Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

NYSEG Lockport Transit Street MGP Site
Lockport (c), Niagara County, New York
Site Number 932098

March 2009

New York State Department of Environmental Conservation
David Patterson, *Governor* Alexander B. Grannis, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

NYSEG Lockport Transit Street MGP Site
Lockport (c), Niagara County, New York
Site No. 932098

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the NYSEG Lockport Transit Street MGP site. The selected remedial program was chosen in accordance with the New York State Environmental Conservation Law 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 NYSEG Lockport Transit Street MGP inactive hazardous waste disposal site, and the public's input to the Proposed Remedial Action Plan (PRAP) 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.

Assessment of the Site

Actual or threatened releases of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential significant threat to public health and/or the environment.

Description of Selected Remedy

Based on the results of the Remedial Investigation and Feasibility Study (RI/FS) for the NYSEG Lockport Transit Street MGP site and the criteria identified for evaluation of alternatives, the Department has selected excavation of the most heavily impacted area (the "source area"), a barrier to eliminate the discharge of MGP Tar into the canal, containment of the contamination which can not be reasonably excavated, and a series of wells to remove otherwise inaccessible non-aqueous phase liquid (NAPL).
The components of the 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.

2. Relocation of the Control House and 12 kV switchgear from the western portion of the site to the eastern portion of the site to allow excavation in that area.

3. Excavation and removal of approximately 4,000 cy of material from the western side of the substation and approximately 3,200 cy of material within LaGrange Street, as shown in Figure 8. Excavated soil will be subject to stockpiling, waste characterization testing and either transported off-site to a thermal desorption facility or an appropriate landfill. Excavated soil may only be re-used on-site (not in LaGrange Ave.) as backfill material. Excavated asphalt and clean demolition debris will be recycled on-site as backfill if found to be suitable. Otherwise, it will be disposed at an appropriate landfill. Excavated areas will be backfilled and adequately compacted. Any imported backfill will meet applicable soil cleanup objectives or be otherwise acceptable to the Department (e.g. virgin, granular material from a quarry). The permeability of backfill will be considered along with the design of collection and barrier systems to address potential interactions. Paved areas will be restored to preconstruction conditions, and disrupted utilities will be restored.. Unpaved areas will have a minimum of 12" of soil cover meeting applicable soil cleanup objectives. If excavated soil is re-used on-site as backfill, a demarcation layer will be provided. The excavation will generally extend to bedrock, except for the southern-most portion where significant impacts do not appear to extend to bedrock.

4. Removal of the remaining subsurface foundation of easternmost at-grade holder. Soils in the vicinity of this holder (approximately 400 cy) which have total PAHs above 500 mg/kg and exhibit a sheen will also be removed. No NAPL saturation is anticipated in this area, and soil excavation below 4 feet is not anticipated. Excavated soil and demolition debris will be handled as describe in item 3, above.

5. An overburden NAPL collection trench will be constructed on the north and west sides of the remaining substation equipment. These will remove the most mobile NAPL and will control lateral migration of NAPL. Subsurface barriers will also be installed on the south and east sides of the NYSEG property, designed to allow groundwater flow over the barrier and while controlling lateral migration of NAPL. Barrier construction materials and techniques will be assessed during design. Material removed from the trench will be sent for off-site treatment/disposal. The groundwater flow will be assessed considering the barrier walls, collection trenches, excavation backfill, and the overburden/bedrock interactions to limit groundwater flow through the remaining source material.

6. A geomembrane cap overlain with crushed stone will cover the surface of the area shown on Figure 8, with the membrane sealed to substation equipment slabs. The cap and crushed stone will, together, be at least 12 inches thick. Sand or some other material will likely be required to protect the geomembrane from puncture.

7. Approximately 400 linear feet of grout wall will be constructed in the bedrock downgradient of the interceptor trench. It will extend from 1 to 2 feet above the overburden/bedrock interface to an approximate depth of 75 feet to control migration of NAPL through the bedrock. Bedrock grouting will require further evaluation and pilot testing to refine techniques, materials, monitoring, and implementability. NAPL recovery wells will be installed upgradient of the wall at the two endpoints of the wall, and every 25 feet (minimum) between. See Figure 8.

8. Approximately 200 linear feet of grout wall will be constructed in the bedrock, along the Canal in the vicinity of the seeps. Approximately 9 NAPL collection wells, at a spacing of 25 feet, maximum, will be installed upgradient of the grout wall to collect the NAPL being blocked by the wall and prevent it being redirected to the north or south. The number and location of NAPL recovery wells associated with this grout wall will be refined based on observation made during grout wall construction. The layout of proposed remediation in this area is shown on Figure 9. The grout wall will be placed close to the Canal face, allowing fractures between the wall and the canal face to be fully grouted. Design considerations will include Canal rock face stability, sewer tunnel location, the presence of utility lines, and horizontal grout penetration.

9. Additional NAPL collection wells will be provided between the grout wall at the site and the grout wall adjacent to the canal, located to remove the most mobile NAPL from the bedrock. Locations will be generally consistent with the feasibility study, and are shown on Figure 7. NAPL recovery will initially be performed manually. Once sustained recovery rates are established, consideration will be given to automate or enhance recovery.

10. Approximately 1,200 cy of sediment in the Barge Canal will be excavated, dewatered and/or conditioned prior to transportation off-site to a thermal desorption facility or an appropriate landfill. Sediment remediation will likely occur during the winter months when the Canal has been drained. A sediment delineation program will be conducted prior to sediment remediation. In order to prevent contamination of the canal following remediation, sediment remediation will not commence until such time in the future when on-site remediation is complete, and observations indicate that NAPL seeps from the Canal face have ceased.

11. Imposition of an institutional control in the form of an environmental easement that will require a) compliance with the approved site management plan; b) limiting the use and development of the property to commercial or industrial uses only; c) the property owner to complete and submit to the NYSDEC periodic certification.

12. Development of a site management plan to: a) address residual contaminated soils that may be excavated from the site and in adjacent areas. Excavated soil will be tested, properly handled to protect the health and safety of workers and the nearby community, and will be properly managed in a manner acceptable to the Department; b) evaluate the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified; c) restricting use of the property to commercial/industrial only; d) provide for sampling of groundwater and analysis for VOCs, SVOCs, and attenuation indicator parameters; and d) provide for the operation and maintenance of the components of the remedy.

    The SMP will include provisions related to remaining material on the NYSEG property, and adjacent area including along Transit Street, on the Reid Petroleum property, and within LaGrange and Transit Streets.

    Ongoing operations at the Reid Petroleum property greatly limit the ability to conduct remedial activities on the site. However, the Department recognizes that use of the Reid property may change at some future date. If such operations cease in the future, or if the

property owner proposes a change in land use which will allow excavation of MGP impacted soil, then NYSEG will submit a work plan to the Department and proceed with removal upon receipt of Department approval. Furthermore, if less extensive excavation is to be conducted on the Reid property, NYSEG will ensure that the components of the SMP were enforced, which will include managing potential exposure to contaminated soil, including procedures for soil characterization, handling, disposal, and health and safety of workers and the community. Any new construction on the Reid Petroleum site will need to be evaluated for potential soil vapor intrusion.

13. The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

New York State Department of Health Acceptance

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

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 3 0 2009

Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

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RECORD OF DECISION

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Lockport (c), Niagara County, New York
Site No.9-32-098
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SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected this remedy for the NYSEG Lockport Transit Street MGP Site. As more fully described in Sections 3 and 5 of this document, operations at the former manufactured gas plan (MGP) have resulted in the disposal of hazardous wastes, consisting of MGP Tar, which contains chemicals including polycyclic aromatic hydrocarbons (PAHs) and benzene, toluene, ethylbenzene, and xylene (BTEX). These wastes have contaminated the soils at the site, and have resulted in:

- a threat to human health associated with potential exposure to groundwater, soil, and sediment.

- a threat to the environment associated with potential exposure to contaminated sediment, soil and groundwater and the ongoing discharge of MGP Tar into the New York State Barge Canal.

To eliminate or mitigate these threats, the Department has selected excavation of the most heavily impacted area (the "source area"), providing a barrier to eliminate the discharge of MGP Tar into the canal, containing the contamination which is not reasonably accessible, and provide for recovery of inaccessible non-aqueous phase liquid (NAPL).

The selected remedy, discussed in detail in Section 8, is intended to attain the remediation goals identified for this site in Section 6. The remedy must conform with officially 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.

SECTION 2: SITE LOCATION AND DESCRIPTION

The NYSEG Lockport Transit Street MGP Site is located in the City of Lockport in Niagara County. The site is located on a 0.87 acre parcel, which is completely occupied by an active electrical substation. The site is bordered by Transit Street to the west, LaGrange Street to the north, and Saxton Street to the east. Residential properties abut the site to the south, and the neighborhood is generally residential to the south and east and commercial to the north and west. The site location is shown on Figure 1. The NYSEG State Road Site (Site No.9-32-109), which

was previously investigated and remediated by NYSEG is located south and west of this site and is also shown on Figure 1.

The site is covered by 10 to 20 feet of fill material and re-worked native soils. Thickness of overburden (soil above bedrock) in the investigation area ranges from 1.5 to 51 feet. The fill generally consists of silt and sand, but also includes materials such as ash, slag, and cinders. These materials are common in historic urban fill, and are not necessarily related to historic operations at the MGP site.

The fill material frequently extends downward to bedrock, but in some areas a native silty sand was noted underlying the fill. The underlying bedrock consists of dolomite and shale layers. The upper portion of the shale is fractured and relatively permeable, with horizontal bedding planes allowing the horizontal movement of groundwater and other liquids. The lower, Lewiston member of the Rochester shale is much less fractured, relatively impermeable, and is considered the hydraulic base of this formation.

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

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The Manufactured Gas Plant operated from 1851 until 1927, producing a combustible gas that was delivered through pipes to local homes and businesses, in the same manner that natural gas is delivered today. At first, the gas was produced by heating coal ("coal carbonization"). Some time around 1914, the plant also began using a second method known as the "carbureted water gas" process, which involved the use of petroleum products for gas making. The waste materials from these two processes are distinct but broadly similar, with the principal waste being a dark, oily waste commonly known as coal tar. For discussion purposes, tars produced by both processes are referred to as "MGP tar".

Structures present during the operation of the plant included a number of gas holders (15,000; 50,000; and 150,000 cubic feet), retorts for carbonizing the coal, tar tanks, oil tanks, a purifier house, and coal handling and storage. These buildings were demolished between 1928 and 1948. The locations of these historic structures are shown on Figure 2.

The State Road Tar Works operated from approximately 1900 to 1911 as a processing plant for tar generated at the Transit Street former MGP Site. This site was separately addressed in a Record of Decision (ROD) dated March 2007. Construction described in that ROD was

completed in May of 2008, and the required site management plan and institutional controls are being developed.

3.2: Remedial History

Previous investigations of this site include a site screening between 1982 and 1985 and additional sampling conducted from 1991 to 1995. A soil removal was performed in 1997 to remove MGP tar contaminated soils from the adjacent gas station property.

The site screening investigation included the collection of groundwater, surface water and soil samples. Borings, test pits and monitoring wells were utilized during these investigations. MGP tar was observed in former MGP structures which remain in the subsurface, and in both soil and bedrock outside these structures.

The soil removal involved the removal of tar contaminated material during a tank removal at the gas station immediately north of the site. Petroleum contamination associated with these tanks was removed by the property owner, while disposal costs for tar contaminated soil (approximately 240 tons) was paid for by NYSEG.

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. New York State Electric and Gas, the current owner and former operator of the site, is the only PRP identified for the site.

The Department and NYSEG entered into a multi-site Consent Order on March 30, 1994. The consent Order (index number DO-0002-9309) obligates NYSEG to implement a full remedial program for 33 former MGP sites across the State, including the Lockport site. After the remedy is selected, NYSEG will be required to implement the selected remedy pursuant to the Consent Order.

SECTION 5: SITE CONTAMINATION

A remedial investigation/feasibility study (RI/FS) has been conducted to evaluate potential threats to human health and the environment.

5.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. RI fieldwork was conducted between January 2005 and April 2006. The field activities and findings of the investigation are described in the RI report.

During the RI, soil borings, bedrock cores, and wells were used to delineate and characterize the soils, bedrock and groundwater in the subsurface at the site. Sediment cores were collected from the adjacent canal. Environmental samples were collected from the surface and subsurface soil, sediment, groundwater and surface water. Air samples were also collected from soil gas, indoor air and outdoor air to assess the potential for soil vapor to impact nearby buildings. These samples were analyzed for the contaminants typically found in MGP Tar and other MGP wastes.

5.1.1: Standards, Criteria, and Guidance (SCGs)

To determine whether the soil and groundwater contain contamination at levels of concern, data from the investigation were compared to the following SCGs:

- Groundwater and surface water SCGs are based on the Department's "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.

- Soil SCGs are based on the Department's Cleanup Objectives"Technical and Administrative Guidance Memorandum [TAGM] 4046 and 6 NYCRR Subpart 375-6 - Remedial Program Soil Cleanup Objectives.

- Sediment SCGs are based on the Department's "Technical Guidance for Screening Contaminated Sediments."

Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized in Section 5.1.2. More complete information can be found in the RI report.

5.1.2: Nature and Extent of Contamination

The principal waste product produced at the former MGP site was MGP Tar, which is an oily, dark colored liquid with a strong, objectionable odor. Unlike most materials labeled as "tar", this is not a semi-solid, viscous material. Rather, it has a physical consistency similar to motor oil, which enables it to move through the subsurface MGP Tar is referred to as a dense non-aqueous phase liquid or DNAPL since it is heavier than water and will not readily dissolve in water. When released into the subsurface, it will sink through the groundwater until it reaches some less permeable material which it cannot penetrate. It can, under certain conditions, move laterally away from the point where it was initially released.

The tar contains high levels of volatile and semi-volatile organic compounds (VOCs and SVOCs). The principal MGP Tar VOCs are benzene, toluene, ethylbenzene, and xylenes. These compounds, collectively known as BTEX, are slightly soluble in water. Groundwater which comes into contact with tar or tar-contaminated soils will become contaminated with BTEX compounds. This contaminated groundwater can then move through the subsurface along with the ordinary groundwater flow.

The principal MGP Tar SVOCs are a group of compounds known as polycyclic aromatic hydrocarbons, commonly abbreviated as PAHs. PAH compounds are generally less soluble than BTEX, and are consequently less likely to dissolve in groundwater. This makes PAH compounds less mobile in the subsurface, so the highest levels of PAHs are normally found in close proximity to the tar from which they are derived. The specific semivolatile organic compounds of concern in soil and groundwater are the following polycyclic aromatic hydrocarbons (PAHs):

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

In this document, PAH concentrations are referred to as either total PAHs (TPAHs). The TPAH concentration is the sum of the concentrations of each PAH listed above.

All of the BTEX and PAH contaminants which dissolve in groundwater are subject to degradation by natural processes. Common soil bacteria are capable of using these chemical compounds as a food source, converting them to carbon dioxide and water. This degradation process takes place more rapidly when abundant oxygen is present in the groundwater, and can in many cases be expedited by the introduction of additional oxygen.

Figures 3 through 6 summarize the degree of contamination for the contaminants of concern in soil, groundwater, sediment and surface water and compare the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Waste Materials

MGP tar was observed in the immediate vicinity of the MGP structures, which appear to be the sources of the waste. Tar has migrated from these structures into the surrounding soils, both vertically and horizontally. Full investigation of the substation area could not be completed due to the proximity to electrical hazards, but the borings that were completed nearby found tar saturated soils starting at 3-4 feet below grade which would be expected to continue downward to bedrock approximately 15 feet below grade.

Evidence of tar migration is not seen east of this area, except for an area of shallow (<4 feet) soils with sheens and MGP odors which appear to be associated with the farthest east, at-grade holder. Bedrock was typically 20 feet below grade to the east. On the western portion of the substation, some tar was observed as shallow as 3 feet below grade, and tar saturated soils were observed as shallow as 6 feet. Bedrock to the west ranged from 8 to 15 feet below grade. North of the substation equipment, in LaGrange Street, tar saturated soils were observed as shallow as 4 feet below grade, and appear to continue intermittently to bedrock which ranges from 8 to 15 feet below grade. North of LaGrange Street, on the Reid Petroleum property, no NAPL saturated soils were observed, but blebs were observed, generally from 7-8 feet below grade, with one boring where blebs were observed from 6 to 10.5 feet below grade.

NAPL from the overburden has moved downward into dolomite bedrock immediately below impacted overburden. After moving vertically through the upper bedrock layers, MGP tar has accumulated in the upper shale layer and has migrated in this layer to the north and west of the site. The tar in the shale layer has reached the Barge Canal, where the tar discharges slowly in a series of seeps in the bare bedrock walls of the canal. The discharge points are above water during the winter, when the canal is lowered, and under water during the summer.

Some tar has also migrated through the bedrock into an unlined, city-owned sewer tunnel located between the site and the Barge Canal. Tar was observed at an access shaft due west of the site and also in the tunnel wall near the tar seeps. The extent of tar contamination is shown on Figure 3.

MGP Tar identified during the RI/FS will be addressed in the remedy selection process.

Surface Soil

Surface soil PAH levels ranged from 23 to 51 mg/kg. These levels, while above rural background, are consistent with PAH levels which are commonly found adjacent to heavily trafficked, urban roadways.

Surface soil will be addressed as a consequence of addressing subsurface soils.

Subsurface Soil

Subsurface soil PAH levels ranged from non-detect to 1,759 mg/kg. Subsurface soil levels of BTEX compounds ranged from non-detect to 181 mg/kg. Subsurface soil contamination was co-located with areas where there was visual evidence of waste material. The extent of subsurface soil contamination is shown on Figure 4. Subsurface soil contamination identified during the RI/FS will be addressed in the remedy selection process.

Groundwater

Groundwater BTEX levels ranged from non-detect to 22,000 µg/l. Significant groundwater contamination was observed in the overburden, and at several elevations in the bedrock. The extent of groundwater contamination is shown on Figure 5. Groundwater contamination identified during the RI/FS will be addressed in the remedy selection process.

Soil Vapor

On-site soil vapor samples found BTEX compounds present at levels of 118 micrograms per cubic meter ($\mu g/m^3$). Soil vapor on-site will be addressed in the remedy selection process.

Soil vapor BTEX was observed below nearby homes at levels of 29 to 79 $\mu g/m^3$. These levels would not be expected to have a significant effect on the indoor air. Indoor air was also sampled, and compounds were present at levels consistent with homes not affected by environmental contamination.

Surface Water and Sediment

The section of the Barge Canal adjacent to the site is a man-made cut through bedrock. There is relatively little sediment present at the bottom of the canal. However, immediately below the tar seeps, there is an accumulation of rockfall and dirt at the base of the canal wall. Visual evidence of MGP tar (sheen and NAPL) was observed in this material, which will be considered sediment for this discussion. Sediment PAH levels in the area immediately adjacent to this material were moderately elevated (36.1 mg/kg). Sediments upstream of the site related contamination and on the opposite bank were below the screening level of 4 mg/kg. The extent of sediment contamination is shown in Figure 6. During the summer navigation season, the area is under several feet of water.

PAHs levels in sediment below the locks were also elevated, but it is not possible at this time to associate these results with this site. PCB contamination was also detected in this vicinity, at levels which represent a much greater environmental concern. PCBs were not used in the manufactured gas processes and this area of the canal will be evaluated independently of this site by the Department.

Despite the widespread contamination of groundwater near the site, no site related VOCs or SVOCs were detected in surface water samples.

Site related impacts to sediments identified during the RI/FS will be addressed in the remedy selection process.

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 completion of the RI/FS.

There were no IRMs performed at this site during the RI/FS. A limited soil removal was conducted by NYSEG at the gas station immediately north of the site as part of the removal of underground petroleum storage tanks, prior to the RI/FS. The soil removal is described in Section 3.2.

5.3: Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the human exposure pathways can be found in Section 6 of the RI report. An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: [1] a contaminant source, [2] contaminant release and transport mechanisms, [3] a point of exposure, [4] a route of exposure, and [5] a receptor population.

The source of contamination is the location where contaminants were released to the environment (any waste disposal area or point of discharge). Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The

exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

An exposure pathway is complete when all five elements of an exposure pathway exist. An exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future.

Site-related contamination has impacted soils and groundwater both on-site and off-site, canal sediments in areas near coal tar seeps on the canal wall, and a large , city-owned sewer tunnel located to the west of the site. In addition, MGP-related contamination from the site has been identified in soil vapor.

Site workers who dig or enter any excavations at the site could potentially be exposed to coal tar, and contaminated soils, soil vapor, and groundwater through incidental inhalation and/or dermal contact. The same potential routes of exposure exist for utility workers who may dig or enter any excavations or underground structures offsite where contamination is present. The area is supplied by public water, so exposure to groundwater contamination via drinking water is not likely. Due to the presence of extensive electrical and natural gas infrastructure on the site, there is no likelihood that the site will undergo a different use.

5.4: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts include existing and potential future exposure pathways to fish and wildlife receptors, as well as damage to natural resources such as aquifers and wetlands.

The Fish and Wildlife Impact Analysis, 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 following environmental exposure pathways and ecological risks have been identified:

- MGP tar is present on the wall of the Barge Canal and in rockfall debris immediately below. When it is disturbed, the rockfall debris creates sheens on the water surface, which is a violation of New York State Ambient Water Quality Standards. Although tar is not flowing in measurable quantities, it is clear that tar is still moving slowly through the bedrock and into the canal. This results in potential impacts to wildlife living and/or feeding in the Canal.

- Site contamination has also impacted the groundwater resource in both the upper, unconsolidated aquifer and the underlying bedrock aquifer, both at the site and in the area to the north and west, between the site and the canal.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The remediation goals for this site are:

Groundwater

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards. Prevent contact with, or inhalation of volatile contaminants from, contaminated groundwater.
- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Prevent the discharge of contaminants to surface water.
- Remove the source of ground or surface water contamination.

Soil

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.
- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota from ingestion/direct contact with impacted soil.

Sediment

- Prevent direct contact with contaminated sediments.
- Prevent releases of contaminant(s) from sediments that would result in surface water levels in excess of (ambient water quality criteria).
- Prevent impacts to biota from ingestion/direct contact with impacted sediments.
- Prevent resuspension/transportation of impacted sediments.

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

- ambient groundwater quality standards and

- recommended soil cleanup objectives in 6 NYCRR Subpart 375-6 - Remedial Program Soil Cleanup Objectives.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected 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. Potential

remedial alternatives for the NYSEG Lockport Transit Street MGP Site were identified, screened and evaluated in the FS report, which is available at the document repositories established for this site.

A summary of the remedial alternatives that were considered for this site is discussed below. The present worth 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.

7.1: Description of Remedial Alternatives

The following potential remedies were considered to address the contaminated surface and subsurface soils, groundwater and sediment at the site:

Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative would leave the site in its present condition and would not provide any additional monitoring or protection to human health or the environment.

Common Elements

All remedial alternatives other than "No Action" contain provisions to remove contaminated soils and/or liquid tar to various degrees, to control the mobility of any contamination that is to be left in place. All include institutional controls as well as the following common elements:

- Excavation of soil from LaGrange Street to bedrock and removal of the tar sumps located in the western portion of the site. These materials would be disposed or treated off-site at an appropriately permitted treatment or disposal facility. Subsurface utilities beneath the street would be supported and protected during excavation, or temporarily rerouted and replaced following completion. The excavation would be backfilled with clean, granular materials from a NYSDOT-approved, off-site source, and the street would be restored to service. The area of excavation is shown on Figure 7.

- Tar recovery wells would be installed between the site and the canal, to collect tar which would remain in the bedrock. NAPL recovery would initially be performed manually. If sustained recovery rates are established, consideration would be given to automating recovery with dedicated pumps on timed pumping cycles, and/or enhanced recovery methods. Approximate well locations are shown on Figure 7.

- In the area of the tar seeps in the bedrock walls of the canal, a "grout wall" would be constructed parallel to the wall along the length of the area of concern to isolate the tar in the bedrock from the canal wall. Grout would be injected into the bedrock fractures

through a row of wells. Upon hardening, the grout would block flow paths through the fractures in the bedrock, so that tar could no longer reach the wall of the canal. Tar recovery wells would be located up-gradient of this grout wall to capture the remaining tar and to control movement around the grout wall. Controls would be required to prevent the injected grout from entering either the recovery wells or the existing sewer tunnel.

- MGP tar-impacted sediments in the canal would be excavated and disposed or treated off-site at an appropriately permitted treatment or disposal facility.

- Imposition of an institutional control in the form of an environmental easement, development of a site management plan and requirements for periodic review of the site and components of the remedy would be required as further described in Section 8.

- Ongoing operations at the Reid Petroleum property limit the ability to conduct active remediation there. The Department recognizes that use of the Reid property may change at some future date. If changes in site operations or land use would allow excavation of MGP impacted soil, NYSEG would submit a work plan to the Department and proceed with removal upon receipt of Department approval. Furthermore, the Reid property and other off-site properties would be subject to the site management plan (SMP). NYSEG would ensure compliance with the components of the SMP, including: managing potential exposure to residual contaminated soil on-site and in adjacent areas, and procedures for soil characterization, handling, disposal, and health and safety of workers and the community.

Alternative 2 – NAPL Migration Barrier

Present Worth: *$6,079,000*
Capital Cost: *$4,941,000*
Annual Costs:
Years 1-30: *$74,000*

Alternative 2 would focus on controlling further movement of tar through the fill and soils above the bedrock surface. Approximately 400 linear feet of gravel interceptor trench would be constructed in the overburden at the downgradient site border to capture the tar which accumulates at the bedrock interface. A grout wall would be installed down gradient from this trench which would extend one to two feet above the top of bedrock, and 75 feet into bedrock to eliminate migration of the NAPL in bedrock below the site. NAPL recovery wells would be installed up-gradient from the grout wall to collect the most mobile NAPL from both the overburden and bedrock.

Alternative 3 – Partial Removal and NAPL Control

Present Worth: *$10,995,000*
Capital Cost: *$9,857,000*
Annual Costs:
Years 1-30: *$74,000*

This alternative would require relocation of the Control House and 12 kV switchgear from the northwestern portion of the site to the eastern portion of the site, which would allow approximately 4,000 cubic yards (cy) of source material and remnant MGP structures to be removed from the western portion of the site.

Approximately 400 linear feet of collection trench would be constructed down-gradient from the source area in the center portion of the site, which would remain under the unmoved substation infrastructure. Approximately 400 linear feet of bedrock grout curtain would be constructed downgradient of the collection trenches. The grout curtain would extend from 1-2 feet above the top of bedrock downward 75 feet into rock, and would prevent NAPL in the bedrock under the site from moving toward the Canal. NAPL recovery wells would be provided between the collection trench and the grout curtain.

Partially penetrating barrier walls would be constructed on the upgradient side of the site. These barriers would not extend to the ground surface, but would instead terminate at depth, so as to allow groundwater to flow over the wall, while effectively containing the soil contaminants and tar present below. The wall construction materials and techniques would be determined during design. The source material remaining under substation infrastructure would be covered with a low permeability cap.

Alternative 4 – Increased Removal with Containment

Present Worth: *$13,612,000*
Capital Cost: *$11,261,000*
Annual Costs:
Years 1-30: *$153,000*

Alternative 4 would remove as much source material as possible, without requiring relocation of the entire substation. Approximately 15,500 cubic yards of material would be removed. In addition to the partial relocation and excavation on the western portion of the site described in Alternative 3, additional soils would be removed to the east and south of the remaining substation infrastructure. Remaining source material would be contained on-site with approximately 500 linear feet of subsurface, vertical containment barriers and a low permeability cap. Extraction wells which would extract both NAPL and groundwater would be installed inside the contained area to provide hydraulic control. Additional NAPL recovery wells would be installed on-site into the bedrock.

Alternative 5 – Maximum Removal with Substation Relocation

Present Worth: *$25,923,000*
Capital Cost: *$25,268,000*
Annual Costs:
Years 1-30: *$43,000*

Alternative 5 would include relocation of the substation to provide access for excavation of approximately 23,800 cubic yards of material, including all remaining subsurface structures. Excavation would extend to the top of bedrock and would include all overburden within the property boundary. Excavated soil would be stockpiled and tested; soil which meets soil cleanup objectives would be used as on-site backfill. Soil not meeting criteria would be transported off-site for

treatment/disposal. Excavated areas would be backfilled and compacted to existing grade. Temporary excavation support would be required along the excavation limits. Continued monitoring would still be required since tar already in the bedrock can not be completely removed by any currently available method.

7.2 Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which governs the remediation of inactive hazardous waste disposal sites in New York 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 five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term 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.

4. 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.

5. 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.

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-Effectivness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision. The costs for each alternative are presented in Table 1.

8. Land Use - The current, intended, and reasonably anticipated future use of the site are considered where restoration to pre-disposal conditions is not feasible. Preference is given to alternatives which would allow the full range of planned or anticipated uses without unreasonable use restrictions. Alternatives 2-5 would allow the site to be used for commercial/industrial purposes, which is the intended and reasonably anticipated use of the site. If residential use were proposed in the future, this change of use would have to be approved by the NYSDEC and NYSDOH. Additional soil cover would be required, and the potential for soil vapor intrusion would have to be addressed. The site management plan and environmental easement would also have to be modified.

This final criterion 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 RI/FS reports and the PRAP have been evaluated. The responsiveness summary (Appendix A) presents the public comments received and the manner in which the Department addressed the concerns raised.

In general, the public comments received were supportive of the selected remedy. Several comments were received, however, pertaining to restoration of the excavated portion of the site and access to the property adjacent to the canal.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the Administrative Record (Appendix B) and the discussion presented below, the Department has selected Alternative 3: Partial Removal with NAPL Control as the remedy for this site. The elements of this remedy are described at the end of this section.

The selected remedy is based on the results of the RI, the evaluation of alternatives presented in the FS, and the analysis presented below. Alternative 3 is being proposed because, as described below, it satisfies the threshold criteria and provides the best balance of the primary balancing criteria described in Section 7.2. A detailed comparative analysis of each alternative to each criterion is provided below:

The No Action Alternative would not be protective of human health or the environment since it would not achieve the threshold criterion of protectiveness as described in Section 7. It is not considered further. Each of the remaining alternatives would be protective of human health and the environment, but would attain this protectiveness through different means.

The common elements included with Alternatives 2-5 would address the most likely exposure to utility workers by excavation of contaminated soils from LaGrange Street, where substantial amounts of NAPL saturated soils were observed. Contamination in the overburden at the Reid Petroleum property also represents an exposure risk if subsurface excavation occurs. Removal of these soils would be coordinated with the property owner to minimize disruption to the business on this property. All alternatives would rely upon institutional controls to limit exposure to contaminated groundwater, and all rely upon the same set of technologies to effectively address the potential exposures in the canal by sealing the seeps and removing the contaminated sediment. Alternative 2 would satisfy the remedy selection criteria, and would be the least expensive alternative. The analysis below compares each of the other 3 alternatives to Alternative 2 to assess whether they provide a more effective remedy.

Alternative 2 would remove 3,200 cubic yards of contaminated soils. Beyond this, the area and volume of excavation proposed increases sharply with each remedy. Alternative 3 would remove 7,200 cy, Alternative 4 would remove 18,700, and Alternative 5 would increase this figure to 27,000 cubic yards. The excavation provided in Alternative 2 represents the most heavily contaminated soil that can be removed without any disruption of the substation. This material is also closest to the canal - the principal existing exposure pathway. This contamination would also be accessible to utility workers maintaining underground utilities in LaGrange Street, so it represents the greatest risk to this exposure pathway. Closing a road and excavating beneath it would not be a simple or inexpensive task, but this excavation would be critical to an effective remedy and therefore has been included as a common element in each alternative.

Alternative 3 would additionally excavate soil on the western side of the substation which is heavily contaminated (tar saturated) and is close to potential exposure points beneath Transit Street and in the Canal. The layer of contaminated soil in this area is also relatively thin (generally less than 12 feet of soils overlie the bedrock). An analysis by NYSEG indicated that the relocation of the equipment in this area of the substation to allow this excavation would cost approximately $1,750,000. The importance of removing this source material would justify the additional cost of approximately $5,000,000.

The additional excavation proposed in Alternative 4 does not include any areas of significant tar saturation, but would remove soils where sheens were observed and where total PAHs concentrations above 500 mg/kg were reported. Excavation to the south and east would extend deeper than the excavations proposed in Alternative 3 (to the north and west). Since these areas are both less heavily contaminated and deeper than the excavation proposed in Alternative 3, the additional cost and disruption to the community would not be justified. However, the most significant contamination in this area, near the eastern-most holder, is less than 4 feet deep. Being shallow makes this material both more likely to be contacted if it remains and more easily removed. This material, which was not originally addressed in Alternative 3, would be excavated in the proposed remedy.

By relocating all substation infrastructure, Alternative 5 would allow removal of all MGP structures, including the oldest gas holders, which represent some of the heaviest contamination at the site. There is a statutory preference for removing these source areas as part of the site-wide remedy. However, this additional excavation would come at a cost of nearly $15,000,000, and would also

create significant additional disruption of the surrounding community This could be justified if it were the only way to prevent exposure and migration. However, both Alternatives 3 and 4 would provide aggressive efforts to collect NAPL and control its migration, with barrier walls, interceptor trenches and/or collection wells. These alternatives would also provide barriers to migration and exposure, both at the site and at the canal wall.

Excavated asphalt and clean demolition debris would be recycled or disposed at an appropriate landfill. Excavated soil would be subject to stockpiling, waste characterization testing and either transported off-site to a thermal desorption facility or an appropriate landfill or re-used as backfill material. No material with PAHs over 500 mg/kg or visible evidence of tar would be reused. Soil in the vicinity of subsurface utilities which could be encountered by utility workers would have to meet Soil Cleanup Objectives for commercial use. For Alternative 3, it is estimated that approximately 1,600 cy of excavated soil within LaGrange Street may be re-used as backfill material. The cost savings realized by reuse of soils would have to be balanced with the difficulties involved in additional storage and handling of materials, especially at a relatively small site. The permeability of backfill would need to be considered along with the design of collection and barrier systems to address potential interactions.

Groundwater in the bedrock would not be expected to meet groundwater quality standards in a reasonable time period, because there is no method currently available to completely eliminate the MGP tar as an ongoing source of dissolved phase contamination in the bedrock. However, it is reasonable to expect that groundwater in the overburden could achieve groundwater standards at some time in the future. Alternative 2 would not eliminate a sufficient amount of source material or otherwise change groundwater conditions to allow groundwater standards to be met in a reasonable period of time. Alternative 3 would limit groundwater movement through the source material remaining on-site. Groundwater entering the excavation area, downgradient of the overburden collection trench, would likely include some BTEX compounds. These chemicals readily biodegrade under proper conditions, including the presence of oxygen. As such, backfill would be selected which would encourage natural degradation of the BTEX compounds. Alternative 4 would prevent the migration of BTEX from the source area, and Alternative 5 would eliminate contamination from the overburden, so both would be expected to allow groundwater quality standards to be achieved in the overburden.

Alternative 3 would call for the use partially-penetrating containment walls on the upgradient side of the remaining contamination and an interceptor trench on the downgradient side. The effect that these walls, collection trenches, the backfill for the excavation, and other components of the remedy would have on groundwater flow patters would also need to be considered during the Remedial Design.

The estimated present worth cost to implement the remedy is $10,995,000. The cost to construct the remedy is estimated to be $9,857,000 and the estimated average annual costs for 30 years is $74,000.

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.

2. Relocation of the Control House and 12 kV switchgear from the western portion of the site to the eastern portion of the site to allow excavation in that area.

3. Excavation and removal of approximately 4,000 cy of material from the western side of the substation and approximately 3,200 cy of material within LaGrange Street, as shown in Figure 8. Excavated soil will be subject to stockpiling, waste characterization testing and either transported off-site to a thermal desorption facility or an appropriate landfill. Excavated soil may only be re-used on-site (not in LaGrange Ave.) as backfill material. Excavated asphalt and clean demolition debris will be recycled on-site as backfill if found to be suitable. Otherwise, it will be disposed at an appropriate landfill. Excavated areas will be backfilled and adequately compacted. Any imported backfill will meet applicable soil cleanup objectives or be otherwise acceptable to the Department (e.g. virgin, granular material from a quarry). The permeability of backfill will be considered along with the design of collection and barrier systems to address potential interactions. Paved areas will be restored to preconstruction conditions, and disrupted utilities will be restored.. Unpaved areas will have a minimum of 12" of soil cover meeting applicable soil cleanup objectives. If excavated soil is re-used on-site as backfill, a demarcation layer will be provided. The excavation will generally extend to bedrock, except for the southern-most portion where significant impacts do not appear to extend to bedrock.

4. Removal of the remaining subsurface foundation of easternmost at-grade holder. Soils in the vicinity of this holder (approximately 400 cy) which have total PAHs above 500 mg/kg and exhibit a sheen will also be removed. No NAPL saturation is anticipated in this area, and soil excavation below 4 feet is not anticipated. Excavated soil and demolition debris will be handled as describe in item 3, above.

5. An overburden NAPL collection trench will be constructed on the north and west sides of the remaining substation equipment. These will remove the most mobile NAPL and will control lateral migration of NAPL. Subsurface barriers will also be installed on the south and east sides of the NYSEG property, designed to allow groundwater flow over the barrier and while controlling lateral migration of NAPL. Barrier construction materials and techniques will be assessed during design. Material removed from the trench will be sent for off-site treatment/disposal. The groundwater flow will be assessed considering the barrier walls, collection trenches, excavation backfill, and the overburden/bedrock interactions to limit groundwater flow through the remaining source material.

6. A geomembrane cap overlain with crushed stone will cover the surface of the area shown on Figure 8, with the membrane sealed to substation equipment slabs. The cap and crushed stone will, together, be at least 12 inches thick. Sand or some other material will likely be required to protect the geomembrane from puncture.

7. Approximately 400 linear feet of grout wall will be constructed in the bedrock downgradient of the interceptor trench. It will extend from 1 to 2 feet above the overburden/bedrock

interface to an approximate depth of 75 feet to control migration of NAPL through the bedrock. Bedrock grouting will require further evaluation and pilot testing to refine techniques, materials, monitoring, and implementability. NAPL recovery wells will be installed upgradient of the wall at the two endpoints of the wall, and every 25 feet (minimum) between. See Figure 8.

8. Approximately 200 linear feet of grout wall will be constructed in the bedrock, along the Canal in the vicinity of the seeps. Approximately 9 NAPL collection wells, at a spacing of 25 feet, maximum, will be installed upgradient of the grout wall to collect the NAPL being blocked by the wall and prevent it being redirected to the north or south. The number and location of NAPL recovery wells associated with this grout wall will be refined based on observation made during grout wall construction. The layout of proposed remediation in this area is shown on Figure 9. The grout wall will be placed close to the Canal face, allowing fractures between the wall and the canal face to be fully grouted. Design considerations will include Canal rock face stability, sewer tunnel location, the presence of utility lines, and horizontal grout penetration.

9. Additional NAPL collection wells will be provided between the grout wall at the site and the grout wall adjacent to the canal, located to remove the most mobile NAPL from the bedrock. Locations will be generally consistent with the feasibility study, and are shown on Figure 7. NAPL recovery will initially be performed manually. Once sustained recovery rates are established, consideration will be given to automate or enhance recovery.

10. Approximately 1,200 cy of sediment in the Barge Canal will be excavated, dewatered and/or conditioned prior to transportation off-site to a thermal desorption facility or an appropriate landfill. Sediment remediation will likely occur during the winter months when the Canal has been drained. A sediment delineation program will be conducted prior to sediment remediation. In order to prevent contamination of the canal following remediation, sediment remediation will not commence until such time in the future when on-site remediation is complete, and observations indicate that NAPL seeps from the Canal face have ceased.

11. Imposition of an institutional control in the form of an environmental easement that will require a) compliance with the approved site management plan; b) limiting the use and development of the property to commercial or industrial uses only; c) the property owner to complete and submit to the NYSDEC periodic certification.

12. Development of a site management plan to: a) address residual contaminated soils that may be excavated from the site and in adjacent areas. Excavated soil will be tested, properly handled to protect the health and safety of workers and the nearby community, and will be properly managed in a manner acceptable to the Department; b) evaluate the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified; c) restricting use of the property to commercial/industrial only; d) provide for sampling of groundwater and analysis for VOCs, SVOCs, and attenuation indicator parameters; and d) provide for the operation and maintenance of the components of the remedy.

The SMP will include provisions related to remaining material on the NYSEG property, and adjacent area including along Transit Street, on the Reid Petroleum property, and within LaGrange and Transit Streets.

Ongoing operations at the Reid Petroleum property greatly limit the ability to conduct remedial activities on the site. However, the Department recognizes that use of the Reid property may change at some future date. If such operations cease in the future, or if the property owner proposes a change in land use which will allow excavation of MGP impacted soil, then NYSEG will submit a work plan to the Department and proceed with removal upon receipt of Department approval. Furthermore, if less extensive excavation is to be conducted on the Reid property, NYSEG will ensure that the components of the SMP were enforced, which will include managing potential exposure to contaminated soil, including procedures for soil characterization, handling, disposal, and health and safety of workers and the community. Any new construction on the Reid Petroleum site will need to be evaluated for potential soil vapor intrusion.

13. The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation activities were undertaken to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

1. Repositories for documents pertaining to the site were established.

2. A public contact list, which included nearby property owners, elected officials, local media and other interested parties, was established.

3. A public meeting was held on March 10, 2009 to present and receive comment on the PRAP.

4. A responsiveness summary (Appendix A) was prepared to address the comments received during the public comment period for the PRAP.

Table 1
Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
Alternative 1 - No Action	$0	$0	$0
Alternative 1a - Continued Monitoring	$32,000	$74,000	$286,000
Alternative 2: NAPL Migration Barrier	$4,941,000	74,000	$6,079,000
Alternative 3:Partial Removal and NAPL Control	$9,857,000	$74,000	$10,995,000
Alternative 4 – Increased Removal with Containment	$11,261,000	$153,000	$13,612,000
Alternative 5 – Maximum Removal with Substation Relocation	$25,268,000	$43,000	$25,923,000

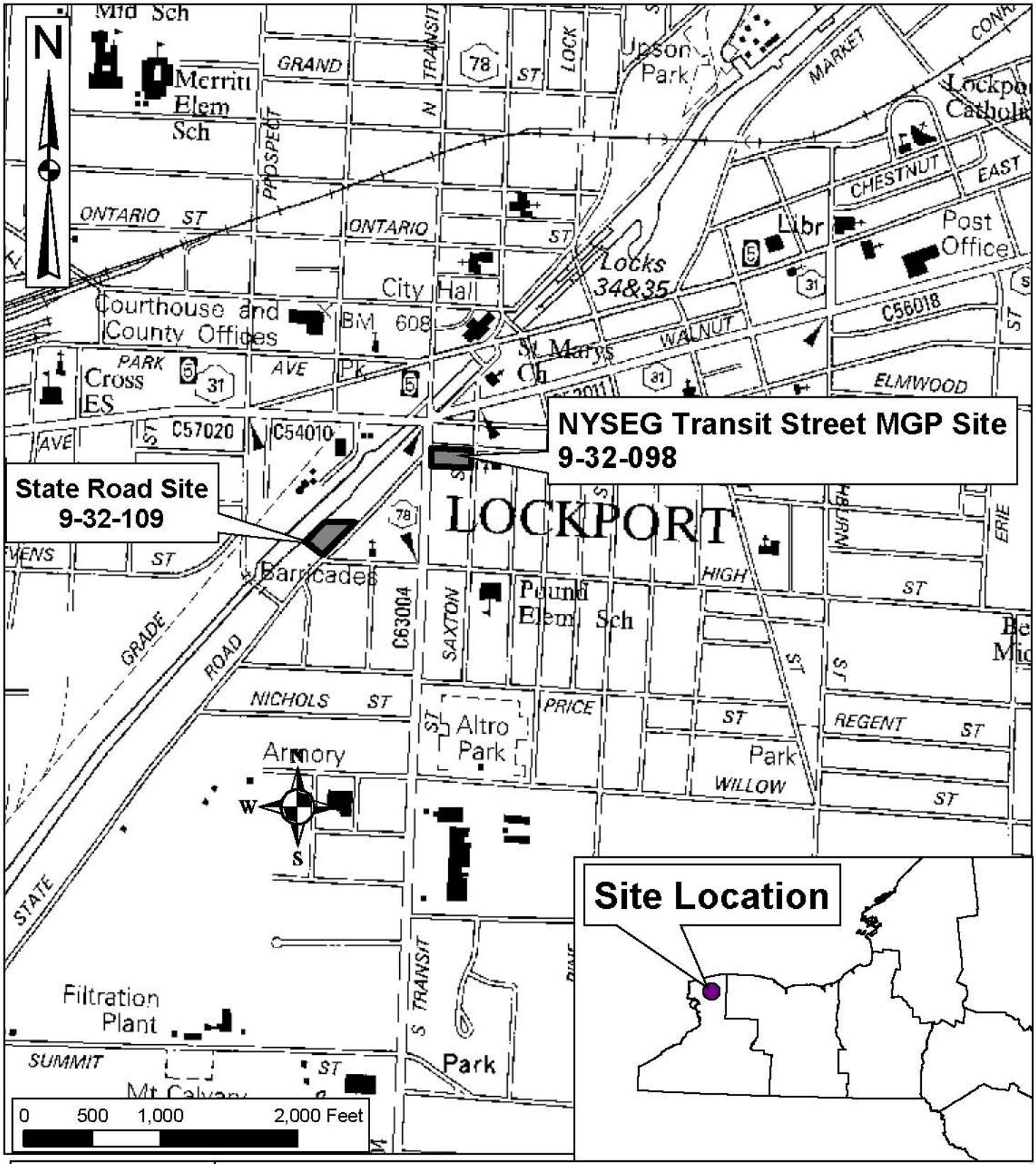
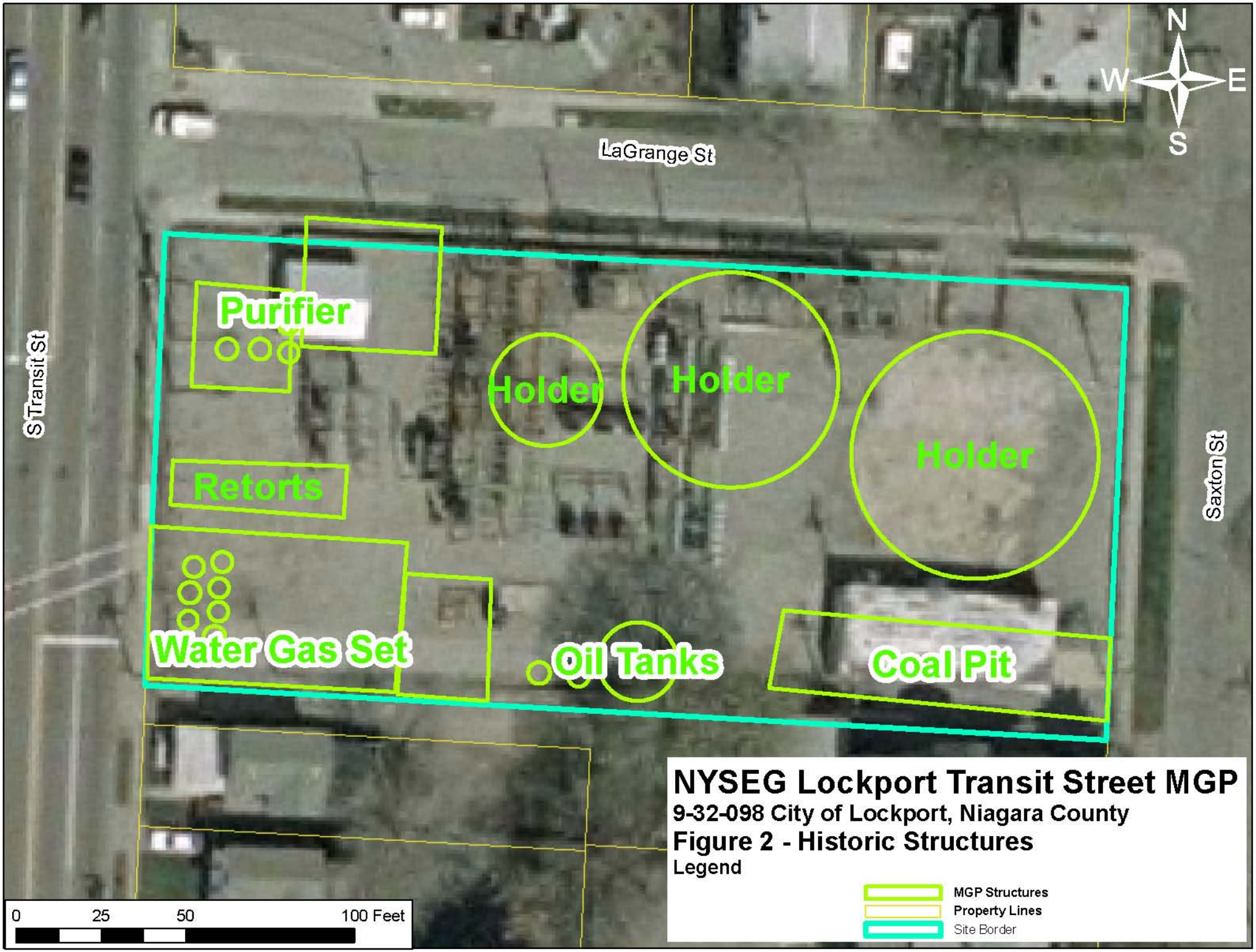
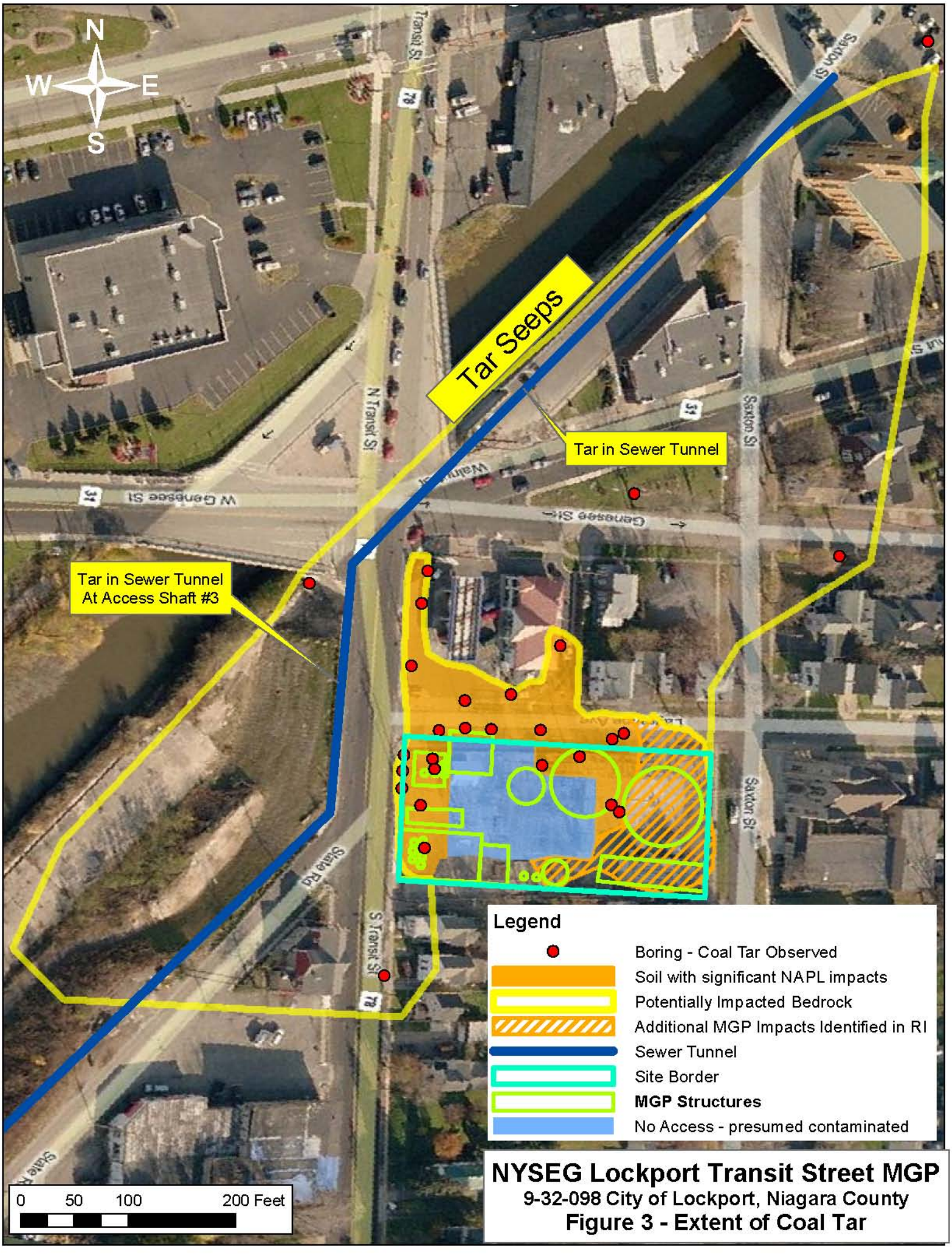


Figure 1 - Site Location Map
NYSEG Lockport Transit St. MGP Site
Site No. 9-38-098
City of Lockport, Niagara County, New York
1:11,927

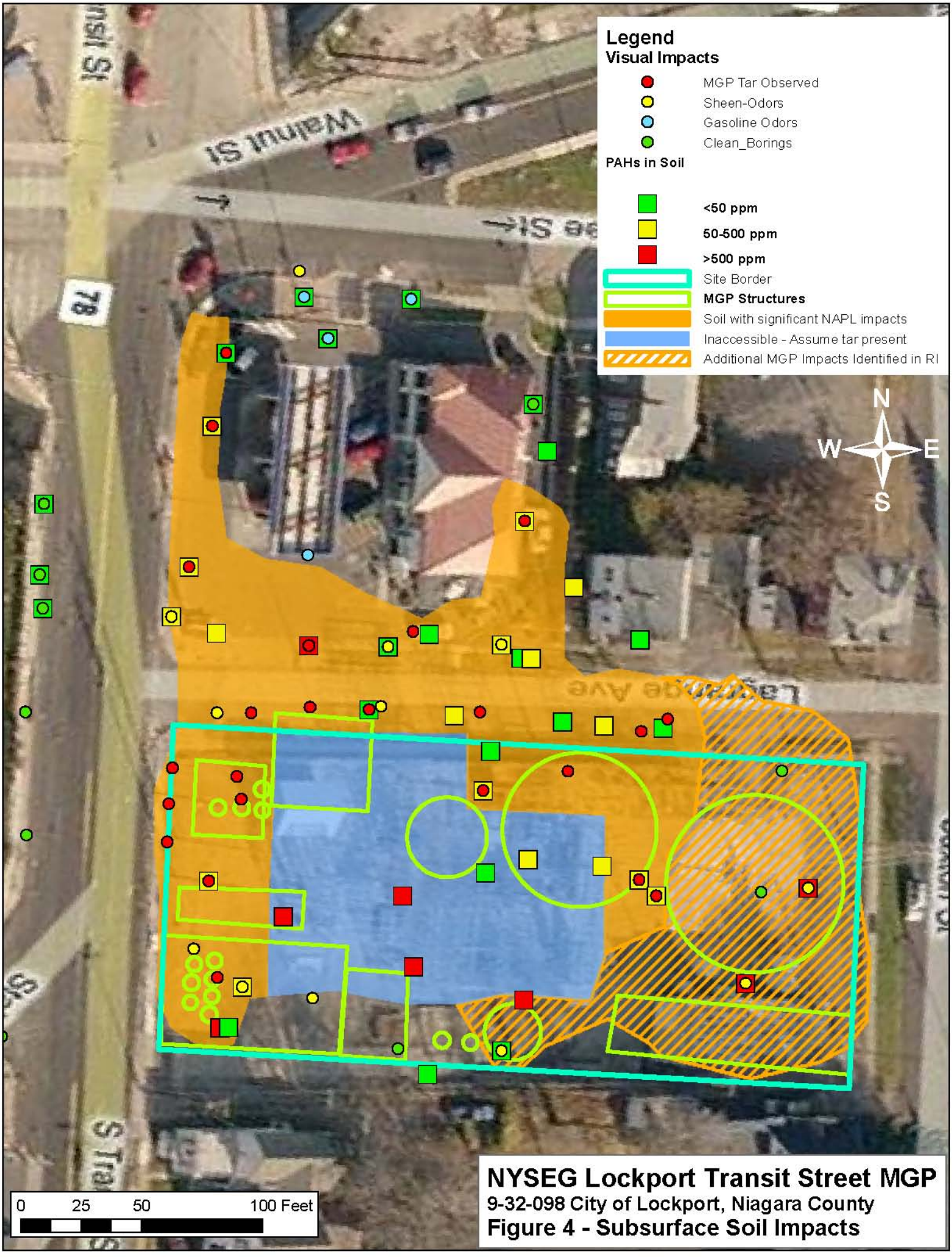

N
W
E
S
LaGrange St
S Transit St
Saxton St
Purifier
Holder
Holder
Holder
Retorts
Water Gas Set
Oil Tanks
Coal Pit
0
25
50
100 Feet
NYSEG Lockport Transit Street MGP
9-32-098 City of Lockport, Niagara County
Figure 2 - Historic Structures
Legend
MGP Structures
Property Lines
Site Border



NYSEG Lockport Transit Street MGP

9-32-098 City of Lockport, Niagara County

Figure 3 - Extent of Coal Tar


Legend
Visual Impacts
MGP Tar Observed
Sheen-Odors
Gasoline Odors
Clean_Borings
PAHs in Soil
<50 ppm
50-500 ppm
>500 ppm
Site Border
MGP Structures
Soil with significant NAPL impacts
Inaccessible - Assume tar present
Additional MGP Impacts Identified in RI
N
W
E
S
Walnut St
78
0
25
50
100 Feet
NYSEG Lockport Transit Street MGP
9-32-098 City of Lockport, Niagara County
Figure 4 - Subsurface Soil Impacts

Shallow Groundwater

Monitoring Wells

BTEX

- <10 ppb
- 10-100 ppb
- 100-1,000 ppb
- >1,000 ppb
- Coal Tar in Soil and Bedrock

BTEX in Shallow GW

High : 18020

Low : 0

W Main St
Park Ave
N Transit St
Walnut St
Tar Seeps
W Genesee St
Genesee St
LaGrange St
S Transit St
Saxton St
Harvey Ave
State Rd
State Rd
S Transit St

0 100 200 400 Feet

Bedrock Groundwater

Monitoring Wells

BTEX

- <10 ppb
- 10-100 ppb
- 100-1,000 ppb
- >1,000 ppb
- Potentially Impacted Bedrock

BTEX in Bedrock GW

High : 47065.1

Low : 0

N
W
E
S

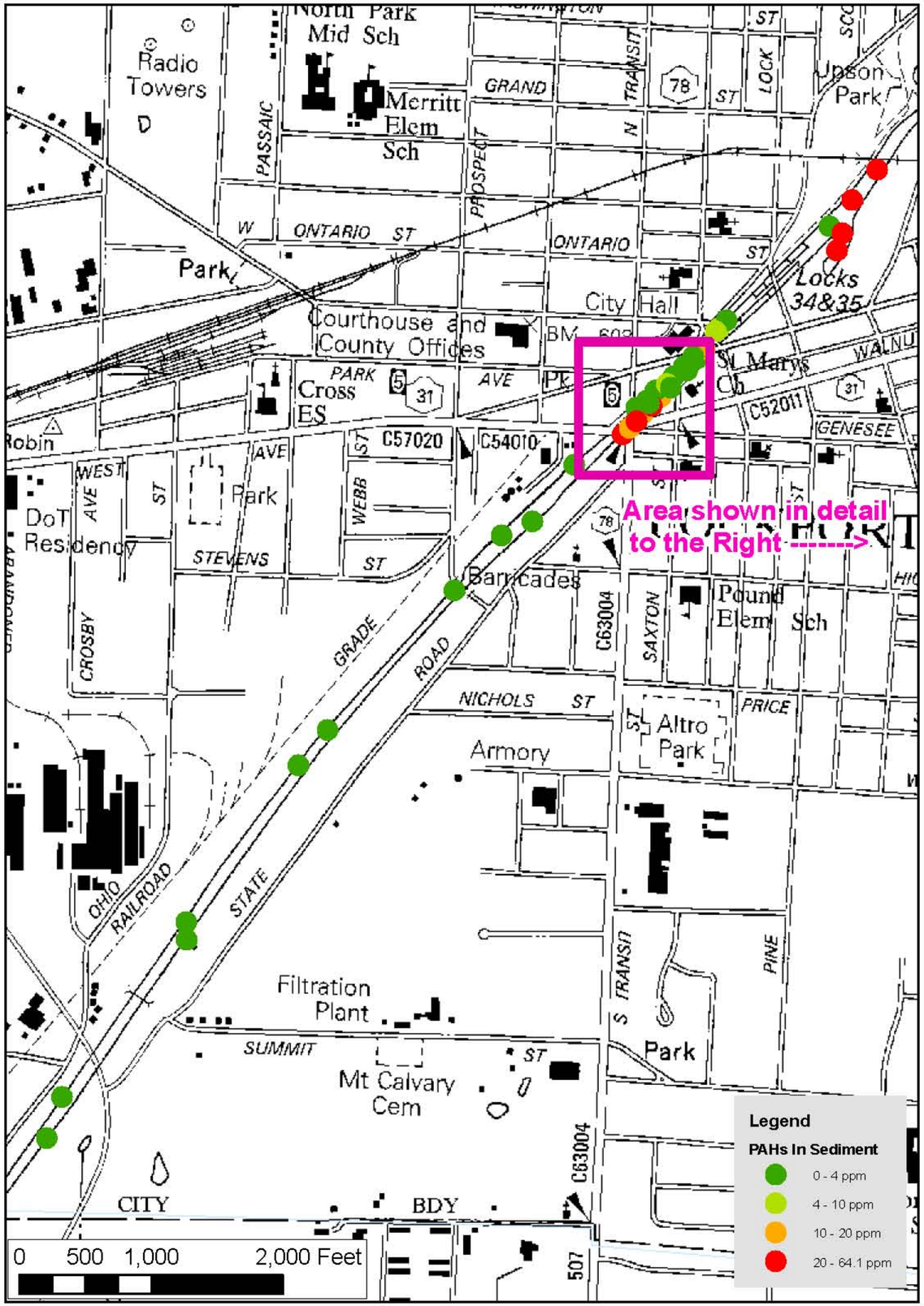
Tar Seeps

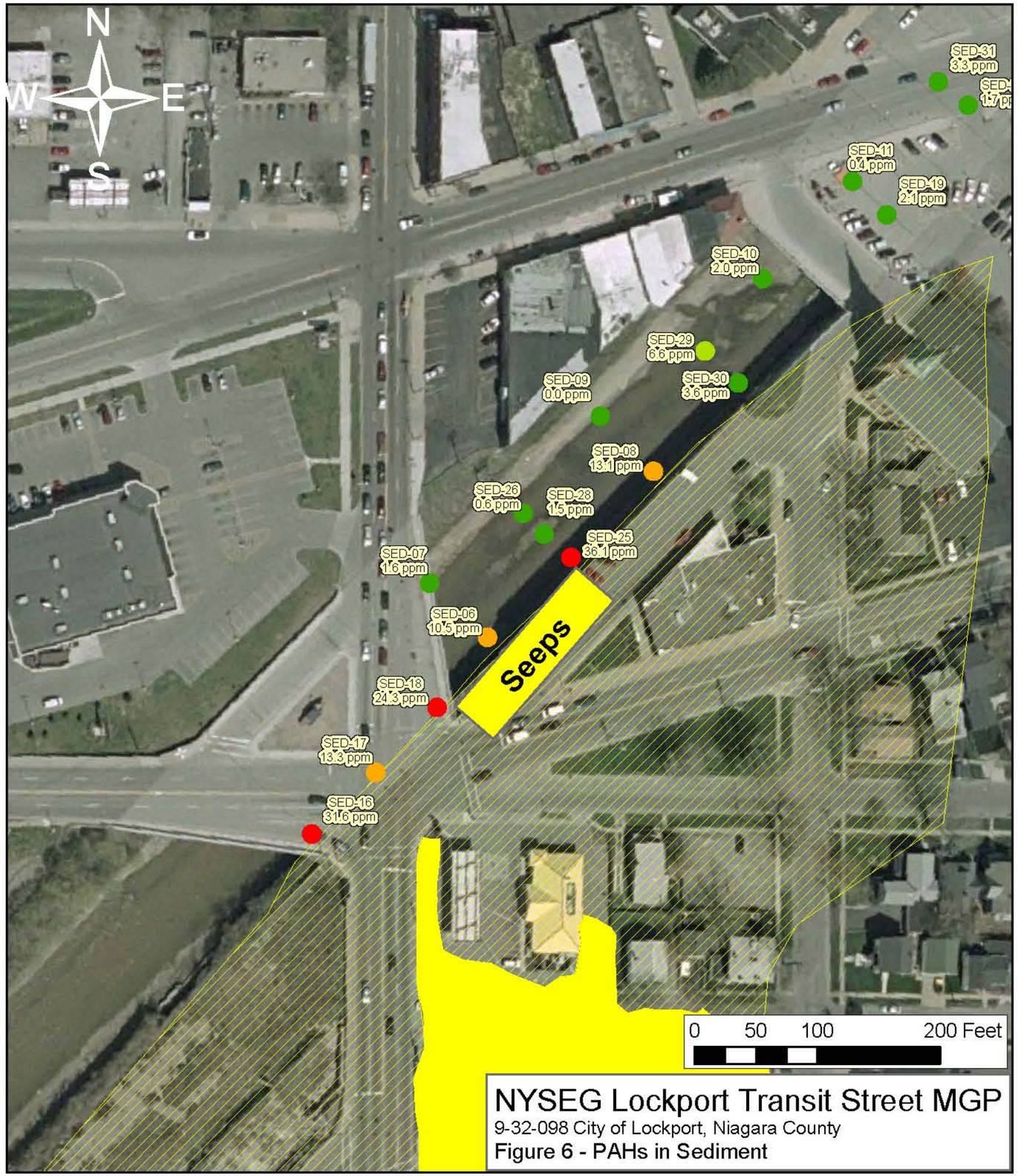
0 100 200 400 Feet

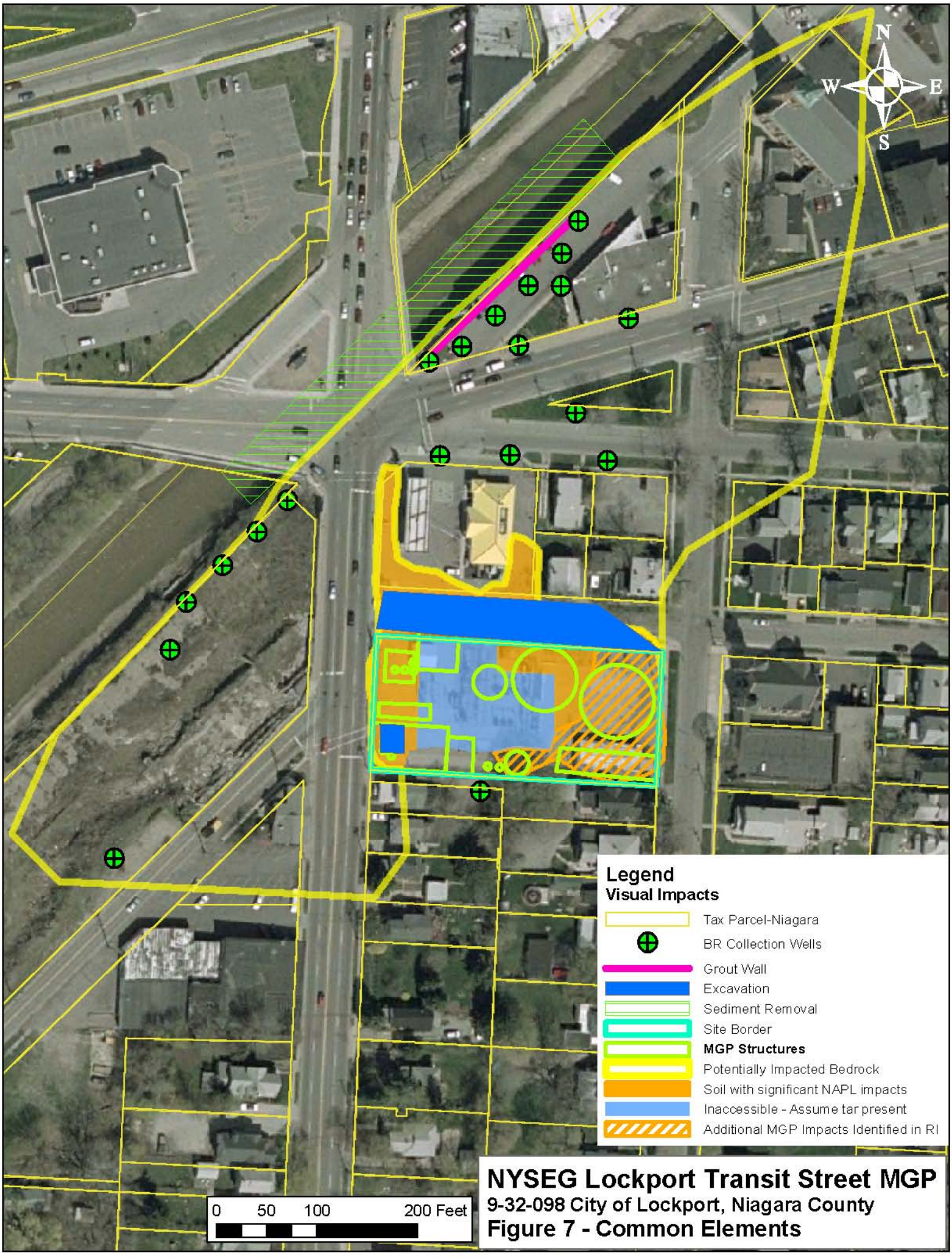
NYSEG Lockport Transit Street MGP

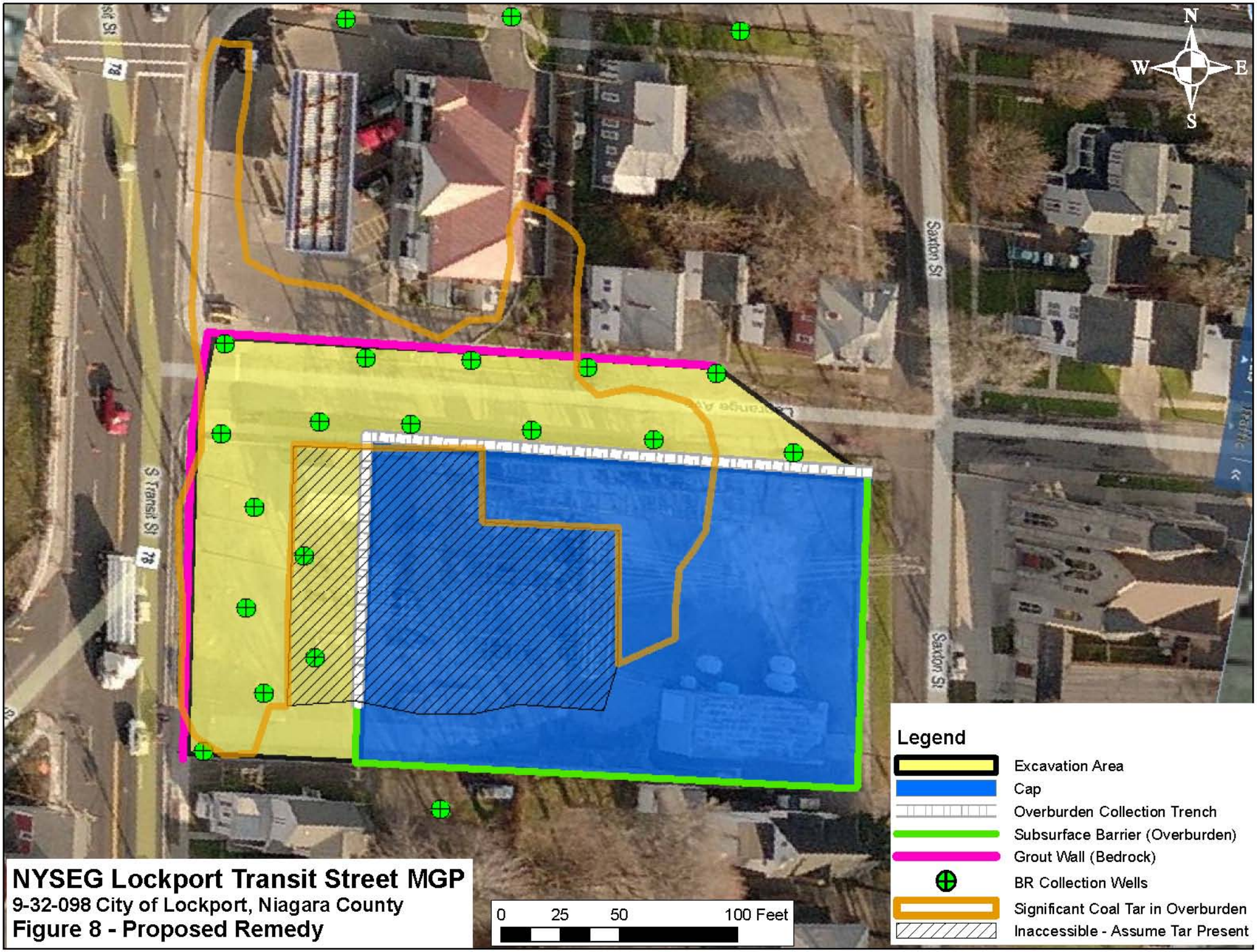
9-32-098 City of Lockport, Niagara County

Figure 5 - Extent of BTEX in Groundwater

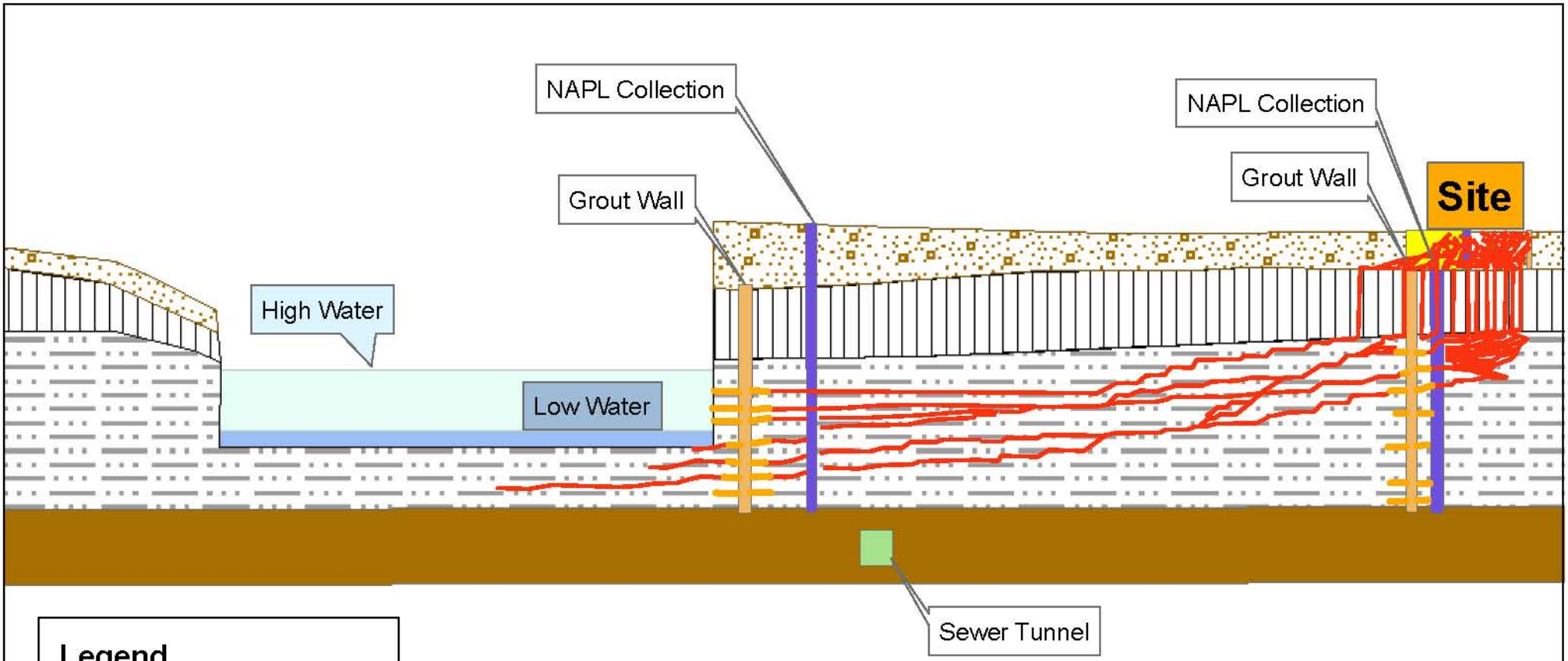

North Park Mid Sch
Radio Towers
Merritt Elem Sch
Upson Park
Locks 34&35
City Hall
Courthouse and County Offices
St Marys Ch
Cross ES
Park
DoT Residency
Barricades
Pound Elem Sch
Armory
Altro Park
Filtration Plant
Mt Calvary Cem
Area shown in detail to the Right ------->
PASSAIC
PROSPECT
GRAND
TRANSIT
LOCK
ONTARIO
PARK
AVE
WEST
STEVENS
WEBB
GRADE
ROAD
CROSBY
SAXTON
NICHOLS
PRICE
PINE
SUMMIT
S TRANSIT
GENESEE
WALNUT
OHIO
RAILROAD
STATE
CITY
BDY
C57020
C54010
C52011
C63004
507
78
31
5
0 500 1,000 2,000 Feet
Legend
PAHs In Sediment
0 - 4 ppm
4 - 10 ppm
10 - 20 ppm
20 - 64.1 ppm


N
W
E
S
SED-31 8.3 ppm
SED-11 0.4 ppm
SED-19 2.4 ppm
SED-10 2.0 ppm
SED-29 6.6 ppm
SED-09 0.0 ppm
SED-30 3.6 ppm
SED-08 13.1 ppm
SED-26 0.6 ppm
SED-28 1.5 ppm
SED-25 36.1 ppm
SED-07 1.6 ppm
SED-06 10.5 ppm
SED-18 24.3 ppm
SED-17 13.3 ppm
SED-16 31.6 ppm
Seeps
0 50 100 200 Feet
NYSEG Lockport Transit Street MGP
9-32-098 City of Lockport, Niagara County
Figure 6 - PAHs in Sediment


N
W
E
S
Legend
Visual Impacts
Tax Parcel-Niagara
BR Collection Wells
Grout Wall
Excavation
Sediment Removal
Site Border
MGP Structures
Potentially Impacted Bedrock
Soil with significant NAPL impacts
Inaccessible - Assume tar present
Additional MGP Impacts Identified in RI
0
50
100
200 Feet
NYSEG Lockport Transit Street MGP
9-32-098 City of Lockport, Niagara County
Figure 7 - Common Elements



NYSEG Lockport Transit Street MGP
9-32-098 City of Lockport, Niagara County
Figure 8 - Proposed Remedy



Legend

- BR_Grout
- Coal Tar
- Barrier Wall
- NAPL recovery
- Sewer Tunnel
- Excavation
- Overburden
- Dolomite

Shale

- Burleigh Hill (Higher Permeability)
- Lewiston (low Permeability)

Water Level

- High Water Level
- Low Water Level

NYSEG Lockport Transit Street MGP

9-32-098 City of Lockport, Niagara County

Figure 9 - Profile and Seep remedy

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

NYSEG Lockport Transit Street MGP Site
Lockport (c), Niagara County, New York
Site No. 932098

The Proposed Remedial Action Plan (PRAP) for the NYSEG Lockport Transit Street 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 26, 2009. The PRAP outlined the remedial measure proposed for the contaminated soil, sediment and groundwater at the NYSEG Lockport Transit Street 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 March 10, 2009, which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) 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 28, 2009.

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

COMMENT 1: Should the substation be demolished?

RESPONSE 1: The substation is an essential component of NYSEG's electrical distribution grid. It would need to be replaced rather than simply demolished. The Department considered this possibility (Alternative 5), but concluded that cost and community disruption associated with that alternative would not be justified.

COMMENT 2: If we had a bad wet season, is it possible for contamination to seep into nearby basements?

RESPONSE 2: The possibility that changing site conditions could create an exposure is one reason that remedial action is needed at this site. It may be possible that extreme weather conditions, or future construction activity could change conditions in the subsurface, and create an exposure that does not currently exist. Implementation of the remedy is expected to eliminate this possibility.

COMMENT 3: How much coal tar will the wells collect?

RESPONSE 3: Collection of coal tar in any well, and a bedrock well in particular, is highly variable and difficult to predict in advance. However, even a modest recovery could have a significant effect on tar mobility, since it is the most mobile material that is most likely to move into the wells.

COMMENT 4: Do we know how much coal tar is actually in the soil?

RESPONSE 4: No. We do not know the volume of coal tar present in the subsurface. However, we have determined the three-dimensional extent of the area where this contamination is present. Because the distribution of tar within this volume of soil is highly variable, it is not practical to determine the actual volume of tar within the effected area. As the remedial excavation proceeds, some of the soil excavated may in fact be uncontaminated, and may be reused as backfill within the site boundaries (not beneath LaGrange Street) if it meets soil reuse criteria.

COMMENT 5: How long will it take before the coal tar stops leaching into the Canal?

RESPONSE 5: It will likely take over a year to complete the design process. Several factors, including the detailed and complex design of the selected remedy, the need to relocate electrical infrastructure, and off-site property access will require a significant time period to implement. Consequently, it could take up to five years to fully address the contamination at this site.

COMMENT 6: How long will it be before the contamination no longer affects the Kenyon property? Is the soil under the Kenyon property contaminated? Can the property be redeveloped? Will NYSEG be on Kenyon property during remediation?

RESPONSE 6: The MGP-related contamination below the Kenyon property (1 Walnut Street) is present only in the deep bedrock. The overlying soil is not contaminated. The remedy does not impose any restrictions on the use and development of this property, but will require access to the property for the installation, operation, and maintenance of the collection wells and the subsurface barrier below the street in the area adjacent to the canal.

COMMENT 7: How long has NYSEG known about coal tar seepage into the canal and down the street? Did NYSEG know the canal is used by the city as an emergency water supply?

RESPONSE 7: It is believed that NYSEG has known that there was hardened tar on the canal wall for over a decade, but only determined that there was an ongoing discharge in the spring of 2008. The City's water intake is located approximately one mile upstream and is thus not impacted or threatened by the MGP site. This is an emergency intake which is not routinely used.

COMMENT 8: Was coal tar used for roofing pitch? Is it a threat to human health?

RESPONSE 8: Coal tar-derived products are used for roofing and sealing driveways and may contain some of the chemicals of concern found in coal tar. The Material Safety Data Sheets

(MSDS) for each material should be consulted for appropriate restrictions and safety precautions.

Melvin Baily of Lockport called on March 2, 2009 with the following comments:

COMMENT 9: The fact sheet indicates this is a "superfund" project. Is the state paying for this?

RESPONSE 9: No. NYSEG is the responsible party and will pay the full cost of the cleanup, including the Department's oversight costs.

COMMENT 10: Is there any provision for training and employing local people?

RESPONSE 10: No. There is no provision for local training or hiring.

David Kinyon from the Town of Lockport Industrial Development Agency submitted the following comment by e-mail on March 13, 2009. The e-mail was submitted through Norm Allen, the Lockport City Engineer, by way of Michael Tucker, the Mayor of Lockport. The comment was submitted as representing the combined interest of the City of Lockport, Town of Lockport and the Town of Pendleton, NY.

COMMENT 11 : The Lockport Canal Task Force has long identified the NYSEG substation at Transit and LaGrange Streets as a blighting influence in Lockport's Canal Corridor. A number of years ago, the Canal Task Force had requested NYSEG to upgrade the site through a range of alternatives (enclosing the transmission infrastructure, landscaping, bushes, etc). I would like to request that the site be improved from an aesthetic point of view, and, if possible, in a manner consistent with the proposed Design Guidelines for our local Transit North plan.

RESPONSE 11: This is beyond the scope of this decision document. However, NYSEG has reviewed this comment and has indicated a willingness to provide a visual barrier between the road and the portion of the substation equipment which will remain following remediation. NYSEG will work with the City to develop a detailed plan, and would want this area to require relatively little maintenance.

Amy Sweet, a Public Reporter for Construction Data Company submitted the following comment by e-mail on March 11, 2009.

COMMENT 12 : For this project, would you please tell me if the NYSDEC will handle the bidding of this project and when it might go out for public bidding and if not who the owner of this project will be that handles the bidding? Also, if you have an engineering firm you are working with would you please send that information as well?

RESPONSE 12: The project will be managed by NYSEG under the oversight of the NYSDEC. They are responsible for procuring all remedial construction contractors and engineering design consultants to perform this work.

David Petrosewitz, the Real Estate Manager for Reid Petroleum Corp., submitted the following comment by e-mail on March 19, 2009.

COMMENT 13 : Reid Petroleum Corp., through its sister company Hawley Development Corporation, owns three properties in close proximity to the NYSEG site. The first, located at 4 South Transit Street, is recognized in the PRAP; remediation and inclusion in the long term Site Management Plan (SMP) having been addressed. The second property is known as 15 LaGrange Street, (tax parcel 109.62-2-22). It is a vacant lot located immediately east of 4 South Transit on the north side of LaGrange Street. The third property is also a vacant lot known as 24-28 Genesee Street (tax parcel 109.62-2-28). It is located in the southwest quadrant of the intersection of Genesee and Saxton Streets. Neither the LaGrange nor Genesee properties are recognized in the PRAP. Given their proximity to the remediation site we ask whether any sampling has been done on them, and if not, why? Does NYSDEC plan to do so? Reid Petroleum Corp. believes now is the time to either rule out or confirm the presence of coal tar contamination on these properties and deal with them accordingly. If impacted, we would like to see them remediated during the course of the current project. At a minimum we believe they (along with the remainder of this block) should be characterized as to their current condition and addressed in the long term SMP with a commitment by responsible parties to remediate them now or in the future should conditions warrant.

RESPONSE 13: The Department and NYSEG are aware of the other properties held by Reid Petroleum Corp referenced in the above comment. The discussion in the ROD of "Reid Petroleum property" should be interpreted to include both the 4 South Transit Street property and the 15 LaGrange Street property (tax parcel 109.62-2-22). As such, any MGP related contamination at 15 LaGrange Street will be addressed during redevelopment.

The borings along the north side of La Grange Street, between the site and the 24-28 Genesee Street property, did not detect any MGP contamination. Consequently, this property appears to be unimpacted and no restriction on its use is envisioned. If significant contamination were to be observed in the northern wall of the excavation beneath LaGrange Street, NYSEG would be required to determine the extent of contamination and work with the Department to develop a plan to appropriately address that contamination.

COMMENT 14 : As you are aware, Reid Petroleum Corp. owns and operates the existing convenience store and gas station at 4 South Transit Street. A Tim Horton's restaurant with drive through service is also located on the premises. The Tim Horton's is operated by a third party franchisee. The PRAP indicates that the entirety of LaGrange Street, including the driving surface, will be excavated and replaced during the project. This action will have major negative impacts on both businesses due to loss of access via two curb cuts from LaGrange Street. The

west curb cut, nearest the intersection of Transit and LaGrange, is the primary path of ingress and egress from Transit Street to the Tim Horton's drive through. Loss of this access will cause a severe decrease in customer traffic as it will deter motorists from entering the premises. The time period this curb cut and access from LaGrange Street to Transit is out of service must be kept to an absolute minimum. Reid Petroleum Corp. is requesting consultation with NYSDEC, NYSEG and the site contractor to develop a work plan that minimizes the length of time this curb cut is unusable, or otherwise compensates both business owners for the impact.

The second curb cut from LaGrange Street, easterly from the first, is the only point of access to the trash corral and dumpster. It is the only location on the property which allows a perpendicular approach to the dumpster required by garbage trucks. We are requesting the PRAP include alternate arrangements for our trash removal during the time this access is unavailable.

Additionally, you may have observed that customer parking space is at a premium at 4 South Transit. Many customers, especially during the morning rush, park on LaGrange Street while at the store. We believe the loss of parking on LaGrange will have a very negative impact on both businesses. Here again, the length of time LaGrange Street is impacted during remediation must be kept to an absolute minimum.

Reid Petroleum Corp. wishes to be involved in the development of the work plan as it pertains to the issues stated in this letter. We wish to protect our interests in our property near the project and minimize its impact on our business, in particular, minimizing the length of time access to and from LaGrange Street, and further to Transit Street, is closed.

RESPONSE 14: The Department will assure that NYSEG works with the property owner and operator in developing the design.

COMMENT 15: Reid Petroleum Corp. also has concerns about the impact that airborne dust will have on our business during the project. These include human exposure and related health impacts, the need for additional housekeeping and increased maintenance to HVAC and other air exchange equipment (i.e. filter replacement). What monitoring and control procedures will be in place during the project? We are requesting compensation for the cost of additional maintenance and repair, whether dust related or otherwise, caused by the remediation project.

RESPONSE 15: A community air monitoring program (CAMP) will be in place during all intrusive work at this site, which will monitor dust levels and vapors at the site perimeter and require controls be in place to limit particulates (dust), vapors and odors leaving the site.

Beyond the instrumentation, it is the Department’s experience that nuisance odors are often detected long before vapor concentrations reach health-based limits. Adequate measures will be in place to prevent the release of strong or persistent odors. The Department will assure a plan is in place to require appropriate mitigation and control measures are available to address odors and other potential impacts to off-site areas if monitoring equipment detects actionable exceedances of the CAMP limits, and if odors or dust are impacting off site areas.

Richard P. Manns, Division Canal Engineer at the New York State Canal Corporation submitted the following comment in a letter dated March 23, 2009.

COMMENT 16 : Conceptually, the Canal Corporation is in support of the project, especially the proposed cleanup and mitigation of the tar seeps into the Canal

RESPONSE 16: No Response necessary.

COMMENT 17 : A Canal Work Permit will be required for any remedial work located on Canal property. These activities may include sediment removal, the grout wall adjacent to the Canal, and NAPL collection adjacent the Canal. Before a Canal Work Permit can be issued, plans and specifications will need to be reviewed and approved by the Canal Corporation.

RESPONSE 17: Comment noted. Provisions relative to obtaining permits and other approvals for remedial work is governed by Part 375-1.12.

COMMENT 18 : Construction of the grout wall cannot have any impact on the stability of the adjacent canal wall.

RESPONSE 18: NYSEG and the NYSDEC will work with the Canal Corporation to ensure the stability of the wall.

COMMENT 19 : Properties which require institutional controls, Site Management Plans, and certification should be clearly identified in the PRAP. If institutional controls are required on property under the Canal Corporation jurisdiction, then the Canal Corporation should be permitted to comment on proposed controls and potential impacts on Canal operation and maintenance - if any. If use of the Canal Corporation property is under permit with another entity, the Canal Corporation will pass the requirements associated with institutional controls to the permittee. The Canal Corporation is not in the position to make any certification associated with the proposed cleanup.

RESPONSE 19: No institutional controls are anticipated on Canal Corporation property. Institutional controls, in the form of an environmental easement are anticipated only on the site itself (the location of the existing substation).

COMMENT 20 : Section 8, Element 10 (sediment removal). This element cannot have any impact on Canal navigation.

RESPONSE 20: Comment noted. This work is expected to be completed during the off-season, when the Canal is drained, so no impact to navigation is anticipated.

APPENDIX B

Administrative Record

Administrative Record

NYSEG Lockport Transit Street MGP Site

Site No. 9-32-098

1. Proposed Remedial Action Plan for the NYSEG Lockport Transit Street MGP site, dated February 2009, prepared by the Department.

2. Order on Consent, Index No. DO-0002-9309, between the Department and NYSEG, executed on March 30, 1994.

3. "Investigation and Assessment of the Lockport Coal tar Site, Task 3 Report, Boring and Well Installation and First Round Ground-Water Sampling," July 1984, Prepared by Woodward-Clyde.

4. "Remedial Investigation Work Plan, Transit Street and State Road Former Manufactured Gas Plants, Lockport, New York," November 2004, Prepared by URS

5. Final Remedial Investigation Report Volume 1 - Text, Tables, and Figures August 2008, Prepared by URS

6. Final Remedial Investigation Report Volume II - Appendices, August 2008, Prepared by URS

7. "Feasibility Study" January 2009, Prepared by URS

8. Fact Sheet announcing Remedial Investigation, October 2004, prepared by the Department.

9. Fact Sheet announcing the completion of the Remedial Investigation, May 2008, prepared by the Department.

10. Fact Sheet announcing the PRAP, February 2009, Prepared by the Department.

11. E-mail dated March 11, 2009 from Amy Sweet, Public Reporter, Construction Data Company, providing comments on the PRAP from the City of Lockport.

12. E-mail dated March 13, 2009 from David Kinyon, via Norm Allen providing comments on the PRAP from the City of Lockport.

13. Letter dated March 19, 2009 from David Petrpsewitz, Reid Petroleum Corp., providing comments on the PRAP.