PROPOSED REMEDIAL ACTION PLAN

Midtown Shopping Center
State Superfund Project
South Glens Falls, Saratoga County
Site No. 546054
February 2016

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 repositories 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 repositories:

NYSDEC
Attn: Michael DiPietro
232 Golf Course Road
Warrensburg, NY 12885-0220
Phone: (518) 623-1236

Crandall Library
251 Glen Street
Glens Falls, NY 12801
Phone: (518) 792-6508

A public comment period has been set from:

February 24, 2016 to March 24, 2016

A public meeting is scheduled for the following date:

Tuesday, March 15 at 6:00PM

Public meeting location:

Moreau Town Hall
351 Reynolds Road
Moreau, NY 12828

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 March 24, 2016 to:

Michael DiPietro
NYS Department of Environmental Conservation
Division of Environmental Remediation
232 Golf Course Road
Warrensburg, NY 12885
michael.dipietro@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 Midtown Plaza site is located in a suburban area of Saratoga County, NY. The site address is 112-114 Main Street, South Glens Falls at the intersection of Saratoga Avenue and Main Street.

Site Features: The main site feature is a shopping plaza (strip mall) that consists of a building with retail sales, including a former dry cleaner and associated paved parking and access roadways. The site is the former dry cleaners, the two adjacent retail spaces and the paved alleyway to the south.

Current Zoning/Use: The site itself is commercial/retail use. To the south and west of the site are residential properties with commercial operations to the immediate south, east, and north.

Past Use of the Site: The second commercial retail unit from the east end of the plaza was the location of the Aroxy Cleaners from the 1990s through the end of 2008. It appears that operations at this establishment resulted in soil and groundwater contamination with tetrachloroethylene.

Third party investigations were conducted at the site on the behalf of plaza owner(s)/manager(s) in 1998 and 2008. These resulted in the discovery of site contamination. Based on this, the plaza owner had a soil vapor mitigation system installed in three of the units of the shopping center, the former dry cleaner location and the retail space on either side of it.

Site Geology/Hydrology: The groundwater flow direction in the shallow aquifer is primarily to the west across the site. The exception to this is at the eastern end of the site where a groundwater divide was identified with a lesser south-southwest component to the flow direction. Shallow groundwater was encountered between 6 and 17 feet below grade across the site. The deeper till aquifer had a flow direction to the south-southeast with groundwater encountered between 15 and 19 feet below grade.

Native material encountered during the installation of monitoring wells is a glacial lacustine unit consisting primarily of fine to medium sands with a trace of silt which transition sharply to a finer unit consisting of silty clay with shallow groundwater in the suspected source area being encountered at the interface between the sand and clay units. Bedrock was not encoutered during well installation.

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) 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:

Joy Hendel

Aroxy Cleaners

Philip Hendel

Jack Poladian

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 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:

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

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

- groundwater
- soil
- soil vapor intrusion
- indoor air

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.

IRM Soil Vapor Intrusion Mitigation

An IRM was completed between March and April 2014 that consisted of the installation of sub-slab depressurization systems at offsite structures where sub-slab vapor sampling indicated the potential for contaminated vapor to migrate into the structure. Sub-slab depressurization systems were installed in four residential structures and one commercial structure to the south of the site. A detailed description of the activities related to the IRM are discussed in the Remedial Investigation report.

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.

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

Nature and Extent of Contamination: During the Remedial Investigation (RI) environmental samples were collected from both on and off-site and analyzed for metals, PCBs/Pesticides, semi-volatile organic compounds (SVOCs) and volatile organic compounds (VOCs). Based on the results of the investigation the primary contaminants of concern (COCs) at the site are tetrachloroethylene (PCE) and its breakdown products, trichloroethene (TCE) and cis-1,2-dichloroethene (DCE).

Surface Soil - There is no exposed surface soil, the entire site is paved or covered by the building. Soil samples were collected from immediately beneath the asphalt pavement. There were no site related COCs detected in shallow/surface soil.

Subsurface Soil-PCE was found in subsurface soils at levels from non-detect (ND) to 210 parts per million (ppm) with 1 of 38 samples above the unrestricted use soil cleanup objective (SCO) of 1.3 ppm, which also is the protection of groundwater SCO. TCE concentrations in deep soil ranged from ND-4.2 ppm with 1 of 38 samples above the unrestricted use SCO of 0.47 ppm. This contamination was encountered at AMW-1, which is located immediately south of the former dry cleaners, at a depth of about 12 feet, just above the water table. Two subsurface

samples collected beneath the floor of the dry cleaners detected benzo(a)anthracene at 1.4 ppm and chrysene at 1.2 ppm, each exceeding the unrestricted SCOs of 1.0 ppm.

Groundwater-PCE concentrations ranged from ND to 21,000 parts per billion (ppb) exceeding the SCG of 5 ppb in 25 of 41 samples. TCE ranged from ND to 6,700 ppb exceeding the SCG of 5 ppb in 10 of 41 samples. DCE ranged from ND to 14,000 ppb and exceeded the SCG of 5 ppb in 10 of 41 samples. Chloroform, iron, manganese and sodium were also detected in samples collected during the RI, however these compounds are not related to past site use or are naturally occurring and not considered contaminants of concern.

Soil Vapor-PCE concentrations detected in soil vapor samples ranged from ND to 13,000 ug/m3 (micrograms per cubic meter), TCE concentrations ranged from ND to 1,500 ug/m3 and DCE ranged from ND-860 ug/m3. The areal extent of the vapor plume (PCE) extends to offsite properties following the plume of greatest groundwater contaminant migration.

6.4: Summary of Human Exposure Pathways

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

Access to the site is unrestricted. However, contact with contaminated soil or groundwater is unlikely unless they dig below the ground surface. 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 the groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect 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. Sub-slab depressurization systems (systems that ventilate/remove the air beneath the building) have been installed in both on-site and off-site buildings to prevent the indoor air quality from being affected by the contamination in soil vapor beneath the structures.

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.

Soil Vapor

RAOs for Public Health Protection

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

SECTION 7: SUMMARY OF THE PROPOSED REMEDY

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

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

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

The proposed remedy is referred to as In-situ Chemical Oxidation (ISCO). The proposed remedy includes the chemical treatment of contaminated groundwater in the area of highest groundwater contamination, removal of an underground storage tank and long-term monitoring of soil vapor and groundwater.

The estimated present worth cost to implement the ISCO, underground storage tank removal and long-term monitoring remedy is $455,000. The estimated cost to construct is $145,000 and an average annual cost is $15,400.

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; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. In-Situ Chemical Oxidation: In-situ chemical oxidation (ISCO) will be implemented to treat tetrachloroethylene (PCE), cis-1,2-dichloroethene and trichloroethene (TCE) in groundwater. A chemical oxidant will be injected into the subsurface to destroy the contaminants in an approximately 2,500 square foot area located adjacent to and immediately south of the former dry cleaners, via injection wells screened from approximately 10 to 12 feet below ground surface. The exact rate and depth of injection will be determined during the remedial design.

Prior to the full implementation of this technology, a bench scale "laboratory" pilot study will be conducted to more clearly define design parameters. Between the pilot and the full scale implementation, it is estimated that 11 shallow injection points will be installed. It is estimated that the sodium permanganate will be injected during approximately two (2) separate events over several months.

3. Vapor Mitigation: Should future soil vapor, sub-slab vapor or indoor air monitoring indicate the need for additional sub-slab depressurization systems, or a similar engineered system, to mitigate the migration of vapors from groundwater into nearby structures, these systems will be installed in consultation with the NYSDOH.

4. Underground Storage Tank Removal: The abandoned tank identified in the area of highest groundwater contamination at the site will be removed, along with any associated contaminated soil. 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. Cover System: A site cover currently exists and will be maintained to allow for restricted residential use of the site. Any site redevelopment will maintain the existing site cover, which

consists either of the structures such as buildings, pavement, sidewalks or soil where the upper two feet of exposed surface soil meets the applicable soil cleanup objectives (SCOs) for restricted residential 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).

6. Institutional Control: 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 residential 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; and
- require compliance with the Department approved Site Management Plan.

7. 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 in Paragraph 6 above.

Engineering Controls: The sub-slab depressurization system discussed in Paragraph 3 above and site cover as discussed in paragraph 5.

This plan includes, but may not be limited to:

- a provision for further investigation and remediation should large scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible. The nature and extent of contamination in areas where access was previously limited or unavailable will be immediately and thoroughly investigated pursuant to a plan approved by the Department. Based on the investigation results and the Department determination of the need for a remedy, a Remedial Action Work Plan (RAWP) will be developed. This includes the defined site at the time of this review and any other areas of the former Midtown Shopping Center Plaza building and property where migration of COCs may be identified;
- a provision for additional chemical oxygen injections and/or bioremediation of the groundwater should monitoring data reveal that additional treatment is warranted;
- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- continued operation, maintenance and monitoring of the SSDS systems installed during the Soil Vapor Intrusion IRM, and; the evaluation of the potential for soil vapor intrusion of any reoccupied existing or future buildings developed on the site, including 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 soil vapor and groundwater to assess the performance and effectiveness of the remedy;
- provisions for the management and inspection of the identified engineering controls;
- a schedule of monitoring and frequency of submittals to the Department;
- monitoring for vapor intrusion for any occupied existing or future buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

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 in four categories; volatile organic compounds (VOCs), semi-volatile organic compounds, inorganic metals and PCBs/Pesticides. 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.

Groundwater

The VOCs detected in the shallow overburden wells at concentrations exceeding the class GA groundwater criteria are the chlorinated volatile organic compounds (CVOCs) PCE, TCE, cis-1,2-DCE, and chloroform. Since dry cleaners typically use PCE based solvents, PCE is considered a site related contaminant. TCE and cis-1,2-DCE are likely to have been an impurity in the dry cleaning solvent or result from the degradation or dechlorination of PCE in the environment. Chloroform likely originated from treatment chemicals used in the municipal water supply system. The highest contaminant concentrations are centered approximately 30 feet south of the former Aroxy Cleaners facility on the site access road near well AMW-1 where total CVOC concentrations are as high as 32,500 µg/L (one to two orders of magnitude above all other wells).

Iron, manganese and sodium were detected above the class GA criterion in many of the shallow overburden wells. These analytes are naturally occurring and are not considered site related contaminants of concern and will not be evaluated further as part of the remedial decision.

The chemicals of concern in the overburden groundwater are PCE, TCE, and cis-1,2-DCE.

A contaminant distribution map was developed for the total concentration of site-related chlorinated VOCs (CVOCs) in the shallow overburden wells and is included as Figure 2. This figure represents the extent of site-related VOC contamination in the shallow water-bearing zone. The diagram is based on the maximum concentration in any sampling round. The areas with concentrations greater than 5 µg/L approximates the horizontal extent of the groundwater plume exceeding the class GA groundwater criterion for PCE. The groundwater contaminant plume expands laterally with the groundwater gradient from a probable disposal area near the sanitary sewer manhole and well AMW-1 to the west and south. Contaminant concentrations decrease to non-detect about 700 feet to the west of the site at wells AMW-9, AMW-14 and AMW-15. The extent of impact is projected to extend nearly 400 feet south of the site, although the plume limit beyond well AMW-12 is unbounded. Even if the plume extends more than 400 feet south of the site, it is unlikely the impacts would reach the Village's water-supply resource, located about 3,500 feet southwest of the site. The extent of the plume is bounded towards the east and north.

Three wells were installed to test deep overburden groundwater. No COCs were detected in the deep groundwater aquifer. Refer to Table 1.

Table 1 - Groundwater

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
VOCs			
Chloroform	ND-18	5	6 of 41
Cis-1,2-dichloroethene	ND-14,000	5	10 of 41
Tetrachloroethene	ND-21,000	5	25 of 41
Trichloroethene	ND-6,700	5	10 of 41
Inorganics			
Iron (dissolved)	ND-6,200	300	4 of 10
Manganese (dissolved)	1.4-890	300	1 of 8
Sodium (dissolved)	27,000-710,000	20,000	9 of 9

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

Based on the findings of the RI, the past disposal of hazardous waste has resulted in the contamination of groundwater. The site contaminants that are considered to be the primary contaminants of concern which will drive the remediation of groundwater to be addressed by the remedy selection process are: PCE, TCE and cis-1,2-DCE.

Soil

Soil samples were collected during the RI. Shallow soil samples were collected from immediately beneath the existing asphalt pavement. Subsurface soil samples were collected from depths ranging from 5-20 feet to assess the potential for soil contamination to impact groundwater. The soil samples were also collected to determine the location and extent of any identifiable source areas.

At only one sampling location, AMW-1, were site related contaminants of concern detected in the subsurface soil. The concentrations of the VOCs detected, however, only slightly exceed the restricted use SCGs and do not warrant a focused remedial action. One subsurface sample collected from beneath the boiler room of the dry cleaners at a depth of 10 feet exceeded unrestricted use SCGs for two SVOCs, benzo(a)anthracene and chrysene. Only one of the SVOCs detected, benzo(a)anthracene, slightly exceeded the protection use SCO and does not warrant a further remedial action. Acetone was detected during the remedial investigation in two subsurface samples above the unrestricted use SCO. The two samples were offsite and unrelated to site activities. Furthermore, none of the groundwater samples collected indicated the presence of acetone including the samples from the wells where the acetone was detected in soil at or near the water table. Acetone is not considered a site related contaminant of concern. Refer to Table 2a.

Table 2a – Subsurface Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted/ Protection of Groundwater SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Restricted Use SCG[c] (ppm)	Frequency Exceeding Restricted SCG
VOCs					
Tetrachloroethene	ND-210	1.3	1 of 38	19	1 of 38
Trichloroethene	ND-4.2	0.47	1 of 38	21	1 of 38
Acetone	ND-0.6	0.05	2 of 38	100	0 of 38
SVOCs					
Benzo(a)anthracene	ND-1.4	1	1 of 7	1	1 of 7
Chrysene	ND-1.2	1	1 of 7	3.9	0 of 7

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.

The PCB Aroclor 1254 was detected in a soil sample collected from immediately beneath the pavement at SB-15 located immediately adjacent to the former dry cleaners. The low level PCB detected in only one sample. The concentration of PCB Aroclor 1254 exceeded the unrestricted use SCG, but not the restricted use SCG for PCBs being proposed for the site. PCB Aroclor 1254 is not considered site related contaminant of concern. Refer to Table 2b.

Table 2b – Surface Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Restricted Use SCG[c] (ppm)	Frequency Exceeding Restricted SCG
Pesticides/PCBs					
Aroclor 1254	ND-0.13	0.1	1 of 3	1	0 of 3

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.

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

Soil Vapor

The evaluation of the potential for soil vapor intrusion (SVI) 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,

and indoor air inside structures. At this site, due to the presence of buildings in the impacted area, a full suite of samples were collected to evaluate whether soil vapor intrusion was occurring.

Sub-slab depressurization systems (SSDS) were installed in the presently vacant Aroxy Cleaners portion of the Midtown Plaza and the immediately adjacent retail units by the Plaza owner or agent prior to DEC commencing the RI. During the RI, vapor sampling initially involved the collection of sub-slab soil vapor and indoor air samples from beneath and inside the Midtown Plaza building. Subsurface soil vapor samples were also collected from onsite and near offsite areas to identify the potential for site contamination to impact indoor air. PCE was identified in all of the subsurface soil vapor samples with TCE and cis-1,2-DCE also being identified in several of the locations as well. Based on these results, additional sub-slab soil vapor and indoor air samples were collected at thirteen offsite commercial and residential structures. The results indicate that PCE, TCE and/or cis-1-2-DEC were detected at five adjacent offsite structures at levels that require mitigation to reduce exposure. The mitigation systems were installed during the IRM described in Section 6.2. The identified extent of the soil vapor plume is presented in Figure 3. A more detailed description of the data is available in the Remedial Investigation Report.

Based on the findings of the Remedial Investigation, the disposal of hazardous waste has 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, PCE, TCE, and cis-1,2-DCE.

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.

Common Elements: Alternatives 2 and 3 incorporate the following required common elements.

Common Element 1: Underground Storage Tank (UST) Removal

An abandoned fuel oil UST was identified during the RI. Its location interferes with the implementation of each of the active alternatives, therefore its removal is a component of each alternative. Removal of the tank and any surrounding contaminated soil is also expected to address the PCE and TCE contaminated soil encountered nearby in AMW-1. The cost of removal is included in the capital and present worth calculations for each alternative. The tank will be removed by excavation and any accessible impacted soils associated with the tank will be removed for offsite disposal.

Present Worth: ..... *$ 24,000*
Capital Cost: ..... *$ 24,000*
Annual Costs: ..... *$ 0*

Common Element 2: Long-term Groundwater and Soil Vapor Monitoring

A common element of all the active alternatives will be to implement long-term monitoring (LTM) of groundwater and soil vapor and continued operation, maintenance and monitoring of the vapor mitigation systems installed during the RI as an IRM. This LTM will provide for on-going monitoring of the groundwater plume, soil vapor impacts and engineering systems. This element includes provisions for the installation of up to six new monitoring wells and annual sampling of up to seven wells. LTM also provides for the annual collection of ten soil vapor samples. The number of wells, sampling points and sample frequency are provided for cost estimation purposes. All LTM locations and sampling frequency will be selected in consultation with the NYSDOH and be based on the Remedial Investigation data and the details of the final remedial design. Monitoring will be conducted until the remedial action objectives for groundwater and soil vapor are met, which for purposes of this document is assumed to be a period of 30 years.

Present Worth: ..... *$ 350,000*
Capital Cost: ..... *$ 40,000*
Annual Costs: ..... *$ 15,400*

Alternative 2: In-situ Chemical Oxidation (ISCO)

This alternative would include the treatment of impacted groundwater through the use of In-situ Chemical Oxidation (ISCO). The saturated soils above the confining clay layer is only 1 to 2 feet thick. The treatment of the impacts within the groundwater will be through ISCO injections. The ISCO treatment area, as estimated in Figure 4, may be up to 50 feet by 50 feet (2,500 ft^2) and would target the treatment of groundwater with the highest level of VOC contamination. Reduction of the highest levels of groundwater contamination would also minimize the potential for further contaminant migration.

Present Worth: ..... *$ 81,000*
Capital Cost: ..... *$ 81,000*
Annual Costs: ..... *$ 0*

Alternative 3: Multi-phase Extraction (MPE)

This alternative would include, the extraction of impacted groundwater and soil vapor extraction for unsaturated soils. With this remedy, also referred to as total fluids extraction, impacted groundwater is removed through a drop tube lowered down a well(s) into the saturated zone, continuously removing contaminated groundwater. This alternative has the added benefit of extracting subsurface surface soil vapor, thereby treating contaminated soil, if present. The extraction of groundwater lowers the water table and allows for the previously trapped CVOCs to be volatilized and removed through vapor extraction. MPE will treat the bulk of contaminant mass in the on-site source area, with monitored natural attenuation of the down gradient groundwater plume. The estimated treatment area, as shown in Figure 10, is approximately 7,300 ft^2 and would target both contaminated unsaturated soil and groundwater located within the source area. Removing the majority of the up gradient plume mass would minimize the potential for contamination to migrate further down gradient.

For the purpose of this document, four MPE wells would be installed in the alley south of the building. The wells would be installed one foot into the confining clay layer and have a 5-ft screen. Within the well would be a drop tube, use to extract liquids and vapors from the well. Each well would be piped below grade to a new treatment system shed. The treatment train will include a moisture/vapor separator, high vacuum blower, vapor-phase activated carbon, liquid pump, and air stripper. Treated vapor would be discharged to the atmosphere and treated water would be discharged either to the Glens Falls wastewater treatment plant or to a storm sewer. A new power service would be required to power the treatment system.

Operation of the MPE system is expected to last one year.

Present Worth: ..... *$ 297,000*
Capital Cost: ..... *$ 251,000*
Annual Costs: ..... *$ 46,000*

Exhibit C

Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
1. No Action	0	0	0
2. In-situ Chemical Oxidation	81,000	0	81,000 *
3. Multi-Phase Extraction	251,000	46,000	297,000 *
*CE 1 Underground Tank Removal	24,000	0	24,000
*CE 2 Long-term Monitoring	40,000	15,400	350,000

*CE 1 and CE 2 are Common Elements to each of the active alternatives. The indicated costs are not included in the costs for the four active alternatives.

Exhibit D

SUMMARY OF THE PROPOSED REMEDY

The Department is proposing Alternative 2, In-situ Chemical Oxidation (ISCO), including the underground storage tank removal and long-term monitoring, as the remedy for this site. Alternative 2 would achieve the remediation goals for the site by treating impacted groundwater through ISCO. Institutional Controls (environmental easement restricting groundwater use) will prevent contact with any remaining contamination for the duration of the remedy. Long-term groundwater and soil vapor monitoring will be used to assess the effectiveness of the remedy and determine the duration of institutional controls. The elements of this remedy are described in Section 7. The proposed remedy is depicted in Figure 4.

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.

The proposed remedy, Alternative 2, would satisfy this criterion by treating the most contaminated groundwater by in-situ chemical oxidation. Alternative 3 would provide protection of health and environment through the removal and treatment (respectively) of the removal of highly impacted groundwater. The sub-slab depressurization systems previously installed as an IRM will continue to mitigate identified SVI exposures in Alternatives 2&3 and are protective of public health. Alternative 1 offers no additional protection against future impacts and will not be evaluated further.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

Alternative 2 should meet groundwater SCGs by addressing groundwater contamination through the action of in-situ chemical oxidation (ISCO). Alternative 3 would reduce groundwater contamination through removal and above ground treatment. For each active Alternative the downgradient plume is expected to achieve groundwater SCGs over time following the source area treatment.

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 2 should address onsite groundwater contamination through ISCO, permanently destroying CVOCs in groundwater. Alternative 3 should address groundwater contamination by removal of highly impacted groundwater. Any remaining groundwater contamination above SCGs can be addressed through institutional controls restricting the use of impacted groundwater.

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 2 would directly address groundwater impacts through the in action of ISCO and reduce toxicity, mobility and volume of contamination. Alternative 3 achieves significant groundwater contamination reduction through the removal of groundwater.

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.

The implementation of Alternativess 2 and 3 would require the installation of mechanical treatment equipment and/or underground piping. In addition Alternative 2 requires the handling and injection of chemical oxidizers into the subsurface. Alternatives 2 and 3 are expected to require approximately 1-2 years to achieve onsite RAOs.

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.

Each alternative is implementable, the technologies are readily available, and there are no administrative complications anticipated. Of the active alternatives, Alternative 2 poses the fewest implementation challenges. Both Alternatives 2 and 3 involve the installation of subsurface injection or extraction points (respectively) and Alternative 3 has additional underground pipes with connections to surface equipment. Alternative 3 will be difficult to implement requiring a permanent structure in the very restricted area.

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 has the lowest total cost of installation and operation. Alternative 3 requires the purchase, installation and long-term operational costs (electricity, repair and maintenance) of mechanical treatment equipment and underground piping. Alternative 2 provides a comparable level of protection at the lowest cost.

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

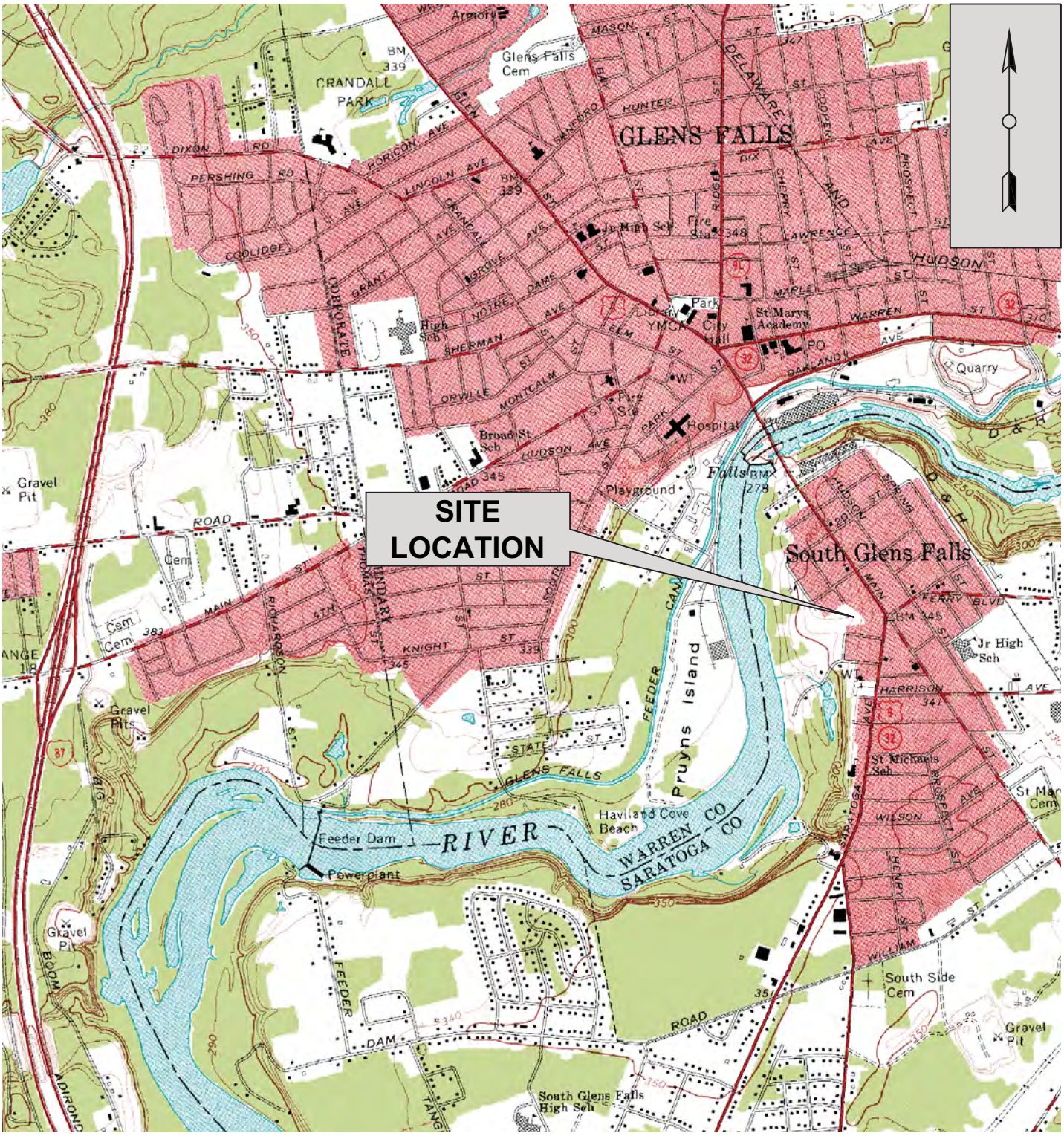
selection of the soil remedy.

All alternatives will require an environmental easement to allow the use and development of the controlled property for restricted residential use as defined by Part 375-1.8(g) subject to local zoning laws and restricting future use of groundwater as a source of potable or process water without necessary water quality treatment as determined by the NYSDOH. The local area is serviced by municipal water and this restriction should have no impact on local activities. The duration of the use restriction will be determined through the common element of long-term groundwater monitoring.

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



MAP REFERENCE:
GLENS FALLS, NY USGS 15 MINUTE QUADRANGLE

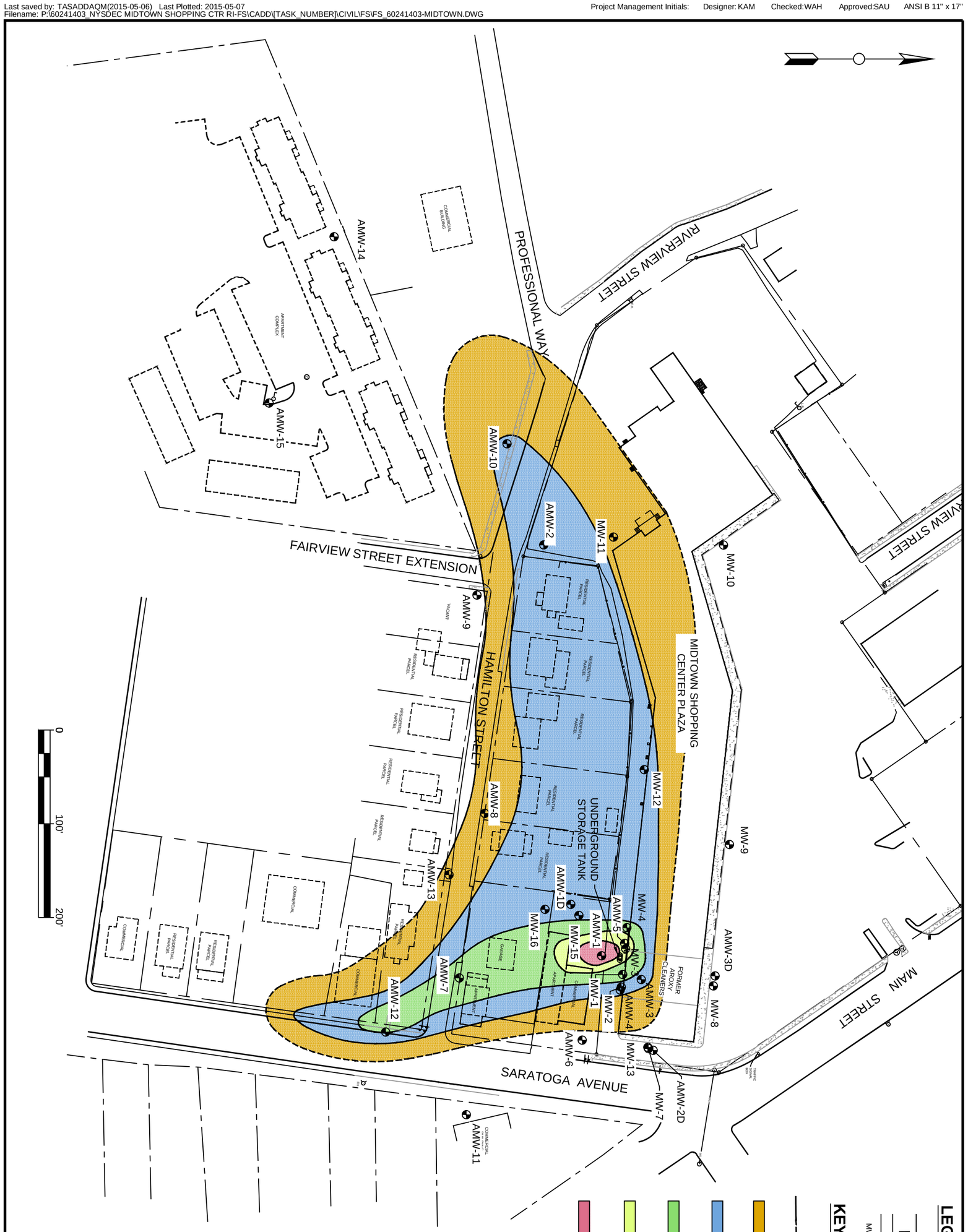
NYSDEC SITE # 5-46-054
MIDTOWN SHOPPING CENTER
SOUTH GLENS FALLS, NY
Project No.: 60241403 DATE: DECEMBER 2014

SITE LOCATION MAP

AECOM

Figure 1

Last saved by: TASADDAQM(2015-05-06) Last Plotted: 2015-05-07
Filename: P:\60241403_NYSDEC MIDTOWN SHOPPING CTR RI-FS\CADD\[TASK_NUMBER]\CIVIL\FS\FS_60241403-MIDTOWN.DWG
Project Management Initials: Designer: KAM Checked: WAH Approved: SAU ANSI B 11" x 17"



NYSDEC SITE # 5-46-054
MIDTOWN SHOPPING CENTER
SOUTH GLENS FALLS, NY
Project No.: 60241403 DATE: MAY 7, 2015

FEASIBILITY STUDY
TOTAL CVOC ISOCONCENTRATION CONTOUR MAP
SHALLOW WATER BEARING ZONE

AECOM

Figure 2

Last saved by: TASADDAQM(2015-05-07) Last Plotted: 2015-05-11
Filename: P:\60241403_NYSDEC MIDTOWN SHOPPING CTR RI-FS\CADD\[TASK_NUMBER]\CIVIL\FS\FS_60241403-MIDTOWN.DWG
Project Management Initials: Designer: KAM Checked: WAH Approved: SAU ANSI B 11" x 17"

NYSDEC SITE # 5-46-054
MIDTOWN SHOPPING CENTER
SOUTH GLENS FALLS, NY
Project No.: 60241403 DATE: MAY 7, 2015

FEASIBILITY STUDY
PCE ISOCONCENTRATION CONTOUR MAP IN SOIL VAPOR

AECOM

Figure 3

Project Management Initials: Designer: KAM Checked:WAH Approved:SAU ANSI B 11" x 17"

Last saved by: MEISTERK(2015-06-30) Last Plotted: 2015-06-30
Filename: P:\60241403_NYSDEC MIDTOWN SHOPPING CTR RI-FS\CADD\[TASK_NUMBER]\CIVIL\FS\FS_60241403-MIDTOWN.DWG

AECOM

Figure 4

ELEMENTS OF PROPOSED REMEDY

NYSDEC SITE # 5-46-054
MIDTOWN SHOPPING CENTER
SOUTH GLENS FALLS, NY
Project No.: 60241403 DATE: MAY 7, 2015

MW-10
MW-9
MW-8
AMW-3D
ASPHALT
CONC.
MIDTOWN SHOPPING CENTER PLAZA (CONCRETE SLAB)
REMOVE UST (COMMON ELEMENT)
FORMER AROXY CLEANERS
MW-12
AMW-5
MW-4
MW-3
AMW-3
MW-1
MW-2
AMW-4
AMW-2D
MW-7
MW-13
AMW-1
AMW-6
MW-15
AMW-1D
MW-16
COMMERCIAL
APARTMENT
GARAGE
RESIDENTIAL PARCEL
MW-11
AMW-2
AMW-10
AMW-9
AMW-8
AMW-13
AMW-7
HAMILTON STREET
FAIRVIEW STREET EXTENTION
SARATOGA AVENUE
TRAFFIC SIGNAL BOX
BOLLARD (TYP.)
C.B.
M.H.
GV
WSO
TEL. PED.
F.H.

LEGEND

- PROPERTY LINE
- BUILDING
- PAVEMENT
- FENCE
- M.H. SANITARY SEWER MANHOLE
- WSO WATER VALVE
- C.B. CATCH BASIN
- GV GAS VALVE
- UTILITY POLE
- GUY WIRE
- BOLLARD
- UNDERGROUND STORAGE TAN
- MW-16 MONITORING WELL

REMEDY KEY

- ISCO TREATMENT AREA
- APPROXIMATE EXTENT OF UST REMOVAL

NOTE:
REMEDY INCLUDES COMMON ELEMENT OF LONG TERM MONITORING (LTM) OF GROUNDWATER AND SOIL VAPOR. LOCATIONS TO BE DETERMINED.

0 50' 100'