DECISION DOCUMENT

Troy Belting and Supply Company
Brownfield Cleanup Program
Town of Colonie, Albany County
Site No. C401067
May 2023

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

DECLARATION STATEMENT - DECISION DOCUMENT

Troy Belting and Supply Company
Brownfield Cleanup Program
Town of Colonie, Albany County
Site No. C401067
May 2023

Statement of Purpose and Basis

This document presents the remedy for the Troy Belting and Supply Company brownfield cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Troy Belting and Supply Company site and the public's input to the proposed remedy presented by the Department.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. **In-Situ Treatment of Impacted Media**

In-situ, or in-place, treatment is used to address residual contamination impacts to soils and groundwater. The contamination at the site will tend to breakdown naturally, but this in-ground treatment process is used to improve on the natural conditions to help the contaminants breakdown more effectively.

In-situ enhanced biodegradation will be employed to treat contaminants that remain following the source removal interim remedial measure (IRM) work, in order to achieve the soil and groundwater remedial action objectives. The breakdown of contaminants will be enhanced by the introduction of prescribed treatment materials into the subsurface via directional injections. These materials will promote the environmental conditions necessary for the degradation of target contaminants. Groundwater monitoring will be required up-gradient, down-gradient, and cross-gradient of the treatment zone to determine the effectiveness of the remedy. Surface water monitoring will also be required at the unnamed tributary located to the north of the site during remediation. Monitoring will be conducted for contaminants of concern and their degradation by-products.

2. Green Remediation

Green remediation principals and techniques will be implemented to the extent feasible in the 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 gas 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; 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.

3. Excavation And Backfill

Should future development/expansion of site buildings allow safe access to residual source material located underneath the current building foundation, then excavation and off-site disposal of contaminant source areas, including the following will be considered:

- Grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
- Soils which exceed the protection of groundwater soil cleanup objectives, as defined by 6 NYCRR Part 375-6.8 for those contaminants found in site groundwater above standards; and
- Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) and with Department pre-approval will be brought in to replace any excavated soil and to establish the designed grades at the site.

4. Cover System

A site cover will be required to allow for commercial use of the site in areas where the upper one foot of exposed surface soil exceeds the applicable soil cleanup objectives (SCOs). Where a soil cover is to be used it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

5. Vapor Mitigation System

Any on-site buildings, including the existing building, will be required to have a vapor mitigation system (also known as a sub-slab depressurization system) or other acceptable measures, to

mitigate the migration of soil vapors into the building from the subsurface. A vapor mitigation system (VMS) was installed and continues to operate for the existing building in accordance with an interim remedial measure. Adjustments to the existing VMS configuration and/or the operating or monitoring schedules may be made in the future with Department approval.

New buildings will need to be evaluated for soil vapor intrusion and the need for a vapor mitigation system.

6. Monitoring Requirements

During and following the in-situ treatment component of the remedy, ongoing monitoring of groundwater and the on-site VMS system will be required to evaluate the effectiveness of the remedy and to ensure protection of public health and the environment. Modifications to groundwater or VMS operations, schedules and monitoring frequency will be subject to Department approval.

7. 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 New York State Department of Health (NYSDOH); and
- require compliance with the Department approved Site Management Plan.

8. 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 Cover System discussed in paragraph 3 above and the Vapor Mitigation System discussed in paragraph 4 above.

This plan includes, but is not limited to:

• An Excavation Plan which details the provisions for management of future excavations in areas of residual contamination;

• description of the provisions of the environmental easement including any land use, and groundwater use restrictions;

• 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 and soil vapor 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 existing and future buildings on the 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 the sub-slab depressurization system (a.k.a. the Vapor Mitigation System) 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.

Declaration

The remedy conforms with promulgated standards and criteria that are directly applicable, or that are relevant and appropriate and takes into consideration Department guidance, as appropriate. The remedy is protective of public health and the environment.

May 17, 2022
Date

Andrew Guglielmi
Andrew Guglielmi, Director
Division of Environmental Remediation

DECISION DOCUMENT

Troy Belting and Supply Company
Colonie, Albany County
Site No. C401067
May 2023

SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of contaminants at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of contaminants at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum.

The New York State Brownfield Cleanup Program (BCP) is a voluntary program. The goal of the BCP is to enhance private-sector cleanups of brownfields and to reduce development pressure on "greenfields." A brownfield site is real property, where a contaminant is present at levels exceeding the soil cleanup objectives or other health-based or environmental standards, criteria, or guidance, based on the reasonably anticipated use of the property.

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

SECTION 2: CITIZEN PARTICIPATION

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

DECInfo Locator - Web Application
https://gisservices.dec.ny.gov/gis/dil/index.html?rs=C401067

William K. Sanford Town Library
Attn: Richard J. Naylor
629 Albany Shaker Road
Loudonville, NY 12211
Phone: 518-458-9274

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 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 2.4 acre Troy Belting and Supply Company site (Troy Belting) is located at 70 Cohoes Road (Tax Parcel #20.20-1-4) in a mixed residential and industrial area of Colonie, between the cities of Cohoes and Watervliet. The site is bound by a former foundry (now owned by Troy Belting) and other commercial/industrial properties to the west and primarily residential properties to the north, east and south.

A site location map is attached as Figure 1 and the site boundaries are outlined in Figure 2 (attached).

SITE FEATURES: The site is relatively flat and includes a 25,000 square foot single-story building currently utilized by Troy Belting for electric motor repair. The site is covered by grass and landscaping on the east and west sides of the building. The south and north sides are covered with asphalt and used as parking lots. A small unnamed tributary passes through the north boundary of the site.

CURRENT ZONING AND LAND USE: The site is zoned industrial and is currently used as industrial property. While the properties to the west of the site are also zoned industrial, the properties north, east, and south of the site are zoned Single-Family Residential (SFR).

PAST USE OF THE SITE: Troy Belting has operated on the site since 1965 when the first building was constructed. Troy Belting has been an electric motor repair facility from 1965 to date. Although the motor repairs historically included the cleaning of motor parts with solvents, such as tetrachloroethene (PCE) and trichloroethene (TCE), these chlorinated solvents have not been used by Troy Belting for decades, except in small quantities from spray cans.

SITE GEOLOGY/HYDROGEOLOGY: Site soils consist of a mix of glacial till, fine sands, silt, and clay underlain by silty loam. Highly weathered shale bedrock is present at depths ranging from four to eight feet below ground surface, sloping down from east to west. Groundwater is present between two and eight feet below ground surface and generally flows to the east towards the Hudson River, which is located 0.6 miles away.

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, although the current and intended use has been identified as industrial, the data collected at the completion of the source removal IRM supports the Department's view that commercial soil cleanup objectives (SCOs) are achievable with application of the selected remedy.

A comparison of the results of the Remedial Investigation (RI) to the appropriate standards, criteria, and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is available in Appendix J of the approved RI Report.

SECTION 5: ENFORCEMENT STATUS

The Applicant under the Brownfield Cleanup Agreement is a Participant. The Applicant has an obligation to address on-site and off-site contamination. Accordingly, no enforcement actions are necessary.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A remedial investigation (RI) serves as the mechanism for collecting data to:

- characterize site conditions;
- determine the nature of the contamination; and
- assess risk to human health and the environment.

The RI is intended to identify the nature (or type) of contamination which may be present at a site and the extent of that contamination in the environment on the site, or leaving the site. The RI reports on data gathered to determine if the soil, groundwater, soil vapor, indoor air, surface water or sediments may have been contaminated. Monitoring wells are installed to assess groundwater and soil borings or test pits are installed to sample soil and/or waste(s) identified. If other natural resources are present, such as surface water bodies or wetlands, the water and sediment may be sampled as well. Based on the presence of contaminants in soil and groundwater, soil vapor will also be sampled for the presence of contamination. The RI Report is available for review in the site document repository and the results are summarized in section 6.3 below.

The analytical data collected on this site includes data for:

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

- surface water

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. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

6.1.2: RI Results

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

tetrachloroethene (PCE)	cis-1,2-dichloroethene (cis-DCE)
trichloroethene (TCE)	1,1,1-trichloroethane (TCA)
1,1 dichloroethene	1,1-dichloroethane
vinyl chloride	

The contaminants of concern exceed the applicable SCGs for:

- groundwater
- soil
- 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 Decision Document.

The following IRMs have been completed at this site based on conditions observed during the RI:

Soil Vapor Intrusion (SVI) Investigation & Vapor Mitigation System (VMS)

Components of this completed IRM work include:

- On-site Soil Vapor Intrusion (SVI) investigation,

- Off-site SVI investigation, and
- Installation of an on-site Vapor Mitigation System (VMS).

Results from the on-site SVI investigation prompted the design and installation of a vapor mitigation system (to serve as an active sub-slab depressurization system and a vapor extraction system) to help mitigate exposure of building occupants to the contaminants of concern. The system covers two withdrawal areas (an eastern extraction area and a western extraction area) which include perforated horizontal pipes placed within a section of NYS-DOT type 2 stone fill located roughly 2 feet beneath the concrete slab. The system was activated on October 30, 2015 and was optimized to induce a vacuum radius of influence of 30 feet beneath the building. Two 600 pound type CSV activated carbon filters were initially used to treat extracted soil vapors prior to their exhaust above the roof line. Favorable data collected over the next two years of the system's operation allowed for revisions to the operational configuration. The Department issued a letter on March 20, 2017 allowing for the by-pass and disconnection of the carbon filters and associated equipment and a reduction in the frequency of system monitoring events. The VMS has continued to operate while bypassing these filters. A layout of the VMS and locations of the extraction wells can be seen in Figure 3 (attached).

Data from the off-site SVI investigation did not suggest any soil vapor impacts to the nearby residential properties, and no further actions were needed to address SVI off-site.

Source Area Excavation

Components of this completed IRM work include:

- Decommissioning of two groundwater monitoring wells located within the excavation area in accordance with Department Commissioner Policy 43 (CP-43).
- Removal of accessible contaminated soils within the delineated source area down to the top of bedrock for offsite disposal.
- Excavation of up to 2 feet into site bedrock for offsite disposal.
- Collection of excavation sidewall and bedrock core samples for laboratory analyses.
- Backfilling excavation with approved clean fill imported to the site.

In total, 1,045 tons of non-hazardous waste soil and 396 tons of hazardous waste soil was excavated and properly disposed of offsite. Endpoint sidewall sampling revealed residual contamination at levels exceeding applicable protection of groundwater SCOs at seven of the eight sampling locations. The sample collected near the northern edge of the building revealed trichloroethene concentrations at 220 parts per million (ppm), exceeding the applicable commercial soil cleanup objective. Work associated with this IRM was completed in October 2021. The extent of the excavation can be seen in the as-built drawing included as Figure 4 (attached).

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

RI Report presents a detailed discussion of any existing and potential impacts from the site to fish and wildlife receptors.

NATURE AND EXTENT OF CONTAMINATION: Soil and groundwater samples were collected and analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), and pesticides; groundwater was additionally sampled for poly- and perfluoroalkyl substances (PFAS). Soil vapor samples were analyzed for VOCs. Based upon investigations conducted to date, the primary contaminants of concern are chlorinated volatile organic compounds (cVOCs), including tetrachloroethene (PCE) and trichloroethene (TCE), and their associated degradation products, including cis-1,2-dichloroethene (cis-DCE).

Soil: Following completion of the source area excavation interim remedial measure (IRM) work, several cVOCs were detected above their applicable protection of groundwater soil cleanup objectives (PoG SCOs) including: TCE up to 17 parts per million (ppm) (PoG SCO of 1.3 ppm), TCE up to 220 ppm, cis-DCE up to 16 ppm (PoG SCO of 0.25 ppm), vinyl chloride up to 0.21 ppm (PoG SCO of 0.02 ppm), and 1,1,1-trichloroethane up to 3.2 ppm (PoG SCO of 0.68 ppm). TCE was the only contaminant observed at concentrations in exceedance of commercial soil cleanup objectives (COM SCOs) with a concentration of 220 ppm (COM SCO of 200 ppm). Sample results from other media indicate that a source area of higher contaminant concentrations may be present along/beneath the foundation of the building's north side. Sampling of soils along the northern foundation of the existing building revealed TCE concentrations at 220 ppm (commercial SCO of 200 ppm). Sampling from this location was limited due to the inability to access this area safely during excavation work.

Data does not indicate any off-site impacts in soil related to the site.

Groundwater: Several cVOCs continue to be detected in on-site groundwater at levels exceeding their respective ambient water quality standards (AWQS), including: 1,1-dichloroethane up to 85 parts per billion (ppb) (AWQS of 5 ppb), 1,1-dichloroethene up to 27 ppb (AWQS of 0.6 ppb), cis-DCE up to 8,200 ppb (AWQS of 5 ppb), TCE up to 210 ppb (AWQS of 5 ppb), and vinyl chloride up to 620 ppb (AWQS of 2 ppb). Several cVOCs have also been detected in off-site groundwater monitoring well MW-8S in exceedance of their respective AWQS, including: cis-DCE up to 6.2 ppb (AWQS of 5 ppb) and vinyl chloride up to 33 ppb (AWQS of 2 ppb).

For poly- and perfluoroalkyl substances (PFAS) in groundwater, perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) were reported at concentrations of up to 39.5 nanograms per liter (ng/L) or parts per trillion (ppt) and 66.8 ppt respectively, exceeding the 10 ppt screening levels for groundwater for each. No other individual PFAS exceeded the 100 ppt screening level. The total concentration of PFAS, including PFOA and PFOS, were reported at concentrations of up to 228.39 ppt, below the 500 ppt screening level for Total PFAS in groundwater.

Soil Vapor: Sub-slab vapor and indoor air samples were collected during the onsite soil vapor intrusion (SVI) investigation IRM work. Sub-slab vapor samples revealed concentrations of tetrachloroethene up to 12,000 ug/m^3, trichloroethene up to 47,000 ug/m^3, cis-DCE up to 7,800

ug/m^3, and 1,1,1-trichloroethane up to 2,080 ug/m^3. Concentrations of contaminants within indoor air samples included: tetrachloroethene (PCE) up to 1,900 ug/m^3 and TCE up to 1,300 ug/m^3. These levels were above applicable NYSDOH air guideline values for PCE (30 ug/m^3) and TCE (2 ug/m^3) and immediate actions were taken to reduce the levels. The IRM effectively addressed the potential for exposure associated with SVI.

Data from the off-site SVI investigation did not suggest any soil vapor impacts to the nearby residential properties, and no further actions were needed to address SVI off-site.

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 contaminants in the soil is unlikely because the majority of 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 the groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. The on-site sub-slab depressurization system is currently preventing soil vapor intrusion in the on-site building. Sampling indicates that soil vapor intrusion is not a concern for off-site buildings.

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.
- Prevent the discharge of contaminants to surface water.
- 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.
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

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: ELEMENTS OF THE SELECTED REMEDY

The remedy has been selected to address the residual contamination at the site following the completion of the IRM work. The in-situ treatment is viewed as a final necessary action to be performed in conjunction with the other components of the final remedy in order to achieve the remedial action objectives identified for the site. This remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation and 6 NYCRR Part 375. The relevant data following the source removal IRM work and locations targeted by the remedy can be viewed in Figure 5 (attached).

The selected remedy is a Track 4: Restricted use with site-specific soil cleanup objectives remedy.

The selected remedy is referred to as the In-Situ Treatment of Impacted Media remedy and will also include continued operation and maintenance of the vapor mitigation system discussed above.

The elements of the selected remedy are as follows:

1. In-Situ Treatment of Impacted Media

In-situ, or in-place, treatment is used to address residual contamination impacts to soils and groundwater. The contamination at the site will tend to breakdown naturally, but this in-ground treatment process is used to improve on the natural conditions to help the contaminants breakdown more effectively.

In-situ enhanced biodegradation will be employed to treat contaminants that remain following the source removal interim remedial measure (IRM) work, in order to achieve the soil and groundwater remedial action objectives. The breakdown of contaminants will be enhanced by the

introduction of prescribed treatment materials into the subsurface via directional injections. These materials will promote the environmental conditions necessary for the degradation of target contaminants. Groundwater monitoring will be required up-gradient, down-gradient, and cross-gradient of the treatment zone to determine the effectiveness of the remedy. Surface water monitoring will also be required at the unnamed tributary located to the north of the site during remediation. Monitoring will be conducted for contaminants of concern and their degradation by-products.

2. Green Remediation

Green remediation principals and techniques will be implemented to the extent feasible in the 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 gas 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; 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.

3. Excavation And Backfill

Should future development/expansion of site buildings allow safe access to residual source material located underneath the current building foundation, then excavation and off-site disposal of contaminant source areas, including the following will be considered:

- Grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
- Soils which exceed the protection of groundwater soil cleanup objectives (PoG SCOs), as defined by 6 NYCRR Part 375-6.8 for those contaminants found in site groundwater above standards; and
- Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) and with Department pre-approval will be brought in to replace any excavated soil and to establish the designed grades at the site.

4. Cover System

A site cover will be required to allow for commercial use of the site in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is to be used it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but

are not necessarily limited to pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

5. Vapor Mitigation System

A vapor mitigation system (VMS) was installed and continues to operate for the existing building in accordance with an interim remedial measure. Adjustments to the existing VMS configuration and/or the operating or monitoring schedules may be made in the future with Department approval.

New buildings will need to be evaluated for soil vapor intrusion and the need for a vapor mitigation system.

6. **Monitoring Requirements**

During and following the in-situ treatment component of the remedy, ongoing monitoring of groundwater and the on-site VMS system will be required to evaluate the effectiveness of the remedy and to ensure protection of public health and the environment. Modifications to groundwater or VMS operations, schedules and monitoring frequency will be subject to Department approval.

7. 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 New York State Department of Health (NYSDOH); and
- require compliance with the Department approved Site Management Plan.

8. 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 Cover System discussed in paragraph 3 above and the Vapor Mitigation System discussed in paragraph 4 above.

This plan includes, but is not limited to:

• An Excavation Plan which details the provisions for management of future excavations in areas of residual contamination;

• description of the provisions of the environmental easement including any land use, and 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 exceed the applicable soil cleanup objectives (SCOs);
- A provision for the evaluation of the potential for soil vapor intrusion for any new 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 groundwater and soil vapor 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 existing and future buildings on the 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 the sub-slab depressurization system (a.k.a. the Vapor Mitigation System) 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.

The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.