canal to the south of the Railroad corridor parcel. Elevated concentrations of contaminants of concern (COC) were not identified in this media. A pathway for residuals to migrate to the canal area was not identified, and the canal area has been demonstrated to be outside of the area of MGP-related impacts.

No site-related surface water contamination of concern was identified during the RI. Therefore, no remedial alternatives need to be evaluated for surface water.

Sediments

Sediment samples were collected during the RI from the locations upstream, adjacent and downstream of the site along the NYS Barge Canal (see Figure 4). The samples were collected to assess the potential for impacts to canal sediment from the site. The results indicate that VOCs, SVOCs, and cyanide were not detected in any of the samples. Arsenic impacted sediment was found upstream and adjacent to the site, and appears to be associated with urban runoff. Arsenic was detected at sample locations SE1at a concentration of 9.9 mg/kg, and at SE2 at a concentration of 9.3 mg/kg. These concentrations are only slightly greater than the Effects Range-Low (ER-L) guidance value of 8.2 mg/kg. The Effects Range-Low indicates a level of sediment contamination that can be tolerated by the majority of benthic organisms, but still causes toxicity to a few species. The Effects Range- Median (ER-M) indicates the concentration at which pronounced disturbance of the sediment dwelling community can be expected. Therefore, arsenic in sediment is not considered a site specific contaminant of concern.

No site-related sediment contamination of concern was identified during the RI. Therefore, no remedial alternatives need to be evaluated for sediment.

Soil Vapor Intrusion

A soil gas survey was performed in October 1991 to delineate potential zones of VOC contamination associated with past MGP activities. Eighty five samples were taken from a 25 foot on-center grid pattern, and analyzed by comparing headspace photovac meter values to chromatogram standards. There are no existing structures at the site and the current site use as an electric substation is anticipated to remain the same in the foreseeable future.

Exhibit B

Description of Remedial Alternatives

The following alternatives were considered based on the remedial action objectives (see Section 6.5) to address the contaminated media identified at the site as described in Exhibit A.

Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative leaves the site in its present condition and does not provide any additional protection to public health and the environment. The No Action alternative does not include long-term monitoring and therefore has no cost associated with it.

Alternative 2: Soil Cover, Natural Attenuation, Institutional Controls

This alternative will include the following components:

- Site re-grading to accommodate a 1 foot thick clean soil cover meeting the SCOs specified in 6 NYCRR Part 375-6.7(d) for commercial use;
- Natural attenuation of contaminants in overburden and bedrock groundwater;
- Development of a site management plan to 1)implement site and groundwater use restrictions, maintain the fence around the electrical substation, and perform long-term groundwater monitoring to determine the effectiveness of the remedy; 2)an excavation plan for management of future excavations in areas of remaining contamination, 3) a provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site in the future, including provision for implementing actions recommended to address exposures related to soil vapor intrusion; and
- Establishment of an institutional control in the form of environmental easement that restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH.

Present Worth: *$450,000*
Capital Cost: *$107,200*
Annual Costs: *$14,000*

Alternative 3: In-situ Soil Solidification, Natural Attenuation, IC/ECs

This alternative will include the following components:

- In-situ solidification (ISS) of soil exceeding 500 mg/kg total PAHs at depths ranging from 4 feet bgs to the top of bedrock. ISS is a process that binds the soil particles in place creating a low permeability mass. The contaminated soil will be mixed in place together with solidifying agents (typically portland cement) or other binding agents using an excavator or augers. The soil and binding agents are mixed to produce a solidified mass resulting in a low permeability monolith. The solidified mass will then be covered with a cover system to prevent direct exposure to the solidified mass. The resulting solid matrix reduces or eliminates mobility of contamination and reduces or eliminates the matrix as a source of

groundwater contamination. Relocation of electrical transmission, distribution, and communication lines to allow clearance for the ISS equipment;

- Removal of approximately 2,000 cubic yards of soil and debris from the ISS area for off-site disposal and/or treatment at a permitted thermal desorption facility. The existing former MGP building and gas holder foundations and the associated piping will be removed for off-site disposal;
- Site re-grading and placement of a 1 foot thick clean soil cover meeting the SCOs specified in 6 NYCRR Part 375-6.7(d) for commercial use;
- Natural Attenuation of contaminants in overburden and bedrock groundwater;
- Development of a site management plan to 1) implement site and groundwater use restrictions, maintain the fence around the electrical substation, and perform long-term groundwater monitoring to determine the effectiveness of the remedy; 2)an excavation plan for management of future excavations in areas of remaining contamination, 3) a provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site in the future, including provision for implementing actions recommended to address exposures related to soil vapor intrusion; and
- Establishment of an institutional control in the form of environmental easement that restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH.

The cost to implement Alternative 4 is estimated as follows:

Present Worth: *$2,600,000*
Capital Cost: *$1,900,000*
Annual Costs: *$14,000*

Alternative 4: Soil Removal, Cover, Groundwater Monitoring, Enhanced Biodegradation and Institutional Controls

This alternative will include the following components:

- Excavation of approximately 7,000 cubic yards of MGP-related source material, removal of the existing former MGP building, gas holder foundations and associated piping. Soil exceeding 500 mg/kg of total PAHs and other source material will be removed to the top of bedrock to the extent feasible. The excavated material will be treated off-site at a low temperature thermal desorption (LTTD) facility. Debris will be transported to a local landfill or waste-to-energy facility for disposal in accordance with applicable requirements;
- Backfilling the excavated area with soil meeting the requirements of 6 NYCRR Part 375-6.7(d), blended with an oxygen additive product to enhance natural aerobic biodegradation of contaminants in overburden and bedrock groundwater. A one foot soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer;
- Development of a site management plan to, 1) implement site and groundwater use restrictions, maintain the fence around the electrical substation, and perform long-term groundwater monitoring to determine the effectiveness of the remedy; 2) an excavation plan for management of future excavations in areas of remaining contamination, 3) a provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site in the future, including provision for implementing actions recommended to address exposures related to soil vapor intrusion. and

- Establishment of an institutional control in the form of environmental easement that restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH.

The cost to implement Alternative 4 is estimated as follows:

Present Worth: $3,520,000
Capital Cost: $2,660,000
Annual Costs: $14,000

Alternative 5: Soil Removal to Unrestricted Conditions

This alternative achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A and soil meets the unrestricted soil clean objectives listed in Part 375-6.8 (a).

This alternative would include the following components:

- Removal and reconstruction of the electrical substation;
- Removal of the existing former MGP Building and Gas Holder foundations and the associated MGP piping;
- Excavation and off-site disposal of soil that exceeds the soil cleanup objectives for unrestricted use of the site;
- Disposal of excavated material in a permitted off-site landfill or treatment at an off-site thermal desorption facility;
- Backfilling the excavated areas with soil meeting the requirements of 6 NYCRR Part 375-6.7(d) for unrestricted use of the site;
- In-situ bioremediation of contaminants in bedrock groundwater; and
- Monitoring of groundwater in fractured bedrock to determine the effectiveness of the remedy.

The cost to implement Alternative 5 is estimated as follows:

Present Worth: $10,920,000
Capital Cost: $8,850,000
Annual Costs: $8,500

Exhibit C

Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
Alternative 1 - No Action	0	0	0
Alternative 2 - Soil Cover, MNA, IC/ECs	$107,200	$14,000	$450,000
Alternative 3 - ISS, MNA, IC/ECs	$1,900,000	$14,000	$2,600,000
Alternative 4 - Soil Removal, Cover, Groundwater Monitoring, Enhance Biodegradation and IC/ECs	$2,660,000	$14,000	$3,520,000
Alternative 5 - Soil Removal to Unrestricted Conditions	$8,850,000	$8,500	$10,920,000

Exhibit D

SUMMARY OF THE PROPOSED REMEDY

The Department is proposing Alternative 4, Soil Removal, Cover, Groundwater Monitoring and IC/ECs as the remedy for this site. Alternative 4 would achieve the remediation goals for the site by reducing the volume, toxicity and mobility of contaminated material due to removal and off-site disposal and/or treatment of contaminated source material. The proposed remedy will reduce the source of contamination to groundwater. The elements of this remedy are described in Section 7. The proposed remedy is depicted in Figure 6.

Basis for Selection

The proposed remedy is based on the results of the RI and the evaluation of alternatives. The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375. A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

Alternative 1 (No Action) does not include active remedial actions and thus will not provide any additional protection to human health and the environment compared to what currently exists. Additionally, this alternative will not comply with SCGs; since source material will remain in place and continue to pose threat to both human health and the environment. Therefore, Alternative 1 is eliminated from further evaluation.

Alternative 2, Soil Cover, Groundwater Monitoring and Institutional Controls, would protect human health by preventing direct exposure to contaminants in both soil and groundwater. However, the environment would not be protected because source material would remain in place and continue to impact groundwater. Based on this, Alternative 2 is eliminated from further evaluation.

Alternatives 3, 4 and 5 will all provide comparable levels of protection to public health and the environment and were retained for further evaluation.

Alternative 3, In-situ Soil Solidification, Natural Attenuation and Institutional/Engineering Controls, will provide some protection to the environment. Under this alternative, impacted materials will be solidified and covered, reducing direct contact with COCs in subsurface soil, and institutional controls would prevent potential exposure to the COCs that will remain on site in the solidified mass. Alternative 3 would also protect the environment by treating source material to prevent further leaching of contaminants into groundwater and by treating contaminated groundwater in place. Alternative 4, Soil Removal and Soil Cover, will protect human health by preventing exposures, and protect the environment by removing source material from the site and treating groundwater in place. Alternative 5, which provides for the total removal and off-site treatment and/or disposal of MGP impacted material will provide the highest level of protection compared to the other alternatives.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In

addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

Alternative 3 conforms to the applicable soil SCGs through the implementation of ISS. ISS is a process that binds the soil particles in place creating a low permeability mass. The resulting solid matrix reduces or eliminates mobility of contamination and reduces or eliminates the matrix as a source of groundwater contamination. Alternative 4 conforms to the soil SCGs for commercial use of the site through the removal of MGP-related source material. Alternative 5 will achieve soil SCGs for unrestricted use by the removal of soils exceeding the SCOs for unrestricted use. For Alternatives 3, 4, and 5, the SCGs for groundwater would be achieved through the treatment or removal of source material to prevent further leaching of contaminants from source material and treating groundwater in place to achieve ambient water quality standards. Groundwater concentrations of COCs are anticipated to be reduced by natural attenuation mechanism in the overburden and bedrock units over time to concentrations that comply with groundwater standards and guidance values.

The next six "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

Alternative 3 will provide some long-term effectiveness and permanence because the source material and COCs will be solidified by the ISS process to permanently prevent leaching to groundwater. The engineering and institutional controls required to address the remaining contamination are adequate and reliable.
Alternative 4 will provide greater long-term effectiveness because the source material will be removed and disposed of off-site. The lower levels of contamination that would remain would also be managed by the soil cover and institutional controls, which are adequate and reliable. Long-term effectiveness is best achieved by Alternative 5, since all contaminated material will be removed from the site to achieve the unrestricted use SCOs, although this increase in effectiveness is minor in comparison to Alternative 4. For alternatives 3, 4, and 5, the long-term effectiveness of the groundwater treatment components are equivalent.

4. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

Alternative 3 will provide significant reduction of mobility and toxicity of the COCs by the physical solidification of the soil by ISS; however, it will not reduce the volume of impacted material as the ISS material will remain in place at this site in the solidified mass. Alternative 4 will provide significant reduction in toxicity, mobility and of the volume of COCs present at the site by the removal of impacted soil and source material. Alternative 5 will provide the greatest reduction of toxicity, mobility and volume of contaminants by removing all contaminants that exceed pre-disposal conditions from the site.

5. Short-term Impacts and Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

Alternatives 3, 4 and 5 will all have short-term impacts to the community and workers due to construction activities. Alternative 3, which addresses the impacted material by ISS, will generate spoils and possibly odors during the construction. Alternative 4, which targets excavation of a smaller amount of higher levels of contamination compared to Alternative 5, involves fewer impacts to the community, such as traffic, noise, and the potential for dust and odors. Alternative 4 is slightly more sustainable than alternative 5, since it will result in significant lesser use of landfill space and reduction of carbon footprint due to lesser material handling and transportation. Alternative 5, which calls for total removal of impacted materials to restore the site to pre-disposal conditions will result in a larger amount of excavated material in need of transport through the community for off-site treatment and/or disposal, and thus has the greatest short term impacts. Excavation to such deeper depth will result in significant disruption to the community and nearby commercial establishments as a result of the need for large scale dewatering, treatment and disposal of water. Alternative 5 will also require relocation of the electric substation and generate a longer duration of noise and heavy truck traffic compared to Alternative 4. Alternatives 3 and 4 can be completed in one construction season. Alternative 5 may require an additional construction season to dismantle and reconstruct the substation.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

Alternatives 3, 4 and 5 are all readily implementable but with varied degrees of difficulties. Alternative 5, with the demolition and subsequent reconstruction of the electrical substation will be the most challenging to design and construct. Personnel, equipment and technology required to accomplish excavation are easily available. In-situ soil solidification is somewhat more difficult to implement due to the limited number of contractors available to complete this method of remediation and the need for pilot testing of the solidification mixtures. Dewatering associated with Alternatives 4 and 5, due to deeper and full depth and volume of removal will be challenging to accomplish. Excavation and off-site treatment and disposal are reasonably available resources. Dealing with subsurface utilities and public roadways will present additional challenges in implementing Alternatives 3, 4, and 5.

7. Cost-Effectiveness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision.

The costs of the alternatives vary significantly. Alternative 3 has the lowest cost of the three alternatives being considered, but will leave solidified source material in place. With the dismantling and reconstruction of the electrical substation to be handled (to meet unrestricted use), Alternative 5 will have highest present worth cost. Though Alternative 5 will result in significant reduction in the volume of contaminated materials, it will only provide minor additional protection of public health and the environment over Alternative 4 because the additional excavated material contains low levels of contamination. The increase of over 250 percent compared to the cost to implement Alternative 4 is not justified by the marginal increase in protection. Alternative 5 would not be cost effective; as the extremely high costs would not have a commensurately high value in additional environmental protection or increase in actual land use since the land uses as the electrical substation are the only current and planned future uses.

8. Land Use. When cleanup to pre-disposal conditions is determined to be infeasible, the Department may

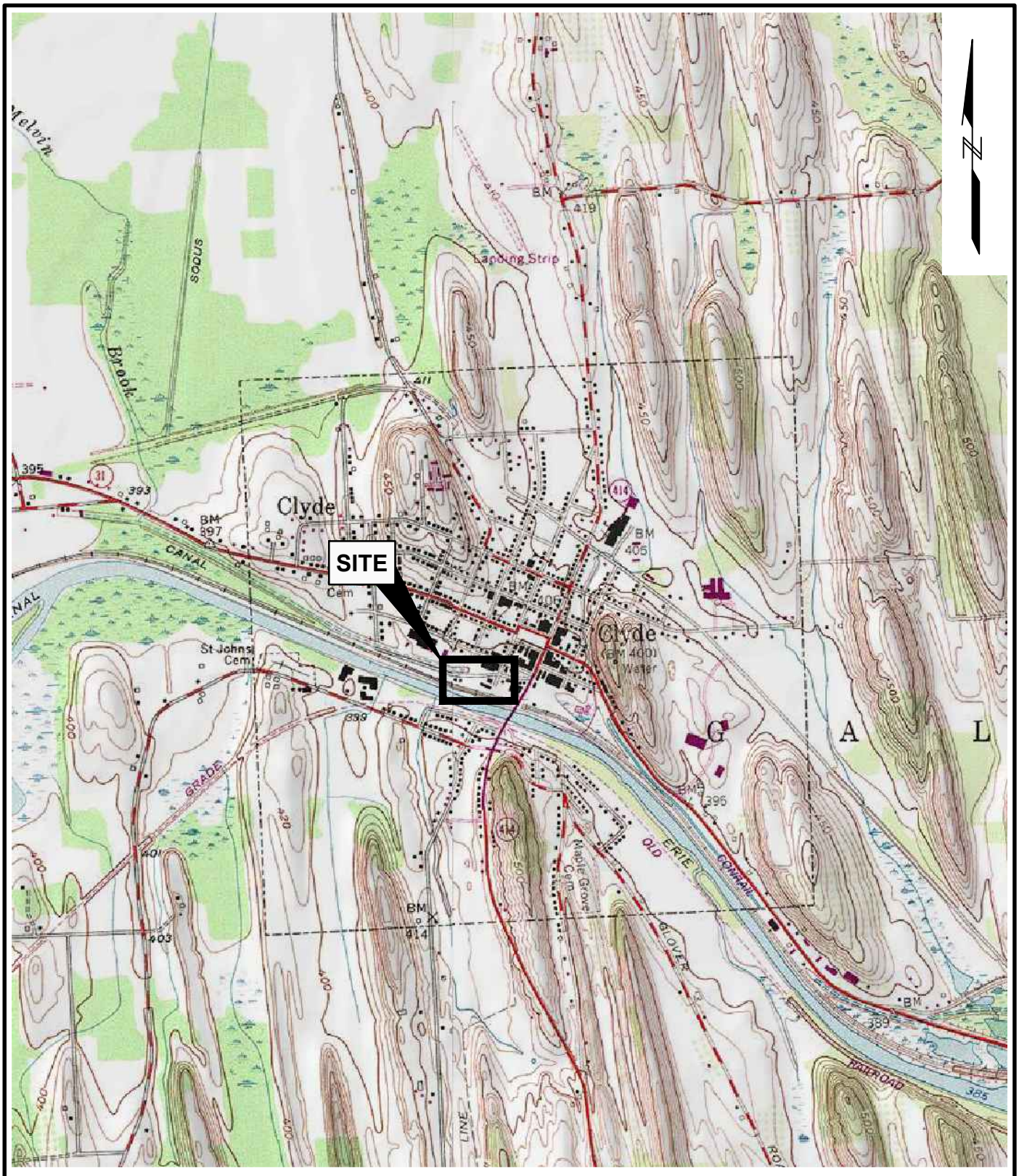
consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

The current and planned future land use for the NYSEG property as an electrical substation is consistent with the land use provided by Alternatives 3 and 4. Alternative 5 will remediate the site to allow for any use. However, current use as an electrical substation appears to be the reasonably anticipated future use.

The final criterion, Community Acceptance, is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

Alternative 4 is being proposed because, as described above, it satisfies the threshold criteria and provides the best balance of the balancing criterion.



SOURCE:
U.S.G.S. TOPOGRAPHIC MAP, CREATED WITH TOPO® ®©2001 NATIONAL GEOGRAPHIC (www.nationalgeograp□ic.co□/topo)

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SCALE, FEET

NYSEG
CLYDE FORMER MANUFACTURED GAS PLANT SITE
SITE NO. 8-59-019
PROPOSED REMEDIATION ACTION PLAN

GEI Consultants

SITE LOCATION MAP

Project 104300 | □une 2013 | Figure 1

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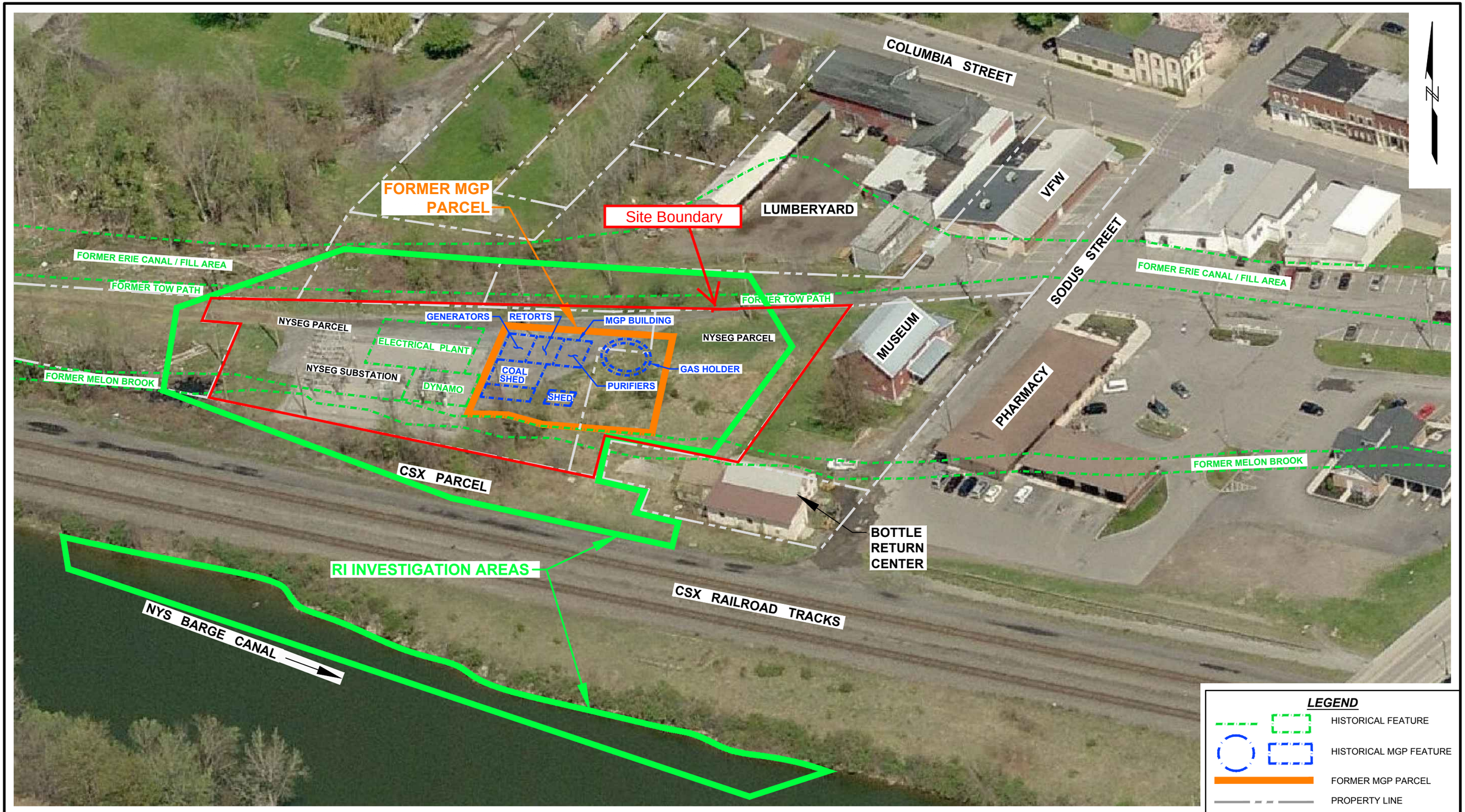

LEGEND

- HISTORICAL FEATURE
- HISTORICAL MGP FEATURE
- FORMER MGP PARCEL
- PROPERTY LINE
- RI INVESTIGATION AREAS

SOURCES:

1. *MAP SHOWING EXISTING CONDITIONS AT THE NYSEG CLYDE FORMER MANUFACTURED GAS PLANT* - DRAWN BY THEW ASSOCIATES LAND SURVEYORS AND DATED SEPTEMBER 7, 2011, REVISED ON APRIL 23, 2012. HORIZONTAL DATUM: NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE, NORTH AMERICAN DATUM (NAD83). VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM (NAVD 88).
2. AERIAL PHOTOGRAPH OBTAINED FROM MICROSOFT, PICTOMETRY BIRD'S EYE © 2010 MDA GEOSPATIAL SERVICES, INC., ACCESSED APRIL 27, 2012.

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PROPOSED REMEDIAL ACTION PLAN

CLYDE MGP
VILLAGE OF CLYDE, NEW YORK

NYSEG
BINGHAMTON, NEW YORK

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Project 104300

June 2013

CLYDE MGP SITE AND REMEDIAL INVESTIGATION AREA

Figure 2

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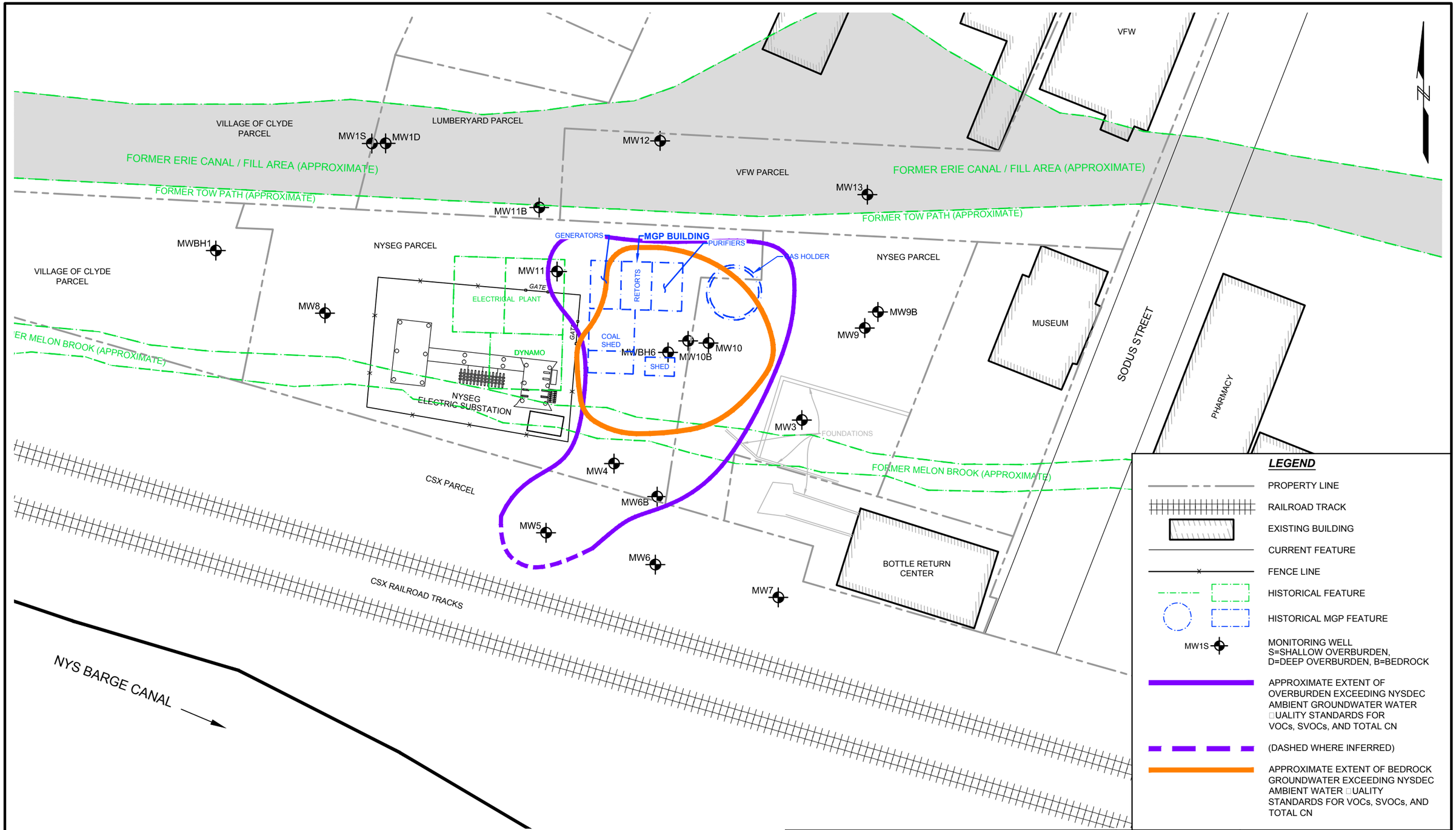

SOURCE:

1. *MAP SHOWING EXISTING CONDITIONS AT THE NYSEG CLYDE FORMER MANUFACTURED GAS PLANT - DRAWN* BY THEW ASSOCIATES LAND SURVEYORS AND DATED SEPTEMBER 7, 2011, REVISED ON APRIL 23, 2012. HORIZONTAL DATUM: NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE, NORTH AMERICAN DATUM (NAD83). VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM (NAVD 88).

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PROPOSED REMEDIAL ACTION PLAN
CLYDE MGP
VILLAGE OF CLYDE, NEW YORK
NYSEG
BINGHAMTON, NEW YORK

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APPROXIMATE EXTENT OF GROUNDWATER EXCEEDANCES

FIGURE 3

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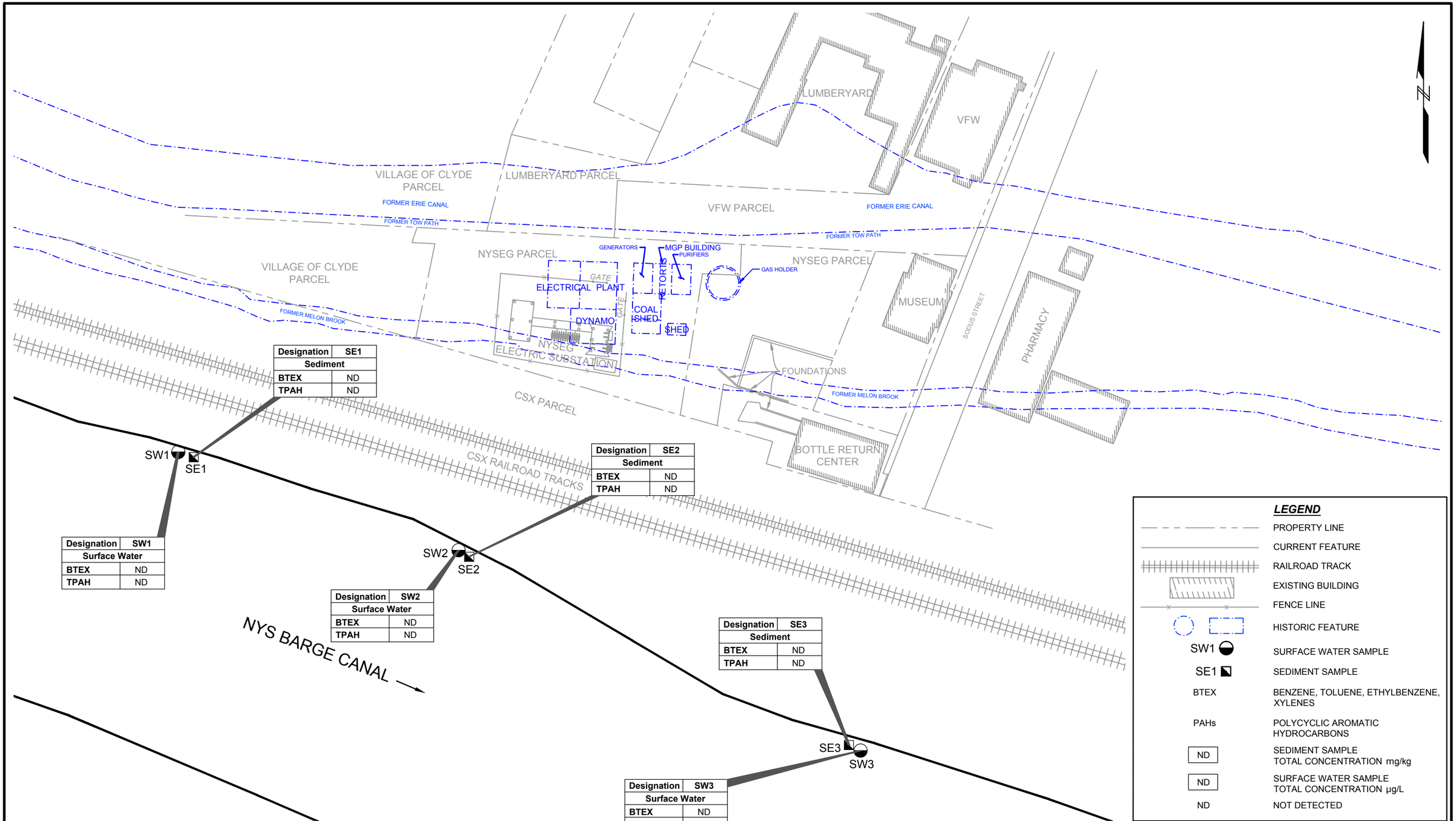

SOURCE:

1. *MAP SHOWING EXISTING CONDITIONS AT THE NYSEG CLYDE FORMER MANUFACTURED GAS PLANT - DRAWN* BY THEW ASSOCIATES LAND SURVEYORS AND DATED SEPTEMBER 7, 2011, REVISED ON APRIL 23, 2012. HORIZONTAL DATUM: NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE, NORTH AMERICAN DATUM (NAD83). VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM (NAVD 88).

PROPOSED REMEDIAL ACTION PLAN
CLYDE MGP
VILLAGE OF CLYDE, NEW YORK
NYSEG
BINGHAMTON, NEW YORK

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SEDIMENT AND SURFACE WATER RESULTS

FIGURE 4

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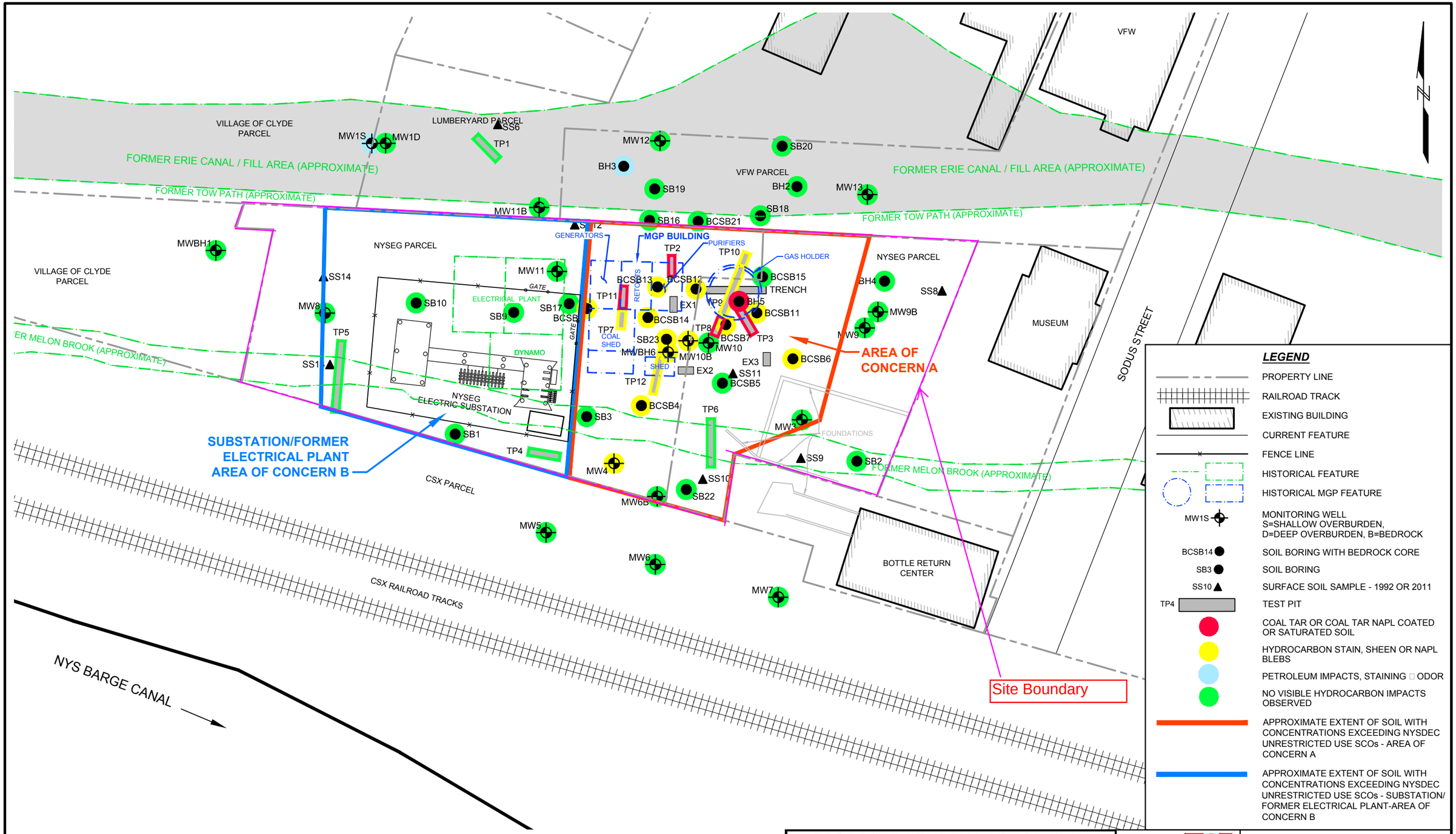

LEGEND

- PROPERTY LINE
- RAILROAD TRACK
- EXISTING BUILDING
- CURRENT FEATURE
- FENCE LINE
- HISTORICAL FEATURE
- HISTORICAL MGP FEATURE
- MW1S — MONITORING WELL S=SHALLOW OVERBURDEN, D=DEEP OVERBURDEN, B=BEDROCK
- BCSB14 — SOIL BORING WITH BEDROCK CORE
- SB3 — SOIL BORING
- SS10 — SURFACE SOIL SAMPLE - 1992 OR 2011
- TP4 — TEST PIT
- COAL TAR OR COAL TAR NAPL COATED OR SATURATED SOIL
- HYDROCARBON STAIN, SHEEN OR NAPL BLEBS
- PETROLEUM IMPACTS, STAINING □ ODOR
- NO VISIBLE HYDROCARBON IMPACTS OBSERVED
- APPROXIMATE EXTENT OF SOIL WITH CONCENTRATIONS EXCEEDING NYSDEC UNRESTRICTED USE SCOs - AREA OF CONCERN A
- APPROXIMATE EXTENT OF SOIL WITH CONCENTRATIONS EXCEEDING NYSDEC UNRESTRICTED USE SCOs - SUBSTATION/ FORMER ELECTRICAL PLANT-AREA OF CONCERN B

SOURCE:

1. *MAP SHOWING EXISTING CONDITIONS AT THE NYSEG CLYDE FORMER MANUFACTURED GAS PLANT - DRAWN* BY THEW ASSOCIATES LAND SURVEYORS AND DATED SEPTEMBER 7, 2011, REVISED ON APRIL 23, 2012. HORIZONTAL DATUM: NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE, NORTH AMERICAN DATUM (NAD83). VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM (NAVD 88).

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SCALE, FEET

PROPOSED REMEDIAL ACTION PLAN
CLYDE MGP
VILLAGE OF CLYDE, NEW YORK
NYSEG
BINGHAMTON, NEW YORK

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Project 104300

NYSEG PARCELS - APPROXIMATE EXTENT OF SOIL UNRESTRICTED SCO EXCEEDANCES

FIGURE 5

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VILLAGE OF CLYDE PARCEL

LUMBERYARD PARCEL

VFW

VFW PARCEL

FORMER ERIE CANAL / FILL AREA (APPROXIMATE)

FORMER TOW PATH (APPROXIMATE)

SOIL REMOVAL

MW11B

NYSEG PARCEL

GENERATORS

MGP BUILDING

PURIFIERS

GAS HOLDER

RETORTS

MW11

GATE

ELECTRICAL PLANT

DYNAMO

COAL SHED

SHED

MW10B

MW9B

MUSEUM

SODUS STREET

PHARMACY

ER MELON BROOK (APPROXIMATE)

EXISTING GRAVEL COVER

NYSEG ELECTRIC SUBSTATION

SOIL COVER

MW3

FOUNDATIONS

MW14

NOTE 1

MW4

MW6B

CSX PARCEL

FORMER MELON BROOK (APPROXIMATE)

BOTTLE RETURN CENTER

CSX RAILROAD TRACKS

NYS BARGE CANAL

N

LEGEND

- PROPERTY LINE
- RAILROAD TRACK
- EXISTING BUILDING
- CURRENT FEATURE
- FENCE LINE
- HISTORICAL FEATURE
- HISTORICAL MGP FEATURE
- MW11 — WELL FOR GROUNDWATER MONITORING
- EXISTING GRAVEL COVER IN SUB-STATION
- SOIL COVER AREA
- SOIL REMOVAL AREA

NOTE 1: ADDITIONAL WELL ADDED FOR GROUNDWATER MONITORING.

SOURCE:

1. *MAP SHOWING EXISTING CONDITIONS AT THE NYSEG CLYDE FORMER MANUFACTURED GAS PLANT - DRAWN* BY THEW ASSOCIATES LAND SURVEYORS AND DATED SEPTEMBER 7, 2011, REVISED ON APRIL 23, 2012. HORIZONTAL DATUM: NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE, NORTH AMERICAN DATUM (NAD83). VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM (NAVD 88).

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SCALE, FEET

PROPOSED REMEDIAL ACTION PLAN

CLYDE MGP

VILLAGE OF CLYDE, NEW YORK

NYSEG

BINGHAMTON, NEW YORK

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ALTERNATIVE 4: SOIL REMOVAL; SOIL COVER; ENHANCED AEROBIC NATURAL BIODEGRADATION FOR GROUNDWATER; IC/ECs

FIGURE 6

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