Sterling Environmental Engineering, P.C.

REMEDIAL ACTION WORK PLAN

TROY BELTING AND SUPPLY COMPANY
70 COHOES ROAD, COLONIE, NEW YORK
BCP SITE # C401067

Prepared for:

Troy Belting and Supply Company
70 Cohoes Road
Watervliet, New York 12189

Prepared by:

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April 28, 2023

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CERTIFICATION

I, Andrew Millspaugh, certify that I am a New York State registered professional engineer and that this Remedial Action Work Plan was prepared in accordance with all applicable statutes and regulations and is in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Andrew M. Millspaugh, P.E.
NY PE 094708

Professional Seal:

LIST OF ACRONYMS

Acronym	Definition
amsl	above mean sea level
AST	aboveground storage tank
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
bgs	below ground surface
CAMP	Community Air Monitoring Plan
CFR	Code of Federal Regulations
CoC	contaminant of concern
cVOC	chlorinated volatile organic compounds
DER-10	Division of Environmental Remediation/Technical Guidance for Site Investigation and Remediation
ESA	Environmental Site Assessment
ESI	Environmental Site Investigation
FER	Final Engineering Report
IRM	Interim Remedial Measure
HASP	Health and Safety Plan
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PBS	Petroleum Bulk Storage
PCE	tetrachloroethene
RAO	remedial action objective
RAWP	Remedial Action Work Plan
RI	Remedial Investigation
ROD	Record of Decision
SCG	standards, criteria, and guidance
SCO	Soil Cleanup Objectives
SMP	Site Management Plan
TCE	trichloroethene
TOGS	Technical and Operational Guidance Series
UST	underground storage tank
VMS	vapor mitigation system
VOC	volatile organic compound

1.0 INTRODUCTION AND PURPOSE

On behalf of Troy Belting and Supply Company (Troy Belting), Sterling Environmental Engineering, P.C. (STERLING) has prepared this Remedial Action Work Plan (RAWP) for Brownfield Cleanup Program (BCP) Site #C401067 located at 70 Cohoes Road (Tax Parcel I.D. # 20.20-1-4), Town of Colonie, Albany County, New York (hereinafter the "Site"). A location map is presented on Figure 1 and an aerial map of the Site and surrounding area is presented on Figure 2.

A Remedial Investigation (RI) was conducted to identify the nature and extent of contaminants of concern (CoC) consisting of chlorinated volatile organic compounds (cVOC) in onsite soil, groundwater, and soil vapor. The findings of the RI are documented in the RI Report dated May 22, 2019 that was approved by the New York State Department of Environmental Conservation (NYSDEC) by letter dated May 24, 2019. A summary of Site impacts is provided in Figure 3.

An interim remedial measure (IRM) was performed in 2021 in substantial conformance to the NYSDEC-approved IRM Work Plan dated November 21, 2019. The IRM was performed with the objective of removing accessible impacted soil exceeding standards to the bedrock surface within and surrounding the identified source area (see Figures 4 and 5). Following the completion of IRM Activities, residual contamination was observed extending beneath the onsite building at concentrations exceeding Commercial Use Soil Cleanup Objectives (SCO), and along the excavation area fringe at concentrations exceeding Protection of Groundwater (PoG) SCOs. This RAWP will address the residual site contamination.

This RAWP provides a summary of Site conditions, an alternatives analysis to address Site contamination, and recommendation of a preferred remedial alternative in accordance with the NYSDEC Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10).

1.1 Project Description

Environmental assessments and an RI were conducted at the Site between 2011 and early 2018 in support of a planned expansion of the existing Site building to the north. Site groundwater monitoring indicates the presence of cVOCs to the north of the Site building that have migrated towards the east and northeast as shown on Figure 3. Based upon early investigative findings, Troy Belting submitted an application to the NYSDEC BCP in 2013 as a participant. The Site was accepted into the BCP and is identified as Site #C401067. The Brownfield Cleanup Agreement (BCA) between Troy Belting and the NYSDEC was signed on July 12, 2013 and an RI Work Plan was prepared by STERLING to determine the nature and extent of contamination at the Site and surrounding area. The RI was performed from 2014 to 2015 and supplemented in 2018.

A soil vapor intrusion (SVI) investigation was completed for the onsite building and nearby offsite structures in 2014. The purpose of the SVI investigation was to characterize the sub-slab vapor / indoor air and determine whether additional actions are necessary to address the subject vapors. The results of the onsite SVI investigation demonstrated the need to install an active vapor mitigation system (VMS) for the onsite building. A VMS was installed in October 2015 in accordance with the NYSDEC-approved VMS Pilot Test Results and Design Report dated June 1, 2015. The VMS currently remains in operation in accordance with the Operations, Monitoring, and Maintenance Plan Addendum #2 dated January 28, 2020. The results of the offsite SVI investigation demonstrated that no further action, such as monitoring or mitigation, was warranted at offsite buildings.

An IRM was performed in 2021 with the objective of removing accessible impacted soil exceeding standards to the bedrock surface within and surrounding the identified source area. Following the completion of IRM Activities, residual contamination was observed extending beneath the onsite building at concentrations exceeding Commercial Use SCO, and along the excavation area fringe at concentrations exceeding PoG SCOs.

Troy Belting currently intends to expand the existing building to create additional operating space to provide additional services and remain competitive. The planned expansion will be constructed north of the existing facility after remediation is completed and will include the following elements.

- Site grading and drainage improvements.
- An SVI investigation to evaluate the need for a vapor mitigation system (VMS) for the expanded building area.
- Construction of a new concrete slab-on-grade building foundation with vapor barrier and/or sub-slab depressurization system directly north of the existing building.
- Paving areas beyond the building expansion.

2.0 SITE CONDITIONS

2.1 Site Description

The Site is located approximately 1.2 miles north of the City of Watervliet on an Industrial zoned parcel and has the following surrounding area as shown on Figure 2:

- To the north: an unnamed tributary to the Mohawk River and residential properties.
- To the east: Cohoes Road and residential properties.
- To the south: Elm Street and residential properties.
- To the west: Commercial and industrial properties.

The Site totals approximately 2.4 acres and includes one building (25,000 square feet) that previously contained a degreaser unit and a varnish underground storage tank (UST). An aboveground storage tank (AST) is present that stores waste oil to supplement the natural gas heating system. The Site is a registered Petroleum Bulk Storage (PBS) facility identified as site 4-601456.

Troy Belting has operated on the Site as an electric motor repair facility since 1965 when the first building was constructed. Motor repairs include cleaning motor parts with solvents, that historically included tetrachloroethene (PCE) and trichloroethene (TCE), although these chlorinated solvents have not been used for decades except in small quantities from spray cans. The depth to shale bedrock ranges from 4 to 8.5 feet below ground surface (bgs). Overburden soils consist of sand, gravel, sandy clay, and gravelly clay. Groundwater flow occurs primarily in bedrock to the east / east-northeast.

The Site is served with all major public and private utilities, including potable water, sanitary sewer, electric, and natural gas. Groundwater at the Site is assigned Class “GA” as defined by 6 NYCRR Part 701.15. Currently, there are no known deed restrictions on the use of groundwater at the Site, and there are no groundwater supply wells on the property. Groundwater has not been developed for industrial, agriculture, or public supply purposes at or in the vicinity of the Site. Municipal potable water service is provided to the Site and surrounding area by the Maplewood Water District with water distribution by the Village of Green Island (Community Water Supply System ID#: NY0100195).

2.1.1 Land Use

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 NYSDEC's view that Commercial Use SCOs are achievable with application of the selected remedy.

2.1.2 Topography

The Site topography is primarily flat at an elevation of approximately 30 feet above mean sea level (amsl). Gentle slopes occur to the northeast and southeast. The ground surface is covered with a gravel and asphalt parking lot north and south of the existing Site building. A landscaped lawn covers remaining ground surface not covered by the existing Site building or parking lot. The surrounding topography located within one-half mile to the north, south, and east is relatively flat at an elevation between 30 to 50 feet amsl. The area located within one-half mile to the west is at an elevation of approximately 200 feet amsl and slopes east towards the Site.

2.1.3 Surface Water, Wetlands, and Floodplains

A man-made drainage feature is located along the north property line and a portion of the west property line. This feature is a replacement for the former unnamed brook that historically bisected the Site prior to construction of the existing building. Stormwater runoff that enters the drainage feature is directed to the unnamed Class D tributary of the 4.1 square mile Salt Kill watershed located east of Cohoes Road. The Salt Kill discharges into the Fifth Branch of the Mohawk River near Dyke Avenue in the City of Cohoes, which is approximately ¾-mile northeast of the Site. Catch basins located within the southern parking lot near Elm Street and west of Cohoes Road near the northeastern corner of the Site collect stormwater into storm sewers. Precipitation that does not become stormwater runoff enters the subsurface via infiltration within landscaped areas. Shallow bedrock groundwater flow is affected by the existing drainage collection system and former brook, as well as underground utility lines and the building foundation.

Federal and State regulated wetlands (Wetland No. TN-6) are located approximately 1,500 feet northeast of the Site.

The Site is not located within the 100-year floodplain. The northern portion of the Site beyond the existing Site building is located within the 500-year floodplain.

2.1.4 Geology and Hydrogeology

Contaminant mobility is dependent on the Site geological and hydrogeological conditions. These conditions are taken into consideration when developing and evaluating remedial alternatives.

Native overburden soils consist of recent channery silt loam till alluvium. Bedrock is encountered at 4 to 8.5 feet bgs and is a highly fractured shale with a weathered surface ranging from 0.1 to 1.5 feet in thickness. The top of bedrock surface elevation slopes towards the former brook.

Shallow Zone bedrock groundwater flow in the central and southern portion of the Site is consistently to the east towards Cohoes Road. Groundwater flow in the northeastern portion of the Site is to the east-southeast towards the former brook. Sediment and surface water sampling of the unnamed tributary was performed in October 2014 with supplemental sampling in September 2018. The former brook may act as a preferential groundwater flow path, and the confluence of the former brook and the unnamed tributary may represent a local groundwater discharge feature, but the tributary sediment and surface water sampling results do not indicate impacts from the Site's contaminants of concern. The groundwater flow

direction in the onsite Deep Zone is towards the east / southeast at locations north of the former brook and to the east / northeast at locations south of the former brook. Upward vertical gradients were observed in well pairs from the Deep Zone to the Shallow Zone, except at upgradient well pair MW-1/MW-1D, likely reflecting the higher permeability of the Shallow Zone compared to the Deep Zone and an upward groundwater flow regime.

Information obtained from the NYSDEC Environmental Resource Mapper indicates the Site is not located over, or immediately adjoining, a primary, principal, or sole source aquifer. No sand or gravel water-bearing units were encountered in the soil borings drilled at the Site.

2.2 Primary Contaminants of Concern (CoC)

Based on RI findings, the following primary contaminants of concern were identified:

- **Soil:** Chlorinated Solvents 1,1,1-Trichloroethane (1,1,1-TCA), cis-1,2-Dichloroethene (cis-1,2-DCE), PCE, TCE, and Vinyl Chloride (VC)
- **Groundwater:** 1,1,1-TCA, 1,1-Dichloroethane (1,1-DCA), 1,1-Dichloroethene (1,1-DCE), cis-1,2-DCE, PCE, TCE, and VC
- **Soil Vapor:** 1,1,1-TCA, cis-1,2-DCE, PCE, TCE, and VC

2.3 Areas of Concern

As shown in Figures 4 and 5, accessible impacted soil was excavated for offsite disposal during the 2021 IRM. Following the completion of IRM Activities, residual contamination was observed extending beneath the onsite building at concentrations exceeding Commercial Use SCO, and along the excavation area fringe at concentrations exceeding PoG SCOs (see Table 2). Sidewall sample IRM-SW-SC-6.5' along the existing building foundation exceeded Commercial SCOs for TCE only. All sidewall samples, along the excavation fringe, except sample IRM-SW-E-5.5', exceeded PoG SCOs for select cVOCs. Contamination was observed in the off-site groundwater monitoring well, MW-8S, in exceedance of respective ambient water quality standards (AWQS). This RAWP will address the residual site contamination to improve groundwater quality. Groundwater conditions will continue to be monitored under site management to evaluate the overall effectiveness of the remedy.

3.0 SUMMARY OF SITE CONDITIONS

Based on findings from previous investigations, NYSDEC, in consultation with NYSDOH, has determined that the site poses a significant threat to public health and the environment. This decision is based on the nature of the existing contaminants identified at the Site, the potential for off-site migration of contaminants in the groundwater, and the potential for human exposure to site-related contaminants via soil vapors.

3.1 Previous Investigations

The following site assessments and investigations have been performed:

- August 12, 2011 Phase I Environmental Site Assessment (ESA) prepared by HRP Associates, Inc.
- September 28, 2011 Phase II ESA prepared by RJS Environmental.
- September 20, 2012 Supplemental Phase II Environmental Site Investigation (ESI) prepared by STERLING.

- February 8, 2013 Supplemental Phase II ESI prepared by STERLING.
- May 22, 2019 Remedial Investigation Report prepared by STERLING.

Each of these reports are available at the Site's Document Repository, the William K. Sanford Town Library, 629 Albany Shaker Road, Loudonville, New York, either as a stand-alone report, or as an attachment to one of the more comprehensive reports listed above.

3.2 Previous Remedial Actions

The following remedial actions have been performed:

- An IRM was performed in accordance with the April 9, 2014 IRM Work Plan for Test Pitting and SVI Investigation of Commercial Building to investigate the suspected source area. The objective of the IRM was to investigate the suspected Source Area and to address the apparent pathway for the intrusion of VOCs at the onsite industrial building. Based upon results of the IRM, active mitigation was recommended for the onsite building in the July 9, 2014 Sub-Slab Depressurization System Design Report.
- A VMS was installed in October 2015 adjacent the source area per the NYSDEC approved VMS Pilot Test Results and Design Report, dated April 28, 2015, and revised June 1, 2015. The purpose of the VMS is to remove CoCs in sub-slab soil vapor to prevent infiltration of CoCs into the indoor air within the occupied building. The VMS consists of a blower fan and piping to draw vapors from beneath the concrete slab, creating a negative vacuum beneath the slab, and discharging the vapors to the building's exterior above the roofline.
- A source area excavation IRM was performed in 2021 as documented in the August 24, 2022 Construction Completion Report. The IRM was performed with the objective of removing accessible impacted soil exceeding standards to the bedrock surface within and surrounding the identified source area. Approximately 1,442 tons of impacted soil was excavated for offsite disposal. The excavation was backfilled with clean imported fill.

4.0 REMEDIAL ACTION OBJECTIVES

Remedial Action Objectives (RAO) are specific objectives for the protection of public health and the environment. The RAOs are established to prevent and minimize contaminant exposure pathways and are developed based on specific Standards, Criteria, and Guidance (SCG) to address contamination identified at the Site. The NYSDEC generic RAOs are as follows:

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 groundwater aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of groundwater contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

- Prevent inhalation exposure to contaminants volatilizing from soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater 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.

4.1 Standards, Criteria, and Guidance (SCG)

Table 1 summarizes SCGs for soil and groundwater that may be applicable or relevant and appropriate to the Site.

4.2 Chemical-Specific SCGs

Chemical-specific SCGs for soil include Soil Cleanup Objectives identified in 6 NYCRR 375-6.8 and further described in NYSDEC Soil Cleanup Guidance Policy (CP-51). Chemical-specific SCGs for groundwater include NYSDEC TOGS 1.1.1 AWQS and Guidance Values and Groundwater Effluent Limitations.

4.3 Location-Specific SCGs

In accordance with DER-10, the current, intended, and reasonably anticipated future use of the Site and surroundings were considered in developing Site-specific cleanup levels. Industrial Use SCOs would have been appropriate for the site, except for the NYSDEC's evaluation of the generally low levels of residual contamination at the site and the decision that Commercial SCOs are obtainable at this BCP Participant Site. Therefore, Commercial Use and PoG SCOs are applicable for this Site.

5.0 REMEDIAL TECHNOLOGY SCREENING PROCESS

In accordance with DER-10, an initial screening was performed to develop a list of potential remedial technologies applicable to Site conditions, contaminants, and contaminated media. Applicable technologies passing the initial screen are then formulated into remedial alternatives that undergo a detailed comparative analysis. Potential soil and groundwater remediation technologies are listed in Table 4. Troy Belting entered into the BCP program as a participant; therefore, the final remedy and site cleanup goals are selected by the NYSDEC.

5.1 General Response Actions

General Response Actions are broad non-technology specific categories to address site-specific contaminants and media. Identified actions are then further refined into potential remedial technologies for screening and development into remedial alternatives.

5.1.1 Soil

General Response Actions to address RAOs for shallow subsurface soils include the following:

- Institutional controls (e.g., Environmental Easement, site use restrictions)
- Engineering controls (e.g., perimeter fencing)

- Containment (e.g., surface cap)
- In-situ treatment (e.g., Thermal destruction, solidification/stabilization, chemical oxidation)
- Ex-situ treatment (e.g., Thermal destruction, solidification/stabilization, chemical oxidation)
- Removal and offsite disposal (e.g., excavation and landfill disposal)

5.1.2 Groundwater

General Response Actions to address the RAOs for groundwater include the following:

- Monitored natural attenuation
- Institutional controls (e.g., Environmental Easement, groundwater use restrictions)
- Containment (e.g., slurry wall)
- In-situ treatment (e.g., chemical injection)
- Ex-situ treatment (e.g., pump-and-treat)

5.1.3 Soil Vapor

General Response Actions to address the RAOs for soil vapor include the following:

- Active mitigation (e.g., VMS)
- Engineering controls (e.g., vapor barrier)
- Source area treatment (e.g., soil and groundwater remediation)

5.2 Identification and Screening of Technologies

The screening of remedial technology types and process options is based on effectiveness for remediating impacted soils, groundwater, and indoor air. Technologies considered for screening include: institutional/engineering controls, natural attenuation, containment, in-situ treatment, ex-situ treatment, vapor mitigation, and removal for offsite disposal.

5.2.1 Institutional / Engineering Controls

Institutional controls typically include use restrictions and an Environmental Easement to reduce the possibility of human exposure to contaminants. Fencing may be used as an engineering control to deter unauthorized access to impacted areas at the Site. Signs can be placed to warn of contaminated soil and advise utility and construction workers to notify NYSDEC prior to excavation. An Environmental Easement will provide notice to prospective owners that certain uses and/or development of the Site is restricted and may necessitate further remedial action in the event the property ownership is transferred in the future.

5.2.2 Natural Attenuation

Site COCs are susceptible to natural attenuation through biological processes; however, high concentrations of cVOCs in the source area will inhibit use of Natural Attenuation as a primary treatment technology. Natural Attenuation has proven effectiveness and is readily implementable but will only be considered further in combination with other technologies to decrease contaminant concentrations.

5.2.3 Containment

Containment measures limit exposure and potential migration of contamination by placing protective barriers over or around the areas of contamination. Protective barriers over areas of contamination consist of materials designed to achieve containment to eliminate exposure and are generally known as capping. Capping of contaminated soils in place minimizes direct contact by creating a physical barrier between the contaminated soil and receptors. The 2021 IRM resulted in soil excavation and backfill with clean soil as shown in Figures 4 and 5. Following the completion of IRM activities, the residual contamination with the highest concentration is located beneath the existing building that serves as a protective cover for that contamination. Therefore, additional soil cover is not considered further.

Containment measures may be implemented to limit contaminant migration in groundwater. These barriers include low permeability slurry walls and vertical cutoff walls (e.g., sheet pile). Due to shallow depth to bedrock and low transmissivity of bedrock groundwater, these containment barriers are not expected to be effective and are not readily implementable. Further, groundwater monitoring data indicate that the groundwater plume is generally stable and not migrating offsite. Therefore, groundwater containment methods are not considered further.

5.2.4 In-Situ Treatment

In-situ treatment technologies include biological, thermal, and physical/chemical treatment processes. These processes involve treating the contaminant mass in place to reduce concentrations or mobility and are specifically designed for site conditions. In-situ treatment can address both soil and groundwater impacts. Applicable in-situ treatment technologies include thermal treatment, solidification/stabilization, permeable reactive barriers, and chemical/biological treatment.

Thermal treatment requires substantial infrastructure and electrical power to heat soil to volatilize, collect, and treat contaminants. The shallow depth to bedrock and impacts in bedrock groundwater are not conducive to thermal treatment. Therefore, thermal treatment is not considered further.

Solidification/stabilization involves physically binding contaminants in a soil-cement mixture preventing contact with groundwater and decreasing the potential for further leaching and mobility. The shallow depth to bedrock and impacts in bedrock groundwater and beneath the existing building are not conducive to solidification/stabilization. Therefore, solidification/stabilization is not considered further.

Permeable reactive barriers are constructed similar to slurry cutoff walls except the barrier media is designed to allow contaminated groundwater to permeate through the barrier for treatment. The most common configuration is a continuous trench perpendicular to groundwater flow that is backfilled with reactive treatment media, such as zero valent iron. Due to the groundwater impacts occurring in bedrock, this technology is not implementable and therefore not considered further.

Chemical and biological treatment involves application of chemicals through injection into subsurface soil and groundwater. No external infrastructure or electrical sources are required, and the chemicals will immediately treat contaminants following application. Chlorinated VOCs are amenable to chemical and biological treatment and this technology is readily implementable. This technology is retained for further consideration in developing remedial alternatives.

5.2.5 Ex-Situ Treatment

Ex-situ treatment is applicable to contaminated groundwater and includes pump-and-treat technologies where contaminated groundwater is extracted from the Site, treated in an aboveground treatment system,

and either reinjected to groundwater, discharged to surface water, or discharged to a publicly owned treatment works. This technology requires substantial infrastructure, electrical power, and long-term operation and maintenance. Further, the low transmissivity bedrock is not conducive to groundwater extraction. Therefore, groundwater pump-and-treat is not considered further.

5.2.6 Removal for Offsite Disposal

Currently, residual contamination with the highest concentration extends beneath the existing onsite building. Should further development and/or 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 will be considered.

5.2.7 Vapor Mitigation

A VMS was installed for the existing building and began operation on October 30, 2015 to mitigate potential exposure to indoor workers or visitors from potential vapor intrusion. This system has proven effective in removing soil vapor beneath the existing building and will continue to be operated as part of the remedial alternatives.

5.3 Development of Remedial Alternatives

Technologies passing the preliminary screen were combined to develop the following three remedial alternatives:

- Alternative 1: No Further Action
- Alternative 2: VMS Operation and Institutional Controls.
- Alternative 3: In-Situ Treatment of Impacted Soil and Groundwater, VMS Operation, and Institutional Controls.

The following table summarizes the technologies that compose each of the remedial alternatives:

Technology Description	Alternative No.		
	1	2	3
No Further Action	X		
VMS Operation		X	X
Institutional Controls		X	X
In-Situ Treatment of Impacted Soil and Groundwater			X

5.3.1 Alternative 1: No Further Action

The No Further 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. Contaminated soil remains in place and no groundwater treatment or monitoring is performed. This alternative may include institutional controls to minimize human contact with contaminated media, such as land use restrictions and signage to warn construction or utility workers to contact NYSDEC before excavating.

The existing building will continue to act as a cap preventing direct soil contact and diverting rainwater from underlying impacted soil. Nothing further is done to address the residual contamination at the fringe of the IRM excavation or groundwater contamination.

5.3.2 Alternative 2: VMS Operation and Institutional Controls

This alternative continues operation of the existing VMS and includes ongoing air and groundwater monitoring to assess mobility of contamination in soil vapor and groundwater. Institutional controls are imposed including deed restrictions to limit potential human exposure to contaminated soils and groundwater.

5.3.3 Alternative 3: In-Situ Treatment of Impacted Soil and Groundwater, VMS Operation, and Institutional Controls

This alternative includes the elements of Alternative 2 and treats residual soil and groundwater contamination through in-situ chemical injection using direct-push technology to promote accelerated de-chlorination by in-situ abiotic and biotic processes. The injection depths were selected to correspond to the sampling depths where residual contamination was observed following the Source Area Excavation IRM. Injections will be located to address residual soil contamination exceeding Commercial Use SCOs beneath the onsite building and exceeding PoG SCOs at the fringe of the source removal area excavation (See Figure 6). Injections will begin approximately 1 foot above the sample locations to ensure adequate coverage and contact of treatment media with residual contamination. The in-situ treatment is anticipated to begin reducing cVOC concentrations immediately upon injection. The injection chemistry is designed to promote microbial activity to enhance long-term degradation.

Reductive de-chlorination is achieved by a combination of abiotic and biotic processes incorporating zero valent iron particles, nutrients, and hydrogen sources for accelerated biological mineralization. The concentration of iron and organic hydrogen donors is based on the concentrations of contaminants measured in groundwater.

Reduction of dissolved phase cVOCs will occur by producing hydrogen for microbial mineralization processes through the introduction of 1 to 3-micron zero valent iron colloidal suspension. No wastes will be generated during the injection process. A proposed scope of work by Innovative Environmental Technologies, Inc. (IET) included in Appendix A provides greater details regarding the theory and rationale for the proposed remediation, including discussion of the equipment, methods, and techniques of application.

Contamination was observed in the off-site groundwater monitoring well, MW-8S, in exceedance of respective AWQS; therefore, groundwater conditions at this location will continue to be monitored during and after the completion of the in-situ component of the remedy in order to evaluate its overall effectiveness. The long-term monitoring requirements of this remedy will include, at a minimum, the monitoring of groundwater and the VMS performance during and after the implementation of the final remedy. The existing VMS will continue to operate during and after the in-situ injection to prevent vapor intrusion at the existing building. Monitoring requirements to be completed after the in-situ injections will be documented in a Site Management Plan (SMP).

Modifications to groundwater or VMS operations, schedules and monitoring frequency documented in the SMP will be subject to NYSDEC approval. In addition, the monitoring of surface water within the unnamed tributary located to the north of the Site will be required, at least at the onset of the in-situ treatment. Should further development and/or 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 will be considered.

6.0 DETAILED EVALUATION OF ALTERNATIVES

This section presents an evaluation of the remedial alternatives to identify advantages and disadvantages and evaluate the extent that each alternative meets the remedial objectives. Each alternative was evaluated against the following criteria set forth in 6 NYCRR §375-1.8(f):

- Overall Protectiveness of Public Health and the Environment
- Compliance with SCGs
- Long-Term Effectiveness and Permanence
- Reduction of Toxicity, Mobility, and Volume through Treatment
- Short-Term Impact and Effectiveness
- Implementability
- Cost Effectiveness
- Land Use

Community and NYSDEC acceptance are also considered through the receipt and review of public comments.

6.1 Individual Analysis of Alternatives

6.1.1 Alternative 1: No Further Action

Overall Protectiveness of Public Health and the Environment. Alternative 1 is the least protective of human health and the environment. Institutional controls (e.g., land use restrictions) will decrease the likelihood of human exposure, but all contaminated media will remain with no measures to treat, remove, or otherwise decrease contaminant levels. Exposure routes will remain for onsite workers by inhalation of impacted soil vapor or direct contact with subsurface impacted soil during ground disturbance activities.

Compliance with SCGs. Chemical-Specific SCGs and Site-specific cleanup levels will not be achieved for soil or groundwater.

Long-Term Effectiveness and Permanence. Alternative 1 does not provide long-term effectiveness and permanence because existing contaminated media will remain with no measures to treat, remove, or otherwise decrease contaminant levels.

Reduction of Toxicity, Mobility, and Volume Through Treatment. Alternative 1 will not result in a reduction of toxicity, mobility, or volume of contamination because no measures are implemented to treat, remove, or otherwise decrease contaminant levels.

Short-Term Impact and Effectiveness. Alternative 1 has no short-term impact and does not provide short-term effectiveness.

Implementability. Alternative 1 is readily implementable.

Cost Effectiveness. Estimated capital costs for Alternative 1 are presented in Table 5.

Land Use. Alternative 1 does not alter the current land use of the Site, although restrictions on future use may be applied through institutional controls.

6.1.2 Alternative 2: VMS Operation and Institutional Controls

Overall Protectiveness of Public Health and the Environment: Alternative 2 is more protective of human health and the environment than Alternative 1. Institutional controls (e.g., land use restrictions) will decrease the likelihood of human exposure, but contaminated soil and groundwater will remain. Contaminants will continue to be removed through soil gas and operation of the VMS. Exposure routes will remain for onsite workers that excavate impacted soil by inhalation of impacted soil vapor or direct contact with subsurface impacted soil during ground disturbance activities.

Compliance with SCGs: Chemical-Specific SCGs and Site-specific cleanup levels will not be achieved for soil or groundwater.

Long-Term Effectiveness and Permanence: Alternative 2 does not provide long-term effectiveness and permanence because existing contaminated soil and groundwater will remain with only contaminant removal through soil vapor and the VMS. The VMS for the existing building may need to operate for the life of the building to mitigate potential vapor intrusion. The COC concentrations in groundwater are expected to persist without remediation of residual impacts in soil and groundwater.

Reduction of Toxicity, Mobility, and Volume Through Treatment: Alternative 2 will result in a gradual reduction of toxicity, mobility, or volume of contamination by continued operation of the VMS.

Short-Term Impact and Effectiveness: Alternative 2 has minimal short-term impact and does not provide short-term effectiveness for reducing contaminant concentrations in soil and groundwater.

Implementability: Alternative 2 is readily implementable.

Cost Effectiveness: Estimated capital costs for Alternative 2 are presented in Table 6.

Land Use: Alternative 2 does not alter the current land use of the Site, although restrictions on future use may be applied through institutional controls.

6.1.3 Alternative 3: In-Situ Treatment of Impacted Soil and Groundwater, VMS Operation, and Institutional Controls

Overall Protectiveness of Public Health and the Environment: Alternative 3 is protective of public health and the environment through in-situ treatment of residual impacted soil and shallow zone bedrock groundwater. This alternative eliminates potential transport of contaminants by chemically treating contaminants and promoting biological degradation. Residual contamination was identified within the "deep" and "deeper" groundwater zones. Conditions at these locations will be closely monitored during and after the implementation of the remedy subject to the SMP. If natural attenuation is not observed following shallow-zone injections in these areas (specifically MW-6D and MW-6D'), these areas may need to be targeted for active remediation. The potential for short-term exposure to impacted soil by onsite workers and remediation personnel via ingestion and inhalation of airborne dust and emissions during construction is mitigated by use of personal protective equipment and adherence to a Health and Safety Plan.

Compliance with SCGs: Alternative 3 is expected to achieve chemical- and location-specific SCGs by reducing contaminant concentrations through chemical treatment and biological degradation.

Long-Term Effectiveness and Permanence: Alternative 3 provides long-term effectiveness and permanence by chemically treating contaminants to reduce concentrations and promoting continued biological degradation.

Reduction of Toxicity, Mobility and Volume Through Treatment: Alternative 3 will reduce the contaminant mass through chemical treatment and biological degradation. Decreased concentrations and contaminant mass will also reduce chemical toxicity and mobility.

Short-Term Impact and Effectiveness: Alternative 3 will have minimal short term impact during remediation construction through the use of direct push injection points. Alternative 3 is effective because the chemical treatment destroys contaminants through a permanent chemical reaction. Treatment is expected to begin immediately upon injection and to continue over the ensuing months through biological degradation.

Implementability: Alternative 3 is readily implementable. The proposed scope of work estimates one day of construction to complete the injections.

Cost Effectiveness: Estimated capital costs for Alternative 3 are presented in Table 7.

Land Use: Alternative 3 does not alter the current land use of the Site, although restrictions on future use may be applied through institutional controls.

6.2 Comparative Analysis of Alternatives

Potential remedial alternatives are compared to criteria defined in 6 NYCRR Part 375. The first two evaluation criteria are termed "threshold criteria" and must be satisfied for an alternative to be considered for selection. A ranking summary of the alternative evaluation is provided in Table 8.

6.2.1 Overall Protectiveness of Public Health and the Environment

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

Alternatives 1 and 2 are not protective to public health and the environment and will not be evaluated further. Alternative 3 is protective by treating residual contaminated soil and groundwater; therefore, Alternative 3 will be the preferred alternative if it satisfies the remaining threshold criteria.

6.2.2 Compliance with SCGs

Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria.

Alternative 3 complies with SCGs because residual soil and groundwater contamination will be chemically and biologically treated to reduce concentrations. Alternative 3 meets this threshold criterion and remains under consideration.

The next seven (7) "primary balancing criteria" are used to compare the different advantages of each remedial alternative. Alternative 3 is the only alternative that remains under consideration; therefore, the balancing criteria will be used to assess its expected performance.

6.2.3 Long-Term Effectiveness and Permanence

This criterion evaluates the long-term effectiveness after implementation. If wastes or treated residuals remain onsite 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 3 will have long-term effectiveness through continued biological degradation. As indicated in the proposed scope of work, the chemical injection will include constituents to promote ongoing biological degradation of COCs. Institutional controls will prevent the use of groundwater, and the existing building and VMS will mitigate potential exposure to residual impacts while ongoing degradation occurs. Long-term risk from residual material is anticipated to be small through implementation of institutional controls and the VMS.

6.2.4 Reduction of Toxicity, Mobility and Volume Through Treatment

For this criterion, preference is given to alternatives that permanently and significantly reduce the toxicity, mobility and volume of the contamination at the Site.

Alternative 3 will reduce the toxicity, mobility, and volume of contamination through in-situ chemical treatment and ongoing biological degradation.

6.2.5 Short-Term Impact and Effectiveness

This criterion evaluates potential short-term impacts on the community, workers, and the environment during remedial construction. The length of time needed to achieve RAOs is also estimated and compared against the other alternatives.

Alternative 3 is expected to have small short-term impact due to the use of direct-push injection equipment that completes the injections using a small diameter injection probe that is pushed directly into the soil. Community air monitoring will be performed during injections to ensure remedial activities are protective to the surrounding community.

For effectiveness, Alternative 3 is expected to begin treating residual contamination immediately upon injection. Ongoing treatment is expected to continue for months following injection through biological degradation.

6.2.6 Implementability

This criterion evaluates the technical and administrative feasibility to implement each remedial alternative. Technical feasibility includes difficulties associated with the implementation of the remedy and the ability to monitor its effectiveness. Administrative feasibility includes the availability of the necessary personnel and materials along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, etc.

Alternative 3 is readily implementable using standard construction equipment. As indicated in the proposed scope of work, the injections are expected to be completed in two days of construction. Subject to the SMP, on-going post-injection groundwater monitoring will track remedial progress of reducing contamination.

6.2.7 Cost Effectiveness

Tables 5 through 7 provide a detailed cost estimate for each alternative. A summary is presented in the table below:

Cost Comparison of Alternatives

Costs	Alternative		
	1	**2**	**3**
Capital Cost	$0	$0	$56,200
Annual Costs	$3,000	$63,700	$63,700
Total 5 YR Present Worth	$12,400	$261,200	$317,400
Total 5 YR Cost	**$15,000**	**$318,500**	**$374,700**

Capital costs and annual operation, maintenance, and monitoring costs are estimated for each remedial alternative and compared on a present worth basis. The cost-effectiveness balancing criteria can be used as the basis for the final decision where two or more alternatives have met the requirements of the other criteria.

6.2.8 Land Use

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 NYSDEC's view that Commercial Use SCOs are achievable with the application of the selected remedy.

6.2.9 Community Acceptance

Community concerns regarding selection of a remedial alternative will be considered. If the selected remedy differs significantly from the proposed remedy, public notices will be issued describing the differences and reasons for the changes.

6.3 Preferred Remedial Alternative

A summary of subjective ranking and evaluation of remedial alternatives is provided in Table 8. To be selected, the remedy must be protective of human health and the environment, be cost-effective, comply with statutory requirements, and use permanent solutions, alternative technologies, or resource recovery technologies to the maximum extent practicable. The remedy must also attain the Site RAOs.

Troy Belting is proposing Alternative 3 as the Site remedy (see Figure 6) because it satisfies the threshold criteria and provides the best balance of the evaluation criterion. Alternative 3 will achieve Site RAOs by treating identified residual contamination in soil and groundwater. The potential for vapor intrusion will be reduced through contaminant reduction and will continue to be addressed by operating the existing VMS.

Cost information is presented as 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. A timeframe of 5 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 5 years if remediation goals are not achieved. This allows the costs of remedial alternatives to be compared on a common basis. Actual remedial costs may vary from the cost estimates provided herein.

7.0 REMEDIAL APPROACH

A proposed Remedial Approach has been prepared based on the preferred alternative that provides detailed descriptions for implementation. A copy of the proposed Remedial Approach is included in Appendix A that includes a description of injection locations, chemical reagents, and dosage calculations.

A Track 4 cleanup is proposed for site remediation based on the NYSDEC-selected remedial target of commercial use. The preferred alternative will target identified residual soil contamination that extends beneath the existing building and around the fringe of the source removal area, which may be contributing to groundwater impacts.

7.1 General Description of Remedial Activity

The preferred alternative will be implemented as described in Appendix A and shown on Figure 6. Construction will include the following activities:

- Implementing a Community Air Monitoring Program.
- Performing three (3) chemical injections directly north of the existing onsite building as shown on Figure 6. The injections will extend to the bedrock interface and target an injection zone of 5 to 8 ft below ground surface. These injections will be directionally angled to extend under the building foundation to target residual contamination exceeding Commercial Use SCOs and to minimize injection into clean backfill from the 2021 Source Area Excavation IRM.
- Performing three (3) chemical injections within the existing building and through the floor slab as shown on Figure 6. The injections will extend to the bedrock interface and target an injection zone of 5 to 8 ft below ground surface to target residual contamination beneath the onsite building.
- Performing six (6) chemical injections along the fringe of the source area removal excavation to target residual contamination exceeding PoG SCOs. The injections will extend to the bedrock interface and target an injection zone of 5 to 8 ft below ground surface to target residual contamination around the excavation fringe of the 2021 Source Area Excavation IRM.
- During the chemical injections and subsequent groundwater monitoring events, the unnamed tributary running along the northern property boundary will be monitored. If liquid is present within the tributary, surface water samples will be collected at two locations (near MW-7S and MW-4S) and tested for VOCs via USEPA Method 8260. Adjustments to this requirement are subject to NYSDEC review and approval.
- Sampling will be performed at 90 days, 180 days, 270 days, and 360 days after injections (see Appendix A). Groundwater monitoring will be performed at downgradient monitoring wells MW-4S, MW-6S, MW-6D, MW-6D', and MW-8S to assess the effectiveness of the remedy. Due to residual contamination identified within the "deep" (i.e., MW-6D) and "deeper" (MW-6D') groundwater zones, conditions at these locations will be closely monitored. If natural attenuation is not observed following shallow-zone injections in these areas (specifically MW-6D and MW-6D'), these areas may need to be targeted for active remediation.
- Continued operation of the VMS in accordance with the Operations, Monitoring, and Maintenance Plan Addendum #2 dated January 28, 2020 and subject to the SMP.
- Continued on-going groundwater monitoring in accordance with the NYSDEC-approved monitoring schedule and subject to the SMP.

7.2 Health and Safety Plan

A Health and Safety Plan (HASP) was prepared in accordance with 40 CFR 1910 and 1926. The Site HASP addresses general construction health and safety issues and potential health and safety concerns associated with exposure to airborne dust and site-specific COCs. The site-specific HASP is provided in Appendix B.

7.3 Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) was developed for the remediation project based on NYSDOH guidelines provided in NYSDEC DER-10. The CAMP will provide for real-time air monitoring at the upwind and downwind perimeter of the work area during active construction. The site-specific CAMP is provided in Appendix C.

7.4 Site Management Plan

An SMP will be developed to implement use restrictions and institutional controls for the Site groundwater in accordance with the BCA. The SMP will be prepared and submitted following construction in conjunction with a Final Engineering Report (FER) and in accordance with NYSDEC DER-10 requirements. The SMP will include provisions that future Site construction that creates additional habitable space must be assessed for vapor intrusion potential and include a vapor barrier and/or a VMS if the assessment indicates the potential exists for vapor intrusion.

8.0 IMPLEMENTATION SCHEDULE

The expected duration to perform the Remedial Action construction is approximately 1 week including 1 day of chemical injections.

8.1 Reporting

Written progress reports will be submitted to the NYSDEC on the 10th day of each month. An FER and SMP will be prepared and submitted to the NYSDEC at the conclusion of all activities required by this RAWP.

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TABLES

Soil Cleanup Objectives - 6 NYCRR Part 375-6.8
IRM Source Area Excavation
Troy Belting and Supply Company, 70 Cohoes Road, Colonie, New York

Analyte	Protection of Groundwater	Unrestricted	Residential	Restricted Residential	Commercial	Industrial
Volatile Organic Compounds, mg/kg						
1,1,1-Trichloroethane	0.68	0.68	100	100	500	1000
1,1-Dichloroethane	0.27	0.27	19	26	240	480
1,1-Dichloroethene	0.33	0.33	100	100	500	1000
1,2,4-Trimethylbenzene	3.6	3.6	47	52	190	380
1,2-Dichlorobenzene	1.1	1.1	100	100	500	1000
1,2-Dichloroethane	0.02	0.02	2.3	3.1	30	60
1,3,5-Trimethylbenzene	8.4	8.4	47	52	190	380
1,3-Dichlorobenzene	2.4	2.4	17	49	280	560
1,4-Dichlorobenzene	1.8	1.8	9.8	13	130	250
1,4-Dioxane	0.1	0.1	9.8	13	130	250
2-Butanone	0.12	0.12	100	100	500	1000
Acetone	0.05	0.05	100	100	500	1000
Benzene	0.06	0.06	2.9	4.8	44	89
Carbon tetrachloride	0.76	0.76	1.4	2.4	22	44
Chlorobenzene	1.1	1.1	100	100	500	1000
Chloroform	0.37	0.37	10	49	350	700
cis-1,2-Dichloroethene	0.25	0.25	59	100	500	1000
Ethylbenzene	1	1	30	41	390	780
Methyl tert butyl ether	0.93	0.93	62	100	500	1000
Methylene chloride	0.05	0.05	51	100	500	1000
n-Butylbenzene	12	12	100	100	500	1000
n-Propylbenzene	3.9	3.9	100	100	500	1000
o-Xylene	1.6	0.26	100	100	500	1000
p/m-Xylene	1.6	0.26	100	100	500	1000
sec-Butylbenzene	11	11	100	100	500	1000
tert-Butylbenzene	5.9	5.9	100	100	500	1000
Tetrachloroethene	1.3	1.3	5.5	19	150	300
Toluene	0.7	0.7	100	100	500	1000
trans-1,2-Dichloroethene	0.19	0.19	100	100	500	1000
Trichloroethene	0.47	0.47	10	21	200	400
Vinyl chloride	0.02	0.02	0.21	0.9	13	27
Semi-Volatile Organic Compounds, mg/kg						
2-Methylphenol	0.33	0.33	100	100	500	1000
3-Methylphenol/4-Methylphenol	0.33	0.33	34	100	500	1000
Acenaphthene	98	20	100	100	500	1000
Acenaphthylene	107	100	100	100	500	1000
Anthracene	1000	100	100	100	500	1000
Benzo(a)anthracene	1	1	1	1	5.6	11
Benzo(a)pyrene	22	1	1	1	1	1.1
Benzo(b)fluoranthene	1.7	1	1	1	5.6	11
Benzo(ghi)perylene	1000	100	100	100	500	1000
Benzo(k)fluoranthene	1.7	0.8	1	3.9	56	110
Chrysene	1	1	1	3.9	56	110
Dibenzo(a,h)anthracene	1000	0.33	0.33	0.33	0.56	1.1
Dibenzofuran	210	7	14	59	350	1000
Fluoranthene	1000	100	100	100	500	1000
Fluorene	386	30	100	100	500	1000
Hexachlorobenzene	3.2	0.33	0.33	1.2	6	12
Indeno(1,2,3-cd)pyrene	8.2	0.5	0.5	0.5	5.6	11
Naphthalene	12	12	100	100	500	1000
Pentachlorophenol	0.8	0.8	2.4	6.7	6.7	55
Phenanthrene	1000	100	100	100	500	1000
Phenol	0.33	0.33	100	100	500	1000
Pyrene	1000	100	100	100	500	1000

Soil Cleanup Objectives - 6 NYCRR Part 375-6.8
IRM Source Area Excavation
Troy Belting and Supply Company, 70 Cohoes Road, Colonie, New York

Analyte	Protection of Groundwater	Unrestricted	Residential	Restricted Residential	Commercial	Industrial
Chlorinated Herbicides, mg/kg						
2,4,5-TP (Silvex)	3.8	3.8	58	100	500	1000
Organochlorine Pesticides, mg/kg						
4,4'-DDD	14	0.0033	2.6	13	92	180
4,4'-DDE	17	0.0033	1.8	8.9	62	120
4,4'-DDT	136	0.0033	1.7	7.9	47	94
Aldrin	0.19	0.005	0.019	0.097	0.68	1.4
Alpha-BHC	0.02	0.02	0.097	0.48	3.4	6.8
Beta-BHC	0.09	0.036	0.072	0.36	3	14
cis-Chlordane	2.9	0.094	0.91	4.2	24	47
Delta-BHC	0.25	0.04	100	100	500	1000
Dieldrin	0.1	0.005	0.039	0.2	1.4	2.8
Endosulfan I	102	2.4	4.8	24	200	920
Endosulfan II	102	2.4	4.8	24	200	920
Endosulfan sulfate	1000	2.4	4.8	24	200	920
Endrin	0.06	0.014	2.2	11	89	410
Heptachlor	0.38	0.042	0.42	2.1	15	29
Lindane	0.1	0.1	0.28	1.3	9.2	23
Polychlorinated Biphenyls, mg/kg						
Aroclor 1016	3.2	0.1	1	1	1	25
Aroclor 1221	3.2	0.1	1	1	1	25
Aroclor 1232	3.2	0.1	1	1	1	25
Aroclor 1242	3.2	0.1	1	1	1	25
Aroclor 1248	3.2	0.1	1	1	1	25
Aroclor 1254	3.2	0.1	1	1	1	25
Aroclor 1260	3.2	0.1	1	1	1	25
Aroclor 1262	3.2	0.1	1	1	1	25
Aroclor 1268	3.2	0.1	1	1	1	25
PCBs, Total	3.2	0.1	1	1	1	25
General Chemistry, mg/kg						
Chromium, Trivalent	---	30	36	180	1500	6800
Chromium, Hexavalent	19	1	22	110	400	800
Cyanide, Total	40	27	27	27	27	10000
Solids, Total %	---	---	---	---	---	---
Total Metals, mg/kg						
Arsenic, Total	16	13	16	16	16	16
Barium, Total	820	350	350	400	400	10000
Beryllium, Total	47	7.2	14	72	590	2700
Cadmium, Total	7.5	2.5	2.5	4.3	9.3	60
Chromium, Total	---	---	---	---	---	---
Copper, Total	1720	50	270	270	270	10000
Lead, Total	450	63	400	400	1000	3900
Manganese, Total	2000	1600	2000	2000	10000	10000
Mercury, Total	0.73	0.18	0.81	0.81	2.8	5.7
Nickel, Total	130	30	140	310	310	10000
Selenium, Total	4	3.9	36	180	1500	6800
Silver, Total	8.3	2	36	180	1500	6800
Zinc, Total	2480	109	2200	10000	10000	10000

Table 1

Supplemental Soil Cleanup Objectives
(ppm)

Contaminant	CAS Number	Residential	Restricted Residential	Commercial	Industrial	Protection of Ecological Resources	Protection of Ground-water
METALS							
Aluminum	7429-90-5					10,000 [a,b]	
Antimony	7440–36-0					12[c]	
Boron	7440-42-8					0.5	
Calcium	7440-70-2					10,000 [a,b]	
Cobalt	7440-48-4	30				20	
Iron	7439-89-6	2,000					
Lithium	7439-93-2					2	
Molybdenum	7439-98-7					2	
Technetium	7440-26-8					0.2	
Thallium	7440-28-0					5 [c]	
Tin	7440-31-5					50	
Uranium	7440-61-1					5	
Vanadium	7440-62-2	100 [a]				39[b]	
PESTICIDES							
Biphenyl	92-52-4					60	
Chlordecone (Kepone)	143-50-0					0.06	
Dibenzofuran	132-64-9						6.2
2,4-D (2,4-Dichloro-phenoxyacetic acid)	94-75-7	100 [a]					0.5
Furan	110-00-9					600	
Gamma Chlordane	5103-74-2	0.54					14
Heptachlor Epoxide	1024-57-3	0.077					0.02
Methoxychlor	72-43-5	100 [a]				1.2	900

Contaminant	CAS Number	Residential	Restricted Residential	Commercial	Industrial	Protection of Ecological Resources	Protection of Ground-water
Parathion	56-38-2	100 [a]					1.2
2,4,5-T	93-76-5	100 [a]					1.9
2,3,7,8-TCDD	1746-01-6					0.000001	
2,3,7,8-TCDF	51207-31-9					0.000001	
SEMIVOLATILE ORGANIC COMPOUNDS							
Aniline	62-53-3	48	100[a]	500[a]	1000[a]		0.33[b]
Bis(2-ethylhexyl) phthalate	117-81-7	50				239	435
Benzoic Acid	65-85-0	100[a]					2.7
Butylbenzyl-phthalate	85-68-7	100 [a]					122
4-Chloroaniline	106-47-8	100 [a]					0.22
Chloroethane	75-00-3						1.9
2-Chlorophenol	95-57-8	100 [a]				0.8	
3-Chloroaniline	108-42-9					20	
3-Chlorophenol	108-43-0					7	
Di-n-butyl-phthalate	84-74-2	100 [a]				0.014	8.1
2,4-Dichlorophenol	120-83-2	100 [a]				20	0.40
3,4-Dichlorophenol	95-77-2					20	
Diethylphthalate	84-66-2	100 [a]				100	7.1
Di-*n*-hexyl-phthalate	84-75-3					0.91	
2,4-Dinitrophenol	51-28-5	100 [a]				20	0.2
Dimethylphthlate	131-11-3	100 [a]				200	27
Di-n-octylphthlate	117-84-0	100 [a]					120
1,2,3,6,7,8-HCDF	57117-44-9					0.00021	
Hexachloro-benzene	118-74-1	0.41					1.4
2,6-Dinitrotoluene	606-20-2	1.03					1.0
Isophorone	78-59-1	100 [a]					4.4

Contaminant	CAS Number	Residential	Restricted Residential	Commercial	Industrial	Protection of Ecological Resources	Protection of Ground-water
4-methyl-2-pentanone	108-10-1						1.0
2-methyl-naphthalene	91-57-6	0.41					36.4
2-Nitroaniline	88-74-4						0.4
3-Nitroaniline	99-09-2						0.5
Nitrobenzene	98-95-3	3.7	15	69	140	40	0.17[b]
2-Nitrophenol	88-75-5					7	0.3
4-Nitrophenol	100-02-7					7	0.1
Pentachloroaniline	527-20-8					100	
2,3,5,6-Tetrachloroaniline	3481-20-7					20	
2,3,4,5-Tetrachlorophenol	4901-51-3					20	
2,4,5-Trichloroaniline	636-30-6					20	
2,4,5-Trichlorophenol	95-95-4	100 [a]				4	0.1
2,4,6-Trichlorophenol	88-06-2					10	
VOLATILE ORGANIC COMPOUNDS							
2-Butanone	78-93-3	100 [a]					0.3
Carbon Disulfide	75-15-0	100 [a]					2.7
Chloroacetamide	79-07-2					2	
Dibromochloro-methane	124-48-1					10	
2,4-Dichloro aniline	554-00-7					100	
3,4-Dichloroaniline	95-76-1					20	
1,2-Dichloropropane	78-87-5					700	
1,3-Dichloropropane	142-28-9						0.3
2,6-Dinitrotoluene	606-20-2	1.03					0.17[b]
Ethylacetate	141-78-6					48	

Contaminant	CAS Number	Residential	Restricted Residential	Commercial	Industrial	Protection of Ecological Resources	Protection of Ground-water
4-methyl-2-pentanone	108-10-1						1.0
113 Freon (1,1,2- TFE)	76-13-1	100 [a]					6
isopropylbenzene	98-82-8	100 [a]					2.3
p-isopropyltoluene	99-87-6						10
Hexachlorocyclo-pentadiene	77-47-4					10	
Methanol	67-56-1					6.5	
N-nitrosodiphenyl-amine	86-30-6					20	
Pentachloro-benzene	608-93-5					20	
Pentachloronitro-benzene	82-68-8					10	
Styrene	100-42-5					300	
1,2,3,4-Tetrachlorobenzene	634-66-2					10	
1,1,2,2-Tetrachloroethane	79-34-5	35					0.6
1,1,2,2-Tetrachloroethylene	127-18-4					2	
1,2,3-Trichlorobenzene	87-61-6					20	
1,2,4-Trichlorobenzene	120-82-1					20	3.4
1,2,3-Trichloropropane	96-18-4	80					0.34

[a] SCOs for organic contaminants (volatile organic compounds, semivolatile organic compounds, and pesticides) are capped at 100 ppm for residential use, 500 ppm for commercial use, 1000 ppm for industrial use. SCOs for metals are capped at 10,000 ppm.

[b] Based on rural background study

[c] SCO limited by contract required quantitation limit.

Table 2

Summary of Analytical Results - Documentation Samples
IRM Source Area Excavation
Troy Belting and Supply Company, 70 Cohoes Road, Colonie, New York

Analyte	NY-PoG	NY-UNRES	NY-RESR	NY-RESRR	NY-RESC	NY-RESI	SAMPLE ID	IRM-SW-W-5.5'-2021-09-07	IRM-SW-SW-7'-2021-09-07	IRM-SW-NW-5.5'-2021-09-08	DUP20210908	IRM-SW-NC-7'-2021-09-08	IRM-SW-NE-5.5'-2021-09-09	IRM-SW-SC-6.5-2021-09-10	IRM-SW-SE-6-2021-09-10	IRM-SW-E-5.5-2021-09-10	RC1	RC2
							Date	9/7/2021	9/7/2021	9/8/2021	9/8/2021	9/8/2021	9/9/2021	9/10/2021	9/10/2021	9/10/2021	10/8/2021	10/8/2021
							Depth	5.5 ft	7 ft	5.5 ft	5.5 ft	7 ft	5.5 ft	6.5 ft	6 ft	5.5 ft	9 ft**	12 ft**
Volatile Organic Compounds, mg/kg																		
1,1,1-Trichloroethane	0.68	0.68	100	100	500	1000		**1.4**	0.16	0.43	0.51	0.65	0.17	**3.2**	0.059	0.00024	0.024 U	0.00016 U
1,1-Dichloroethane	0.27	0.27	19	26	240	480		0.012 J	0.031 J	0.0099 J	0.0093 J	0.063 J	0.093	0.067 U	0.019 J	0.0033	**4.4**	0.00014 U
1,1-Dichloroethene	0.33	0.33	100	100	500	1000		0.022 J	0.015 U	0.015 J	0.013 J	0.12 J	0.023 J	0.11 U	0.0064 U	0.00011 U	**0.57**	0.00022 U
1,2,4-Trimethylbenzene	3.6	3.6	47	52	190	380		0.028 U	0.02 U	0.022 J	0.03 J	0.049 U	0.012 U	2.9	0.13	0.00015 U	0.039 U	0.00031 U
1,2-Dichlorobenzene	1.1	1.1	100	100	500	1000		0.012 U	0.0088 U	0.0048 U	0.0073 U	0.021 U	0.0052 U	0.066 U	0.0039 U	0.00007 U	0.02 U	0.00014 U
1,2-Dichloroethane	0.02	0.02	2.3	3.1	30	60		0.022 U*	0.016 U	0.0085 U	0.013 U	0.038 U*	0.0092 U	0.12 U*	0.0069 U	0.00012 U	0.036 U*	0.00024 U
1,3,5-Trimethylbenzene	8.4	8.4	47	52	190	380		0.016 U	0.012 U	0.0084 J	0.0098 U	0.028 U	0.0069 U	1	0.03 J	0.00009 U	0.027 U*	0.00018 U
1,3-Dichlorobenzene	2.4	2.4	17	49	280	560		0.013 U	0.0091 U	0.0049 U	0.0075 U	0.022 U	0.0053 U	0.068 U	0.004 U	0.00007 U	0.021 U	0.00014 U
1,4-Dichlorobenzene	1.8	1.8	9.8	13	130	250		0.015 U	0.01 U	0.0056 U	0.0087 U	0.025 U	0.0062 U	0.079 U	0.0046 U	0.00008 U	0.024 U	0.00016 U
1,4-Dioxane	0.1	0.1	9.8	13	130	250		3 U*	2.2 U*	1.2 U*	1.8 U*	5.2 U*	1.3 U*	16 U*	0.95 U*	0.016 U	5 U	0.033 U
2-Butanone	0.12	0.12	100	100	500	1000		0.19 U*	0.14 U*	0.073 U	0.11 U	0.33 U*	0.08 U	1 U*	0.06 U	0.0037 J	0.32 U*	0.0021 U
Acetone	0.05	0.05	100	100	500	1000		0.41 U*	0.3 U*	0.16 U*	0.24 U*	0.71 U*	0.17 U*	2.2 U*	0.13 U*	0.028	0.68 U*	0.0045 U
Benzene	0.06	0.06	2.9	4.8	44	89		0.014 U	0.01 U	0.0055 U	0.0084 U	0.024 U	0.006 U	0.076 U*	0.0045 U	0.00008 U	0.024 U	0.00016 U
Carbon tetrachloride	0.76	0.76	1.4	2.4	22	44		0.02 U	0.014 U	0.0076 U	0.012 U	0.034 U	0.0083 U	0.1 U	0.0062 U	0.0001 U	0.033 U	0.00022 U
Chlorobenzene	1.1	1.1	100	100	500	1000		0.011 U	0.0078 U	0.0042 U	0.0064 U	0.019 U	0.0046 U	0.058 U	0.0034 U	0.00006 U	0.018 U	0.00012 U
Chloroform	0.37	0.37	10	49	350	700		0.014 J	0.01 J	0.0066 U	0.0099 U	0.028 U	0.0074 U	0.064 U	0.0038 U	0.00006 U	0.02 U	0.00013 U
cis-1,2-Dichloroethene	0.25	0.25	59	100	500	1000		**0.39**	**0.67**	**0.59**	**0.64**	**16**	**3.9**	**4.8**	**2.6**	0.043	**42**	0.00027 J
Ethylbenzene	1	1	30	41	390	780		0.012 U	0.0086 U	0.0046 U	0.01 J	0.021 U	0.0051 U	0.24 J	0.024 J	0.00006 U	0.02 U	0.00013 U
Methyl tert butyl ether	0.93	0.93	62	100	500	1000		0.017 U	0.012 U	0.0066 U	0.01 U	0.03 U	0.0072 U	0.093 U	0.0054 U	0.00009 U	0.029 U	0.00019 U
Methylene chloride	0.05	0.05	51	100	500	1000		0.2 U*	0.14 U*	0.076 U*	0.12 U*	0.34 U*	0.082 U*	1 U*	0.062 U*	0.001 U	**0.4 J**	0.0021 U
n-Butylbenzene	12	12	100	100	500	1000		0.014 U	0.012 J	0.0055 U	0.0085 U	0.025 U	0.006 U	0.78	0.06	0.00008 U	0.024 U	0.00016 U
n-Propylbenzene	3.9	3.9	100	100	500	1000		0.015 U	0.01 U	0.0056 U	0.0087 U	0.025 U	0.0062 U	0.46	0.024 J	0.00008 U	0.024 U	0.00016 U
o-Xylene	1.6	0.26	100	100	500	1000		0.025 U	0.018 U	0.028 J	0.047 J	0.15	0.01 U	0.34 J	0.075	0.00013 U	0.08 U	0.00027 U
p/m-Xylene	1.6	0.26	100	100	500	1000		0.048 U	0.034 U	0.019 J	0.047 J	0.083 U	0.02 U	0.54 J	0.042 J	0.00025 U	0.041 U	0.00052 U
sec-Butylbenzene	11	11	100	100	500	1000		0.012 U	0.017 J	0.0048 U	0.0074 U	0.022 U	0.0052 U	0.49	0.028	0.00007 U	0.021 U	0.00014 U
tert-Butylbenzene	5.9	5.9	100	100	500	1000		0.01 U	0.0072 U	0.0039 U	0.006 U	0.017 U	0.0042 U	0.054 U	0.0032 U	0.00005 U	0.017 U	0.00011 U
Tetrachloroethene	1.3	1.3	5.5	19	150	300		0.017 U	0.1	0.38	0.41	**9.3**	**2.7**	**17**	1	0.00009 U	0.028 U	0.00018 U
Toluene	0.7	0.7	100	100	500	1000		0.046 U	0.033 U	0.018 U	0.028 U	0.08 U	0.02 U	0.35 J	0.055	0.00024 U	0.077 U	0.00051 U
trans-1,2-Dichloroethene	0.19	0.19	100	100	500	1000		0.012 U	0.018 J	0.0092 J	0.011 J	0.14 J	0.054	0.063 U	0.033 J	0.00046 J	0.08 J	0.00013 U
Trichloroethene	0.47	0.47	10	21	200	400		**18**	**6.4**	**20** J	**22** J	**57** J	**16** J	**220** J	**6**	0.0063	**61**	0.0027
Vinyl chloride	0.02	0.02	0.21	0.9	13	27		0.029 U*	0.02 U*	0.011 UJ	0.017 UJ	**0.21** J-	**0.06**	0.15 U*	**0.086** J	0.016 J	**0.092 J**	0.00031 U
Total VOCs		---	---	---	---	---		19.84	7.42	21.51 -	23.73	83.63	23.00	252.1	10.27	0.101	108.542	0.00297
Semi-Volatile Organic Compounds, mg/kg																		
2-Methylphenol	0.33	0.33	100	100	500	1000		0.028 U	0.03 U	0.027 U	0.029 U	0.028 U	0.085 U	0.028 U	0.028 U	0.031 U	NA	NA
3-Methylphenol/4-Methylphenol	0.33	0.33	34	100	500	1000		0.028 U	0.03 U	0.028 U	0.029 U	0.029 U	0.086 U	0.028 U	0.029 U	0.032 U	NA	NA
Acenaphthene	98	20	100	100	500	1000		0.019 U	0.02 U	0.018 U	0.019 U	0.019 U	0.057 U	0.019 U	0.08 J	0.021 U	NA	NA
Acenaphthylene	107	100	100	100	500	1000		0.028 U	0.03 U	0.027 U	0.029 U	0.028 U	0.085 U	0.028 U	0.028 U	0.031 U	NA	NA
Anthracene	1000	100	100	100	500	1000		0.035 U	0.037 U	0.034 U	0.036 U	0.036 U	0.11 U	0.035 U	0.23	0.039 U	NA	NA
Benzo(a)anthracene	1	1	1	1	5.6	11		0.02 U	0.022 U	0.069 J	0.14	0.021 U	0.062 U	0.02 U	0.74	0.023 U	NA	NA
Benzo(a)pyrene	22	1	1	1	1	1.1		0.044 U	0.047 U	0.071 J	0.16	0.045 U	0.13 U	0.044 U	0.59	0.049 U	NA	NA
Benzo(b)fluoranthene	1.7	1	1	1	5.6	11		0.03 U	0.032 U	0.11 J	0.29 J	0.031 U	0.093 U	0.03 U	0.82	0.034 U	NA	NA
Benzo(ghi)perylene	1000	100	100	100	500	1000		0.021 U	0.022 U	0.058 J	0.13 J	0.022 U	0.065 U	0.021 U	0.35	0.024 U	NA	NA
Benzo(k)fluoranthene	1.7	0.8	1	3.9	56	110		0.029 U	0.031 U	0.043 J	0.076 J	0.029 U	0.088 U	0.029 U	0.3	0.032 U	NA	NA
Chrysene	1	1	1	3.9	56	110		0.019 U	0.02 U	0.089 J	0.21	0.019 U	0.057 U	0.019 U	0.68	0.021 U	NA	NA
Dibenzo(a,h)anthracene	1000	0.33	0.33	0.33	0.56	1.1		0.021 U	0.022 U	0.02 U	0.027 J	0.021 U	0.064 U	0.021 U	0.086 J	0.023 U	NA	NA
Dibenzofuran	210	7	14	59	350	1000		0.017 U	0.018 U	0.017 U	0.018 U	0.017 U	0.052 U	0.017 U	0.035 J	0.019 U	NA	NA
Fluoranthene	1000	100	100	100	500	1000		0.021 U	0.022 U	0.17 J	0.41 J	0.021 U	0.095 J	0.021 U	1.5	0.023 U	NA	NA
Fluorene	386	30	100	100	500	1000		0.018 U	0.018 U	0.017 U	0.018 U	0.018 U	0.054 U	0.018 U	0.092 J	0.02 U	NA	NA
Hexachlorobenzene	3.2	0.33	0.33	1.2	6	12		0.02 U	0.021 U	0.02 U	0.021 U	0.02 U	0.062 U	0.02 U	0.021 U	0.022 U	NA	NA
Indeno(1,2,3-cd)pyrene	8.2	0.5	0.5	0.5	5.6	11		0.025 U	0.027 U	0.058 J	0.14 J	0.026 U	0.077 U	0.025 U	0.38	0.028 U	NA	NA
Naphthalene	12	12	100	100	500	1000		0.022 U	0.023 U	0.022 U	0.023 U	0.022 U	0.067 U	0.073 J	0.022 U	0.024 U	NA	NA
Pentachlorophenol	0.8	0.8	2.4	6.7	6.7	55		0.04 U	0.042 U	0.039 U	0.041 U	0.04 U	0.12 U	0.04 U	0.04 U	0.044 U	NA	NA
Phenanthrene	1000	100	100	100	500	1000		0.022 U	0.023 U	0.058 J	0.13	0.022 U	0.067 U	0.022 U	1	0.024 U	NA	NA
Phenol	0.33	0.33	100	100	500	1000		0.027 U	0.029 U	0.027 U	0.028 U	0.028 U	0.083 U	0.027 U	0.028	0.03 U	NA	NA
Pyrene	1000	100	100	100	500	1000		0.018 U	0.019	0.14 J	0.33 J	0.018 U	0.086 J	0.018 U	1.2	0.02 U	NA	NA
Total SVOCs	---	---	---	---	---	---		ND	ND	0.866	2.043	ND	0.181	0.073	8.083	ND	NA	NA
Chlorinated Herbicides, mg/kg																		
2,4,5-TP (Silvex)	3.8	3.8	58	100	500	1000		0.00483 U	0.00507 U	0.00472 U	0.00487 U	0.00485 U	0.00519 U	0.00476 U	0.00483 U	0.00533 U	NA	NA

Table 2

Summary of Analytical Results - Documentation Samples
IRM Source Area Excavation
Troy Belting and Supply Company, 70 Cohoes Road, Colonie, New York

Analyte	NY-PoG	NY-UNRES	NY-RESR	NY-RESRR	NY-RESC	NY-RESI	SAMPLE ID	IRM-SW-W-5.5'-2021-09-07	IRM-SW-SW-7'-2021-09-07	IRM-SW-NW-5.5'-2021-09-08	DUP20210908	IRM-SW-NC-7'-2021-09-08	IRM-SW-NE-5.5'-2021-09-09	IRM-SW-SC-6.5-2021-09-10	IRM-SW-SE-6-2021-09-10	IRM-SW-E-5.5-2021-09-10	RC1	RC2
							Date	9/7/2021	9/7/2021	9/8/2021	9/8/2021	9/8/2021	9/9/2021	9/10/2021	9/10/2021	9/10/2021	10/8/2021	10/8/2021
							Depth	5.5 ft	7 ft	5.5 ft	5.5 ft	7 ft	5.5 ft	6.5 ft	6 ft	5.5 ft	9 ft**	12 ft**
Organochlorine Pesticides, mg/kg																		
4,4'-DDD	14	0.0033	2.6	13	92	180		0.000604 U	0.000626 U	0.000609 U	0.000618 U	0.000624 U	0.000655 U	0.000595 U	0.000628 U	0.000686 U	NA	NA
4,4'-DDE	17	0.0033	1.8	8.9	62	120		0.000392 U	0.000406 U	0.000395 U	0.000401 U	0.000405 U	0.000425 U	0.000386 U	0.000407 U	0.000445 U	NA	NA
4,4'-DDT	136	0.0033	1.7	7.9	47	94		0.00136 U	0.00141 U	0.00137 U	0.00139 U	0.00141 U	0.00148 U	0.00134 U	0.00142 U	0.00155 U	NA	NA
Aldrin	0.19	0.005	0.019	0.097	0.68	1.4		0.000597 U	0.000618 U	0.000601 U	0.00061 U	0.000616 U	0.000647 U	0.000588 U	0.00062 U	0.000677 U	NA	NA
Alpha-BHC	0.02	0.02	0.097	0.48	3.4	6.8		0.0002 U	0.000208 U	0.000202 U	0.000205 U	0.000207 U	0.000217 U	0.000198 U	0.000208 U	0.000228 U	NA	NA
Beta-BHC	0.09	0.036	0.072	0.36	3	14		0.000642 U	0.000666 U	0.000648 U	0.000657 U	0.000664 U	0.000697 U	0.000633 U	0.000667 U	0.000729 U	NA	NA
cis-Chlordane	2.9	0.094	0.91	4.2	24	47		0.00059 U	0.000612 U	0.000595 U	0.000604 U	0.00061 U	0.00064 U	0.000582 U	0.000613 U	0.00067 U	NA	NA
Delta-BHC	0.25	0.04	100	100	500	1000		0.000332 U	0.000344 U	0.000334 U	0.000339 U	0.000343 U	0.00036 U	0.000327 U	0.000345 U	0.000377 U	NA	NA
Dieldrin	0.1	0.005	0.039	0.2	1.4	2.8		0.00053 U	0.000549 U	0.000534 U	0.000541 U	0.000547 U	0.000574 U	0.000522 U	0.00055 U	0.000601 U	NA	NA
Endosulfan I	102	2.4	4.8	24	200	920		0.0004 U	0.000415 U	0.000404 U	0.000409 U	0.000413 U	0.000434 U	0.000394 U	0.000416 U	0.000454 U	NA	NA
Endosulfan II	102	2.4	4.8	24	200	920		0.000566 U	0.000587 U	0.000571 U	0.000579 U	0.000585 U	0.000614 U	0.000558 U	0.000588 U	0.000643 U	NA	NA
Endosulfan sulfate	1000	2.4	4.8	24	200	920		0.000336 U	0.000348 U	0.000339 U	0.000344 U	0.000347 U	0.000364 U	0.000331 U	0.000349 U	0.000381 U	NA	NA
Endrin	0.06	0.014	2.2	11	89	410		0.00029 U	0.0003 U	0.000292 U	0.000296 U	0.000299 U	0.000314 U	0.000285 U	0.000301 U	0.000328 U	NA	NA
Heptachlor	0.38	0.042	0.42	2.1	15	29		0.00038 U	0.000394 U	0.000383 U	0.000388 U	0.000392 U	0.000412 U	0.000374 U	0.000394 U	0.000431 U	NA	NA
Lindane	0.1	0.1	0.28	1.3	9.2	23		0.000316 U	0.000327 U	0.000318 U	0.000323 U	0.000326 U	0.000342 U	0.000311 U	0.000328 U	0.000358 U	NA	NA
Polychlorinated Biphenyls, mg/kg																		
Aroclor 1016	3.2	0.1	1	1	1	25		0.00311 U	0.00334 U	0.00312 U	0.00318 U	0.0032 U	0.00334 U	0.00313 U	0.00323 U	0.00358 U	NA	NA
Aroclor 1221	3.2	0.1	1	1	1	25		0.00351 U	0.00377 U	0.00353 U	0.00359 U	0.00362 U	0.00376 U	0.00353 U	0.00365 U	0.00404 U	NA	NA
Aroclor 1232	3.2	0.1	1	1	1	25		0.00742 U	0.00798 U	0.00746 U	0.0076 U	0.00765 U	0.00797 U	0.00747 U	0.00772 U	0.00856 U	NA	NA
Aroclor 1242	3.2	0.1	1	1	1	25		0.00472 U	0.00507 U	0.00474 U	0.00483 U	0.00487 U	0.00506 U	0.00475 U	0.00491 U	0.00544 U	NA	NA
Aroclor 1248	3.2	0.1	1	1	1	25		0.00525 U	0.00565 U	0.00528 U	0.00538 U	0.00542 U	0.00564 U	0.00529 U	0.00546 U	0.00605 U	NA	NA
Aroclor 1254	3.2	0.1	1	1	1	25		0.00383 U	0.00412 U	0.00385 U	0.00458 J+	0.00395 U	0.00411 U	0.0424	0.0154 J	0.00442 U	NA	NA
Aroclor 1260	3.2	0.1	1	1	1	25		0.0111 J	0.00696 U	0.0065 U	0.00662 U	0.00667 U	0.00694 U	0.00651 U	0.00673 U	0.00746 U	NA	NA
Aroclor 1262	3.2	0.1	1	1	1	25		0.00445 U	0.00478 U	0.00447 U	0.00455 U	0.00458 U	0.00477 U	0.00448 U	0.00463 U	0.00512 U	NA	NA
Aroclor 1268	3.2	0.1	1	1	1	25		0.0144 J	0.0039 U	0.00365 U	0.00371 U	0.00374 U	0.00389 U	0.00365 U	0.00377 U	0.00418 U	NA	NA
PCBs, Total	3.2	0.1	1	1	1	25		0.0255 J	0.00334 U	0.00312 U	0.00458 J	0.0032 U	0.00334 U	0.0424	0.0154 J	0.00358 U	NA	NA
General Chemistry, mg/kg																		
Chromium, Trivalent	---	30	36	180	1500	6800		17	13	11	10	13	11	19	14	13	NA	NA
Chromium, Hexavalent	19	1	22	110	400	800		0.176 U	0.185 U	0.175 U	0.181 U	0.177 U	0.189 U	0.176 U	0.178 U	0.196 U	NA	NA
Cyanide, Total	40	27	27	27	27	10000		0.22 UJ	0.24 UJ	0.22 UJ	0.23 UJ	0.22 UJ	0.25 UJ	0.23 U	0.22 U	0.24 U	NA	NA
Solids, Total %	---	---	---	---	---	---		90.9	86.3	91.3	88.4	90.4	84.8	90.7	89.6	81.4	97.8	95.8
Total Metals, mg/kg																		
Arsenic, Total	16	13	16	16	16	16		6.85	1.74	6.71	4.72	5.2	6.82	9.17 J-	4.5 J-	5.48 J-	NA	NA
Barium, Total	820	350	350	400	400	10000		146	52.9	69.5	78.6	230	84.4	94.2 J+	164 J+	99.7 J+	NA	NA
Beryllium, Total	47	7.2	14	72	590	2700		0.567	0.324	0.391	0.387	0.39	0.465	0.558 J	0.515	0.55	NA	NA
Cadmium, Total	7.5	2.5	2.5	4.3	9.3	60		0.042 U	0.044 U	0.512	0.463	0.552	0.525	0.21 U	0.057 J	0.174 J	NA	NA
Chromium, Total	---	---	---	---	---	---		17.1	13.2	11.2	10.4	12.9	11.3 J	18.6	13.6	12.7	NA	NA
Copper, Total	1720	50	270	270	270	10000		42.4	22.2	27.5 J+	27.7 J+	29.4 J+	26.4	44.4	24.7	25	NA	NA
Lead, Total	450	63	400	400	1000	3900		15.8	4.31	14.3 J-	12.3 J-	10.1 J-	23.9 J-	24.7 J-	12.2 J-	34.4 J-	NA	NA
Manganese, Total	2000	1600	2000	2000	10000	10000		647	109	499 J-	731 J-	762 J-	1500 J-	759 J	392 J	422 J	NA	NA
Mercury, Total	0.73	0.18	0.81	0.81	2.8	5.7		0.084	0.048 U	0.073 J+	0.065 J+	0.054 J+	0.119 J+	0.052 J-	0.071 J-	0.171 J-	NA	NA
Nickel, Total	130	30	140	310	310	10000		26.3	16.9	16.9	18.4	18.8	17.4 J-	27.6	17.9	16.5	NA	NA
Selenium, Total	4	3.9	36	180	1500	6800		0.262 J	0.116 U	0.142 J	0.115 U	0.11 U	0.139 J	0.554 U	0.354 J	0.546 J	NA	NA
Silver, Total	8.3	2	36	180	1500	6800		0.12 U	0.127 U	0.118 U	0.126 U	0.121 U	0.131 U	0.608 U	0.124 U	0.137 U	NA	NA
Zinc, Total	2480	109	2200	10000	10000	10000		84.9	61.6	51.3 J	48.8 J	49.8 J	51.6 J	90.7	55	68.8	NA	NA

NY-PoG: New York NYCRR Part 375 Groundwater Criteria, New York Restricted use Criteria per 6 NYCRR Part 375 Environmental Remediation Programs, effective December 14, 2006.
NY-UNRES: New York NYCRR Part 375 New York Unrestricted use Criteria Criteria per 6 NYCRR Part 375 Environmental Remediation Programs, effective December 14, 2006.
NY-RESR: New York NYCRR Part 375 Residential Criteria, New York Restricted use Criteria per 6 NYCRR Part 375 Environmental Remediation Programs, effective December 14, 2006.
NY-RESRR: New York NYCRR Part 375 Restricted-Residential Criteria, New York Restricted use Criteria per 6 NYCRR Part 375 Environmental Remediation Programs, effective December 14, 2006.
NY-RESC: New York NYCRR Part 375 Commercial Criteria, New York Restricted use Criteria per 6 NYCRR Part 375 Environmental Remediation Programs, effective December 14, 2006.
NY-RESI: New York NYCRR Part 375 Industrial Criteria, New York Restricted use Criteria per 6 NYCRR Part 375 Environmental Remediation Programs, effective December 14, 2006.
Orange highlighted exceeds PoG and UNRES.
Yellow highlighted exceed PoG, UNRES, and RESR.
Blue highlighted exceed PoG, UNRES and RESR and RESRR.
Purple highlighted exceed PoG, UNRES, RESR, RESRR and RESC.
--- No standard provided.
ND = Non-Detect.
U = Not Detected. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J = Result is less than the reporting limit (RL) but greater than or equal to the method detection limit (MDL), for instance, the result may be uncertain.
UJ = Not detected, quantitation limit may be inaccurate or imprecise.
J- = Analyte is present, Reported value may be biased high and associated with a higher level of uncertainty than is normally expected with the analytical method.
J+ = Analyte is present, Reported value may be biased high and associated with a higher level of uncertainty than is normally expected with the analytical method.
D - Contraction of the analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
* = The sample specific detection limit does not support the regulatory requirement.
** = Depth from ground surface. RC1 collected from 0 to 0.25 feet into bedrock and RC2 collected from 3 to 3.25 feet into bedrock.
Qualifiers in Red were modified based on Data Validation Review (performed by Alpha Geoscience) of IRM results.

Table 3

Potential Exposure Pathways
Troy Belting and Supply Co., Colonie, New York
BCP #C401067

Potential Receptor	Exposure Route, Contaminated Media, and Point of Exposure	Pathway Selected for Evaluation (Yes/No)	Reason for Selection or Exclusion
Offsite Workers	Ingestion, inhalation, or dermal contact with offsite soils.	No	Remedial Investigation does not indicate impacts to offsite soils by site COCs.
Offsite Workers	Ingestion of groundwater offsite.	No	A public water supply is available for potable purposes at properties proximate to the site.
Offsite Workers	Inhalation of volatile organics.	No	Remedial Investigation does not indicate impacts to offsite indoor/outdoor air.
Offsite Residential	Ingestion, inhalation, or dermal contact with offsite soils.	No	Remedial Investigation does not indicate impacts to offsite surface soils by site COCs.
Offsite Residential	Ingestion of groundwater offsite.	No	A public water supply is available for potable purposes at properties proximate to the site.
Offsite Residential	Inhalation of volatile organics.	No	Remedial Investigation does not indicate impacts to offsite indoor/outdoor air.
Onsite Residential	Ingestion, inhalation, or dermal contact with onsite soils.	No	Residential development and use is not permitted at the site.
Onsite Residential	Ingestion of groundwater onsite.	No	Residential development and use is not permitted at the site.
Onsite Residential	Inhalation of volatile organics.	No	Residential development and use is not permitted at the site.

Table 3

Potential Exposure Pathways
Troy Belting and Supply Co., Colonie, New York
BCP #C401067

Potential Receptor	Exposure Route, Contaminated Media, and Point of Exposure	Pathway Selected for Evaluation (Yes/No)	Reason for Selection or Exclusion
Onsite workers	Ingestion, inhalation, or dermal contact with onsite soils.	Yes	Site soils contain concentrations of COCs above UUSCOs.
Onsite workers	Ingestion of groundwater onsite	No	A public water supply is available for potable purposes at the site.
Onsite workers	Inhalation of volatile organics.	Yes	Potential exists for inhalation of volatile organics via indoor/outdoor air migration.
Visitors and/ or Trespassers	Ingestion, inhalation, or dermal contact with onsite soils.	Yes	Site soils contain concentrations of COCs above UUSCOs. Consideration of the onsite worker is conservatively protective of the site visitor.
Trespassers and/or Visitors	Ingestion of groundwater onsite	No	A public water supply is available for potable purposes at the site.
Fish & Wildlife, Trespassers and/or Visitors	Ingestion of offsite surface water via onsite groundwater migration	No	Remedial Investigation does not indicate impacts to offsite surface water.
Trespassers and/or Visitors	Inhalation of volatile organics.	Yes	Potential exists for inhalation of volatile organics via indoor/outdoor air migration. Consideration of the onsite worker is conservatively protective of the site visitor.

Table 4-1

Soil Remediation Technologies
Troy Belting and Supply Co., Colonie, New York
BCP #401067

Response Action	Implementability	Effectiveness and Permanence	Treated Constituents	Advantages/Disadvantages	Cost Remarks
Natural Attenuation	Readily implementable.	Effectively treats residual contamination. Ongoing monitoring required.	Volatile organic compounds (VOC), semivolatile organic compounds (SVOC), total petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAH).	Cost effective and readily implementable / Not effective for treating source contamination, requires several years to decades for effective treatment, and recurring long-tern monitoring required.	Recurring monitoring costs.
Institutional Cotrols	Readily implementable.	Effective at mitigating exposure to contaminants.	VOCs, SVOCs, total petroleum hydrocarbons, polychlorinated biphenyls (PCB), pesticides.	Cost effective and readily implementable / does not treat contamination, restricts site use, requires long-term management.	Low-cost solution.
Chemical Injection (e.g., oxidation/reduction)	Readily implementable.	Effective at treating source area. Following injetion, other methods, such as natural attenuation, are often used to address residual contamination.	VOCs, SVOCs, total petroleum hydrocarbons, PCBs, pesticides.	Performed in-situ with no excavation (reduced exposure to chemicals), rapid destruction/degradation of contaminants, produces no significant wastes, reduced operation and monitoring costs / Some ineffectiveness with low permeability soils, may alter aquifer geochemistry, may not technically or economically be able to reduce contaminants to background or very low concentrations.	Potential bench / pilot scale testing costs. Recurring injection and monitoring costs.
Capping and Containment	Readily Implementable	Effective at eliminating potential exposure to impacted soils. Long-term maintenance of cap required.	VOCs, SVOCs, total petroleum hydrocarbons, PCBs, pesticides.	Passive remedy and relatively low cost of maintenance / Does not eliminate contamination from the site and requires long-term maintenance and monitoring.	Low-cost solution. Installation, monitoring, and maintanance costs required.
Thermal Treatment	Moderately Difficult, may have some limitations.	Effective in clean up of non-aqueous phase liquids (NAPL) and treatment can be used in silty and clayey soil where other cleanup methods do not perform well. Can reach contamination deep underground. Treatment may take months to years depending on contaminant concentrations, contaminated area, variety of soil, or organic matter in soil.	Chlorinated volatile organic compounds (cVOCs), SVOCs, total petroleum hydrocarbons, PAH, including creosote and coal tar, PCBs, and pesticides.	Treatment of NAPLs possible, no excavation of soil necessary, implementations below buildings possible / Debris or other large objects buried in media can cause operating difficulties, ineffectiveness with soil that is tight or has high moisture content.	Likely maintenance costs. Determined on soil type and depth to top/thickness of contaminated area.
Phytoremediation	Moderately Difficult, may have seasonal limitations.	Effective at extracting and eliminating contaminants from soils over a period of several years. Requires long-term monitoring.	Heavy metals, PAHs, and PCBs.	Uses natural processes to address contamination and requires less equipment than other alternatives. / Requires several years for effective treatment. Treatment may be limited by local climate and soil conditions.	Maintenance and monitoring costs. When applied properly, can be cost effective.
Solidification and Stabilization	Readily Implementable.	Effective at eliminating potential exposure to impacted soils.	cVOCs, SVOCs, total petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAH), including creosote and coal tar, PCBs, and pesticides.	Low cost of maintenance / Does not eliminate contamination from the site.	Relatvely low-cost solution.
Excavation and Disposal	Readily Implementable	Effective in remediating high contaminant concentrations in a relatively short period of time (i.e. a day to several weeks).	VOCs, SVOCs, total petroleum hydrocarbons, PCBs, pesticides.	Requires shorter remediation time than in-situ treatment, and eliminates contaminants from the site via removal. / Requires excavation of soils, material handling, and safety precautions.	Increased transport and disposal costs assocciated with characterisitic or listed hazardous waste.
Soil Washing (Ex Situ)	Moderately Difficult; may have some limitations	Effectively treats contaminated soils with a wide variety of heavy metals, radionuclides, and organic contaminants. Additional treatment steps may be required to address hazardous levels of contamination.	SVOCs, fuels, heavy metals, select VOCs, and pesticides.	Can reduce the amount of soil that needs further treatment or disposal after washing occurs, soil that is not contaminated can be reused as backfill, performed on-site in a closed system where conditions can be monitored / Requires a large area to set up system, Only effective with coarse material, used wastewater may need specialized treatment.	Likely maintenance costs. When applied properly, can be cost effective.
Soil Flushing (In Situ)	Readily Implementable	Effectiveness may be limited due to solubility of the contaminant or presence of low permeability zones.	SVOCs, fuels, heavy metals, select VOCs, and pesticides.	No excavation of soil necessary, relatively small surface footprint, may speed up remediation process and closure, potential for use in combined remedies / Not effective in low permeability soils, potential for spreading contaminants beyond capture zone if not properly designed or constructed, uncertainties involved in predicting performance and duration, extensive laboratory testing.	Likely maintenance costs, Recurring operational costs.

Table 4-2

Groundwater Remediation Technologies
Troy Belting and Supply Co., Colonie, New York
BCP #401067

Response Action	Implementability	Effectiveness and Permanence	Treated Constituents	Advantages/Disadvantages	Cost Remarks
Natural Attenuation	Readily implementable	Effectively treats residual contamination. Ongoing monitoring required.	Volatile organic compounds (VOC), semivolatile organic compounds (SVOC), total petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCB), pesticides.	Cost effective and readily implementable / Not effective for treating source contamination, requires several years to decades for effective treatment, requres long-term monitoring.	Recurring monitoring costs.
Institutional Controls	Readily implementable	Effective at mitigating exposure to contamination	VOCs, SVOCs, total petroleum hydrocarbons, PCBs, pesticides.	Cost effective and readily implementable / does not treat contaminants, restricts site use, requires long-term management.	Low-cost solution
Groundwater Collection: Pump and Treat.	Moderately Difficult, may have some limitations.	Effectively treats groundwater contamination. Continuous operation of pump required.	VOCs, SVOCs, total petroleum hydrocarbons, PAHs, PCBs, pesticides.	Readily available, effectively treats groundwater contamination / Recurring maintenance and operation of pump required.	Recurring operational costs.
In-situ Treatment: Environmental Fracturing	Readily implementable, but not a primary treatment.	Helps enhance soil and groundwater cleanup methods such as pump and treat, in situ chemical, oxidation/reduction, in situ bioremediation, or soil vapor extraction.	VOCs, SVOCs, total petroleum hydrocarbons, PCBs, pesticides.	Fracturing can increase recovery rates of other technologies, accessible to contaminants that are unreachable with technologies / Not a primary treatment technology and requires secondary treatment.	Likely maintenance costs plus costs of secondary treatment.
In-situ Treatment: Chemical Injection	Readily implementable	Effective at treating source area. Following injection, other methods, such as natural attenuation, are often used to address residual contamination.	VOCs, SVOCs, total petroleum hydrocarbons, PCBs, pesticides.	Rapid destruction/degradation of contaminants, produces no significant wastes, reduced operation and monitoring costs / Some ineffectiveness with low permeability soils, may alter aquifer geochemistry, may not technically or economically be able to reduce contaminants to background or very low concentrations.	Bench / pilot scale testing costs. Recurring operational costs.
In-situ Treatment: Reactive Trench	Moderately Difficult, may have some limitations.	Effective in remediating migrating plume. Effectiveness of barrier may decrease over time.	VOCs, SVOCs, total petroleum hydrocarbons, PCBs, pesticides.	Relatively low cost of operation and monitoring, designs do not include aboveground structure / system may not be stand-alone technology, remediation time frame may require a long treatment period.	Likely maintenance costs.
In-Situ Treatment: Air Sparging	Readily Implementable	Effective at remediating contaminants that desorb more readily into the gas phase than into groundwater. Appropriate use of air sparging may require that it be combined with other remedial methods (e.g. pump and treat).	VOCs	Readily available, implemented with minimal disturbance to site operations, requires no removal, treatment, storage or discharge considerations / Cannot be used if free product exists, cannot be used for treatment of confined aquifers, stratified soils may cause it to be ineffective, long treatment time (years).	Likely maintenance costs. When applied properly, can be cost effective.
In-Situ Treatment: Bioslurping	Moderately Difficult, may have some limitations.	Bioslurping is the adaptation and application of vacuum-enhanced dewatering technologies to remediate hydrocarbon-contaminated sites.	Petroleum hydrocarbons	Lower project costs, reduction in aquifer "smearing" / potential "biofouling" of well screens due to active aeration, less effective in low permeability soils	May have recurring operational costs.
Ex-Situ Treatment: Chemical Extraction	Moderately Difficult, may have some limitations.	Chemical extraction does not destroy wastes but is a means of separating contaminants from soils, sludges, and sediments, thereby reducing the volume of the chemicals that must be treated.	VOCs, PCBs, halogenated solvents, petroleum wastes.	Requires shorter remediation time than in-situ treatment, more certainty about the uniformity of treatment / Requires excavation and handling of soils, increased costs, engineering for equipment.	Quantity of material treated has a large impact on effectiveness

Table 5

Cost Estimate for Alternative 1 - No Further Action
Troy Belting and Supply Co., Colonie, New York
BCP # C401067

Item #	Description	Estimated Quantity	Units	Unit Price (materials and labor)	Estimated Amount
CAPITAL COSTS					
				Total Capital Cost:	$0.00
				Engineering Design, Permitting and Certification (25%):	$0.00
				Legal and Administration (5%):	$0.00
				Contingency (25%):	$0.00
				Subtotal Cost:	$0.00
OPERATION AND MAINTENANCE COSTS (5 YEARS)					
1	Annual ECIC Certification	1	LS	$2,500	$2,500
				Total Annual O&M Cost:	$2,500
				Contingency (20%):	$500
				Subtotal Annual Cost:	$3,000
2	5-Year Total Present Worth Cost of O&M:				$12,400
				Total Present Worth Cost:	$12,400
				Total Estimated Cost:	$15,000

Notes:

- Cost estimate is based on STERLING's experience in the project area, vendor estimates, and construction database costs and is expected to be within -20% to +50% of the actual project cost.
- This estimate has been prepared for the purposes of comparing potential remedial alternatives and is based on the available information regarding site conditions and the anticipated scope of the remedial alternative.
- Changes in scope and estimated costs may occur as remedial design progresses.
- Use of this cost estimate information beyond the stated purpose is not recommended.

Assumptions:

Item 1 Annual cost includes ECIC Certification only and assumes no groundwater, sub-slab vapor, or indoor air monitoring.

Item 2 Present worth is estimated based on a 7% beginning-of-year discount rate. "Year Zero" for present worth calculations is 2023. A 5-year performance period is assumed for comparison purposes.

Cost Estimate for Alternative 2 - Vapor Mitigation, Monitoring, and Institutional Controls
Troy Belting and Supply Co., Colonie, New York
BCP #C401067

Item #	Description	Estimated Quantity	Units	Unit Price (materials and labor)	Estimated Amount
CAPITAL COSTS					
				Subtotal Cost:	$0
OPERATION AND MAINTENANCE COSTS (5 YEARS)					
Vapor Mitigation System					
1	Operation and Maintenance	1	LS	$2,000	$2,000
2	Inspection Costs	1	LS	$7,200	$7,200
Onsite Sub-Slab Vapor and Indoor Air Monitoring					
3	Quarterly Air Sampling	1	LS	$11,000	$11,000
Groundwater Monitoring					
4	Bi-Annual Groundwater Monitoring	1	LS	$35,200	$35,200
Annual ECIC Certification					
5	Annual ECIC Certification	1	LS	$2,500	$2,500
				Total Annual O&M Cost:	$57,900
				Contingency (10%):	$5,800
				Subtotal Annual Cost:	$63,700
6	5-Year Total Present Worth Cost of O&M:				$261,200
				Total Present Worth Cost:	$261,200
				Total Estimated Cost:	$318,500

Notes:

- Cost estimate is based on STERLING's experience in the project area, vendor estimates, and construction database costs and is expected to be within -20% to +50% of the actual project cost.
- This estimate has been prepared for the purposes of comparing potential remedial alternatives and is based on the available information regarding site conditions and the anticipated scope of the remedial alternative.
- Changes in scope and estimated costs may occur as remedial design progresses.
- Use of this cost estimate information beyond the stated purpose is not recommended.

Assumptions:

Item 1 Cost for annual electric, repair, and labor costs necessary to run the vapor mitigation system (VMS)

Item 2 Cost for periodic onsite inspection of vapor mitigation system in accordance with the VMS Operations, Monitoring, and Maintenance Plan.

Item 3 Cost for Quarterly VMS sample collection, sample analysis, and reporting in accordance with the VMS Operations, Monitoring, and Maintenance Plan.

Item 4 Cost for Biannual groundwater sample collection, Data Usability Summary Reports, and results summary report package.

Item 5 Cost for ECIC Certification report.

Item 6 Present worth is estimated based on a 7% beginning-of-year discount rate. "Year Zero" for present worth calculations is 2023. A 5-year performance period is assumed for comparison purposes.

Cost Estimate for Alternative 3 - In-Situ Treatment, VMS Operation, and Institutional Controls
Troy Belting and Supply Co., Colonie, New York
BCP #C401067

Item #	Description	Estimated Quantity	Units	Unit Price (materials and labor)	Estimated Amount
CAPITAL COSTS					
Site Preparation					
1	In Situ Chemical Injections	1	LS	$37,400	$37,400
				Total Capital Cost:	$37,400
				Engineering Design, CAMP, Permitting and Certification (25%):	$9,400
				Legal and Administration (5%):	$1,900
				Contingency (20%):	$7,500
				Subtotal Capital Cost:	$56,200
OPERATION AND MAINTENANCE COSTS (5 YEAR)					
Vapor Mitigation System					
2	Operation and Maintenance	1	LS	$2,000	$2,000
3	Inspection Costs	1	LS	$7,200	$7,200
Onsite Sub-Slab Vapor and Indoor Air Monitoring					
4	Quarterly Air Sampling	1	LS	$11,000	$11,000
Groundwater Monitoring					
5	Bi-Annual Groundwater Monitoring	1	LS	$35,200	$35,200
Annual ECIC Certification					
6	Annual ECIC Certification	1	LS	$2,500	$2,500
				Total Annual O&M Cost:	$57,900
				Contingency (10%):	$5,800
				Subtotal Annual Cost:	$63,700
7	5-Year Total Present Worth Cost of O&M:				$261,200
				Total Present Worth Cost:	$317,400
				Total Estimated Cost:	$374,700

Notes:

- Cost estimate is based on STERLING's experience in the project area, vendor estimates, and construction database costs and is expected to be within -20% to +50% of the actual project cost.
- This estimate has been prepared for the purposes of comparing potential remedial alternatives and is based on the available information regarding site conditions and the anticipated scope of the remedial alternative.
- Changes in scope and estimated costs may occur as remedial design progresses.
- Use of this cost estimate information beyond the stated purpose is not recommended.

Assumptions:

Item 1 Cost for implementing the in situ chemical injection based on August 2022 proposal by Innovative Environmental Technologies,

Item 2 Cost for annual electric, repair, and labor costs necessary to run the vapor mitigation system (VMS)

Item 3 Cost for periodic onsite inspection of vapor mitigation system in accordance with the VMS Operations, Monitoring, and Maintenance Plan.

Item 4 Cost for Quarterly VMS sample collection, sample analysis, and reporting in accordance with the VMS Operations, Monitoring, and Maintenance Plan.

Item 5 Cost for Biannual groundwater sample collection, Data Usability Summary Reports, and results summary report package.

Item 6 Cost for ECIC Certification report.

Item 7 Present worth is estimated based on a 7% beginning-of-year discount rate. "Year Zero" for present worth calculations is 2023. A 5-year performance period is assumed for comparison purposes.

Table 8

Summary of Subjective Ranking and Evaluation of Alternatives
Troy Belting and Supply Company
(BCP #C401067)

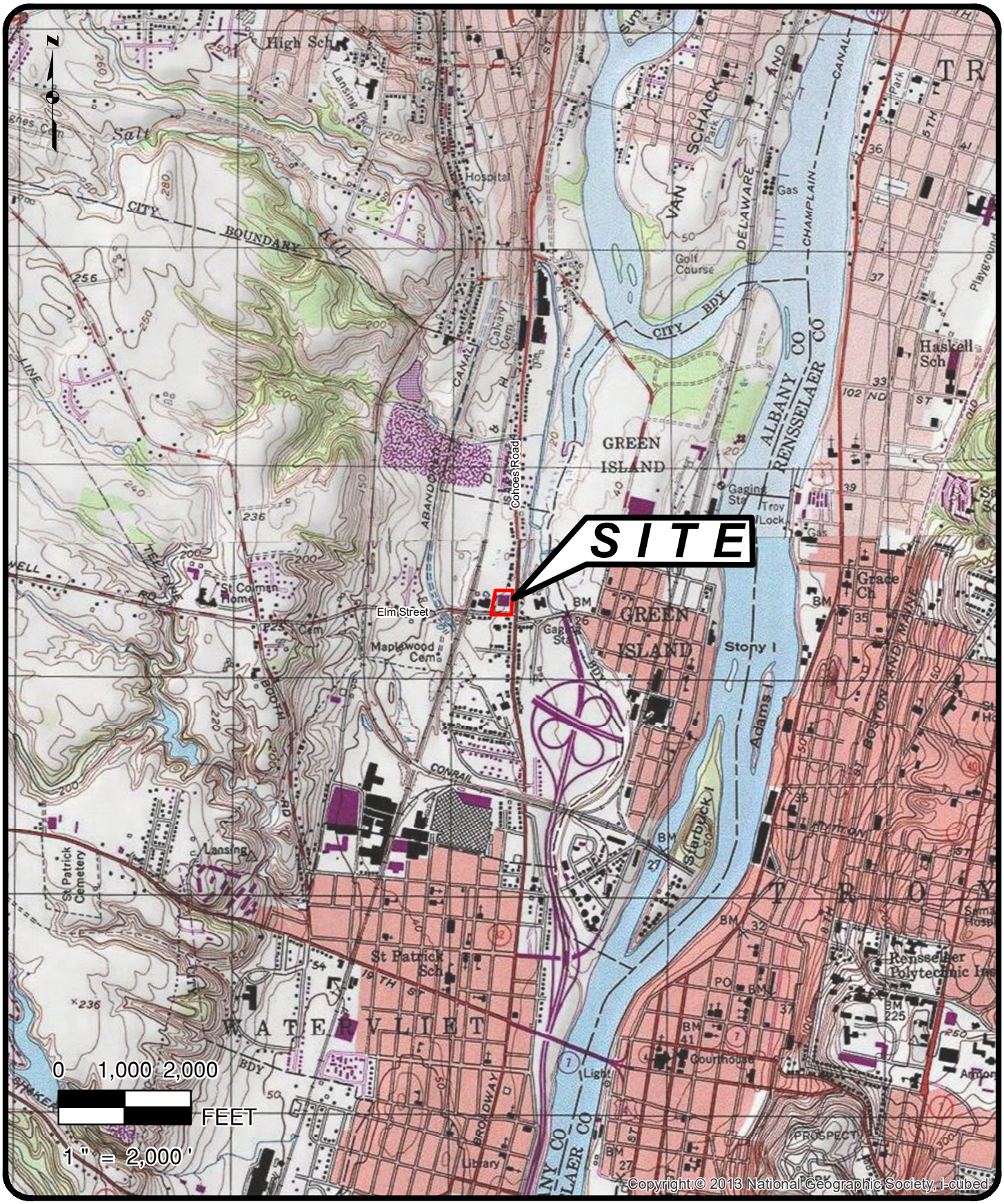
	Remedial Alternative		
Evaluation Criteria	**1**	**2**	**3**
Protection of Human Health and the Environment	1	1	3
Standards, Criteria, and Guidance (SCGs)	1	1	3
Long-Term Effectiveness and Permanence	1	1	3
Reduction of Toxicity, Mobility and Volume of Contamination	1	1	3
Short-Term Impact and Effectiveness	1	1	3
Implementability	3	3	3
Cost Effectiveness	1	1	2
Land Use	1	1	3
TOTALS	**11**	**11**	**23**

Remedial Alternatives

Evaluation Criteria

1 = Does not meet the indicated evaluation criteria
2 = Meets most, but not all of the indicated evaluation criteria
3 = Meets or exceeds the indicated evaluation criteria

FIGURES



S:\Sterling\Projects\2011 Projects\Troy Belting and Supply Co - 2011-31\Drawings-Maps-Figures\GIS\2011-31001G F-1 Site Location Map.mxd

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SITE LOCATION MAP
TROY BELTING AND SUPPLY COMPANY
70 COHOES ROAD
TOWN OF COLONIE ALBANY CO., NY

PROJ.NO.	DATE:	SCALE:	DWG.NO.	FIGURE
2011-31	04/28/2022	1 " = 2,000 '	2011-31001G	1

(IN FEET)
1 inch = 60 ft.

LEGEND:

SB-9	SOIL BORING (RJS ENVIRONMENTAL, 2011)
TP-14-5	TEST PIT (STERLING, 2014)
SW-4	SURFACE WATER/SEDIMENT SAMPLE (STERLING, 2014)
MW-6	RI MONITORING WELL (STERLING 2014/2015)
7-SV-IA-OA	SUB-SLAB/INDOOR/OUTDOOR AIR SAMPLE – OFFSITE (STERLING 2014-2018)
SS-2	SURFACE SOIL SAMPLE (STERLING 2014)
	BROWNFIELD CLEANUP AREA BOUNDARY

MAP REFERENCES:

1. BASE MAP: (INCLUDING EXISTING MONITORING WELL LOCATIONS & APPROXIMATE PROPERTY LINE), IS FROM DRAWING ENTITLED "MONITORING WELL SURVEY," BY CORNERSTONE SURVEYING & MAPPING, DECEMBER 17, 2012.
2. FORMER BROOK LOCATION FROM DRAWING ENTITLED "SURVEY OF PARCEL OF LAND," BY KING & DANSKIN, ENGINEERING & SURVEYING, JUNE 3, 1964.
3. EXISTING SOIL BORING LOCATIONS FROM DRAWING ENTITLED "BORING LOCATION MAP" (WITHIN PHASE II REPORT), BY RJS ENVIRONMENTAL, SEPTEMBER 28, 2011.
4. AERIAL IMAGE FROM NEW YORK STATEWIDE DIGITAL ORTHOIMAGERY PROGRAM, PHOTOGRAPHY CIRCA 2011

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SITE VICINITY & HISTORICAL SAMPLE LOCATION MAP
TROY BELTING AND SUPPLY COMPANY
70 COHOES ROAD
TOWN OF COLONIE ALBANY CO., N,Y,

PROJ. No.:	DATE:	SCALE:	DWG. NO.	FIGURE
2011-31	04/28/2022	1" = 60'	2011-31224	2

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LEGEND:

SB–9	SOIL BORING (RJS ENVIRONMENTAL, 2011)
TP–14–5	TEST PIT (STERLING, 2014)
SW–4	SURFACE WATER/SEDIMENT SAMPLE (STERLING, 2014)
MW–6	RI MONITORING WELL (STERLING 2014/2015)
7–SV–IA–OA	SUB–SLAB/INDOOR/OUTDOOR AIR SAMPLE – OFFSITE (STERLING 2014–2018)
SS–2	SURFACE SOIL SAMPLE (STERLING 2014)
	APPROXIMATE PROPERTY BOUNDARY
	5 µg/L ISOCONCENTRATION (NOVEMBER 2015)
	SOURCE AREA IRM EXCAVATION AREA. ESTIMATED EXTENT OF SOIL EXCEEDING UNRESTRICTED USE AND PROTECTION OF GROUNDWATER SCOs.
	INFERRED GROUNDWATER FLOW DIRECTION (SHALLOW ZONE)

MAP REFERENCES:

1. BASE MAP: (INCLUDING EXISTING MONITORING WELL LOCATIONS & APPROXIMATE PROPERTY LINE), IS FROM DRAWING ENTITLED "MONITORING WELL SURVEY," BY CORNERSTONE SURVEYING & MAPPING, DECEMBER 17, 2012.
2. FORMER BROOK LOCATION FROM DRAWING ENTITLED "SURVEY OF PARCEL OF LAND," BY KING & DANSKIN, ENGINEERING & SURVEYING, JUNE 3, 1964.
3. EXISTING SOIL BORING LOCATIONS FROM DRAWING ENTITLED "BORING LOCATION MAP" (WITHIN PHASE II REPORT), BY RJS ENVIRONMENTAL, SEPTEMBER 28, 2011.
4. AERIAL IMAGE FROM NEW YORK STATEWIDE DIGITAL ORTHOIMAGERY PROGRAM, PHOTOGRAPHY CIRCA 2011

0 30 60 120

(IN FEET)
1 inch = 60 ft.

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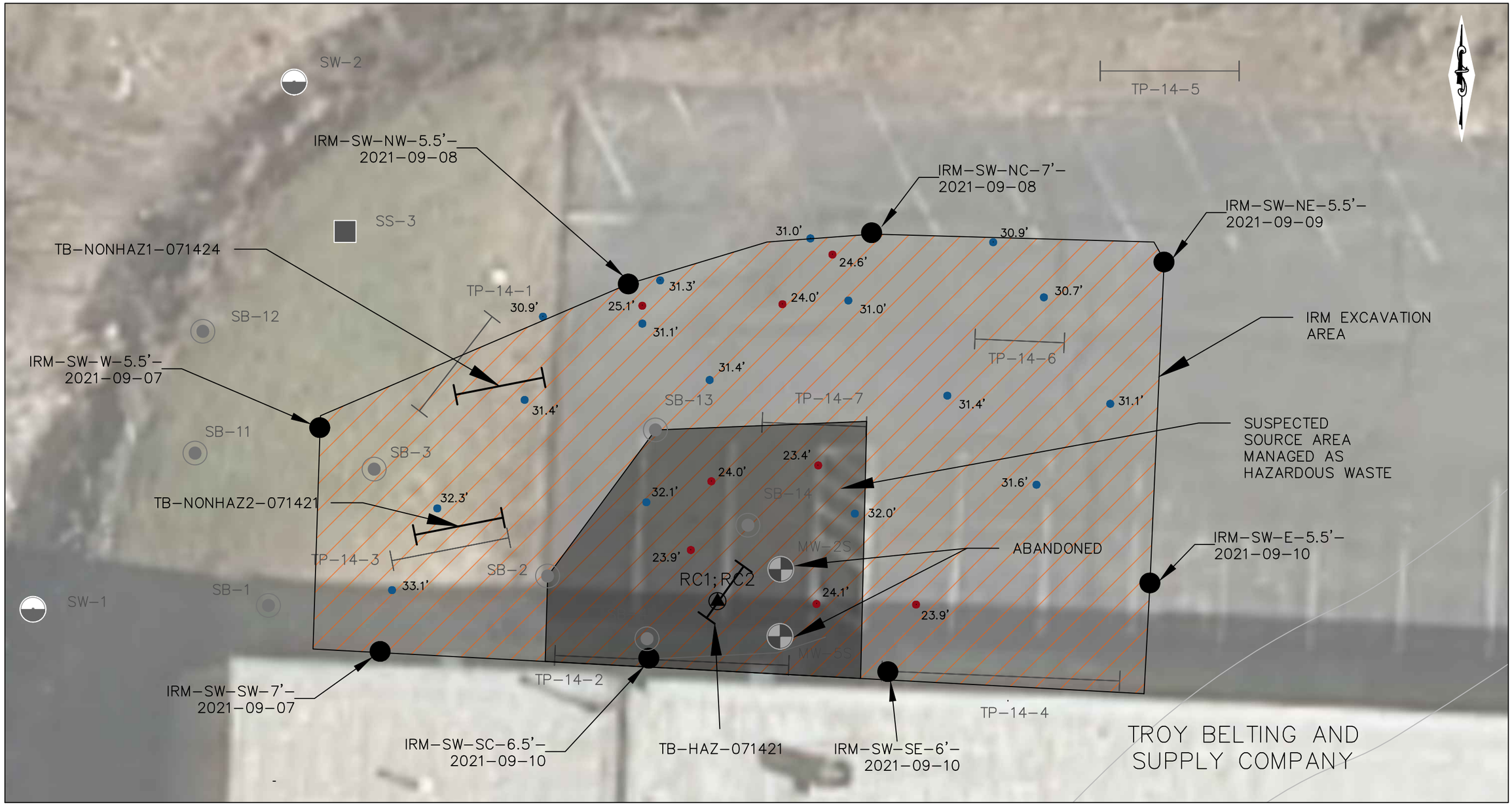
SUMMARY OF SITE IMPACTS
TROY BELTING AND SUPPLY COMPANY
70 COHOES ROAD
TOWN OF COLONIE ALBANY CO., N,Y,

PROJ. No.:	DATE:	SCALE:	DWG. NO.	FIGURE
2011–31	12/09/2021	1" = 60'	2011–31225	3



LEGEND:

- IRM EXCAVATION SIDE WALL SAMPLE
- HISTORIC SURFACE WATER / SEDIMENT SAMPLE
- HISTORIC SOIL BORING
- MONITORING WELL
- IRM WASTE CHARACTERIZATION TEST PIT
- HISTORIC TEST PIT
- IRM ROCK CORE SAMPLE
- IRM EXCAVATION FLOOR ELEVATION
- IRM FINISH GRADE ELEVATION

MAP REFERENCES:

1. BASE MAP: (INCLUDING EXISTING MONITORING WELL LOCATIONS & APPROXIMATE PROPERTY LINE), IS FROM DRAWING ENTITLED "MONITORING WELL SURVEY," BY CORNERSTONE SURVEYING & MAPPING, DECEMBER 17, 2012.
2. FORMER BROOK LOCATION FROM DRAWING ENTITLED "SURVEY OF PARCEL OF LAND," BY KING & DANSKIN, ENGINEERING & SURVEYING, JUNE 3, 1964.
3. EXISTING SOIL BORING LOCATIONS FROM DRAWING ENTITLED "BORING LOCATION MAP" (WITHIN PHASE II REPORT), BY RJS ENVIRONMENTAL, SEPTEMBER 28, 2011.
4. AERIAL IMAGE FROM NEW YORK STATEWIDE DIGITAL ORTHOIMAGERY PROGRAM, PHOTOGRAPHY CIRCA 2011

0 5 10

1" = 10'

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SOURCE AREA EXCAVATION IRM
AS-BUILT PLAN VIEW
TROY BELTING AND SUPPLY COMPANY
70 COHOES ROAD
TOWN OF COLONIE ALBANY CO., NY

PROJ. No.:	DATE:	SCALE:	DWG. NO.	FIGURE
2011-31	12/09/2021	1" = 10'	2011-31226	4

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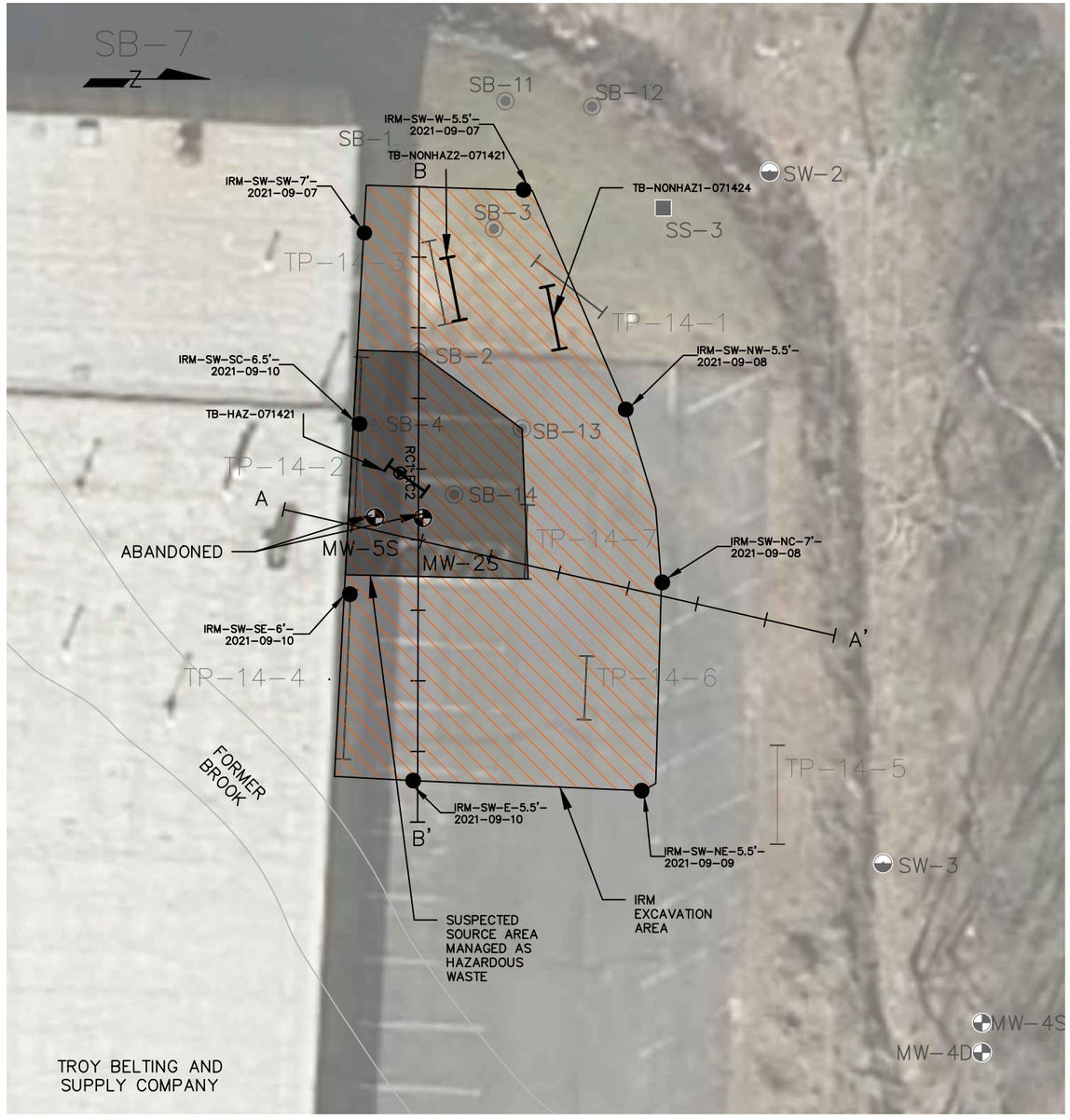


LEGEND:

- IRM EXCAVATION SIDE WALL SAMPLE
- HISTORIC SURFACE WATER / SEDIMENT SAMPLE
- HISTORIC SOIL BORING
- MONITORING WELL
- IRM WASTE CHARACTERIZATION TEST PIT
- HISTORIC TEST PIT
- IRM ROCK CORE SAMPLE

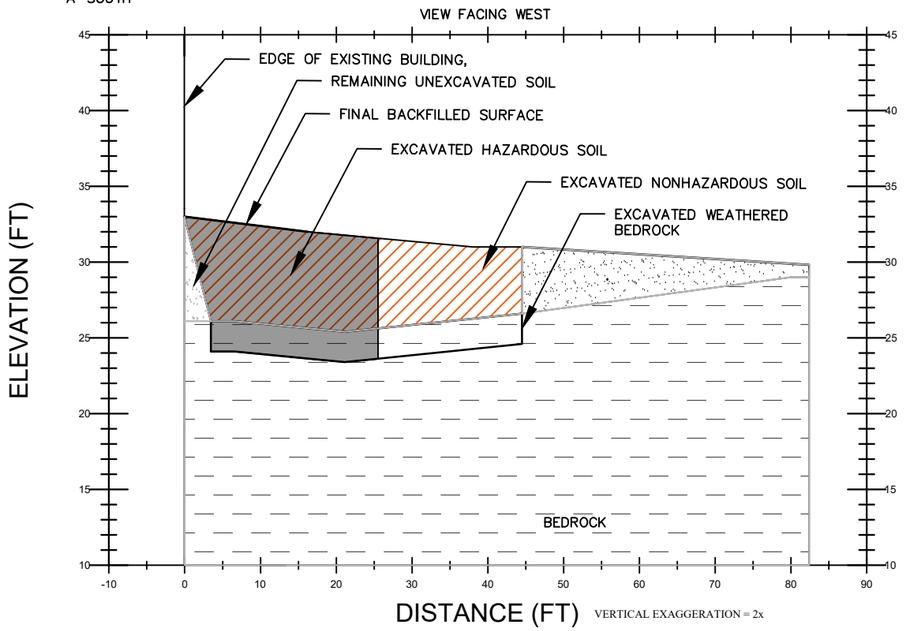
0 10 20

1" = 20'

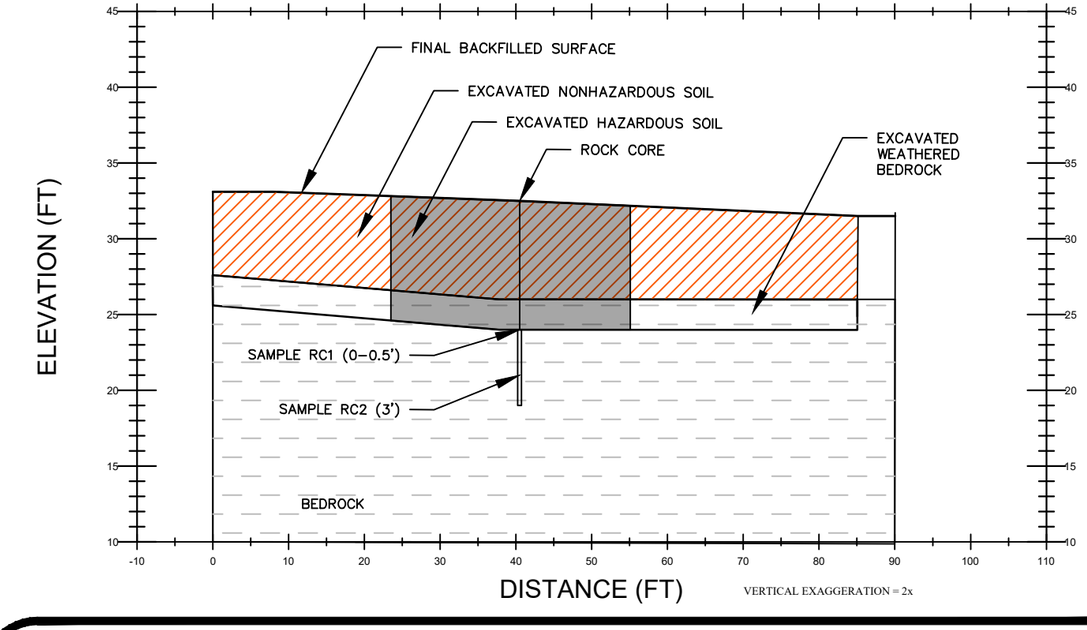
MAP REFERENCES:

1. BASE MAP: (INCLUDING EXISTING MONITORING WELL LOCATIONS & APPROXIMATE PROPERTY LINE), IS FROM DRAWING ENTITLED "MONITORING WELL SURVEY," BY CORNERSTONE SURVEYING & MAPPING, DECEMBER 17, 2012.
2. AERIAL IMAGE FROM NEW YORK STATEWIDE DIGITAL ORTHOIMAGERY PROGRAM, PHOTOGRAPHY CIRCA 2011

CROSS SECTION A-A'



CROSS SECTION B-B'



STERLING
Sterling Environmental Engineering, P.C.
24 Wade Road • Latham, New York 12110

SOURCE AREA EXCAVATION IRM
AS-BUILT SECTION VIEW
TROY BELTING AND SUPPLY COMPANY
70 COHOES ROAD
TOWN OF COLONIE ALBANY CO., NY

PROJ. No.:	DATE:	SCALE:	DWG. NO.	FIGURE
2011-31	12/09/2021	1" = 20'	2011-31227	5

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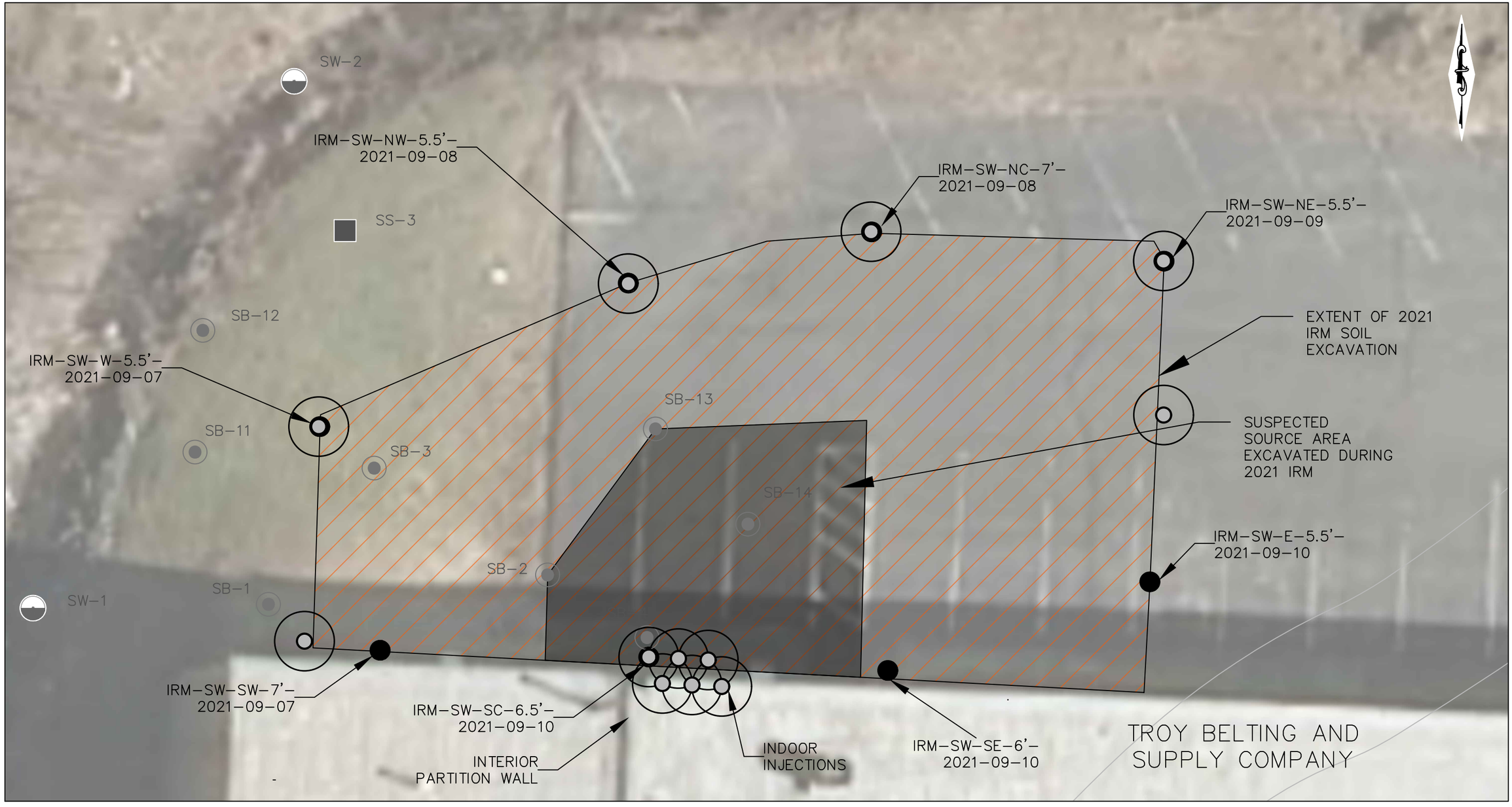

LEGEND:

- IRM EXCAVATION SIDE WALL SAMPLE
- HISTORIC SURFACE WATER / SEDIMENT SAMPLE
- HISTORIC SOIL BORING
- MONITORING WELL
- DIRECT PUSH INJECTION LOCATION

MAP REFERENCES:

1. BASE MAP: (INCLUDING EXISTING MONITORING WELL LOCATIONS & APPROXIMATE PROPERTY LINE), IS FROM DRAWING ENTITLED "MONITORING WELL SURVEY," BY CORNERSTONE SURVEYING & MAPPING, DECEMBER 17, 2012.
2. FORMER BROOK LOCATION FROM DRAWING ENTITLED "SURVEY OF PARCEL OF LAND," BY KING & DANSKIN, ENGINEERING & SURVEYING, JUNE 3, 1964.
3. EXISTING SOIL BORING LOCATIONS FROM DRAWING ENTITLED "BORING LOCATION MAP" (WITHIN PHASE II REPORT), BY RJS ENVIRONMENTAL, SEPTEMBER 28, 2011.
4. AERIAL IMAGE FROM NEW YORK STATEWIDE DIGITAL ORTHOIMAGERY PROGRAM, PHOTOGRAPHY CIRCA 2011

0 5 10

1" = 10'

STERLING

Sterling Environmental Engineering, P.C.

24 Wade Road • Latham, New York 12110

REMEDIAL ACTION WORK PLAN
INJECTION LOCATION PLAN
TROY BELTING AND SUPPLY COMPANY
70 COHOES ROAD
TOWN OF COLONIE ALBANY CO., NY

PROJ. No.:	DATE:	SCALE:	DWG. NO.	FIGURE
2011-31	3/2/2023	1" = 10'	2011-31237	6

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APPENDIX A

IET PROPOSAL FOR IN-SITU REMEDIATION

Proposal to Treat CVOC Contamination Utilizing Reductive Dechlorination via Synergistic Technologies

to

Sterling Environmental Engineering P.C.

for

Troy Belting and Supply Company
70 Cohoes Road
Colonie, New York 12189

December 2022

Innovative Environmental Technologies, Inc.
3958 North State Route 3
Sunbury, OH 43074
(740) 965-6100

December 23, 2022

Paul Scholar
Geologist
Sterling Environmental Engineering P.C.

Dear Mr. Scholar:

Innovative Environmental Technologies Inc. (IET) has prepared a revised remedial design and quotation for the Troy Belting and Supply facility located in Colonie, NY based in response to NYSDEC comments. The site has been identified as having impacted soils and groundwater due to the historic use of chlorinated solvents, specifically chlorinated ethenes. Present in the site's groundwater and soils are these compounds and their degradation daughter products.

As a result of IET's evaluation of the historical data, boring logs, field analyses, and discussions with Sterling Environmental Engineering P.C., a design which will facilitate accelerated reductive dechlorination within the downgradient area is being proposed.

The recommendations presented herein are based on IET's experience at over 1,500 comparable sites, IET's experience with a variety of oxidative and reductive technologies and IET's ability to integrate a variety of remedial products for the optimal remedial process.

Further, the remedial approach presented herein is covered by five IET United States Patents.

1) "Apparatus for In-Situ Remediation Using a Closed Delivery System," Patent Issue Date: May 16, 2006 Patent Number 7,044,152.

2) "Method for Accelerated Dechlorination of Matter," Patent Issue Date: October 31, 2006, Patent Number 7,129,388.

3) "Method for Accelerated Dechlorination of Matter," Patent Issue Date: May 12, 2009, Patent Number 7,531,709 (continuation of "388").

4) "Method for the Treatment of Groundwater and Soils Using Mixtures of Seaweed and Kelp," Patent Application #6124509, July 2009

5) "Inhibition of Methane Production during Anaerobic Reductive Dechlorination," Patent Application # US2014/0251900 A1, September 2014

The following proposal will set-forth a lump sum price for the design, implementation and follow up of this process. All costs included in the lump sum price are listed below:

- All chemicals and materials necessary to complete the proposed plan
- All equipment and personnel required to execute the proposed plan
- Handling and Management of materials on site
- Mobilization/Demobilization of the injection crews
- All per diem for the required crews
- Site Restoration
- Health and Safety Plan
- Final field injection report
- Final plot of injection points
- Six quarterly data analysis reports based on analytical data provided by Sterling Environmental Engineering P.C.

Thank you for considering IET for your remediation needs. If you have any questions or concerns, please contact our office.

Best Regards,

Wade Meese, Vice President
Innovative Environmental Technologies, Inc.
740-965-6100

Table of Contents

OBJECTIVE

It shall be the objective of IET to promote the conditions in-situ, necessary for accelerated dechlorination via both abiotic and microbial processes. Further, through the introduction of a 1-3 micron zero valent iron colloidal suspension, reduction of the dissolved phased CVOCs will occur while initiating the production of hydrogen for microbial mineralization processes in order to mitigate off-site migration and address the contamination within the property boundary.

The remedial plan described herein is designed to address CVOC contamination via direct push injection (DPT). No additional equipment or maintenance will be required and because no waste streams will be generated, no disposal permitting will be required during the remedial effort. IET proposes to implement a program, which shall:

- Supply all essential microbial elements necessary for dechlorination processes to occur.
- Introduce zero valent iron (ZVI) to abiotically address CVOC's, while acting synergistically with the desired anaerobic processes.

A map of the proposed treatment areas for the site is located below.

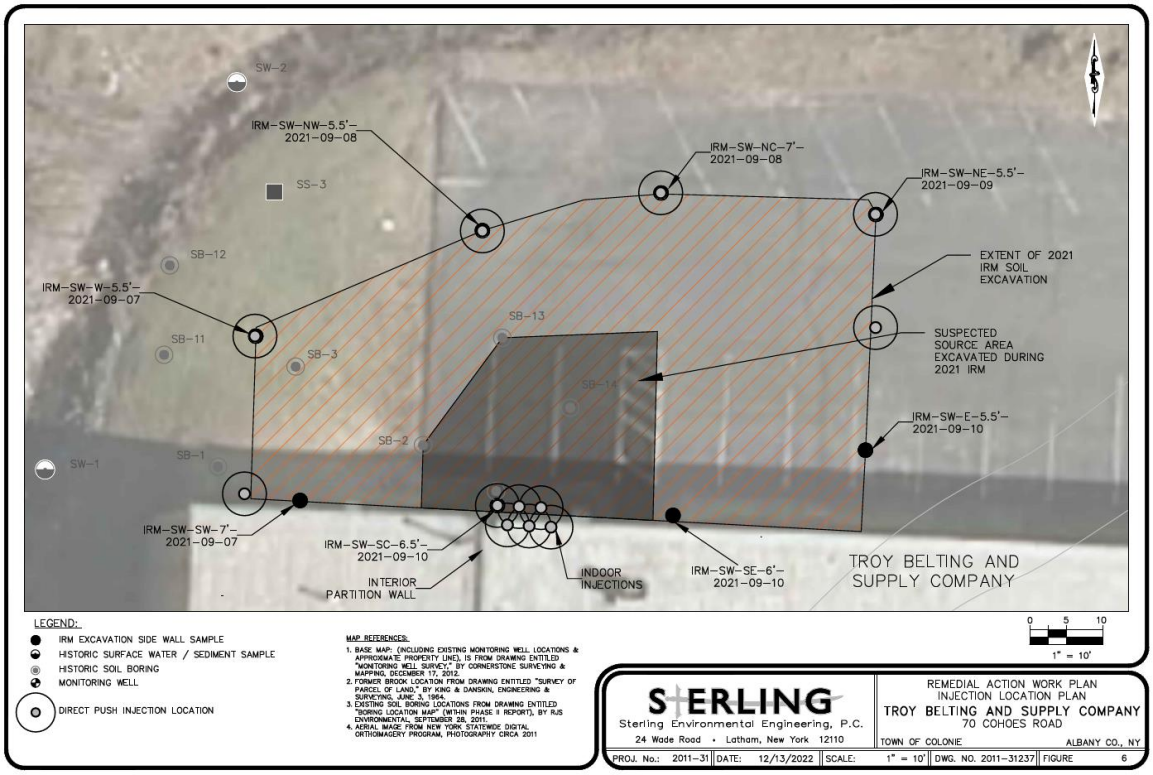


Figure 1. Treatment Map

Source Area Residual

The treatment area is approximately 1,356 square feet that is intended to treat residual contamination left near the building footprint, as well as along the perimeter of the former excavation, and will act as a treatment zone to mitigate migration of dissolved phase CVOC compounds being transported by groundwater through this area. This area will be treated with a three foot vertical contaminated zone from 5-8 feet below ground surface (bgs). An injection radius of 6 feet is proposed to treat the area. The three outside injection locations will be directionally injected towards the building foundation in order to minimize injectate entering the more permeable excavated area. Based on the area to be treated and the injection radius, 12 injection points would be required to treat the area.

The proposed remedial technology to be implemented is a combination of abiotic and biotic processes incorporating zero valent iron particles, nutrients and hydrogen sources for accelerated biological mineralization. The concentration of iron and organic hydrogen donors is based on the provided groundwater concentrations. Corresponding dosage calculations are located in Appendix 2.

Soil concentrations are assumed to be high in the vicinity of the PRB therefore the soil Freundlich absorption correction is moderate (IET has assumed the value to be 30%).

The Freundlich equation is an adsorption isotherm that relates the concentration of a solute on the surface of an adsorbent to the concentration of the solute in a liquid. The Freundlich equation is used to determine the theoretical mass of contamination adsorbed to the soil. The mass of contaminant in the soil was determined using the soil adsorption correction (item 1). The K constant is a figure relating the capacity of the adsorbent for an adsorbate and the 1/n constant is a function of the strength of adsorption (*American Water Works Association*, Water Quality and Treatment, 1999). The Freundlich equation is listed below:

$$q_e=KC_e^{1/n}$$

The theoretical values of K and 1/n are found in the following references: (Dobbs and Cohen, 1980/Faust and Aly, 1983). The infiltration gallery calculations are located below in Appendix 2.

SCOPE OF SERVICES

1. SATURATED ZONE INJECTIONS

The following sequence will be followed when injecting into each of the treatment areas.

1. Subsurface Pathway Development

Initially, nitrogen gas shall be delivered to the subsurface via IET proprietary injection trailer system. Nitrogen gas is used so as not to introduce oxygen into an environment targeted for anaerobic processes. The gas is introduced at approximately 100 psi such that delivery pathways and voids are established. Pathway development shall be verified by observing a substantial pressure drop.

2. Injection of Prescribed Remedial Materials

A measured amount of a solution containing: sodium sulfite, propionate, Provect-IR, ZVI, red yeast rice, nutrients and micronutrients (riboflavin and vitamin B-12) are immediately injected into the subsurface fractures and voids that were developed during the gas injection step. Sodium sulfite acts as an oxygen scavenger, iron reducer and sulfate source. As an oxygen scavenger, the sodium sulfite prevents the oxidation of the ZVI by the dissolved oxygen while promoting anaerobic conditions that are favorable for the biodegradation of the CVOCs. Nutrients, injected as organic ammonia and ortho-phosphate, are required for the maintenance of the microbial metabolic pathways, ATP/ADP synthesis and organelle development. ZVI and Provect-IR is injected immediately following the sodium sulfite/bioslurry solution to reduce concentrations of dissolved-phase CVOCs while providing for rapidly generated hydrogen for the microbial stimulation.

3. Post Liquid Injection - Gas Injection

Lastly, the injection lines are cleared of liquid amendments with rinse water and are subsequently forced into the created formation and upward into the vadose zone via nitrogen gas.

Depending on site conditions, the amendments will be delivered to the subsurface via “top-down” or “bottom-up” injection screens. The “top-down” approach will utilize a perforated screen that has holes exposed during the advancement of the tooling to the appropriate injection interval. The prescribed dosage is injected, and the tooling is advanced to the next vertical injection interval. This tooling is driven to the bottom planned injection interval, opened to expose the holes and then the material compounds are pumped into the subsurface. Once the prescribed dosage has been added, the drill rod string is pulled up to the next planned injection interval. All dosages, injection intervals and injection locations will be documented in

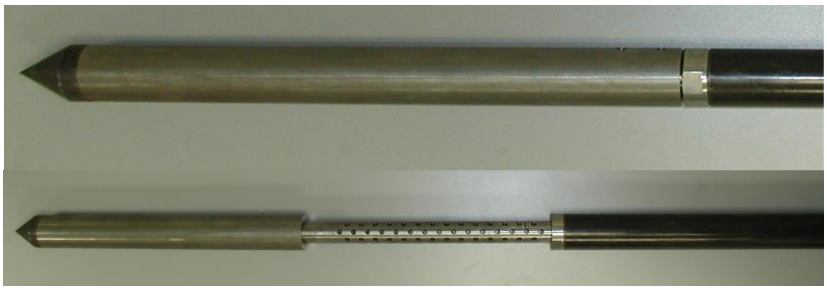
the field by IET. Once the injection cycle is complete, the injection point is capped to allow for the pressurized subsurface to accept the injectant.

The targeted saturated zone at the site shall receive calculated dosages of the individual remedial components based on biological and stoichiometric demands and an estimated pore volume based on the known geology of the site.

Equipment Description
The injections small occur via IET's mobile injection trailer and IET's direct-push equipment as described:

Injection Lines: High Pressure Stainless steel Braided Rubber one inch hose

Injection Trailer: IET Self-contained injection trailer, consisting of: two 200 gallon conical tanks capable of maintaining unto 30% solids as a suspension via lightning mixers; on-board generator, all stainless steel piping system, two" pneumatic diaphragm pump with an operating pressure of 110 psi.; on-board 37 CFM/175 psig compressor with 240 gallons of air storage; self contained eye wash and safety shower.
Injection Rods: IET proprietary injection rods with retractable injection zones and backflow protection Injection zones of eighteen inches are to be used in combination with AWJ-Rods where appropriate.



IET INJECTION SYSTEM
UNITED STATES PATENT 7,044,152

Injection Trailers Include: Multiple Liquid Feed Systems, Stainless Steel Piping, Isolated Compressed Gas Containment, Safety Shower, Eyewash Station, Onboard Generator, Chemical Resistant Construction, Mobile Office Space

SUMMARY

Innovative Environmental Technologies, Inc. presents this proposal as a **"Lump-Sum"** amount based on the treatment area and is proposed to cost **$**XX**,**XXX**.**XX**.** IET estimates that it will take2.0 days to implement the remedial design with a half day for materials receiving and site set-up. The price present herein is guaranteed *regardless* of the actual field time required toimplement the program described.

The "Lump-Sum" price set-forth assumes that a water supply, unrestricted access and a secure storage area for chemicals are available for the duration of the project.

Recommended Sampling:

Field Sampling:

Dissolved Oxygen (DO),
Oxidation/Reduction Potential (ORP),
Specific Conductivity,
pH
Temperature and
Groundwater Elevation

Laboratory Analyses:

Method 8260 VOCS

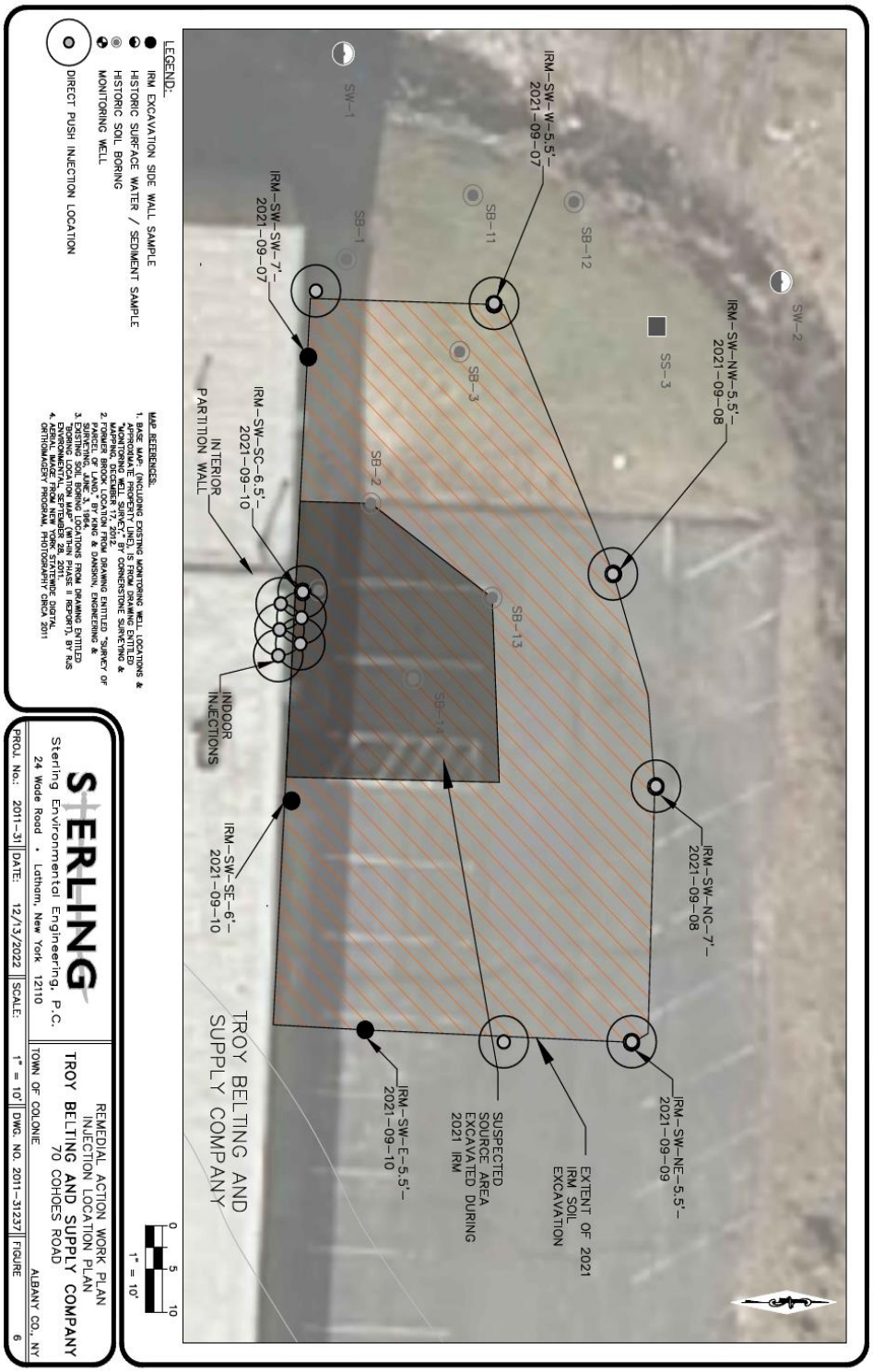
Ethene
Ethane
Methane
Sulfate
Total and Dissolved Iron

Recommended Sampling Schedule:

Time Zero (Prior to Injections); 90 days, 180 days; 270 days, 360 days

APPENDICES:

APPENDIX 1 (SITE MAP)



APPENDIX 2: DOSAGE CALCULATIONS

Source Area Residual

Troy Belting — Colonie, NY

Area 1

Parameters	Units	Assumptions		
Target Area	Ft.X Ft.	1356		
Soil Absorbsion Correction for GAC Constant	%	30		
Area of influence of Remediation Injection(s)	Sq. Ft.	113.09724		
Estimated Number of Injections to Treat Area	# Injections	12		
vertical impacted zone	Ft.	3		
Total Volume Targeted	Cu. Yd.	150.6666667		
Porosity	%	30.00%		
Groundwater Flow Velocity	Ft/Yr	10.00		
Injection Depth	Ft - bgs	5-8'		
Volatile Organic Compounds in Water				
TCA	ppb	1	0.001	ppm
PCE	ppb	5000	5	ppm
TCE	ppb	50000	50	ppm
c-DCE	ppb	1000	1	ppm
t-DCE	ppb	100	0.1	ppm
1-1 DCA	ppb	1	0.001	ppm
1,1 DCE	ppb	1	0.001	ppm
VC	ppb	10	0.01	ppm
Injection Parameters				
Anticipated Radius of Influence	Ft	6		

TROY BELTING

	PRB-1								
	Point	Depth(s)	Location	Type	*B2 - Grams*	*RYR - Grams*	*Provect-IR*	*ZVI - lbs*	*Sulfite*
Injection Point #		5-8'	outside		54.18	512.37	100	51	5
Number of Pts		12	1	Totals	650.20	6148.46	1200	612	60

Injection Points				Point Summary	
Materials		$		Number of Points	12
650.20	B2	$XXX	$XXX	Grams B2/pt.	54.18
6148.46	RYR	$XXX	$XXXX	Grams RYR/pt.	512.37
1200	Provect-IR	$XXX	$XXXX	Pounds Provect-IR	100
612	ZVI	$XXX	$XXXX	Pounds of ZVI/pt.	51
60	Sulfite	$XXX	$XXX	Pounds of Sulfite/pt.	5
120	Nutrient	$XXX	$XXX	Pounds of Nutrient/pt.	10
600	Propionate	$XXX	$XXXX	Pounds of Propionate	50
93.66	B12	$XXX	$XXX	**Cost per Point**	**$XXXX**
			$XXXX		
Labor					
Mob/Demob	1	$XXXX	$XXXX		
Days of Probe	2	$XXXX	$XXXX		
Nitrogen	0.50	$XXXX	$XXXX		
Days of IET Injection Trailer	2	$XXXX	$XXXX		
Days IET supervision etc.	2	$XXXX	$XXXX		
Material Handling/Forklift, etc.	1	$XXXX	$XXXX		
Concrete Coring	3	$XXX	$XXX		
Per Diem(3 man Crew)	3	$XXX	$XXXX		
Labor			**$XXXX**		
	Sub Total		**$XXXX**		
		Total	**$XXXX**		

PRB-1	
Injection Summary:	**Injection #1**
Depth of Injection	**6-8'**
Grams B2/inj	54.18
Grams RYR/inj	512.37
Pounds of ZVI/inj	51
Pounds Provect-IR/inj	100
Pounds of Sulfite/inj	5
Pounds of Nutrient/inj	10
B12	7.80
Propionate	50
Gallons of Sulfite/Nutrient/zvi	100
Yeast/propionate	
Solution/inj	

APPENDIX 3: TECHNOLOGY DISCUSSION

The options available for a cost-effective and reliable technology to treat chlorinated hydrocarbon contaminants such as tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichlorethene (cis-1,2-DCE), and carbon tetrachloride in groundwater have in recent years moved away from traditional pump-and-treat processes, especially in cases where:

- NAPL, micro-emulsions or high concentration adsorbed materials are present leading to high dissolved phase concentrations.
- Access to groundwater is restricted by surface structures or uses.
- Local restrictions forbid the implementation of other available technologies such as air sparging or natural attenuation.
- Pump and Treat technologies have been applied, but have reached asymptotic removal rates.
- Contamination is extensive and concentrations are too high for risk based closure but otherwise relatively low (typically 100-7500 ppb).
- The migration of dissolved Chlorinated Aliphatic Compounds (CAHs) across property boundaries or into adjacent surface water presents a long-term remediation requirement.
- The vertical migration of free phase CAHs (DNAPL) into underlying drinking water aquifers is a concern.

The environmental chemistry of a site in part determines the rate of biodegradation of chlorinated solvents at that site. The initial metabolism of chlorinated solvents such as chloroethenes and chloroethanes in ground water usually involves a biochemical process described as sequential reductive dechlorination. The occurrence of different types and concentrations of electron donors such as native organic matter, and electron acceptors such as oxygen and chlorinated solvents, determines to a large degree the extent to which reductive dechlorination occurs during the natural attenuation of a site. To accelerate the natural processes, ZVI and enhanced microbial dechlorination processes are proposed to be utilized at the site. The utilization of coenzymes, oxygen scavengers and nutrients ensures that little or no lag phase in the process is experienced and that the most efficient pathways may be utilized.

Program Elements

Oxygen Scavenger (sodium sulfite): Reductive dechlorination only occurs in the absence of oxygen; and, the chlorinated solvent actually substitutes for oxygen in the physiology of the microorganisms carrying out the process. As a result of the use of the chlorinated solvent during this physiological process it is at least in part dechlorinated. The site shall have introduced to the subsurface an oxygen scavenger to ensure that this process would occur immediately.

Zero Valent Iron (ZVI): ZVI may chemically be thought of having been the product of the positively charged metal ions receiving electrons to become the electrically neutral pure metal. The term "reduction" is applied to any chemical reaction that added electrons to an element. Thus, ZVI is a reduced material. In a similar manner, the chemical term "oxidation" refers to any chemical reaction that removes electrons from a material. For a material to be reduced, some other material must be oxidized. In the reduction of a chlorinated compound the zero

valent iron is oxidized. Zero valent iron enhanced abiotic degradation of chlorinated volatile organic compounds (CVOCs) is essentially a reductive dechlorination process, which uses granular cast iron as the reducing agent, and produces final reaction products such as ethane, ethene, and chloride ions in the degradation of TCE. During this treatment process, the corrosion of iron by water dominates the chemical processes. The corrosion of iron by water results in ferrous ion generation, hydroxyl ion generation, and hydrogen gas generation. This results in a decrease in ORP (oxidation/reduction potential; that is, reducing conditions are produced) and an increase in pH. Accordingly, the end products of this reaction are ferrous iron, chloride ions, and the dehalogenated compound.

Frequently remedial sites show insignificant or incomplete dechlorination, especially those with high aquifer sulfate levels. It is generally overlooked that the rapid conversion of sulfate to toxic free sulfide during bacterial reductive dechlorination plays a significant role in the "stalling" of the biotic stalling frequently observed. Accumulation of free sulfide is especially important in sites that display both high sulfate and low available iron. Reductive dechlorination inhibition by free sulfide has been observed in microcosms conducted for high sulfate field sites. Free sulfide toxicity to microorganisms can be prevented if ferrous iron precipitates the free sulfide. Further, iron sulfide mineral precipitates have been shown to catalyze reductive dechlorination of chlorinated solvents at rates comparable to metallic iron, on a surface area normalized basis. Microcosms performed at high sulfate sites have been showed to both remove free sulfide toxicity to dehalogenating bacteria and to enhance catalytic reductive dechlorination when ferrous iron is added. Further, ferrous iron, itself, may act as an electron donor.

Injected, colloidal reactive iron is a promising technology, which may be applied, in a synergistic approach with compatible technologies. There are two primary reactions with CAHs that take place which will consume the iron and require stoichiometric consideration:

- the anaerobic iron corrosion reaction in which water is disassociated to form hydrogen gas; and
- the direct adsorption of a chlorinated hydrocarbon onto the surface of the iron, followed by reductive dehalogenation.

Recent research on elemental iron systems suggests that four mechanisms are at work during the reductive process:

- First, the Fe^0 acts as a reductant by supplying electrons directly from the metal surface to an adsorbed halogenated compound.
- Second, hydrogen gas is generated by the anaerobic corrosion of the metallic iron by water.
- Third, metallic iron may act as a catalyst for the reaction of hydrogen with the halogenated hydrocarbon using the hydrogen produced on the surface of the iron metal as the result of anaerobic corrosion with water. Theoretically, these reactions are not kinetically effective without a catalyst; thus, it is thought that impurities in the iron or surface defects act as that catalyst.
- Fourth, solubilized ferrous iron can also act as a reductant, albeit at a rate at least an order of magnitude slower.

Hydrogen gas can be used for reductive dehalogenation by the following reaction:

$$H_2 + X\text{-}Cl = X\text{-}H + H^+ + Cl^-$$

Organic Hydrogen Donors

General Discussion: The proposed remedial plan for the site incorporates a variety of organic hydrogen donors; each has been selected and dosed based on the hydrogen release profile of the individual compounds. Slowly fermented substrates producing lower H2 levels are more effective and persistent "selective" stimulators of dechlorination than rapidly fermented substrates producing higher H2 levels. Maintaining and extended a low hydrogen release profile as a result of a single injection event is a focus of IET's program. The mixed organic hydrogen donor recommendations presented herein promotes this condition, utilizing varied concentration of the substrates based on loading and the individual injection areas long-term treatment objective. The general release profile of the organic hydrogen donors within the program are presented below:

Propionate:	Zero to 100 days,
Hydrolyzed Kelp:	60 to 500 days,
Yeast Extract:	150 to 365 days,
Provect-IR:	365 to 1500 days,

Propionate: Some electron donors are more efficient than others at producing the hydrogen necessary for dehalogenation, and a fundamental question is why this is the case. One very plausible explanation is that various groups of microorganisms compete for hydrogen, and that dehalogenating microorganisms can survive better than others at very low hydrogen concentrations (Fennel et al., 1995; Smatlak, et al., 1996; Yang and McCarty, 1998). On this basis, slug addition of a compound such as formate, ethanol, or glucose is not as effective for dehalogenation as propionate because the former compounds are converted rapidly to hydrogen and acetate, and the latter is not. The rapid conversion is a result of more favorable thermodynamics with respect to hydrogen formation. Such rapid conversion places hydrogen in a concentration range where methanogens and sulfate reducers can compete effectively with dehalogenators.

Hydrolyzed Kelp: Seaweed is brown algae that are widely available in both the wild and through cultivation all over the world. The best-known species of seaweed is Ascophyllum nodosum. Not only is Ascophyllum nodosum the most popular amongst researchers, but is also the most cultivated species of seaweed. Ascophyllum nodosum is native to the northern Atlantic and has wide variety of important nutrients beneficial to anaerobic processes. Ascophyllum nodosum has an analyzed chemical composition of: 20 26% of sulphate uronic acids, 5 8% of Mannitol, 2 5% of Laminaran, 5 15% of fucoidin, 2500 2000mg/kg of Ascorbic acid, 150 300 mg/kg of Tocopherols, 30 60 mg/kg of Carotenes, 10 30 mg/kg of Niacin, 0.1 0.4 mg/kg of Biotin, 0.2 1 mg/kg of Folic acid, 5 10 mg/kg of Riboflavine, and 1 5 mg/kg of Thiamine. The species also has an assortment of elements including sulfur, potassium, chlorine, sodium, magnesium, calcium, phosphorous, bromine, cobalt, copper, iron, iodine, zinc, nickel and 0.004 mg/kg of Vitamin B12, and 10mg/kg of Vitamin K. Many of these organisms also are highly alkalizing; as a consequence, their addition counter-acts the natural production of acids produced by-way of anaerobic dechlorinization. These organisms are commercially available dried, in multiple forms, and in large quantities. When emplaced in

groundwater and soils impacted by chlorinated solvents the micro dried seaweed offer all the needed components for effective and rapid remediation of compounds such as tetrachloroethane, tetrachloroethene, trichloroethane, trichloroethene, carbon tetrachloride and their anaerobic daughter products.

The use of kelp as an additive that not only provides a variety of organic carbon and hydrogen sources, but also provides a source of nutrients and vitamins. When anaerobic bacteria digest sugars and carbohydrates, they convert the sugars and carbohydrates into gases, most commonly hydrogen. By utilizing a variety of very soluble kelp sources, IET will be able to provide a longer lasting source of vitamins, nutrients, and organic carbon than is commercially available in alternative remedial materials. Kelp, Ascopyllum nodosum, contains over 50% carbohydrates, 5% fat, 25% alginic acid and numerous essential macro-nutrients, micro-nutrients and vitamins. This material offer long term organic hydrogen sources, buffering capacity and essential nutrient for the sustained, biologically mediated anaerobic dechlorinization.

Yeast Extract: Yeast extract provides a variety of organic hydrogen donors capable of slow release profiles as well as significant biological components not available through other media. In particular yeast extract provides an abundant source of priming ATPase. The plasma membrane ATPase controls important physiological process. By pumping protons, it regulates intracellular pH and provides the driving force for nutrient uptake. A remarkable characteristic of this enzyme is the fact that it is activated in the presence of glucose through transcriptional and post-transcriptional mechanisms that increase the level of ATPase activity in cells. Glucose triggers a transduction signal mechanism leading to the activation of the plasma membrane ATPase, a complete system acting in this process formed by specific glucose receptors, G protein(s), internal signals and the phosphorylating and activating enzyme(s). The glucose-induced activation of the plasma membrane ATPase requires the presence of Snf3p (a glucose sensor) found in abundance in the provided yeast extract.

Provect-IR: Provect-IR contains ZVI to uniquely elicit ISCR reactions, and it is composed of a hydrophilic, solid and complex carbon source hence it should generate little or no methane (< 5 mg/L). Provect-IR consists of various organic hydrogen donors, such as propionate, yeast extract and kelp meal that target the production of H2 levels that effectively stimulate the reductive dechlorination process. In addition, Provect-IR also incorporates the oxygen scavenger sodium sulfite and the methane inhibitor red yeast rice, making it suitable to address multiple facets and areas of concern during the remedial process. A more extensive description of the purpose of each reagent is presented below.

Nutrient: Critical to the sustained microbial activity and general microbial health is sufficient bio available nutrient. IET has incorporated nitrogen and o-PO_4 into the remedial program such that organelle and ATP-ADP formation is not limited throughout the microbial respiratory process.

Vitamins: Recent studies suggest that metal – containing coenzymes, found in certain types of anaerobic microorganisms, and can reductively dechlorinate one- and two-carbon solvents. Cobalt-containing corrinoid cofactors such as vitamin B12 mediate the reductive dechlorination of carbon tetrachloride and tetrachloroethene. In these biological systems the rate-limiting step to complete dechlorination to ethylene is the last stage conversion of vinyl

chloride. The rate of that process has been found to be significantly enhanced by the presence of vitamin B12, which acts as an electron carrier. It is the core of B12, which contains cobalt, and the various oxidation states the cobalt obtains, which allows for the electron transfer intra-cellularly. The existence of the cobalt core has also been seen to catalyze the surface reaction of the iron lowering the necessary activation energy required for the electron transfer.

Technology Summary: The application of these two synergist technologies: colloidal iron and microbial reductive dechlorination process may be further enhanced through microbial amendments and reducing agents. The proposed treatment technology presented herein applies these technologies.

Critical to the success of the proposed remedial technologies is the successful delivery of the various materials to the targeted groundwater and soils.

APPENDIX B

HEALTH AND SAFETY PLAN (HASP)

HEALTH AND SAFETY PLAN (HASP)

TROY BELTING AND SUPPLY CO.
70 COHOES ROAD, COLONIE, NEW YORK
BCP # C401067

1.0 GENERAL INFORMATION

The Health and Safety Plan (HASP) identifies specific measures to be taken to ensure that hazardous substances or conditions do not adversely impact the health and safety of personnel and the general community (public) for Site operations. The HASP is intended to identify potential hazards and appropriate precautions as defined by OSHA 29 CFR 1910.120 (Hazardous Waste Operations and Emergency Response).

All personnel working on this project must read this HASP, acknowledge understanding of this plan, and abide by its requirements.

In general, personnel are responsible for complying with all regulations and policies applicable to the work they are performing. The Project Manager is authorized to stop work if any personnel/subcontractor fails to adhere to the required health and safety procedures.

In addition to this HASP, each contractor must provide a HASP that addresses minimum training requirements for activities specific to the project and identified potential hazards specific to the project that are not discussed herein.

2.0 DESIGNATION OF RESPONSIBILITIES

Implementing this HASP is the responsibility of the Project Manager. The Project Manager will be designated prior to any Site activities and can be the contractor hired for a particular project, or an independent consultant hired by the Owner.

The Project Manager is responsible for:

- Ensuring the availability, use, and proper maintenance of specified personal protective equipment, decontamination, and other health or safety equipment.
- Maintaining a high level of safety awareness among personnel/subcontractors and communicating pertinent matters to them promptly.
- Ensuring all field activities are performed in a manner consistent with this HASP.
- Monitoring for dangerous conditions during field activities.
- Ensuring proper decontamination of personnel and equipment.
- Coordinating with emergency response personnel and medical support facilities.
- Initiating immediate corrective actions in the event of an emergency or unsafe condition.
- Notifying the NYSDEC and project owner of any emergency, unsafe condition, problem encountered, or exception to the requirements of this HASP.
- Recommending improved health and safety measures to the NYSDEC.

The Project Manager must be present for all intrusive investigative activities. However, the presence of the Project Manager shall in no way relieve any person or company of its obligations to comply with the requirements of the HASP and all applicable Federal, State and local laws and regulations.

All personnel involved in the project must be familiar with and conform to the safety protocols prescribed in this HASP. All personnel will communicate any relevant experience or observations to the Project Manager to ensure that these valuable inputs improve overall safety. Individual project members are the key elements in ensuring health and safety compliance. Every project member is considered responsible for implementing and following this HASP.

3.0 SITE PROPERTY SPECIFIC HEALTH AND SAFETY CONCERNS

Airborne Exposure Limits

Table D-1 lists the published airborne exposure limits for those substances that are known or suspected to be present at the Troy Belting and Supply Company (Troy Belting) property.

Unknown or unexpected materials of a hazardous nature may be encountered during ground intrusive activities. No work will be conducted if field measurements or observations indicate that there is potential uncontrolled exposure to undefined hazards, or that exposures may exceed protection afforded by the requirements in this HASP.

Personal Protective Equipment (PPE)

Table D-1 provides a summary of potential airborne hazards that may be encountered by workers during ground intrusive and construction activities, action levels and corresponding required actions and the PPE level required for workers. Specific types of PPE for levels C and D include the following:

Personal Protective Equipment

Item	Required	Have Available
High-Visibility Shirt	**D**	
Reflective Vest		**D**
Hard Hat	**D**	
Safety Shoes	**D**	
Hearing Protection		**D**
Safety Glasses	**D**	
Respirator (air purifying)	**C**	

No work is anticipated requiring Levels B or A PPE and very limited work in Level C. If air monitoring results require PPE upgrades from Level D, then only medically qualified, trained personnel experienced in the use and limitations of air purifying or supplied air respirators will be used. Air purifying respirators with High-Efficiency Particulate Air (HEPA) filters, capable of removing particles of 0.3 micron or larger from air at 99.97% or greater efficiency, should be used when exposure to dust is a potential risk.

Unless the Project Manager directs otherwise, respirators used for organic vapors or particulates should have cartridges changed after eight (8) hours of use, or at the end of each shift, or when any indication of breakthrough or excessive resistance to breathing is detected. OSHA regulations require a Respiratory

Protection Program for companies that require employees to enter areas where respirators are required and such Respiratory Protection Programs must address the requirements for replacement of cartridges.

Suspected Safety Hazards

Suspected safety hazards include those inherent with the operation of heavy equipment such as drilling rigs or excavators, and proximity to excavations. Inspections to ensure appropriate safety measures are in place and the use of lockout and tagout procedures during maintenance of this equipment will control these inherent hazards. Personal protective equipment (PPE) including hard hats, safety shoes and eye protection will be worn to augment other safety precautions.

Drilling rigs and excavators must not operate closer than thirty (30) feet to any overhead lines, measured directly between any part of the equipment and the lines themselves except where electrical distribution and transmission lines have been de-energized and visibly grounded at the point of work, or where insulating barriers have been erected to prevent physical contact with the lines. If drilling or excavating is required within thirty (30) feet of any overhead lines, a written work plan must be provided by the contractor or other equipment operator that includes special measures designed to mitigate the risks and is in accordance with 29 CFR 1926.550(a)(15). The work plan must be reviewed and approved by written signature by the Project Manager.

Care must be taken to ensure loose clothing does not get tangled in any moving equipment associated with drilling rigs or excavators.

There may be slip or trip hazards associated with rough, slippery or elevated work surfaces.

There is also the possibility of organic vapors being encountered during ground intrusive activities due to the presence of volatile organic compounds (VOCs) in soils and groundwater. The Project Manager will use continuous monitoring instruments that measure total VOCs while each task is being conducted to determine ambient levels of contaminants. Procedures for monitoring VOCs and air-borne particulates are provided in a separate Community Air Monitoring Plan (CAMP).

All excavations will be maintained to prevent access by unauthorized persons and will be filled or fenced off by the end of the workday.

Excavator and Drill Rig Operations

Excavation will be performed with a track-mounted excavator or backhoe. To conduct soil borings or chemical injections, a hollow-stem auger or direct push drilling rig will be used. Working with or near this equipment poses potential hazards, including being struck by or pinched/caught by equipment, potentially resulting in serious physical bodily harm or inhaling dust from concrete coring.

In particular, the following precautions will be used to reduce the potential for injuries and accidents:

The inspection of excavator and drill rig brakes, hydraulic lines, light signals, fire extinguishers, fluid levels, steering, tires, horn, and other safety devices will be conducted prior to the initial mobilization and checked routinely throughout the project.

Excavator and drill rig cabs will be kept free of all non-essential items and all loose items will be secured.

Excavators and drill rigs will be provided with necessary safety equipment, including seat belts.

Drill rig cables and auger flight connections will be checked for evidence of wear. Frayed or broken cables or defective connections will be replaced immediately.

Parking brakes will be set before shutting off any heavy equipment or vehicle.

All employees will be briefed on the potential hazards prior to the start of each excavation or drilling project.

Adverse Weather

Drilling or excavating is dangerous during electrical storms. All field activity must terminate during thunderstorms. Extreme heat and cold, ice and heavy rain can produce unsafe conditions for drilling work. Such conditions, when present, will be evaluated on a case-by-case basis to determine if work shall terminate.

Fire and Explosion

Use of gasoline or diesel-powered equipment increases the risk of fire and explosion hazards. Contractors will be required to store diesel fuel and gasoline in metal cans with self-closing lids and flash arrestors.

Requirement to Conduct Utility Mark Out

Prior to the start of any subsurface work, underground utilities and piping that may pose a potential hazard will be identified and located. DigSafely New York or equivalent service will be called and underground utilities will be located and marked. Also, the location of privately-owned utility lines will be determined.

In the event a pipe or line is struck, work will stop and the Emergency Action Plan will be implemented (see Section 5.0).

Confined Space Entry

Confined space entry is not anticipated for excavating and sampling activities. If a project requires confined space entry, a specific HASP will be implemented.

"Confined Space" is defined as a space that:

1. *"is large enough and so configured that an employee can bodily enter and perform assigned work;*
2. *has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); and*
3. *is not designed for continuous employee occupancy."*

In accordance with 29 CFR 1926.1201(b), excavations are not governed by confined space regulations.

Excavation Safety

Excavations pose a significant hazard if not carefully controlled. Sidewall collapse is possible if an excavation is not properly sloped, benched, or shored as required by 29 CFR 1926. Only necessary

personnel will enter an excavation following evaluation of the excavation by a competent person. Reasons for entering the excavation are for the collection of confirmation sidewall samples and collection of bedrock samples.

Any excavation deeper than four (4) feet must have a stairway, ladder, ramp, or other safe means of egress for every 25 feet of lateral travel. During excavation, the excavation contractor must provide a competent person to evaluate excavation soils to determine appropriate sloping, benching, or shoring requirements in accordance with 29 CFR 1926. Evaluations will be reviewed by the Project Manager prior to personnel entering the excavation.

Work zone air monitoring must be performed while personnel are within an excavation.

Designated Work Zones

One of the basic elements of an effective HASP is the delineation of work zones for each ground intrusive location. The purpose of establishing work zones is to:

- Reduce the accidental spread of hazardous substances by workers or equipment from the contaminated areas to the clean areas;
- Confine work activities to the appropriate areas, thereby minimizing the likelihood of accidental exposures;
- Facilitate the location and evacuation of personnel in case of an emergency; and
- Prevent unauthorized personnel from entering controlled areas.

Although a work site may be divided into as many zones as necessary to ensure minimal employee exposure to hazardous substances, this HASP uses the three (3) most frequently identified zones: the Exclusion Zone, Decontamination Zone, and Support Zone. Movement of personnel and equipment between these zones should be minimized and restricted to specific access control points to minimize the spreading of contamination.

- Exclusion Zone

  During investigative work, the Exclusion Zone is the immediate excavation, test pit, borehole, or other area where contamination is either known or expected to occur and where the greatest potential for exposure exists. The following protective measures will be taken in the Exclusion Zone.

  Unprotected onlookers will be restricted from the excavation location so that they are at least twenty-five (25) feet upwind or fifty (50) feet downwind of excavation or drilling activities.

  Workers conducting activities and sampling in the Exclusion Zone will wear the applicable PPE. The actions to be taken and PPE to be worn in the Exclusion Zone if VOCs are above background levels are described in Table D-2.

- Decontamination Zone

  During investigative work, a Decontamination Zone will be established at the perimeter of the Exclusion Zone, and will include the personnel, equipment and supplies that are needed to decontaminate equipment. The size will be selected by the Project Manager to conduct the necessary decontamination activities. Personnel and equipment in the Exclusion Zone must pass through this zone before leaving or entering the Support Zone. The necessary decontamination

must be completed in this zone and the requirements are described in Section 6.0. This zone should always be established and maintained upwind of the Exclusion Zone.

- Support Zone

  During investigative work, the areas located beyond the Decontamination Zone will be considered the Support Zone. Break areas, operational direction and support facilities will be located in this area. Eating and drinking will be allowed only in the Support Zone.

Natural Hazards

Work that takes place in the natural environment may be affected by plants and animals that are known to be hazardous to humans. Spiders, bees, wasps, hornets, ticks, poison oak and poison ivy are only some of the hazards that may be encountered. Individuals who may potentially be exposed to these hazards should be made aware of their existence and instructed in their identification. Emergencies resulting from contact with a natural hazard should be handled through the normal medical emergency channels. Individuals who are sensitive or allergic to these types of natural hazards should indicate their susceptibility to the Project Manager.

Heat and Cold Stress Hazards

If work is to be conducted during the winter, cold stress is a concern to the health and safety of personnel. Because disposable clothing such as Tyvek does not "breathe", perspiration does not evaporate and the suits can become wet. Wet clothes combined with cold temperatures can lead to hypothermia. If the air temperature is less than 40 degrees Fahrenheit (°F) and a worker's clothes become wet due to perspiration, the worker must change to dry clothes.

Signs and Symptoms of Cold Stress

- **Incipient frostbite**: is a mild form of cold stress characterized by sudden blanching or whitening of the skin.
- **Chilblain:** is an inflammation of the hands and feet caused by exposure to cold moisture. It is characterized by a recurrent localized itching, swelling, and painful inflammation of the fingers, toes, or ears. Such a sequence produces severe spasms, accompanied by pain.
- **Second-degree frostbite** is manifested by skin which has a white, waxy appearance and is firm to the touch. Individuals with this condition are generally not aware of its seriousness, because the underlying nerves are frozen and unable to transmit signals to warm the body. Immediate first aid and medical treatment are required.
- **Third-degree frostbite** will appear as blue, blotchy skin. This tissue is cold, pale and solid. Immediate medical attention is required.
- **Hypothermia** develops when body temperature falls below a critical level. In extreme cases, cardiac failure and death may occur. Immediate medical attention is warranted when the following symptoms are observed:
  - Involuntary shivering;
  - Irrational behavior;
  - Slurred speech;
  - Sluggishness; and
  - Loss of consciousness.

Preventing Cold Related Illness/Injury

- Train personnel to identify the signs and symptoms of cold stress. Require field personnel to wear proper clothing for cold, wet and windy conditions, including layers that can be adjusted to changing weather conditions. It is important to keep hands and feet dry.
- Field personnel working in extremely cold conditions must take frequent short breaks in warm, dry shelters to allow their body temperature to increase. If possible, field work should be scheduled during the warmest part of the day. The buddy system should be used so that personnel can assist each other in recognizing signs of cold stress.
- Drink warm, sweet beverages and avoid drinks with caffeine and alcohol. Eat warm, high-calorie foods.
- Personnel with medical conditions such as diabetes, hypertension or cardiovascular disease or who take certain medications, may be at increased risk for cold stress.

Treatment of Cold Related Injuries

If cold stress symptoms are evident, the affected person must move into a warm, dry sheltered area and all wet clothing should be removed and replaced with dry clothing. If frostbite is suspected, the affected person should be treated by trained medical personnel.

Signs and Symptoms of Heat Stress

Wearing PPE also puts a worker at a considerable risk for developing heat stress. This can result in health effects ranging from heat fatigue to serious illness or death. Consequently, regular monitoring, remaining hydrated and other precautions are vital.

- **Heat Rash** may result from continuous exposure to heat and humid air.
- **Heat Cramps** are caused by heavy sweating with inadequate electrolyte replacement. Signs and symptoms include:
    - Muscle spasms; and
    - Pain in the hands, feet and abdomen.
- **Heat Exhaustion** occurs from increased stress on various body organs, including inadequate blood circulation due to cardiovascular insufficiency or dehydration. Signs and symptoms include:
    - Pale, cool, and moist skin;
    - Heavy sweating; and
    - Dizziness, fainting, and nausea.
- **Heat Stroke** is the most serious form of heat stress. Temperature regulation fails, and the body temperature rises to critical levels. Immediate action must be taken to cool the body before serious injury or death occurs. Competent medical help must be obtained. Signs and symptoms are:
    - Red, hot, and unusually dry skin;
    - Lack of or reduced perspiration;
    - Dizziness and confusion;
    - Strong, rapid pulse; and
    - Loss of consciousness.

Preventing Heat Related Illness/Injury

Proper training and preventive measures will help avert serious illness and loss of work productivity. Preventing heat stress is particularly important because once someone suffers from heat stroke or heat exhaustion that person may be predisposed to additional heat injuries. To avoid heat stress, the following steps should be taken:

- Have workers drink sixteen (16) oz. (0.5 liter) of fluid (preferably water or diluted drinks) before beginning work. Urge workers to drink a cup or two every fifteen (15) to twenty (20) minutes, or at each monitoring break. A total of 1 to 1.6 gallons (four (4) to six (6) liters) of fluid per day are recommended, but more may be necessary to maintain body weight.
- If possible, adjust work schedules to avoid the hottest parts of the day.
- Encourage workers to maintain an optimal level of physical fitness.
- Shelter (air-conditioned, if possible) or shaded areas should be provided to protect personnel during rest periods.
- Train workers to recognize, identify, and treat heat stress.

For workers wearing standard work clothes, recommendations for monitoring and work/rest schedules are those approved by American Conference of Governmental Industrial Hygienists (ACGIH) and National Institute of Occupational Safety and Health (NIOSH). Workers wearing semi-permeable PPE or impermeable PPE should be monitored when the temperature in the work area is above 70°F.

Noise Hazards

Work that involves the use of heavy equipment such as a drill rig or excavator can expose workers to noise during field activities that can result in noise-induced hearing loss. The Project Manager will monitor the noise exposure and will determine whether noise protection is warranted for each of the workers. The Project Manager will ensure that either earmuffs or disposable foam earplugs are available and are used by the workers in the immediate vicinity of the field operation as required.

Slip, Trip and Fall Hazards

Ground intrusive locations can contain a number of slip, trip and fall hazards for workers, such as:

- Holes, pits, or ditches
- Excavation faces
- Slippery surfaces
- Steep grades
- Uneven grades
- Snow and ice
- Sharp objects

All workers must be instructed to keep back three (3) feet from the top edge of excavation faces.

Drill auger sections will be stored on the transport vehicle as long as possible to avoid creating a trip hazard. Drill auger sections and other tools will be stored in neat arrangements convenient to the driller, but sufficiently distant from the immediate area around the drill rig to minimize trip hazards.

Workers will be instructed to look for potential safety hazards and immediately inform the Project Manager regarding any new hazards. If the hazard cannot be immediately removed, actions must be taken to warn workers about the hazard.

Modifications to this Plan

Requirements and guidelines in this HASP are subject to modification by the Project Manager in response to additional information obtained during field work regarding the potential for exposure to hazards.

4.0 MEDICAL SURVEILLANCE PROGRAM

General

Workers who participate in field activities that meet the following criteria will be included in the Medical Surveillance Program:

- All who may be exposed to hazardous substances or health hazards at or above permissible exposure limits, without regard to the use of respirators, for thirty (30) days or more per year, as required by 1926.65(f)(2)(i-iv).
- All who wear a respirator for thirty (30) days or more every year as required by 1926.62(f)(2)(i-iv).
- All who are injured because of overexposure from an incident involving hazardous substances or health hazards.

Frequency of Medical Exams

Medical examinations and consultations will be provided on the following schedule to the workers who meet the above listed general qualifications:

- Prior to assignment to a work site, if any of the criteria noted above are anticipated.
- At least once every twelve (12) months, unless the physician believes a longer interval (not greater than two (2) years) is appropriate.
- As soon as possible upon notification that a worker has developed signs or symptoms indicating possible overexposure to hazardous materials.

5.0 EMERGENCY ACTION PLAN

Workers will use the following standard emergency procedures. The Project Manager will be notified of any emergency and be responsible for ensuring that the appropriate procedures are followed and that the Project Manager is notified. A first aid kit, an eye wash unit that can provide a minimum flow rate of 0.4 GPM for fifteen (15) minutes, and a fire extinguisher rated 20A-B-C (or higher) will be readily available to workers. All workers will be trained in the use of emergency supplies. Questions regarding procedures and practices described in the HASP should be directed to the Project Manager.

Notification

Any symptoms of adverse health, regardless of the suspected cause, are to be immediately reported to the Project Manager.

Upon the occurrence of an emergency, including an unplanned chemical release, fire or explosion, workers will be alerted and the area evacuated immediately. The Project Manager will notify the ambulance service, fire department and/or police department, as required. Emergency contact telephone numbers are provided below. Re-entry to the work area will be limited to those required to assist injured workers or for firefighting or spill control. Anyone entering the work area following an emergency incident must wear appropriate protective equipment.

Emergency Services

Emergency Services	Telephone Number
Owner: Troy Belting & Supply Company	(518) 272-4920
Colonie Fire Department	911 or (518) 869-9306
Town of Colonie Police Department	911 or (518) 783-2744
Ambulance	911
Hospital: Samaritan Hospital	(518) 271-3300
Poison Control Center	(800) 222-1222
NYSDEC Spills Emergency Response Program	(800) 457-7362

A map showing the preferred route to the hospital with written directions is presented in Figure D-1; and written directions are also included on the map.

The following alarm systems will be utilized to alert workers to evacuate the restricted area:

- Direct Verbal Communication
- Radio Communication or Equivalent
- Portable or Fixed Telephone

The following standard hand signals will also be used as necessary:

Hand Signal	Message
Hand gripping throat	Can't breathe/out of air
Grip co-worker's wrist	Leave area immediately, no debate!
Hands on top of head	Need assistance
Thumbs up	Yes/O.K.
Thumbs down	No/Problem

Upon activation of an alarm, workers will proceed to a designated assembly area. The designated assembly area will be determined on a daily basis by the Project Manager and updated as necessary depending upon work conditions, weather, air monitoring, etc. The location of the designated assembly area will be clearly marked and communicated to employees daily or upon relocation of the area. Workers gathered in the designated assembly area will remain there until their presence has been noted. A tally of workers on the daily restricted area access roster will be made as necessary to ensure all workers have been properly evacuated and accounted for.

Workers may return to the designated work area following authorization by the Project Manager.

Personal Injury

If anyone within a work area is injured and cannot leave the restricted area without assistance, emergency medical services will be notified (see Section 5.0) and appropriate first aid will be administered by certified Emergency Medical Technicians (EMTs).

Fire/Explosion

Upon the occurrence of a fire beyond the incipient stage or an explosion anywhere on the worksite property, the fire department will be alerted and all personnel moved to a safe distance from the involved area.

Equipment Failure

If any equipment fails to operate properly, the Project Manager will determine the effect of this failure on continuing operations. If the failure affects the safety of workers (e.g., failure of monitoring equipment) or prevents completion of the planned tasks, all workers will leave the work area until appropriate corrective actions have been taken.

Record Keeping

The Project Manager will maintain records of reports concerning occupational injuries and illnesses in accordance with 29 CFR 1904.

6.0 DECONTAMINATION METHODS

Contamination Prevention Methods

The Project Manager will make all workers aware of the potential for contamination. The following procedures will be established to minimize contact with waste:

- Workers will not walk through areas obvious of contamination;
- Workers will not directly touch potentially hazardous substances;
- Workers will wear gloves when touching soil or waste;
- Workers will wear disposable outer garments where appropriate; and
- Excavated soils will be placed on plastic sheeting and covered with plastic sheeting at the end of the workday.

Decontamination Methods

All workers, clothing, and equipment leaving designated contaminated areas must be properly decontaminated. Was water associated with equipment decontamination will be containerized for offsite disposal.

Table D-1
Published Airborne Exposure Limits or Odor Thresholds in Parts Per Million (PPM)
in Air for Substances that Exceed Applicable Standards in Soil and Groundwater

Substance	OSHA PEL/STEL/C	NIOSH REL/STEL	ACGIH TLV/STEL	IDLH	Cancer Causing	Range of Odor Thresholds
VOCs:						
Benzene	1/5/25	0.1/1	0.5/2.5	500	Y	1.5
n-Butylbenzene	NA	NA	NA	NA	NA	NA
sec- Butylbenzene	NA	NA	NA	NA	NA	NA
Cis-1,2-Dichloroethene (cis-1,2-DCE)	200/-/-	200/-	200/-	1000	N	19.1
1,1 Dichloroethane	100/-/-	100/-	100/-	3000	N	120
1,2 Dichloroethane	50/-/100	1/2	10/-	50	Y	6-10
Trans 1,2 Dichloroethene	200					
Ethylbenzene	100/-/-	100/125	100/125	800	N	2.3
Isopropylbenzene	50/-/-	50/-	50/-	900	N	
Naphthalene	10/-/-	10/15	10/15	250	N	0.084
N-Propylbenzene	NA	NA	NA	NA	NA	NA
Tetrachloroethene	100/-/200	NA	25/100	150	Y	1
Trichloroethene	100/-/200	25/-	50/100	1000	Y	28
Vinyl Chloride	1/-/5	NA	1/-		Y	3,000
SVOCs:						
Naphthalene	10/-/-	10/15	10/15	250	N	0.084

NA = Not Available
Definitions of PEL, REL, STEL, TLV, C and IDLH are provided below:

PEL The Occupational Safety and Health Administration's (OSHA) Permissible Exposure Limit for airborne contaminants as a time-weighted average for an eight (8) hour work shift, as listed in 29 CFR 1910.1000.

REL The National Institute for Occupational Safety and Health's (NIOSH) Recommended Exposure Level for a work shift.

STEL A Short Term Exposure Limit as a 15-minute time-weighted average (No more than four (4) exposures per shift).

TLV The American Conference of Governmental Industrial Hygienists' (ACGIH) Threshold Limit Value for airborne concentrations to which it is believed that nearly all workers may be repeatedly exposed day after day without adverse effects.

C Ceiling Concentration – The concentration that should not be exceeded during any part of the working exposure.

IDLH The Immediately Dangerous to Life and Health maximum concentration from which one could escape within 30 minutes without experiencing any escape–impairing or irreversible health effects. (Note: Level C air-purifying respirators do not adequately protect an individual exposed to these concentrations.) These IDLH values were established by NIOSH and have not been peer reviewed. Caution is recommended with their application.

TABLE D-2

AIR MONITORING METHODS, ACTION LEVELS, AND PROTECTIVE LEVELS FOR PERSONNEL

Hazard	Monitoring Unit	Action Level	Protective Levels/Action	Monitoring Schedule
Organic Vapors (2)	PID	0-10 ppm above background in the breathing zone	Level D-Continue Work (3)	Continuous for ground intrusive activities.
		10-100 ppm above background in the breathing zone	Level C-Continue Work	
		> 100 ppm above background in the breathing zone	STOP WORK EVACUATE AREA (1)	
Oxygen-Deficient Atmosphere	Q-RAE 4-Gas Meter or Equivalent	19.5-23.5%	Level D-Continue Work	Continuous for ground intrusive activities.
		< 19.5%	Do not enter Confined Space, STOP WORK EVACUATE AREA (1)	
		> 23.5%	Fire explosion hazard; EVACUATE AREA (1)	
Explosive Gas (LEL)	Q-RAE 4-Gas Meter or Equivalent	< 10% LEL	Level D-Continue Work	Continuous for ground intrusive activities.
		10-20% LEL	Issue Warning	
		> 20% LEL	EVACUATE AREA (1)	
Hydrogen Sulfide (H_2S) (2)	Q-RAE 4-Gas Meter or Equivalent	< 5 ppm	Level D-Continue Work	Continuous for ground intrusive activities.
		5-10 ppm	Issue Warning	
		> 10 ppm	STOP WORK EVACUATE AREA (1)	
Dust	Particulate Monitor Miniram or Equivalent	< 5 mg/m^3 above background in the breathing zone.	Level D-Continue Work	Continuous for ground intrusive activities.
		5-10 mg/m^3 above background in the breathing zone.	Level C-Continue Work	
		> 10 mg/m^3 above background in the breathing zone.	STOP WORK EVACUATE AREA (1)	

Protection Levels:

Level C - Required Personal Protective Equipment (PPE): Half or full face, air purifying respirator, chemical resistant clothing, inner and outer chemica resistant gloves, safety boots (steel toe/shank with chemical resistant overboots), hard hat and hearing protection (if warranted).

Level D - Required PPE: Safety goggles, hard hat, safety boots (steel toe/shank) and work clothes or coveralls.

Notes:

LEL - Lower Explosive Limit
ppm= parts per million

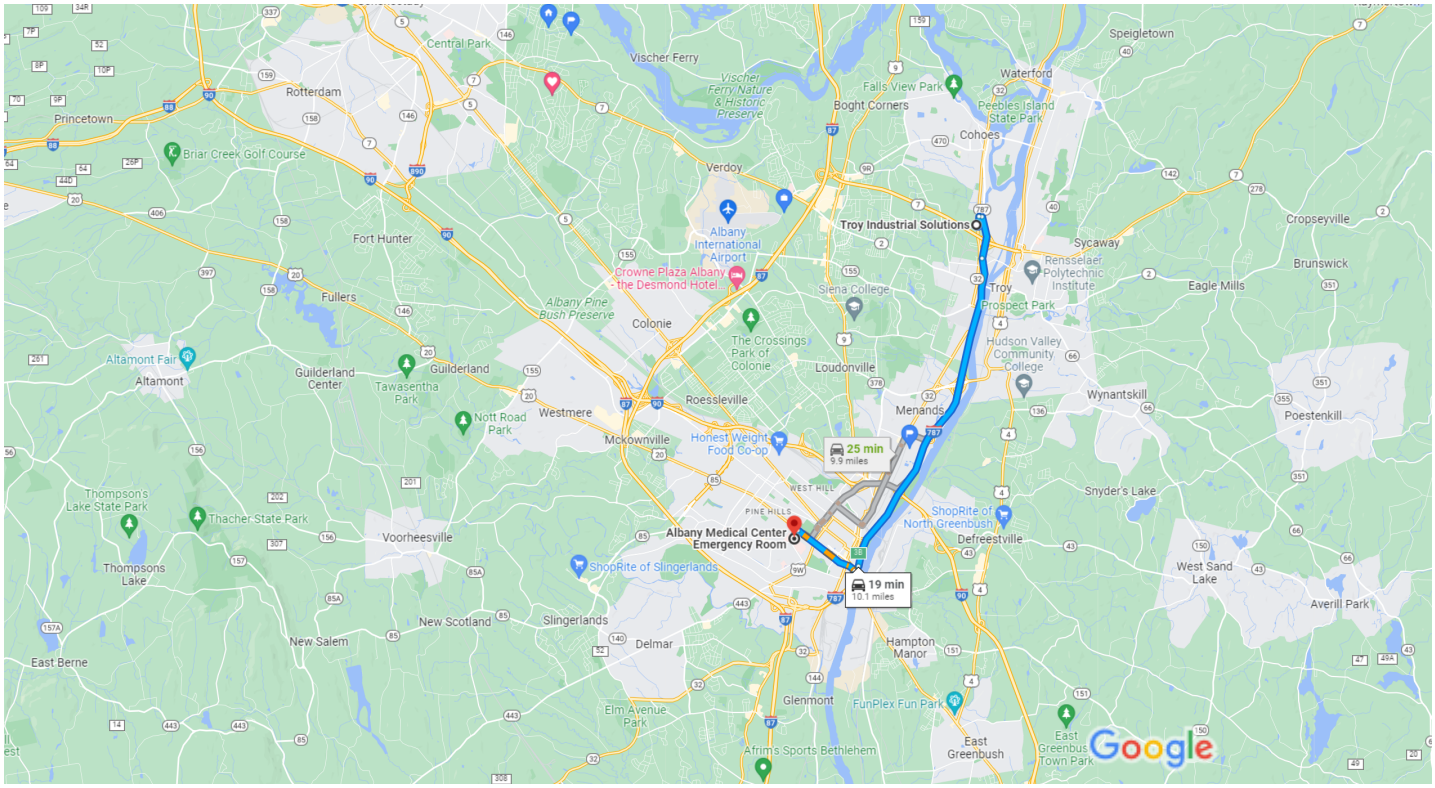
(1) For all circumstances where work is stopped, the New York State Department of Environmental Conservation (NYSDEC) must be notified.
(2) Action levels provided represent fifteen (15) minute average values.
"Continuous" monitoring indicates the monitoring unit will collect readings and a fifteen (15) minute average will be calculated for the general breathing space/work area.
(3) Test breathing space for Benzene concentration with Drager tube, if concentration is two (2) ppm or greater, move to Level C PPE.

Google Maps

Troy Industrial Solutions, 70 Cohoes Rd, Watervliet, NY 12189 to Albany Medical Center Emergency Room, 43 New Scotland Ave, Albany, NY 12208

Drive 10.1 miles, 19 min

HASP Figure D-1 Directions to Hospital



Map data ©2022 Google 2 mi

Troy Industrial Solutions
70 Cohoes Rd, Watervliet, NY 12189

Take NY-787 S to I-787 S

2 min (1.2 mi)

1. Head east on Elm St toward NY-32 N

164 ft

2. Turn left onto NY-32 N

0.2 mi

3. Turn right onto Tibbits Ave

341 ft

4. Turn right onto NY-787 S (signs for NY-7)

0.9 mi

Follow I-787 S to Madison Ave in Albany. Take exit 3B from I-787 S

9 min (7.2 mi)

5. Continue onto I-787 S

7.0 mi

6. Take exit 3B for Madison Ave toward US-20 W/Port of Albany

0.1 mi

Continue on Madison Ave to your destination

9 min (1.7 mi)

7. Continue onto Madison Ave

1.4 mi

8. Turn left onto Robin St

0.1 mi

9. Continue straight

344 ft

10. Turn right

Destination will be on the right

56 ft

Albany Medical Center Emergency Room
43 New Scotland Ave, Albany, NY 12208

APPENDIX C

COMMUNITY AIR MONITORING PLAN (CAMP)

COMMUNITY AIR MONITORING PLAN (CAMP)

TROY BELTING AND SUPPLY COMPANY
70 COHOES ROAD, COLONIE, NEW YORK
BCP # C401067

1.0 INTRODUCTION

This Community Air Monitoring Plan (CAMP) has been prepared for Troy Belting and Supply Company of Watervliet, New York (Troy Belting) site located at 70 Cohoes Road, in the Town of Colonie, Albany County, New York. This CAMP applies to remedial activities associated with the Brownfield Cleanup Program (BCP) Site #C401067. This CAMP provides methods and procedures for real-time air monitoring during soil disturbance with implementation of the selected remedial approach. This CAMP is to be used in coordination with the site-specific Health and Safety Plan (HASP). Actions and requirements to protect the health and safety of onsite workers from airborne contaminants are addressed in the HASP.

This CAMP provides for real-time air monitoring of particulates at the downwind perimeter of each designated work area when remediation-related ground-intrusive activities are implemented at the Site, such as excavation or drilling. The CAMP was developed from the New York State Department of Health (NYSDOH) Generic CAMP provided in the DER-10 Technical Guidance for Site Investigation and Remediation. This CAMP provides a measure of protection for the downwind community of potential receptors (including residences, businesses, and personnel not directly involved with work activities) from potential airborne contaminant releases as a direct result ground intrusive activities. Contractors should employ Best Management Practices (BMP) and common-sense measures to minimize dust and odors around work areas.

Analytical results of previous subsurface investigations indicated concentrations of organic compounds (VOC) above New York State Department of Environmental Conservation (NYSDEC) unrestricted use soil cleanup objectives (SCO) in samples collected during the Remedial Investigation and subsequent supplemental sampling events. As such, particulate and VOC monitoring are warranted and will be conducted.

2.0 PARTICULATE MONITORING

Particulates will be monitored during remediation-related ground intrusive activities at the upwind and downwind perimeter of the work zone. Particulate monitoring must use real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level.

As outlined in NYSDEC DER-10 Appendix 1B: Fugitive Dust & Particulate Monitoring, the monitoring equipment must meet, at a minimum, the following performance standards:

(a) Objects to be measured: Dust, mists, or aerosols.
(b) Measurement Ranges: 0.001 to 400 mg/m^3 (1 to 400,000 :ug/m^3).
(c) Precision (2-sigma) at constant temperature: +/- 10 µg/m^3 for one second averaging; and +/- 1.5 g/m^3 for sixty second averaging.
(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd = 2 to 3 mm, sg= 2.5, as aerosolized).
(e) Resolution: 0.1% of reading or 1 g/m^3, whichever is larger.
(f) Particle Size Range of Maximum Response: 0.1-10.
(g) Total Number of Data Points in Memory: 10,000.
(h) Logged Data: Each data point with average concentration, time/date and data point number.
(i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number.
(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required.
(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger.
(l) Operating Temperature: -10 to 50°C (14 to 122°F).
(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes

The equipment will be equipped with audible and visual alarms to indicate exceedance of the action level of 150 µg/m^3 (15 minutes average). In addition, fugitive dust migration will be visually assessed during all work activities. Calibration will be in accordance with the instrument manufacturer's recommendations.

The upwind monitoring station will be situated upwind of the perimeter of the work zone. Similarly, the downwind sampling station will be directly downwind of the work zone perimeter of the most prominent dust producing activity.

If the downwind PM-10 particulate level is 100 ug/m^3 greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 ug/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 ug/m^3 above the upwind level, work must be stopped, and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 ug/m^3 of the upwind level and in preventing visible dust migration.

Should the action level of 150 ug/m^3 continue to be exceeded, work must stop, and DER must be notified. The notification shall include a description of the control measures implemented to prevent further exceedances. All readings must be recorded and be available for review by the NYSDOH, NYSDEC and local Health Department, if requested.

The sampling locations will be periodically adjusted to account for observed changes in wind direction.

3.0 VOC MONITORING

As outlined in NYSDEC DER-10, VOCs will be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis, or as otherwise specified, with a photoionization detector (PID). Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The PID will be calibrated at least daily according to the manufacturer instructions for the contaminant(s) of concern or for an appropriate surrogate. The equipment will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is sustained above 25 ppm at the perimeter of the work area, activities must be shutdown.
- All 15-minute readings must be recorded and be available for State (NYSDEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded

4.0 CAMP SPECIAL REQUIREMENTS

4.1 Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures

When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative- pressure enclosures, or special ventilation devices should be considered to prevent exposures related to the work activities and to control dust and odors. Consideration should be given to implementing the planned activities when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring should occur within the occupied structure(s). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.
- If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 $\mu g/m^3$, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 $\mu g/m^3$ or less at the monitoring point.

- Depending upon the nature of contamination and remedial activities, other parameters (e.g., explosivity, oxygen, hydrogen sulfide, carbon monoxide) may also need to be monitored. Response levels and actions should be pre-determined, as necessary, for each site.

4.2 Special Requirements for Indoor Work with Co-Located Residences or Facilities

Unless a self-contained, negative-pressure enclosure with proper emission controls will encompass the work area, all individuals not directly involved with the planned work must be absent from the room in which the work will occur. Monitoring requirements shall be as stated above under "Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures" except that in this instance "nearby/occupied structures" would be adjacent occupied rooms. Additionally, the location of all exhaust vents in the room and their discharge points, as well as potential vapor pathways (openings, conduits, etc.) relative to adjoining rooms, should be understood and the monitoring locations established accordingly. In these situations, it is strongly recommended that exhaust fans or other engineering controls be used to create negative air pressure within the work area during remedial activities. Additionally, it is strongly recommended that the planned work be implemented during hours (e.g., weekends or evenings) when building occupancy is at a minimum.

5.0 FORMS FOR MONITORING AND RESPONSE

Air monitoring will be documented using the attached Air Monitoring Form. This form is to be completed daily and must be made available for NYSDEC, NYSDOH, and the local Health Department review upon request.

In addition, the CAMP data will be provided to NYSDEC and NYSDOH at least weekly.

Response actions to observed exceedances will be documented using attached Exceedances and Actions Taken Form. This form must also be made available for NYSDEC, NYSDOH, and the local Health Department review upon request.

In addition, NYSDEC and NYSDOH will be notified of all CAMP exceedances within 24 hours of occurrence.

TROY BELTING AND SUPPLY COMPANY
70 COHOES ROAD
COLONIE, NEW YORK

NYSDEC SITE NO: C401067

AIR MONITORING FORM

Name: _____ **Weather Conditions:** _____

Date: _____ **Wind Direction:** _____

Time	UPWIND		WORK AREA		DOWNWIND	
	VOC (ppm)	PM-10 (mg/m^3)	VOC (ppm)	PM-10 (mg/m^3)	VOC (ppm)	PM-10 (mg/m^3)

VOC Monitoring Equipment: _____

PM-10 Monitoring Equipment: _____

TROY BELTING AND SUPPLY COMPANY
70 COHOES ROAD
COLONIE, NEW YORK

NYSDEC SITE NO: C401067

EXCEEDANCES AND ACTIONS TAKEN

Name _____ **Date** _____

Time _____ **Weather Conditions** _____

Location of Exceedance _____ **Wind Direction** _____

Type of Exceedance:

_____

_____

_____

_____

_____

_____

_____

Action Taken:

_____

_____

_____

_____

_____

_____

_____