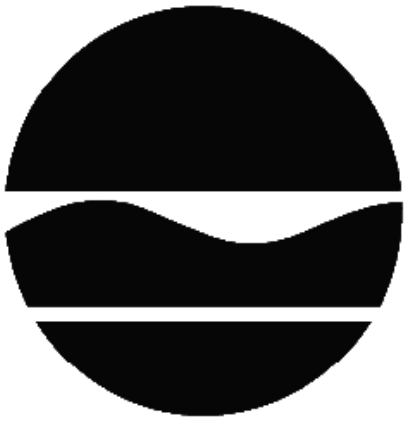
RECORD OF DECISION

NM - Ilion MGP
Ilion, Herkimer County
Site No. 622019
March 2011



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

DECLARATION STATEMENT - RECORD OF DECISION

NM - Ilion MGP
Ilion, Herkimer County
Site No. 622019
March 2011

Statement of Purpose and Basis

This document presents the remedy for the NM - Ilion MGP site. The remedial program was chosen in accordance with the 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, and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the NM - Ilion MGP site and the public's input to the proposed remedy presented by the Department. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. Green remediation and sustainability efforts will be considered in the design and implementation of the remedy to the extent practicable, including;
- using renewable energy sources
- reducing green house gas emissions
- encouraging low carbon technologies
- foster green and healthy communities
- conserve natural resources
- increase recycling and reuse of clean materials
- preserve open space and working landscapes
- design cover systems to be usable for habitat or recreation
- design storm water management systems to recharge aquifers

2. Excavation and off-site disposal of surface and subsurface soil, structures and piping from the site. The on-site soil will be excavated where it contains visible tar or non-aqueous phase liquids (NAPL) and/or total MGP-related PAHs greater than 500 ppm. The presence of additional sources of cyanide impacts to groundwater will be further investigated during the design of the remedy and, if identified, will be addressed by the remedy. The approximate limits of excavation are shown on Figures 6 of the ROD Exhibits. Dewatering of the excavation will be

required for effective operations. The contaminated water generated will be treated prior to discharge to a permitted facility.

3. A site cover will be required to allow for restricted-residential 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 two-foot of exposed surface soil will exceed the applicable SCOs. Where the soil cover is required, it will be a minimum of two feet of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for restricted-residential use. The 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. 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). Based on the RI, the newly installed cover system would be limited to the eastern portion of the site. Surface soil on the western parcel will be characterized by pre-design sampling and, based on an assessment of findings relative to SCOs and background values, the soil cover system will be extended to the exposed surface soil in this area, as necessary.

4. Excavation and off-site disposal of soil from impacted off-site areas. The off-site areas include two areas of surface soils adjacent to the site (the "near-site" soils), where surface soil samples exceed background levels of PAHs. These areas include a small area on the property west of the site, along East Clark Street; and the narrow strip between the site and the East Street roadway. A larger off-site area is located east of East Street and north of East North Street Extension, which leads to an off-site drainage swale that discharges into the Mohawk River to the north. The "near-site" soils will be excavated where visible tar, non-aqueous phase liquids (NAPL) and/or total MGP-related PAHs greater than background are identified. The larger off-site area will be excavated where visible tar, non-aqueous phase liquids (NAPL) and/or total MGP-related PAHs greater than 500 ppm total PAHs are identified. Off-site areas will be restored with a minimum two feet of soil meeting the residential soil cleanup objectives (SCOs). The approximate limits of excavation are shown on Figures 6 and 7 of the ROD Exhibits. Dewatering of the excavation will be required for effective operations. The contaminated water generated will be treated prior to discharge to a permitted facility.

5. Excavated materials that are below the remediation criteria may be stockpiled and evaluated for reuse as backfill. The on-site excavation will be backfilled with stockpiled soils and/or imported soil that meets the 6NYCRR 375-6.7(d) criteria for backfill. The backfilled material will be blended with oxygen release compound (ORC) to enhance bioremediation of site-related contaminants in the groundwater.

6. Bioremediation of the dissolved phase groundwater, with ORC amendments as described in item 5 above. The addition of ORC will stimulate the naturally occurring microorganisms and enhance aerobic biodegradation of contaminants of concern in groundwater.

7. 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 restricted-residential use, provided however that the actual use is subject to local zoning;
(c) restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the Department, NYSDOH or County DOH;
(d) prohibits agriculture or vegetable gardens on the controlled property; and
(e) requires compliance with the Department approved Site Management Plan.

8. 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 assure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The environmental easement discussed in Paragraph 7 above.

Engineering Controls: The soil cover discussed in Paragraph 3 and 4 above.

This plan includes, but may not be limited to:

(i) an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
(ii) descriptions of the provisions of the environmental easement including any land use, or groundwater use restrictions;
(iii) provisions for the management and inspection of the identified engineering controls;
(iv) maintaining site access controls and Department notification; and
(v) 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 is not limited to:

(i) monitoring of soil cover and groundwater to assess the performance and effectiveness of the remedy;
(ii) a schedule of monitoring and frequency of submittals to the Department; and
(iii) provision to evaluate the potential for vapor intrusion for any buildings developed on the site, including provision to take actions recommended to address exposures related to soil vapor intrusion.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy for this site is protective of human health.

Declaration

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

MAR 29 2011

Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

RECORD OF DECISION

NM - Ilion MGP
Ilion, Herkimer County
Site No. 622019
March 2011

SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected 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. The disposal or release of hazardous wastes at this site, as more fully described in this document, has contaminated various environmental media. The remedy is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This Record of Decision (ROD) identifies the selected remedy, summarizes the other alternatives considered, and discusses the reasons for selecting the remedy.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: SITE DESCRIPTION AND HISTORY

Location: The Ilion Former Manufacture Gas Plant (MGP) Site is a 1.3-acre L-shaped parcel located at 1 East Street in a mixed commercial/residential part of the Village of Ilion, Herkimer County, New York. The site is bounded by East Clark Street and residential properties to the north, East Street to the east, State Street (formerly Canal Street) to the south, and a commercial property and several residences to the west. State Street overlies the location of the former Erie Canal. An automobile dealer, auto service garage and a gasoline station are located to the south and southwest of the site.

Site Features: The site is currently owned by National Grid and contains a gas regulator station recently taken out of service. No other structures exist on-site. The site has a gentle slope from south to north.

Current Zoning/Use(s): The site is currently zoned for commercial uses.

Site Geology and Hydrogeology: Site geology consists of four unconsolidated units. These are, from top to bottom: fill (3 feet to approximately 13 feet thick); silts, fine sands and clays (0 to 15 feet thick); peat (0 to 2 feet thick); and a sand and gravel unit (starting at 13 to 20 feet below grade and extending at least 60 feet). Within the study area, groundwater is encountered at

depths of approximately 5 to 15 feet within fill or the silt/sand/clay unit. Groundwater in the unconsolidated deposits flows towards the Mohawk River to the north.

Historical Use(s): The Ilion site was the location of a former gas manufacturing plant from the 1870s through 1912. Subsequently, the site was used for various utility operations (including gas storage and distribution), electrical substation applications, and as a service center.

The Ilion site consists of two parcels with the second parcel added to accommodate increased manufacturing capacity. The first parcel (1.0 acres) was purchased in 1874 by the Ilion Mohawk Gas Light Company at the corner of East Street and the north towpath for the Erie Canal. By 1881, the site contained an octagonal gas holder at the corner of East and East State Streets and a gashouse with a coal shed to the west of the gas holder. The second parcel, approximately 0.31 acre in size was purchased in 1890 to allow for further expansion of the MGP. An electric light station was added to the north side of the gas works building around 1891. By 1897, an 80,000 cubic-foot gas holder was constructed north of the gas plant, adjacent to East Street, and the octagonal gas holder located in the first parcel was taken out of service. The gas plant ceased operation in 1912. In 1917, a 200,000 cubic-foot gas holder was constructed above ground, adjacent to the former gas plant, to store manufactured gas from the Harbor Point MGP in Utica, New York.

The Erie Canal was filled in 1921, and East Canal Street (now State Street) was realigned to the south. In 1940, an outdoor substation was constructed at the corner of East and East State Streets, covering the foundation of the former octagonal gas holder. By 1940, the 80,000 cubic foot gas holder had been removed. In the early 1950s, an auto repair shop, gasoline station, auto dealers, and a junkyard were located south and west of the site, and natural gas replaced manufactured gas in Ilion. In 1956, the 200,000 cubic foot gas holder and most of the remaining gas equipment were removed from the site. The substation was decommissioned and removed in 1997. The last of the buildings associated with former gas manufacturing operations were demolished in September 2000.

Between 1995 and 1997, Niagara Mohawk (National Grid Co.) conducted a Preliminary Site Assessment (PSA), which involved test trenching; monitoring well installation; and groundwater and soil sampling.

In 1995, National Grid submitted an oil spill report to the Department due to the presence of visibly stained soil underneath and adjacent to electrical equipment at the on-site substation. The top 6-inches of soil below the substation were removed and properly disposed to remediate the reported spill.

A site location map is attached as Figure 1.

SECTION 3: 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 restricted-residential use

(which allows for commercial use and industrial use) as described in Part 375-1.8(g) is/are 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 4: 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:

National Grid

The Department and Niagara Mohawk Power Corporation (now the National Grid Company) entered into multi-site Consent Orders D0-0001-9210 and A4-0473-0000 on December 12, 1992 and November 11, 2003. The Orders obligate the responsible party to implement a full remedial program for 33 former MGP sites across the State, including the Ilion MGP.

SECTION 5: SITE CONTAMINATION

5.1: 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.

5.1.1: 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

5.1.2: RI Information

The analytical data collected on this site includes data for:

- air
- groundwater
- soil
- sediment
- soil vapor

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	naphthalene
benzo(a)pyrene	phenanthrene
acenaphthene	pyrene
anthracene	acenapthylene
benzo(b)fluoranthene	benzo(ghi)perylene
benz(a)anthracene	benzo[k]fluoranthene
dibenz[a,h]anthracene	benzene
chrysene	ethylbenzene
fluoranthene	toluene
fluorene	xylene (mixed)
indeno(1,2,3-cd)pyrene	cyanides(soluble cyanide salts)

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

- groundwater
- soil
- soil vapor

5.2: 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.

5.3: 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.*

People are not drinking the contaminated groundwater because the area is served by a public water supply that obtains its water from a different source. Also, they are not coming into contact with the groundwater unless they dig below the ground surface. The site is completely fenced, which restricts public access; however, persons who enter the site may come into contact with contaminants in the soil by walking on the dirt, digging on or below the ground surface, and otherwise disturbing the soil. Contact with contaminated soil found in the off-site drainage swale area could occur, however this area is not easily accessible due to heavy vegetation.

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. Currently there are no occupied buildings on the site. In addition, sampling indicates soil vapor intrusion is not a concern for off-site buildings.

5.4: 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.

The Fish and Wildlife Resources Impact Analysis (FWRIA) for OU 01, which is included in the RI report, presents a detailed discussion of the existing and potential impacts from the site to fish and wildlife receptors.

The primary contaminants of concern at the site include benzene, toluene, ethylbenzene and xylenes (collectively referred to as BTEX), polycyclic aromatic hydrocarbons (PAH) and cyanide. Subsurface soil and groundwater have been impacted by these contaminants, in some cases exceeding Department standards and guidance values. The principal waste product produced at the former MGP site was coal tar, which is an oily, dark colored liquid. Coal tar is referred to as a dense non-aqueous phase liquid or DNAPL since it is slightly heavier than water and will not readily dissolve in water.

The following environmental exposure pathways and ecological impacts have been identified: Soils in the off-site drainage swale, which leads to the Mohawk River, contain levels of PAHs above guidance values.

The FWRIA did not identify any current or potential impacts to ecological resources.

No current or potential site-related surface water impacts have been identified.

Groundwater resources at the site include overburden groundwater typically 5-7 feet below grade, flowing in a northern direction towards the Mohawk River. Site related contamination is impacting groundwater. The groundwater is not used as a source of potable water.

SECTION 6: SUMMARY OF THE EVALUATION OF ALTERNATIVES

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 Exhibit B. Potential remedial alternatives for the Site were identified, screened and evaluated in the feasibility study (FS) report.

A summary of the remedial alternatives that were considered for this site is presented in Exhibit C. 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 D.

6.1: Evaluation of Remedial 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.

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.

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.

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.

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.

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.

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.

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 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.

6.2: Elements of the Remedy

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

The estimated present worth cost to implement the remedy is $5,650,000. The cost to construct the remedy is estimated to be $5,400,000 and the estimated average annual cost is $34,000.

The elements of the selected remedy are as follows:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. Green remediation and sustainability efforts will be considered in the design and implementation of the remedy to the extent practicable, including;

- using renewable energy sources
- reducing green house gas emissions
- encouraging low carbon technologies
- foster green and healthy communities
- conserve natural resources
- increase recycling and reuse of clean materials
- preserve open space and working landscapes
- design cover systems to be usable for habitat or recreation
- design storm water management systems to recharge aquifers

2. Excavation and off-site disposal of surface and subsurface soil, structures and piping from the site. The on-site soil will be excavated where it contains visible tar or non-aqueous phase liquids (NAPL) and/or total MGP-related PAHs greater than 500 ppm. The presence of additional sources of cyanide impacts to groundwater will be further investigated during the design of the remedy and, if identified, will be addressed by the remedy. The approximate limits of excavation are shown on Figures 6 of the ROD Exhibits. Dewatering of the excavation will be required for effective operations. The contaminated water generated will be treated prior to discharge to a permitted facility.

3. A site cover will be required to allow for restricted-residential 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 two-foot of exposed surface soil will exceed the applicable SCOs. Where the soil cover is required, it will be a minimum of two feet of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for restricted-residential use. The 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. 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). Based on the RI, the newly installed cover system would be limited to the eastern portion of the site. Surface soil on the western parcel will be characterized by pre-design sampling and, based on an assessment of findings relative to SCOs and background values, the soil cover system will be extended to the exposed surface soil in this area, as necessary.

4. Excavation and off-site disposal of soil from impacted off-site areas. The off-site areas include two areas of surface soils adjacent to the site (the "near-site" soils), where surface soil samples exceed background levels of PAHs. These areas include a small area on the property west of the site, along East Clark Street; and the narrow strip between the site and the East Street roadway. A larger off-site area is located east of East Street and north of East North Street Extension, which leads to an off-site drainage swale that discharges into the Mohawk River to the north. The "near-site" soils will be excavated where visible tar, non-aqueous phase liquids (NAPL) and/or total MGP-related PAHs greater than background are identified. The larger off-site area will be excavated where visible tar, non-aqueous phase liquids (NAPL) and/or total MGP-related PAHs greater than 500 ppm total PAHs are identified. Off-site areas will be restored with a minimum two feet of soil meeting the residential soil cleanup objectives (SCOs). The approximate limits of excavation are shown on Figures 6 and 7 of the ROD Exhibits. Dewatering of the excavation will be required for effective operations. The contaminated water generated will be treated prior to discharge to a permitted facility.

5. Excavated materials that are below the remediation criteria may be stockpiled and evaluated for reuse as backfill. The on-site excavation will be backfilled with stockpiled soils and/or imported soil that meets the 6NYCRR 375-6.7(d) criteria for backfill. The backfilled material will be blended with oxygen release compound (ORC) to enhance bioremediation of site-related contaminants in the groundwater.

6. Bioremediation of the dissolved phase groundwater, with ORC amendments as described in item 5 above. The addition of ORC will stimulate the naturally occurring microorganisms and enhance aerobic biodegradation of contaminants of concern in groundwater.

7. 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 restricted-residential use, provided however that the actual use is subject to local zoning;
(c) restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the Department, NYSDOH or County DOH;
(d) prohibits agriculture or vegetable gardens on the controlled property; and
(e) requires compliance with the Department approved Site Management Plan.

8. 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 assure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The environmental easement discussed in Paragraph 7 above.

Engineering Controls: The soil cover discussed in Paragraph 3 and 4 above.

This plan includes, but may not be limited to:

(i) an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
(ii) descriptions of the provisions of the environmental easement including any land use, or groundwater use restrictions;
(iii) provisions for the management and inspection of the identified engineering controls;
(iv) maintaining site access controls and Department notification; and
(v) 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 is not limited to:

(i) monitoring of soil cover and groundwater to assess the performance and effectiveness of the remedy;
(ii) a schedule of monitoring and frequency of submittals to the Department; and
(iii) provision to evaluate the potential for vapor intrusion for any buildings developed on the site, including provision to take actions recommended to address exposures related to soil vapor intrusion.

Exhibit A

Nature and Extent of Contamination

This section describes the findings of the Remedial Investigation (RI). As described in the RI report, waste/ source materials were identified at the site and are impacting groundwater, soil, soil in off-site swale, and soil vapor.

This section describes the findings for all environmental media that were evaluated. As described in Section 5.1.2, samples were collected from various environmental media to characterize the nature and extent of contamination.

For each medium, 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 three categories; 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 5.1.1 are also presented.

Waste/Source Areas

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 where substantial quantities of contaminants are found which can migrate and release significant levels of contaminants to another environmental medium.

Manufactured gas was cooled and purified prior to distribution. Two principal waste materials including coal tar and purifier waste were produced in this process. Coal tar is a reddish brown oily liquid by-product which formed as a condensate as the gas cooled. Purifier waste is a mixture of iron filings and wood chips which was used to remove cyanide and sulfur gases from the gas prior to distribution.

Coal tar does not readily dissolve in water. Materials such as this are commonly referred to as non-aqueous phase liquids, or NAPLs. The terms NAPL and coal tar are used interchangeably in this document. Although most coal tars are slightly denser than water, the difference in density is slight. Consequently, they can either float or sink when in contact with water.

Unlike NAPL, purifier waste is a solid waste of oatmeal consistency. Purifier waste has the potential to leach cyanide and create acidic conditions in nearby surface water and/or groundwater. It contains high concentrations of sulfur and cyanide and has a characteristic blue color from complexed ferrocyanides.

Specific volatile organic compounds (VOCs) of concern are benzene, toluene, ethylbenzene and xylenes. These are referred to collectively as BTEX in this document. Specific semivolatile organic compounds of concern are the polycyclic aromatic hydrocarbons (PAHs):

acenaphthene
acenaphthylene
anthracene
benzo(a)anthracene
benzo(a)pyrene
benzo(b)fluoranthene
benzo(g,h,i)perylene
benzo(k)fluoranthene
pyrene
chrysene
fluoranthene
fluorene
indeno(1,2,3-cd)pyrene
2-methylnaphthalene
naphthalene
phenanthrene
dibenzo(a,h)anthracene

Total PAH concentrations as referred to in this plan are the sum of the individual PAHs listed above. The italicized PAHs are probable human carcinogens.

The extent of coal tar that was found both on and off the site is shown in Figure 2. On-site, the tar is present in two limited areas of the former MGP, in the vicinity of two of the former gas holders. Off-site, tar appears to have been discharged or migrated to a portion of the off-site study area outlined on Figure 1. A lens of tar and tar-stained soil is present between approximately six and nine feet below ground surface in an area measuring 30 by 110 feet.

The waste/source areas and MGP related structures and piping identified will be addressed in the remedy selection process.

Groundwater

Groundwater samples were collected from overburden monitoring wells to assess groundwater conditions both on and off the site. The results indicate that contamination in shallow groundwater at the site exceeds the SCGs for BTEX, PAHs and cyanide. Figure 3 shows the extent of groundwater that exceeds the SCGs for cyanide.

Table 1 - Groundwater

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
VOCs			
Benzene	ND - 43	1	3/17
Ethyl benzene	ND - 15	5	1/17
Toluene	ND – 2.7	5	0/17
Xylenes	ND - 17	5	1/17
SVOCs			
Acenapthene	ND - 6	20	0/17
Flourene	ND - 13	50	0/17
Naphthalene	ND - 100	10	2/17

Inorganics			
Cyanide	ND - 3600	200	3/17

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 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 BTEX, PAHs and cyanide.

Soil

Surface and subsurface soil samples were collected at the site during the RI. A total of 32 surface soil samples were collected from a depth of 0-2 inches to assess direct human exposure. Fourteen surface soil samples were collected from the site, and 18 were collected from off-site areas near the site. Surface soil samples were also collected from 14 locations that are unaffected by the site to evaluate the degree of contamination attributable to background conditions. Surface soil samples were analyzed for volatile and semi-volatile compounds.

Surface soil across the eastern portion of the site exceeds the SCOs for both unrestricted and restricted residential use. This is consistent with the use of this portion of the site for gas production activities. Surface soil contaminant concentrations across the western portion of the site are consistent with those measured in background samples. This portion of the site was not used for gas production activities.

Surface soil in two off-site areas adjacent to the site contained MGP-related PAHs above background levels. One is a small area on a parcel immediately to the west of the site (sample SS-16 on Figure 4), and one is the strip of land along the eastern boundary of the site between the fence line and East Street (samples SS-10, SS-11, SS-12, SS-13 and SS-22 on Figure 4). Together, these account for the 5 sample locations where background levels of PAHs were persistently and significantly exceeded. The remaining exceedances of individual and total PAHs were slight exceedances that did not follow a pattern.

Table 2 - On-site Surface Soils

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCO[b] (ppm)	Frequency Exceeding Unrestricted SCG	Restricted Residential Use SCO[c] (ppm)	Frequency Exceeding Restricted SCG
SVOCs					
Benzo(a)anthracene	0.63-17	1	12/14	1	12/14
Benzo(a)pyrene	0.66-17	1	12/14	1	12/14
Benzo(b)fluoranthene	0.46-14	1	12/14	1	12/14
Benzo(k)fluoranthene	0.6-14	0.8	13/14	3.9	3/14
Chrysene	0.77-17	1	12/14	3.9	4/14

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCO[b] (ppm)	Frequency Exceeding Unrestricted SCG	Restricted Residential Use SCO[c] (ppm)	Frequency Exceeding Restricted SCG
Dibenz(a,h)anthracene	0.07-6.5	0.33	6/14	0.33	6/14
Indeno(1,2,3-cd)pyrene	0.39-16	0.5	12/14	0.5	12/14

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 Residential Soil Cleanup Objectives.

Table 3 – Near-Site Surface Soils

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCO[b] (ppm)	Frequency Exceeding Unrestricted SCG
SVOCs			
Benzo(a)anthracene	0.31-17	1	14/18
Benzo(a)pyrene	0.36-18	1	15/18
Benzo(b)fluoranthene	0.5-20	1	16/18
Benzo(k)fluoranthene	0.2-7.7	0.8	14/18
Chrysene	0.42-15	1	15/18
Dibenz(a,h)anthracene	0.07-2	0.33	8/18
Indeno(1,2,3-cd)pyrene	0.28-9.6	0.5	16/18
Total PAHs	4.2 - 183	N/A	N/A

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.

Subsurface soil samples were collected from a depth of 2 - 20 feet to assess soil contamination impacts to groundwater. The results indicate that soils at the site exceed the unrestricted SCO for BTEX, PAHs and cyanide.

Table 4 – On-Site Subsurface Soils

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCO[b] (ppm)	Frequency Exceeding Unrestricted SCG	Restricted Residential SCO[c] (ppm)	Frequency Exceeding Restricted SCG
VOCs					
Benzene	ND-210	0.06	5/74	0.06	5/74
Ethyl benzene	ND-38	1	3/74	1	3/74
Toluene	ND-310	0.7	3/74	0.7	3/74
Xylenes	ND-570	0.26	7/74	0.26	7/74
SVOCs					
Acenapthene	ND-310	20	3/76	100	3/76
Acenaphthylene	ND-780	100	2/76	100	2/76
Anthracene	ND-1200	100	2/76	100	2/76
Benzo(a)anthracene	ND-980	1	27/76	1	27/76
Benzo(a)pyrene	ND-680	1	28/76	1	28/76
Benzo(b)fluoranthene	ND-440	1	24/76	1	24/76
Benzo(g,h,i)perylene	ND-400	100	2/76	100	2/76
Benzo(k)fluoranthene	ND-670	0.8	27/76	3.9	18/76
Chrysene	ND-780	1	27/76	3.9	20/76
Dibenz(a,h)anthracene	ND-150	0.33	16/76	0.33	16/76
Fluoranthene	ND-1600	100	5/76	100	5/76
Fluorene	ND-1100	30	5/76	100	3/76
Indeno(1,2,3-cd)pyrene	ND-460	0.5	28/76	0.5	28/76
Naphthalene	ND-2800	12	10/76	12	10/76
Phenanthrene	ND-2600	100	5/76	100	5/76
Pyrene	ND-1600	100	3/76	100	3/76
Inorganics					
Cyanide	ND-266	27	4/72	27	4/72

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 Residential Soil Cleanup Objectives.

The primary soil contaminants are BTEX, PAHs and cyanide associated with residues from the operation of the former MGP. Soil contamination is prevalent in the areas near the former MGP structures, including the gas holders.

Soils in the off-site area also exceeded the SCOs for unrestricted use. Chemical fingerprinting analysis of these soils revealed that some of this contamination is related to the former MGP, but other samples have a fuel oil fingerprint, which is not related to the former MGP. Other potential sources of contamination in this area include the Ilion DPW garages, the DPW debris disposal area, the former Ilion Landfill and illegal dumping.

Based on the findings of the Remedial Investigation, the disposal of MGP related hazardous waste has resulted in the contamination of soil on and off the site. 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, PAHs and cyanide.

Surface Water

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

Swale Soil

Soil samples were collected during the RI from the off-site drainage swale leading to the Mohawk River. The samples were collected to assess the potential for MGP-related impacts from the site. The results indicate that soil in the off-site drainage swale exceed the background for soil PAHs. Figure 5 shows the extent of MGP-related contamination in the off-site drainage swale.

The site contaminants identified in swale soils which are considered to be the primary contaminants of concern to be addressed by the remedy selection process are total PAHs.

Table 5 – Swale Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)	Frequency Exceeding SCG
VOCs			
Benzene	ND-2.2	0.28	3/51
Ethyl benzene	ND-0.42	0.24	2/51
Toluene	ND-0.74	0.4	1/51
Xylenes	ND-3.1	0.92	2/51
SVOCs	N/A	N/A	N/A
Total cPAHs	ND-9390	43	8/55

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil.
b - SCG[b] (ppm) = Site surface soil background for total cPAH.

Soil Vapor Intrusion

The evaluation of the potential for soil vapor intrusion resulting from the presence of site related soil or groundwater contamination was evaluated by the sampling of soil vapor. At this site no buildings were present in impacted areas, so only soil vapor was evaluated. There is currently no established technical guidance (SCGs) for soil vapor.

Table 6 – Soil Vapor

Detected Constituents	Concentration Range Detected (ug/m3)[a]
1,1,1-Trichloroethane	ND – 8.7
1,2,4-Trimethylbenzene	ND – 18
1,2-Dimethylbenzene	ND – 13
1,3,5-Trimethylbenzene	ND – 35
1,2-Butadiene	ND – 5.8
1,4-Dichlorobenzene	ND – 5.8
2,2,4-Trimethylpentane	ND – 15
2-Butanone	ND – 3.8
Acetone	ND – 40
Benzene	ND – 22
Carbon disulfide	ND – 9
Chloroform	ND – 2.8
Chloromethane	ND – 2.9
Cyclohexane	ND – 22
Dichlorodifluoromethane	ND – 4.1
Ethylbenzene	ND – 11
Styrene	ND – 3
Tetrachloroethene (PCE)	ND – 18.4
Toluene	4.9-94
Trichlorofluoromethane	ND – 3.5
Vinyl chloride	ND – 1
N-Heptane	ND – 78

Detected Constituents	Concentration Range Detected (ug/m3)[a]
N-Hexane	ND – 120
P-Ethyltoluene	ND – 13

a – ug/m3: micrograms per cubic meter.
b – SCGs are not available for soil vapor.

Soil vapor samples were collected from the perimeter of the site to assess the potential for soil vapor intrusion to off-site buildings. Outdoor air samples were also collected for comparison. Elevated soil vapor levels were found in the southern corner of the site, in the immediate vicinity of the former octagonal gas holder during the initial soil vapor sampling event. Chemicals detected included both MGP related and non-MGP related contaminants. A second phase of soil vapor sampling was then conducted to further determine the potential for soil vapor to be migrating toward off- site properties. Based on the soil vapor sampling results (see Table 6), the groundwater and soil sampling results (Tables 2, 3 and 4), and our experience at other MGP sites in New York State, the agencies determined that no further investigation of soil vapor or soil vapor intrusion beyond the site boundary was necessary.

However, due to the presence of MGP source areas beneath the site, there is potential for on-site soil vapor contamination. There is also a potential for people to come into contact with this contamination due to soil vapor intrusion if new buildings are constructed on-site. Therefore, the potential for on-site soil vapor intrusion will be addressed by the remedy selection process.

Exhibit B

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 objectives for this site are:

Public Health Protection

Groundwater

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

Soil

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

Soil Vapor

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

Environmental Protection

Groundwater

- Restore the groundwater aquifer to meet ambient groundwater quality criteria, to the extent feasible.

Soil

- Prevent migration of contaminants that will result in groundwater contamination.

Exhibit C

Description of Remedial Alternatives

The following alternatives were considered to address the contaminated media identified at the site as described in Section 5:

SOIL REMEDIATION ALTERNATIVES

Alternative S1: 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.

Alternative S2: Institutional Controls

This alternative includes institutional controls, in the form of an environmental easement and a site management plan, necessary to protect public health and the environment from any contamination identified at the site. The environmental easement will restrict the use of the site commercial use, require compliance with the site management plan, and require National Grid to periodically certify that the institutional controls are still effective. The site management plan will identify requirements for intrusive activities in the project area, handling and disposal of potentially contaminated materials that may be encountered during subsurface activities, notifications and reporting. The plan will also require an evaluation and mitigation of the potential for vapor intrusion for any buildings that may be developed on the site.

This alternative will require approximately 2 months to design and 2 months to implement.

Present Worth:	$125,000
Capital Cost:	$65,000
Annual Costs:	$2,000

Alternative S3: Removal and Off-site Disposal of MGP Source Material, Enhanced Groundwater Bioremediation, Soil Cover and Institutional Controls for Restricted Residential Site Use

This alternative will include the excavation of MGP source material, both on and off the site, defined by soil containing visible tar or greater than 500 ppm total MGP-related PAHs. The volume of this excavation is currently estimated to be 10,480 cubic yards, both on and off the site. This also includes the two areas adjacent to the site where surface soil samples exceed background levels for individual PAH contaminants. A two-foot soil cover will be placed over backfilled excavations and the entire eastern portion of the site to allow for restricted residential use. Based on the RI, the newly installed cover system would be limited to the eastern portion of the site. The need to extend the cover system on a portion(s) of the western parcel will be addressed by pre-design sampling and an assessment of findings relative to background values. Off-site excavations will be backfilled with a minimum of two feet of soil meeting the residential SCOs. Based on current data, an estimated 1,000 cubic yards of soil containing MGP-related contaminants will be removed from the upper four feet of the off-site drainage swale. The site management plan and environmental easement specified in Alternative 2 will also be implemented. The on-site and off-site components of this alternative are shown in Figures 6 and 7, respectively.

This alternative will require approximately 12 months to design and 6 months to implement.

Present Worth: $5,400,000
Capital Cost: $5,240,000
Annual Costs: $6,000

Alternative S4: Removal and Off-site Disposal of MGP Source Material, Soil Cover and Institutional Controls for Restricted Residential Site Use

This alternative was developed to evaluate the feasibility of achieving a restricted residential cleanup of the site based on the presence of residential properties near the site on East Street and East Clark Street. This alternative would include the excavation of MGP source material, both on and off the site, defined by soil containing visible tar, greater than 500 ppm total MGP-related PAHs, or cyanide concentrations greater than 40 ppm. In addition, the on-site source area excavations will be expanded to include soils that exceed the restricted-residential SCOs. The volume of this excavation is currently estimated to be 5,860 cubic yards, both on and off the site. This also includes the two areas adjacent to the site where surface soil samples exceed background levels for individual PAH contaminants. A two-foot soil cover will be placed over backfilled excavations and over on-site soils with contaminant concentrations that exceed the restricted residential use SCOs. Based on current data, an estimated 1,000 cubic yards of soils containing MGP-related contaminants will be removed from the upper four feet of the off-site drainage swale. The site management plan and environmental easement specified in Alternative 2 will also be implemented, except that the environmental easement will specify a restricted residential use of the site. The off-site components are the same as those in Alternative S3.

This alternative will require approximately 12 months to design and 6 months to implement.

Present Worth: $5,800,000
Capital Cost: $5,600,000
Annual Costs: $6,700

Alternative S5: Restoration to Pre-Disposal or Unrestricted Conditions

This alternative achieves all of the SCGs discussed in Section 6.1.1 and soil meets the unrestricted soil cleanup objectives listed in Part 375-6.8 (a). This alternative will include: excavation and off-site disposal of all waste and soil contamination above the unrestricted soil cleanup objectives on the site and specific off-site locations. The volume of this excavation is currently estimated to be 71,600 cubic yards, both on and off the site. An estimated 250 cubic yards of near-site surface soils that exceed unrestricted SCOs will also be removed. Based on current data, an estimated 8,000 cubic yards of soils in the drainage swale that exceed unrestricted SCOs will also be removed to a depth of approximately 12 feet.

This alternative will require approximately 9 months to design and 12 months to implement.

Capital Cost: $37,000,000

GROUNDWATER REMEDIATION ALTERNATIVES

Alternative GW1: 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.

Alternative GW2: Institutional Controls

This alternative includes institutional controls, in the form of an environmental easement and a site management plan, necessary to protect public health and the environment from any contamination identified at the site. The environmental easement will restrict the use of groundwater and require compliance with the site management plan. The site management plan will identify requirements for groundwater monitoring and reporting that will assess changes in the risk to human health and the environment.

This alternative will require approximately 2 months to design and 2 months to implement.

Present Worth:	$86,000
Capital Cost:	$26,000
Annual Costs:	$2,000

Alternative GW3: Long-term Groundwater Monitoring and Institutional Controls

This alternative, in addition to the institutional controls in Alternative GW2, will involve the addition of an oxygen release compound (ORC) blended with the backfilled soil below the water table followed by monitoring enhanced aerobic bioremediation that have limited the current extent of groundwater contamination to the immediate vicinity of the site and will be more effective with the removal to the source areas soil. A network of groundwater monitoring wells will be monitored, and contaminant levels will be tracked over time and compared to levels prior to remedial actions.

This alternative will require approximately 2 months to design and 2 months to implement.

Present Worth:	$248,000
Capital Cost:	$68,000
Annual Costs:	$28,000

Exhibit D

Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
Soil Alternatives			
Alternative S1: No Action	0	0	0
Alternative S2: Site Management	$65,000	$2,000	$125,000
Alternative S3: Removal and Off-Site Disposal of MGP Source Material, Enhanced Bioremediation, Soil Cover and Institutional Controls for Restricted Residential Use	$5,240,000	$6,000	$5,400,000
Alternative S4: Removal and Off-Site Disposal of MGP Source Material, Soil Cover and Institutional Controls for Restricted Residential Use	$5,600,000	$6,700	$5,800,000
Alternative S5: Restoration to Pre-Disposal or Unrestricted Conditions	$37,000,000	0	$37,000,000
Groundwater Alternatives			
Alternative GW1: No Action	0	0	0
Alternative GW2: Site Management	$26,000	$2,000	$86,000
Alternative GW3: Long-term Groundwater Monitoring and Institutional Controls	$68,000	$28,000	$248,000
Selected Remedy: Alternatives S3 and GW3	$5,310,000	$34,000	$5,650,000

Exhibit E

SUMMARY OF THE SELECTED REMEDY

The Department is proposing Alternatives S3 and GW3, as the remedy for this site. The elements of this remedy are described in Exhibit C. The Selected remedy is depicted in Figures 6 and 7.

Basis for Selection

The selected remedy is based on the results of the RI and the evaluation of alternatives.

Alternatives S3 and GW3 was selected because, as described below, they satisfy the threshold criteria and provide the best balance of the balancing criteria described in Section 7.2. They will achieve the remediation goals for the site by providing permanence in the remedy and by reducing the toxicity, mobility of contaminated soil by removal and off-site disposal. The Selected remedy will greatly reduce the source of contamination to groundwater which will allow natural attenuation to restore groundwater quality to the extent feasible based upon DER's experience at other sites, including MGPs. The selected remedy, including the two-foot soil cover over areas that exceed the SCOs for restricted residential use, will protect public health and the environment.
Alternatives S1 and GW1 do not provide any protection to public health and the environment and will not be evaluated further.

Alternative S2 will rely on institutional controls to protect public health by limiting access to the site, but will not provide any environmental protection. Alternatives S3 and S4 meet the threshold criteria by removing all source material that may contaminate other media, particularly groundwater and by providing a soil cover and institutional controls to prevent public exposure. Both Alternatives will provide equal amount of protection and will allow for restricted residential use of the site. Alternative S3 will provide greater protection to groundwater as this alternative will include enhanced bioremediation by amending backfill material with ORC to treat impacted groundwater. Alternative S5 will protect public health and the environment to a greater degree by removing all contamination from the site. Because Alternatives S3, S4 and S5 satisfy the threshold criteria, the remaining criteria are particularly important in selecting a final remedy for the site. Both GW2 and GW3 will satisfy the threshold criteria when included with source material removal component of S3, S4 or S5.

Short-term impacts will be the least with S2 because no soil removal will take place. S3 will have the next lowest level of short term impacts. The short-term impacts of Alternatives S3 and S4 will both be significantly less than Alternative S5 due to the smaller volume of contaminated soil removed and transported from the site. Alternatives S3 and S4 will be implemented in approximately the same period of time. Alternative S5 will have the highest short-term impact, since extensive excavation will disturb the soil and more excavated material will need to be transported through residential areas for off-site disposal. Neither GW2 nor GW3 involve any short term impacts.

Long-term effectiveness is best achieved by Alternative S5, since all contamination will be removed from the site and off-site areas to achieve the unrestricted use SCOs. Alternatives S3 and S4 will effectively protect public health and the environment through the removal of source areas and soil with MGP-related contamination from the site and the off-site areas, and by applying a soil cover over remaining on-site contamination. The site management and institutional control provisions of Alternatives S3 and S4 will reliably prevent potential exposures. Alternative S2 will provide the least effective environmental protection since all existing contamination, including source areas, will remain. GW2 does not add any long term effectiveness. GW3 adds some additional assurance that groundwater protection has been achieved due to long term monitoring and trend analysis requirement.

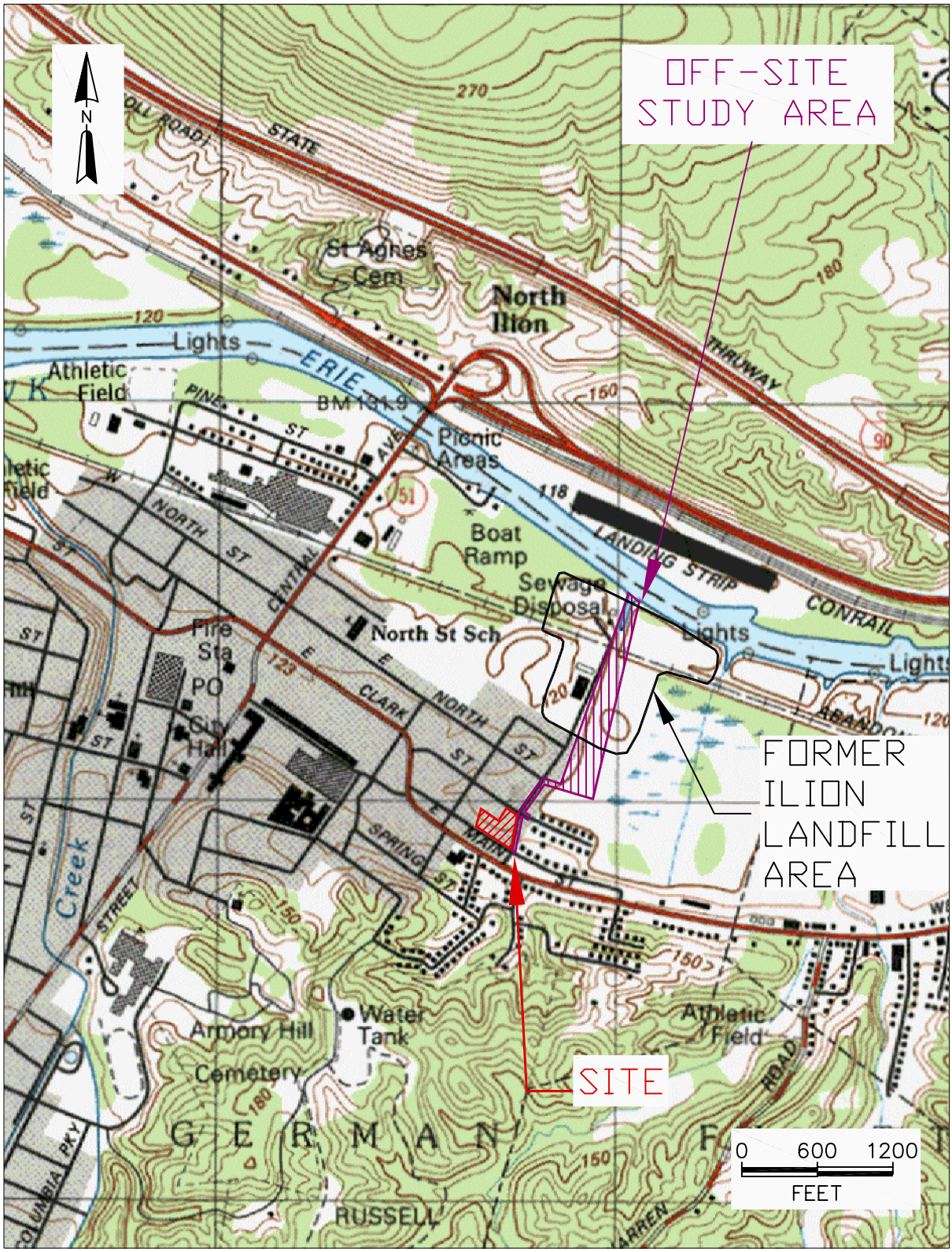
Alternative S2 will not reduce the toxicity, mobility or volume of contamination because potential exposures will be addressed with institutional controls. Alternatives S3 and S4 will both reduce the toxicity, mobility and volume of on-site source material by transferring the material to an approved off-site facility for disposal or thermal treatment. Alternative S5 will permanently reduce the toxicity, mobility and volume of all contamination at the site.

GW2 does not further reduce the toxicity, mobility and volume of contamination in groundwater. GW2 will identify requirements for groundwater monitoring and reporting that will assess changes in the risk to human health and the environment. GW3 will, in addition to monitoring requirement for GW2, will include groundwater quality and trend analysis to show that contamination reduction as a result of any source removal remedy is effective.

Alternatives S2, S3 and S4 are readily implementable. Alternative S5 is also implementable, but the volume of soil excavated under this alternative is more than 12 times that of Alternatives S3 and S4, and making this alternative significantly more difficult and complex to perform. Alternatives GW2 and GW3 are readily implementable, although Alternative GW3 will require some additional sampling to document the degree of contaminant reduction.

The costs of the alternatives vary significantly, as presented in Exhibit D. Alternative S2 has a low cost, but the contaminated soil will not be addressed other than by institutional controls. Alternatives S3 and S4 both have moderate and similar costs. With its large volume of soil to be handled, Alternative S5, restoration to unrestricted use will have the highest present worth cost with a low increase in the overall protectiveness of the remedy. GW2 has a low cost and relies only on institutional controls. GW3 has a moderately higher cost but adequately monitors the effectiveness of the remedy.

The anticipated use of the site is commercial. However, the site is being cleaned up to allow for restricted residential use. Alternatives S3 and GW3 will be the most desirable because they remove contaminated soils necessary to achieve restricted residential SCOs and should achieve groundwater standards in a reasonable time. Also, the remaining contamination associated with Alternative S3 will be controllable with implementation of institutional controls and a site management plan.

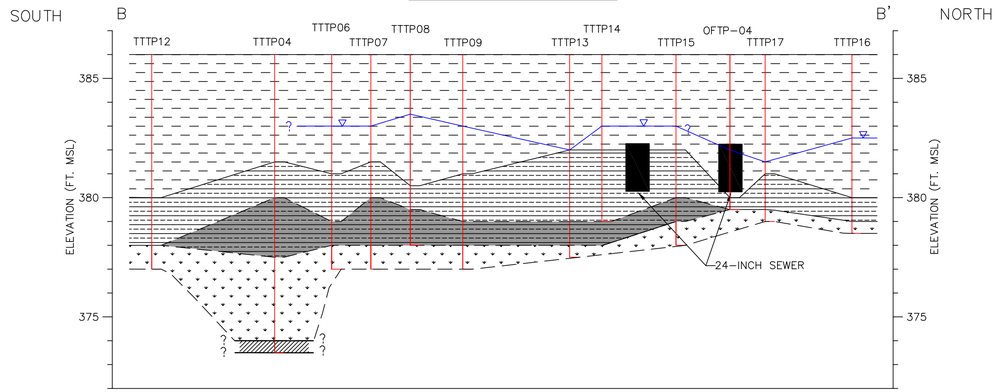


Source: Ilion, N.Y. USGS Topographic Quadrangle, 7.5-minute series, dated 1982.

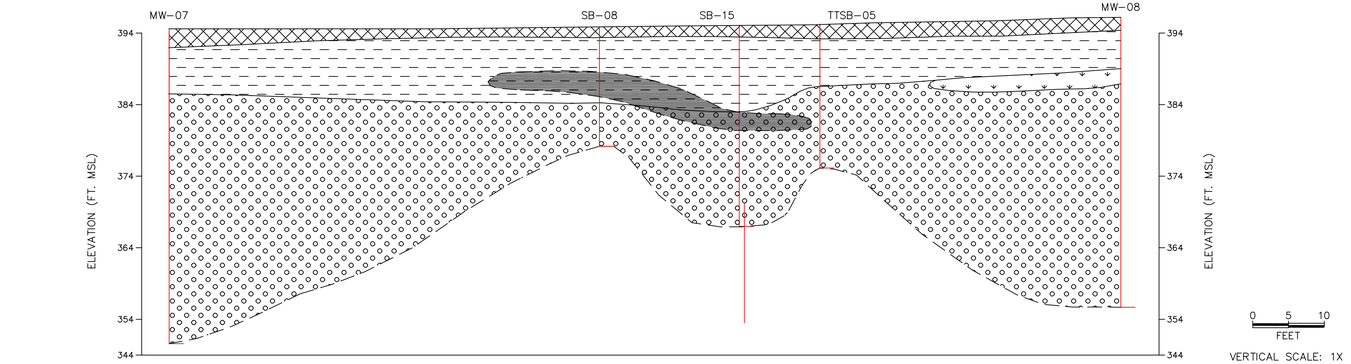
nationalgrid TETRA TECH EC, INC.	TITLE: SITE LOCATION MAP Remedial Investigation Report Ilion (East Street) Site	DWN: LEA	DES.: LEA	PROJECT NO.: 2907.0003.0003
		CHKD: PC	APPD: RC	FIGURE NO.: 1
		DATE: 10/12/04	REV.: 01	

N:\GIS\GISKEY\GISPROJ31\ILION EAST STREET\RI RE-REISSUE FIGURES\RI FIGURE 1-1 SITE LOCATION.DWG

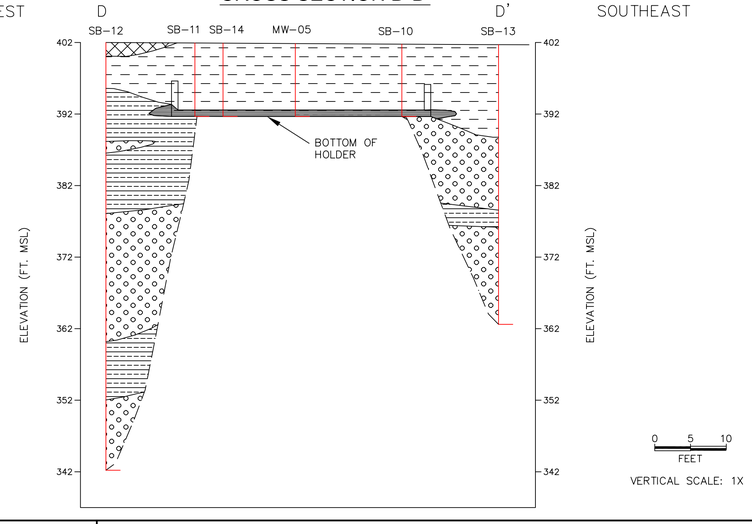
CROSS SECTION B-B'



CROSS SECTION C-C'



CROSS SECTION D-D'



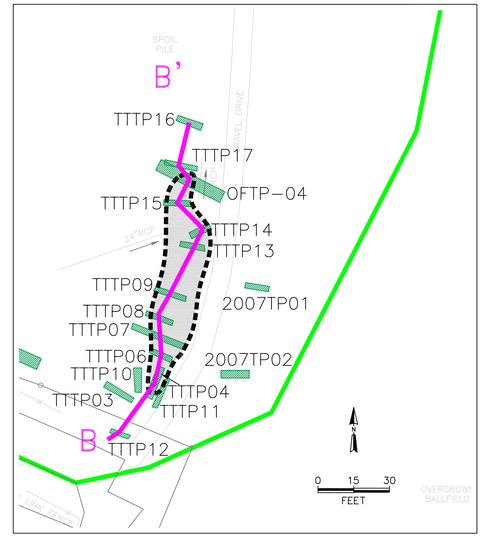
LEGEND

- TOPSOIL
- FILL
- SILTY, GRAVELLY SAND
- CLAYEY SILT
- PEAT
- CLAY
- STAINING, RESIDUAL TAR AND NAPL
- BORING/TEST PIT
- GROUNDWATER ELEVATION (BASED ON TEST PIT OBSERVATIONS)

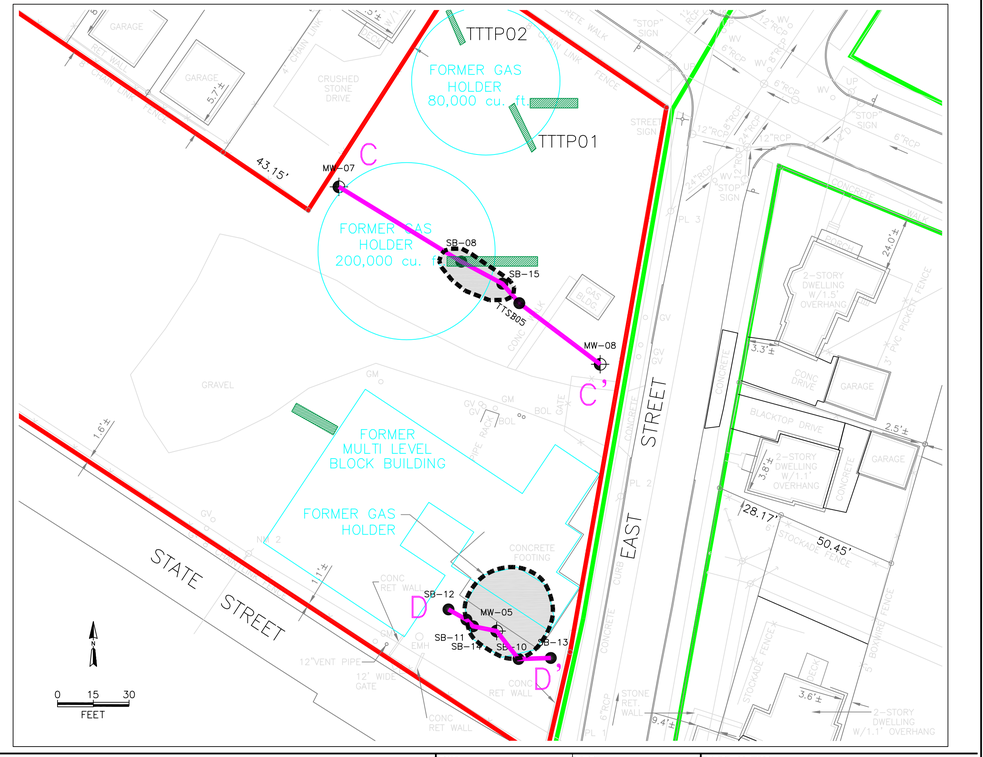
LEGEND

- TEST PIT
- SOIL BORING
- TEST PIT
- BOUNDARY OF SITE PROPERTY
- APPROXIMATE BOUNDARY OF OFF-SITE STUDY AREA
- CROSS SECTION TRANSECT
- ESTIMATED HORIZONTAL EXTENT OF NAPL

PLAN VIEW - CROSS SECTION B-B'

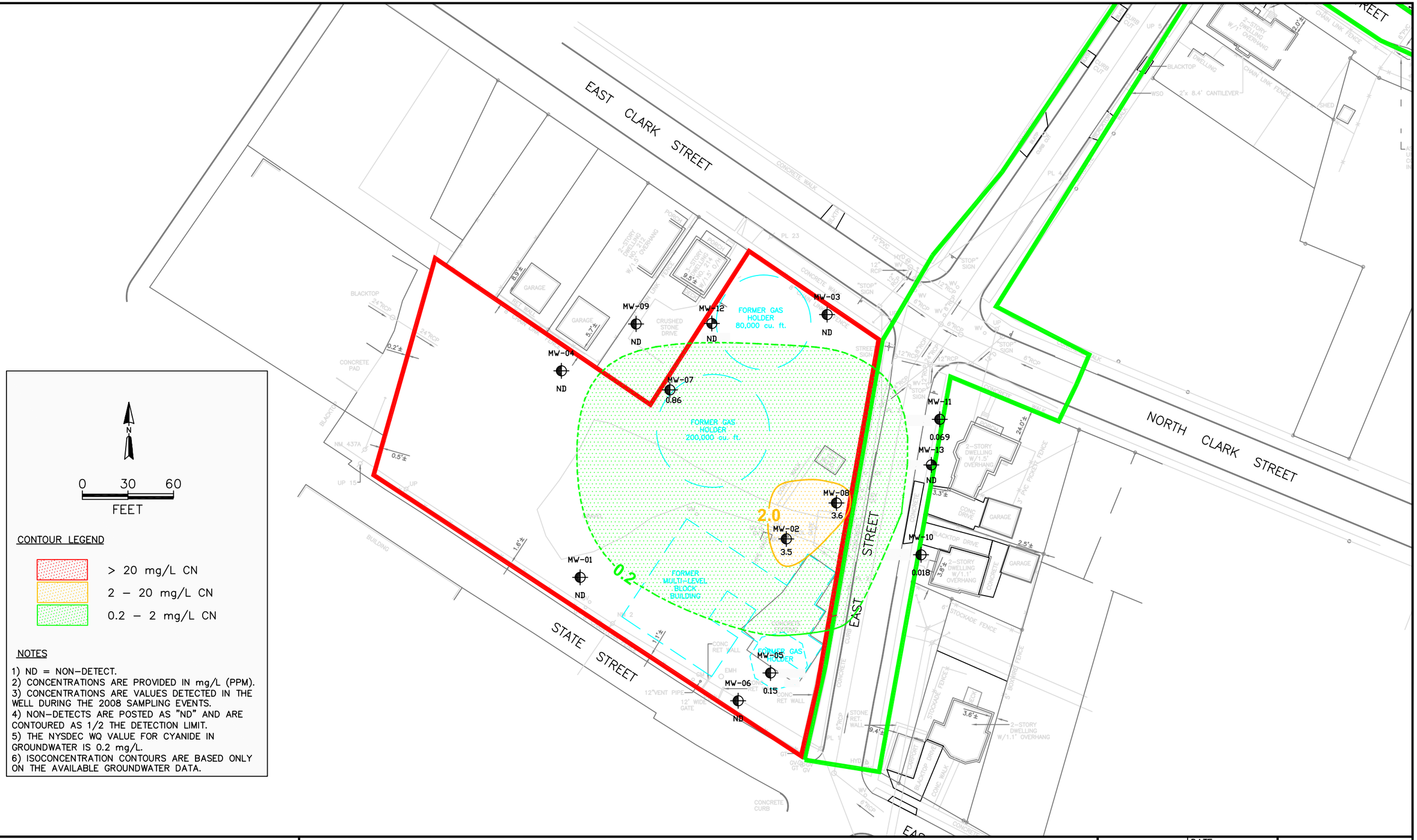


PLAN VIEW - CROSS SECTION C-C' AND D-D'



TETRA TECH EC, INC.	TITLE: ESTIMATED HORIZONTAL AND VERTICAL EXTENT OF NAPL IN SUBSURFACE SOIL MATRIX Remedial Investigation Report – Ilion (East Street) Site	nationalgrid	DWN: CTS / DES.: CTS CHKD: DPC / APPD: RC DATE: 06/04/08 / REV.: 1 PROJECT NO.: 2907.0003.0006 FIGURE NO.: 2

N:\GIS\GISKEY\GISPROJ31\ILION EAST STREET\RI RE-RDISSUE FIGURES\RI FIGURE 4-9 NAPL EXTENT 060408.DWG



TETRA TECH EC, INC.

TITLE:
ISOCONCENTRATION CONTOUR FOR CYANIDE IN SITE GROUNDWATER – 2008 RESULTS
Remedial Investigation Report Addendum
Ilion (East Street) Site

nationalgrid

DWN.:	DATE:	PROJECT NO.:
EAG	05/09/08	2907.0003.0005
CHKD:	REV.:	FIGURE NO.:
	0	3
DES.:	APPD:	
LEA		

N:\GIS\GISKEY\GISPROJ31\ILION EAST STREET\RI RE-REISSUE FIGURES\RI FIGURE 4-5C CN IN GW 050908.DWG

N

0 15 30
FEET

LEGEND
- CAPPED IRON ROD SET
- CAPPED IRON ROD FOUND
- IRON PIPE FOUND
- IRON ROD FOUND
- GV GAS VALVE
- GM GAS MARKER
- GT GAS TEST
- HYD FIRE HYDRANT
- WV WATER VALVE
- WMH WATER MANHOLE
- DMH DRAINAGE MANHOLE
- SMH SANITARY MANHOLE
- CB CATCH BASIN
- CBR CATCH BASIN ROUND
- RCP REINFORCED CONCRETE PIPE
- PVC POLYVINYL CHLORIDE
- CMP CORRUGATED METAL PIPE
- N.H.O.A. NUT AT HEAD OF ARROW
- FENCE
- BOUNDARY OF SITE PROPERTY
- APPROXIMATE BOUNDARY OF OFF-SITE STUDY AREA

SS-32	SS-32 0.00 – 0.50
Constituent (ppm)	
Total PAHs	36.1
Total Carcinogenic PAHs	19.53

SS-31	SS-31 0.00 – 0.50
Constituent (ppm)	
Total PAHs	9.723
Total Carcinogenic PAHs	5.15

SS-09	SS-9 0.00 – 0.17
Constituent (ppm)	
Total PAHs	15.595
Total Carcinogenic PAHs	8.18

SS-15	SS-15 0.00 – 0.17
Constituent (ppm)	
Total PAHs	31.28
Total Carcinogenic PAHs	15.73

SS-23	SS-23 0.00 – 0.50
Constituent (ppm)	
Total PAHs	20.3
Total Carcinogenic PAHs	10.49

SS-16	SS-16 0.00 – 0.17
Constituent (ppm)	
Total PAHs	182.71
Total Carcinogenic PAHs	89.3

SS-30	SS-30 0.00 – 0.50
Constituent (ppm)	
Total PAHs	13.571
Total Carcinogenic PAHs	6.58

SS-18	SS-18 0.00 – 0.17
Constituent (ppm)	
Total PAHs	32.187
Total Carcinogenic PAHs	17.88

SS-28	SS-28 0.00 – 0.50
Constituent (ppm)	
Total PAHs	6.555
Total Carcinogenic PAHs	3.248

SS-17	SS-17 0.00 – 0.17
Constituent (ppm)	
Total PAHs	58.09
Total Carcinogenic PAHs	26.96

SS-29	SS-29 0.00 – 0.50
Constituent (ppm)	
Total PAHs	4.194
Total Carcinogenic PAHs	2.139

SS-14	SS-14 0.00 – 0.17
Constituent (ppm)	
Total PAHs	32.99
Total Carcinogenic PAHs	17.3

SS-13	SS-13 0.00 – 0.17
Constituent (ppm)	
Total PAHs	139.26
Total Carcinogenic PAHs	70.9

SS-24	SS-24 0.00 – 0.50	Duplicate
Constituent (ppm)		
Total PAHs	35.75	32.12
Total Carcinogenic PAHs	18.04	16.58

SS-01	SS-1A 0.00 – 0.17
Constituent (ppm)	
Total PAHs	19.018
Total Carcinogenic PAHs	9.38

SS-25	SS-25 0.00 – 0.50
Constituent (ppm)	
Total PAHs	32.01
Total Carcinogenic PAHs	15.33

SS-12	SS-12 0.00 – 0.17
Constituent (ppm)	
Total PAHs	78.85
Total Carcinogenic PAHs	40.3

SS-03	SS-3A 0.00 – 0.17
Constituent (ppm)	
Total PAHs	31.44
Total Carcinogenic PAHs	14.36

SS-26	SS-26 0.00 – 0.50
Constituent (ppm)	
Total PAHs	29.02
Total Carcinogenic PAHs	13.82

SS-11	SS-11 0.00 – 0.17
Constituent (ppm)	
Total PAHs	116.1
Total Carcinogenic PAHs	47.8

SS-04	SS-4A 0.00 – 0.17
Constituent (ppm)	
Total PAHs	7.906
Total Carcinogenic PAHs	3.984

SS-07	SS-7 0.00 – 0.17
Constituent (ppm)	
Total PAHs	27.148
Total Carcinogenic PAHs	16.3

SS-05	SS-5 0.00 – 0.17
Constituent (ppm)	
Total PAHs	9.394
Total Carcinogenic PAHs	4.85

SS-19	SS-19 0.00 – 0.17
Constituent (ppm)	
Total PAHs	38.658
Total Carcinogenic PAHs	20.76

SS-20	SS-20 0.00 – 0.17
Constituent (ppm)	
Total PAHs	33.19
Total Carcinogenic PAHs	16.18

SS-21	SS-21 0.00 – 0.17
Constituent (ppm)	
Total PAHs	15.063
Total Carcinogenic PAHs	8.04

SS-06	SS-6 0.00 – 0.17
Constituent (ppm)	
Total PAHs	79.68
Total Carcinogenic PAHs	39.5

SS-02	SS-2A 0.00 – 0.17
Constituent (ppm)	
Total PAHs	137.57
Total Carcinogenic PAHs	79.2

SS-08	SS-8 0.00 – 0.17
Constituent (ppm)	
Total PAHs	180.17
Total Carcinogenic PAHs	101.5

SS-22	SS-22 0.00 – 0.17
Constituent (ppm)	
Total PAHs	63.33
Total Carcinogenic PAHs	35.4

SS-10	SS-10 0.00 – 0.17
Constituent (ppm)	
Total PAHs	32.62
Total Carcinogenic PAHs	15.74

SS-27	SS-27 0.00 – 0.50
Constituent (ppm)	
Total PAHs	46.31
Total Carcinogenic PAHs	20.01

FORMER GAS HOLDER 80,000 cu. ft.

FORMER GAS HOLDER 200,000 cu. ft.

FORMER MULTI-LEVEL BLOCK BUILDING

FORMER GAS HOLDER

CLARK STREET

STATE STREET

EAST STREET

NORTH STREET

TETRA TECH EC, INC.

TITLE:
TOTAL PAHs AND TOTAL cPAHs IN SITE AND NEAR SITE AREA SURFACE SOIL LOCATIONS
Remedial Investigation Report
Ilion (East Street) Site

nationalgrid

DWN:	DES.:	PROJECT NO.:
LEA	LEA	2907.0003.0003
CHKD:	APPD:	FIGURE NO.:
JG	RC	4
DATE:	REV.:	
02/11/05	1	

N:\GIS\GISKEY\GISPROJ31\ILION EAST STREET\RI RE-REISSUE FIGURES\RI FIGURE 4-1 SITE SURFACE SOIL BLOCKS.DWG

LEGEND

- APPROXIMATE SEDIMENT SAMPLE LOCATION IN OPEN SWALE AREA (SEE NOTE 9)
- APPROXIMATE BOUNDARY OF OFF-SITE STUDY AREA
- OUTLINE OF OPEN SWALE
- WMH WATER MANHOLE
- CMP CORRUGATED METAL PIPE

0 40 80
FEET

NOTES:
1. ALL CONCENTRATIONS ARE IN PARTS PER MILLION (PPM).
2. PAH – POLYCYCLIC AROMATIC HYDROCARBON.
3. ALL SAMPLE DEPTHS ARE IN FEET BELOW GROUND SURFACE.
4. LOCATIONS SHOWN IN RED CONTAINED ELEVATED CONCENTRATIONS (I.E., >4 PPM) OF TOTAL MGP-RELATED PAHs BASED ON FINGERPRINTING RESULTS.
5. LOCATIONS SHOWN IN GREEN CONTAINED ELEVATED CONCENTRATIONS (I.E., >4 PPM) OF TOTAL NON-MGP-RELATED PAHs BASED ON FINGERPRINTING RESULTS.
6. LOCATIONS SHOWN IN BLUE CONTAINED ELEVATED CONCENTRATIONS (I.E., >4 PPM) OF TOTAL PAHs; NO FINGERPRINT RESULTS ARE AVAILABLE TO DETERMINE MGP CONTRIBUTION.
7. LOCATIONS SHOWN IN BLACK DID NOT HAVE ELEVATED CONCENTRATIONS (I.E., <4 PPM) OF TOTAL PAHs.
8. ND – NOT DETECTED.
9. FOR THE PURPOSE OF THIS FIGURE, SEDIMENT SAMPLES WERE ASSUMED TO BE LOCATED IN THE OPEN SWALE AREA AND COLLECTED AT LESS THAN 2 FEET BELOW GROUND SURFACE (FT BGS).

TTSED01 (2004) Constituent	Depth of Sample 1.5 – 2.0 ft bgs
Total PAHs (ppm)	8.6

TTSED02 (2004) Constituent	Depth of Sample 1.5 – 2.0 ft bgs
Total PAHs (ppm)	208

TTSED05 (2006) Constituent	Depth of Sample 0.0 – 2.0 ft bgs
Total PAHs (ppm)	115.4

TTSED10 (2006) Constituent	Depth of Sample 0.0 – 2.0 ft bgs
Total PAHs (ppm)	49.3

TTSED04 (2004) Constituent	Depth of Sample 1.5 – 2.0 ft bgs
Total PAHs (ppm)	ND

TTSED05 (2004) Constituent	Depth of Sample 0.0 – 2.0 ft bgs
Total PAHs (ppm)	2.5

TTSED12 (2006) Constituent	Depth of Sample 0.0 – 2.0 ft bgs
Total PAHs (ppm)	61.0

TTSED03 (2004) Constituent	Depth of Sample 1.5 – 2.0 ft bgs
Total PAHs (ppm)	131.6

TTSED09 (2006) Constituent	Depth of Sample 0.0 – 2.0 ft bgs
Total PAHs (ppm)	49.3

TTSED06 (2006) Constituent	Depth of Sample 0.0 – 2.0 ft bgs
Total PAHs (ppm)	73.6

TTSED07 (2006) Constituent	Depth of Sample 0.0 – 2.0 ft bgs
Total PAHs (ppm)	62.9

TTSED11 (2006) Constituent	Depth of Sample 0.0 – 2.0 ft bgs
Total PAHs (ppm)	45.8

DPW GARAGE
DPW DEBRIS DISPOSAL AREA
SWALE WITH STANDING WATER
NEW YORK STATE ROUTE 5S
NYS Barge Canal/Mohawk River (approximate – not surveyed)

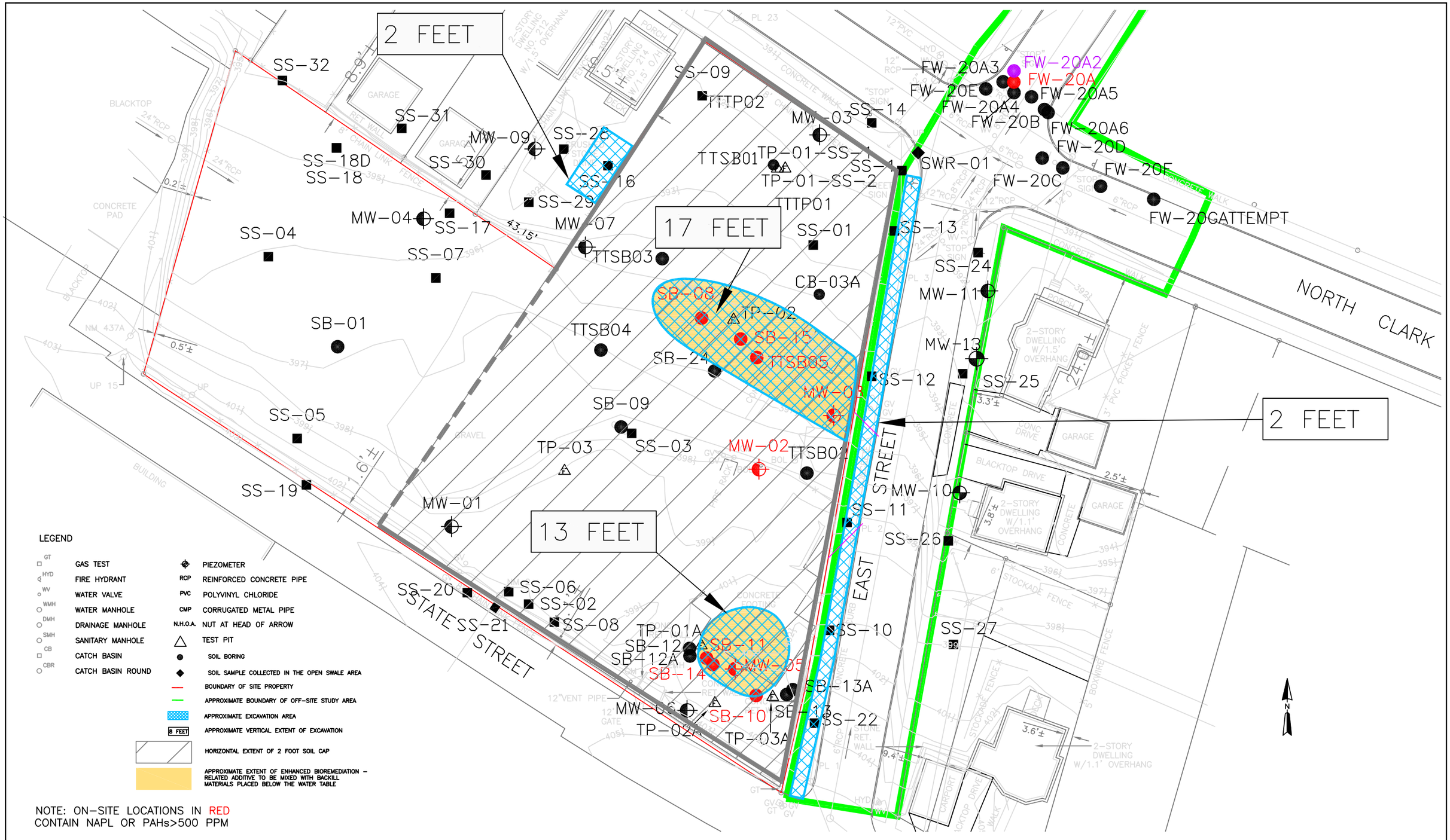
TETRA TECH EC, INC.

TITLE:
TOTAL PAHs IN SEDIMENT IN THE OPEN SWALE AREA
Proposed Remedial Action Plan
Ilion (East Street) Site

nationalgrid

DWN.: LMC / LEA	DATE: 1/12/11	PROJECT NO.: 106-2907.0003
CHKD:	REV.: 1	FIGURE NO.: 5
DES.:	APPD:	

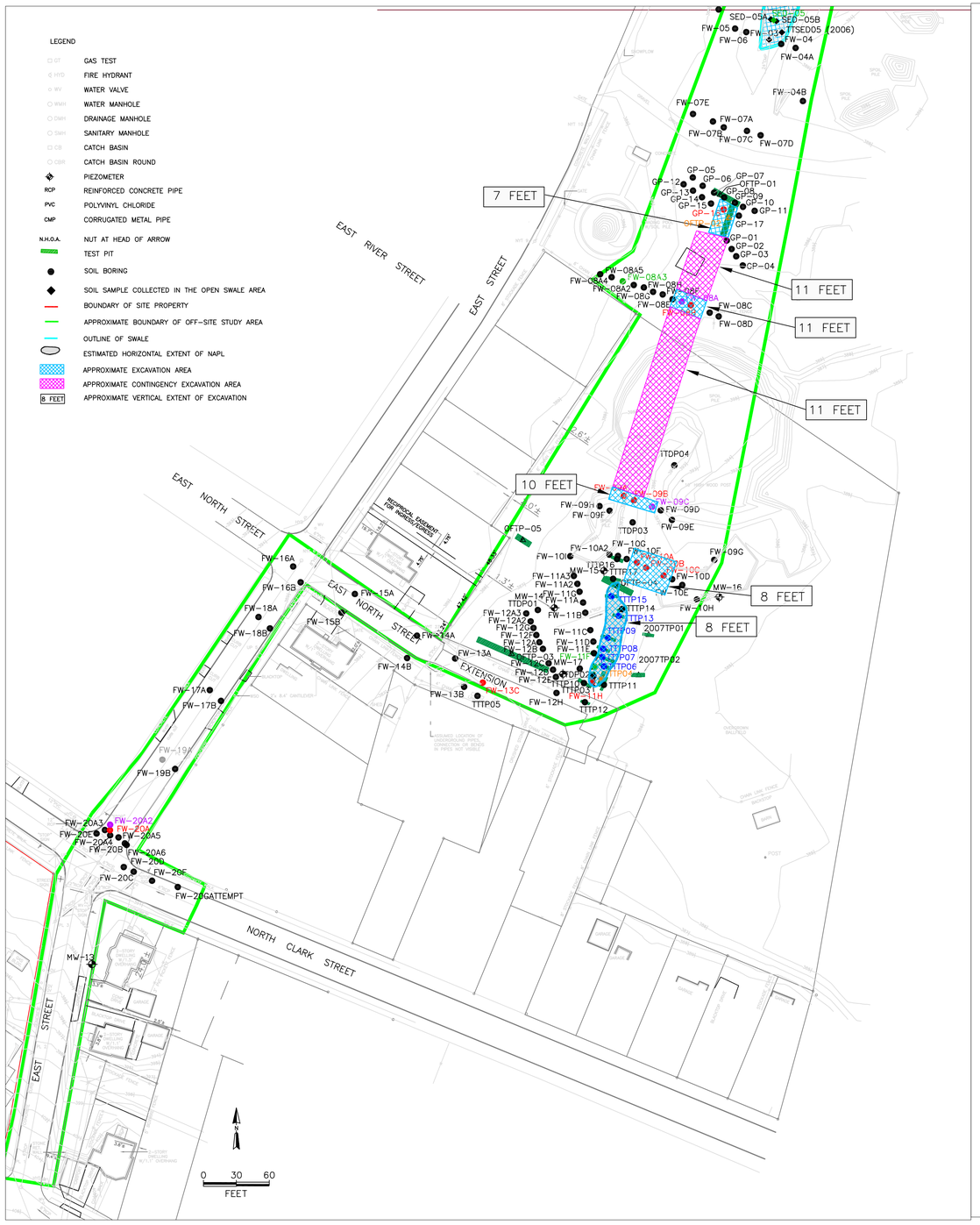
N:\GIS\GISKEY\GISPROJ31\ILION EAST STREET\2011 RAP FIGURES\FIGURE 1 SEDIMENT 2 FT BGS SWALE BLOCKS 011211.DWG



New York State Department of Environmental Conservation	Selected Remedy S-3: Excavation of MGP-Related Impacts, Soil Cover, Off-Site Disposal, Enhanced Bioremediation, and Institutional Controls to Restricted Residential Usage	Figure 6

LEGEND

- GT — GAS TEST
- HYD — FIRE HYDRANT
- WV — WATER VALVE
- WMH — WATER MANHOLE
- DMH — DRAINAGE MANHOLE
- SMH — SANITARY MANHOLE
- CB — CATCH BASIN
- CBR — CATCH BASIN ROUND
- PIEZOMETER
- RCP — REINFORCED CONCRETE PIPE
- PVC — POLYVINYL CHLORIDE
- CMP — CORRUGATED METAL PIPE
- N.H.O.A. — NUT AT HEAD OF ARROW
- TEST PIT
- SOIL BORING
- SOIL SAMPLE COLLECTED IN THE OPEN SWALE AREA
- BOUNDARY OF SITE PROPERTY
- APPROXIMATE BOUNDARY OF OFF-SITE STUDY AREA
- OUTLINE OF SWALE
- ESTIMATED HORIZONTAL EXTENT OF NAPL
- APPROXIMATE EXCAVATION AREA
- APPROXIMATE CONTINGENCY EXCAVATION AREA
- 8 FEET — APPROXIMATE VERTICAL EXTENT OF EXCAVATION



NOTES:

LOCATIONS SHOWN IN RED INDICATE CONTAINED ELEVATED CONCENTRATIONS (i.e., >500 PPM) FOR TOTAL PAHs.

LOCATIONS SHOWN IN PURPLE INDICATE CONTAINED ELEVATED CONCENTRATIONS (i.e., >500 PPM) FOR TOTAL PAHs AND FINGERPRINT RESULTS INDICATE COAL TAR AS PRIMARY CONSTITUENT.

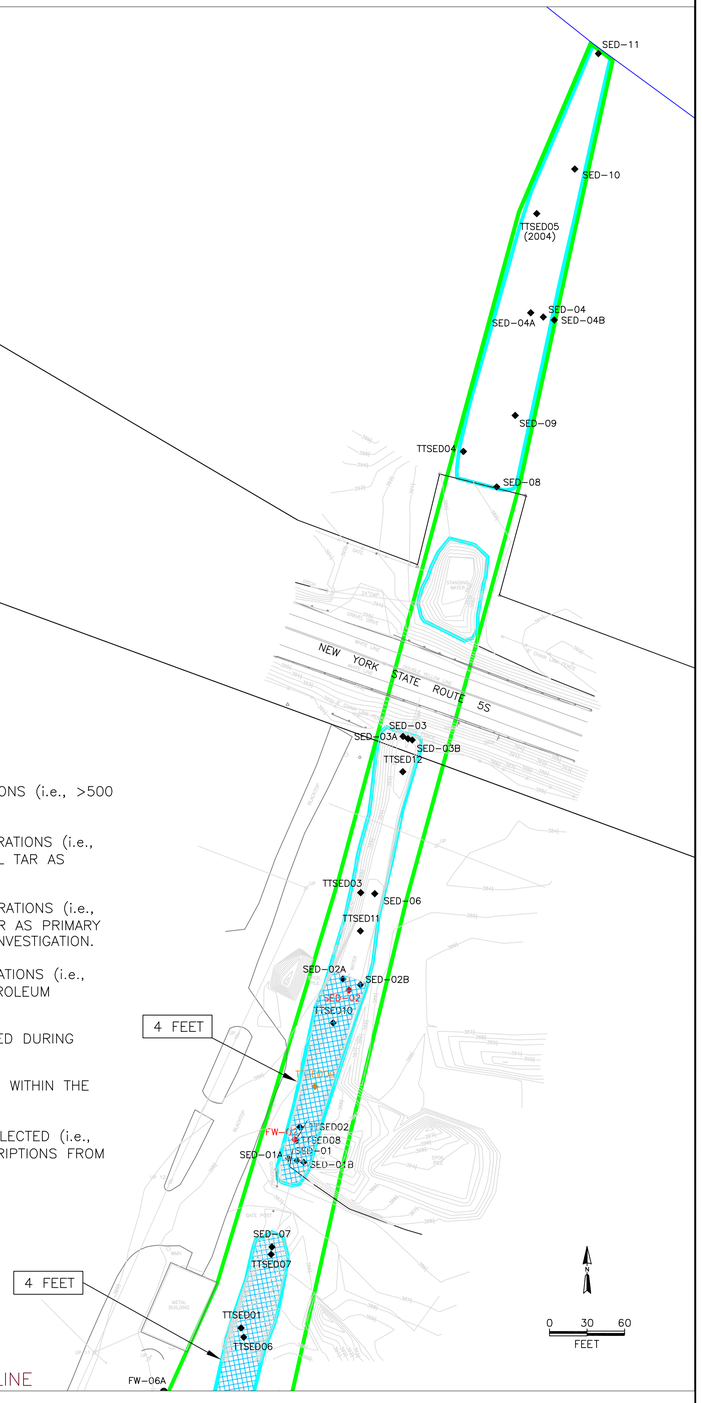
LOCATIONS SHOWN IN ORANGE INDICATE CONTAINED ELEVATED CONCENTRATIONS (i.e., >500 PPM) FOR TOTAL PAHs, FINGERPRINT RESULTS INDICATE COAL TAR AS PRIMARY CONSTITUENT, AND OBSERVANCE OF NAPL IN LOCATION DURING FIELD INVESTIGATION.

LOCATIONS SHOWN IN GREEN INDICATE CONTAINED ELEVATED CONCENTRATIONS (i.e., >500 PPM) FOR TOTAL PAHs AND FINGERPRINT RESULTS INDICATE PETROLEUM PRODUCT AS PRIMARY CONSTITUENT

LOCATIONS SHOWN IN BLUE INDICATE THE PRESENCE OF NAPL OBSERVED DURING FIELD INVESTIGATION BUT NO ANALYTICAL SAMPLE WAS COLLECTED.

LOCATIONS SHOWN IN GRAY INDICATE THAT NO SAMPLE WAS COLLECTED WITHIN THE SOIL LAYER FOR THAT BORING/TEST PIT.

DETERMINATION OF THE SOIL INTERVAL IN WHICH THE SAMPLE WAS COLLECTED (i.e., ABOVE OR WITHIN/BELOW PEAT LAYER) WAS BASED ON MATERIAL DESCRIPTIONS FROM THE BORING LOGS/TEST PIT LOGS.



TETRA TECH EC, INC.

TITLE:

Alternative S-3 Excavation of MGP Related Impacts, Soil Capping, Off-Site Disposal and Institutional Controls (Off-Site Area)
Feasibility Study – Ilion (East Street) Site

nationalgrid

DWN:	DES.:	PROJECT NO.:
LMC	EAG	2907.0003
CHKD:	APPD:	FIGURE NO.:
RC		7
DATE:	REV.:	
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APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

NM – Ilion MGP Site
Ilion, Herkimer County, New York
Site No. 622019

The Proposed Remedial Action Plan (PRAP) for the NM - Ilion MGP Site, was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on February 15, 2011. The PRAP outlined the remedial measure proposed for the contaminated soil and groundwater at the NM - Ilion MGP Site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on February 17, 2011 which included a presentation of the remedial investigation feasibility study (RI/FS) for the NM- Ilion MGP Site as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on March 17, 2011.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the Department's responses:

The following comments were received during the February 17, 2011 public meeting:

COMMENT 1: Are the two impacted areas shown along the swale closer to the DPW or East Street?

RESPONSE 1: The two impacted areas along the swale are closer to the DPW.

COMMENT 2: Why wasn't testing performed outside the property line given that a neighbor has cancer?

RESPONSE 2: On-site sampling was conducted to characterize the nature and extent of contamination. Where the boundaries of contamination were confirmed on the site, no further sampling was initiated in those directions at off-site properties. In the directions that the on-site sampling results suggested the potential for off-site migration of contamination, sampling was conducted at off-site properties to determine the extent of impacts. Extensive off-site surface soil sampling was conducted in areas north and east of the MGP site.

COMMENT 3: Why did you not extend the radius of investigation in all directions of the site?

RESPONSE 3: See Response 2.

COMMENT 4: Why didn't you ask people in neighborhood permission to obtain samples in their houses?

RESPONSE 4: 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. Soil vapor sampling was conducted along the perimeter of the MGP site to determine if contaminants were migrating in soil vapor toward off-site structures. The results of the sampling indicated that MGP-related contaminants are not migrating off-site in the soil vapor, therefore no air sampling inside homes was conducted.

COMMENT 5: Will you consider taking additional samples along the swale?

RESPONSE 5: A pre-design investigation will be performed prior to the remedial design, to better delineate the limits of the removal action. This will likely include additional samples from the swale.

COMMENT 6: Were any of the homes sampled?

RESPONSE 6: See Response 4.

COMMENT 7: I live between Clark and North Street so I am concerned where you found contamination near the gas house.

RESPONSE 7: The investigations conducted have identified MGP- related contamination in the vicinity of the MGP structures. This is not uncommon at former MGP sites. The selected remedy will address this contamination.

COMMENT 8: Every single house along East Street has a case of cancer.

RESPONSE 8: We recognize that the community is concerned with cancer rates in the area. The NYSDOH is currently working with community members to better understand the community's health concerns. In New York State, physicians and other health care providers are required to notify the NYSDOH of every case of cancer diagnosed. The NYSDOH uses this information to track cancer incidence rates in the State and at a local level (i.e., County), to develop reports for the public, to identify geographical areas that may have elevated incidence of a specific type or types of cancer for study, and ultimately to learn more about the potential causes of cancer for the purposes of prevention. More information about the NYS Cancer Registry can be found at http://www.health.state.ny.us/statistics/cancer/registry/.

COMMENT 9: Is it possible for the type of contamination found to travel along with surface water to people's houses?

RESPONSE 9: The primary contaminants of concern in surface soil are polycyclic aromatic hydrocarbons (PAHs). The levels of contamination identified in the surface soil is generally low concentration, and since PAHs tend to adsorb to soil particles these contaminants are not expected to dissolve in any surface water which may be present at the site. Therefore this contamination is not susceptible to leaving the site through surface water run-off. The vegetative cover currently present at the site further limits surface water run-off.

COMMENT 10: You mentioned earlier that this material flows and has settled along the clay layer. Is it not possible that you may have missed some of this contamination?

RESPONSE 10: The Department believes the nature and extent of contamination on and off the site has been adequately delineated. However, a pre-design investigation to refine the limits of contamination, and assist with the development of remedial plans and specifications is a component of the selected remedy.

COMMENT 11: You said there were pipelines from Utica that transported gas to this facility; did you check if there is contamination along those pipelines? I don't think you have done enough here.

RESPONSE 11: There is no evidence based on the site investigations that historical pipelines leading from Utica to the former MGP facility still exist today. In addition, since coal tar condensed generally within and in close proximity to the gas holders near the point it was produced, significant contamination along the pipelines is not likely.

COMMENT 12: We want you to investigate further as we believe you have not done a thorough job here.

RESPONSE 12: See Response 10.

COMMENT 13: We feel this is tip of the iceberg. We are glad that you are here to make this presentation to us.

RESPONSE 13: Comment noted.

COMMENT 14: I have a fourteen year daughter who used to play near the DPW garage area. Will you guarantee that she will not be impacted by this material?

RESPONSE 14: Results of the remedial investigation did identify MGP related contamination in sub-surface soils in the off-site drainage swale. Since the contamination in the drainage swale area is located 5 feet below the water surface and the swale is not easily accessible, we would not expect people to come in contact with

the contamination unless they dig below the surface and handle the soil. Simply being present (e.g. playing) in this area should not represent a significant exposure concern due to the location of the contamination.

COMMENT 15: Most people have lived here for a long time, so we are more concerned about long term exposure to this contamination, and yet the DOH study did not take this into account.

RESPONSE 15: It is not clear what study this comment is in reference to. There was no health study conducted as part of the MGP site investigation. For these types of sites, an assessment of the potential for exposure to site contaminants is conducted, which is summarized in Section 5.3 of the ROD. However, as discussed in the response to Comment 8, the NYSDOH is currently working with community members to better understand the community's health concerns.

COMMENT 16: Did you look at various companies in the community and find out how the cancer rate is compared to each operation?

RESPONSE 16: No. Such a study is outside the scope of this remedial project.

COMMENT 17: Given that this facility is close to residential properties, we believe that you should clean this site up for residential use.

RESPONSE 17: National Grid is the current owner of the property and does not intend, in the foreseeable future, to use the site for purposes other than commercial use. However, given the location of the property the Department has modified the remedy to provide for remediation commensurate with restricted residential use. Restricted residential use allows for the development of the site for multiple family dwellings and active recreational use.

COMMENT 18: Can you tell me how this site was selected for investigation as opposed to others?

RESPONSE 18: This site is one of many Manufactured Gas Plant (MGP) sites in New York. The Department is actively pursuing the investigation and remediation of former MGPs. The former Ilion MGP site is one of 51 former Niagara Mohawk MGP sites for which National Grid is obligated to investigate and remediate, under consent orders with the Department.

COMMENT 19: I hope you will walk away understanding that the community wants this property cleanup to residential use level.

RESPONSE 19: Comment noted. Also see Response 17.

COMMENT 20: We want to make sure that all (Ilion Project) sites are addressed and not just this one alone. We want safe place for our children.

RESPONSE 20: Comment noted.

COMMENT 21: How long does natural attenuation take to clean up the groundwater?

RESPONSE 21: After source removal, natural attenuation processes typically show significant improvement in groundwater quality within the first five to ten years. Based on the types and concentrations of the contaminants present, this process will be enhanced with the addition of oxygen release compound.

COMMENT 22: Where will the excavated soil go?

RESPONSE 22: The most heavily impacted soil will go to a thermal treatment unit (Low Temperature Thermal Desorption) at a permitted facility. Soil removed with lesser impacts may be sent to a permitted solid waste landfill.

COMMENT 23: Is there a more aggressive form to clean up the groundwater rather than natural attenuation?

RESPONSE 23: Yes, natural attention can be enhanced with the addition of certain nutrients including oxygen release compound (ORC). While it was not included as an element of the proposed remedy initially because of the low levels of contamination present in the groundwater, the selected remedy has incorporated "enhanced bioremediation" as a component of the groundwater remedy in response to public comments on the proposed remedy. This enhancement will involve adding an ORC during backfilling of the excavation(s) below groundwater level. The addition of ORC should expedite the improvement to groundwater quality.

COMMENT 24: What will this do to property values?

RESPONSE 24: This comment is outside the scope of the remedial program.

COMMENT 25: Will the fence be taken down after remediation?

RESPONSE 25: The decision to reinstall the fence, post remedial action, is National Grid's. It is not, however, an engineering control required as part of the remedial program.

COMMENT 26: The current fence is not installed near the ground surface along Clark Street allowing easy access for children to crawl into the property.

RESPONSE 26: National Grid will be asked to perform an inspection and maintenance, as necessary, of the existing fence.

The following written comments were received during the comment period, which are included in the Administrative Record (Appendix B).

Several letters and emails expressing comments similar to those identified as Comment 17 and Comment 23 above. Letters were submitted by: Gerald Daly, Kathy L. Murphy, Robert and Rory Turley, Barbara Horwald and Kathryn Welch. Email correspondence was received from: Tracey Thompson Coccitto, Vicki Coffin Judd, Kevin J. Bluett Sr., Janet Denny, Barbara Larson, Estelle Fosella, Coleen, Arthur, Nicole and Donna Jean Adler, Penelope Remmell Huening, Carrie Firestone and The Ilion Project Task Force. Response 17 and Response 23 apply to these comments as well.

A letter dated March 11, 2011 was received from Julie Welch Marshall with the following additional comments:

COMMENT 27: Soil Exposure Pathway - Page 6 of the PRAP indicates that the site is completely fenced and that people do not come into contact with the contaminated soil unless they walk on the dirt, dig below the ground surface, or otherwise disturb the soil. However, I believe there is unrestricted access to the contaminated creek channel and swales and that the residential property to the west of the facility could have exposure if 1) an underground pool was installed, or 2) the property was redeveloped in the future. I also understand that the swales and creek channels have changed over the years following the construction of various roads and highways. These other potential former pathways should be assessed appropriately through review of historic aerial photographs and other historic documents and additional sampling and testing.

RESPONSE 27: Section 6.3, Summary of Human Exposure Pathways, acknowledges that access to the drainage swale is unrestricted, and it concludes "... however this area is not easily accessible due to heavy vegetation". Also see Response 14.

The investigation on-site did not indicate that MGP related contamination in the sub-surface soil is/has migrated off-site. One surface soil sample collected from the driveway of the residential property located to the west of the site did contain MGP related contaminants and this location will be excavated and disposed of during implementation of the proposed remedy. In addition, confirmatory soil samples will be collected to ensure contamination does not extend at depth. See Response 2.

Historic aerial photos and other historic documents were reviewed as part of this remedial investigation and are described in the Remedial Investigation Report, which is available to the public for review at the Ilion Public Library.

COMMENT 28: Groundwater Exposure Pathway - Page 6 of the PRAP indicates that people do not come into contact with the groundwater unless they dig below the ground surface. However, it is a common occurrence in Ilion to have your basement flood during heavy rain events. This potential pathway should be

assessed appropriately through community interviews and additional sampling and testing.

RESPONSE 28: Since MGP related contaminants present in groundwater were not found to be migrating off-site, groundwater infiltration in basements at surrounding off-site buildings is not considered a potential pathway of exposure to site related contamination. Also see Response 2.

COMMENT 29: Drinking Water Source – Although the drinking water in Ilion is not obtained from the groundwater in the vicinity of this site, our drinking water pipelines that serve the residences and business in the area are underground and may be affected by the groundwater contamination reported at 5 to 15 feet below grade. The information provided in the PRAP did not indicate the specific depth to groundwater at various locations throughout the site with respect to Ilion's drinking water pipelines. As I am sure you are aware, utility trenches can act as pathways for migration of contaminants and should be researched and assessed. Please provide additional information regarding these potential pathways.

RESPONSE 29: During the remedial investigation an extensive number of soil borings were installed and samples collected within the utility corridors along East Street and East North Street Extension. The utility corridors were found to be free of site-related contamination. Public water suppliers are required to maintain pressure at all points within the distribution system. This required pressure serves several functions including preventing groundwater infiltration into the water lines, therefore the drinking water pipelines in this area are not threatened in any way by the on-site groundwater contamination.

COMMENT 30: Cleanup Standards - Although contaminated properties are typically remediated to residential or commercial standards based on the current land use, I expect that the facility would be remediated to commercial standards only if the facility would remain in operation and not cause a future blight to the community. I would also expect that adjacent and nearby residential properties would be remediated to their current and planned future use as residential or park areas for the community. This would include streets and utilities in the area where exposure could occur through routine maintenance or repair of the underground utilities.

RESPONSE 30: See Response 17 and Response 29.

COMMENT 31: Groundwater Remediation - The PRAP indicates that the groundwater will not be treated and natural attenuation will occur following source removal. This remedy will require long term monitoring of the groundwater. Enhanced natural attenuation of contaminated groundwater (by the addition of oxygen nutrients and/or other amendments) should be utilized to stimulate indigenous bacteria to degrade dissolved contaminants. This could easily be added to the

remediation plan by blending oxygen enhancing amendments into the backfill of the on-site excavation areas.

RESPONSE 31: See Response 23.

COMMENT 32: Proposed Remedy/Exhibit A - Page 9 of the PRAP indicates that near site soils will be remediated to background levels of PAHs and MGP related contaminated soils. I am unclear on what background levels of PAHs and MGP related chemicals are and would like to know where this background concentration reference came from.

RESPONSE 32: A total of 14 surface soil samples were collected from areas within the City of Ilion at locations that were determined not to have been impacted by site activities. These are considered "background" surface soil conditions. Details of the background study are in the Remedial Investigation Report.

COMMENT 33: It seems that 500 ppm for PAHs and 40 ppm for cyanide are too high for all of the impacted areas identified in the PRAP. Also, the term 'Total MGP-related PAHs' is not easily understood by the average citizen. Please explain why and how the 500 ppm PAH concentration will be utilized. Former MGP facilities in California have been remediated to much lower levels of PAHs that what is proposed in this PRAP. For example, the Fullerton MGP site was remediated to background levels of less than 1 mg/kg for Total Carcinogenic-PAHs. What is the background level of Total Carcinogenic PAHs at the Ilion MGP site? Why has DEC decided to remediate to 500 mg/kg Total PAHs rather than background levels of Total Carcinogenic PAHs? Will these SCOs (500 ppm for PAHs and 40 ppm) for cyanide be used for the Swale Soil as well? Please provide a figure or simple table outlining the different areas and specific SCOs for each area.

RESPONSE 33: The soil cleanup objectives (SCOs) utilized (i.e., the concentration of a given contaminant for a specific site that must be achieved under a remedial program for soil) have been established by the NYSDEC and the NYSDOH and promulgated at either 6 NYCRR 375-6 or in the Supplemental Soil Cleanup Objectives in Commissioner's Policy No. 51 (CP-51); which includes a "totals" approach for a family of contaminants known as Polycyclic Aromatic Hydrocarbons (PAHs). The soil cleanup objectives of 500 ppm for PAHs and 40 ppm for cyanide are listed in CP-51 and Part 375, respectively. Noteworthy is that total PAH SCO is applicable to subsurface soil, not surface soil. For more information, background and a detailed discussion of the considerations for development of the SCOs for the different land uses and exposure pathways, please refer to the Department's Technical Support Document (TSD) dated December 2006. The TSD is available on Department's website.

COMMENT 34: Also, in Exhibit A, several different tables are provided indicating the variety of chemicals detected and the unrestricted and commercial use Soil Cleanup Objectives. However, the data presented are not shown in figures identifying the location of these concentrations and the PRAP does not clearly indicate which SCOs will be used for the other chemicals present onsite, such as benzene. On page 2 of Exhibit A, the groundwater section incorrectly references Figure 3, instead of Figure 4-5C. Other inconsistencies like this were identified in the PRAP as well

RESPONSE 34: In response to the comment(s) concerning the level of cleanup in specific areas, the site proper will be remediated to allow restricted-residential use, and the contaminated "near-site" areas will be remediated to support residential use. Note also that page 2 of Exhibit A was intended to reference PRAP Figure 3. Also see Response 37.

COMMENT 35: Isoconcentration maps for benzene, PAHs and naphthalene should be provided, as well as a groundwater flow direction map. In addition, several other contaminants were present in the groundwater and isoconcentration maps of these chemicals were not provided.

RESPONSE 35: Other non-MGP related contaminants not specifically targeted for removal are in most cases co-located with MGP-related contaminants in the target media and will be removed as part of the remedy based on the presence of those compounds.

COMMENT 36: Cross Section D-D' identifies a 'bottom of holder' that appears to have prevented full site assessment of the southeast portion of the site. Is additional soil and groundwater assessment planned for this area following removal?

RESPONSE 36: Regarding materials below the holder foundations, the PRAP and ROD state that the remedy will completely remove subsurface structures and associated piping. Any impacted materials encountered at the bottom or foundations of the structures will also be removed.

COMMENT 37: Figure 4-9 - This figure clearly identifies the location of cross sections C-C' and D-D'. However, the location of B-B' is unclear (believed to be in the swale) and there is no reference to Cross Section A-A'. This figure is not clearly referenced in the report and the cross sections should include the depth below ground surface, not just the elevations. Cross Section B-B' clearly identifies two sewer pipelines below groundwater, however, the groundwater levels in the other two cross sections are not shown.

Response 37: Please note that more detailed information including additional figures and data tables not presented in the ROD (for the sake of brevity), can be found in the various documents produced for this site. Copies of all site related documents can be found in the document repositories established for the site.

Steven Stucker of National Grid submitted a letter dated March 11, 2011 which included the following comments:

COMMENT 38: Page 2 (first bullet) of the Fact Sheet and Page 1 of Exhibit C (under Alternative S-3) state the following "The volume of this excavation is currently estimated to be 5,460 cubic yards, both on and off the site." It should be noted that NYSDEC did not include any contingency soils in their volume estimate.

RESPONSE 38: This was the volume of known impacted soils identified in the Feasibility Study. The ROD has been revised to include the estimated volume with the contingency soils removal volume.

COMMENT 39: Page 1 of Exhibit C to the PRAP (under Alternative S3) states "A one-foot soil cover will be placed over backfilled excavations and over on-site soils with contaminant concentrations that exceed the soil cleanup objectives (SCOs) for commercial use." NYSDEC should clarify that the statement in the PRAP is correct.

RESPONSE 39: The remedy has been revised to reflect remediation to restricted residential, rather than commercial use objectives and that a two-foot soil cover will be placed instead of one-foot. The ROD and Exhibits have been revised, accordingly.

COMMENT 40: "Site" references in the PRAP are somewhat confusing. For example, Section 6.3 of the PRAP indicates that the site is completely fenced. This is true for the National Grid-owned portion of the Site but not for the off-site areas.

RESPONSE 40: "Site" refers to the National Grid-owned property which is the origin of the contamination but not the off-site areas.

COMMENT 41: The groundwater scenario costs listed in Exhibits C and D of the PRAP do not match those costs listed on Pages 4-23 and 4-25 of the FS.

RESPONSE 41: The annual cost for Alternative GW3 was revised to the value in the FS.

COMMENT 42: Section 7.2 of the PRAP includes a generic list of "green" and "sustainable" efforts that will be considered in the design and implementation of the remedy. Instead of listing these generic items, National Grid recommends that NYSDEC make reference to green remediation and sustainability efforts to be considered during the remedial design, consistent with DER-31 Green Remediation.

RESPONSE 42: The Department will give considerations to this request during the Design phase of the project at which time only the appropriate components pertinent to the site will be included.

A letter dated February 18, 2011 was received from Lisa M. Evans.

COMMENT 43: Comments and exhibits relating to another property/site in Ilion were provided.

RESPONSE 43: These additional comment/exhibits deal with a property outside the scope of the remedial program for this site and are not addressed by this responsiveness summary.

APPENDIX B

Administrative Record

Administrative Record

NM - Ilion MGP Site
Ilion, Herkimer County, New York
Site No. 622019

1. Proposed Remedial Action Plan for the NM - Ilion MGP Site, dated February 2011, prepared by the Department.

2. "Revised Remedial Investigation Report for the Ilion (East St.) Site", Volume 1 of 2, April 2009. prepared by Tetra Tech, Inc.

3. "Revised Remedial Investigation Report for the Ilion (East St.) Site", Volume 2 of 2, April 2009. prepared by Tetra Tech, Inc.

4. "Final Feasibility Study Report for the Ilion (East St.) Site", August 2010

5. Letter dated February 18, 2011 from Lisa M. Evans.

6. Letter dated February 27, 2011 from Gerald Daly.

7. Letter received March 2, 2011 from Kathy L. Murphy.

8. Letter dated March 3, 2011 from Robert & Rory Turley.

9. Letter dated March 4, 2011 from Barbara Horwald.

10. Letter dated March 4, 2011 from Kathryn Welch.

11. Letter dated March 11, 2011 from Julie Welch Marshall.

12. Email dated February 27, 2011 from Tracey Thompson Coccitto.

13. Email dated February 27, 2011 from Vicki Coffin Judd.

14. Email dated February 27, 2011 from Kevin J. Bluett, Sr.

15. Email dated February 28, 2011 from Janet Denny.

16. Email dated February 28, 2011 from Barbara Larson.

17. Email dated February 28, 2011 from Estelle Fosella.

18. Email dated March 8, 2011 from Coleen & Arthur & Nicole & Donna Jean Adler.

19. Email dated March 8, 2011 from Penelope Remmell Huening.

20. Email dated March 9, 2011 from Carrie Firestone and The Ilion Project Task Force.

21. Letter dated March 11, 2011 from Steven Stucker of National Grid.