PROPOSED REMEDIAL ACTION PLAN

Mid-Town Laundry
State Superfund Project
Schenectady, Schenectady County
Site No. 447048
February 2020

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

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SECTION 1: SUMMARY AND PURPOSE OF THE PROPOSED PLAN

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

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

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

SECTION 2: CITIZEN PARTICIPATION

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

Phyllis Bornt Branch Library
948 State Street
Schenectady, NY 12307
(518) 372-4393

A public comment period has been set from:

February 26, 2020 to March 27, 2020

A public meeting is scheduled for the following date:

March 25, 2020 at 6:00 PM

Public meeting location:

Phyllis Bornt Branch Library & Literacy Center
948 State Street
Schenectady, New York 12307

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

Written comments may also be sent through to:

Daniel McNally
NYS Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, NY 12233
daniel.mcnally@dec.ny.gov

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

Receive Site Citizen Participation Information by Email

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

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: The site is located at 1122-1124 State Street in Schenectady, NY. The site is 0.227 acres in size and is situated in an urban area with a large number of residences to the south and east, and commercial establishments to the north and west.

Site Features: The site is relatively flat and includes two occupied abutting commercial buildings. The remainder of the site is paved, with parking in front and back.

Current Zoning and Land Use(s): The site is currently being used as a restaurant and laundromat in the commercial district of the City of Schenectady. The area is zoned mixed-use commercial, which allows residential use.

Past Uses of the Site: The site operated as a dry-cleaning facility from approximately 1969 to 1987. The dry-cleaning operation used a solvent called tetrachloroethene or PCE. The site was previously investigated as part of the Brandywine Plume track down initiative from 2009. In October 2012, the site was listed on the State's registry of inactive hazardous waste disposal sites due to the elevated concentrations of PCE and its breakdown products in site soil, groundwater and soil vapor.

Site Geology and Hydrogeology: The soil consists of fine to coarse brown sand overlying an apparent confining or low permeability layer of dense, dry, gray silty sand with little clay. Groundwater exists 12 to 16 feet below ground surface and generally flows in a south-southwesterly direction.

A site location map is attached as Figures 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

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

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

SECTION 5: ENFORCEMENT STATUS

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

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

State-Albany Properties, LLC

MidTowne Laundry Center, LLC

Mr. Charles F. Padula

Charles F. and Rose Padula

Rosalie L. Donato

The PRPs for the site declined to implement a remedial program when requested by the Department. After the remedy is selected, the PRPs will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the Department will evaluate the site for further action under the State Superfund. The PRPs are subject to legal actions by the state for recovery of all response costs the state has incurred.

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:

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

tetrachloroethene (PCE)
cis-1,2-dichloroethene (DCE)
trichloroethene (TCE)

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

- groundwater
- soil vapor intrusion

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.

Interim Remedial Measure, Vapor Mitigation:

As a result of the soil vapor intrusion (SVI) evaluations completed for the on-site buildings, the Department required the site owner to implement a soil vapor mitigation system to alleviate the observed vapor intrusion impacts. A sub-slab depressurization system (SSDS) was subsequently installed, however, follow up SVI sampling has indicated the installed system is insufficient. The site owner has subsequently submitted to the Department a work plan for determining necessary steps to make the mitigation systems effective. This effort is ongoing.

The SVI results from the adjacent commercial building, located at 1112 State Street, indicated elevated concentrations of PCE below the slab. Based on the NYSDOH Soil Vapor/Indoor Air

Matrices, mitigation was recommended to minimize potential exposure. As a result, an SSDS was installed and uses the principle of active sub-slab depressurization, which involves the inducement of a vacuum under the concrete slab where sub-slab soil vapor is elevated. Vacuum is induced by a fan mounted on the exterior of the building, which pulls contaminated soil vapor through piping that penetrates the slab at multiple locations. The SSDS was completed and commissioned in August 2017.

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: Initiated in 2009, the Brandywine Plume track down was launched to investigate suspected contamination in the vicinity of 1108-1124 State Street in Schenectady, NY for the purpose of delineating the plume(s) of chlorinated volatile organic compounds (VOCs) in groundwater. The results of the Brandywine Plume track down revealed two potential source areas, the Former Marlou Formal Wear site (Site No. 447040) located at 1108 State Street, and the Mid-Town Laundry site located at 1122-1124 State Street. As a result of the Brandywine Plume track down, the chlorinated VOC plume emanating from the Mid-Town Laundry site was included in defining the RI study area. The RI study area includes the site and a plume extending to the south and is bounded by Odell Street.

Soil and groundwater in the RI study area were analyzed for VOCs, semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), pesticides and per/polyfluoroalkyl substances (PFAS). Soil vapor was analyzed for VOCs. Chlorinated solvent contamination, specifically tetrachloroethene (PCE), trichloroethene (TCE) and cis-/trans-1,2-dichloroethene (DCE), were discovered in the soil, groundwater and soil vapor. Groundwater and soil vapor concentrations were particularly elevated in the vacant lot adjoining the site.

Soil: PCE was detected in ten on-site subsurface soil samples collected across the site with a maximum concentration of 110 parts per million (ppm) at a location outside the northwest corner of the on-site building. This is below the commercial soil cleanup objective (SCO) of 150 ppm, but above the SCO for the protection of groundwater (1.3 ppm). Concentrations of TCE, detected in nine soil samples, did not exceed the Unrestricted Use SCO or the protection of groundwater SCO of 0.47 ppm. DCE was detected in four soil samples, only one of which (0.48 ppm) exceeded the Unrestricted Use and protection of groundwater SCO of 0.25 ppm. Three off-site subsurface soil samples were collected, with a detection of PCE in one sample (0.062 ppm) which below the unrestricted use and protection of groundwater SCO of 1.3 ppm.

Groundwater: PCE and its associated degradation products, TCE and DCE, are also found in groundwater both on- and off-site at levels exceeding Part 703 Groundwater Quality Standards. A maximum concentration of 2,900 parts per billion (ppb) of PCE was detected below the building basement slab. TCE and DCE were detected at maximum concentrations of 15 ppb and 5.9 ppb, respectively. The groundwater standard for each of these compounds is 5 ppb. These contaminants were also detected in off-site groundwater monitoring wells. PCE was detected at a maximum concentration of 620 ppb downgradient of the site below the sidewalk which parallels Albany Street. Similarly, TCE was detected in groundwater at a maximum concentration of 37 ppb in the same vicinity as the elevated PCE result. The contaminant DCE was also detected in samples downgradient of the site with a maximum concentration of 220 ppb in the vacant lot southwest of the site.

Soil Vapor & Indoor Air: Results from the on-site subsurface soil vapor sampling indicated the presence of elevated concentrations of PCE, TCE, and DCE of 600,000 micrograms per cubic meter (µg/$m^{3)}$, 12,000 µg/m^3, and 3,800 µg/m^3, respectively. Sub-slab vapor samples were also collected from below the slab of the on-site buildings with maximum concentrations of PCE, TCE, and DCE of 2,700,000 µg/m^3, 22,000 µg/m^3, and 4,900 µg/m^3, respectively. The maximum concentrations detected for these compounds in indoor air was 5,300 µg/m^3, 35 µg/m^3, and 16 µg/m^3, respectively. The concentrations of PCE, TCE, and DCE detected in sub-slab soil vapor and indoor air samples corresponded to a recommendation to mitigate according to the NYSDOH Soil Vapor/Indoor Air Matrices.

Sampling was also performed to evaluate possible off-site soil vapor intrusion impacts. Contaminated soil vapor was detected in each off-site sample location, with a maximum concentration of 16,000 µg/m^3 of PCE. TCE and DCE were detected in two off-site locations with maximum concentrations of 590 µg/m^3 and 450 µg/m^3, respectively. In addition, 27 off-site properties, 23 residential and 4 commercial, were solicited for soil vapor intrusion evaluations. The owners of three residential properties and one commercial building agreed to have vapor intrusion evaluations completed. For the three residential homes evaluated, none required soil vapor mitigation measures according to the NYSDOH Soil Vapor/Indoor Air Matrices. Soil vapor intrusion sampling results for the adjacent commercial structure located at 1112 State Street did indicate the need for the installation of a sub-slab depressurization system. This system was subsequently constructed and became operational in August 2017.

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.*

Direct contact with potentially contaminated subsurface soil is unlikely because the site is covered with buildings and pavement. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Volatile organic compounds in soil vapor (air spaces within the soil), 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. A sub-slab

depressurization system (systems that ventilate/remove the air beneath the building) has been installed in the on-site building, but there is still a potential for the inhalation of site contaminants due to soil vapor intrusion and additional mitigation is recommended. A sub-slab depressurization system has been installed at an offsite building to prevent the indoor air quality from being affected by the contamination in soil vapor beneath the building. Additional sampling is recommended offsite at locations where access was not previously obtained.

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.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil Vapor

RAOs for Public Health Protection

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

SECTION 7: SUMMARY OF THE PROPOSED REMEDY

To be selected, the remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. The remedy

must also attain the remedial action objectives identified for the site, which are presented in Section 6.5. Potential remedial alternatives for the site were identified, screened and evaluated in the FS report.

A summary of the remedial alternatives that were considered for this site is presented in Exhibit B. Cost information is presented in the form of present worth, which represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved. A summary of the Remedial Alternatives Costs is included as Exhibit C. A figure of the proposed remedy is included as Figure 6.

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

The proposed remedy is referred to as the Soil Vapor Extraction/Air Sparge, Site Cover, Vapor Mitigation and Institutional Controls with Site Management remedy.

The estimated present worth cost to implement the remedy is $1,358,000. The cost to construct the remedy is estimated to be $950,000 and the estimated average annual cost is $14,000.

The elements of the proposed remedy are as follows:

1. Remedial Design

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;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings will include, at

a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency as an element of construction.

2. Soil Vapor Extraction (SVE) with Air Sparge (AS)

Air sparging will be implemented to address the groundwater plume contaminated by volatile organic compounds (VOCs). VOCs will be physically removed from the groundwater and soil below the water table (saturated soil) by injecting air into the subsurface. The injected air rising through the groundwater will volatilize and transfer the VOCs from the groundwater and/or soil into the injected air. The VOCs are carried with the injected air into the vadose zone (the area below the ground surface but above the water table) where a soil vapor extraction (SVE) system designed to remove the injected air will be installed. The SVE system will apply a vacuum to wells that have been installed into the vadose zone to remove the VOCs along with the air introduced by the sparging process. The air extracted from the SVE wells will be treated as necessary prior to being discharged to the atmosphere.

At this site it is estimated 7 air injection wells will be installed as depicted in Figure 6, to a depth of approximately 20 feet, which is approximately 7 feet below the water table. To capture the volatilized contaminants, it is estimated 5 SVE wells will be installed in the vadose zone at a depth of approximately 12 feet below ground surface. The air containing VOCs extracted from the SVE wells will be treated by passing the air stream through granular activated carbon which removes the VOCs from the air prior to it being discharged to the atmosphere.

3. Vapor Mitigation

Any on-site buildings and off-site buildings impacted by the site will be required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of vapors into the building(s) from soil and/or groundwater.

4. Cover System

A site cover currently exists in areas not occupied by buildings and will be maintained to allow for commercial use of the site. Any site redevelopment will maintain the existing site cover. The site cover may include paved surface parking areas, sidewalks or soil where the upper one foot of exposed surface soil meets the applicable soil cleanup objectives (SCOs) for commercial use. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6NYCRR part 375-6.7(d).

5. Institutional Controls

Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

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

6. Site Management Plan

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

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

Institutional Controls: The Environmental Easement discussed above.
Engineering Controls: The Soil Vapor Extraction and Air Sparge system discussed in Paragraph 2 above, the sub-slab depressurization systems discussed in Paragraph 3 above and the Cover System discussed in Paragraph 4 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- a provision for demolition of the on-site building(s) if and when they become unsafe or inactive or vacant;
- a provision for removal or treatment of the potential source area located under the on-site building if and when the building is demolished or becomes vacant;
- descriptions of the provisions of the environmental easement including any land use, and/or groundwater use restrictions;
- a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 4 above will be placed in any areas where the upper one foot of exposed surface soil exceeds the applicable soil cleanup objectives (SCOs);
- a provision for evaluation of the potential for soil vapor intrusion for any new buildings developed on the site or in areas of site-related contamination off-site,

including a provision 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, soil vapor, sub-slab vapor and indoor air to assess the performance and effectiveness of the remedy;
    - a schedule of monitoring and frequency of submittals to the Department;
    - monitoring for vapor intrusion for any buildings on the site or in areas of site-related contamination off-site, as may be required by the Institutional and Engineering Control Plan discussed 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:
    - procedures for operating and maintaining the remedy;
    - compliance monitoring of treatment 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 (RI) for all environmental media that were evaluated. As described in Section 6.1, samples were collected from various environmental media to characterize the nature and extent of contamination.

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

Groundwater

Groundwater samples were collected from up to 21 monitoring wells to assess conditions on- and off-site during the Remedial Investigation. In addition, groundwater grab samples were collected from three temporary well points from beneath the on-site building. The monitoring well network consists of 18 shallow and 3 deep monitoring wells. A portion of these were previously installed as part of the "Brandywine Plume track down". Initiated in 2009, the Brandywine Plume track down was launched to investigate suspected contamination in the vicinity of 1108-1124 State Street in Schenectady for the purpose of delineating the plume(s) of chlorinated VOCs in groundwater. The results of the Brandywine Plume track down revealed two potential source areas, the Former Marlou Formal Wear site (Site No.:447040) located at 1108 State Street, and the Mid-Town Laundry site located at 1122-1124 State Street. As a result of the Brandywine Plume track down, the chlorinated VOC plume emanating from the Mid-Town Laundry site was included as part of the RI study area. This study area includes the Site proper extending to the south and bound by Odell Street.

Groundwater in the shallow overburden is located beneath the RI study area approximately 11-16 feet below ground surface and flows to the south to southwest. All samples were analyzed for VOCs and a smaller subset analyzed for SVOCs, metals, pesticides, PCBs, and per/polyfluoroalkyl substances (PFAS). The results indicate that contamination in groundwater at the site exceeds SCGs for VOCs. Refer to Table 1 and Figure 4.

Based on the findings of the RI, the likely past disposal of hazardous waste has resulted in the contamination of the groundwater. The primary groundwater contaminant of concern, tetrachloroethene (PCE), and its related daughter products trichloroethene (TCE), and cis-1,2-dichloroethane (DCE) are associated with the site's former operation as a dry cleaner and will be addressed by the remedy selection process. Contamination in groundwater is most significant directly beneath the on-site building. Impacts to groundwater continue downgradient and are observed in off-site monitoring wells.

Other select VOCs were detected in groundwater monitoring wells which exceeded their corresponding SCGs. However, these isolated exceedances are not site-related contaminants of concern (COCs) and will not be addressed by the remedy selection process. Similarly, PFAS compounds were detected in groundwater but not above their respective SCGs. The inorganic compounds found in shallow and deep overburden groundwater wells are considered to represent site background conditions. Therefore, the metal compounds found in groundwater are not considered site specific contaminants of concern.

Table 1 - Groundwater Screening Criteria in use: NEW YORK STATE CLASS GA

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG (ppb)[b]	Frequency Exceeding SCG
Metals NYS CLASS GA			
Iron	0-9,000	300	10/23
Iron (DISSOLVED)	0-9,700	300	4/19
Manganese	0-3,600	300	6/23
Manganese (DISSOLVED)	0-1,600	300	4/19
Sodium	73,600-135,000	20000	4/4
VOC NYS CLASS GA			
1,2,4-Trimethylbenzene	0-11.0	5	2/60
Cis-1,2-Dichloroethylene	0-220	5	13/74
Ethylbenzene	0-16.0	5	1/74
Isopropylbenzene (Cumene)	0-22.0	5	4/74
N-Butylbenzene	0-9.20	5	3/60
N-Propylbenzene	0-48.0	5	3/60
O-Xylene (1,2-Dimethylbenzene)	0-14.0	5	1/60
Sec-Butylbenzene	0-5.60	5	1/60
Tetrachloroethylene (PCE)	0-2,900	5	144/74
Trichloroethylene (TCE)	0-37.0	5	19/74
Vinyl Chloride	0-5.10	2	3/74

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).

Soil

Soil samples were collected at various depths during the RI from on- and off-site locations. All soil samples were compared to 6 NYCRR Part 375 Soil Cleanup Objectives for unrestricted use and commercial use. Site-specific contaminants of concern were also compared to Protection of Groundwater Soil Cleanup Objectives. Refer to Table 2 and Figure 3.

The on-site investigation focused in the northwest corner of the property based on elevated detections from the Membrane Interface Probe (MIP) investigation. A MIP is a screening tool that allows for an in-field real time assessment of VOC contamination in the subsurface. In addition to the MIP investigation, twenty-two subsurface soil samples were collected on-site to a depth of 40 feet-below ground surface (bgs) and analyzed for VOCs. Four samples were also analyzed for SVOCs, PCBs, pesticides, herbicides, metals, mercury, and cyanide. Sample results demonstrate multiple exceedances of unrestricted and protection of groundwater SCGs for PCE and DCE in subsurface soils along the northwest perimeter of the on-site building. PCE was detected in one of two off-site sample locations, but, did not exceed applicable SCGs. SVOCs, PCBs, and herbicides were not detected in on-site subsurface soil. Pesticides were detected in one sample location at concentrations above the applicable unrestricted use SCGs, however pesticides are not considered a contaminant of concern for the site.

Based on the findings of the RI, the likely past disposal of hazardous waste has resulted in the contamination of soil. The primary soil contaminant, PCE, is associated with the property's former operation as a dry cleaner. PCE and its related degradation products (TCE and DCE) will be addressed by the remedy selection process.

Table 2 - Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	UNRESTRICTED USE (ppm)[a,b]	Frequency Exceeding Unrestricted Use SCG	COMMERCIAL USE (ppm)[a,c]	Frequency Exceeding Restricted Use SCG	PROTECTION OF GROUNDWATER (ppm)[a,d]	Frequency Exceeding Restricted Use SCG
Pesticides/PCBs PART 375							
P,P'-DDD	0-0.00580	0.0033	1/5	92	0/5	14	0/5
P,P'-DDT	0-0.0460	0.0033	1/5	47	0/5	136	0/5
VOC PART 375							
Acetone	0-0.300	0.05	7/24	500	0/24	0.05	7/24
Cis-1,2-Dichloroethylene	0-0.480	0.25	1/24	500	0/24	0.25	1/24
Trichloroethylene (TCE)	0-0.340	0.47	0/24	200	0/24	0.47	0/24
Tetrachloroethylene (PCE)	0-110	1.3	3/24	150	0/24	1.3	3/24

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

Soil Vapor

The potential for soil vapor intrusion resulting from site-related soil or groundwater contamination was evaluated during the RI. This evaluation included the current on-site buildings and multiple adjacent commercial and residential buildings. Soil vapor, sub-slab soil vapor (below structures) and indoor air (inside structures) samples were collected to determine whether actions are needed to address exposures to site-related contaminants. The results confirmed concentrations of site-related contaminants, PCE, TCE, and DCE exceed SCGs both on- and off-site. On-site sub-slab soil vapor concentrations of PCE were detected up to 2,700,000 micrograms per cubic meter ($\mu g/m^3$), 22,000 $\mu g/m^3$ for TCE, and 1,600 $\mu g/m^3$ for DCE. Off-site sub-slab soil vapor concentrations of COCs were detected up to 4,900 $\mu g/m^3$ for PCE, 170 $\mu g/m^3$ for TCE.

Based on the PCE concentrations detected in the on-site building, the likely disposal of hazardous waste has resulted in the contamination of soil vapor. PCE and its associated degradation products are considered to be primary COCs and soil vapor will be addressed by the remedy selection process. Regarding the off-site properties, soil vapor intrusion (SVI) evaluations were requested at 23 residential and 4 commercial buildings. The owners of three residential and one commercial building agreed to have SVI evaluations completed. The residential buildings did not show COCs at concentrations that trigger vapor mitigation measures. The adjacent off-site commercial building, located at 1112 State Street, was evaluated for soil vapor intrusion and subsequently required the installation of a sub-slab depressurization system (SSDS) to mitigate the potential for soil vapor intrusion. This system was completed and commissioned in August 2017. Refer to Figure 5.

Exhibit B

Description of Remedial Alternatives

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

Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative leaves the site in its present condition and does not provide any additional protection to public health and the environment. Because this alternative would result in contaminants remaining above levels that allow for unrestricted use and unlimited exposure, CERCLA requires that the site be reviewed at least once every five years.

Alternative 2: In-Situ Chemical Oxidation (ISCO), Targeted Excavation, Site Cover, Vapor Mitigation and Institutional Controls with Site Management

This alternative would include: in-situ chemical treatment of the possible source area below the existing building and within the on-site downgradient groundwater plume and targeted excavation of soil exceeding protection of groundwater SCOs. This alternative would also incorporate institutional controls and engineering controls including continued operation and maintenance of vapor intrusion (VI) mitigation systems (on-site and adjacent off-site buildings) and cover systems, continued groundwater and soil vapor monitoring, and an SMP. Each element is more fully described below:

1. In-Situ Chemical Oxidation (ISCO)

In-situ chemical oxidation will be implemented to treat chlorinated volatile organic compounds (PCE, TCE, DCE, VC) in groundwater. A chemical oxidant, such as permanganate, will be injected into the subsurface to destroy the contaminants beneath the existing building, and within the downgradient parking area, comprising a total of 4,000 and 5,000 square feet, respectively. The method and depth of injection will be determined during the remedial design.

2. Targeted Excavation

Targeted excavation and off-site disposal of soils in a 25ft by 25ft by 15ft deep area in the northwest corner where concentrations exceed the SCOs for protection of groundwater, totaling approximately 225 cubic yards. Temporary shoring and removal of existing pavement will be required as the removal area is constrained by the existing building and the property boundary. Further soil treatment via an amendment may be added at the base of excavation to allow for treatment of remaining soil and groundwater contamination.

3. Backfill

On-site soil which does not exceed the above excavation criteria for any constituent may be used anywhere beneath the cover system, including below the water table, to backfill the excavation or re-grade the site. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site. The site will be re-graded to accommodate installation of a cover system as described in remedy element 5.

4. Site Cover

A site cover currently exists in areas not occupied by buildings and will be maintained to allow for commercial use of the site. Any portion of the existing site cover disturbed during remediation will be restored. Any site redevelopment will maintain the existing site cover. The site cover includes paved surface parking areas. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6NYCRR part 375-6.7(d).

5. Vapor Mitigation

Any on-site buildings and off-site buildings impacted by the site will be required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of vapors into the building from soil and/or groundwater.

6. Institutional Control

An Environmental Easement would be placed on the site property to ensure commercial use of the site, and a Site Management Plan would be developed to provide for the long-term monitoring, maintenance and operation of the components of the site remedy.

Present Worth: *$1,629,000*
Capital Cost: *$1,254,000*
Annual Costs: *$13,000*

Alternative 3: Enhanced In-Situ Biological Treatment (EISB), Targeted Excavation, Site Cover, Vapor Mitigation and Institutional Controls with Site Management

This alternative would include: enhanced in-situ biological treatment of the source area below the existing building and within the on-site downgradient groundwater plume and targeted excavation of soil exceeding protection of groundwater SCOs. This alternative would also incorporate institutional controls and engineering controls including continued operation and maintenance of vapor intrusion (VI) mitigation systems (on-site and adjacent off-site buildings) and cover systems, continued groundwater and soil vapor monitoring, and an SMP. Each element is more fully described below:

1. Enhanced In-Situ Biological Treatment (EISB)

In-situ enhanced biodegradation will be employed to treat chlorinated volatile organic compounds (PCE, TCE, DCE, VC) in groundwater beneath the on-site building and downgradient areas. The biological breakdown of contaminants through anaerobic reductive dechlorination will be enhanced by amendment with emulsified vegetable oil and electron donor (such as zero valent iron) via horizontal and vertical injection wells. The method and depth of injection will be determined during the remedial design.

2. Targeted Excavation

Targeted excavation and off-site disposal of soils in a 25ft by 25ft by 15ft deep area in the northwest corner exhibiting maximum concentrations exceeding SCGs totaling approximately 225 cubic yards. Temporary shoring and removal of existing pavement will be required as the removal area is constrained by the existing building and the property boundary. Further soil treatment via an amendment may be added at the base of excavation to allow for treatment of remaining soil and groundwater contamination.

3. Backfill

On-site soil which does not exceed the above excavation criteria or the protection of groundwater SCOs for any constituent may be used anywhere beneath the cover system, including below the water table, to backfill the excavation or re-grade the site. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site. The site will be re-graded to accommodate installation of a cover system as described in remedy element 5.

4. Site Cover

A site cover currently exists in areas not occupied by buildings and will be maintained to allow for commercial use of the site. Any portion of the existing site cover disturbed during remediation will be restored. Any site redevelopment will maintain the existing site cover. The site cover includes paved surface parking areas. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6NYCRR part 375-6.7(d).

5. Vapor Mitigation

Any on-site buildings and off-site buildings impacted by the site will be required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of vapors into the building from soil and/or groundwater.

6. Institutional Control

An Environmental Easement would be placed on the site property to ensure commercial use of the site, and a Site Management Plan would be developed to provide for the long-term monitoring, maintenance and operation of the components of the site remedy.

Present Worth: *$1,313,000*
Capital Cost: *$938,000*
Annual Costs: *$13,000*

Alternative 4A: Soil Vapor Extraction (SVE), Site Cover, Vapor Mitigation and Institutional Controls with Site Management

This alternative would include: implementation of a Soil Vapor Extraction system on-site to remediate the source area below the existing on-site building and address soil vapor intrusion within the existing on-site building. Additionally, soils targeted for removal under previous alternatives would be addressed by the SVE system. Institutional controls and engineering controls including continued operation and maintenance of the on-site SVE system and vapor intrusion (VI) mitigation systems (on-site and adjacent off-site building) and cover systems,

continued groundwater and soil vapor monitoring, and an SMP would be included as part of this alternative. Each element is more fully described below:

1. Soil Vapor Extraction (SVE)

Soil vapor extraction (SVE) will be implemented to remove volatile organic compounds (VOCs) from the subsurface. VOCs will be physically removed from the soil by applying a vacuum to wells that have been installed into the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the VOCs from the soil to the SVE well. The air extracted from the SVE wells is then treated as necessary prior to being discharged to the atmosphere.

An estimated five SVE wells will be installed into the vadose zone to a depth of approximately 12 ft-bgs along the southwestern and northwestern on-site building sides. The air containing VOCs extracted from the SVE wells will be treated by passing the air stream through activated carbon which removes the VOCs from the air prior to it being discharged to the atmosphere.

2. Site Cover

A site cover currently exists in areas not occupied by buildings and will be maintained to allow for commercial use of the site. Any portion of the existing site cover disturbed during remediation will be restored. Any site redevelopment will maintain the existing site cover. The site cover includes paved surface parking areas. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6NYCRR part 375-6.7(d).

3. Vapor Mitigation

Any on-site buildings and off-site buildings impacted by the site will be required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of vapors into the building from soil and/or groundwater.

4. Institutional Control

An Environmental Easement would be placed on the site property to ensure commercial use of the site, and a Site Management Plan would be developed to provide for the long-term monitoring, maintenance and operation of the components of the site remedy.

Present Worth: *$1,320,000*
Capital Cost: *$869,000*
Annual Costs: *$15,000*

Alternative 4B: Soil Vapor Extraction (SVE) with Air Sparging, Site Cover, Vapor Mitigation and Institutional Controls with Site Management

This alternative would include: implementation of a Soil Vapor Extraction and Air Sparging system on-site to remediate the source area below the existing on-site building and address soil vapor intrusion within the existing on-site building. Additionally, soils targeted for removal under previous alternatives would be addressed by the SVE system. Institutional controls and engineering controls including continued operation and maintenance of the on-site SVE/AS system and vapor intrusion (VI) mitigation systems (on-site and adjacent off-site buildings)

and cover systems, continued groundwater and soil vapor monitoring, and an SMP would be included as part of this alternative. Each element is more fully described below:

1. Soil Vapor Extraction (SVE) with Air Sparge (AS)

Air sparging will be implemented to address the groundwater plume contaminated by volatile organic compounds (VOCs). VOCs will be physically removed from the groundwater and soil below the water table (saturated soil) by injecting air into the subsurface. The injected air rising through the groundwater will volatilize and transfer the VOCs from the groundwater and/or soil into the injected air. The VOCs are carried with the injected air into the vadose zone (the area below the ground surface but above the water table) where a soil vapor extraction (SVE) system designed to remove the injected air will be installed. The SVE system will apply a vacuum to wells that have been installed into the vadose zone to remove the VOCs along with the air introduced by the sparging process. The air extracted from the SVE wells will be treated as necessary prior to being discharged to the atmosphere.

At this site it is estimated seven air injection wells will be installed in the area of the site to a depth of approximately 20 feet, which is approximately 7 feet below the water table. To capture the volatilized contaminants, it is estimated five SVE wells will be installed in the vadose zone at a depth of approximately 12 feet below ground surface. The air containing VOCs extracted from the SVE wells will be treated by passing the air stream through granular activated carbon which removes the VOCs from the air prior to it being discharged to the atmosphere.

2. Site Cover

A site cover currently exists in areas not occupied by buildings and will be maintained to allow for commercial use of the site. Any portion of the existing site cover disturbed during remediation will be restored. Any site redevelopment will maintain the existing site cover. The site cover includes paved surface parking areas. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6NYCRR part 375-6.7(d).

3. Vapor Mitigation

Any on-site buildings and off-site buildings impacted by the site will be required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of vapors into the building from soil and/or groundwater.

4. Institutional Control

An Environmental Easement would be placed on the site property to ensure commercial use of the site, and a Site Management Plan would be developed to provide for the long-term monitoring, maintenance and operation of the components of the site remedy.

Present Worth: *$1,358,000*
Capital Cost: *$950,000*
Annual Costs: *$14,000*

Alternative 5: Restoration of Pre-Disposal/Pre-Release Conditions

This alternative would include, demolition of the existing on-site building and excavation of all on-site soils that exceed Unrestricted Use SCOs. The site would be backfilled with imported clean material. Dewatering, water treatment, and support of excavation would be necessary to complete the remedy. Additionally, off-site vapor intrusion/monitoring and mitigation would be carried out as necessary, groundwater and soil vapor monitoring, and periodic site reviews in the Remedial Investigation Study Area would continue.

1. Excavation

The existing on-site building(s) will be demolished and materials which can't be beneficially reused on site will be taken off-site for proper disposal in order to implement the remedy. The entirety of the property will be excavated to a depth of 25 ft-bgs, with the source area beneath the building excavated to 35 ft-bgs. Approximately 9,200 cubic yards of soil will be removed from the site.

2. Backfill

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site.

3. Vapor Mitigation

Any off-site buildings impacted by the site will be required to have a sub-slab depressurization system, or other acceptable measures installed, to mitigate the migration of any remaining soil vapors into the building from soil and/or groundwater.

4. Site Management Plan

A Site Management Plan would be developed to provide for the long-term monitoring, maintenance and operation of any necessary off-site components of the site remedy such as sub-slab depressurization systems.

Present Worth: *$5,434,000*
Capital Cost: *$5,109,000*
Annual Costs: *$11,000*

Exhibit C

Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
No Action	0	0	0
In-Situ Chemical Oxidation (ISCO), Targeted Excavation, Site Cover, Vapor Mitigation and Institutional Controls with Site Management	$1,254,000	$13,000	$1,629,000
Enhanced In-Situ Biological Treatment (EISB), Targeted Excavation, Site Cover, Vapor Mitigation and Institutional Controls with Site Management	$938,000	$13,000	$1,313,000
Soil Vapor Extraction (SVE), Site Cover, Vapor Mitigation and Institutional Controls with Site Management	$869,000	$15,000	$1,320,000
Soil Vapor Extraction (SVE) with Air Sparging, Site Cover, Vapor Mitigation and Institutional Controls with Site Management	$950,000	$14,000	$1,358,000
Restoration of Pre-Disposal/Pre-Release Conditions	$5,109,000	$11,000	$5,434,000

Exhibit D

SUMMARY OF THE PROPOSED REMEDY

The Department is proposing Alternative 4B, Soil Vapor Extraction/Air Sparge, Soil Cover, Vapor Mitigation and Institutional Controls with Site Management remedy as the remedy for this site. Alternative 4B would achieve the remediation goals for the site by addressing the potential source material with SVE/AS. A Site Cover, Vapor Mitigation, and Institutional Controls with Site Management will be necessary to prevent potential exposures. The elements of this remedy are described in Section 7. The elements of this remedy are fully described in Section 7 of the Proposed Remedial Action Plan. A general overview of where the remedy will be implemented is depicted in Figure 6.

Basis for Selection

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

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

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

Alternative 1, the no action alternative, is not expected to provide protection of human health due to potential exposures to soil, groundwater and sub-slab soil vapor/indoor air. Protection of human health from risks associated with ingestion of groundwater exceeding SCGs is provided through public water supply connections for the site and surrounding properties. Alternatives 2, 3 and 4B offer additional protection of human health to risks associated with VI through active treatment of groundwater via ISCO, EISB, or SVE-AS, respectively, and targeted soil removal. Alternative 4A offers additional protection of human health to the risks associated with VI through the SVE and targeted soil removal. Protection of human health relative to soil vapor exposures would be provided through VI mitigation systems or floor sealing in combination with SVE. Alternative 5 would provide protectiveness through full soil removal.

Alternatives 2, 3, 4A/B, and 5 would satisfy the threshold criterion by providing long-term protection of the environment by treating contaminated media and creating the conditions necessary for the restoration of the groundwater resource.

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 4A/B would address chemical-specific SCGs through in situ soil and groundwater treatment and/or targeted soil removal, a SMP, and institutional and engineering controls and periodic site reviews. Alternative 5 would address chemical-specific SCGs through removal of soil. Alternative 1 would rely on the existing cover, VI mitigation systems and public water supply to address SCGs, however, maintenance of these engineering controls is not included as part of Alternative 1.

No action or location-specific SCGs were identified for Alternative 1, the no further action alternative. Construction methods and safety procedures, compliance with Occupational Safety and Health Administration (OSHA) requirements, and transportation and disposal requirements would be implemented to adhere to the location- and action-specific SCGs identified for Alternatives 2, 3, 4A/B and 5. Implementation of institutional controls associated with Alternatives 2 and 3 would be in general conformance with NYSDEC's Institutional Controls: A Guide to Drafting and Recording Institutional Controls - DER-33 (NYSDEC 2010c). Procedures would be implemented to adhere to the location-specific SCGs related to federal and state requirements for cultural, archeological, and historical resources. With respect to action-specific SCGs, proposed excavation activities would be conducted consistent with applicable standards; earth moving/excavation activities would be conducted consistent with air quality standards; transportation and disposal activities would be conducted in accordance with applicable State and Federal requirements, by licensed and permitted haulers; and site construction activities would be conducted in accordance with OSHA safety requirements. The subsurface injections associated with Alternatives 2 and 3 would need to comply with the federal underground injection control regulations. Discharge of collected soil vapor would need to comply with applicable air regulations.

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

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

Alternative 1 would not provide long-term effectiveness and permanence in a reasonable time frame, whereas long-term effectiveness and permanence for Alternatives 2, 3 and 4A/B would be provided over time. Long-term effectiveness and permanence for Alternative 5 would be provided upon completion of construction. No additional controls are included in Alternative 1, while controls are included in Alternative 2, 3 and 4A/B, including institutional and engineering controls (including covers and VI mitigation systems), SMP, and periodic site reviews. Alternatives 2 and 4A/B would minimize residual risk and contaminant migration in groundwater from the source area using targeted soil excavation and in situ treatment using ISCO or SVE/SVE-AS, respectively; Alternative 4B would provide greater control over residual risk than Alternative 4A due to the inclusion of air sparging. In Alternative 3, targeted soil excavation and in situ biological treatment using EISB would minimize residual risk and contaminant migration in groundwater from the source area and would further reduce residual risk by enhancing and facilitating biodegradation/natural attenuation in downgradient groundwater in the RI Study Area. Additional soil excavation in Alternative 5 would minimize residual risk and contaminant migration in shallow and deep groundwater from the source area.

Institutional and engineering controls, including continued operation of the existing VI mitigation systems, SMP, and periodic site reviews included in Alternatives 2 and 3 would be adequate and reliable controls of potential risks associated with exposure to constituents in soil, groundwater and sub-slab soil vapor/indoor air. Alternative 5 would provide a high degree of adequacy and reliability, afforded by extensive soil removal. Monitoring and periodic reviews included in Alternative 5 would provide reliable means of evaluating groundwater and potential VI conditions within the RI Study Area.

Alternatives 2, 3 and 4A/B would meet RAOs over time, at completion of their respective remedies. Alternative 5 would meet RAOs at completion of construction, estimated at one construction season. Each alternative offers long-term sustainability, though implementation of Alternative 5, specifically due to additional soil excavation,

would result in nominally greater impacts and greenhouse gas emissions during construction than Alternatives 2, 3 and 4A/B. Long-term O&M requirements in Alternatives 2, 3 and 4A/B would result in minimal impact to the environment. Alternative 1 would result in no additional greenhouse gas emissions associated with long-term maintenance.

In summary, Alternatives 2, 3, 4A/B and 5 would provide long-term effectiveness and permanence, while Alternative 1 would not. Residual risks associated with Alternatives 2, 3 and 4A/B would be adequately and reliably addressed through institutional and engineering controls. Alternative 2, 3 and 4A/B would result in minimal long-term fuel/energy consumption, greenhouse gas emissions, and impacts to water, ecology, workers or the community associated with long-term maintenance of the remedies, while there would be no long-term maintenance associated with Alternative 5.

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.

There would be no reduction in toxicity, mobility, or volume in soil through treatment under Alternative 1, the no action alternative. Alternatives 2, 3 and 4A/B would result in reduction in toxicity, mobility and volume of site-related contaminants through in situ treatment and targeted excavation and off-site disposal, however Alternative 3 would also promote biological degradation/natural attenuation in downgradient groundwater in the RI Study Area. Additional soil removal in Alternative 5 would result in a greater reduction in mobility and volume of site-related contaminants on-site as compared to Alternatives 2, 3 and 4A/B. Alternatives 2, 3, and 4A/B would all require a groundwater use restriction. The potential for mobility associated with soil vapor intrusion will be controlled via the implementation of alternatives 4A/B due to SVE/AS being an active system.

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 1 does not include additional physical measures in areas of contamination. Alternatives 2, 3, 4A/B and 5 would be constructed using proper protective equipment to manage potential risks to on-site workers, and proper precautions and monitoring to be protective of the general public and the environment. Alternatives 2, 3 and 4A/B would meet RAOs over time, at completion of their respective remedies. Alternative 5 would meet RAOs upon completion of soil excavation activities, expected to be within one construction season.

Impacts to the community resulting from implementation of in situ treatment and targeted soil removal and off-site disposal included in Alternatives 2, 3 and 4A/B would be minimal. The implementation of the excavation and off-site disposal included in Alternative 5 would result in significantly greater impacts to the community, given the current commercial use of on- and off-site areas as it requires relocation of the on-site business and demolition of the building. Impacts include increased traffic, as well as increased noise for the duration of construction.

As it relates to traffic, transportation of excavated materials and backfill in Alternative 5 is anticipated to result in approximately 1,200 truck trips to and from the site as compared Alternatives 2, 3 and 4A/B where the truck trips necessary for transportation of excavated materials would be minimal.

With respect to sustainability, there is an environmental footprint inherent in the implementation of Alternatives 2, 3, 4A/B and 5 as it relates to construction and operation as well as impacts to the community (as described above). The implementation of in situ treatment and targeted soil removal and off-site disposal included in

Alternatives 2, 3 and 4A/B would result in direct emissions and fuel consumption; vapor phase treatment would mitigate emissions from the vapor extraction process. The implementation of excavation and off-site disposal included in Alternative 5 would result in greater direct emissions and fuel consumption. It is estimated that greenhouse gas emissions associated with construction and transportation needs would be minimal for Alternatives 2, 3 and 4A/B, and would be approximately 230 metric tons of carbon dioxide equivalent (MtCO2e) for Alternative 5.

In summary, Alternatives 2, 3, 4A/B and 5 would provide short-term effectiveness. Worker and community risks during remedy implementation are similar for Alternatives 2 and 3, 4A/B, and greater for Alternative 5.

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 1 through 5 are implementable. Alternatives 2, 3, 4A/B and 5 are constructible and operable; the materials necessary for the construction of these alternatives are reasonably available.

Excavation and disposal in Alternatives 2, 3 and 4A would be readily constructible and reliable options requiring only conventional excavation and over-the-road hauling equipment; no proprietary equipment or specialists would be needed to implement. In situ amendments in Alternative 2 and 3 would require specialized products and well drilling services; however, subcontractors would be readily available to provide these products and services. Similarly, SVE and SVE-AS systems require specialized equipment and services, however, subcontractors would be readily available to provide these products and services.

Excavation proposed in Alternative 5 would require similar conventional over-the-road and excavation equipment as Alternatives 2, 3 and 4A, however, the scope of excavation and site constraints complicate implementability due to the depth of excavation and challenges of working within a developed multi-use area. Full excavation, as proposed, would necessitate use of off-site areas for support, soil staging, dewatering, water treatment, etc., as well as sheeting for excavation support of off-site areas. Additionally, Alternative 5 would require significant dewatering and water treatment, generally not required in Alternatives 2, 3 and 4A/B. Recovered water would require both pre-treatment and discharge to municipal facilities. Transportation considerations related to the implementation of Alternative 5 include; significantly increased traffic, fuel usage, and adverse effects on both air quality and community safety (based on the full demolition of the existing building, export of excavated material, import of clean fill and other materials), as compared to Alternatives 2, 3, and 4A/B.

Institutional controls and the SMP would be readily implementable to achieve effectiveness for Alternatives 2, 3, and 4A/B. Alternatives 2, 3 and 4A/B would require coordination with other agencies, including NYSDEC, New York State Department of Transportation (NYSDOT), New York State Department of Health (NYSDOH), the City of Schenectady, and Schenectady County, as well as property owners.

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.

Nearly all the alternatives evaluated require significant expenditures. Alternative 1, the No Further Action alternative presents the lowest cost of the alternatives evaluated but is not protective of human health and the environment and does not address site related contamination. Alternatives 2 and 3, the In-Situ Chemical Treatment and Targeted Soil Removal and In-Situ Biological Treatment and Targeted Soil Removal alternatives cost $1,629,000 and $1,313,000, respectively. Alternatives 4A and 4B will cost $1,320,000 and $1,358,000 respectively. Lastly, Alternative 5, the Restoration to Pre-Disposal/Pre-Release Conditions, will cost $5,434,000 and is nearly four times the cost of alternatives 2 through 4A/B.

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.

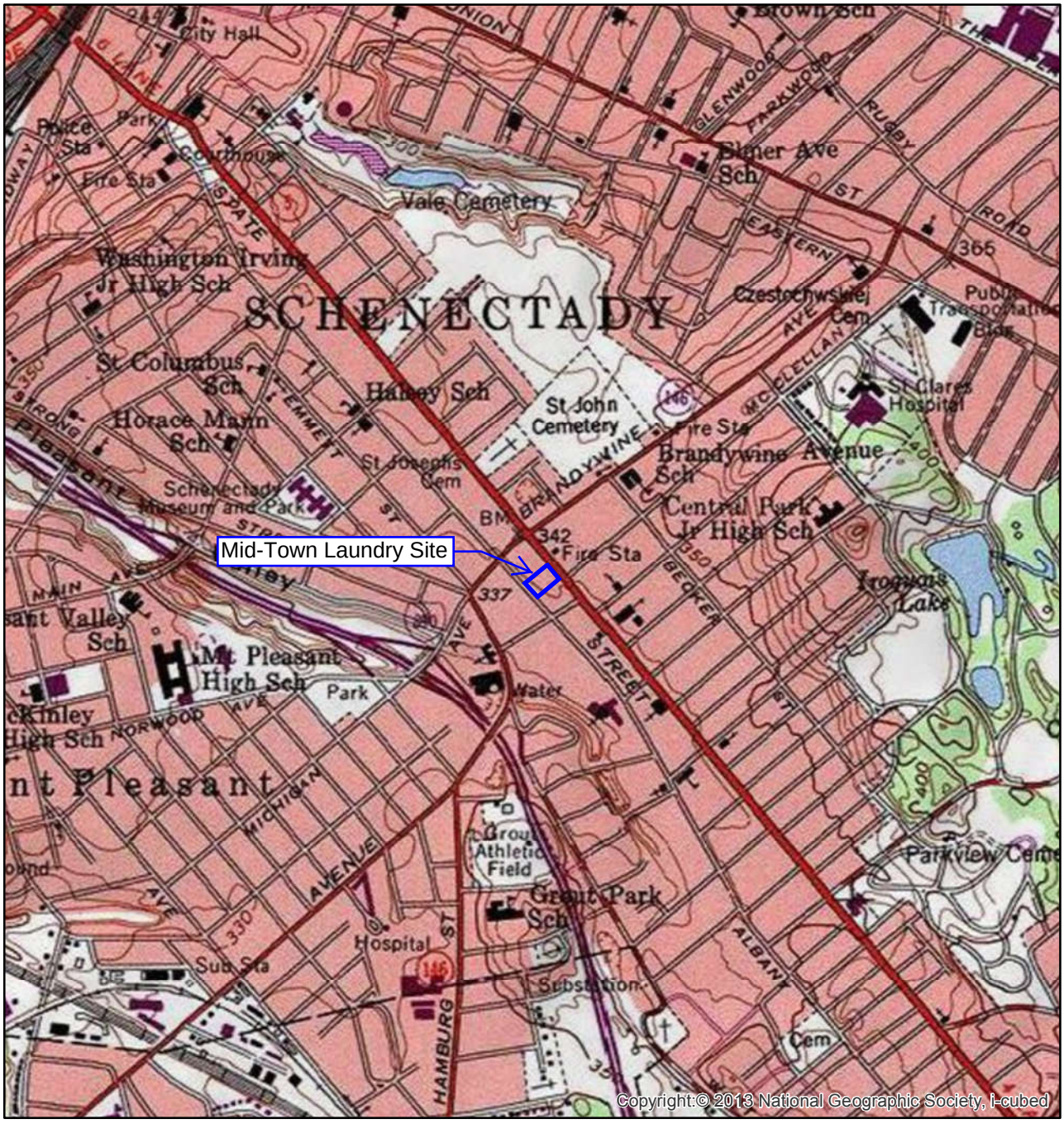
Alternatives 2 through 5 can be implemented consistent with current, intended and reasonably anticipated future use of the property, though implementation of Alternative 5 would be significantly disruptive to users of the property and neighboring residences. Alternative 1 does not provide the required level of long-term protectiveness for current and reasonably anticipated future use of the property. Alternatives 2, 3, 4A/B, and 5 are consistent with current, intended, and reasonably anticipated future use of the Site. While Alternatives 2, 3 and 4A/B would provide protectiveness of human health and the environment and are consistent with current, intended and reasonably anticipated future use of the site, the added soil excavation in Alternative 5 would allow for unrestricted use of the site.

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

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

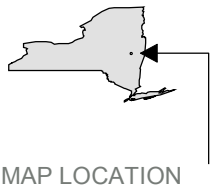
Alternative 4B is being proposed because, as described above, it satisfies the threshold criteria and provides the best balance of the balancing criterion.

FIGURE 1



ADAPTED FROM: SCHENECTADY, NY USGS QUADRANGLE

NYSDEC
MID-TOWN LAUNDRY SITE
SITE NO. 447048
SCHENECTADY, NEW YORK



MAP LOCATION

N

SITE LOCATION

0 1,000 2,000 4,000
Feet

1:24,000

JULY 2018
8653.51902

O'BRIEN & GERE ENGINEERS, INC.

7/23/2018 10:43:20 AM

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FIGURE 2

N

LEGEND

MID-TOWN LAUNDRY PROPERTY - SITE EXTENTS

RI STUDY AREA

NYSDEC
MID-TOWN LAUNDRY SITE
SITE NO. 447048
SCHENECTADY, NEW YORK

SITE PLAN

0 50 100 200
Feet

JULY 2018
8653.51902

O'BRIEN & GERE ENGINEERS, INC.

7/23/2018 12:30:29 PM

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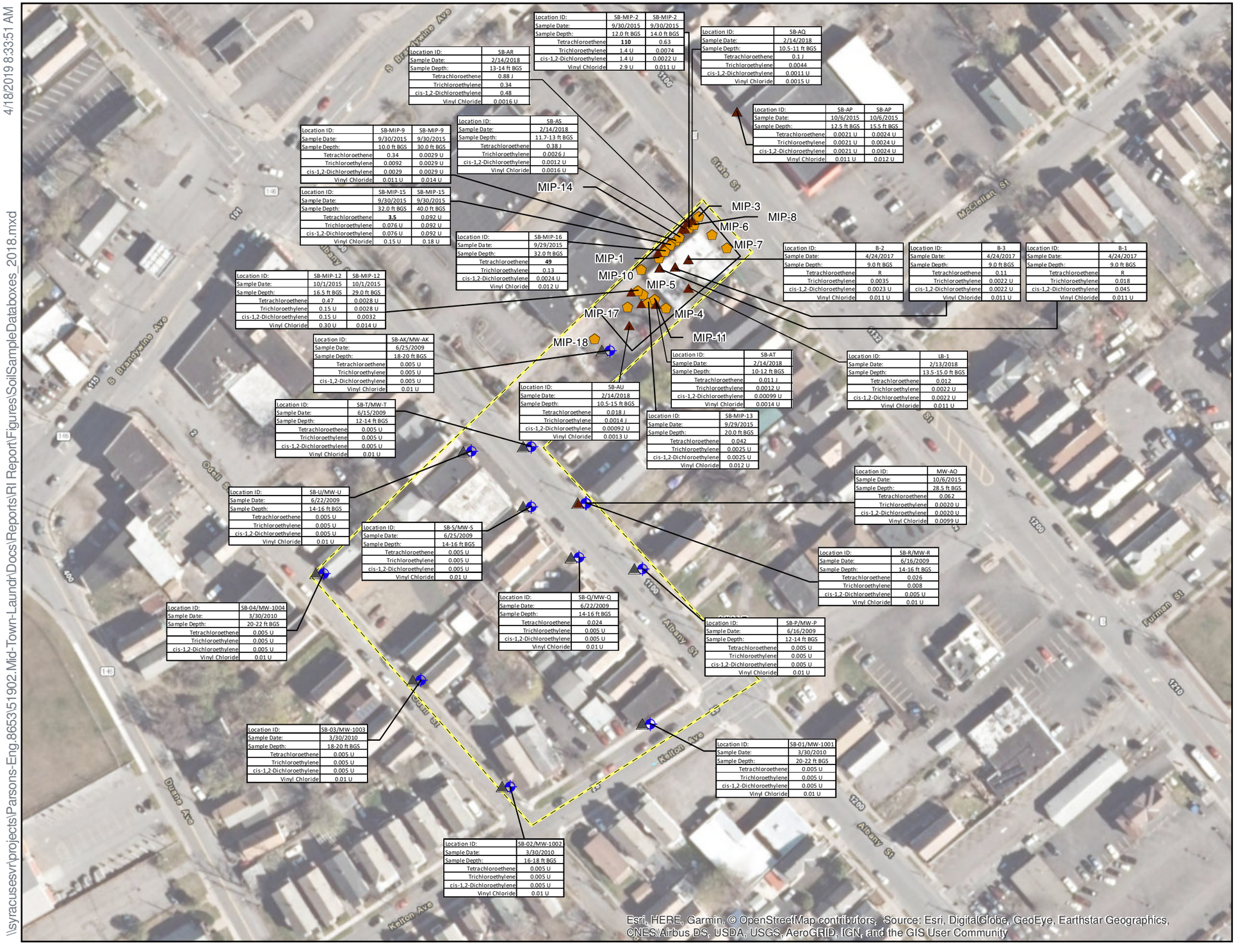

N

LEGEND

- RI SOIL BORING
- RI MIP
- RI SOIL BORING / MIP
- RI SOIL BORING / MONITORING WELL
- HISTORICAL SOIL BORING / MONITORING WELL
- MID-TOWN LAUNDRY PROPERTY
- RI STUDY AREA

NYSDEC
MID-TOWN LAUNDRY SITE
SITE NO. 447048
SCHENECTADY, NEW YORK

COC CONCENTRATIONS (mg/kg) - SOIL SAMPLES

0 50 100 200
Feet

APRIL 2019
8653.51902

O'BRIEN & GERE ENGINEERS, INC.

Location ID:	MW-AN		
Sample Date:	10/16/2015	11/29/2016	12/13/2018
Tetrachloroethene	**230**	**240**	4.5
Trichloroethylene	**6.6**	**6**	1.0 U
cis-1,2-Dichloroethylene	2.0 U	4.0 U	1.0 U
Vinyl Chloride	4.0 U	8.0 U	1.0 UT

Location ID:	MW-B			
Sample Date:	7/21/2009	6/23/2011	9/9/2014	10/15/2015
Tetrachloroethene	5 U	**270**	**27**	1.0 U
Trichloroethylene	5 U	**36**	1.0 U	1.0 U
cis-1,2-Dichloroethylene	5 U	**20**	1.0 U	1.0 U
Vinyl Chloride	10 U	20 U	2.0 U	2.0 U

Location ID:	MW-C			
Sample Date:	7/21/2009	6/23/2011	9/9/2014	10/15/2015
Tetrachloroethene	5 U	**14**	**3**	3.7
Trichloroethylene	5 U	5 U	1.0 U	1.0 U
cis-1,2-Dichloroethylene	5 U	10 U	1.0 U	1.0 U
Vinyl Chloride	10 U	10 U	2.0 U	2.0 U

Location ID:	MW-1109				
Sample Date:	6/23/2011	9/9/2014	10/16/2015	11/29/2016	12/13/2018
Tetrachloroethene	**180**	**310**	**170**	**43**	**42**
Trichloroethylene	5 U	**15**	4.0 U	1.0 U	1.7
cis-1,2-Dichloroethylene	10 U	10 U	4.0 U	1.0 U	1.5
Vinyl Chloride	10 U	20 U	8.0 U	2.0 U	1.0 U

Location ID:	MW-E					
Sample Date:	7/22/2009	6/23/2011	9/10/2014	10/16/2015	11/29/2016	12/13/2018
Tetrachloroethene	5 U	5 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethylene	5 U	5 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethylene	5 U	5 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U

Location ID:	MW-1108		
Sample Date:	6/23/2011	9/10/2014	10/12/2015
Tetrachloroethene	5 U	1.0 U	1.0 U
Trichloroethylene	5 U	1.0 U	1.0 U
cis-1,2-Dichloroethylene	5 U	1.0 U	1.5
Vinyl Chloride	10 U	2.0 U	2.0 U

Location ID:	B-2		
Sample Date:	4/25/2017	4/25/2017	4/26/2017
Sample Depth:	19 ft BGS	29 ft BGS	38 ft BGS
Tetrachloroethene	**2900**	3.9	2.0 U
Trichloroethylene	50 U	2.0 U	2.0 U
cis-1,2-Dichloroethylene	50 U	2.0 U	2.0 U
Vinyl Chloride	100 U	4.0 U	4.0 U

Location ID:	MW-1110			
Sample Date:	6/24/2011	9/10/2014	10/15/2015	12/14/2018
Tetrachloroethene	5 U	**45**	**68**	**14**
Trichloroethylene	5 U	**5.4**	**9.9**	1.2
cis-1,2-Dichloroethylene	5 U	**45**	**220**	**7.4**
Vinyl Chloride	10 U	**3**	8.0 U	1.0 U

Location ID:	B-3		
Sample Date:	4/25/2017	4/25/2017	4/26/2017
Sample Depth:	20 ft BGS	29 ft BGS	39 ft BGS
Tetrachloroethene	**24**	**13**	**25**
Trichloroethylene	1.0 U	2.0 U	1.0 U
cis-1,2-Dichloroethylene	1.0 U	2.0 U	1.0 U
Vinyl Chloride	2.0 U	4.0 U	2.0 U

Location ID:	MW-1111		
Sample Date:	6/23/2011	9/9/2014	10/12/2015
Tetrachloroethene	5 U	1.0 U	1.0 U
Trichloroethylene	5 U	1.0 U	1.0 U
cis-1,2-Dichloroethylene	5 U	1.0 U	1.0 U
Vinyl Chloride	10 U	2.0 U	2.0 U

Location ID:	LB-1	
Sample Date:	2/13/2018	2/13/2018
Sample Depth:	22 ft BGS	28 ft BGS
Tetrachloroethene	3.9	2.7
Trichloroethylene	1 U	1 U
cis-1,2-Dichloroethylene	1 U	1 U
Vinyl Chloride	2 U	2 U

Location ID:	B-1		
Sample Date:	4/25/2017	4/25/2017	4/25/2017
Sample Depth:	20 ft BGS	29 ft BGS	37 ft BGS
Tetrachloroethene	**25**	**11**	2.0 U
Trichloroethylene	1.7	2.0 U	2.0 U
cis-1,2-Dichloroethylene	4	2.0 U	2.0 U
Vinyl Chloride	2.0 U	4.0 U	4.0 U

Location ID:	MW-AL		
Sample Date:	10/15/2015	11/28/2016	12/14/2018
Tetrachloroethene	1.0 U	1.1	1.0 U
Trichloroethylene	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethylene	1.0 U	1.0 U	1.0 U
Vinyl Chloride	2.0 U	2.0 U	1.0 U

Location ID:	MW-AM		
Sample Date:	10/16/2015	11/29/2016	12/12/2018
Tetrachloroethene	**43**	**33**	**15**
Trichloroethylene	1	1.0 U	0.74 J
cis-1,2-Dichloroethylene	1.0 U	1.0 U	**5.9**
Vinyl Chloride	2.0 U	2.0 U	1.0 U

Location ID:	MW-U					
Sample Date:	7/21/2009	6/24/2011	9/9/2014	10/12/2015	11/28/2016	12/12/2018
Tetrachloroethene	5 U	5 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethylene	5 U	5 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethylene	5 U	5 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U

Location ID:	MW-T		
Sample Date:	7/21/2009	3/15/2010	6/24/2011
Tetrachloroethene	5 U	5 U	5 U
Trichloroethylene	5 U	**6.6**	5 U
cis-1,2-Dichloroethylene	**25**	**7.4**	5 U
Vinyl Chloride	10 U	10 U	10 U

Location ID:	MW-AK		
Sample Date:	7/22/2009	3/15/2010	10/12/2015
Tetrachloroethene	**11**	**45**	**110**
Trichloroethylene	5 U	**11**	**24**
cis-1,2-Dichloroethylene	**5.7**	**160**	**170**
Vinyl Chloride	10 U	10 U	2.0 U

Location ID:	MW-S					
Sample Date:	7/21/2009	6/24/2011	9/9/2014	10/12/2015	11/28/2016	12/14/2018
Tetrachloroethene	**17**	**130**	**42**	**120**	**28**	**19**
Trichloroethylene	**9.2**	**28**	**15**	**37**	**5.8**	2.4
cis-1,2-Dichloroethylene	**70**	**120**	**32**	**16**	**34**	**13**
Vinyl Chloride	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U

Location ID:	MW-AO		
Sample Date:	10/15/2015	11/28/2016	12/13/2018
Tetrachloroethene	**19**	**120**	**120**
Trichloroethylene	1.0 U	1.0 U	0.86 J
cis-1,2-Dichloroethylene	1.0 U	1.0 U	1.0 U
Vinyl Chloride	2.0 U	2.0 U	1.0 U

Location ID:	MW-Q				
Sample Date:	7/22/2009	3/15/2010	6/24/2011	9/10/2014	10/12/2015
Tetrachloroethene	**13**	**29**	**26**	**250**	**47**
Trichloroethylene	5 U	5 U	5 U	5.0 U	1.1
cis-1,2-Dichloroethylene	5 U	5 U	5 U	5.0 U	1.0 U
Vinyl Chloride	10 U	10 U	10 U	10 U	2.0 U

Location ID:	MW-P			
Sample Date:	7/21/2009	6/24/2011	9/11/2014	10/15/2015
Tetrachloroethene	5 U	5 U	4.9	4
Trichloroethylene	5 U	5 U	1.0 U	1.0 U
cis-1,2-Dichloroethylene	5 U	5 U	1.0 U	1.0 U
Vinyl Chloride	10 U	10 U	2.0 U	2.0 U

Location ID:	MW-1003					
Sample Date:	6/24/2011	10/23/2013	9/10/2014	10/16/2015	11/30/2016	12/12/2018
Tetrachloroethene	5 U	1.1	**5.4**	**7**	**11**	**14**
Trichloroethylene	5 U	4.1	**6**	**5.2**	**9.3**	**6.2**
cis-1,2-Dichloroethylene	5 U	**89**	**74**	**54**	**60**	1.0 U
Vinyl Chloride	10 U	2.8	**4**	**5.1**	2.0 U	1.0 U

Location ID:	MW-R					
Sample Date:	7/22/2009	3/15/2010	6/23/2011	9/11/2014	10/12/2015	12/13/2018
Tetrachloroethene	**42**	**29**	**74**	**620**	**210**	**72**
Trichloroethylene	5 U	5 U	**77**	**15**	**8.2**	**8.2**
cis-1,2-Dichloroethylene	5 U	5 U	**33**	10 U	2.0 U	2.4
Vinyl Chloride	10 U	10 U	10 U	20 U	4.0 U	1.0 U

Location ID:	MW-1001				
Sample Date:	6/24/2011	9/10/2014	10/16/2015	11/30/2016	12/12/2018
Tetrachloroethene	5 U	**5.4**	3.9	1.8	4.6 JH
Trichloroethylene	5 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethylene	5 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	10 U	2.0 U	2.0 U	2.0 U	1.0 U

Location ID:	MW-1002				
Sample Date:	6/24/2011	9/10/2014	10/16/2015	11/30/2016	12/12/2018
Tetrachloroethene	5 U	**58**	**75**	**120**	**50**
Trichloroethylene	5 U	1.9	2.2	**19**	**6**
cis-1,2-Dichloroethylene	**6.2**	1.0 U	1.0 U	1.2	**6.4**
Vinyl Chloride	10 U	2.0 U	2.0 U	2.0 U	1.0 U

Notes:
1. Total COC concentration ranges are based on the most recent results for each monitoring well.
2. All units in micrograms per liter (µg/L).
3. New York State Department of Environmental Conservation, Technical and Operational Guidance Series (1.1.1), Class GA Standards and Guidance Values, Revised June 1998.
4. **BOLD** - Exceedes New York State Department of Environmental Conservation, Technical and Operational Guidance Series (1.1.1), Class GA Standards and Guidance Values.
5. U - Not Detected at the Detection Limit shown.

N

LEGEND

Total COCs (ug/L)

- ND
- 0.01 - 10
- 10.01 - 100
- 100.01- 500
- 500.01 - 1000
- >1000
- MID-TOWN LAUNDRY PROPERTY
- RI Study Area

NYSDEC
MID-TOWN LAUNDRY SITE
SITE NO. 447048
SCHENECTADY, NEW YORK

COC CONCENTRATIONS (ug/L) - GROUNDWATER

0 50 100 200
Feet

APRIL 2019
8653.51902

O'BRIEN & GERE ENGINEERS, INC.

Location ID:	SV-14
Sample Date:	6/23/2011
Tetrachloroethene	**820000**
Trichloroethylene	**6900**
cis-1,2-Dichloroethylene	2600 U
Vinyl Chloride	1700 U

Location ID:	SV-10
Sample Date:	5/26/2010
Tetrachloroethene	**22784.79**
Trichloroethylene	**1945.47**
cis-1,2-Dichloroethylene	3033.4
Vinyl Chloride	80.52 U

Location ID:	SV-19
Sample Date:	11/11/2015
Tetrachloroethene	**600000**
Trichloroethylene	**12000**
cis-1,2-Dichloroethylene	3800
Vinyl Chloride	5.1 U

Location ID:	SV-05
Sample Date:	5/26/2010
Tetrachloroethene	23.06
Trichloroethylene	**15.59**
cis-1,2-Dichloroethylene	12.45
Vinyl Chloride	0.26 U

Location ID:	SV-18	
Sample Date:	11/11/2015	11/11/2015
Tetrachloroethene	**9300**	**2300**
Trichloroethylene	**550**	**590**
cis-1,2-Dichloroethylene	450	430
Vinyl Chloride	5.1 U	0.51 U

Location ID:	SV-06	
Sample Date:	5/26/2010	6/24/2014
Tetrachloroethene	**659.13**	**310**
Trichloroethylene	**14.4**	**10**
cis-1,2-Dichloroethylene	1.98 U	1.4 U
Vinyl Chloride	1.28 U	0.18 U

Location ID:	SV-04
Sample Date:	5/26/2010
Tetrachloroethene	**3885.62**
Trichloroethylene	**62.34**
cis-1,2-Dichloroethylene	9.91 U
Vinyl Chloride	6.39 U

Location ID:	SV-21
Sample Date:	11/11/2015
Tetrachloroethene	**1900**
Trichloroethylene	2.9
cis-1,2-Dichloroethylene	0.79 U
Vinyl Chloride	0.51 U

Location ID:	SV-20
Sample Date:	11/11/2015
Tetrachloroethene	R
Trichloroethylene	200
cis-1,2-Dichloroethylene	34
Vinyl Chloride	5.1 U

Location ID:	SV-24
Sample Date:	11/11/2015
Tetrachloroethene	**200**
Trichloroethylene	3.2
cis-1,2-Dichloroethylene	1
Vinyl Chloride	0.51 U

Location ID:	SV-22
Sample Date:	11/11/2015
Tetrachloroethene	**2800**
Trichloroethylene	2.6
cis-1,2-Dichloroethylene	0.79 U
Vinyl Chloride	0.51 U

Location ID:	SV-12
Sample Date:	5/26/2010
Tetrachloroethene	**613.7**
Trichloroethylene	**38.91**
cis-1,2-Dichloroethylene	3.09
Vinyl Chloride	1.28 U

Location ID:	SV-23
Sample Date:	11/11/2015
Tetrachloroethene	**8000**
Trichloroethylene	**57**
cis-1,2-Dichloroethylene	7.9 U
Vinyl Chloride	5.1 U

N

LEGEND

- RI SOIL VAPOR
- HISTORICAL SOIL VAPOR
- MID-TOWN LAUNDRY PROPERTY
- RI STUDY AREA

NYSDEC
MID-TOWN LAUNDRY SITE
SITE NO. 447048
SCHENECTADY, NEW YORK

COC CONCENTRATIONS (ug/m3)-SOIL VAPOR

0 50 100 200
Feet

OCTOBER 2017
8653.51902

O'BRIEN & GERE ENGINEERS, INC.

ALSO INCLUDES:
- REPLACEMENT AND CONTINUED OPERATION OF ON-SITE SSDS
- MAINTENANCE OF EXISTING SITE COVERS
- ON-SITE INSTITUTIONAL CONTROLS AND SITE MANAGEMENT PLAN
- RI STUDY AREA GROUNDWATER AND SOIL VAPOR MONITORING
- RI STUDY AREA VAPOR INTRUSION INVESTIGATION AND MITIGATION

N

LEGEND

- MONITORING WELL
- MID-TOWN LAUNDRY PROPERTY - ON SITE
- RI STUDY
- SOIL VAPOR EXTRACTION (SVE) 4A SVE / AIR SPARGING 4B

NYSDEC
MID-TOWN LAUNDRY SITE
SITE NO. 447048
SCHENECTADY, NEW YORK

ALTERNATIVE 4A / 4B

0 50 100 200
Feet

FEBRUARY 2020
8653.51902

O'BRIEN & GERE ENGINEERS, INC.