DECISION DOCUMENT

57-71 Tonawanda Street
Brownfield Cleanup Program
Buffalo, Erie County
Site No. C915024
June 2020

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

DECLARATION STATEMENT - DECISION DOCUMENT

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Brownfield Cleanup Program
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Site No. C915024
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Statement of Purpose and Basis

This document presents the remedy for the 57-71 Tonawanda Street 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 57-71 Tonawanda Street 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. Excavation: Excavation and off-site disposal of 5,700 tons of fill and soil that exceed the restricted residential soil cleanup objectives (SCOs) to 1-foot depth in areas where asphalt paving and concrete will be installed, and 2-foot depth in areas where a clean soil cover will be installed. The site will be re-graded to accommodate the installation of a cover system described in Paragraph 3 below.

3. Cover System: A site cover will be required to allow for restricted residential use of the site in areas where the upper two feet of exposed surface soil exceeds the applicable SCOs. Where a soil cover is to be used it will be a minimum of two feet 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 will include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

4. In-Situ Groundwater Treatment: In-situ enhanced bioremediation will be employed to treat chlorinated VOCs in overburden groundwater at the site. The biological breakdown of contaminants through anaerobic reductive dechlorination will be enhanced by the injection of a soluble organic carbon substrate containing zero valent iron or other similar product. The method and depth of injection will be determined during the remedial design.

5. Vapor Mitigation: Any on-site buildings will be required to have sub-slab depressurization systems, or other acceptable measures, to mitigate the migration of vapors into the on-site buildings from soil and/or groundwater. The layout and specific components of these systems will be determined during the remedial design.

6. Institutional Controls: Imposition of an institutional control in the form of an Environmental Easement for the controlled property that:

(a) Requires 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);
(b) Allows the use and development of the controlled property for restricted residential, commercial or industrial use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
(c) Restricts 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
(d) Requires compliance with the Department approved Site Management Plan.

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

(a) An Institutional and Engineering Control Plan that identifies all use restrictions and

engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and engineering controls remain in place and effective:

- Institutional Controls: The Environmental Easement discussed in Paragraph 6 above; and
- Engineering Controls: The site cover system discussed in Paragraph 3 above, and the sub-slab depressurization systems discussed in Paragraph 5 above.

This plan includes, but may not be limited to:
- An Excavation Plan that 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 groundwater use restrictions;
- A provision for the further evaluation of fill and soil beneath on-site buildings should floor slabs be removed in the future;
- Provisions for the management and inspection of the identified engineering controls;
- Maintaining site access controls and Department notification; and
- The steps necessary for periodic reviews and certification of the institutional and engineering controls.

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

- Monitoring of soil vapor, indoor air and/or sub-slab pressure testing to assess the performance and effectiveness of the sub-slab depressurization systems, and groundwater monitoring to assess the effectiveness of in-situ groundwater treatment. Enhancements to the sub-slab depressurization systems and additional groundwater injections will be completed as necessary;
- A schedule of monitoring and frequency of submittals to the Department;
- Monitoring for vapor intrusion for any future buildings constructed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

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.

6/11/2020 — Date

Michael Cruden — Michael Cruden, Director
Remedial Bureau E

DECISION DOCUMENT

57-71 Tonawanda Street
Buffalo, Erie County
Site No. C915024
June 2020

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, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant.

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=C915024

Riverside Branch Library
820 Tonawanda St.
Buffalo, NY 14207
Phone:

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 57-71 Tonawanda Street Site consists of two adjacent parcels at the northeast corner of West Avenue and Tonawanda Street in the Black Rock section of the City of Buffalo. The 57 Tonawanda Street property is 1.07 acres in size while the 71 Tonawanda Street property is 1.76 acres in size. The site is bordered by a bike path and Scajaquada Creek to the east; West Avenue and the 31 and 150 Tonawanda Street BCP Site (Site No. C915299) to the south; Tonawanda Street and the 68 Tonawanda Street BCP Site (Site No. C915316) to the west; and the former Pratt & Lambert Inc. inactive hazardous waste disposal site (Site No. 915251) to the north. The New York State Thruway and the Black Rock Canal are located about 0.25 miles southwest of the site.

Site Features:
The 57 Tonawanda Street property contains an approximately 10,230 square foot 2-story building, while the 71 Tonawanda Street property contains an approximately 115,000 square foot 2- to 4-story building. The 57 Tonawanda Street building functioned as the offices for the complex and was more recently renovated to accommodate planned student workspaces/housing that never occurred. The 71 Tonawanda Street building is vacant and deteriorated. The roof is caved in at the southern end and the northern end was destroyed by fire sometime after 2008. The building at 57 Tonawanda Street currently connects to the adjacent southern portion of the former Fedders factory building across West Avenue (the 31 Tonawanda Street BCP Site) by a walkway that connects the third floor of both buildings.

A large parking lot extends from the buildings to almost the eastern site boundary. This parking lot is the location of the Class 3 Fedders Automotive inactive hazardous waste disposal site (Site No. 915024). From 1974 to 1981 approximately 165 gallons of waste oil per year were spread over the parking lot for dust control. This practice was discontinued when the parking lot was covered with gravel.

Current Zoning and Land Use:
Both properties are currently zoned for commercial use. The buildings at the site are currently vacant. Surrounding properties are zoned for commercial and industrial use and are mostly vacant. The 68 Tonawanda Street BCP Site across Tonawanda Street will be redeveloped for residential and commercial use, as will the 31 Tonawanda Street BCP Site across West Avenue.

Residential properties are located approximately 1,250 feet to the west and approximately 600 feet to the southeast. The future use of the site is restricted residential.

Past Use of the Site:
Prior to being added to the Fedders complex, there were individual residential and small storefront properties at this location. The eastern part of the property was the former location of the Hall & Son Fire Brick factory complex that operated from about 1866 to the early 1940s. This plant operated large storage sheds for bricks, a flue house and numerous kilns.

In 1907 the Fedders Manufacturing Works was located at 57-59 Tonawanda Street. Available information indicates that the initial plant was a 3-story building located at 55 Tonawanda Street. A major building expansion took place in 1910. By 1914 the company was known as the Fedders Manufacturing Co., Inc., with another major expansion occurring in 1915.

Initially, Fedders made milk cans, kerosene tanks for the Standard Oil Co., and bread pans for the National Biscuit Co. Later, Fedders converted the plant to make radiators for automobiles. During World War I the company also made radiators for airplanes and manufactured appliances for heating and electrical refrigeration. During World War II, Fedders received contracts to make links and clips for machine-gun belts and rifle bullets. In the late 1940s through the 1960s, Fedders made room air conditioners and electric water coolers, heaters, radiators, radiator cores, home radiators, convectors, hot-water boilers and women's handbag frames, as well as heat-transfer equipment, including convectors, condensers, evaporators, and dehumidifiers. By 1990 the company was sold to FEDCO who manufactured automobile heating equipment. Manufacturing operations at the facility ceased in June 2005 and the property was sold to Black Rock Trade Center, Inc. later that year.

The Fedders Manufacturing Company had a history of using various chemicals, oils, solvents and other materials in their manufacturing processes. Processes at the property included metal stamping, soldering, brazing, welding, painting, acid washing and degreasing. Industrial wastes were reported to include solder dross, degreasing still bottoms including trichloroethene (TCE) and tetrachloroethene (PCE), and petroleum-based lubricating fluids.

In 1985 the Department completed a Phase I Investigation at the Fedders Automotive inactive hazardous waste disposal site (Site No. 915024). This was followed by the completion of a Site Investigation by the Fedders Automotive Components Co. in 1989, and a Phase II Investigation by the Department in 1990. These investigations documented the presence of volatile organic compounds (primarily chlorinated solvents) in groundwater and semi-volatile organic compounds (primarily polycyclic aromatic hydrocarbons or PAHs) and select metals (arsenic, cadmium, chromium, lead, manganese and mercury) in soils at concentrations that exceeded the restricted residential soil cleanup objectives (SCOs).

Site Geology and Hydrogeology:
Fill material exists throughout the site at a thickness from 2 feet along Tonawanda Street to 5.5 feet at the eastern site boundary. The fill material consists mainly of grey gravel with some silt and concrete along Tonawanda Street and black sand, cinders, brick, ash, slag, and gravel under the parking lot. Native reddish-brown clay or silty clay directly underlies the fill material

throughout most of the site. River deposits, consisting of gray gravelly sand and gray sandy silty clay, directly underlie the fill material in the east-central portion of the site.

Bedrock was not encountered at the site; however, at the Iroquois Gas/Westwood Pharmaceutical Site (Site No. 915141) east of the site across Scajaquada Creek, depth to bedrock ranges from 72.3 to 89.2 feet below ground surface (bgs).

Depth to groundwater ranged from 1.7 to 4.1 feet. Overburden groundwater flow is to the southeast toward Scajaquada Creek.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to restricted-residential use (which allows for commercial use and industrial use) as described in Part 375-1.8(g) were/was 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 Volunteer. The Applicant does not have an obligation to address off-site contamination. The Department has determined that this site poses a significant threat to human health and the environment and there are off-site impacts that require remedial activities; accordingly, enforcement actions are necessary.

The Department will seek to identify any parties (other than the Volunteer(s)) known or suspected to be responsible for contamination at or emanating from the site, referred to as Potentially Responsible Parties (PRPs). The Department will bring an enforcement action against the PRPs. If an enforcement action cannot be brought or does not result in the initiation of a remedial program by any PRPs, the Department will evaluate the off-site contamination for action under the State Superfund. The PRPs are subject to legal actions by the State for recovery of all response costs the State incurs or has incurred.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

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

- characterize site conditions;

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

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

acetone	vinyl chloride
trichloroethene (TCE)	1,4-dioxane
1,1,1-Trichloroethane (TCA)	arsenic
cis-1,2-dichloroethene	cadmium
1,1-dichloroethane	copper

lead	cyanides (soluble cyanide salts)
manganese	polycyclic aromatic hydrocarbons (PAHS),
selenium	total

The contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil
- soil vapor intrusion

6.2: Interim Remedial Measures

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

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

During the Remedial Investigation completed in 2019 and 2020, samples for analysis were collected from surface fill, subsurface fill, native soil, sub-slab soil vapor, and groundwater. Surface fill (0-6 inch depth) samples were analyzed for semi-volatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), and metals. Samples of subsurface fill (1-4 feet depth) and native soil (6-13 feet depth) were analyzed for volatile organic compounds (VOCs), SVOCs, pesticides, PCBs, and metals. Groundwater samples were analyzed for VOCs, SVOCs, pesticides, PCBs, metals, per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane. Sub-slab soil vapor samples were analyzed for VOCs. The Remedial Investigation determined that chlorinated VOCs (trichloroethene (TCE), trichloroethane (TCA), cis-1,2-dichloroethene (DCE), dichloroethane (DCA) and vinyl chloride (VC)), acetone, 1,4-dioxane, select metals and polycyclic aromatic hydrocarbons (PAHs) were the primary contaminants of concern at the site.

Surface Fill:
Five surface fill samples were collected from the site during the Remedial Investigation. These samples were analyzed for SVOCs, pesticides, PCBs, and metals. Several SVOCs, specifically PAHs, exceeded the NYSDEC Part 375 Restricted Residential Soil Cleanup Objectives (SCOs) (Figure 2A). These PAHs (with the number of exceedances and highest concentrations) are summarized as follows:

benzo(a)anthracene (4 samples exceeded the 1 part per million (ppm) SCO; maximum detection 14.8 ppm);

benzo(a)pyrene (4 samples exceeded the 1 ppm SCO; maximum detection 16.8 ppm);
benzo(b)fluoranthene (4 samples exceeded the 1 ppm SCO; maximum detection 21.3 ppm);
benzo(k)fluoranthene (3 samples exceeded the 3.9 ppm SCO; maximum detection 11.3 ppm);
chrysene (3 samples exceeded the 3.9 ppm SCO; maximum detection 17.6 ppm);
dibenz[a,h]anthracene (4 samples exceeded the 0.33 ppm SCO; maximum detection 4.32 ppm); and
indeno(1,2,3-cd)pyrene (4 samples exceeded the 0.5 ppm SCO; maximum detection 14.3 ppm).

Metals also exceeded the NYSDEC Part 375 Restricted Residential SCOs in surface fill at the site (Figure 2A). These metals (with the number of exceedances and highest concentrations) are summarized as follows:

cadmium (1 sample exceeded the 4.3 ppm SCO; maximum detection 5.26 ppm);
copper (1 sample exceeded the 270 ppm SCO; maximum detection 343 ppm); and
lead (1 sample exceeded the 400 ppm SCO; maximum detection 442 ppm).

No concentrations of pesticides or PCBs exceeded the NYSDEC Part 375 Restricted Residential SCOs in surface soil at the site.

Subsurface Fill:
Thirteen subsurface fill samples were collected from the site during the Remedial Investigation. These samples were analyzed for VOCs, SVOCs, pesticides, PCBs, and metals. TCE in one sample (189 ppm; SCO = 21 ppm) was the only VOC detected that exceeded the NYSDEC Part 375 Restricted Residential SCOs (Figures 2A and 2B).

Several SVOCs, specifically PAHs, exceeded the NYSDEC Part 375 Restricted Residential SCOs in subsurface fill at the site (Figures 2A and 2B). These PAHs (with the number of exceedances and highest concentrations) are summarized as follows:

benzo(a)anthracene (11 samples exceeded the 1 ppm SCO; maximum detection 27.9 ppm);
benzo(a)pyrene (10 samples exceeded the 1 ppm SCO; maximum detection 23.3 ppm);
benzo(b)fluoranthene (10 samples exceeded the 1 ppm SCO; maximum detection 25.7 ppm);
benzo(k)fluoranthene (2 samples exceeded the 3.9 ppm SCO; maximum detection 13.4 ppm);
chrysene (3 samples exceeded the 3.9 ppm SCO; maximum detection 23.3 ppm);
dibenz[a,h]anthracene (7 samples exceeded the 0.33 ppm SCO; maximum detection 4.6 ppm); and
indeno(1,2,3-cd)pyrene (10 samples exceeded the 0.5 ppm SCO; maximum detection 16.7 ppm).

Metals also exceeded the NYSDEC Part 375 Restricted Residential SCOs in surface fill at the site (Figures 2A and 2B). These metals (with the number of exceedances and highest concentrations) are summarized as follows:

arsenic (2 samples exceeded the 16 ppm SCO; maximum detection 17.3 ppm);
cadmium (1 sample exceeded the 4.3 ppm SCO; maximum detection 4.49 ppm);
copper (4 samples exceeded the 270 ppm SCO; maximum detection 3,390 ppm);
lead (4 samples exceeded the 400 ppm SCO; maximum detection 2,240 ppm);
manganese (4 samples exceeded the 2000 ppm SCO; maximum detection 15,000 ppm);
mercury (1 sample exceeded the 0.81 ppm SCO; maximum detection 0.856 ppm); and
cyanide (2 samples exceeded the 27 ppm SCO; maximum detection 188 ppm).

No concentrations of pesticides or PCBs exceeded the NYSDEC Part 375 Restricted Residential SCOs in subsurface fill at the site.

Native Soil:
Eleven native soil samples were collected from the site during the Remedial Investigation. These samples were analyzed for VOCs, SVOCs, pesticides, PCBs, and metals. TCE in two samples (36.1 ppm and 1,980 ppm; SCO = 21 ppm) was the only VOC that exceeded the NYSDEC Part 375 Restricted Residential SCOs (Figures 2A and 2B).

Several SVOCs, specifically PAHs, exceeded the NYSDEC Part 375 Restricted Residential SCOs in one native sample collected from the site (Figures 2A and 2B). These PAHs (with the number of exceedances and highest concentrations) are summarized as follows:

benzo(a)anthracene (1 sample exceeded the 1 ppm SCO; maximum detection 3.34 ppm);
benzo(a)pyrene (1 sample exceeded the 1 ppm SCO; maximum detection 2.84 ppm);
benzo(b)fluoranthene (1 sample exceeded the 1 ppm SCO; maximum detection 2.94 ppm);
dibenz[a,h]anthracene (1 sample exceeded the 0.33 ppm SCO; maximum detection 0.61 ppm); and
indeno(1,2,3-cd)pyrene (1 sample exceeded the 0.5 ppm SCO; maximum detection 2.64 ppm).

Copper in one sample (297 ppm; SCO = 270 ppm) was the only metal detected in native soil that exceeded the NYSDEC Part 375 Restricted Residential SCOs (Figures 2A and 2B).

No concentrations of pesticides or PCBs exceeded the NYSDEC Part 375 Restricted Residential SCOs in native soil at the site.

Groundwater:
Five overburden groundwater samples were collected from wells at the 57-71 Tonawanda Street Site during the Remedial Investigation. These samples were analyzed for VOCs, SVOCs, pesticides, PCBs, metals, PFAS and 1,4-dioxane. Contaminants that exceeded the Department's groundwater standards or screening levels (with the number of exceedances and highest concentrations) are summarized as follows (Figure 3):

acetone (3 samples exceeded the 50 parts per billion (ppb) Groundwater Standard; maximum detection 409 ppb);
TCE (3 samples exceeded the 5 ppb Groundwater Standard; maximum detection 7,370 ppb);
TCA (1 sample exceeded the 5 ppb Groundwater Standard; maximum detection 14.7 ppb);
DCA (1 sample exceeded the 5 ppb Groundwater Standard; maximum detection 57.0 ppb);
cis-1,2-DCE (1 sample exceeded the 5 ppb Groundwater Standard; maximum detection 55.4 ppb);
VC (1 sample exceeded the 2 ppb Groundwater Standard; maximum detection 35.3 ppb);
lead (1 sample exceeded the 25 ppb Groundwater Standard; maximum detection 42.7 ppb);
manganese (4 samples exceeded the 300 ppb Groundwater Standard; maximum detection 2,690 ppb);
selenium (3 samples exceeded the 10 ppb Groundwater Standard; maximum detection 18.3 ppb); and
1,4-dioxane (2 samples exceeded the 1 ppb Groundwater Screening Level; maximum detection 52.1 ppb).

Sub-Slab Soil Vapor:
Six sub-slab soil vapor samples below the on-site building slab were collected during the Remedial Investigation (Figure 4). VOCs detected in these samples (with the number of samples and highest concentrations) include the following:

acetone (6 samples; 110 micrograms per cubic meter (ug/m3));
TCE (6 samples; 19,000 ug/m3);
TCA (3 samples; 25 ug/m3);
DCA (1 sample; 1.3 ug/m3); and
cis-1,2-DCE (3 samples; 38 ug/m3).

Indoor air samples were not collected as the roof is partially collapsed and most of the windows in the building are missing.

6.4: Summary of Human Exposure Pathways

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

Access is limited due to fencing. However, people who enter may come into contact with contaminants in soil by walking on the site, digging or otherwise disturbing the soil. 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 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. The site is vacant so inhalation of site contaminants in indoor air via vapor intrusion is not a current concern. However, the potential exists for inhalation of site contaminants due to soil vapor intrusion for any future on-site development/occupancy. In addition, the potential exists for off-site migration of soil vapor to off-site buildings and may impact indoor air quality.

6.5: Summary of the Remediation Objectives

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

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil Vapor

RAOs for Public Health Protection

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

SECTION 7: ELEMENTS OF THE SELECTED REMEDY

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

The selected remedy is referred to as the Cover System, In-Situ Groundwater Treatment and Vapor Mitigation remedy.

The elements of the selected remedy, as shown in Figure 5, 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. Excavation: Excavation and off-site disposal of 5,700 tons of fill and soil that exceed the restricted residential soil cleanup objectives (SCOs) to 1-foot depth in areas where asphalt paving and concrete will be installed, and 2-foot depth in areas where a clean soil cover will be installed. The site will be re-graded to accommodate the installation of a cover system described in Paragraph 3 below.

3. Cover System: A site cover will be required to allow for restricted residential use of the site in areas where the upper two feet of exposed surface soil exceeds the applicable SCOs. Where a

soil cover is to be used it will be a minimum of two feet 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 will include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

4. In-Situ Groundwater Treatment: In-situ enhanced bioremediation will be employed to treat chlorinated VOCs in overburden groundwater at the site. The biological breakdown of contaminants through anaerobic reductive dechlorination will be enhanced by the injection of a soluble organic carbon substrate containing zero valent iron or other similar product. The method and depth of injection will be determined during the remedial design.

5. Vapor Mitigation: Any on-site buildings will be required to have sub-slab depressurization systems, or other acceptable measures, to mitigate the migration of vapors into the on-site buildings from soil and/or groundwater. The layout and specific components of these systems will be determined during the remedial design.

6. Institutional Controls: Imposition of an institutional control in the form of an Environmental Easement for the controlled property that:

(a) Requires 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);
(b) Allows the use and development of the controlled property for restricted residential, commercial or industrial use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
(c) Restricts 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
(d) Requires compliance with the Department approved Site Management Plan.

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

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

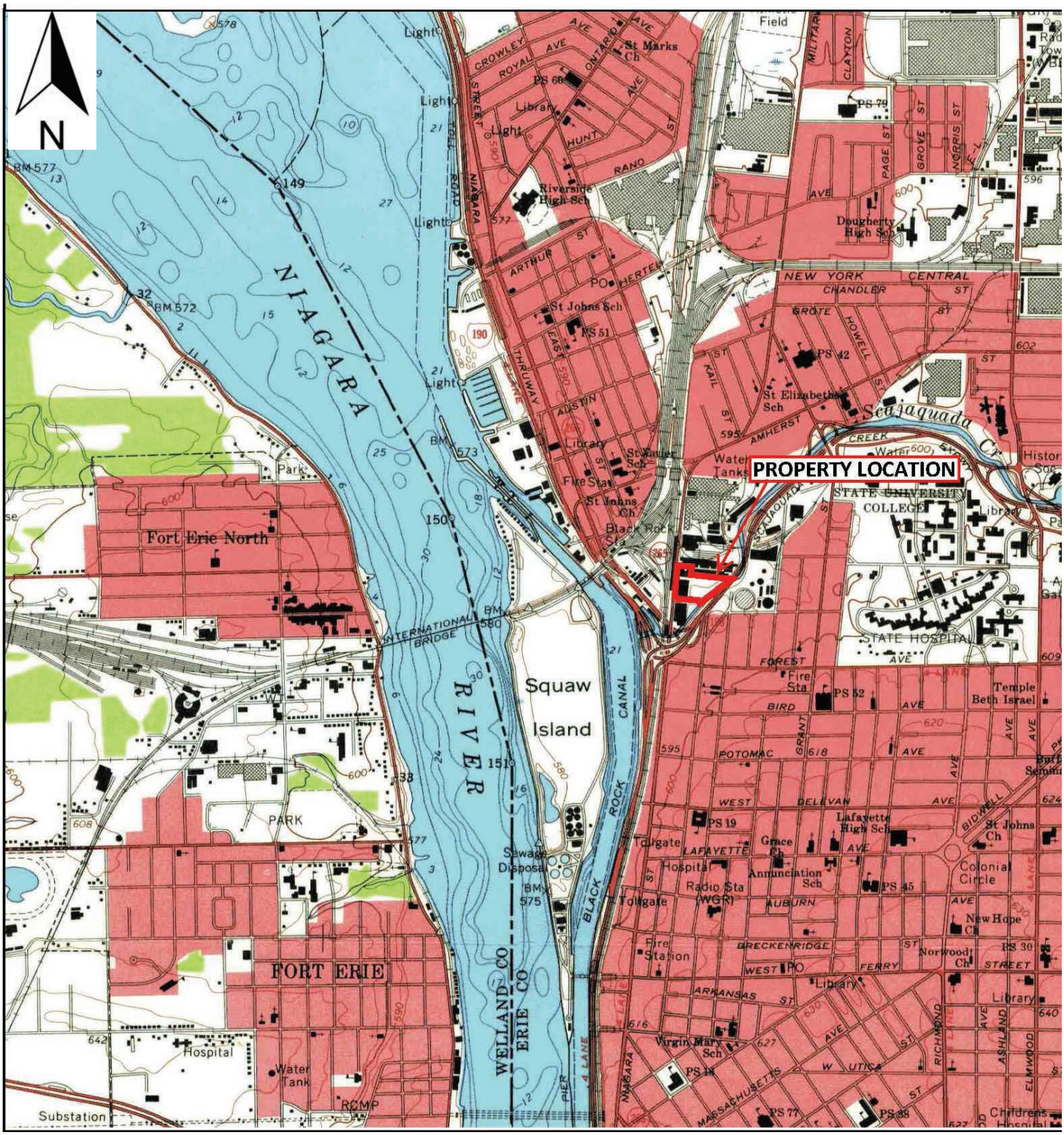
- Institutional Controls: The Environmental Easement discussed in Paragraph 6 above; and
- Engineering Controls: The site cover system discussed in Paragraph 3 above, and the sub-slab depressurization systems discussed in Paragraph 5 above.

This plan includes, but may not be limited to:
- An Excavation Plan that 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 groundwater use restrictions;
- A provision for the further evaluation of fill and soil beneath on-site buildings should floor slabs be removed in the future;
- Provisions for the management and inspection of the identified engineering controls;
- Maintaining site access controls and Department notification; and
- The steps necessary for periodic reviews and certification of the institutional and engineering controls.

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

- Monitoring of soil vapor, indoor air and/or sub-slab pressure testing to assess the performance and effectiveness of the sub-slab depressurization systems, and groundwater monitoring to assess the effectiveness of in-situ groundwater treatment. Enhancements to the sub-slab depressurization systems and additional groundwater injections will be completed as necessary;
- A schedule of monitoring and frequency of submittals to the Department;
- Monitoring for vapor intrusion for any future buildings constructed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.



BE3CORP PANAMERICAN ENVIRONMENT • ENGINEERING • ENERGY 1270 Niagara Street Buffalo, NY 14213 716.249.6880 be3corp.com	FIGURE 1: PROPERTY LOCATION 57 TONAWANDA STREET	
	CLIENT NAME FEDDER LOFTS, LLC.	
01-04-2019	SCALE: N/A	SHEET 1 OF 1

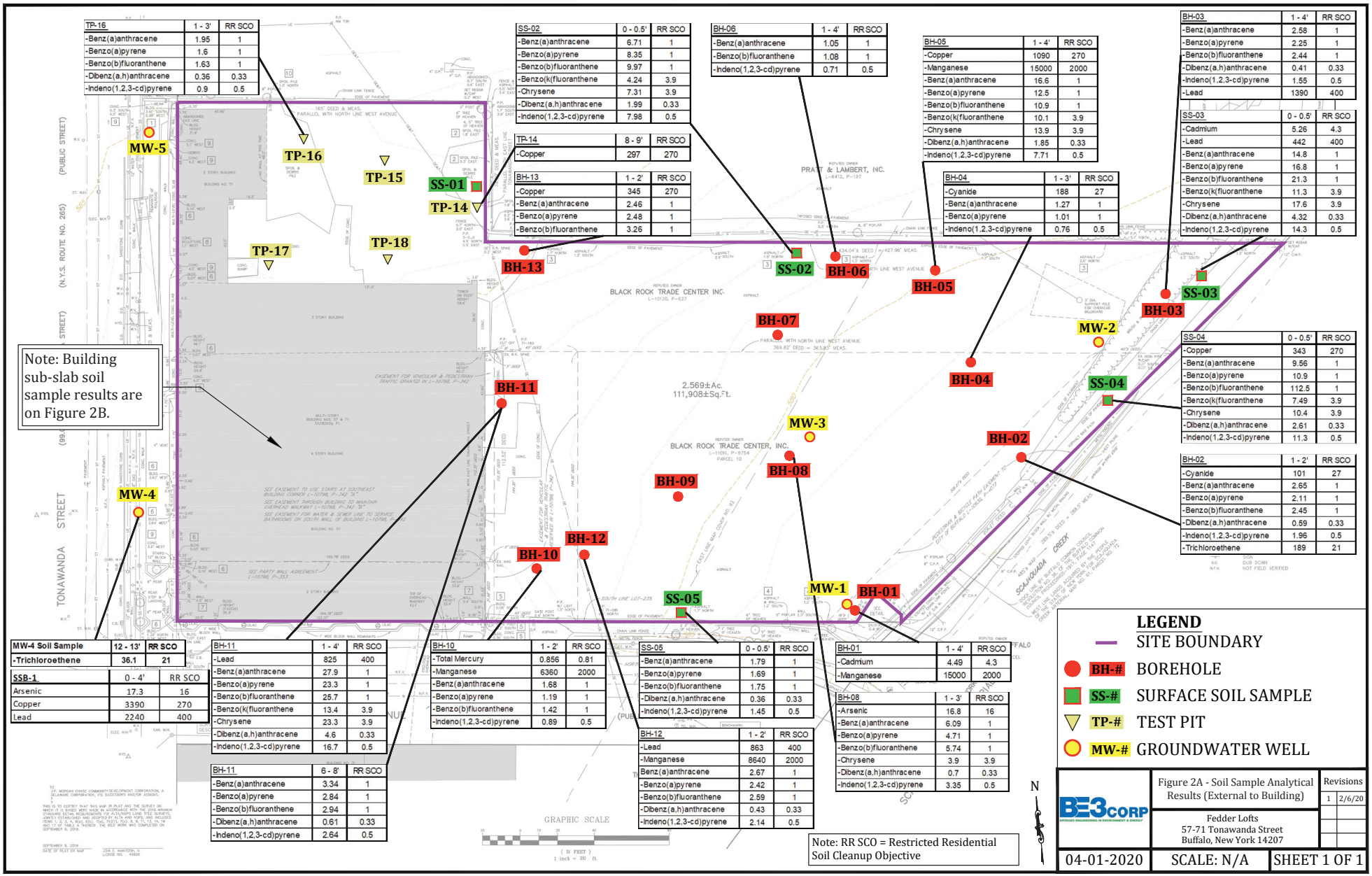

TP-16
1 - 3'
RR SCO
-Benz(a)anthracene 1.95 1
-Benzo(a)pyrene 1.6 1
-Benzo(b)fluoranthene 1.63 1
-Dibenz(a,h)anthracene 0.36 0.33
-Indeno(1,2,3-cd)pyrene 0.9 0.5
SS-02
0 - 0.5'
RR SCO
-Benz(a)anthracene 6.71 1
-Benzo(a)pyrene 8.35 1
-Benzo(b)fluoranthene 9.97 1
-Benzo(k)fluoranthene 4.24 3.9
-Chrysene 7.31 3.9
-Dibenz(a,h)anthracene 1.99 0.33
-Indeno(1,2,3-cd)pyrene 7.98 0.5
BH-06
1 - 4'
RR SCO
-Benz(a)anthracene 1.05 1
-Benzo(b)fluoranthene 1.08 1
-Indeno(1,2,3-cd)pyrene 0.71 0.5
BH-05
1 - 4'
RR SCO
-Copper 1090 270
-Manganese 15000 2000
-Benz(a)anthracene 16.6 1
-Benzo(a)pyrene 12.5 1
-Benzo(b)fluoranthene 10.9 1
-Benzo(k)fluoranthene 10.1 3.9
-Chrysene 13.9 3.9
-Dibenz(a,h)anthracene 1.85 0.33
-Indeno(1,2,3-cd)pyrene 7.71 0.5
BH-03
1 - 4'
RR SCO
-Benz(a)anthracene 2.58 1
-Benzo(a)pyrene 2.25 1
-Benzo(b)fluoranthene 2.44 1
-Dibenz(a,h)anthracene 0.41 0.33
-Indeno(1,2,3-cd)pyrene 1.55 0.5
-Lead 1390 400
TP-14
8 - 9'
RR SCO
-Copper 297 270
BH-13
1 - 2'
RR SCO
-Copper 345 270
-Benz(a)anthracene 2.46 1
-Benzo(a)pyrene 2.48 1
-Benzo(b)fluoranthene 3.26 1
BH-04
1 - 3'
RR SCO
-Cyanide 188 27
-Benz(a)anthracene 1.27 1
-Benzo(a)pyrene 1.01 1
-Indeno(1,2,3-cd)pyrene 0.76 0.5
SS-03
0 - 0.5'
RR SCO
-Cadmium 5.26 4.3
-Lead 442 400
-Benz(a)anthracene 14.8 1
-Benzo(a)pyrene 16.8 1
-Benzo(b)fluoranthene 21.3 1
-Benzo(k)fluoranthene 11.3 3.9
-Chrysene 17.6 3.9
-Dibenz(a,h)anthracene 4.32 0.33
-Indeno(1,2,3-cd)pyrene 14.3 0.5
SS-04
0 - 0.5'
RR SCO
-Copper 343 270
-Benz(a)anthracene 9.56 1
-Benzo(a)pyrene 10.9 1
-Benzo(b)fluoranthene 112.5 1
-Benzo(k)fluoranthene 7.49 3.9
-Chrysene 10.4 3.9
-Dibenz(a,h)anthracene 2.61 0.33
-Indeno(1,2,3-cd)pyrene 11.3 0.5
BH-02
1 - 2'
RR SCO
-Cyanide 101 27
-Benz(a)anthracene 2.65 1
-Benzo(a)pyrene 2.11 1
-Benzo(b)fluoranthene 2.45 1
-Dibenz(a,h)anthracene 0.59 0.33
-Indeno(1,2,3-cd)pyrene 1.96 0.5
-Trichloroethene 189 21
MW-4 Soil Sample
12 - 13'
RR SCO
-Trichloroethene 36.1 21
SSB-1
0 - 4'
RR SCO
Arsenic 17.3 16
Copper 3390 270
Lead 2240 400
BH-11
1 - 4'
RR SCO
-Lead 825 400
-Benz(a)anthracene 27.9 1
-Benzo(a)pyrene 23.3 1
-Benzo(b)fluoranthene 25.7 1
-Benzo(k)fluoranthene 13.4 3.9
-Chrysene 23.3 3.9
-Dibenz(a,h)anthracene 4.6 0.33
-Indeno(1,2,3-cd)pyrene 16.7 0.5
BH-11
6 - 8'
RR SCO
-Benz(a)anthracene 3.34 1
-Benzo(a)pyrene 2.84 1
-Benzo(b)fluoranthene 2.94 1
-Dibenz(a,h)anthracene 0.61 0.33
-Indeno(1,2,3-cd)pyrene 2.64 0.5
BH-10
1 - 2'
RR SCO
-Total Mercury 0.856 0.81
-Manganese 6360 2000
-Benz(a)anthracene 1.68 1
-Benzo(a)pyrene 1.19 1
-Benzo(b)fluoranthene 1.42 1
-Indeno(1,2,3-cd)pyrene 0.89 0.5
SS-05
0 - 0.5'
RR SCO
-Benz(a)anthracene 1.79 1
-Benzo(a)pyrene 1.69 1
-Benzo(b)fluoranthene 1.75 1
-Dibenz(a,h)anthracene 0.36 0.33
-Indeno(1,2,3-cd)pyrene 1.45 0.5
BH-01
1 - 4'
RR SCO
-Cadmium 4.49 4.3
-Manganese 15000 2000
BH-12
1 - 2'
RR SCO
-Lead 863 400
-Manganese 8640 2000
Benz(a)anthracene 2.67 1
-Benzo(a)pyrene 2.42 1
-Benzo(b)fluoranthene 2.59 1
-Dibenz(a,h)anthracene 0.43 0.33
-Indeno(1,2,3-cd)pyrene 2.14 0.5
BH-08
1 - 3'
RR SCO
-Arsenic 16.8 16
-Benz(a)anthracene 6.09 1
-Benzo(a)pyrene 4.71 1
-Benzo(b)fluoranthene 5.74 1
-Chrysene 3.9 3.9
-Dibenz(a,h)anthracene 0.7 0.33
-Indeno(1,2,3-cd)pyrene 3.35 0.5
Note: Building sub-slab soil sample results are on Figure 2B.
TP-16
TP-15
TP-14
TP-17
TP-18
MW-5
MW-4
SS-01
BH-13
SS-02
BH-06
BH-05
BH-03
SS-03
BH-07
MW-2
BH-04
SS-04
BH-11
MW-3
BH-08
BH-02
BH-09
BH-12
BH-10
SS-05
MW-1
BH-01
TONAWANDA STREET
(PUBLIC STREET)
(N.Y.S. ROUTE NO. 265)
BLACK ROCK TRADE CENTER INC.
BLACK ROCK TRADE CENTER, INC.
PRATT & LAMBERT, INC.
2.569±Ac.
111,908±Sq.Ft.
SCAJAQUADA CREEK
GRAPHIC SCALE
N
LEGEND
SITE BOUNDARY
BH-# BOREHOLE
SS-# SURFACE SOIL SAMPLE
TP-# TEST PIT
MW-# GROUNDWATER WELL
Note: RR SCO = Restricted Residential Soil Cleanup Objective
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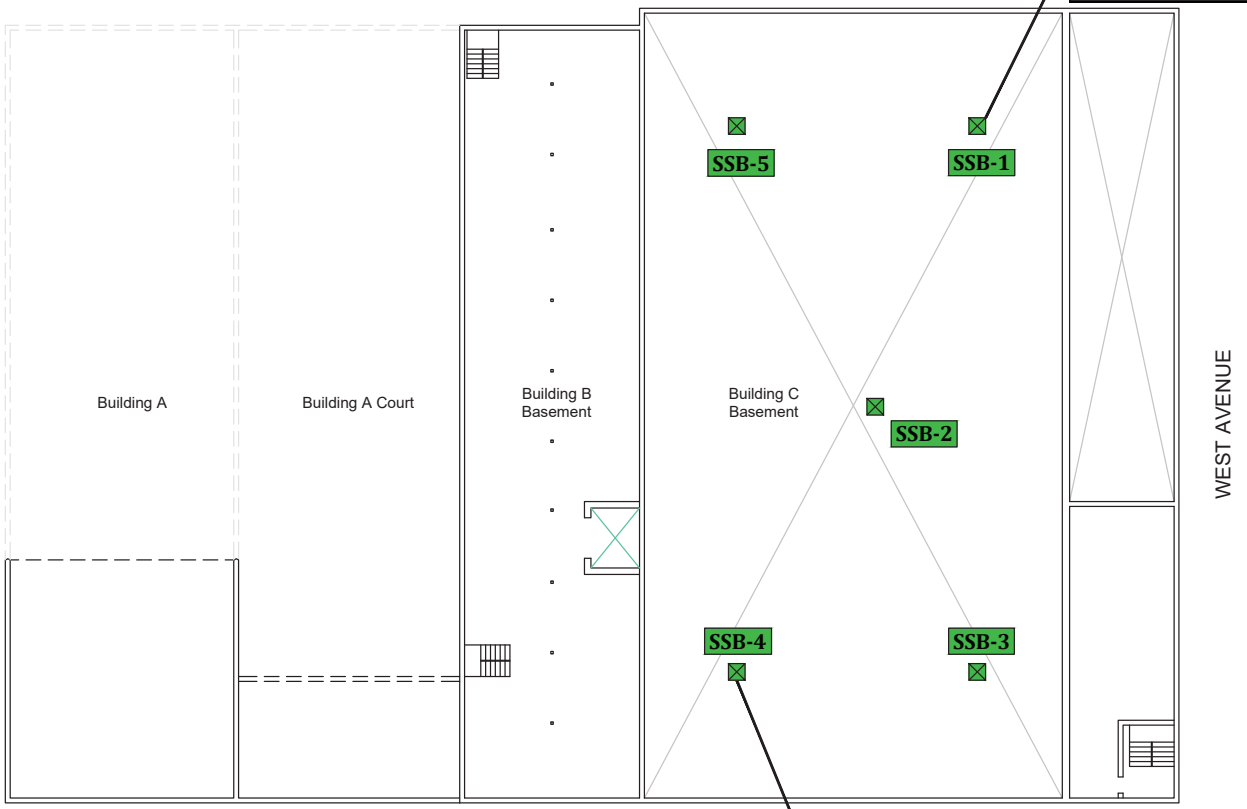
Figure 2A - Soil Sample Analytical Results (External to Building)
Fedder Lofts
57-71 Tonawanda Street
Buffalo, New York 14207
Revisions
1 2/6/20
04-01-2020
SCALE: N/A
SHEET 1 OF 1

SSB-1	0 - 4'	RR SCO
Arsenic	17.3	16
Copper	3390	270
Lead	2240	400



SSB-4	10 - 12'	RR SCO
Trichloroethene	1980	21

EXISTING BASEMENT PLAN

NOTE:
RR SCO = RESTRICTED RESIDENTIAL SOIL CLEANUP OBJECTIVE

LEGEND
SSB-# SUB-SLAB SOIL BORING SAMPLE LOCATION

N

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Figure 2B - Sub-Slab Soil Sample Analytical Results

Fedder Lofts
57-71 Tonawanda Street
Buffalo, New York 14207

Revisions

04-01-2020 | SCALE: N/A | SHEET 1 OF 1

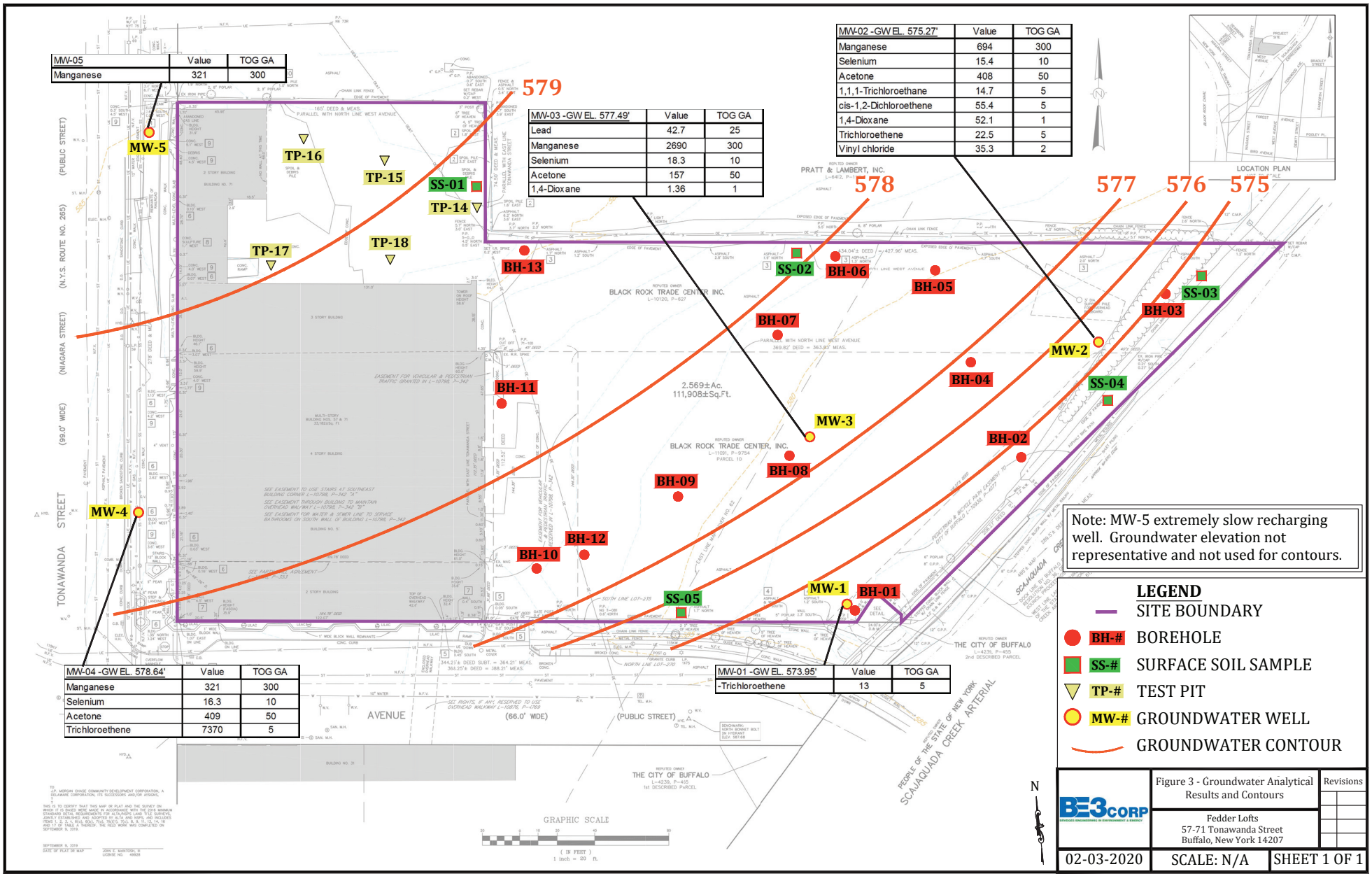
MW-05 | Value | TOG GA
Manganese | 321 | 300
MW-03 -GW EL. 577.49' | Value | TOG GA
Lead | 42.7 | 25
Manganese | 2690 | 300
Selenium | 18.3 | 10
Acetone | 157 | 50
1,4-Dioxane | 1.36 | 1
MW-02 -GW EL. 575.27' | Value | TOG GA
Manganese | 694 | 300
Selenium | 15.4 | 10
Acetone | 408 | 50
1,1,1-Trichloroethane | 14.7 | 5
cis-1,2-Dichloroethene | 55.4 | 5
1,4-Dioxane | 52.1 | 1
Trichloroethene | 22.5 | 5
Vinyl chloride | 35.3 | 2
MW-04 -GW EL. 578.64' | Value | TOG GA
Manganese | 321 | 300
Selenium | 16.3 | 10
Acetone | 409 | 50
Trichloroethene | 7370 | 5
MW-01 -GW EL. 573.95' | Value | TOG GA
-Trichloroethene | 13 | 5
579
578
577
576
575
MW-5
MW-4
MW-2
MW-3
MW-1
TP-16
TP-15
TP-14
TP-17
TP-18
SS-01
SS-02
SS-03
SS-04
SS-05
BH-13
BH-06
BH-05
BH-03
BH-07
BH-04
BH-11
BH-02
BH-08
BH-09
BH-12
BH-10
BH-01
(PUBLIC STREET)
(N.Y.S. ROUTE NO. 265)
(NIAGARA STREET)
(99.0' WIDE)
TONAWANDA STREET
AVENUE
(66.0' WIDE)
PRATT & LAMBERT, INC.
BLACK ROCK TRADE CENTER INC.
BLACK ROCK TRADE CENTER, INC.
THE CITY OF BUFFALO
PEOPLE OF THE STATE OF NEW YORK
SCAJAQUADA CREEK ARTERIAL
2.569±Ac.
111,908±Sq.Ft.
LOCATION PLAN
GRAPHIC SCALE
Note: MW-5 extremely slow recharging well. Groundwater elevation not representative and not used for contours.
LEGEND
SITE BOUNDARY
BH-# BOREHOLE
SS-# SURFACE SOIL SAMPLE
TP-# TEST PIT
MW-# GROUNDWATER WELL
GROUNDWATER CONTOUR
N
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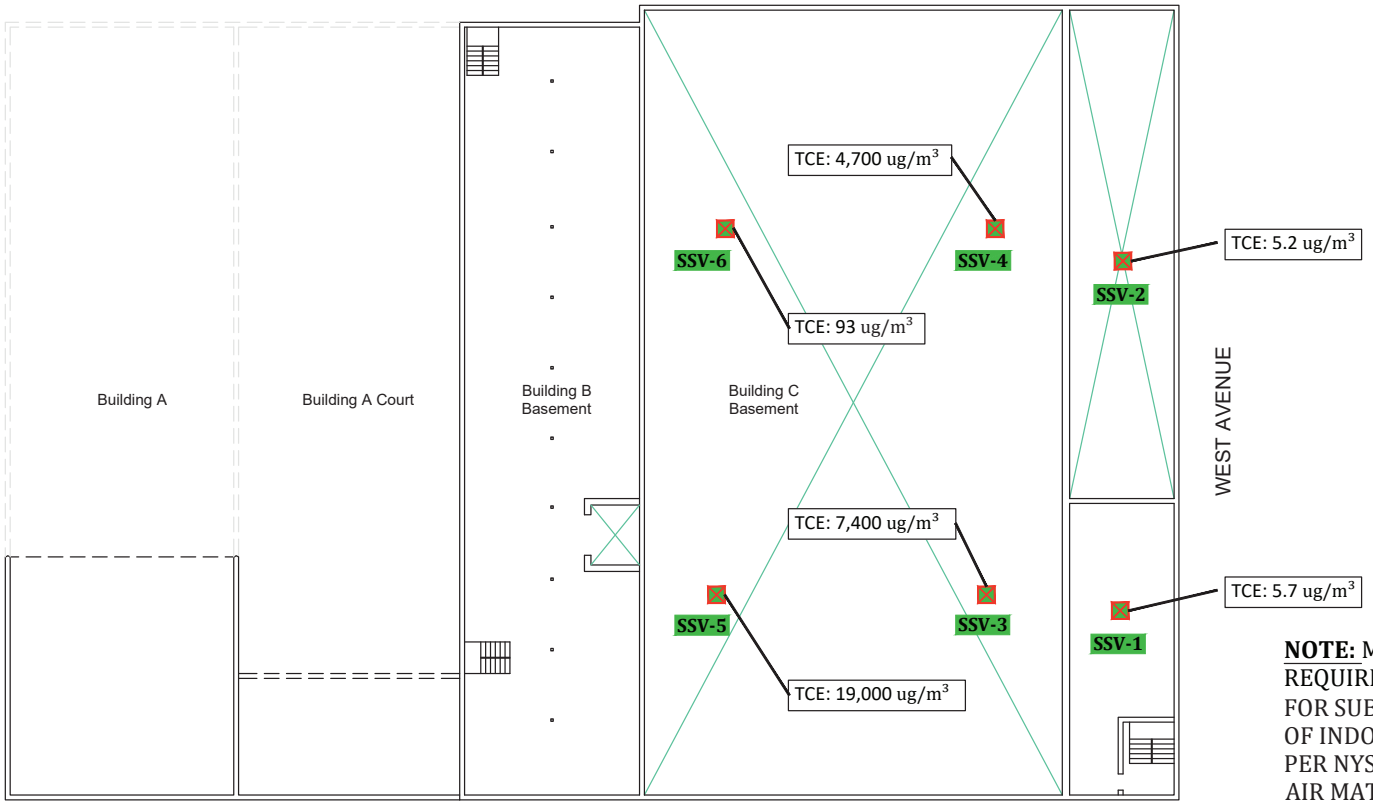
Figure 3 - Groundwater Analytical Results and Contours
Revisions
Fedder Lofts
57-71 Tonawanda Street
Buffalo, New York 14207
02-03-2020
SCALE: N/A
SHEET 1 OF 1



EXISTING BASEMENT PLAN

NOTE: MINIMUM ACTION LEVEL REQUIRING MITIGATION IS 60 ug/m^3 FOR SUB-SLAB VAPOR, REGARDLESS OF INDOOR AIR CONCENTRATION, AS PER NYSDOH SOIL VAPOR/INDOOR AIR MATRIX A FOR TCE.

LEGEND

SSV-# SUB-SLAB VAPOR PROBE SAMPLE LOCATION

TCE: # ug/m^3 LAB ANALYTICS RESULT FROM TCE IN SAMPLE

N

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Figure 4 - Sub-Slab Vapor Sample Analytical Results

Fedder Lofts
57-71 Tonawanda Street
Buffalo, New York 14207

Revisions

03-24-2020 | SCALE: N/A | SHEET 1 OF 1

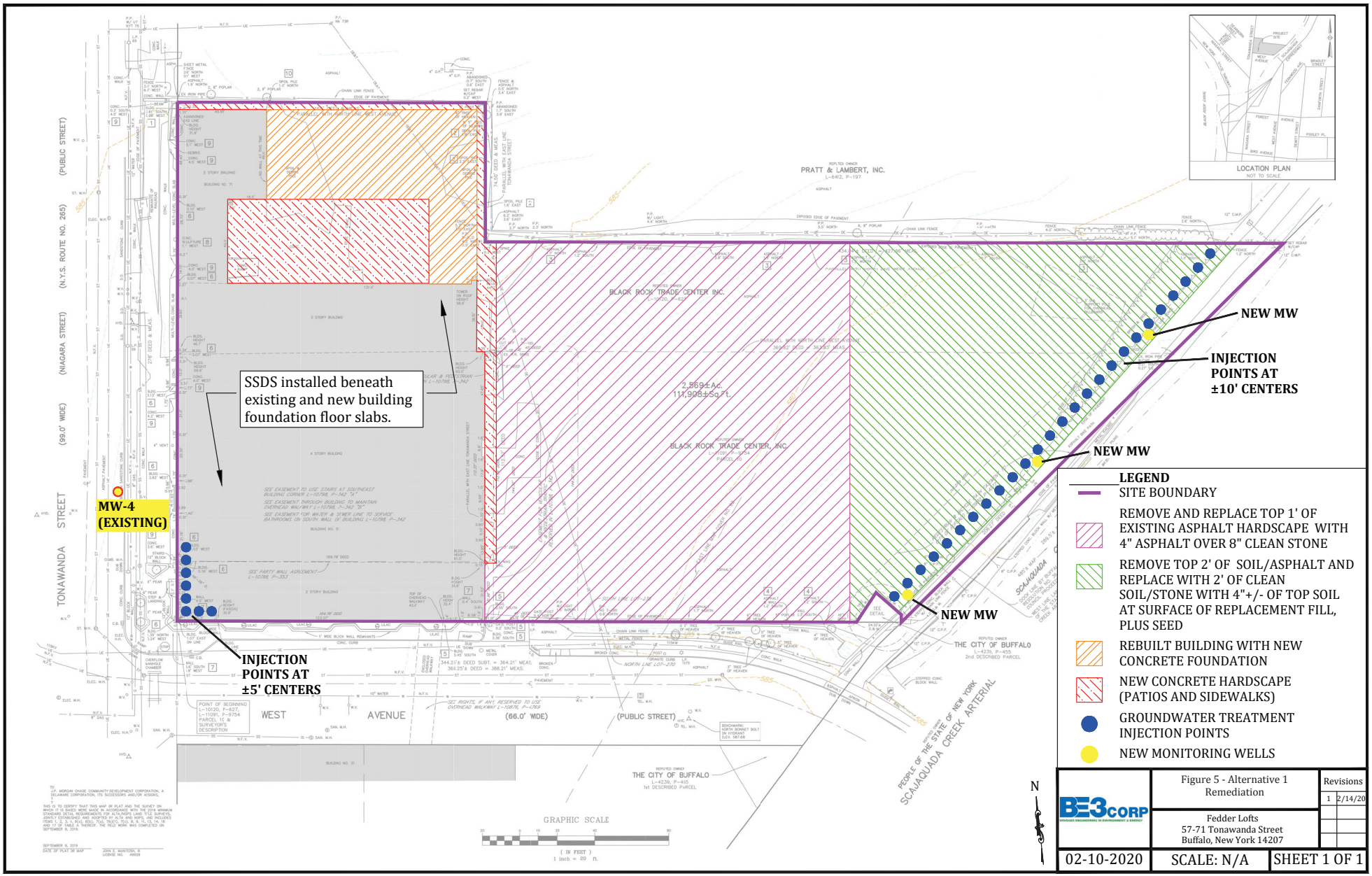

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Figure 5 - Alternative 1 Remediation

Fedder Lofts
57-71 Tonawanda Street
Buffalo, New York 14207

Revisions	
1	2/14/20

02-10-2020 | SCALE: N/A | SHEET 1 OF 1