RECORD OF DECISION

Rosendale Cleaners
State Superfund Project
Rosendale, Ulster County
Site No. 356050
March 2025

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

DECLARATION STATEMENT - RECORD OF DECISION

Rosendale Cleaners
State Superfund Project
Rosendale, Ulster County
Site No. 356050
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Statement of Purpose and Basis

This document presents the remedy for the Rosendale Cleaners site a Class 2 inactive hazardous waste disposal site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375, and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Rosendale Cleaners site and the public's input to the proposed remedy presented by NYSDEC. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. This will include the implementation of a pre-design investigation to refine the limits of remediation and obtain the information necessary to develop the remedial design. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;

- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings will include, at a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency as an element of construction.

As part of the remedial design program, to evaluate the remedy with respect to green and sustainable remediation principles, an environmental footprint analysis will be completed. The environmental footprint analysis will be completed using an accepted environmental footprint analysis calculator such as SEFA (Spreadsheets for Environmental Footprint Analysis, USEPA), SiteWise(TM) (available in the Sustainable Remediation Forum [SURF] library) or similar NYSDEC accepted tool. Water consumption, greenhouse gas emissions, renewable and non-renewable energy use, waste reduction and material use will be estimated, and goals for the project related to these green and sustainable remediation metrics, as well as for minimizing community impacts, protecting habitats and natural and cultural resources, and promoting environmental justice, will be incorporated into the remedial design program, as appropriate. The project design specifications will include detailed requirements to achieve the green and sustainable remediation goals. Further, progress with respect to green and sustainable remediation metrics will be tracked during implementation of the remedial action and reported in the Final Engineering Report (FER), including a comparison to the goals established during the remedial design program.

Additionally, the remedial design program will include a climate change vulnerability assessment, to evaluate the impact of climate change on the project site and the selected remedy. Potential vulnerabilities associated with extreme weather events (e.g., hurricanes, lightning, heat stress and drought), flooding, and sea level rise will be identified, and the remedial design program will incorporate measures to minimize the impact of climate change on potential identified vulnerabilities.

2. Excavation

Excavation and off-site disposal of contaminant source areas, including:

- Grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
- Soil with visual waste material or non-aqueous phase liquid;
- Soils which exceed the protection of groundwater soil cleanup objectives (PGWSCOs), as defined by 6 NYCRR Part 375-6.8 for those contaminants found in site groundwater above standards; and
- Soils that create a nuisance condition, as defined in Commissioner Policy CP-51 Section G.

Approximately 1,300 tons of soil and fill material, contaminated with the COCs, will be removed, and shipped off-site for disposal. Contaminated soil and fill from the source area will be removed to the depth of the water table at approximately 12 feet deep. Groundwater recovery rates will be evaluated during design to assess potential for deeper soil removal. Collection and analysis of confirmation samples at the remedial excavation depth will be used to verify the limits of the soil removal.

To ensure proper handling and disposal of excavated material, waste characterization sampling will be completed for all identified contaminated site material. Waste characterization sampling will be performed exclusively for the purposes of off-site disposal in a manner suitable to receiving facilities and in conformance with applicable federal, state and local laws, rules, and regulations and facility-specific permits.

3. Backfill

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to complete the backfilling of the excavation and establish the designed grades at the site. The site will be re-graded to accommodate installation of a cover system as described in remedy element bullet #5.

4. Enhanced Bioremediation

In-situ enhanced biodegradation will be employed to treat contaminated groundwater in the source area that is located along the southern perimeter of the dry-cleaning building foundation. The source area is depicted on Figure 5. The biological breakdown of contaminants through anaerobic reductive dechlorination will be enhanced by placement of a molasses and water solution, or similar material into the subsurface to promote microbe growth. The material will be mixed into the soil at the bottom of the excavation to treat remaining impacted soil below the groundwater table.

Groundwater monitoring will be completed on-site and in down-gradient off-site areas for contaminants of concern. The treatment zone will also be monitored for dissolved oxygen and oxidation/reduction potential. The results of the monitoring program will be evaluated and, if needed, additional groundwater treatment will be implemented, which could potentially include areas downgradient and off-site, as a contingency to ensure that off-site groundwater concentrations meet remedial cleanup goals.

5. Cover System

A site cover will be required in areas where the upper one foot of exposed surface soil will exceed the commercial soil cleanup objectives (SCOs), to allow for future commercial (and industrial) use of the site. Where a soil cover is to be used it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and

components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

The final limits of the site's cover system will be determined during the remedial design. Additional surface soil sampling will be completed to assess whether the existing soil meets the cover system requirements.

6. Institutional Control

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

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

7. Site Management Plan

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

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

Institutional Controls: The Environmental Easement discussed in Remedy Element 6 above.

Engineering Controls: The soil cover discussed in Remedy Element 5.

This plan includes, but may not be limited to:

- An Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- Descriptions of the provisions of the environmental easement including any land use and/or groundwater use restrictions;
- A provision should redevelopment occur to ensure no soil exceeding

protection of groundwater concentrations will remain below storm water retention basin or infiltration structures;

- A provision for evaluation of the potential for soil vapor intrusion for any occupied buildings on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- A provision for a soil vapor intrusion evaluation at the off-site structure, where access for sampling was previously denied, in the event that access can be obtained from new ownership;
- A provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Remedy Element 5 above will be placed in any areas where the upper one foot of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);
- Provisions for the management and inspection of the identified engineering controls;
- Maintaining site access controls and Department notification; and
- The steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

2. A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

    - Monitoring of groundwater to assess the performance and effectiveness of the remedy, and determine whether additional in-situ groundwater treatment is warranted to achieve remedial goals;
    - A schedule of monitoring and frequency of submittals to the Department; and
    - Monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

March 27, 2025

Date

Andrew Guglielmi

Andrew O. Guglielmi, Director
Division of Environmental Remediation

RECORD OF DECISION

Rosendale Cleaners
Rosendale, Ulster County
Site No. 356050
March 2025

SECTION 1: SUMMARY AND PURPOSE

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

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

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

SECTION 2: CITIZEN PARTICIPATION

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

DECInfo Locator - Web Application
https://gisservices.dec.ny.gov/gis/dil/index.html?rs=356050

Rosendale Library
264 Main Street
Rosendale, NY 12472
Phone: (845) 256-3154

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

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

Receive Site Citizen Participation Information By Email

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

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: The site is located at 1090-1094 Route 32 near the intersection of Route 32 and Madeline Lane in Rosendale, Ulster County.

Site Features: The site is an approximately 1.9-acre tax parcel (SBL: 62.83-2-43) that is bisected by a road (Joleyn Lane). The northern and eastern portions of the site are vegetated. The central portion of the site is mostly paved and includes a one-story unoccupied structure. The former dry cleaner building foundation slab remains at the site and a wooden shed exists on the eastern portion of the site. The site is bordered by Route 32 to the west, a wooded area to the east and commercial properties to the north and south. A drainage swale/unnamed creek also exists along the southern/southeastern boundary of the site.

Current Zoning and Land Use: The site parcel is zoned for commercial purposes. Nearby properties consist of properties used for commercial and residential purposes. There is only one on-site building, and it is vacant, and parts of the property are used for storage.

Past Use of the Site: The site has been used for a variety of commercial purposes since at least the mid-1900s. A dry cleaner reportedly operated on the site until the business burned down in 1981. A hardware store and a diner also operated on-site until approximately 2009.

Site Geology and Hydrogeology: Fill material is present near the southern source area at varying depths (0-6 feet below grade) and consists of miscellaneous debris (fabric,

glass, plastic, asphalt). Native site soil includes fine sands and silt with intermittent clay at varying depths. Groundwater flow is generally to the north-northwest towards the Rondout Creek. The depth to groundwater varies at the site and is present from approximately 5 to 15 feet below grade.

A site location map is attached as Figure 1. The site boundary is shown on Figure 2.

SECTION 4: LAND USE AND PHYSICAL SETTING

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

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

SECTION 5: ENFORCEMENT STATUS

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

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

Aero Star Realty, LLC

Charles Hintze

Esposito Construction Corporation

David C. Gold

Betty J. Gold - Berelson

Stephen Katos

Michael Katos

Chuggs Associates, LP

Rosendale Laudromat

Harold R. Eklund

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

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

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

The following general activities are conducted during an RI:

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

The analytical data collected on this site includes data for:

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

6.1.1: Standards, Criteria, and Guidance (SCGs)

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

To determine whether the contaminants identified in various media are present at levels

of concern, the data from the RI were compared to media-specific SCGs. NYSDEC has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. The tables found in Exhibit A list the applicable SCGs in the footnotes. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

6.1.2: RI Results

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

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

As illustrated in Exhibit A, the contaminants of concern exceed the applicable SCGs for:

- groundwater
- soil

6.2: Interim Remedial Measures

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

There were no IRMs performed at this site during the RI.

6.3: Summary of Environmental Assessment

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

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

Nature and Extent of Contamination: Soil and groundwater samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), and pesticides. Groundwater was also analyzed for

per- and polyfluoroalkyl substances (PFAS). Soil vapor intrusion (SVI) sampling for VOCs was also performed in off-site structures; the remaining on-site structure was vacant, and no SVI sampling was performed. Sediment samples were analyzed for VOCs. Based upon the results, the primary contaminants of concern at the site include VOCs, specifically tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2 dichloroethene (1,2-DCE) and vinyl chloride. Groundwater data is shown on Figures 3 and 4. Soil data is shown on Figure 5. Sediment and soil vapor sampling locations are shown on Figure 6.

Soil: An area of PCE impacted soil was identified adjacent to the former dry cleaner foundation in the southern portion of the site. PCE contamination was observed in this area at depths ranging from approximately 5-15 feet deep. PCE was detected with a maximum concentration of 90,000 parts per million (ppm) in a soil sample (ROS-SB-302) collected at a depth of approximately 6-6.5 feet deep. The PCE concentrations for the remaining impacted soil borings ranged from 2.7 ppm to 1,200 ppm. The soil cleanup objectives (SCOs) for PCE for the protection of groundwater is 1.3 ppm and for commercial use is 150 ppm. Contaminant concentrations decreased significantly with depth down to the groundwater table that is present at approximately 13-14 feet deep in this area. Additional VOCs were also detected in soil including TCE, 1,2 DCE, vinyl chloride and perfluorooctanesulfonic acid (PFOS) at maximum concentrations of 19, 28, 1.6 and 0.0076 ppm, respectively. These detections exceed their respective SCOs or guidance values of 0.47, 0.25, 0.02 and 0.001 ppm. Limited detections of metals and pesticides were also observed in soil above their unrestricted use SCOs, including copper, nickel, zinc and 4,4 - DDT at maximum concentrations of 95, 30, 214 and 0.015 ppm, which exceed their applicable SCOs of 50, 30, 109 and 0.0033 ppm, respectively. These contaminants are not considered contaminants of concern due to their low concentrations and low frequency of detection. Soil contamination has not been observed off-site above unrestricted use SCOs. Contaminated soil is not migrating off-site.

Groundwater: Chlorinated solvent contamination in the form of PCE and its breakdown contaminants are present in on-site and off-site monitoring wells, some of which are located on the former 1083 Route 32 site (NYSDEC site code: 356031). The most heavily contaminated well, MW-15, is located on-site adjacent to the source area described above. During the most recent sampling event in October 2021, the maximum concentrations for PCE, TCE, 1,2-DCE and vinyl chloride were detected at 410, 220, 2,300 and 180 parts per billion (ppb), respectively. The concentrations exceed their respective ambient water quality standards (AWQS) of 5, 5, 5 and 2 ppb. No SVOCs/metals/PCBs or pesticides were detected at concentrations exceeding their applicable AWQS.

PFAS - Perfluorooctanoic acid (PFOA) and PFOS have been detected in on-site and off-site groundwater at maximum concentrations of 18 and 21 parts per trillion (ppt), respectively, compared to their respective ambient water quality guidance values of 6.7 and 2.7 ppt.

Although off-site groundwater contamination was observed at concentrations above water quality standards in several wells, the dense nature of the site's silty soils and intermittent clay confining layer has limited the spread of groundwater contamination. The maximum off-site detections of TCE and 1,2-DCE were observed in monitoring well MW-07 (TCE) at concentrations of 41 ppb and 650 ppb, respectively. This well is located in the right of way near the site property boundary and is downgradient of the source area. The maximum off-site detection of vinyl chloride was in MW-08, which is located on the gas station property, at a concentration of 100 ppb. The off-site impacts were delineated and decrease as the plume migrates away from the site to the north. PCE was not detected in off-site monitoring wells above water quality standards. In addition, public water is not affected by the site contamination and is supplied to nearby properties.

Soil Vapor Intrusion: To determine whether actions are needed to address exposure related to soil vapor intrusion, concurrent collocated sets of sub-slab, indoor air and ambient air samples were collected as part of the RI for the 1083 Route 32 Site (#356031), a nearby site, in seven off-site structures and evaluated in accordance with the Guidance for Evaluating Soil Vapor Intrusion in the State of New York and its updates. The on-site structure was not sampled because it is vacant. The maximum concentrations of PCE and TCE in the off-site sub-slab vapor samples were as follows: 23 ug/m3 and 2.9 ug/m3, respectively. Similarly, PCE and TCE were found in indoor air samples at maximum levels of 0.45 ug/m3 and 0.41 ug/m3, respectively. Based on these sampling results, no further actions were recommended for the off-site structures. In the event that the on-site structure is to become occupied, a soil vapor intrusion investigation will first be required.

Sediment Sampling: Five sediment samples were collected from the nearby unnamed creek from the zero to six-inch interval. Acetone, a common laboratory contaminant, was detected in two of the samples with a maximum concentration of 26 ppm. No other contaminants were detected in any of the samples.

Special Resources Impacted/Threatened: A step 1 Fish and Wildlife Impact Assessment was completed. The assessment determined that the site likely provides little value for wildlife habitat. Sampling indicated no site-related impacts to the nearby unnamed creek.

6.4: Summary of Human Exposure Pathways

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

Drinking contaminated groundwater is not expected because the area is served by public water. Contact with soil contamination is unlikely since a majority of the site is covered by buildings and pavement. Volatile organic compounds in the groundwater or soil may move into the soil vapor (air spaces within the soil), which in turn may move

into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Because the site is vacant, the inhalation of site-related contaminants due to soil vapor intrusion does not represent a current concern. In addition, environmental sampling indicates soil vapor intrusion is not a concern for seven off-site buildings.

6.5: Summary of the Remediation Objectives

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

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Prevent the discharge of contaminants to surface water.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

Soil Vapor

RAOs for Public Health Protection

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

SECTION 7: SUMMARY OF THE SELECTED REMEDY

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

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

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

The selected remedy is referred to as the Soil Area Excavation, Cover System and Treatment with Site Management remedy.

The estimated present worth cost to implement the remedy is $2,350,000. The cost to construct the remedy is estimated to be $1,136,000 and the estimated average annual cost is $23,000.

The elements of the selected remedy are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. This will include the implementation of a pre-design investigation to refine the limits of remediation and obtain the information necessary to develop the remedial design. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;

- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings will include, at a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency as an element of construction.

As part of the remedial design program, to evaluate the remedy with respect to green and sustainable remediation principles, an environmental footprint analysis will be completed. The environmental footprint analysis will be completed using an accepted environmental footprint analysis calculator such as SEFA (Spreadsheets for Environmental Footprint Analysis, USEPA), SiteWise(TM) (available in the Sustainable Remediation Forum [SURF] library) or similar NYSDEC accepted tool. Water consumption, greenhouse gas emissions, renewable and non-renewable energy use, waste reduction and material use will be estimated, and goals for the project related to these green and sustainable remediation metrics, as well as for minimizing community impacts, protecting habitats and natural and cultural resources, and promoting environmental justice, will be incorporated into the remedial design program, as appropriate. The project design specifications will include detailed requirements to achieve the green and sustainable remediation goals. Further, progress with respect to green and sustainable remediation metrics will be tracked during implementation of the remedial action and reported in the Final Engineering Report (FER), including a comparison to the goals established during the remedial design program.

Additionally, the remedial design program will include a climate change vulnerability assessment, to evaluate the impact of climate change on the project site and the selectedremedy. Potential vulnerabilities associated with extreme weather events (e.g., hurricanes, lightning, heat stress and drought), flooding, and sea level rise will be identified, and the remedial design program will incorporate measures to minimize the impact of climate change on potential identified vulnerabilities.

2. Excavation

Excavation and off-site disposal of contaminant source areas, including:

- Grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
- Soil with visual waste material or non-aqueous phase liquid;
- Soils which exceed the protection of groundwater soil cleanup objectives (PGWSCOs), as defined by 6 NYCRR Part 375-6.8 for those contaminants found in site groundwater above standards; and
- Soils that create a nuisance condition, as defined in Commissioner Policy CP-51 Section G.

Approximately 1,300 tons of soil and fill material, contaminated with the COCs, will be removed, and shipped off-site for disposal. Contaminated soil and fill from the source area will be removed to the depth of the water table at approximately 12 feet deep. Groundwater recovery rates will be evaluated during design to assess potential for deeper soil removal. Collection and analysis of confirmation samples at the remedial excavation depth will be used to verify the limits of the soil removal.

To ensure proper handling and disposal of excavated material, waste characterization sampling will be completed for all identified contaminated site material. Waste characterization sampling will be performed exclusively for the purposes of off-site disposal in a manner suitable to receiving facilities and in conformance with applicable federal, state and local laws, rules, and regulations and facility-specific permits.

3. Backfill

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to complete the backfilling of the excavation and establish the designed grades at the site. The site will be re-graded to accommodate installation of a cover system as described in remedy element bullet #5.

4. Enhanced Bioremediation

In-situ enhanced biodegradation will be employed to treat contaminated groundwater in the source area that is located along the southern perimeter of the dry-cleaning building foundation. The source area is depicted on Figure 5. The biological breakdown of contaminants through anaerobic reductive dechlorination will be enhanced by placement of a molasses and water solution, or similar material into the subsurface to promote microbe growth. The material will be mixed into the soil at the bottom of the excavation to treat remaining impacted soil below the groundwater table.

Groundwater monitoring will be completed on-site and in down-gradient off-site areas for contaminants of concern. The treatment zone will also be monitored for dissolved oxygen and oxidation/reduction potential. The results of the monitoring program will be evaluated and, if needed, additional groundwater treatment will be implemented, which could potentially include areas downgradient and off-site, as a contingency to ensure that off-site groundwater concentrations meet remedial cleanup goals.

5. Cover System

A site cover will be required in areas where the upper one foot of exposed surface soil will exceed the commercial soil cleanup objectives (SCOs), to allow for future commercial (and industrial) use of the site. Where a soil cover is to be used it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and

components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

The final limits of the site's cover system will be determined during the remedial design. Additional surface soil sampling will be completed to assess whether the existing soil meets the cover system requirements.

6. Institutional Control

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

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

7. Site Management Plan

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

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

Institutional Controls: The Environmental Easement discussed in Remedy Element 6 above.

Engineering Controls: The soil cover discussed in Remedy Element 5.

This plan includes, but may not be limited to:

- An Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- Descriptions of the provisions of the environmental easement including any land use and/or groundwater use restrictions;
- A provision should redevelopment occur to ensure no soil exceeding

protection of groundwater concentrations will remain below storm water retention basin or infiltration structures;

- A provision for evaluation of the potential for soil vapor intrusion for any occupied buildings on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- A provision for a soil vapor intrusion evaluation at the off-site structure, where access for sampling was previously denied, in the event that access can be obtained from new ownership;
- A provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 5 above will be placed in any areas where the upper one foot of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);
- Provisions for the management and inspection of the identified engineering controls;
- Maintaining site access controls and Department notification; and
- The steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

2. A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- Monitoring of groundwater to assess the performance and effectiveness of the remedy, and determine whether additional in-situ groundwater treatment is warranted to achieve remedial goals;
- A schedule of monitoring and frequency of submittals to the Department; and
- Monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

Exhibit A

Nature and Extent of Contamination

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

For each medium for which contamination was identified, a table summarizes the findings of the investigation. The tables present the range of contamination found at the site in the media and compares the data with the applicable SCGs for the site. The contaminants of concern at the site are volatile organic compounds (VOCs). For comparison purposes, the SCGs are provided for each medium that allows for unrestricted use. For soil, if applicable, the Restricted Use SCGs identified in Section 4 and Section 6.1.1 are also presented.

Waste/Source Areas

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

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

A waste/source area was identified near the foundation of the former on-site dry cleaner that is located along the southern boundary of the site. The source is located near the “buried debris pile” area, as shown on Figure 2. The debris pile was initially discovered in 2014 during the investigation of the former 1083 Route 32 Site (#356031) and was further assessed during the site investigation for Rosendale Cleaners. During this investigation, it was observed that debris was present throughout the entire southern area of the property, not just in the pile. The debris area contains miscellaneous material such as brick, clothing and metal, which may have been disposed to the subsurface following the fire at the historic dry cleaner structure. The debris area is generally confined to the shallow subsurface zone (upper 5 feet). During the RI, an area of chlorinated solvent contaminated soil was identified within and beneath a portion of the debris area. The contaminated soil is confined to the site and includes PCE and its breakdown products TCE, cis-1,2 DCE and vinyl chloride. Data collected during the investigation supports that a significant quantity of hazardous waste was released into this area which is impacting nearby soil and groundwater.

The waste/source areas identified will be addressed by the selected remedy.

Groundwater

Groundwater samples were collected during the RI from 16 locations, both on-site and off-site, to determine the nature and extent of contamination in the groundwater. Two (2) rounds of groundwater samples (June 2018, October 2021) were collected for a total of 32 samples. The monitoring wells at 14 of the locations are screened in the shallow overburden at depths ranging from 5 to 25 feet deep. Two deeper overburden wells were installed near the source area with screened intervals ranging from 40 to 70 feet deep. Bedrock was not encountered during the investigation.

As seen in Table 1, several samples exceeded the SCGs for the contaminants of concern. Impacts were confined to the shallow overburden groundwater.

Table 1 – Groundwater

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
VOCs			
Tetrachloroethene	ND - 990	5	3 of 32
Trichloroethene	ND - 780	5	6 of 32
Cis-1,2 Dichloroethene	ND - 5000	5	19 of 32
Vinyl Chloride	ND - 700	5	17 of 32
PFOA	ND - 0.018	0.01	4 of 6
PFOS	ND – 0.021	0.01	3 of 6

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

Data indicates that a chlorinated solvent plume has migrated from the source area to the north-northwest as seen on Figure 3. The highest concentrations of chlorinated solvents were detected in the source area and the plume extends off-site and onto several nearby properties.

Samples were also collected from four off-site and two on-site monitoring wells to assess for PFAS compounds. As seen on Figure 4, PFAS compounds were detected above SCGs across the site and in downgradient areas. However, the contaminants are not considered primary contaminants of concern due their slight exceedance of groundwater quality standards.

Based on the findings of the RI, the past disposal of hazardous waste has resulted in the contamination of groundwater. The site contaminants that are considered to be the primary contaminants of concern which will drive the remediation of groundwater to be addressed by the remedy are: tetrachloroethene (PCE) and its breakdown products trichlorothene (TCE), Cis 1,2 Dichlorothene and Vinyl Chloride.

Soil

Both surface and subsurface soil samples were collected during the RI. Five surface soil samples were collected from the 0-2" interval. In addition, 21 soil borings were advanced to assess subsurface conditions across the site as shown on Figure 5. Thirty-five (35) subsurface soil samples were collected at depths ranging from 4 to 18 feet deep. Soil samples were logged in five-foot intervals and screened using a photoionization detector (PID). Samples were collected from areas that exhibited the highest PID readings and/or where odors or staining were observed. The highest PID readings were observed in the source area around the 5 to 8-foot depth interval. The concentrations of chlorinated solvent contamination were well above applicable SCOs at many locations, but the concentrations of observed soil impacts decreased significantly with depth. Limited soil contamination was detected below the water table. Table 2 includes the results of the soil sampling.

Table 2 - Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Restricted Use SCG[c] (ppm)	Frequency Exceeding Restricted SCG
VOCs					
Tetrachloroethene	ND – 90,000	1.3	22 of 35	1.3	22 of 35
Trichloroethene	ND - 19	0.47	15 of 35	0.47	15 of 35
Cis-1,2 dichloroethene	ND - 28	0.25	22 of 35	0.25	22 of 35
Vinyl Chloride	ND – 1.6	0.02	9 of 35	0.02	9 of 35
PFOS	ND – 0.0076	0.00088	2 of 4	0.001	2 of 4
Inorganics					
Copper	ND – 94.9	50	1 of 7	1,720	0 of 7
Nickel	ND – 30.4	30	1 of 7	130	0 of 7
Zinc	ND - 214	109	1 of 7	2,480	0 of 7
Pesticides/PCBs					
4,4'-DDT	ND – 0.015	0.0033	1 of 7	136	0 of 7

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

In addition to the chlorinated solvent contamination that was observed, soil exceedances for various metals, pesticides and PFOS were detected during the RI. The metals copper, nickel and zinc were detected in a sample, collected from the debris area, at concentrations above unrestricted levels. There were also detections of PFOS and the pesticide, 4,4'DDT observed in source area soil samples.

However, the number of detections of these compounds were limited and generally below their associated restricted use soil cleanup objectives and protection of groundwater standards. Therefore, these contaminants are not considered site specific contaminants of concern.

Based on the findings of the Remedial Investigation, the past disposal of hazardous waste has resulted in the contamination of soil. The site contaminants identified in soil which are considered to be the primary contaminants of concern, to be addressed by the remedy are, PCE and its breakdown products TCE; 1, 2 DCE and Vinyl Chloride.

Sediments

Sediment samples were collected during the RI to evaluate conditions in the nearby “unnamed creek”. The creek is located along the southern perimeter of the site as seen on Figure 6. 5 samples were collected from the 0 to 6-inch depth interval from locations adjacent to the source area.

No site-related sediment contamination of concern was identified during the RI. Therefore, no remedial alternatives were evaluated for sediment.

Soil Vapor

The evaluation of the potential for soil vapor intrusion resulting from the presence of site related soil or groundwater contamination was evaluated by the sampling of sub-slab soil vapor under structures, and indoor air inside structures. Due to the presence of buildings in the impacted area, a full suite of samples were collected to evaluate whether soil vapor intrusion was occurring. However, no sampling was completed on-site as the on-site structure is in disrepair and unoccupied.

Notices were sent to eight nearby properties (six residential, two commercial) requesting permission to collect soil vapor intrusion samples at their buildings. The properties were selected based on their location relative to the site’s groundwater plume. Sampling was successfully completed at seven of the eight properties as shown on Figure 6. In general, one collocated sub-slab sample and one indoor air sample were collected from each structure. An ambient air sample was also collected during each event. No contaminants were detected above the action levels outlined in the NYSDOH Soil Vapor Intrusion Decision Matrices.

Note that the owner of the commercial property that declined sampling had initially verbally denied access to the NYSDEC for soil vapor intrusion sampling. More recently, a follow-up sampling request letter was sent to the owner as another attempt to gain access, but no response was received.

Based on the concentration detected, and comparison with the NYSDOH Soil Vapor Intrusion Guidance, no site-related soil vapor contamination of concern was identified during the RI for off-site buildings. A soil vapor intrusion evaluation must be performed if any building on-site is occupied in the future, as the current on-site building is vacant. Therefore, no remedial alternatives were evaluated for soil vapor.

Exhibit B

Description of Remedial Alternatives

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

Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative leaves the site in its present condition and does not provide any additional protection to public health and the environment.

Alternative 2: Source Area Excavation and Treatment with Site Management

Alternative 2 includes the excavation of approximately 1,300 tons of contaminated material from the on-site source area down to the water table. The volume includes the removal of VOC impacted debris material from within the subsurface debris pile area as well as the chlorinated solvent impacted soil below. All soil will be transported off-site in properly permitted trucks for treatment and/or disposal. Post-excavation soil samples will be collected to document the limits of contaminant removal. Prior to backfilling the excavation, approximately 9 tons of enhanced bio-remediation treatment reagent will be mixed into the soil beneath the excavation to promote breakdown of contaminants below the groundwater table at approximately twelve feet. The area would then be restored to its previous grade using clean soil, from an approved source, that meets the applicable soil cleanup objectives.

Alternative 2 requires a groundwater monitoring program to assess the long-term groundwater trends both on-site and off-site to ensure cleanup goals are achieved. Samples will be analyzed for PCE, all its breakdown products, and for other chemical indicators of biological decay. The sampling will initially be completed quarterly for the first year, with the frequency to be adjusted as necessary thereafter.

Alternative 2 also utilizes institutional and engineering controls (ICs & ECs). The ICs include groundwater use and land use restrictions to prevent contact with remaining contaminated soil and groundwater. The EC for the site is a soil cover system which will be maintained for commercial use. A Site Management Plan (SMP) will be prepared to specify the details of the ICs and ECs and document the procedures necessary to manage the site's remaining contamination and long-term monitoring activities. The SMP will include a provision for additional groundwater treatment if determined necessary during site management. These costs are not included below estimates.

Present Worth:.....*$ 2,350,000*
Capital Cost: .....*$ 1,136,000*
Annual Costs:.....*$ 23,000*

Alternative 3: Source Excavation and In-Situ Groundwater Treatment with Site Management

Alternative 3 includes the same soil source area removal activities as with Alternative 2.

Alternative 3 also requires the implementation groundwater treatment activities utilizing either in-situ chemical oxidation and/or bioremediation to control off-site migration of contamination. Depending on the treatment, the contaminants would either be destroyed or broken down through the process of anaerobic oxidation. The groundwater treatment area would be expanded to address not only the source area, but also the downgradient perimeter of the site. The remedial design program would include evaluation of groundwater parameters and an injection pilot scale study. The treatment material will be applied into the subsurface using approximately 42 injection points. It is estimated that there will be one initial round of injection treatment with additional rounds if necessary.

As with Alternative 2, a long-term groundwater monitoring program would be implemented as well as institutional and engineering controls. An SMP will also be required to manage the site's remaining contamination and long-term monitoring activities.

Present Worth: ..... *$ 3,242,000*
Capital Cost: ..... *$ 2,131,000*
Annual Costs: ..... *$ 30,800*

Alternative 4: Source Excavation and Passive Reactive Barrier Wall with Site Management

Alternative 4 includes the same soil source area removal activities as with Alternatives 2 and 3.

However, instead of using injection points as in Alternative 3, a passive reactive barrier (PRB) will be utilized along the downgradient perimeter of the site to control off-site migration of contaminants in groundwater. A PRB is a subsurface trench typically filled with reactive media designed to control migration of contaminants using processes such as bioremediation or adsorption. The type of media to be utilized, as well as the physical dimensions of the PRB, will be determined during design.

As with Alternatives 2 and 3, a long-term groundwater monitoring program will be implemented as well as institutional and engineering controls. An SMP will also be required to manage the site's remaining contamination and long-term monitoring activities.

Present Worth: ..... *$ 3,213,000*
Capital Cost: ..... *$ 2,262,000*
Annual Costs: ..... *$ 20,500*

Alternative 5: Restoration to Pre-Disposal or Unrestricted Conditions

This alternative achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A and soil meets the unrestricted soil clean objectives listed in Part 375-6.8 (a). This alternative will include removal and off-site disposal of all impacted soil with concentrations above unrestricted use soil cleanup objectives. It is estimated that approximately 5,300 tons of soil would be removed, however the final volume will be determined during remedial design. The excavation area will be backfilled with clean material meeting the soil cleanup objectives of the site's anticipated future use. The soil removal is also expected to include dewatering activities and the generated fluids will either require on-site treatment prior to discharge or be sent off-site for disposal.

In addition, Alternative 5 includes groundwater treatment implemented through bioremediation injections. The groundwater treatment area is expanded from previous alternatives to include off-site areas where chlorinated solvent contaminants are present above groundwater quality standards. It is expected that several groundwater treatment injection events will be needed to reach ambient groundwater quality standards on-site and off-site. Groundwater monitoring will be conducted to confirm treatment standards have been met.

Capital Cost: .....$ 10,528,000

Exhibit C

Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
No Action	0	0	0
Source Area Excavation and Treatment with Site Management	1,136,000	23,000	2,350,000
Source Excavation and In-situ Groundwater Treatment with Site Management	2,131,000	30,800	3,242,000
Source Excavation and Passive Reactive Barrier Wall with Site Management	2,262,000	20,500	3,213,000
Restoration to Pre-Disposal or Unrestricted Conditions	10,528,000	0	10,528,000

Exhibit D

SUMMARY OF THE SELECTED REMEDY

The Department is selecting Alternative 2, Source Area Removal, Treatment and Site Cover with Site Management as the remedy for this site. Alternative 2 will achieve the remediation goals for the site by excavating and removing the source of the site's chlorinated solvent contamination and treating remaining contamination to reduce the concentrations of contaminants in groundwater. The elements of this remedy are described in Section 7. The selected remedy is depicted in Figure 7.

Basis for Selection

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

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

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

Alternative 1 (No Action) does not provide any protection to public health and the environment and thus will not be evaluated further.

The selected remedy, Alternative 2 will satisfy this criterion by removing the chlorinated solvent impacted soil in the source area above/slightly into (as practicable) the water table and treating the remaining contamination below the water table. Therefore, Alternative 2 will also address the contamination in groundwater that is emanating from the on-site source area, thereby addressing the most significant threat to public health and the environment. Alternative 3 also removes the contaminated soil from above/slightly into (as practicable) the water table, in the source area, but further treats on-site groundwater contamination by injection of bioremediation or chemical oxidation media. Similar to Alternative 3, Alternative 4 meets this criterion by removing contaminated soil from the source area. However, Alternative 4 utilizes a permeable reactive barrier wall along the downgradient perimeter of the site to treat groundwater instead of injections. Alternatives 2, 3 and 4 would all be expected to address potential soil vapor intrusion impacts to any future buildings constructed on the site. Alternative 5 would be the most protective to human health and the environment as this remedy removes all contaminated soil above unrestricted soil cleanup objectives and would treat contaminated soil on-site and off-site.

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

All of the retained Alternatives are expected to comply with SCGs, but will achieve the objectives over different time frames. Alternative 2 will comply with the SCGs by removing the majority of contaminated soil in the source area and treating remaining contaminated soil and groundwater. Alternative 2 will

reduce the levels of groundwater contamination over time and achieve groundwater quality standards to the extent practicable. Similarly, Alternatives 3 and 4 will address the contaminated soil in the source area. However, the timeframe for these alternatives to reach groundwater quality standards is expected to be less than Alternative 2 because of the additional groundwater treatment they include. However, if Alternative 2 requires additional groundwater treatment during Site Management, the timeframe to reach cleanup goals may change. Alternative 5 is expected to comply with this criterion to the highest degree of certainty since it requires the removal of all soil above unrestricted use SCOs and includes continued groundwater treatment until contaminant levels reach groundwater quality standards.

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

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

All of the remaining Alternatives are expected to provide effective and permanent cleanups in the long-term. Alternative 5 provides the most certain long-term effectiveness and permanence since it will remove all of the soil contamination above unrestricted soil cleanup goals. Alternative 5 also provides extensive groundwater treatment both on-site and off-site, thus eliminating the need for long-term use restrictions.

Alternatives 2, 3 and 4 provides for a high degree of long-term effectiveness by removing the majority of contaminated soil from the source area and treating remaining soil/groundwater contamination in-situ. Since Alternatives 2, 3 and 4 leave contamination at the site, an environmental easement and long-term groundwater monitoring will be required. In addition, each of these Alternatives will require evaluations to assess the potential for soil vapor intrusion. The duration of these restrictions will likely be marginally greater for Alternative 2 since Alternatives 3 and 4 include additional groundwater treatment. However, the timeframe for Alternative 2 to reach remedial goals may change if additional groundwater treatment is required.

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

Alternative 2 will significantly reduce the toxicity, mobility and volume of contamination at the site by removing most of the volume of contaminated soil from the source area, including the most heavily impacted soil. Alternative 2 also treats the contaminated soil at and beneath the groundwater table to reduce mobility of remaining contamination. Alternatives 3 and 4 comply with this criterion in a similar manner as Alternative 2 but offers increased reduction of contaminant mobility due to their treatment of a greater volume of groundwater impacts. However, Alternative 2 would treat additional contaminant volume if necessary, during Site Management. Alternative 5, by removing all the contaminated soil to pre-disposal conditions and offering the most robust groundwater treatment, provides the greatest reduction of contaminant toxicity, mobility and volume. All of the remedial Alternatives will require the use of groundwater use restriction and need to include provisions for soil vapor intrusion, except for Alternative 5.

5. Short-term Impacts and Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

Alternatives 2 through 5 all have some degree of short-term impacts which can be readily addressed. All three have the potential to create human exposure of contaminants to remediation workers, as well as nuisance conditions (noise or dust during construction). These impacts can be mitigated with engineering controls during construction. Duration of construction for the three alternatives is estimated to be similar and will include identical controls (e.g., CAMP, limitations on working hours). Each remedy requires the excavation and off-site disposal of soil, which will result in the removal of nearby trees and increased truck traffic in the community. The magnitude of these impacts is similar for Alternatives 2, 3 and 4, however Alternative 5 requires the excavation of significantly more soil and subsequently more backfill, and thus more trucking is utilized. Alternative 5 will also require the need for off-site access to implement the additional groundwater treatment. Alternative 2 is expected to take slightly longer to reach the remedial goal than Alternatives 3 and 4, however this timeframe could change if additional groundwater treatment is necessary. Alternative 5 is expected to require the least amount of time to reach the desired objectives.

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

All of the remedial alternatives are expected to be implementable as they use methods and technologies that are proven to address chlorinated solvent contamination, and no significant physical or other implementation barriers exist at the site. Alternative 2 is the most implementable since the in-situ portion of the remedy requires direct mixing of reagent with contaminated soil, whereas Alternatives 3 and 4 require implementation of subsurface technologies (injections, barrier wall) that will require additional pre-design testing. The in-situ portion of Alternatives 3 and 4 will likely have some degree of uncertainty regarding their ability to provide sufficient contact with remaining contamination in the subsurface to effectively treat groundwater. Alternative 5 is the most difficult to implement as it will remove significantly more soil than the other alternatives which will require excavation dewatering, increased truck traffic and sitewide restoration activities. To implement Alternative 5, off-site access agreements will need to be obtained from property owners, which may be difficult.

7. Cost-Effectiveness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision.

Alterative 2 is the most cost-effective remedy aside from no action Alternative 1, as it provides similar source removal and groundwater benefits as the other remedial Alternatives, but for significantly less cost. Alternatives 3 and 4 have higher capital costs than Alternative 2 due to their expanded groundwater treatment efforts but are expected to have similar long-term monitoring costs. While Alternative 5 will have no long-term costs, it will have significantly higher capital costs compared to the other Alternatives since the remedy addresses greater volumes of soil and groundwater.

8. Land Use. When cleanup to pre-disposal conditions is determined to be infeasible, the Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

All of the remedial alternatives are expected to be protective to meet the future anticipated commercial use of the property. Alternatives 2, 3 and 4 each remove the majority of the volume of contaminated soil from the site, including the most heavily impacted soil. However, each of these alternatives will leave remaining contamination at the site. The remaining contamination can easily be effectively controlled through the implementation of a comprehensive Site Management Plan. Alternative 5 does not leave contaminated soil at the site and will not require restrictions.

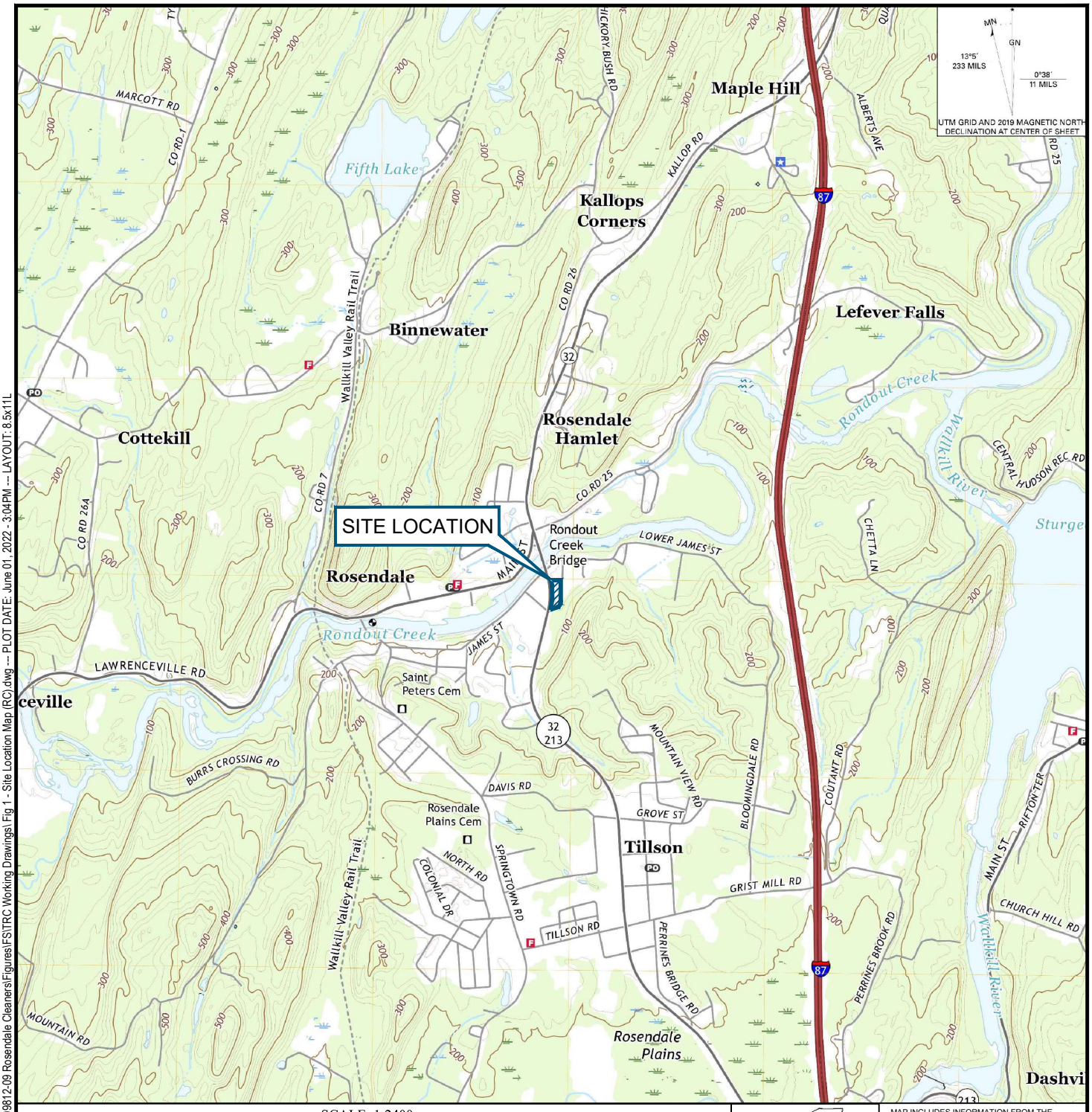
9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the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

10). Green and Sustainable Remediation: Potential Indirect Environmental Impact of the Remedy. For this criterion, preference is given to alternatives that have the potential to remediate the site with the lowest potential negative environmental impact, such as CO_2 emissions. This criterion also considers the resilience of alternatives to potential climate change effects such as sustained changes in average temperatures, increased heavy precipitation events, and increased coastal flooding. A detailed analysis can be found in the January 2023 Feasibility Study.

Alternatives 5 will have the highest potential environmental impact as it removes the most contaminated soil and requires the treatment of large quantities of contaminated groundwater. In addition, the injection footprint of Alternative 5 is the largest of all the remedies. This will necessitate additional trucking of material and energy use for treatment of the groundwater. Alternatives 3 and 4 will have a smaller environmental footprint than Alternative 5 as they remove less soil and have a smaller treatment zone. However, Alternative 2 has the lowest overall environmental impact as it focuses primarily on the source area and removing only the most heavily impacted soil.

None of the above remedies are expected to be impacted by climate change as they do not require maintaining any aboveground infrastructure. Alternatives 2, 3 and 4 require soil covers that could potentially be impacted by long-term climate change. These cover systems will be required to be maintained and repaired as needed.

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



SCALE: 1:2400

1 0.5 0 KILOMETERS 1 2

1000 500 0 METERS 1000 2000

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MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

FEET

QUADRANGLE LOCATION

MAP INCLUDES INFORMATION FROM THE FOLLOWING MAP SHEET(S):
TP, ROSENDALE, NY, 7.5 MINUTE DATED 2019.

MAP OBTAINED THROUGH USE OF TOPOVIEW WITH THE INTERFACE CREATED BY THE NATIONAL GEOLOGIC MAP DATABASE PROJECT (NGMDB), IN SUPPORT OF THE TOPOGRAPHIC MAPPING PROGRAM, MANAGED BY THE USGS NATIONAL GEOSPATIAL PROGRAM (NGP).

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PROJECT:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ROSENDALE CLEANERS SITE - SITE NO. 356050
TOWN OF ROSENDALE, NEW YORK

TITLE:

SITE LOCATION MAP

DRAWN BY:	H. DELGADO
CHECKED BY:	T. SHANLEY
APPROVED BY:	H. NICHOLS
DATE:	JUNE 2022
PROJ. NO.:	403739.0000.0000
FILE:	Fig 1 - Site Location Map (RC).dwg

FIGURE 1

8.5x11 -- ATTACHED XREFS: -- ATTACHED IMAGES: NY_Rosendale_20190923_TM:
DRAWING NAME: B:\Projects\NYSDEC\D009812\Work Assignments\D009812-09 Rosendale Cleaners\Figures\FS\TRC Working Drawings\ Fig 1 - Site Location Map (RC).dwg -- PLOT DATE: June 01, 2022 - 3:04PM -- LAYOUT: 8.5x11L

MW-17R
MW-17
Rondout Creek
James St
Madeline Ln
NY-32
Joleyn Ln
62.83-2-43
VACANT COMMERCIAL BUILDING
MW-11R
MW-06R
MW-11
MW-14
MW-16
MW-08
MW-07
MW-05
MW-04
RW-03
MW-01
MW-10
MW-12
MW-09
MW-15
MW-18
MW-13
Unnamed Creek
Former 1083 Route 32 Site (Site ID# 356031)
FORMER ROSENDALE CLEANERS BUILDING
Approximate Source Area (Debris Pile)

LEGEND (SYMBOLS NOT TO SCALE)

- MONITORING WELL
- DESTROYED/ABANDONED MONITORING WELL
- Site Boundary
- LIMITS OF BURIED DEBRIS PILE (2014)

NOTES:

1. SITE FEATURES, LOCATIONS AND PROPERTY BOUNDARIES ARE APROXIMATE.

1:900
1" = 75'

BASE MAP: GOOGLE EARTH IMAGERY, 2019
DATA SOURCES: TRC
SHEET SIZE: 11X17L

0 75 150 FEET

PROJECT:
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ROSENDALE CLEANERS - SITE NO. 356050
TOWN OF ROSENDALE, NEW YORK

TITLE:
SITE LAYOUT MAP

DRAWN BY:	L. LILL	PROJ. NO.:	403739.0000.0000
CHECKED BY:	J. KING		FIGURE 2
APPROVED BY:	J. MAGDA		
DATE:	FEBRUARY 2022		

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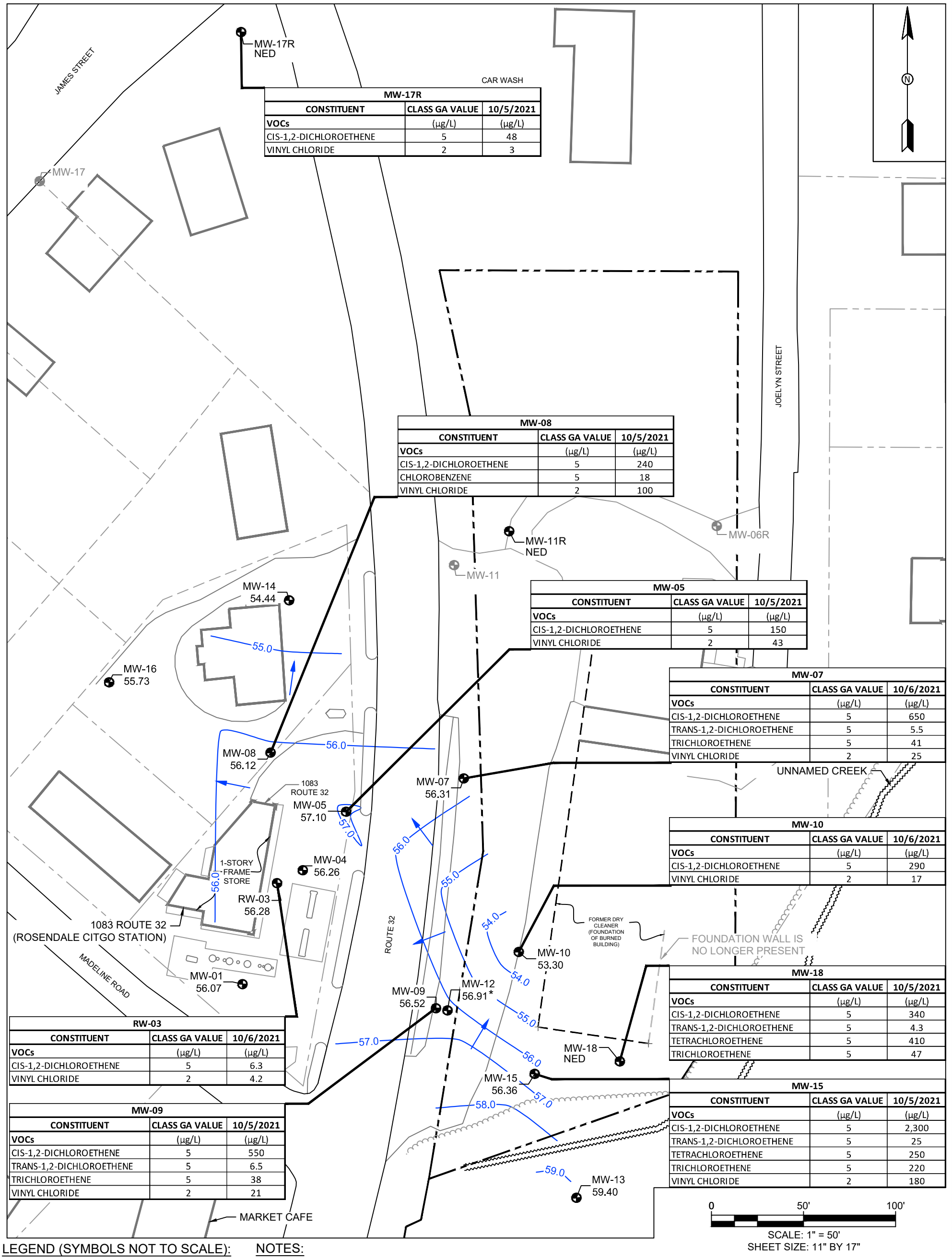
FILE: sitelayout.aprx

Coordinate System: NAD 1983 StatePlane New York East FIPS 3101 Feet; Map Rotation: 0
Saved By: LLILL on 2/9/2022, 08:37:27 AM; File Path: T:\PROJECTS\VOL2\ECHO\403739 RosendaleCleaners\12-APRX\sitelayout\sitelayout.aprx; Layout Name: Figure 2 - Rosendale Cleaners Site Layout Map



MW-17R		
CONSTITUENT	CLASS GA VALUE	10/5/2021
VOCs	(µg/L)	(µg/L)
CIS-1,2-DICHLOROETHENE	5	48
VINYL CHLORIDE	2	3

MW-08		
CONSTITUENT	CLASS GA VALUE	10/5/2021
VOCs	(µg/L)	(µg/L)
CIS-1,2-DICHLOROETHENE	5	240
CHLOROBENZENE	5	18
VINYL CHLORIDE	2	100

MW-05		
CONSTITUENT	CLASS GA VALUE	10/5/2021
VOCs	(µg/L)	(µg/L)
CIS-1,2-DICHLOROETHENE	5	150
VINYL CHLORIDE	2	43

MW-07		
CONSTITUENT	CLASS GA VALUE	10/6/2021
VOCs	(µg/L)	(µg/L)
CIS-1,2-DICHLOROETHENE	5	650
TRANS-1,2-DICHLOROETHENE	5	5.5
TRICHLOROETHENE	5	41
VINYL CHLORIDE	2	25

MW-10		
CONSTITUENT	CLASS GA VALUE	10/6/2021
VOCs	(µg/L)	(µg/L)
CIS-1,2-DICHLOROETHENE	5	290
VINYL CHLORIDE	2	17

MW-18		
CONSTITUENT	CLASS GA VALUE	10/5/2021
VOCs	(µg/L)	(µg/L)
CIS-1,2-DICHLOROETHENE	5	340
TRANS-1,2-DICHLOROETHENE	5	4.3
TETRACHLOROETHENE	5	410
TRICHLOROETHENE	5	47

MW-15		
CONSTITUENT	CLASS GA VALUE	10/5/2021
VOCs	(µg/L)	(µg/L)
CIS-1,2-DICHLOROETHENE	5	2,300
TRANS-1,2-DICHLOROETHENE	5	25
TETRACHLOROETHENE	5	250
TRICHLOROETHENE	5	220
VINYL CHLORIDE	2	180

RW-03		
CONSTITUENT	CLASS GA VALUE	10/6/2021
VOCs	(µg/L)	(µg/L)
CIS-1,2-DICHLOROETHENE	5	6.3
VINYL CHLORIDE	2	4.2

MW-09		
CONSTITUENT	CLASS GA VALUE	10/5/2021
VOCs	(µg/L)	(µg/L)
CIS-1,2-DICHLOROETHENE	5	550
TRANS-1,2-DICHLOROETHENE	5	6.5
TRICHLOROETHENE	5	38
VINYL CHLORIDE	2	21

SCALE: 1" = 50'
SHEET SIZE: 11" BY 17"

LEGEND (SYMBOLS NOT TO SCALE):

- CMU BLOCK WALL FOUNDATION
- Site Boundary
- MW-## — GROUNDWATER MONITORING WELL
- MW-## — DAMAGED / DESTROYED / ABANDONED GROUNDWATER MONITORING WELL
- 54.0 — GROUNDWATER SURFACE ELEVATION CONTOUR (1.0 FOOT INTERVALS)
- 56.23 — GROUNDWATER SURFACE ELEVATION
- APPARENT GROUNDWATER FLOW DIRECTION

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND PROPERTY BOUNDARIES ARE APPROXIMATE.
2. GROUNDWATER SURFACE ELEVATIONS BASED ON WATER ELEVATION MEASUREMENTS ON OCTOBER 2021 AND WELL SURVEY DATA FROM YEC, INC. DATED FEBRUARY 2013.
3. * = MEASUREMENT FOR MW-12 WAS NOT USED IN GENERATING GROUNDWATER SURFACE ELEVATION CONTOURS.
4. HORIZONTAL DATUM IN NORTH AMERICAN DATUM 1983 NEW YORK STATE PLANE COORDINATE SYSTEM EAST ZONE, US SURVEY FOOT (NY83-EF).
5. VERTICAL DATUM IN NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
6. CLASS GA VALUE = NYSDEC AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES FOR CLASS GA WATER.
7. ONLY CVOC RESULTS ABOVE CLASS GA VALUES SHOWN.
8. µg/L = MICROGRAMS PER LITER.
9. NED = NO ELEVATION DATA.

PROJECT:
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ROSENDALE CLEANERS - SITE NO. 356050
TOWN OF ROSENDALE, NEW YORK

TITLE:
SUMMARY OF RESULTS OF GROUNDWATER SAMPLING (OCTOBER 2021)

DRAWN BY:	H. DELGADO	PROJ NO.:	403739
CHECKED BY:	J. KING		
APPROVED BY:	J. MAGDA		**FIGURE 3**
DATE:	MARCH 2022		

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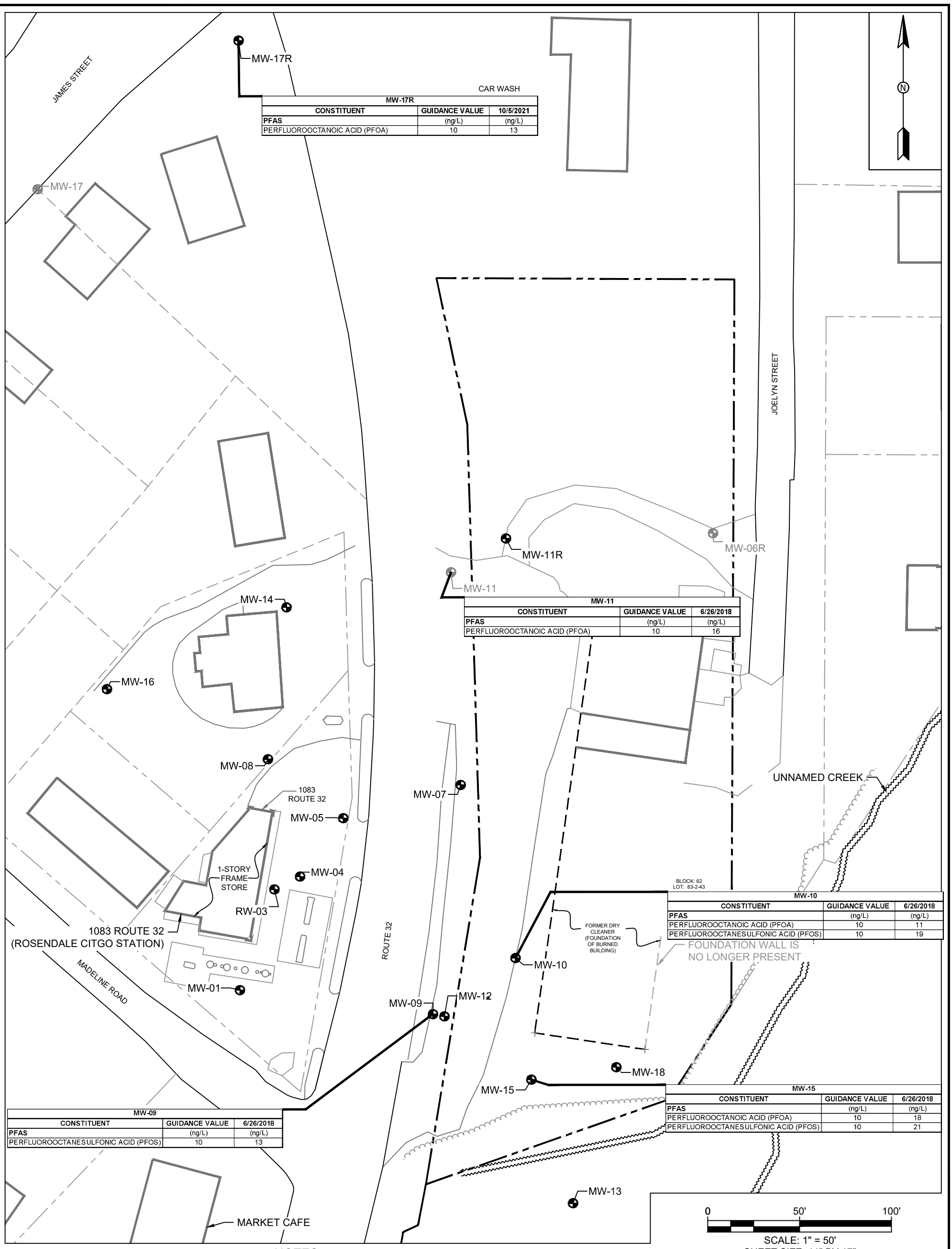
FILE NO.: Fig 13 - Sum. of Results of GW Samp. (10.2021) (RC).dwg



MW-17R		
CONSTITUENT	GUIDANCE VALUE	10/5/2021
PFAS	(ng/L)	(ng/L)
PERFLUOROOCTANOIC ACID (PFOA)	10	13

MW-11		
CONSTITUENT	GUIDANCE VALUE	6/26/2018
PFAS	(ng/L)	(ng/L)
PERFLUOROOCTANOIC ACID (PFOA)	10	16

MW-10		
CONSTITUENT	GUIDANCE VALUE	6/26/2018
PFAS	(ng/L)	(ng/L)
PERFLUOROOCTANOIC ACID (PFOA)	10	11
PERFLUOROOCTANESULFONIC ACID (PFOS)	10	19

MW-09		
CONSTITUENT	GUIDANCE VALUE	6/26/2018
PFAS	(ng/L)	(ng/L)
PERFLUOROOCTANESULFONIC ACID (PFOS)	10	13

MW-15		
CONSTITUENT	GUIDANCE VALUE	6/26/2018
PFAS	(ng/L)	(ng/L)
PERFLUOROOCTANOIC ACID (PFOA)	10	18
PERFLUOROOCTANESULFONIC ACID (PFOS)	10	21

SCALE: 1" = 50'
SHEET SIZE: 11" BY 17"

LEGEND (SYMBOLS NOT TO SCALE):

- CMU BLOCK WALL FOUNDATION
- Site Boundary
- MW-## — GROUNDWATER MONITORING WELL
- MW-## — DAMAGED / DESTROYED / ABANDONED GROUNDWATER MONITORING WELL

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND PROPERTY BOUNDARIES ARE APPROXIMATE.
2. HORIZONTAL DATUM IN NORTH AMERICAN DATUM 1983 NEW YORK STATE PLANE COORDINATE SYSTEM EAST ZONE, US SURVEY FOOT (NY83-EF).
3. VERTICAL DATUM IN NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
4. GUIDANCE VALUE = NYSDEC GUIDELINES FOR SAMPLING AND ANALYSIS OF PFAS UNDER NYSDEC PART 375 REMEDIAL PROGRAMS, JUNE 2021.
5. ONLY PFAS RESULTS ABOVE GUIDANCE VALUES ARE SHOWN.
6. ng/L = NANOGRAMS PER LITER.
7. PFAS - PER- AND POLYFLUOROALKYL COMPOUNDS

PROJECT:
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ROSENDALE CLEANERS - SITE NO. 356050
TOWN OF ROSENDALE, NEW YORK

TITLE: **GROUNDWATER SAMPLING RESULTS - SELECT EMERGING CONTAMINANTS (JUNE 2018 & OCTOBER 2021)**

DRAWN BY:	H. DELGADO	PROJ NO.:	403739.0000.0000
CHECKED BY:	J. KING		
APPROVED BY:	J. MAGDA		**FIGURE 4**
DATE:	MARCH 2022		

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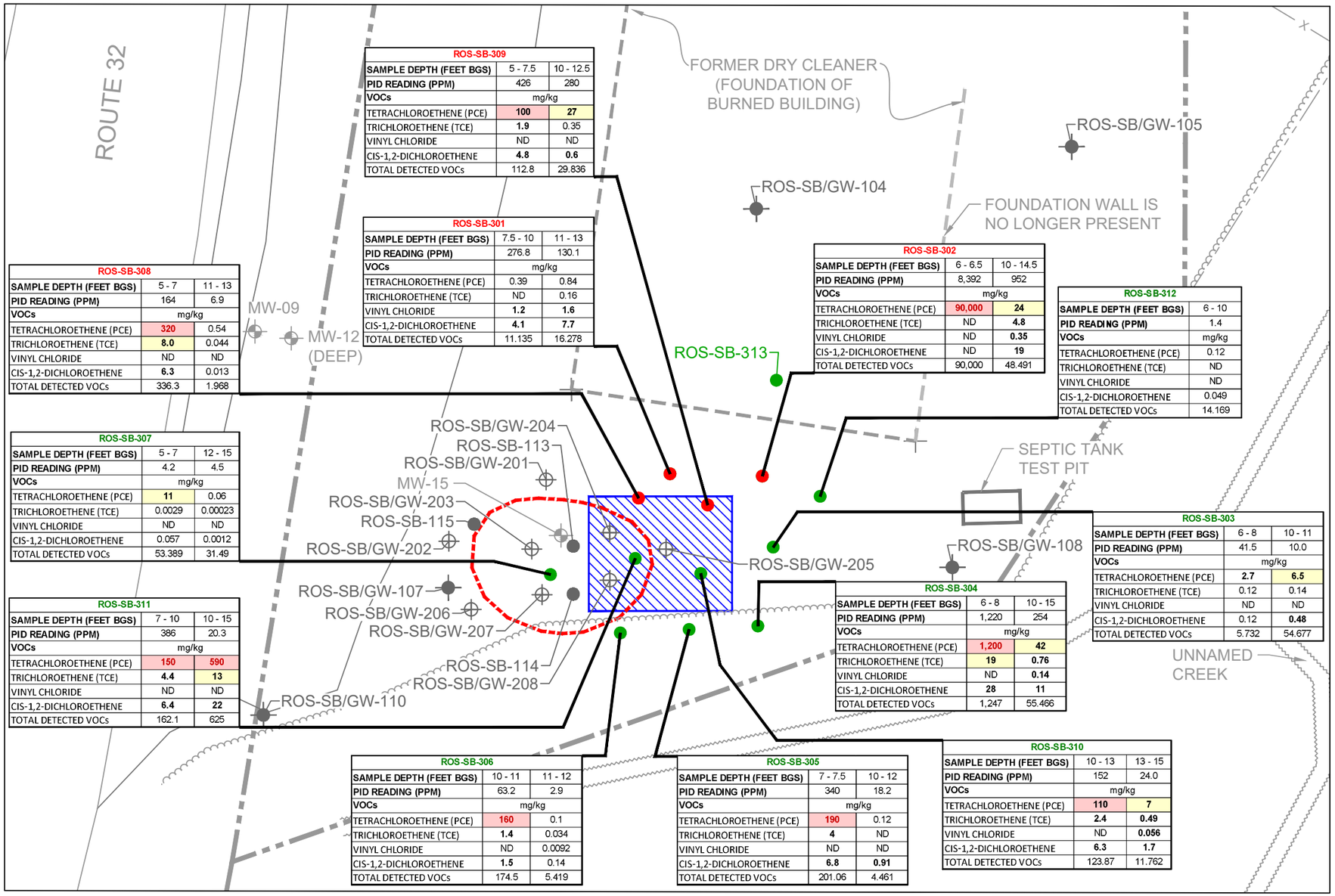
FILE NO.: Fig 11 - GW Samp. Res. - Select E.C. (06.2018 & 10.2021) (RC).dwg



ROS-SB-309		
SAMPLE DEPTH (FEET BGS)	5 - 7.5	10 - 12.5
PID READING (PPM)	426	280
VOCs	mg/kg	
TETRACHLOROETHENE (PCE)	**100**	**27**
TRICHLOROETHENE (TCE)	**1.9**	0.35
VINYL CHLORIDE	ND	ND
CIS-1,2-DICHLOROETHENE	**4.8**	**0.6**
TOTAL DETECTED VOCs	112.8	29.836

ROS-SB-301		
SAMPLE DEPTH (FEET BGS)	7.5 - 10	11 - 13
PID READING (PPM)	276.8	130.1
VOCs	mg/kg	
TETRACHLOROETHENE (PCE)	0.39	0.84
TRICHLOROETHENE (TCE)	ND	0.16
VINYL CHLORIDE	**1.2**	**1.6**
CIS-1,2-DICHLOROETHENE	**4.1**	**7.7**
TOTAL DETECTED VOCs	11.135	16.278

ROS-SB-302		
SAMPLE DEPTH (FEET BGS)	6 - 6.5	10 - 14.5
PID READING (PPM)	8,392	952
VOCs	mg/kg	
TETRACHLOROETHENE (PCE)	**90,000**	**24**
TRICHLOROETHENE (TCE)	ND	**4.8**
VINYL CHLORIDE	ND	**0.35**
CIS-1,2-DICHLOROETHENE	ND	**19**
TOTAL DETECTED VOCs	90,000	48.491

ROS-SB-312	
SAMPLE DEPTH (FEET BGS)	6 - 10
PID READING (PPM)	1.4
VOCs	mg/kg
TETRACHLOROETHENE (PCE)	0.12
TRICHLOROETHENE (TCE)	ND
VINYL CHLORIDE	ND
CIS-1,2-DICHLOROETHENE	0.049
TOTAL DETECTED VOCs	14.169

ROS-SB-308		
SAMPLE DEPTH (FEET BGS)	5 - 7	11 - 13
PID READING (PPM)	164	6.9
VOCs	mg/kg	
TETRACHLOROETHENE (PCE)	**320**	0.54
TRICHLOROETHENE (TCE)	**8.0**	0.044
VINYL CHLORIDE	ND	ND
CIS-1,2-DICHLOROETHENE	**6.3**	0.013
TOTAL DETECTED VOCs	336.3	1.968

ROS-SB-307		
SAMPLE DEPTH (FEET BGS)	5 - 7	12 - 15
PID READING (PPM)	4.2	4.5
VOCs	mg/kg	
TETRACHLOROETHENE (PCE)	**11**	0.06
TRICHLOROETHENE (TCE)	0.0029	0.00023
VINYL CHLORIDE	ND	ND
CIS-1,2-DICHLOROETHENE	0.057	0.0012
TOTAL DETECTED VOCs	53.389	31.49

ROS-SB-311		
SAMPLE DEPTH (FEET BGS)	7 - 10	10 - 15
PID READING (PPM)	386	20.3
VOCs	mg/kg	
TETRACHLOROETHENE (PCE)	**150**	**590**
TRICHLOROETHENE (TCE)	**4.4**	**13**
VINYL CHLORIDE	ND	ND
CIS-1,2-DICHLOROETHENE	**6.4**	**22**
TOTAL DETECTED VOCs	162.1	625

ROS-SB-303		
SAMPLE DEPTH (FEET BGS)	6 - 8	10 - 11
PID READING (PPM)	41.5	10.0
VOCs	mg/kg	
TETRACHLOROETHENE (PCE)	**2.7**	**6.5**
TRICHLOROETHENE (TCE)	0.12	0.14
VINYL CHLORIDE	ND	ND
CIS-1,2-DICHLOROETHENE	0.12	**0.48**
TOTAL DETECTED VOCs	5.732	54.677

ROS-SB-304		
SAMPLE DEPTH (FEET BGS)	6 - 8	10 - 15
PID READING (PPM)	1,220	254
VOCs	mg/kg	
TETRACHLOROETHENE (PCE)	**1,200**	**42**
TRICHLOROETHENE (TCE)	**19**	**0.76**
VINYL CHLORIDE	ND	**0.14**
CIS-1,2-DICHLOROETHENE	**28**	**11**
TOTAL DETECTED VOCs	1,247	55.466

ROS-SB-306		
SAMPLE DEPTH (FEET BGS)	10 - 11	11 - 12
PID READING (PPM)	63.2	2.9
VOCs	mg/kg	
TETRACHLOROETHENE (PCE)	**160**	0.1
TRICHLOROETHENE (TCE)	**1.4**	0.034
VINYL CHLORIDE	ND	0.0092
CIS-1,2-DICHLOROETHENE	**1.5**	0.14
TOTAL DETECTED VOCs	174.5	5.419

ROS-SB-305		
SAMPLE DEPTH (FEET BGS)	7 - 7.5	10 - 12
PID READING (PPM)	340	18.2
VOCs	mg/kg	
TETRACHLOROETHENE (PCE)	**190**	0.12
TRICHLOROETHENE (TCE)	**4**	ND
VINYL CHLORIDE	ND	ND
CIS-1,2-DICHLOROETHENE	**6.8**	**0.91**
TOTAL DETECTED VOCs	201.06	4.461

ROS-SB-310		
SAMPLE DEPTH (FEET BGS)	10 - 13	13 - 15
PID READING (PPM)	152	24.0
VOCs	mg/kg	
TETRACHLOROETHENE (PCE)	**110**	**7**
TRICHLOROETHENE (TCE)	**2.4**	**0.49**
VINYL CHLORIDE	ND	**0.056**
CIS-1,2-DICHLOROETHENE	**6.3**	**1.7**
TOTAL DETECTED VOCs	123.87	11.762

LEGEND (SYMBOLS NOT TO SCALE):

- CMU BLOCK WALL FOUNDATION
- Site Boundary
- MW-## — GROUNDWATER MONITORING WELL (2012)
- ROS-SB/GW-1## — DIRECT PUSH SOIL BORING AND "GRAB" GROUNDWATER SAMPLE (2012)
- ROS-SB-1## — SOIL BORING (2013)
- ROS-SB/GW-2## — SOIL BORING AND "GRAB" GROUNDWATER SAMPLE (2017)
- ROS-SB-3## — DELINEATION / SOIL RE-USE SOIL BORING (2020)
- ROS-SB-3## — WASTE CHARACTERIZATION SOIL BORING (2020)
- APPROXIMATE LIMITS OF BURIED DEBRIS PILE (2014)
- TREE LINE / WOODED AREA
- Initial Estimated Extent of Source Area (2019)

LOCATION ID				
SAMPLE DEPTH (FEET BGS)	# - #			
PID READING (PPM)	##			
ANALYTE	UUSCO	CUSCO	UTS	LDR
VOCs	mg/kg			
TETRACHLOROETHENE (PCE)	1.3	150	6.0	60
TRICHLOROETHENE (TCE)	0.47	200	6.0	60
VINYL CHLORIDE	0.02	13	6.0	60
CIS-1,2-DICHLOROETHENE	0.25	500	NA	NA

BOLD	EXCEEDS UUSCO
BOLD	EXCEEDS CUSCO
BOLD	EXCEEDS UTS
BOLD	EXCEEDS LDR

0 20' 40'

SCALE: 1" = 20'
SHEET SIZE: 11" BY 17"

ACRONYMS:

1. CVOCs - CHLORINATED VOLATILE ORGANIC COMPOUNDS.
2. FEET BGS - FEET BELOW GROUND SURFACE.
3. mg/kg - MILLIGRAMS PER KILOGRAM.
4. ND - NOT DETECTED ABOVE THE LABORATORY QUANTITATION LIMIT.
5. PID - PHOTO-IONIZATION DETECTOR.
6. PPM - PARTS PER MILLION.
7. TCL - TARGET COMPOUND LIST
8. TICs - TENTATIVELY IDENTIFIED COMPOUNDS.
9. VOCs - VOLATILE ORGANIC COMPOUNDS.
10. UUSCO - 6 NYCRR PART 375 UNRESTRICTED USE SOIL CLEANUP OBJECTIVE.
11. CUSCO - 6 NYCRR PART 375 COMMERCIAL USE SOIL CLEANUP OBJECTIVE.
12. UTS - USEPA 40 CFR § 268.48 UNIVERSAL TREATMENT STANDARD: NONWASTEWATER STANDARD.
13. LDR - USEPA 40 CFR § 268.49 ALTERNATIVE LAND DISPOSAL RESTRICTION TREATMENT STANDARD FOR CONTAMINATED SOIL.

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND PROPERTY BOUNDARIES ARE APPROXIMATE.
2. SOIL SAMPLES WERE SUBMITTED FOR LABORATORY ANALYSIS OF TCL VOCs + 10 TICs.
3. ONLY SELECT CVOCs AND TOTAL DETECTED VOC CONCENTRATIONS (INCLUDING TICs) ARE SHOWN.
4. LABORATORY ANALYTICAL DATA QUALIFERS HAVE BEEN OMITTED. REFER TO THE DATA SUMMARY TABLES FOR QUALIFIERS.
5. NO SOIL SAMPLES COLLECTED FROM ROS-SB-313 WERE SUBMITTED FOR LABORATORY ANALYSIS.

PROJECT:
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ROSENDALE CLEANERS - SITE NO. 356050
TOWN OF ROSENDALE, NEW YORK

TITLE:
COC Soil Analytical Results
November (2020)

DRAWN BY:	H. DELGADO	PROJ NO.:	403739.0000.0000
CHECKED BY:	J. KING		**FIGURE** 5
APPROVED BY:	J. MAGDA		
DATE:	MARCH 2022		

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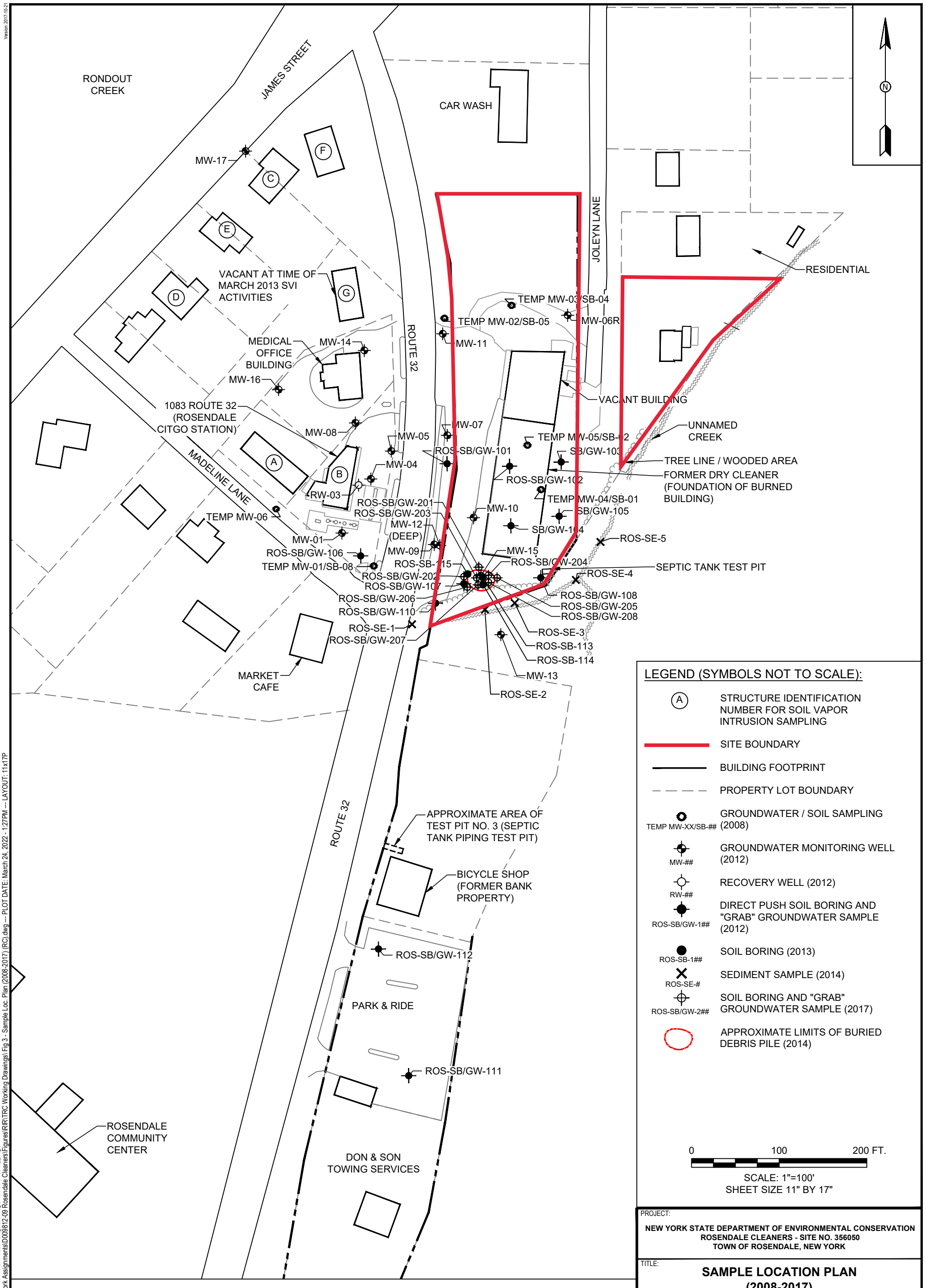
FILE NO.: Fig 12 - Select Soil Anal. Results Map (11.2020) (RC).dwg



NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND PROPERTY BOUNDARIES ARE APPROXIMATE.

LEGEND (SYMBOLS NOT TO SCALE):

- (A) — STRUCTURE IDENTIFICATION NUMBER FOR SOIL VAPOR INTRUSION SAMPLING
- SITE BOUNDARY
- BUILDING FOOTPRINT
- PROPERTY LOT BOUNDARY
- TEMP MW-XX/SB-## — GROUNDWATER / SOIL SAMPLING (2008)
- MW-## — GROUNDWATER MONITORING WELL (2012)
- RW-## — RECOVERY WELL (2012)
- ROS-SB/GW-1## — DIRECT PUSH SOIL BORING AND "GRAB" GROUNDWATER SAMPLE (2012)
- ROS-SB-1## — SOIL BORING (2013)
- ROS-SE-# — SEDIMENT SAMPLE (2014)
- ROS-SB/GW-2## — SOIL BORING AND "GRAB" GROUNDWATER SAMPLE (2017)
- APPROXIMATE LIMITS OF BURIED DEBRIS PILE (2014)

0 100 200 FT.

SCALE: 1"=100'
SHEET SIZE 11" BY 17"

PROJECT:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ROSENDALE CLEANERS - SITE NO. 356050
TOWN OF ROSENDALE, NEW YORK

TITLE:

SAMPLE LOCATION PLAN (2008-2017)

DRAWN BY:	H. DELGADO	PROJ NO.:	403739.0000.0000
CHECKED BY:	J. KING		
APPROVED BY:	J. MAGDA		**FIGURE** 6
DATE:	MARCH 2022		

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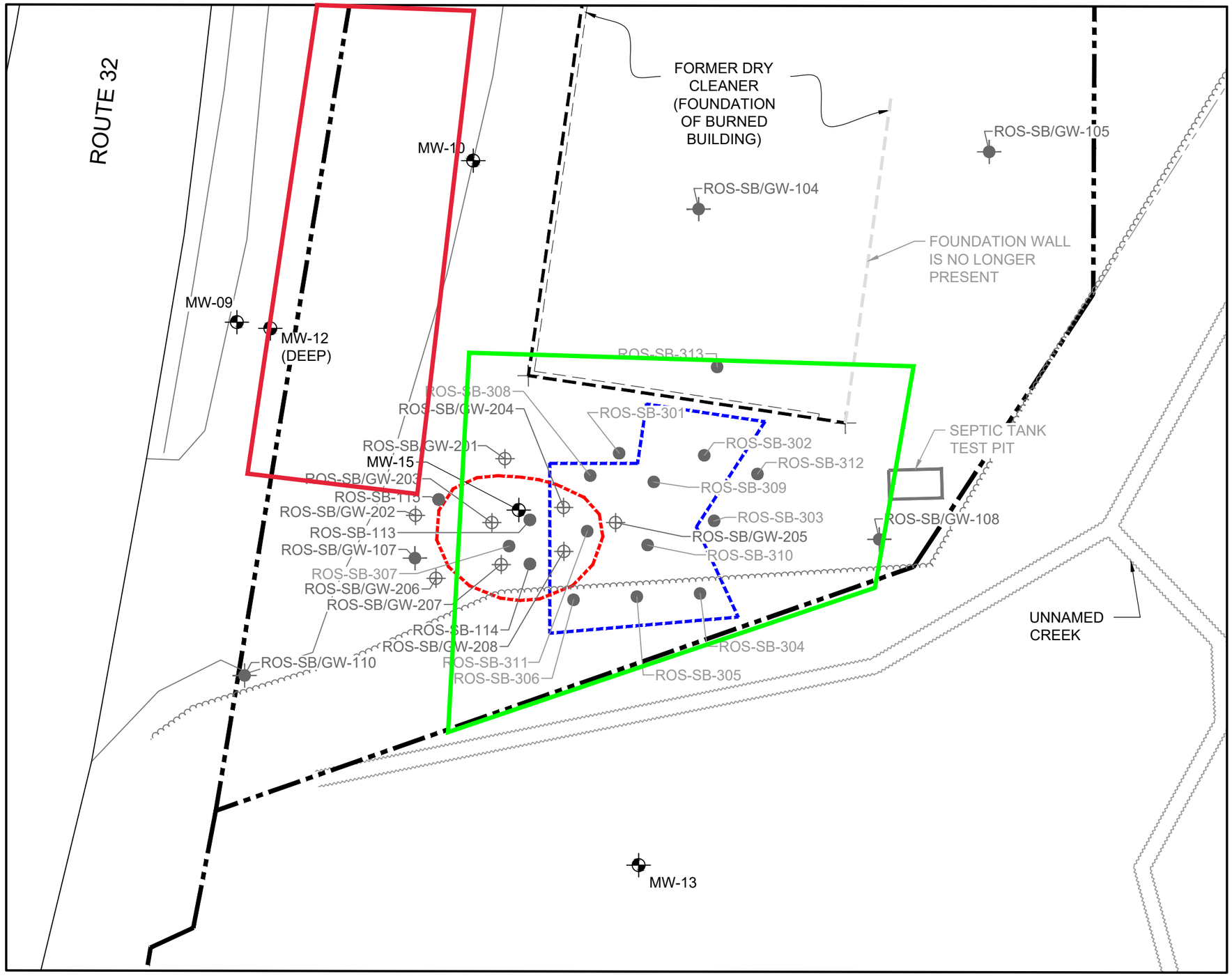
FILE NO.: Fig 3 - Sample Loc. Plan (2008-2017) (RC).dwg



LEGEND (SYMBOLS NOT TO SCALE):

- CMU BLOCK WALL FOUNDATION
- Site Boundary
- MW-XX — GROUNDWATER MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (2012)
- SB/GW-1XX — DIRECT PUSH SOIL BORING AND "GRAB" GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (2012)
- ROS-SB-XXX — SOIL BORING LOCATION AND IDENTIFICATION NUMBER (2013 AND 2020)
- ROS-SB/GW-2XX — SOIL BORING AND "GRAB" GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (2017)
- APPROXIMATE LIMITS OF BURIED DEBRIS MOUND (2014)
- TREE LINE / WOODED AREA
- Approximate Extent of Soil Excavation and Groundwater Treatment (To be refined during design)
- Conceptual Soil Cover Area (To be refined during design)
- Contingency Groundwater Treatment Area

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND PROPERTY BOUNDARIES ARE APPROXIMATE.

0 20' 40'

SCALE: 1" = 20'
SHEET SIZE: 11" BY 17"

PROJECT:
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ROSENDALE CLEANERS SITE - SITE NO. 356050
TOWN OF ROSENDALE, NEW YORK

TITLE:
Conceptual Excavation Plan
(ALTERNATIVE 2)

DRAWN BY:	H. DELGADO	PROJ NO.:	403739.0000.0000
CHECKED BY:	C. LUTHER		
APPROVED BY:	H. NICHOLS		**FIGURE 7**
DATE:	JUNE 2022		

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FILE NO.: Fig 7 - Conceptual ISS Plan (RC).dwg

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Rosendale Cleaners Site
State Superfund Project
Town of Rosendale, Ulster County, New York
Site No. 356050

The Proposed Remedial Action Plan (PRAP) for the Rosendale Cleaners site was prepared by the New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on January 22, 2025. The PRAP outlined the remedial measure proposed for the contaminated soil and groundwater at the Rosendale Cleaners site.

The release of the PRAP was announced by sending paper notifications to the public contact list and by posting the notice on NYSDEC's listserv, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on February 3, 2025, which included a presentation of the remedial investigation and feasibility study (RI/FS) for the Rosendale Cleaners Site as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on February 21, 2025.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the Department's responses:

COMMENT 1: Who is responsible for the cleanup?

RESPONSE 1: Under the Environmental Conservation Law and the State Finance Law, the Commissioner of NYSDEC is required to make "all reasonable efforts" to secure responsible party action prior to development and implementation of a state-funded remedial program. As part of the State Superfund (SSF) Program, the state offers the owner several opportunities to investigate, and if necessary, remediate the site. If these offers are declined, the state proceeds with the investigation and remediation and may pursue the owner(s) and potentially responsible parties (PRPs) for cost recovery. PRPs will be contacted and asked to implement a remedial program at the Rosendale Cleaners site. If they decline, the site will be referred to the State Superfund Program, and if approved, the state will fund the cleanup.

COMMENT 2: Once everything is cleaned up, can the owner proceed and build something new on-site?

RESPONSE 2: Yes, the site owner could build on the site. An environmental easement will be placed on the site which will allow the use and development of the property for commercial/industrial use as defined by 6 NYCRR Part 375-1.8(g), and subject to local zoning lows. This ROD contains a provision for the evaluation of the potential for soil vapor intrusion for any buildings developed on the site. The owner/tenants will need to follow the site-specific Site Management Plan and consult the NYSDEC regarding any redevelopment during the initial design phases. Additionally, the owner shall notify the NYSDEC at least 60 days before a change of use occurs at the site, consistent with 6NYCRR Part 375-1.11(d).

COMMENT 3: If there is a building permit application for the site, does the owner have to contact NYSDEC?

RESPONSE 3: Yes, the owner will need to notify NYSDEC of any plans for redevelopment and/or ground intrusive work. The Site Management Plan will contain the notification and reporting requirements specific to this site, including the change of use notification cited in Response 1. However, the building permit is solely the purview of the local municipality.

COMMENT 4: Is there an issue with storage on the site?

RESPONSE 4: The NYSDEC has observed that the owner is using the site for storage of equipment and materials. Storage of materials meets the definition of commercial use. The owner should take care to ensure that the any material is stored properly and does not result in a spill or release.

COMMENT 5: Are you only going to excavate the contamination at the site?

RESPONSE 5: The remedy primarily consists of excavating the contaminated soil source that is present in the southern portion of the site. The remedy also includes the implementation of in-situ bioremediation, a cover system, a Site Management Plan (SMP) and environmental easement to treat and protect against remaining contamination.

COMMENT 6: We want to see something that would benefit the residents instead of a vacant building that becomes an eye sore. We have tried our best but there's a lot of questions that are asked through the building department. We just want the truth and to see how we can move forward.

RESPONSE 6: Please direct any questions regarding the site's remedial program to the NYSDEC. We will be happy to assist in answering them. Please direct any questions regarding existing buildings or redevelopment plans to the local municipality; NYSDEC has no jurisdiction in those decisions other than to ensure the cleanup is protective of the general reuse (e.g., residential, commercial, industrial).

COMMENT 7: If we can get it cleaned up, it would be great if it could be redeveloped. Is there a time frame for when this will happen?

RESPONSE 7: It is difficult to place an exact timeframe on when the cleanup will happen. However, it is anticipated the remedy will be implemented in two to three years. Following the issuance of this ROD, the remedy enters the design phase. First, as outlined in Response 1, the state must approach the owner and PRPs to perform the remedy. If they decline, the site must be referred to the State Superfund program for approval to use state funds to perform the cleanup. Following this, a design and oversight consultant will be selected. Once the design is complete, the remedial work will go out to bid. The selected contractor will implement the remedy. Once implementation is completed, the site will go into site management which is a long-term monitoring and maintenance program to ensure the remedy remains effective as designed. As noted in Response 2, change of use notice is to be provided to the NYSDEC 60-days prior to implementing the work/change.

COMMENT 8: Will there be continual monitoring of the site after all this?

RESPONSE 8: As noted in Response 7, following implementation of the remedy, the site enters the Site Management phase, which includes a long-term groundwater monitoring program to assess the effectiveness of the remedy by measuring contaminant levels in groundwater over time. The groundwater monitoring results will be documented in periodic review reports, all of which will be available to the public.

COMMENT 9: The groundwater that is contaminated flows what way? Is the contamination flowing into the creek? Will they excavate near the creek?

RESPONSE 9: The contaminated groundwater generally flows to the north-northwest towards the Rondout Creek. There are currently low levels of groundwater contamination migrating towards the Rondout Creek, which are expected to be addressed by the remedy. A groundwater sample collected near the Rondout Creek indicated no contamination was present. Sediment samples collected from the separate “unnamed creek”/drainage area, that is adjacent to the site, indicates there are no site-related impacts. The remedy does not include any soil excavation near the Rondout Creek.

COMMENT 10: Are there precautions that we should be aware of? Does repaving need to happen?

RESPONSE 10: The site remedy includes the construction of a site cover for a portion of the site and the placement of institutional controls (e.g., environmental easement and implementation of the SMP) on the property to protect the public from exposure to residual contamination. In the meantime, NYSDEC should be notified prior to any ground intrusive work for review and approval consistent with the SMP and change of use requirements, as appropriate.

COMMENT 11: You take the contaminated soil off site and then what happens to it?

RESPONSE 11: The soil is transported for disposal at a facility that is permitted to accept the waste. It is also possible that other options could be considered to dispose of the waste but the means of disposal must be approved by NYSDEC.

COMMENT 12: The soil can't be used until its cleaned, correct?

RESPONSE 12: Correct. The soil could not be re-used without first being treated to meet the applicable soil cleanup standards. However, the remedy doesn't contemplate on-site reuse of treated contaminated soil.

COMMENT 13: Do we know exactly what materials are found in the soils?

RESPONSE 13: Most of the soil across the site consists of native sands, silts and clay material. In the southern area of the site there is a lot of fill/debris material that may have been disposed of after the fire in the early 1980s. The material consists of miscellaneous debris including brick, glass, metal and clothing**.** See Section 6.3 of this ROD for the contaminants found at the site.

COMMENT 14: With alternative 2- the current owner has a certain level of land use. In 5 years, could he hypothetically change the land use to a park? Is that something NYSDEC is involved with?

RESPONSE 14: Yes, the NYSDEC would need to be involved in this process. The current plan is for the environmental easement to restrict the site to commercial/industrial land use as defined by 6 NYCRR Part 375-1.8(g). However, local zoning also applies. If in the future the owner would like to change the site use, consultation with NYSDEC would be needed to inform whether additional measures are needed to ensure the site remains protective of the proposed reuse. See Response 2 regarding change of use notification requirements.

COMMENT 15: The town has a lot of things that could be beneficial, especially with the housing crisis. People are calling us everyday looking for affordable housing. Could this site eventually be used for residents? This is just a general question because Ulster County is in need of housing.

RESPONSE 15: See Response 14 above. The remedy currently allows for commercial/industrial use. Affordable housing would fall under residential or restricted-residential use. To allow a more stringent land use category, NYSDEC will need to be involved to ensure that any required testing and/or remedial measures are implemented so that the site meets the proposed land use cleanup criteria. See Response 2 regarding change of use notification requirements.

COMMENT 16: The property directly across the street was originally built as an auto body shop. Did you do any testing there? At the park n ride?

RESPONSE 16: Yes, the scope of the remedial investigation's initial phase was broad, and activities were completed on the auto body shop and park and ride properties to assess if they were sources of contamination.

COMMENT 17: There were water systems for those businesses. Is their water contaminated?

RESPONSE 17: The site and nearby properties are on public water that is not affected by contamination from this site.

COMMENT 18: What do they mean by debris?

RESPONSE 18: The "debris pile" is a reference to an area of fill material near the southern portion of the Rosendale Cleaners site. The debris pile was initially identified during the first phase of RI activities. Additional investigation was completed to delineate the contamination in the debris pile area. See Response 13 above for a description of the debris material.

Comment 19: I live over on Jolene Ave. Was there any testing done over that way?

Response 19: The contaminated groundwater flows to the north-northwest from the source area and not towards Jolene Ave. This was determined during the investigation as we collected numerous groundwater samples throughout the area. There were several clean groundwater samples between the source area and the area near Jolene Ave.

APPENDIX B

Administrative Record

Administrative Record

Former Rosendale Cleaners Site
State Superfund Project
Town of Rosendale, Ulster County, New York
Site No. 356050

1. Proposed Remedial Action Plan for the Rosendale Cleaners site, dated January 2025, prepared by NYSDEC.t.

2. State Superfund Referral Memorandum dated July 18, 2016 for completion of Remedial Investigation/Feasibility Study (RI/FS).

3. Former Rosendale Cleaners RI/FS Scope of Work and Form 2.11 Submittal dated August 17, 2017.

4. Final Remedial Investigation Report (RIR), dated September 2022, prepared by TRC Engineers, Inc.on behalf of the NYSDEC.

5. Final Feasibility Study (FS) Report, dated September 2022, prepared by TRC Engineers, Inc.on behalf of the NYSDEC

6. Final RI Report (1083 Route 32 Site), NYSDEC site no. 356031, dated July 2014,, prepared by TRC Engineers, Inc. on behalf of the NYSDEC