DECISION DOCUMENT

Weber-Knapp Company
Brownfield Cleanup Program
Jamestown, Chautauqua County
Site No. C907048
April 2022

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

DECLARATION STATEMENT - DECISION DOCUMENT

Weber-Knapp Company
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Jamestown, Chautauqua County
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Statement of Purpose and Basis

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

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

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. Remedial Design: A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings will include, at a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy

efficiency as an element of construction.

2. Cover System:

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

3. Groundwater Extraction and Treatment:

Groundwater extraction and treatment will be implemented to treat contaminants in groundwater and to ensure contaminated groundwater does not migrate off-site. The groundwater extraction system will be designed and installed so that the capture zone is sufficient to cover the areal and vertical extent of the area of concern. The extraction system will create a depression of the water table so that contaminated groundwater is directed toward the extraction wells within the plume area. Groundwater will be extracted from the subsurface overburden and bedrock interface wells installed during the Interim Remedial Measures (IRM) and existing bedrock monitoring well locations. Secondary source locations will be addressed through overburden extraction well installations within these areas to remove impacted groundwater and prevent offsite migration. The extracted groundwater will be treated on-site prior to being discharged to the City of Jamestown Board of Public Utilities (BPU) sewer system under a discharge permit.

4. Groundwater Monitoring Natural Attenuation

Groundwater contamination (remaining after active remediation) will be addressed with monitored natural attenuation (MNA). Groundwater will be monitored for site related contamination and also for MNA indicators which will provide an understanding of the biological activity breaking down the remaining contamination. It is anticipated that contamination will decrease by an order of magnitude in a reasonable period of time (5 to 10 years). Reports of the attenuation will be provided annually until data suggests that monitoring is no longer necessary (5 to 10 years), and active remediation will be proposed if it appears that natural processes alone will not address the contamination. The contingency remedial action will depend on the information collected. An assessment of natural bacteria capable of consuming chlorinated VOCs in the site groundwater will be implemented and if required, the groundwater will be inoculated with bacteria capable of consuming chlorinated VOCs as a contingency remedial action in order for MNA to be effective.

5. Evaluation of Existing Stormwater System

The existing stormwater drainage piping will be evaluated and modified if necessary to allow potentially impacted groundwater that preferentially flows along and into this system to be collected and treated as part of the groundwater containment system.

6. Excavation of Source Material and Sediment from Outfall

Excavation and off-site disposal of soil and sediment containing the identified contaminants of concern (COCs), located within the vicinity of the stormwater outfall and Chadakoin River. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil.

The targeted source areas include but are not limited to:

- grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
- concentrated solid or semi-solid hazardous substances per 6 NYCRR Part 375-1.2(au)(1)
- 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.

7. Vapor Mitigation

Any on-site buildings constructed in the future will be required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of vapors into the building from soil and groundwater. The existing building's currently operating positive-pressure HVAC system will continue to be operated and calibrated and/or modified with periodic evaluation to document compliance with applicable SCGs. This existing system will constitute the vapor intrusion mitigation control and will be maintained and managed accordingly.

8. Easement:

The remedy will achieve a Track 4 restricted industrial cleanup at a minimum and will include an environmental easement and site management plan as described below.

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 or industrial 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.

9. Site Management Plan (SMP)

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

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

o Institutional Controls: the environmental easement discussed in remedial element 8 above.
o Engineering Controls: the site cover discussed in remedial element 2 above, and the vapor mitigation system discussed in remedial element 7 above.

This plan includes, but may not be limited to:

- an excavation plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use or groundwater use restrictions;
- a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described above will be placed in any areas where the upper one foot of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);
- a provision for evaluation of the potential for soil vapor intrusion for any new buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification;
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls;

b.) a monitoring plan to assess the performance and effectiveness of the remedy. The plan includes but not be limited to:
o monitoring of groundwater to assess the performance and effectiveness of the remedy;
o monitoring of the site's engineering controls (i.e. SSDS);
o monitoring for vapor intrusion within any new buildings developed on the site, as many be required by the Institutional and Engineering Control Plan discussed above; and
o a schedule of monitoring and frequency of submittals to the Department.

c.) an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
- compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
- maintaining site access controls and Department notification; and
- providing the Department access to the site and O&M records.

The operation of the components of the remedy will continue until the remedial objectives have

been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

Declaration

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

4/15/22 Michael Cruden

Date

Michael Cruden, Director
Remedial Bureau E

DECISION DOCUMENT

Weber-Knapp Company
Jamestown, Chautauqua County
Site No. C907048
April 2022

SECTION 1: SUMMARY AND PURPOSE

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

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

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

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on 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 the Department in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repository:

DECInfo Locator - Web Application
https://gisservices.dec.ny.gov/gis/dil/index.html?rs=C907048

Prendergast Library
Attn: Annie Greene
509 Cherry Street
Jamestown, NY 14701-5098
Phone: (716) 484-7135

Receive Site Citizen Participation Information By Email

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

SECTION 3: SITE DESCRIPTION AND HISTORY

Location:

The Weber-Knapp Company site is a 2.65-acre site located in an urban-suburban area at 441 Chandler St. in the City of Jamestown, Chautauqua County. It is on the northwest corner of the intersection of Chandler and Allen Streets and is bounded to the west by the Chadakoin River, to the north by vacant land, to the east by Allen Street and a residential area and to the south by Chandler Street. The D.C Rollforms site, a State Superfund Site (No. 907019), is located just north of this site.

Site Features:

The main site feature is an industrial building, approximately 105,500 square feet in size, which is in active use. An asphalt-paved parking area is located in the southeast portion of the site, in front of the building. The northern edge of the site contains a concrete access driveway.

Current Zoning and Land Use:

The site is located in the M (Manufacturing) zoning district, which allows a wide variety of commercial, industrial and manufacturing uses. The site's present industrial use is metal fabricating and finishing, with associated offices in a portion of the building. The surrounding neighborhood contains a mix of residential, commercial, and industrial uses.

Past Use of the Site:

The existing building, located adjacent to the Chadakoin River, was constructed in about 1910. From at least 1902 until sometime between 1930 and 1949, approximately 14 residential buildings and several out-buildings were located on the eastern portion of the site. During this time, the Morse Avenue right-of-way was located on the site, adjacent to the east of the building, trending north-northeast from Chandler Street and ending near the northern edge of the site. In the 1930s, a brass foundry was located in the area that is now the northwestern portion of the building. In the 1940s the brass foundry was moved to an adjacent area northeast of its previous location and a metals plating area was constructed in the original brass foundry location. Metal plating operations were conducted in the building from the 1940s through about 1975. The

original footprint of the building was expanded to the north and east over the Morse Avenue right-of-way and the former residential properties in this area between the 1940s and 1960s. Between about 1969 and 1993, degreasing operations using trichloroethene (TCE)-based solvent were conducted in the central portion of the building.

A site boundary and building development figure is attached as Figure 2.

Site Geology and Hydrogeology:

The site contains no surface water bodies or noteworthy geological features, but it is bounded to the west by the Chadakoin River. Fill material, generally consisting of sand and gravel, at times intermixed with lesser amounts of concrete, brick, coal, glass and metal fragments, ash, cinders and/or wood/plant fibers, is present at depths ranging between approximately 2.5 feet below ground surface (fbgs) and 9.5 fbgs. Native soil is present below the fill in each test boring, generally consisting of a silt layer containing plant fibers/peat material, underlain by fine-to-coarse sand and gravel. This is underlain by glacial till that generally starts at a depth of about 11.5 fbgs. The depth to the top of apparent bedrock increases from east to west, ranging from about 9 fbgs in the eastern portion of the site to over 16 fbgs near the Chadakoin River. The depth to groundwater at the site ranges between approximately 2.0 fbgs and 6.4 fbgs. Groundwater flow across the site varies by location. Shallow groundwater in the northern portion generally flows from north to south; shallow groundwater in the eastern portion appears to flow toward the west, away from Allen Street; and shallow groundwater on the western portion appears to flow toward the east-southeast, away from the Chadakoin River. The shallow groundwater from the eastern and western portions merges in the central portion (i.e., an area of the site that was previously occupied by Morse Avenue), and thereafter groundwater generally appears to flow toward the south. A continuous concrete retaining wall that extends generally along the western site boundary is the foundation for the west side of the site building. This retaining wall appears to be a hydraulic barrier preventing the discharge of shallow groundwater into the Chadakoin River, and it may contribute to the overall southerly groundwater flow patterns observed.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives that restrict the use of the site to 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 Remedial Investigation (RI) to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is available in the RI Report.

SECTION 5: ENFORCEMENT STATUS

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

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

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

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

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

The analytical data collected on this site includes data for:

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

6.1.1: Standards, Criteria, and Guidance (SCGs)

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

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

6.1.2: RI Results

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

tetrachloroethane	1,1 dichloroethene
trichloroethene (TCE)	trans-1,2-dichloroethene
cis-1,2-dichloroethene	1,4-dioxane
vinyl chloride	

The contaminants of concern exceed the applicable SCGs for:

- groundwater
- soil
- sediment
- soil vapor intrusion
- indoor air

6.2: Interim Remedial Measures

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

The following IRM has/have been completed at this site based on conditions observed during the RI.

IRM Source Excavation of Impacted Soil Materials

An Interim Remedial Measure (IRM) soil removal was performed in January 2020 to address subsurface chlorinated Volatile Organic Compounds (VOCs) which were located within the vicinity of the former Vapor Degreaser operations at the site. The IRM excavation boundaries were approximately 200 square feet in area and extend to approximately 13.5 fbgs. The IRM excavated approximately 150 tons of impacted soil and 7,221 gallons of groundwater encountered during the excavation. The material removed from the excavation was believed to be the primary source area for chlorinated VOCs at the site.

6.3: Summary of Environmental Assessment

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

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

The Remedial Investigation (RI) was conducted in 2020 and consisted of dye testing, surface soil, subsurface soil/fill, groundwater, soil vapor, and sediment sampling. The data collected during the RI and prior site investigations identified chlorinated VOCs and Semi-Volatile Organic Compounds (SVOCs) above industrial soil cleanup objectives (ISCOs).

Nature and Extent of Contamination:

Soil:

Surface Soils:
The site is primarily covered with impervious material, and therefore a limited number of surface soil samples were obtained. Surface soils were sampled from 0-2 inches and 0-6 inches bgs and analyzed for VOCs, SVOCs, metals, PCBs, metals, herbicides/pesticides and emerging contaminants. Of the samples analyzed, no exceedances of the Industrial SCOs (ISCO) nor Protection of Groundwater (PGW) standards were identified.

Subsurface Soils:
Subsurface samples were analyzed at varying depths of up to 31 fbgs for VOCs, SVOCs, PCBs, metals, herbicides/pesticides and emerging contaminants. Of the samples analyzed, only VOCs and SVOCs exceeded ISCOs and PGW standards

VOCs detected in subsurface samples included 1,1-dichloroethane at concentrations up to 0.43 parts per million (ppm) (PGW 0.27 ppm), 2-butanone (MEK) up to 0.22 ppm (PGW 0.12 ppm), acetone up to 0.400 ppm (PGW 0.05 ppm), cis-1,2-dichloroethene up to 26.0 ppm (PGW 0.25 ppm), trichloroethene up to 650 ppm (ISCO 400 ppm, PGW 0.47 ppm) and vinyl chloride up to 0.52 ppm (PGW 0.02 ppm).

SVOCs detected in subsurface samples included benzo(a)anthracene up to 1.9 ppm (PGW 1.0 ppm), benzo(a)pyrene up to 1.6 ppm (ISCO 1.1 ppm), benzo(b)fluoranthene up to 2.0 ppm (PGW 1.7 ppm) and chrysene up to 1.8 ppm (PGW 1.0 ppm).

Groundwater:

Groundwater samples were analyzed for VOCs, SVOCs, metals, PCBs, herbicides, pesticides, and emerging contaminants. No PCBs, herbicides or pesticides were found above groundwater quality standards (GWQS).

VOCs detected in groundwater included bromodichloromethane up to 120 parts per billion (ppb) (GWQS 50 ppb), chloroform up to 630 ppb (GWQS 7.0 ppb), 1,1-dichloroethene up to 280 ppb (GWQS 5.0 ppb), cis-1,2 dichloroethene up to 85,000 ppb (GWQS 5.0 ppb), trans-1,2-dichloroethene up to 150 ppb (GWQS 5.0 ppb), tetrachloroethene up to 20 ppb (GWQS 5.0 ppb), trichloroethene up to 40,000 ppb (GWQS 5.0 ppb), vinyl chloride up to 6,800 ppb (GWQS 2.0 ppb) and toluene up to 91 ppb (GWQS 5.0 ppb).

SVOCs detected in groundwater included benzo(a)anthracene up to 0.30 ppb (GWQS 0.002 ppb), benzo(b)fluoranthene up to 0.02 ppb (GWQS 0.002 ppb) and indeno(1,2,3-cd)pyrene up to 0.02 ppb (GWQS 0.002 ppb).

Metals detected in groundwater included arsenic up to 142 ppb (GWQS 25 ppb) and barium up to 3,042 ppb (GWQS 1,000 ppb).

Emerging contaminants detected in groundwater included perfluorooctanesulfonic acid (PFOS) up to 15.0 parts per trillion (ppt) (NYSDEC threshold criteria 10 ppt) and 1,4 dioxane up to 124 ppb (NYSDEC threshold criteria: 1.0 ppb).

Sediment:

Sediment investigations from within the Chadakoin River and stream bank adjacent to the stormwater outfalls was performed to evaluate and determine the extent of contaminant migration from the site. Surface sediment was sampled from depth increments of 0 to 2.0 fbgs, and subsurface sediment samples were sampled from depth increments of 2.0 to 8.0 fbgs. Sediment was analyzed for VOCs, SVOCs, metals, and emerging contaminants. The samples collected from depths between 0.0 and 2.0 fbgs were evaluated against the NYSDEC Division of Fish, Wildlife, and Marine Resources Screening and Assessment of Contaminated Sediment Guidance Values (FWSGVs) dated June 2014. The FWSGV classifies sediment into three main categories, Class "A" which considers sediment to present little or no potential for risk to aquatic life; Class "B" which suggests additional information is required for a determination on risk potential to aquatic life; and Class "C" which considers a high potential for sediments to be toxic to aquatic life. These classifications contain threshold value for specific analytes. The samples collected from depths below 2.0 fbgs were evaluated against the protection of ground water standards (PGWs).

VOCs detected in surface sediment included cis-1,2 dichloroethene up to 120 ppm (trans-1,2 dichloroethene used as an alternative comparison Class C > 11 ppm), trichloroethene up to 12,000 ppm (FWSGV Class C > 8.6 ppm).

SVOCs detected in surface sediment included total Polycyclic Aromatic Hydrocarbons (PAHs) up to 68.6 ppm (FWSGV Class C > 35 ppm).

Metals detected in surface sediment included arsenic up to 18.4 ppm (FWSGV Class B 10 - 33 ppm), cadmium up to 9.51 ppm (FWSGV Class C > 5 ppm), chromium up to 268 ppm (FWSGV Class C > 110 ppm), copper up to 36,000 ppm (FWSGV Class C > 150 ppm), lead up to 1,820 ppm (FWSGV Class C > 130 ppm), mercury up to 1.11 ppm (FWSGV Class C > 1.0 ppm), nickel up to 445 ppm (FWSGV Class C > 49 ppm), silver up to 12.1 ppm (GWSGV Class C > 2.2 ppm), and zinc up to 10,800 ppm (FWSGV Class C > 460 ppm).

PFAS detected in surface sediment included PFOS up to 1.24 parts per billion (ppb)

VOCs detected in subsurface sediment included cis-1,2 dichloroethene up to 110 ppm (PGWs 0.25 ppm), trans 1,2 dichloroethene up to 0.220 ppm (PGWs 0.19 ppm), trichloroethene up to 3,900 ppm (PGWs 0.47 ppm), and vinyl chloride up to 58 ppm (PGWs 0.02 ppm).

Soil Vapor:

A total of 20 air samples consisting of indoor/outdoor air and sub-slab vapor samples were collected and analyzed for VOC compounds, with numerous VOC compounds being detected. Detected compounds were evaluated as per the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006).

Of note, 1,1-dichloroethene was detected up to 113 micrograms per cubic meter (ug/m3) in the sub-slab soil vapor samples; cis-1,2-dichloroethene was detected up to 29,100 ug/m3 in sub-slab soil vapor samples and up to 0.103 ug/m3 in the indoor air samples; trichloroethene was detected up to 19,100 ug/m3 in the sub-slab soil vapor samples and up to 0.322 ug/m3 in the indoor air samples; and vinyl chloride was detected up to 637 ug/m3 in the sub-slab vapor samples. Total VOC concentrations were detected up to 33,856 ug/m3 in the sub-slab vapor and up to 46 ug/m3 in the indoor air samples obtained.

Based on the evaluation of the results, actions were recommended to address potential exposure associated with soil vapor intrusion on-site.

6.4: Summary of Human Exposure Pathways

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

People will not come into contact with contaminated soil since the site is almost entirely covered with buildings and pavement. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Volatile organic compounds in the groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into overlying structures 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 structures, is referred to as soil vapor intrusion. The on-site building's existing heating, ventilation, and cooling system currently provides positive pressure thereby mitigating the potential for soil vapor intrusion. However, the potential exists for inhalation of site contaminants due to soil vapor intrusion for any future on-site development. The potential for soil vapor intrusion off-site was evaluated under the adjacent site investigation [D.C. (Dow Craft) Rollforms 907019] and no actions to address exposures were needed. People may come in contact with contaminants present in the river sediments while entering or exiting the river during recreational activities.

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.

Sediment

RAOs for Public Health Protection

- Prevent direct contact with contaminated sediments.
- Prevent surface water contamination which may result in fish advisories.

RAOs for Environmental Protection

- Prevent releases of contaminant(s) from sediments that would result in surface water levels in excess of (ambient water quality criteria).
- Prevent impacts to biota from ingestion/direct contact with sediments causing toxicity or impacts from bioaccumulation through the marine or aquatic food chain.
- Restore sediments to pre-release/background conditions to the extent feasible.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for,

soil vapor intrusion into buildings at a site.

SECTION 7: ELEMENTS OF THE SELECTED REMEDY

The alternatives developed for the site and the evaluation of the remedial criteria are presented in the Alternative Analysis. The remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation and 6 NYCRR Part 375.

The selected remedy is a remedy.

The selected remedy is referred to as the Track 4 Restricted Industrial Use Alternative.

The elements of the selected remedy, as shown in Figure 2, are as follows:

1. Remedial Design: A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings will include, at a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency as an element of construction.

2. Cover System:

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

3. Groundwater Extraction and Treatment:

Groundwater extraction and treatment will be implemented to treat contaminants in groundwater and to ensure contaminated groundwater does not migrate off-site. The groundwater extraction system will be designed and installed so that the capture zone is sufficient to cover the areal and vertical extent of the area of concern. The extraction system will create a depression of the water table so that contaminated groundwater is directed toward the extraction wells within the plume area. Groundwater will be extracted from the subsurface overburden and bedrock interface wells installed during the Interim Remedial Measures (IRM) and existing bedrock monitoring well locations. Secondary source locations will be addressed through overburden extraction well installations within these areas to remove impacted groundwater and prevent offsite migration. The extracted groundwater will be treated on-site prior to being discharged to the City of Jamestown Board of Public Utilities (BPU) sewer system under a discharge permit.

4. Groundwater Monitoring Natural Attenuation

Groundwater contamination (remaining after active remediation) will be addressed with monitored natural attenuation (MNA). Groundwater will be monitored for site related contamination and also for MNA indicators which will provide an understanding of the biological activity breaking down the remaining contamination. It is anticipated that contamination will decrease by an order of magnitude in a reasonable period of time (5 to 10 years). Reports of the attenuation will be provided annually until data suggests that monitoring is no longer necessary (5 to 10 years), and active remediation will be proposed if it appears that natural processes alone will not address the contamination. The contingency remedial action will depend on the information collected. An assessment of natural bacteria capable of consuming chlorinated VOCs in the site groundwater will be implemented and if required, the groundwater will be inoculated with bacteria capable of consuming chlorinated VOCs as a contingency remedial action in order for MNA to be effective.

5. Evaluation of Existing Stormwater System

The existing stormwater drainage piping will be evaluated and modified if necessary to allow potentially impacted groundwater that preferentially flows along and into this system to be collected and treated as part of the groundwater containment system.

6. Excavation of Source Material and Sediment from Outfall

Excavation and off-site disposal of soil and sediment containing the identified contaminants of concern (COCs), located within the vicinity of the stormwater outfall and Chadakoin River. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil.

The targeted source areas include but are not limited to:

- grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
- concentrated solid or semi-solid hazardous substances per 6 NYCRR Part 375-1.2(au)(1)
- 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.

7. Vapor Mitigation

Any on-site buildings constructed in the future will be required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of vapors into the building from soil and groundwater. The existing building's currently operating positive-pressure HVAC system will continue to be operated and calibrated and/or modified with periodic evaluation to document compliance with applicable SCGs. This existing system will constitute the vapor intrusion mitigation control and will be maintained and managed accordingly.

8. Easement:

The remedy will achieve a Track 4 restricted industrial cleanup at a minimum and will include an environmental easement and site management plan as described below.

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 or industrial 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.

9. Site Management Plan (SMP)

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

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

o Institutional Controls: the environmental easement discussed in remedial element 8 above.
o Engineering Controls: the site cover discussed in remedial element 2 above, and the vapor mitigation system discussed in remedial element 7 above.

This plan includes, but may not be limited to:

- an excavation plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use or groundwater use restrictions;
- a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described above will be placed in any areas where the upper one foot of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);
- a provision for evaluation of the potential for soil vapor intrusion for any new buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification;
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls;

b.) a monitoring plan to assess the performance and effectiveness of the remedy. The plan includes but not be limited to:

- monitoring of groundwater to assess the performance and effectiveness of the remedy;
- monitoring of the site's engineering controls (i.e. SSDS);
- monitoring for vapor intrusion within any new buildings developed on the site, as many be required by the Institutional and Engineering Control Plan discussed above; and
- a schedule of monitoring and frequency of submittals to the Department.

c.) an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:

- compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
- maintaining site access controls and Department notification; and
- providing the Department access to the site and O&M records.

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

Figure 1:

Site Location Map

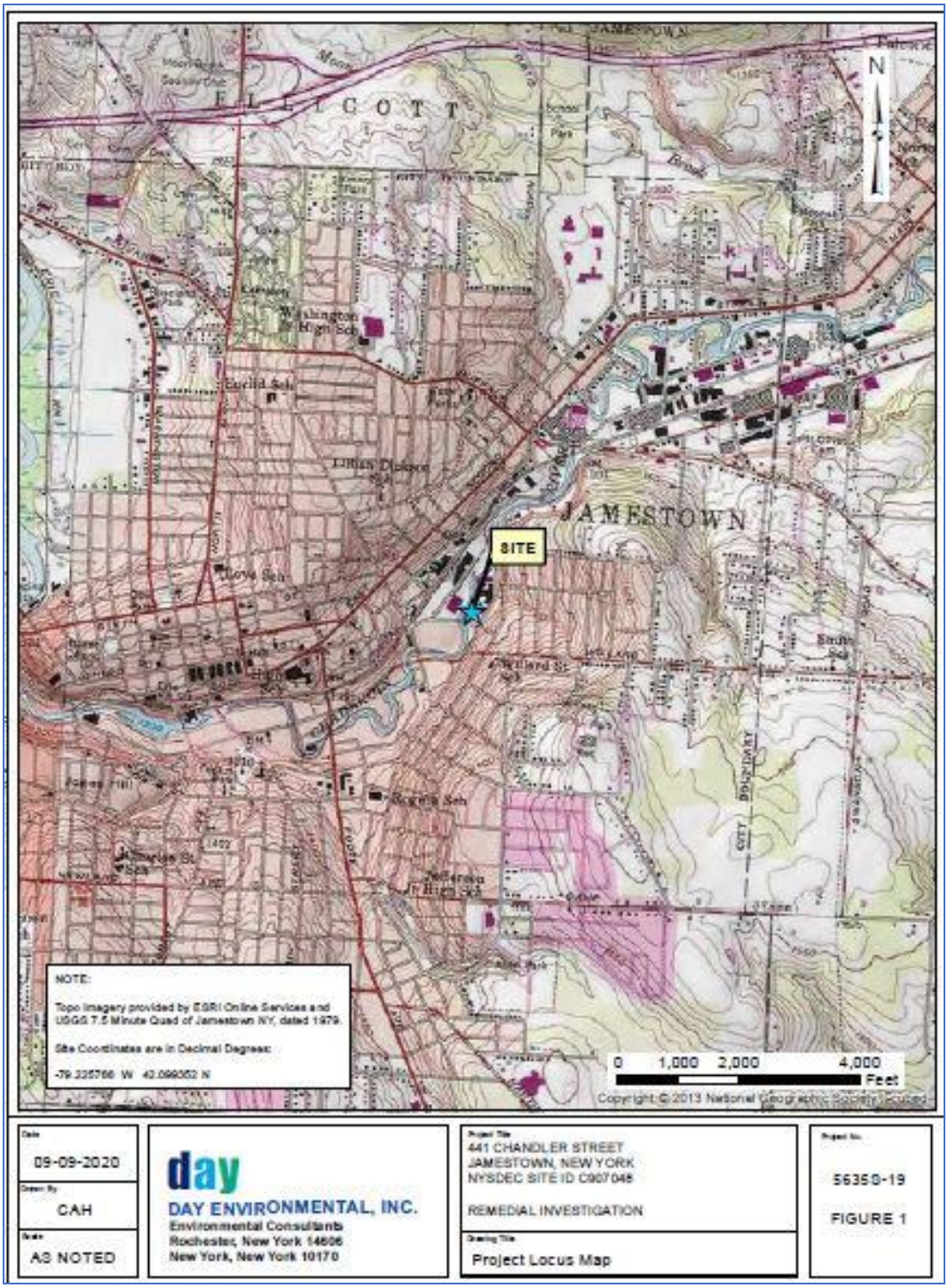
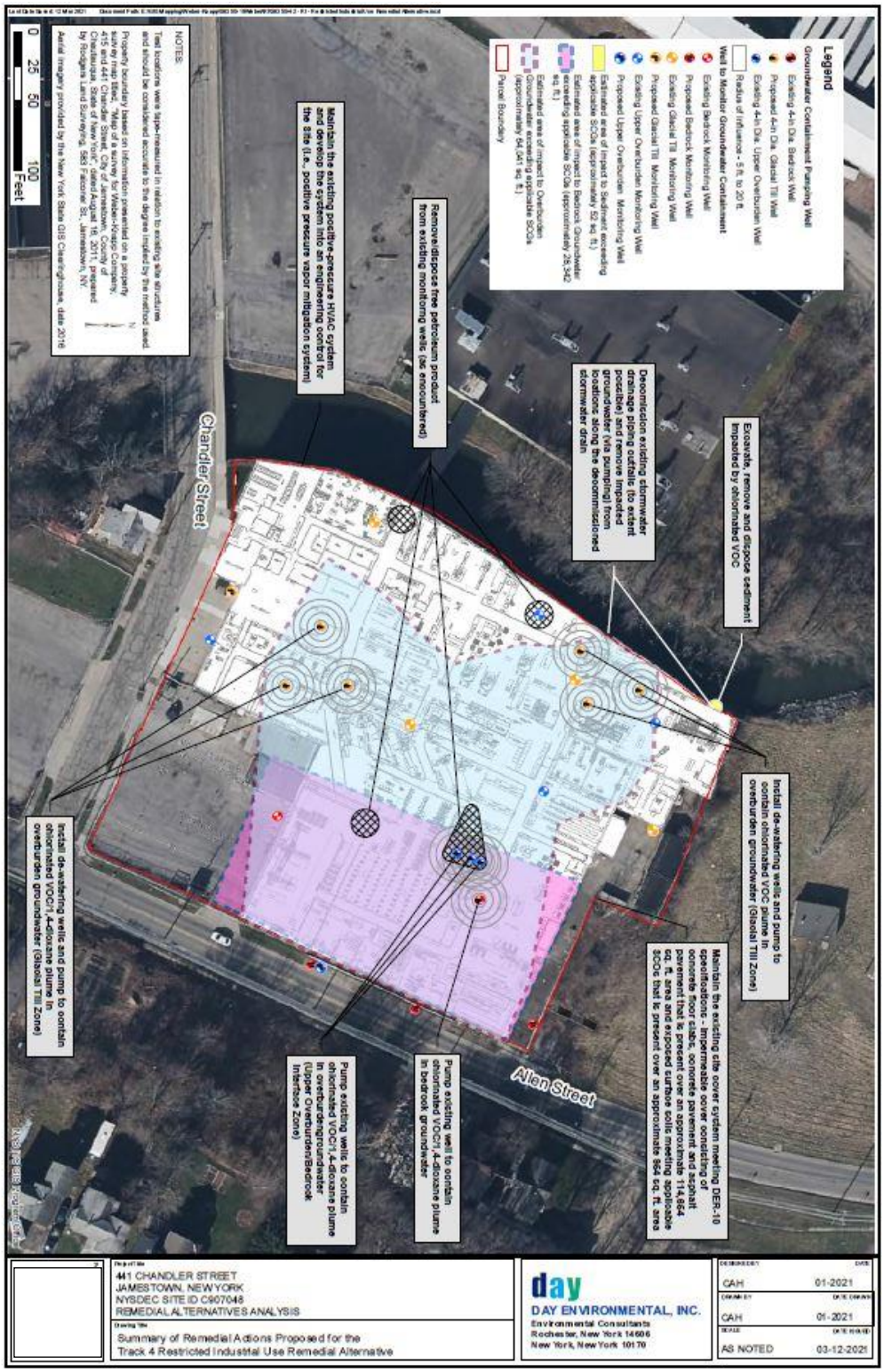

JAMESTOWN
ELLICOTT
SITE
N
NOTE:
Topo imagery provided by ESRI Online Services and USGS 7.5 Minute Quad of Jamestown NY, dated 1979.
Site Coordinates are in Decimal Degrees:
-79.235766 W 42.096052 N
0 1,000 2,000 4,000
Feet
Copyright © 2013 National Geographic Society, i-cubed
09-09-2020
CAH
AS NOTED
day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170
441 CHANDLER STREET
JAMESTOWN, NEW YORK
NYSDEC SITE ID C907048
REMEDIAL INVESTIGATION
Project Locus Map
56350-19
FIGURE 1

Figure 2:

Site Boundary


Legend
Approximate location of manway to closed in-place UST
Parcel Boundary
Approximate Date of Facility Construction
1956
1954
1950
1955
1953
1941 (foundation)
1941
1911
N
0
25
50
100
Feet
NOTES:
Property boundary based on information presented on a property survey map titled, "Boundary Survey for Street, City of Jamestown, 415 & 441 Chandler Street, City of Jamestown, County of Chautauqua, State of New York", dated August 16, 2011, prepared by Rodgers Land Surveying, 383 Falconer St., Jamestown, NY.
Aerial imagery provided by the New York State GIS Clearinghouse, data 2018
Chandler Street
Allen Street
Approximate location of the former vapor degreaser
441 CHANDLER STREET
JAMESTOWN, NEW YORK
NYSDEC SITE ID C907048
REMEDIAL INVESTIGATION
Site Plan Depicting Building Additions, Closed-in-Place USTs and the Former Vapor Degreaser Location
day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170
CAH
09-2020
CAH
09-2020
AS NOTED
09-24-2020

Figure 3:
Remedy Selection


Legend
Groundwater Containment Pumping Well
Existing 4-in Dia. Bedrock Well
Proposed 4-in Dia. Glacial Till Well
Existing 4-in Dia. Upper Overburden Well
Radius of Influence - 5 ft. to 20 ft.
Well to Monitor Groundwater Containment
Existing Bedrock Monitoring Well
Proposed Bedrock Monitoring Well
Existing Glacial Till Monitoring Well
Proposed Glacial Till Monitoring Well
Existing Upper Overburden Monitoring Well
Proposed Upper Overburden Monitoring Well
Estimated area of impact to Sediment exceeding applicable SCOs (approximately 52 sq. ft.)
Estimated area of impact to Bedrock Groundwater exceeding applicable SCOs (approximately 28,342 sq. ft.)
Estimated area of impact to Overburden Groundwater exceeding applicable SCOs (approximately 64,341 sq. ft.)
Parcel Boundary
NOTES:
Test locations were tape-measured in relation to existing site structures and should be considered accurate to the degree implied by the method used.
Property boundary based on information presented on a property survey map entitled "Survey of Property Situate in the City of Jamestown, County of Chautauqua, State of New York", dated August 16, 2011, prepared by Rodgers Land Surveying, 583 Fairview St., Jamestown, NY.
Aerial imagery provided by the New York State GIS Clearinghouse, date 2016
0 25 50 100 Feet
Chandler Street
Alan Street
Remove/dispose free petroleum product from existing monitoring wells (as encountered)
Maintain the existing positive-pressure HVAC system and develop the system into an engineering control for the site (i.e., positive pressure vapor mitigation system)
Decommission existing stormwater drainage piping outfalls (to extent possible) and remove impacted groundwater (via pumping) from locations along the decommissioned stormwater drain
Excavate, remove and dispose sediment impacted by chlorinated VOC
Install de-watering wells and pump to contain chlorinated VOC plume in overburden groundwater (Glacial Till Zone)
Maintain the existing site cover system meeting DER-10 specifications - Impermeable cover consisting of concrete floor slabs, concrete pavement and asphalt pavement that is present over an approximate 114,864 sq. ft. area and exposed surface soils meeting applicable SCOs that is present over an approximate 864 sq. ft. area
Pump existing well to contain chlorinated VOCs/1,4-dioxane plume in bedrock groundwater
Pump existing wells to contain chlorinated VOCs/1,4-dioxane plume in overburden/groundwater (Upper Overburden/Bedrock Interface Zone)
Install de-watering wells and pump to contain chlorinated VOCs/1,4-dioxane plume in overburden groundwater (Glacial Till Zone)
441 CHANDLER STREET
JAMESTOWN, NEW YORK
NYSDEC SITE ID C907048
REMEDIAL ALTERNATIVES ANALYSIS
Summary of Remedial Actions Proposed for the Track 4 Restricted Industrial Use Remedial Alternative
day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170
DESIGNED BY CAH 01-2021
DRAWN BY CAH 01-2021
SCALE AS NOTED
DATE REVISED 03-12-2021