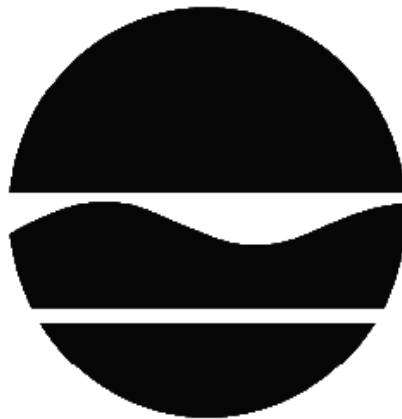


# RECORD OF DECISION

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350/352 Liberty Street  
Environmental Restoration Project  
Newburgh (c), Orange County  
Site No. B00189  
April 2013



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

# **DECLARATION STATEMENT - RECORD OF DECISION**

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350/352 Liberty Street  
Environmental Restoration Project  
Newburgh (c), Orange County  
Site No. B00189  
April 2013

## **Statement of Purpose and Basis**

This document presents the remedy for the 350/352 Liberty Street site, an environmental restoration 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.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the 350/352 Liberty Street 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, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2) To accommodate the site cover described in remedy element 3 all on-site soils which exceed restricted-residential SCOs in the upper 2 feet, as defined by 6 NYCRR Part 375-6.8, may be

excavated and transported off-site for disposal. Approximately 500 cubic yards of soil would be removed from the site. The site will be re-graded to accommodate installation of a cover system. Soil derived from the re-grading meeting the restricted residential SCOs may be used to backfill the excavation. Clean fill meeting the requirements of 375-6.7(d) and DER-10, Appendix 5 would be brought in to replace the excavated soil and establish the designed grades at the site.

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 feet of exposed surface soil will exceed the applicable soil cleanup objectives (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).

4) Further investigation of the potential for vapor intrusion will be conducted in the off-site apartment building to the south of the site. If impacts to this structure from the site are discovered by this investigation action will be implemented to address exposures relating to soil vapor intrusion.

5) Imposition of an institutional control in the form of an environmental easement for the site that:

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional controls in accordance with Part 375-1.8(h)(3);
- allows use and development of the site for restricted-residential, commercial, or industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or Orange County DOH; and
- requires compliance with the Department approved Site Management Plan.

6) A Site Management Plan is required which includes the following:

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

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

Engineering Controls: The soil cover discussed in Paragraph 3 above and any vapor mitigation systems required by future investigations or development.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including land use and

groundwater restrictions;

- a provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site, including provisions for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

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

- monitoring of groundwater to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department; and
- provisions for any buildings developed on the site as may be required by the Institutional and Engineering Control Plan discussed in item a above.

c) an operation and maintenance (O&M) plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:

- compliance monitoring of vapor mitigation systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
- maintaining site access controls and Department notification; and
- providing the Department access to the site and O&M records.

### **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**

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.

April 2, 2013

Date



Robert W. Schick, P.E., Director  
Division of Environmental Remediation

# **RECORD OF DECISION**

350/352 Liberty Street  
Newburgh (c), Orange County  
Site No. B00189  
April 2013

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## **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 contaminants 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 contaminants at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum. 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 1996 Clean Water/ Clean Air Bond Act provides funding to municipalities for the investigation and cleanup of brownfields. Brownfields are abandoned, idled, or under-used properties where redevelopment is complicated by real or perceived environmental contamination. They typically are former industrial or commercial properties where operations may have resulted in environmental contamination. Brownfields often pose not only environmental, but legal and financial burdens on communities. Under the Environmental Restoration Program, the state provides grants to municipalities to reimburse up to 90 percent of eligible costs for site investigation and remediation activities. Once remediated, the property can then be reused.

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: CITIZEN PARTICIPATION**

The Department seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by the Department in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repositories:

NYSDEC  
Attn: Michael Knipfing  
21 S Putt Corners Rd  
New Paltz, NY 12561  
Phone: 845 256 3154

Newburgh Free Library  
124 Grand Street  
Newburgh, NY 12550  
Phone: 845 563 3601

A public meeting was also conducted. At the meeting, the findings of the remedial investigation (RI) and the alternatives analyses (AA) were presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period was held, during which verbal or written comments were accepted on the proposed remedy.

Comments on the remedy received during the comment period are summarized and addressed in the responsiveness summary section of the ROD.

### **Receive Site Citizen Participation Information By Email**

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

### **SECTION 3: SITE DESCRIPTION AND HISTORY**

**Location:** The 350-352 Liberty Street is a rectangular shaped 0.12 acre parcel located in a residential area of the City of Newburgh, Orange County. The site is located approximately 0.6 miles north of Broadway on Liberty Street in Newburgh.

**Site Features:** The site is currently a vacant lot. A former gas station building was demolished as part of an Interim Remedial Measure (IRM) in December 2010.

**Current Zoning/Use:** The site is currently inactive. The site is zoned for commercial use. The site is bordered to the south by an apartment building, to the east and north by an abandoned industrial building and to the west by Liberty Street.

**Past Use of the Site:** The site is the location of a former gas station. The station operated at the site from 1954 to the mid 1980s. The site contained several underground and one above ground storage tanks (USTs and AST) which were removed from the site as part of an IRM in January

2011. The site is currently vacant and inactive.

Site Geology and Hydrogeology: Overburden soils consist of urban fill underlain by sand, silt and gravel to a depth of approximately 20 feet. Weathered bedrock was encountered at approximately 20 feet. A confining layer appears to limit the vertical migration of contamination to within overburden soils. Groundwater flows from west to east across the site at a depth of approximately 16 feet below grade.

A site location map is attached as Figure 1.

#### **SECTION 4: LAND USE AND PHYSICAL SETTING**

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

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

#### **SECTION 5: ENFORCEMENT STATUS**

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

No PRPs have been documented to date.

Since no viable PRPs have been identified, there are currently no ongoing enforcement actions. However, legal action may be initiated at a future date by the state to recover state response costs should PRPs be identified. City of Newburgh will assist the state in its efforts by providing all information to the state which identifies PRPs. City of Newburgh will also not enter into any agreement regarding response costs without the approval of the Department.

#### **SECTION 6: SITE CONTAMINATION**

##### **6.1: Summary of the Remedial Investigation**

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

The following general activities are conducted during an RI:

- Research of historical information,

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

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor
- indoor air
- sub-slab vapor

#### **6.1.1: Standards, Criteria, and Guidance (SCGs)**

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

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

#### **6.1.2: RI Results**

The data have identified contaminants of concern. A "contaminant of concern" is a contaminant 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:

ACETONE	1,3,5-Trimethylbenzene
BENZENE	BENZ(A)ANTHRACENE
METHYLENE CHLORIDE	BENZO(B)FLUORANTHENE
TETRACHLOROETHYLENE (PCE)	BENZO(A)PYRENE
1,2,4-TRIMETHYLBENZENE	Chrysene



DIBENZ[A,H]ANTHRACENE  
indeno(1,2,3-cd)pyrene  
ARSENIC  
BARIUM  
CADMIUM

COPPER  
LEAD  
MERCURY  
SELENIUM

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

- groundwater
- soil

## **6.2: Interim Remedial Measures**

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

The following IRM(s) has/have been completed at this site based on conditions observed during the RI.

### **Building Demolition and Source Removal**

Based on a preliminary investigation of the site source areas of contamination were identified in the form of underground storage tanks (USTs), aboveground storage tanks (ASTs), hydraulic lifts, gas station piping, and contaminated soil. The IRM was started in December 2010 and was completed in October 2011. The IRM included:

- Disposal of wastes and other materials stored in and around the on-site building;
- Asbestos abatement and demolition of the former gas station structure;
- Off-site disposal of demolition debris;
- Assessment and closure of site drainage structures, including floor drains located within the site building, and their associated piping;
- Removal and disposal of concrete and asphalt from building footings, foundations, floor slabs, parking areas, and concrete pads;
- Removal of two (2) sub-grade hydraulic lifts;
- Removal of nine (9) underground storage tanks (USTs) and one (1) above ground storage tank (AST) and their associated piping and other appurtenances;
- Excavation and off-site disposal of approximately 250 cubic yards of lead, oil and petroleum-contaminated soil;
- Confirmatory soil sampling and laboratory analysis;
- Backfilling of excavation areas (which represents about 40 percent of the footprint) with clean fill; and
- Grading and surface restoration.

### **6.3: Summary of Environmental Assessment**

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

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

**Nature and Extent of Contamination:** Following the IRM, a RI was completed. The RI determined that semi-volatile organic compounds (SVOCs) and inorganics (metals) exceed unrestricted SCOs in soils and four volatile organic compounds (VOCs) exceed SCGs in groundwater. VOCs in groundwater are indicative of weathered petroleum. On-site monitoring wells located down gradient of source areas that were removed during the IRM were not contaminated indicating that contamination from source areas has not migrated off-site.

**Special Resources:** The site is located in an urban area of the City of Newburgh. No special resources have been identified.

### **6.4: Summary of Human Exposure Pathways**

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

The site is covered with areas of asphalt and clean backfill. Persons who dig below these materials may come into contact with contaminants in soil or groundwater. Contaminated groundwater at the site is not used for drinking or other purposes, and the site is served by a public water supply that obtains water from a different source not affected by this contamination. Volatile organic compounds in the soil or 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. Because there is no on-site building, inhalation of site contaminants in indoor air due to soil vapor intrusion does not represent a concern for the site in its current condition. However, the potential exists for the inhalation of site contaminants due to soil vapor intrusion for any future on-site development. In addition, the potential exists for off-site migration of site contaminants which may impact indoor air within the adjacent apartment complex.

### **6.5: Summary of the Remediation Objectives**

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

contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

### **Groundwater**

#### **RAOs for Public Health Protection**

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

#### **RAOs for Environmental Protection**

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.

### **Soil**

#### **RAOs for Public Health Protection**

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

#### **RAOs for Environmental Protection**

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

### **Soil Vapor**

#### **RAOs for Public Health Protection**

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

## **SECTION 7: SUMMARY OF THE SELECTED REMEDY**

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

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

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

The selected remedy is referred to as the Excavation or Site Cover remedy.

The estimated present worth cost to implement the remedy is \$145,000. The cost to construct the remedy is estimated to be \$114,000 and the estimated average annual cost is \$2,000.

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, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2) To accommodate the site cover described in remedy element 3 all on-site soils which exceed restricted-residential SCOs in the upper 2 feet, as defined by 6 NYCRR Part 375-6.8, may be excavated and transported off-site for disposal. Approximately 500 cubic yards of soil would be removed from the site. The site will be re-graded to accommodate installation of a cover system. Soil derived from the re-grading meeting the restricted residential SCOs may be used to backfill the excavation. Clean fill meeting the requirements of 375-6.7(d) and DER-10, Appendix 5 would be brought in to replace the excavated soil and establish the designed grades at the site.

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 feet of exposed surface soil will exceed the applicable soil cleanup objectives (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).

4) Further investigation of the potential for vapor intrusion will be conducted in the off-site apartment building to the south of the site. If impacts to this structure from the site are discovered by this investigation action will be implemented to address exposures relating to soil vapor intrusion.

5) Imposition of an institutional control in the form of an environmental easement for the site that:

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional controls in accordance with Part 375-1.8(h)(3);
- allows use and development of the site for restricted-residential, commercial, or industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or Orange County DOH; and
- requires compliance with the Department approved Site Management Plan.

6) A Site Management Plan is required which includes the following:

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

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

Engineering Controls: The soil cover discussed in Paragraph 3 above and any vapor mitigation systems required by future investigations or development.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including land use and groundwater restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site, including provisions for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

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

- monitoring of groundwater to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department; and
- provisions for any buildings developed on the site as may be required by the Institutional and Engineering Control Plan discussed in item a above.

c) an operation and maintenance (O&M) plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:

- compliance monitoring of vapor mitigation systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
- maintaining site access controls and Department notification; and
- providing the Department access to the site and O&M records.

## **Exhibit A**

### **Nature and Extent of Contamination**

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

For each medium for which contamination was identified, a table summarizes the findings of the investigation. The tables present the range of contamination found at the site in the media and compares the data with the applicable SCGs for the site. The contaminants are arranged into 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 4 and Section 6.1.1 are also presented.

### **Waste/Source Areas**

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

Wastes are defined in 6 NYCRR Part 375-1.2-(aw) and include solid, industrial and/or hazardous wastes. Source Areas are defined in 6 NYCRR Part 375-(au). Source areas are areas of concern at a site where substantial quantities of contaminants are found which can migrate and release significant levels of contaminants to another environmental medium. Wastes and source areas were identified at the site include,

Source areas of contamination identified at the site prior to the IRM included underground storage tanks (USTs), above ground storage tanks (ASTs), hydraulics lifts, gas station piping, and contaminated soil.

The waste/source areas identified at the site were addressed by the IRM(s) described in Section 6.2.

### **Groundwater**

Prior to the IRM, groundwater samples were collected from five temporary overburden monitoring wells to assess groundwater conditions on-site. The results indicated that contamination in shallow groundwater at the site exceeded the SCGs for VOCs. Several VOCs were detected which exceeded groundwater SCGs including benzene, ethylbenzene, xylene, 1,3,5 trimethylbenzene, and 1,2,4 trimethylbenzene and several other compounds indicative of weathered petroleum. Groundwater flow was observed to be in a northeasterly direction and down gradient wells did not contain groundwater exceeding SCGs.

Following the IRM, groundwater samples were collected from five permanent overburden monitoring wells to assess groundwater conditions on-site. The results of this post-IRM groundwater sampling are provided in Table 1 and Figure 3 and indicate that VOC concentrations were greatly reduced by the IRM. Two groundwater samples collected from wells MW-104 and MW-105 marginally exceeded the SCGs for benzene, 1,3,5 trimethylbenzene, 1,2,4 trimethylbenzene, and tetrachloroethylene. The post-IRM groundwater sampling confirmed groundwater samples from the three down gradient wells on the site's eastern boundary (MW-101, MW-102, and MW-103) did not exceed SCGs for any constituents.

**Table 1 - Groundwater**

Detected Constituents	Concentration Range Detected (ppb) <sup>a</sup>	SCG <sup>b</sup> (ppb)	Frequency Exceeding SCG
<b>VOCs</b>			
Benzene	ND – 1.4	1	1 of 5
Tetrachloroethylene	ND – 7.3	5	2 of 5
1,2,4-Trimethylbenzene	ND - 8	5	1 of 5
1,3,5-Trimethylbenzene	ND – 5.8	5	1 of 5

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.

b- SCG: Standard Criteria or Guidance - Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1), 6 NYCRR Part 703, Surface water and Groundwater Quality Standards, and Part 5 of the New York State Sanitary Code (10 NYCRR Part 5).

Based on the findings of the RI, the past use of the site as a gasoline station and auto repair shop 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: VOCs

## Soil

Surface and subsurface soil samples were collected at the site during the RI. Surface soil samples were collected from a depth of 0-2 feet to assess direct human exposure and to determine the suitability of the existing soil as a site cover. Subsurface soil samples were taken from depths of 2 – 20 feet to assess soil contamination impacts to groundwater. Subsurface soil samples were collected prior to, during, and following the IRM. This section only presents soil results for soils that are still present at the site (i.e., were not removed by the IRM). The sampling results exceed unrestricted SCOs for VOCs, SVOCs, and metals.

Table 2a compares SVOC and metals concentrations to Unrestricted SCOs as well as applicable restricted-residential use SCOs for near surface soil samples (0-2 feet). Table 2b compares VOC concentrations to Unrestricted SCOs as well as applicable protections of groundwater SCOs. Figure 4 shows concentrations of constituents that exceed applicable restricted SCOs to the site in soil. Applicable restricted-residential SCOs are exceeded for polycyclic aromatic hydrocarbons (PAHs) and metals in the top 2 feet of soils in 2 out of 4 samples collected from these depths (SS-101 and SS-102). There are no samples exceeding the Protection of Groundwater SCOs for contaminants currently detected in groundwater at the site (VOCs)



**Table 2a – Near Surface Soil**

Detected Constituents	Concentration Range Detected (ppm) <sup>a</sup>	Unrestricted SCO <sup>b</sup> (ppm)	Frequency Exceeding Unrestricted SCG	Restricted Residential Use SCO <sup>c</sup> (ppm)	Frequency Exceeding Restricted SCG
<b>SVOCs</b>					
Benzo(a)anthracene	0.6 – 4.8	1	1 of 4	1	1 of 4
Benzo(a)pyrene	0.67 – 5.4	1	2 of 4	1	2 of 4
Benzo(b)fluranthene	0.96 – 6.9	1	2 of 4	1	2 of 4
Chrysene	0.69 – 5.2	1	1 of 4	3.9	1 of 4
Indeno(1,2,3-cd)pyrene	0.29 – 2.2	0.5	3 of 4	0.5	3 of 4
Dibenzo(a,h)anthracene	0.15 – 3.7	0.33	2 of 4	0.33	2 of 4
<b>Inorganics</b>					
Arsenic	7.4 - 29	13	3 of 4	16	2 of 4
Barium	41 - 909	350	1 of 4	400	1 of 4
Cadmium	0.47 – 20.1	2.5	1 of 4	4.3	1 of 4
Copper	33 - 492	50	1 of 4	270	1 of 4
Lead	170 - 2550	63	4 of 4	400	1 of 4

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;

b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.

c - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Public Health for Restricted-Residential Use, unless otherwise noted.

**Table 2b – Subsurface Soil**

Detected Constituents	Concentration Range Detected (ppm) <sup>a</sup>	Unrestricted SCO <sup>b</sup> (ppm)	Frequency Exceeding Unrestricted SCG	Protection of Groundwater SCO <sup>c</sup> (ppm)	Frequency Exceeding Restricted SCG
<b>VOCs<sup>d</sup></b>					
Acetone	ND – 6.7	0.05	3 of 33	0.05	3 of 33
Methylene Chloride	ND – 0.86	0.05	3 of 33	0.05	3 of 33

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;

b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.

c - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Groundwater unless otherwise noted

The VOCs detected in site soils (acetone and methylene chloride) were not found during the pre-IRM investigation. These VOCs are common laboratory contaminants and are not considered to be site related. The primary contaminants of concern in soil are PAHs and metals in shallow soils (0-2 feet below grade). As shown on Figure 4 there is a low density of soil samples from 0-2 feet below grade. However, based on the urban setting of the site and past use as a gas station and auto repair shop, PAHs and metals exceeding the restricted-residential SCOs from 0-2 feet below grade would be anticipated in areas that were not backfilled with clean fill during the IRM.

Based on the findings of the Remedial Investigation, the past use of the site as a gasoline station and auto repair shop has resulted in the contamination of soil. The site contaminants identified in soil which are considered to be the primary contaminants of concern, to be addressed by the remedy selection process are, SVOCs and metals.

### **Soil Vapor**

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, sub-slab soil vapor under structures, indoor air inside structures and outdoor ambient air. At this site due to the presence of buildings adjacent to the site a full suite of samples were collected to evaluate whether soil vapor intrusion was occurring.

Soil vapor samples were collected from the site and sub-slab and indoor air samples were collected from an off-site apartment building adjacent and to the south of the site (Figure 2). Several VOCs were detected at low levels in the sub-slab-soil vapor samples and the indoor air samples collected from within a utility closet adjacent to the apartment entrance. Comparable concentrations of VOCs were detected in concurrently collected ambient air samples. No VOCs exceed of guidance levels based on NYSDOH Soil Vapor Intrusion Guidance were encountered; however, the scope of the soil vapor investigation conducted during the RI was limited to one sub slab soil vapor sample and no indoor air sample in the adjacent structure living space. Therefore the potential for soil vapor contamination must be further addressed by the remedy.

Based on the findings of the Remedial Investigation, the past use of the site as a gasoline station and auto repair shop may have resulted in the contamination of soil vapor. The site contaminants that are considered to be the primary contaminants of concern which will drive the remediation of soil vapor to be addressed by the remedy selection process are VOCs.

## Exhibit B

### Description of Remedial Alternatives

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

#### **Alternative 1: No Further Action**

The No Further Action Alternative recognizes the remediation of the site completed by the IRM described in Section 6.2. This alternative leaves the site in its present condition and does not provide any additional protection of the environment.

#### **Alternative 2: Soil Cover**

This alternative would include a site cover with excavation of the top two feet of soil as necessary to accommodate the cover. Further evaluation of SVI impacts in the neighboring off-site apartment building, and an institutional control in the form of an environmental easement which would limit development of the site to restricted-residential, restrict the use of groundwater from beneath the site as a potable source of water without NYSDOH approval, and require an evaluation of soil vapor intrusion prior to development of the property with mitigation if deemed necessary.

*Present Worth:* ..... \$145,000  
*Capital Cost:* ..... \$114,000  
*Annual Costs (years 1-30):* ..... \$2,000

#### **Alternative 3: Excavation or Soil Cover/Monitored Natural Attenuation/In-Site Bioremediation**

This alternative would include all the elements of Alternative 2 (i.e., cover system address vapor intrusion, and institutional controls) with the addition of in-situ bio-remediation of groundwater. Alternative 3 differs from Alternative 2 in that in-situ bioremediation would be used to address site soil residuals and monitored natural attenuation of residual groundwater contamination. It is anticipated that the same long-term costs for monitoring would apply to Alternatives 2 and 3.

*Present Worth:* ..... \$224,000  
*Capital Cost:* ..... \$158,000  
*Annual Costs (years 1-5):* ..... \$8,000  
*Annual Costs (years 6-30):* ..... \$2,000

#### **Alternative 4: Excavation to Unrestricted SCOs/In-Situ Bioremediation**

This alternative achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A and soil meets the unrestricted soil clean objectives listed in Part 375-6.8 (a). This alternative would include: the excavation and off-site disposal of all soils in exceedence of unrestricted SCOs. The site would then be backfilled with soil

meeting the unrestricted SCOs. Due to the nature of site contamination consisting of groundwater currently in slight exceedence of SCGs without a clear source (the source was removed by the IRM), in-situ bioremediation would also be completed following excavation and backfill. Thus this alternative includes five years of monitoring groundwater monitoring, the same as Alternatives 2 and 3.

*Present Worth:* ..... \$1,123,000  
*Capital Cost:* ..... \$1,102,000  
*Annual Costs (years 1-5):* ..... \$5,000

**Exhibit C**  
**Remedial Alternative Costs**

<b>Remedial Alternative</b>	<b>Capital Cost (\$)</b>	<b>Annual Costs (\$)</b>	<b>Total Present Worth (\$)</b>
No Further Action	\$ 0	\$ 0	\$ 0
Excavation or Soil Cover	\$ 114,000	\$ 2,000	\$ 145,000
Excavation or Soil Cover/Monitored Natural Attenuation/In-Site Bioremediation	\$ 158,000	\$ 8,000 (1-5 yrs) \$ 2,000 (6-30 yrs)	\$224,000
Excavation to Unrestricted SCOs/In-Site Bioremediation	\$ 1,102,000	\$ 5,000	\$1,123,000

## Exhibit D

### SUMMARY OF THE SELECTED REMEDY

The Department is selecting Alternative 2, Soil Cover as the remedy for this site. Alternative 2 would achieve the remediation goals for the site by eliminating exposure to surface soils in exceedence of SCOs for the anticipated use of the site (restricted-residential). The elements of this remedy are described in Section 7. The selected remedy is depicted in Figure 5.

### Basis for Selection

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

The selected Alternative 2 would satisfy this criterion by eliminating exposure to contaminants of concern in soil by removal or placement of a cover and addressing potential exposure to soil vapor. Alternative 1 (No Further Action) does not provide sufficient protection to public health and the environment and will not be evaluated further. Alternative 3 would satisfy this criterion in the same manner as Alternative 2, but would also include in-situ bioremediation to enhance residual groundwater contamination attenuation. Alternative 4 satisfies this criterion by the complete elimination of site contamination.

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.

Alternatives 2, 3, and 4 each comply with this criterion. Alternatives 2 and 3 both comply with SCGs to the extent practicable. Soils exceeding restricted-residential SCOs will be either excavated or covered. Residual groundwater contamination is expected to attenuate to below SCGs regardless of whether in-situ bio-remediation is utilized or not. Alternative 4 removes all contamination from the site in exceeding any SCOs, and thus satisfies this requirement.

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.

Long-term effectiveness is accomplished by all of the remedies.

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

Alternative 3 and 4 provided the greatest degree of reducing toxicity, mobility and volume. Alternative 2 reduces toxicity by preventing direct contact with contaminated surface soils and reduce mobility as the cover system would to preventing water and wind erosion of contaminated soil.

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.

Alternative 2 has the least short-term impacts as there would be no additional remedial efforts in the subsurface. In Alternative 4 both the adjacent roadway and apartment building could be impacted by the excavation of the site, and this may require road closures and/or temporary relocation of residents of the adjacent apartment building as well as high truck traffic and noise levels. Alternative 3 has fewer short-term impacts than 4 as there would be significantly less soil removal.

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

Alternatives 2 and 3 are favorable in that they are readily implementable. Alternative 3 includes in-situ bioremediation which is a readily implementable and proven technology. The implementability of Alternative 4 is more difficult as the remedy involves excavation of contaminants at depth which would require the use of sheet piling or equivalent methods to shore up the adjacent apartment building to the south of the site and the adjoining roadway.

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.

Alternative 2 is the least costly and achieves the remedial goals for the site. Alternative 3 is more costly because it includes in-situ bioremediation. Given the residual nature of groundwater contamination currently observed at the site, it is unlikely the added cost of in-situ bioremediation under Alternative 3 would be noticeably more effective in achieving groundwater SCGs than Alternative 2. Alternative 4 is significantly more costly than Alternatives 2 and 3. The additional cost brings little added benefit.

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.

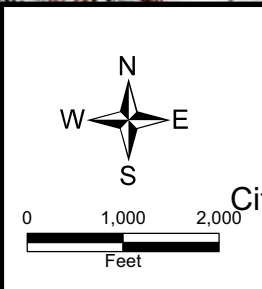
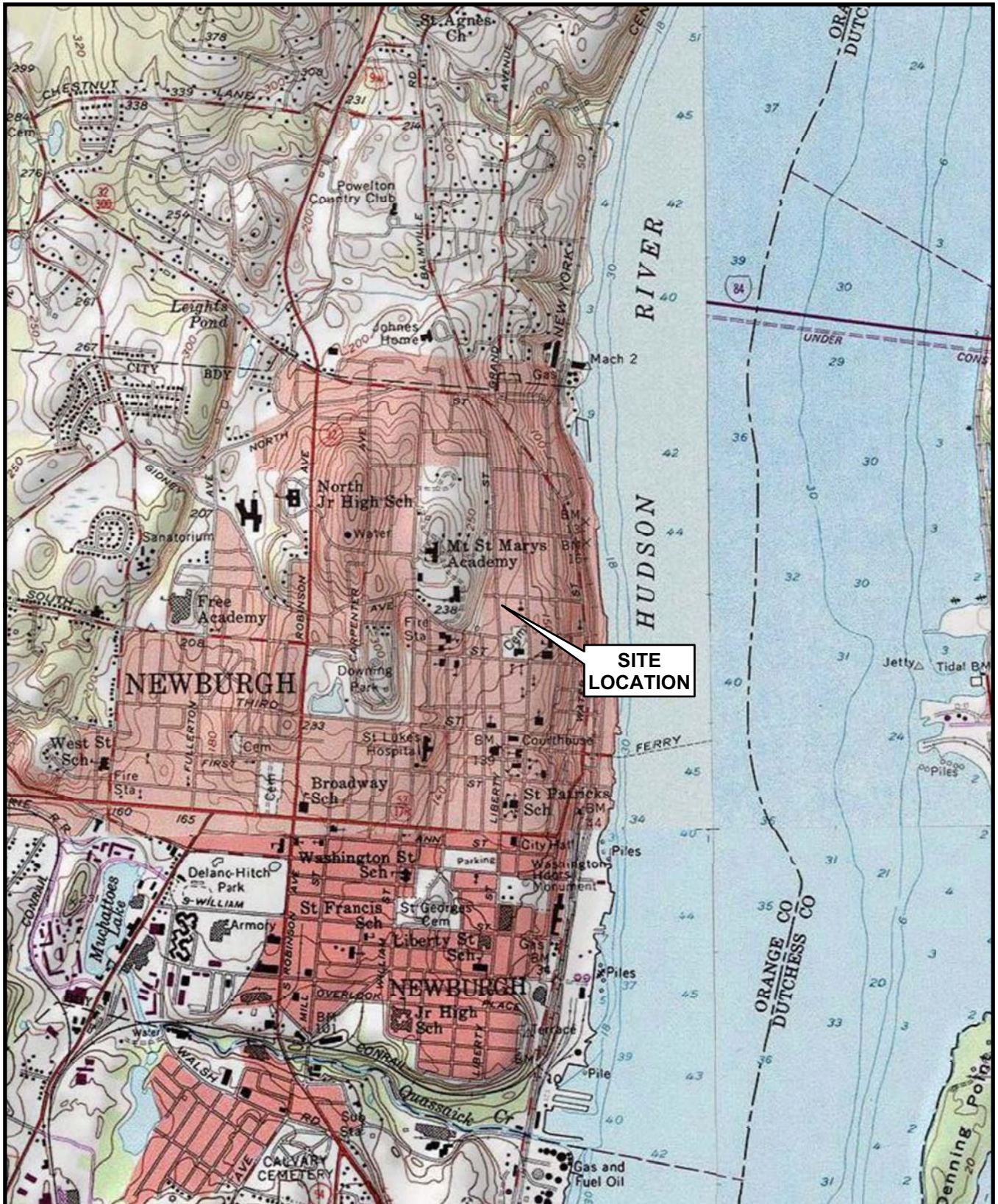
The anticipated land use for the site is restricted-residential. Alternatives 2 and 3 both allow for future restricted-residential use of the site by excavating or capping soils from 0-2 feet below grade which exceed restricted-residential SCOs. Alternative 4 allows for unrestricted use of the site, however this level of clean up is not necessary given the urban setting of the site and potential uses of the site in the future.

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 was prepared that describes public comments received and the manner in which the Department addressed the concerns raised.

Alternative 2 is being selected because, as described above, it satisfies the threshold criteria and provides the best balance of the balancing criterion.

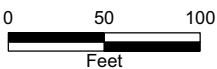




**Figure 1**  
 Site Location Map  
 350-352 Liberty Street Site  
 City of Newburgh, Orange County  
 Site No. B00189







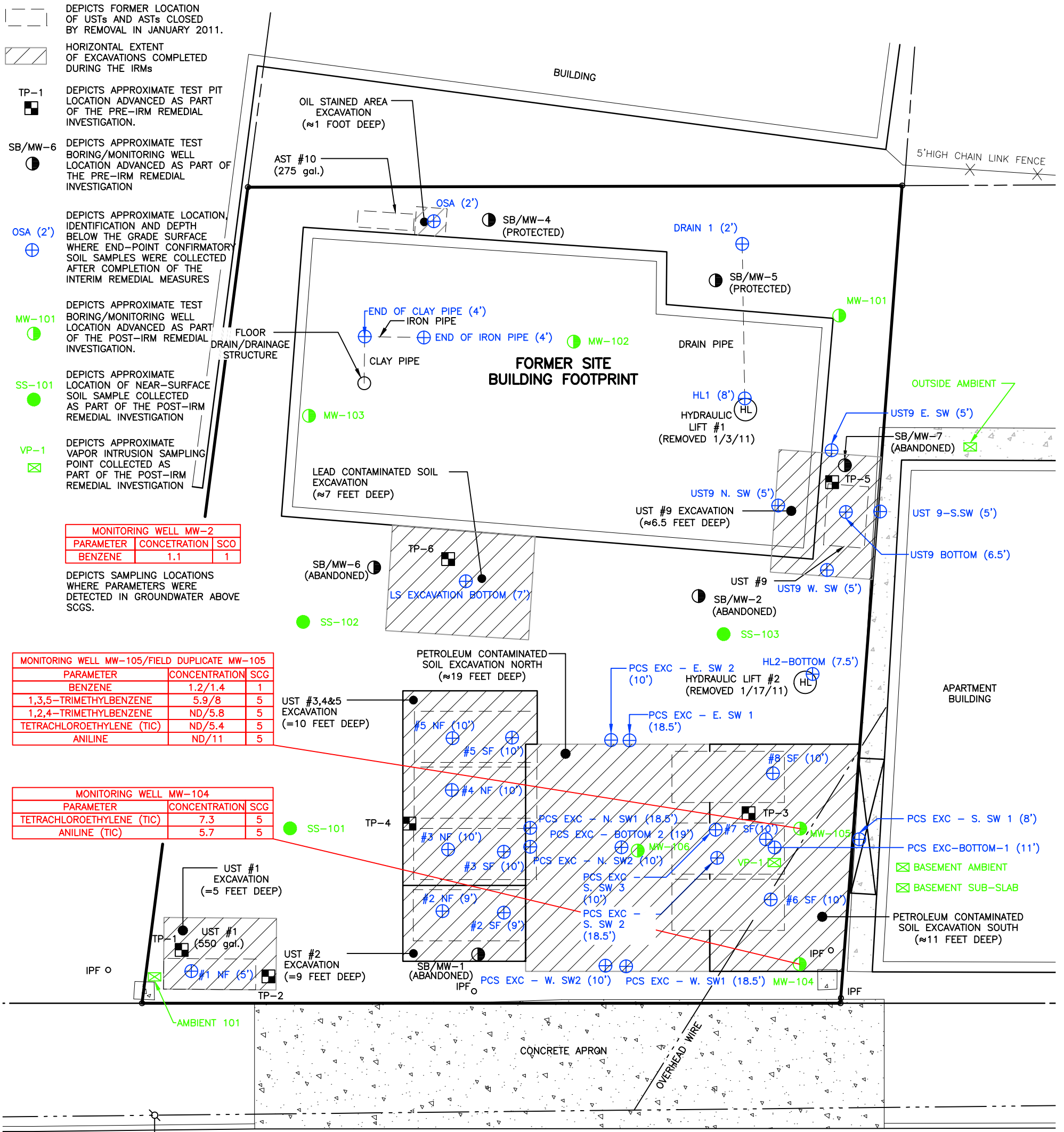
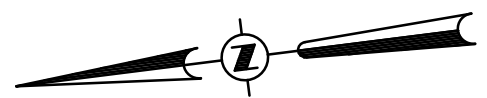
## Figure 2 Site Map

350-352 Liberty Street Site  
City of Newburgh, Orange County  
Site No. B00189



LEGEND

- UST UNDERGROUND STORAGE TANK
- AST ABOVE GROUND STORAGE TANK
- DEPicts FORMER LOCATION OF USTs AND ASTs CLOSED BY REMOVAL IN JANUARY 2011.
- HORIZONTAL EXTENT OF EXCAVATIONS COMPLETED DURING THE IRMs
- TP-1 DEPicts APPROXIMATE TEST PIT LOCATION ADVANCED AS PART OF THE PRE-IRM REMEDIAL INVESTIGATION.
- SB/MW-6 DEPicts APPROXIMATE TEST BORING/MONITORING WELL LOCATION ADVANCED AS PART OF THE PRE-IRM REMEDIAL INVESTIGATION
- OSA (2') DEPicts APPROXIMATE LOCATION, IDENTIFICATION AND DEPTH BELOW THE GRADE SURFACE WHERE END-POINT CONFIRMATORY SOIL SAMPLES WERE COLLECTED AFTER COMPLETION OF THE INTERIM REMEDIAL MEASURES
- MW-101 DEPicts APPROXIMATE TEST BORING/MONITORING WELL LOCATION ADVANCED AS PART OF THE POST-IRM REMEDIAL INVESTIGATION.
- SS-101 DEPicts APPROXIMATE LOCATION OF NEAR-SURFACE SOIL SAMPLE COLLECTED AS PART OF THE POST-IRM REMEDIAL INVESTIGATION
- VP-1 DEPicts APPROXIMATE VAPOR INTRUSION SAMPLING POINT COLLECTED AS PART OF THE POST-IRM REMEDIAL INVESTIGATION

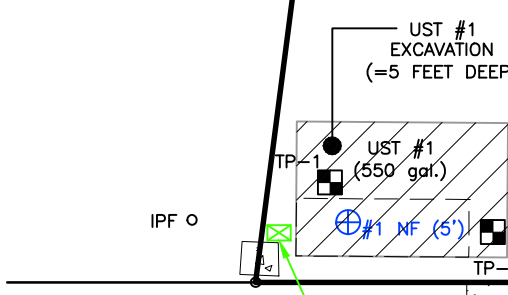


MONITORING WELL MW-2		
PARAMETER	CONCENTRATION	SCG
BENZENE	1.1	1

DEPicts SAMPLING LOCATIONS WHERE PARAMETERS WERE DETECTED IN GROUNDWATER ABOVE SCGS.

MONITORING WELL MW-105/FIELD DUPLICATE MW-105		
PARAMETER	CONCENTRATION	SCG
BENZENE	1.2/1.4	1
1,3,5-TRIMETHYLBENZENE	5.9/8	5
1,2,4-TRIMETHYLBENZENE	ND/5.8	5
TETRACHLOROETHYLENE (TIC)	ND/5.4	5
ANILINE	ND/11	5

MONITORING WELL MW-104		
PARAMETER	CONCENTRATION	SCG
TETRACHLOROETHYLENE (TIC)	7.3	5
ANILINE (TIC)	5.7	5



OUTSIDE AMBIENT

UST9 E. SW (5')

SB/MW-7 (ABANDONED)

UST 9-S. SW (5')

UST9 BOTTOM (6.5')

UST #9

SB/MW-2 (ABANDONED)

HL2-BOTTOM (7.5')

PCS EXC - E. SW 2 (10')

PCS EXC - E. SW 1 (18.5')

PCS EXC - N. SW1 (18.5')

PCS EXC - BOTTOM 2 (19')

PCS EXC - N. SW2 (10')

PCS EXC - S. SW 3 (10')

PCS EXC - S. SW 2 (18.5')

PCS EXC - W. SW2 (10')

PCS EXC - W. SW1 (18.5')

PCS EXC - S. SW 1 (8')

PCS EXC-BOTTOM-1 (11')

BASEMENT AMBIENT

BASEMENT SUB-SLAB

PETROLEUM CONTAMINATED SOIL EXCAVATION SOUTH (≈11 FEET DEEP)

IPF

IPF

IPF

IPF

IPF

IPF

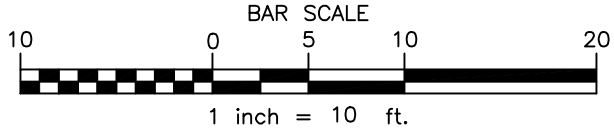
IPF

IPF

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IPF

MAP NOTES:  
1. THE LOCATIONS AND FEATURES DEPicted ON THIS MAP ARE APPROXIMATE AND DO NOT REPRESENT AN ACTUAL FIELD SURVEY.



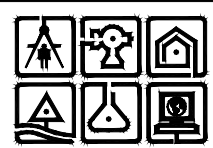
LIBERTY STREET  
60' R.O.W.

**FIGURE 3**  
**CONTAMINANTS ABOVE SCGS IN GROUNDWATER**  
**FOLLOWING COMPLETION OF THE IRMS**  
**350-352 LIBERTY STREET**  
**ERP SITE**

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CHECKED : SHB  
PROJ. NO: 10.1045  
SCALE : 1"=10'  
DATE : MARCH 4, 2013

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DWG. NO:





LEGEND

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DRAIN 1 (2')		
PARAMETER	CONCENTRATION	SCO
INDENO(1,2,3-cd)PYRENE	2.1	0.5
DIBENZ(a,h) ANTHRACENE	1.3	0.33
BARIUM	909	400
CADMIUM	20.1	4.3
COPPER	492	270
LEAD	2550	400

#7 SF(10')		
PARAMETERS	CONCENTRATION	SCO
LEAD	712	400

DEPicts SAMPLING LOCATION, DEPTH BELOW THE GROUND SURFACE WHERE THE SOIL SAMPLE WAS COLLECTED (i.e., 10') AND PARAMETERS THAT EXCEEDED SCOs FOR RESTRICTED RESIDENTIAL USE SITES.

SS-102(0.5' bgs)		
PARAMETER	CONCENTRATION	SCO
BENZO(A)ANTHRACENE	4.8	1
BENZO(A)PYRENE	5.4	1
BENZO(B)FLOURANTHENE	6.9	1
CHRYSENE	5.2	3.9
INDENO(1,2,3-CD)PYRENE	2.2	0.5
ARSENIC	29	16

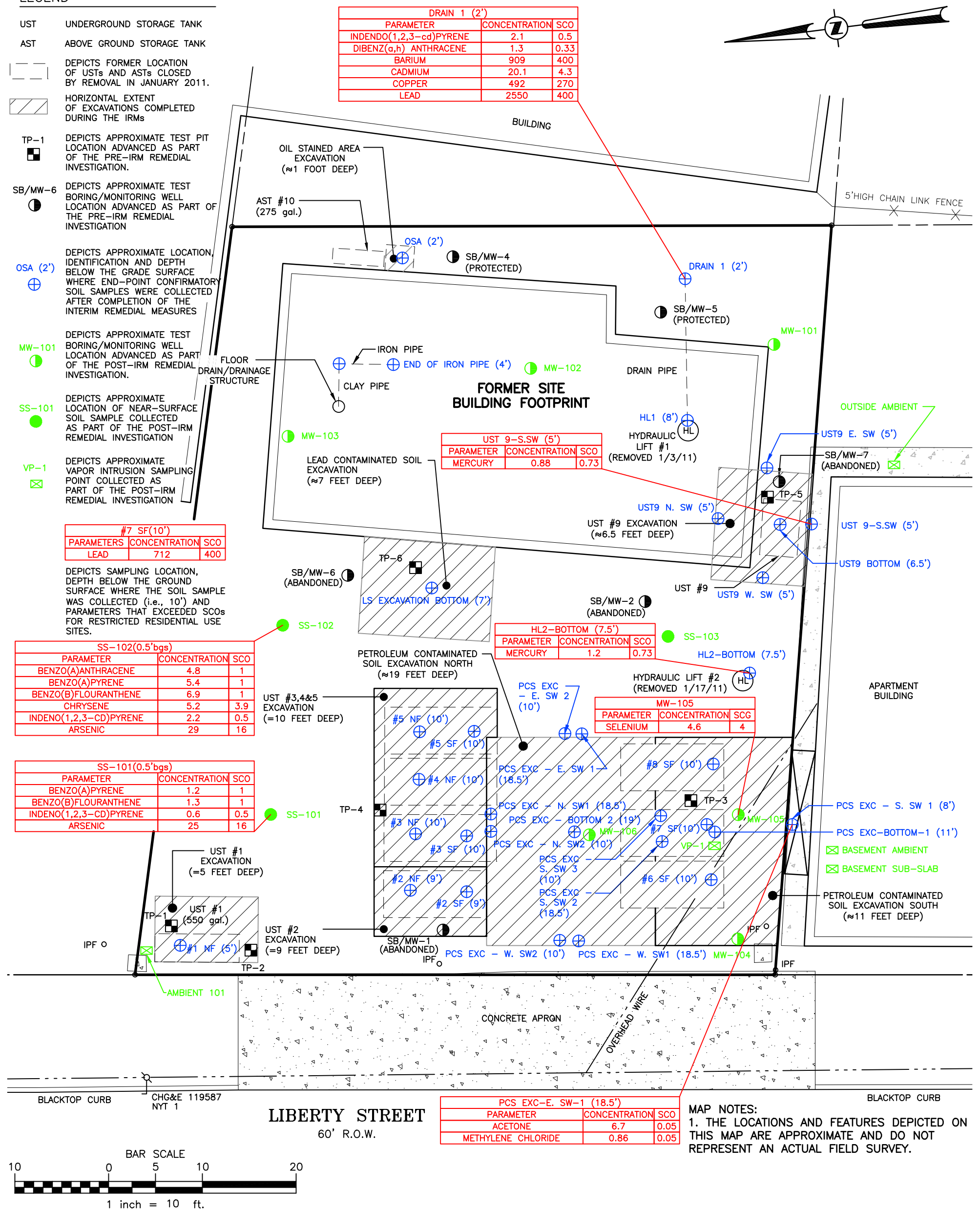
SS-101(0.5' bgs)		
PARAMETER	CONCENTRATION	SCO
BENZO(A)PYRENE	1.2	1
BENZO(B)FLOURANTHENE	1.3	1
INDENO(1,2,3-CD)PYRENE	0.6	0.5
ARSENIC	25	16

UST 9-S.SW (5')		
PARAMETER	CONCENTRATION	SCO
MERCURY	0.88	0.73

HL2-BOTTOM (7.5')		
PARAMETER	CONCENTRATION	SCO
MERCURY	1.2	0.73

MW-105		
PARAMETER	CONCENTRATION	SCG
SELENIUM	4.6	4

PCS EXC-E. SW-1 (18.5')		
PARAMETER	CONCENTRATION	SCO
ACETONE	6.7	0.05
METHYLENE CHLORIDE	0.86	0.05



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UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW.  © 2012 C.T. MALE ASSOCIATES, P.C. DESIGNED : DRAFTED : LMK CHECKED : SHB PROJ. NO: 10.1045 SCALE : 1"=10' DATE : SEPT. 10, 2012	<h2 style="margin: 0;">FIGURE 4</h2> <h3 style="margin: 0;">CONTAMINANTS ABOVE SCGS IN SOILS FOLLOWING COMPLETION OF THE IRMs</h3> <h4 style="margin: 0;">350-352 LIBERTY STREET ERP SITE</h4> <p style="margin: 0;">CITY OF NEWBURGH <span style="float: right;">ORANGE COUNTY, NEW YORK</span></p> <p style="margin: 0;"><b>C.T. MALE ASSOCIATES, P.C.</b></p> <p style="margin: 0; font-size: small;">50 CENTURY HILL DRIVE, LATHAM, NY 12110                  518.786.7400 * FAX 518.786.7299</p> <p style="margin: 0; font-size: x-small;">ARCHITECTURE &amp; BUILDING SYSTEMS ENGINEERING * CIVIL ENGINEERING                  ENVIRONMENTAL SERVICES * SURVEY &amp; LAND INFORMATION SERVICES</p>
	<p style="margin: 0;">SHEET 3 OF 4                  DWG. NO: 12-447</p>

**LEGEND**

UST UNDERGROUND STORAGE TANK  
 AST ABOVE GROUND STORAGE TANK

--- DEPICTS FORMER LOCATION OF USTs AND ASTs CLOSED BY REMOVAL IN JANUARY 2011.

▨ HORIZONTAL EXTENT OF EXCAVATIONS COMPLETED DURING THE IRMs

⊕ DEPICTS APPROXIMATE LOCATION, IDENTIFICATION AND DEPTH BELOW THE GRADE SURFACE WHERE END-POINT CONFIRMATORY SOIL SAMPLES WERE COLLECTED AFTER COMPLETION OF THE INTERIM REMEDIAL MEASURES

● SS-101 DEPICTS APPROXIMATE LOCATION OF NEAR-SURFACE SOIL SAMPLE COLLECTED AS PART OF THE POST-IRM REMEDIAL INVESTIGATION

SS-101		
PARAMETER	CONCENTRATION	SCG
Benzo(a)pyrene	1.2	1
Benzo(b)flouranthene	1.3	1
Indeno(1,2,3-cd)pyrene	0.6	0.5
Arsenic	25	16

DEPICTS SAMPLING LOCATIONS WHERE PARAMETERS WERE DETECTED IN SURFACE SOIL ABOVE RESTRICTED RESIDENTIAL SCGS.

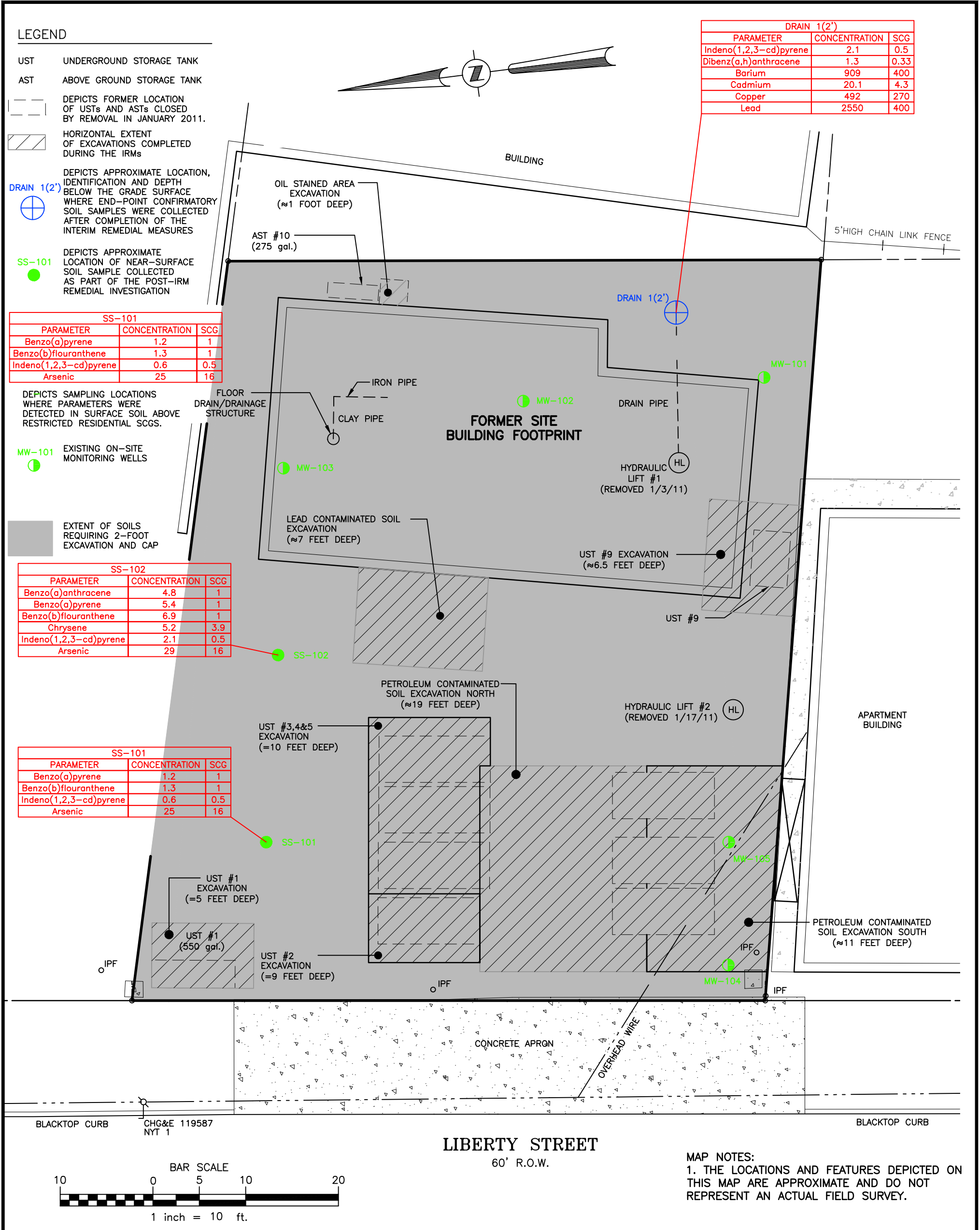
● MW-101 EXISTING ON-SITE MONITORING WELLS

▨ EXTENT OF SOILS REQUIRING 2-FOOT EXCAVATION AND CAP

SS-102		
PARAMETER	CONCENTRATION	SCG
Benzo(a)anthracene	4.8	1
Benzo(a)pyrene	5.4	1
Benzo(b)flouranthene	6.9	1
Chrysene	5.2	3.9
Indeno(1,2,3-cd)pyrene	2.1	0.5
Arsenic	29	16

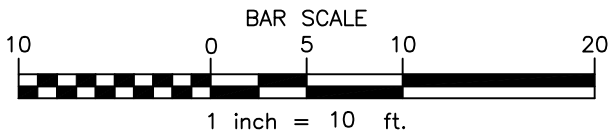
SS-101		
PARAMETER	CONCENTRATION	SCG
Benzo(a)pyrene	1.2	1
Benzo(b)flouranthene	1.3	1
Indeno(1,2,3-cd)pyrene	0.6	0.5
Arsenic	25	16

DRAIN 1(2')		
PARAMETER	CONCENTRATION	SCG
Indeno(1,2,3-cd)pyrene	2.1	0.5
Dibenz(a,h)anthracene	1.3	0.33
Barium	909	400
Cadmium	20.1	4.3
Copper	492	270
Lead	2550	400



BLACKTOP CURB CHG&E 119587 NYT 1 BLACKTOP CURB

**LIBERTY STREET**  
60' R.O.W.



**MAP NOTES:**  
1. THE LOCATIONS AND FEATURES DEPICTED ON THIS MAP ARE APPROXIMATE AND DO NOT REPRESENT AN ACTUAL FIELD SURVEY.

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW. © 2013 C.T. MALE ASSOCIATES, P.C.	<b>FIGURE 5</b> <b>ALTERNATIVE #2 - EXTENT OF SOILS REQUIRING EXCAVATION/CAP EXISTING ON-SITE</b>	
	<b>350-352 LIBERTY STREET</b> <b>ERP SITE</b>	
	CITY OF NEWBURGH	ORANGE COUNTY, NEW YORK
	<b>C.T. MALE ASSOCIATES, P.C.</b> 50 CENTURY HILL DRIVE, LATHAM, NY 12110 518.786.7400 * FAX 518.786.7299 ARCHITECTURE & BUILDING SYSTEMS ENGINEERING * CIVIL ENGINEERING ENVIRONMENTAL SERVICES * SURVEY & LAND INFORMATION SERVICES	
DESIGNED : DRAFTED : LMK CHECKED : SHB PROJ. NO: 10.1045 SCALE : 1"=10' DATE : MARCH 1, 2013		
	SHEET 2 OF 4	DWG. NO: 13-219

# **APPENDIX A**

## **Responsiveness Summary**

# RESPONSIVENESS SUMMARY

**350/352 Liberty Street  
Environmental Restoration Project  
City of Newburgh, Orange County, New York  
Site No. B00189**

The Proposed Remedial Action Plan (PRAP) for the 350/352 Liberty Street 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 14, 2013. The PRAP outlined the remedial measure proposed for the contaminated soil and groundwater at the 350/352 Liberty Street 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 6, 2013, which included a presentation of the remedial investigation/ alternative analysis (RI/AA) for the 350/352 Liberty Street 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 31, 2013.

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:

**COMMENT 1:** Will the two feet of clean soil cover described in the remedy be placed in the areas that were already excavated and backfilled as part of the Interim Remedial Measure (IRM)?

**RESPONSE 1:** Areas of the site which were excavated as part of the IRM were backfilled with certified clean fill meeting Part 375 restricted-residential soil cleanup objectives (RRSCOs) so the top two feet of these areas is already documented as meeting the SCOs so no additional soil cover is needed in these areas. A cover system must be placed over all other areas of the site which were not excavated beyond two feet during the IRM, where levels of contamination in the soil in the upper two feet exceed the RRSCOs. A cover system can be two feet of clean soil meeting the residential SCO or incorporated into a future development plan and include a building, sidewalks, or driveways associated with development.

**COMMENT 2:** What uses are not permitted for sites which are remediated based on Restricted-Residential SCOs?

**RESPONSE 2:** Allowable uses for the site based on RRSCOs are defined by 6 NYCRR Part 375-1.8(g)(2)(ii). Under this regulation restricted-residential use prohibits single family housing and any vegetable gardens on a site, although community vegetable gardens with raised beds may be considered with Department approval. Restricted-residential use may include active recreational

uses, which are public uses with a reasonable potential for soil contact as well as schools. The site may also be used for commercial uses as defined by 6 NYCRR Part 375-1.8(g)(2)(iii) and industrial used as defined by 6 NYCRR Part 375-1.8(g)(2)(iv), however land use is ultimately subject to local zoning laws.

**COMMENT 3:** Please explain the meaning of the groundwater restrictions described in the environmental easement.

**RESPONSE 3:** The groundwater restriction in the environmental easement restricts the use of on-site groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or the Orange County DOH.

**COMMENT 4:** Has contamination from the 350/352 Liberty Street site impacted the adjacent industrial property to the north and east of the site? Is the adjacent industrial site contaminated? Did or could contamination from the adjacent industrial property impact the 350/352 Liberty Street site?

**RESPONSE 4:** The Remedial Investigation (RI) of the 350/352 Liberty Street did not indicate that contamination from the site was impacting the adjacent industrial property. Three groundwater monitoring wells on the site in between the former site source area, which was removed during the IRM, and the adjacent industrial parcel were sampled and the groundwater did not contain site specific contamination over Department Standards, Criteria, and Guidelines (SCGs). The RI for this site did not include investigation of the off-site adjacent industrial property but the RI data and confirmation sampling conducted during the IRM did not indicate the need to investigate the off-site industrial parcel based on migration from this site. Therefore it is unlikely contamination from the 350/352 Liberty Street has or could impact the adjacent industrial parcel, however the site may have contamination associated with its past industrial use.

**COMMENT 5:** Who will pay for implementing the remedy?

**RESPONSE 5:** The current site owner (City of Newburgh) would be eligible to apply to the Environmental Restoration Program (ERP) for a remediation State Assistance Contract, however, at this time there is no definitive schedule for remediation because funding for ERP projects is currently limited. Remediation could take place in the future if funding becomes available in the ERP or if the site can enter another State or Federal program. Private funding could also be used to remediate the site.

**COMMENT 6:** Alternative 2 presented in the AA Report includes monitored natural attenuation (MNA), while Alternative 2 in the PRAP does not include MNA and off-site monitoring of groundwater. The AA Report also recommends the selection of Alternative 3, which includes enhanced bioremediation, instead of Alternative 2. Please explain why the PRAP differs from the AA Report in these ways.



**RESPONSE 6:** The low levels of groundwater contamination currently observed at the site, and compliance with water quality standards at the site boundary, indicate that groundwater contamination will attenuate without a formal MNA monitoring program and without implementing enhanced bioremediation. Down gradient perimeter monitoring wells were uncontaminated before and after the Interim Remedial Measure, so additional down gradient groundwater monitoring is not necessary.

**COMMENT 7:** In the AA Report, Alternative 3 was considered to be effective at mitigating the potential for vapor intrusion into the adjacent apartment building to the south of the site. Please explain how the Alternative 2 identified in the PRAP would address potential vapor intrusion impacts to the adjacent apartment building.

**RESPONSE 7:** Since the potential exists for off-site migration of soil vapor impacted with site contaminants that may impact indoor air within the adjacent apartment complex, Item 4 of Alternative 2 addresses vapor intrusion by requiring further investigation of the potential for vapor intrusion to the south of the site. If impacts or potential impacts to this structure from the site are discovered by this investigation, action will be implemented to address current or potential exposures relating to soil vapor intrusion.

# **APPENDIX B**

## **Administrative Record**

# **Administrative Record**

**350/352 Liberty Street  
Environmental Restoration Project  
City of Newburgh, Orange County, New York  
Site No. B00189**

1. Proposed Remedial Action Plan for the 350/352 Liberty Street site, dated February 2013, prepared by the Department.
2. State Assistance Contract, Contract No. C303486, dated December 12, 2006.
3. “Remedial Investigation/Interim Remedial Measures Work Plan, 350/352 Liberty Street Site”, April 2010, C.T. Male Associates.
4. Fact Sheet for Investigation and Interim Remedial Measure, April 2010, prepared by the Department.
5. “Project Manual: Interim Remedial Measures, 350/352 Liberty Street Site,” June 2010, C.T. Male Associates
6. “Construction Completion Report: Interim Remedial Measures, 350/352 Liberty Street Site,” December 2011, C.T. Male Associates.
7. “Remedial Investigation Report, 350/352 Liberty Street Site,” March 2013, C.T. Male Associates.
8. “Alternatives Analysis Report, 350/352 Liberty Street Site,” March 4, 2013, C.T. Male Associates.