DECISION DOCUMENT

Harrison Place
Brownfield Cleanup Program
Lockport, Niagara County
Site No. C932177
August 2023

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

DECLARATION STATEMENT - DECISION DOCUMENT

Harrison Place
Brownfield Cleanup Program
Lockport, Niagara County
Site No. C932177
August 2023

Statement of Purpose and Basis

This document presents the remedy for the Harrison Place 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 Harrison Place 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; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings shall be constructed, at a minimum, to meet the 2020 Energy Conservation Construction Code of

New York (or most recent edition) to improve energy efficiency as an element of construction.

2. Excavation

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

- grossly contaminated soil as defined in 6NYCRR Part 375-1.2(u);
- soils containing photo-ionization detector (PID) readings greater than 100 ppm; and
- soils which exceed the protection of groundwater soil cleanup objectives (PGW SCOs), as defined by 6 NYCRR Part 375-6.8, for trichloroethylene (TCE), tetrachloroethane (PCE), cis-1,2-dichloroethlyene (cis-DCE), and vinyl chloride (VC) found in site groundwater above standards.

Approximately 10-tons of contaminated soil meeting the above criteria will be removed from the site. Collection and analysis of confirmation samples at the remedial excavation extent will be used to verify that excavation criteria for the site have been achieved. If confirmation sampling indicates that the excavation criteria were not achieved by the planned extent of excavation, the Applicant must notify the Department, and the Department will determine if further remedial excavation is necessary. Further excavation for development, if necessary, will proceed after confirmation samples demonstrate that excavation criteria for the site have been achieved.

3. Backfill

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site. The site will be re-graded to accommodate installation of a cover system as described in remedial element 4.

4. Cover System

A site cover currently exists and will be maintained to allow for restricted residential use of the site. Any site redevelopment will maintain the existing site cover. The site cover may include paved surface parking areas, a concrete slab, sidewalks, or soil where the upper two feet of exposed surface soil meets the applicable SCOs for restricted residential use. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

5. In-Situ Chemical Oxidation

In-situ chemical oxidation (ISCO) will be implemented to treat chlorinated solvent contamination in the overburden soil and groundwater. The chemical oxidant will be injected into the subsurface to destroy the contaminants in the following areas:

- Area A – A 900-square foot area located beneath the presumed source area in the north central portion of the site. Oxidizing amendments will be applied via injection wells screened from approximately 12 to 26 feet below ground surface. If additional injections are deemed necessary, the groundwater chemistry will be analyzed to determine the amendment(s) that would be most effective and efficient at further reducing groundwater concentrations; and
- Area B – A 9,000-square foot area located in the central portion of the site. Oxidizing amendments will be applied via injection wells screened from approximately 9 to 26 fbgs. If additional injections are deemed necessary, the groundwater chemistry will be analyzed

to determine the amendment(s) that would be most effective and efficient at further reducing groundwater concentrations.

6. In-Situ Chemical Reduction

In-situ chemical reduction (ISCR) will be implemented to treat chlorinated solvent contamination in the Lockport Dolostone and Rochester Shale bedrock groundwater. The chemical reducing amendment(s) will be injected into the subsurface to destroy the contaminants in the following areas:

- Area C – A 3,200-square foot area located in the western portion of the site. Treatment of Area C includes the Lockport Dolostone bedrock zone, amendments will be applied via injection wells screened from approximately 26 to 56 fbgs;
- Area D – A 3,200-square foot area located in the western portion of the site. Treatment of Area D includes the Rochester Shale bedrock zone, amendments will be applied via injection wells screened from approximately 65 to 75 fbgs;
- Area F – A 2,100-square foot area located in the northern portion of the site. Treatment of Area F includes the Lockport Dolostone bedrock zone, amendments will be applied via injection wells screened from approximately 26 to 56 fbgs; and
- Area G – A 2,100-square foot area located in the northern portion of the site. Treatment of Area F includes the Rochester Shale bedrock zone, amendments will be applied via injection wells screened from approximately 65 to 75 fbgs.

7. Enhanced Bioremediation

In-situ enhanced biodegradation will be employed to treat chlorinated solvent contamination in the Lockport Dolostone and Rochester shale bedrock groundwater in the source areas located under Building 3. These injections will occur after the completion of the injection events of remedial elements 5 and 6. The biological breakdown of contaminants through anaerobic reductive dechlorination will be enhanced by injecting bacterial cultures into the subsurface to promote microbe growth. Amendments will be introduced into the subsurface via injection wells in Areas A, B, C, D, F, and G. Separate amendments to serve as an ongoing energy source for the bacteria will be injected to sustain biological activity.

8. In-Situ Treatment using Activated Carbon

Activated carbon will be injected into the overburden to create a barrier wall to prevent the migration of chlorinated solvent contamination in overburden groundwater. In the area of the captured contamination, conditions will be maintained that will allow anaerobic degradation of chlorinated solvents to occur. The activated carbon barrier will be added to the subsurface along the downgradient boundary of the site via injection wells screened from approximately 9 to 26 fbgs. The barrier will span a distance of approximately 180-feet proximate to the northern site boundary.

9. Vapor Mitigation

Any on-site buildings 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/or groundwater.

10. 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 6 NYCRR Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for restricted residential use as defined by 6 NYCRR 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 Niagara County DOH; and
- require compliance with the Department- approved Site Management Plan.

11. Site Management Plan

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

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

Institutional Controls: The Environmental Easement discussed in remedial element 10,

Engineering Controls: The soil cover discussed in remedial element 4; the groundwater treatment remedies discussed in remedial elements 5, 6, 7, and 8; and the vapor mitigation system discussed in remedial element 9.

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;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

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

- monitoring of groundwater to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department; and
- monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

c) an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, inspection, and reporting of any mechanical or physical components of the active vapor mitigation system(s). The plan includes, but is not limited to:
    - procedures for operating and maintaining the system(s); and
    - compliance inspection of the system(s) to ensure proper O&M as well as providing the data for any necessary reporting.

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.

August 4, 2023
Date

michael cruden
Digitally signed by michael cruden
Date: 2023.08.04 13:27:30 -04'00'

Michael Cruden, Director
Remedial Bureau E

DECISION DOCUMENT

Harrison Place
Lockport, Niagara County
Site No. C932177
August 2023

SECTION 1: SUMMARY AND PURPOSE

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

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

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

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on 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=C932177

Lockport Public Library
23 East Avenue
Lockport, NY 14094
Phone: (716) 433-5935

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 approximately 1.49-acre Harrison Place site located at 210 Walnut Street in the City of Lockport, Niagara County. The BCP site is located on the southeast portion of the former Harrison Radiator Complex (the Harrison Complex) at the intersection of South and Washburn Streets.

Site Features: The site consists of one three-story brick and concrete building, referred to as Building 3. The site boundary does not extend beyond the footprint of Building 3. The structure contains an open atrium that extends the entire length of the building. A series of vertical concrete columns are located on the north and south sides of the building to support the second and third floors. A concrete slab exists across the site and a 50-foot by 50-foot basement is located in the southwest corner of the building.

Current Zoning and Land Use: The property is zoned as I-3 Industrial. The remainder of the Harrison Complex is located to the north and west of the site. The Harrison Complex consists of four additional buildings currently used in a commercial capacity for office space, storage, and electrical component product production. A parking lot exists to the west of the site and residential properties are located to the south and east of the site.

The on-site building is utilized for storage and is occasionally occupied. In the southeast corner of the site, glass garage doors separate a small area from the rest of the building. This area has been renovated to accommodate a farmers market that operates on the weekends during the winter months. The remainder of the building is currently used for storage. With exception of space heaters, the building is not heated.

Past Use of the Site: The Harrison Radiator Corporation began its operations at the site in 1914. In 1918, the Corporation was sold and became a division of General Motors. This facility remained in operation until plant closure in 1987.

Building 3 was constructed in 1929 and was used for the production of parts associated with radiators. Historic operations on-site included stamping, bending, heating, fabrication of metal components, cleaning and painting of parts, assembly, packaging, and shipping. A portion of Building 3 was used to test and inspect products. Both coal and fuel oil were used on-site to generate steam power to produce heat and electricity required to run the plant.

Prior to the site entering the BCP several investigations and remedial activities were conducted throughout the Harrison Complex. Past investigations and remedial actions completed across the

Harrison Complex include a 1999 report of spill 9975547, a 2009 Phase II Environmental Site Assessment (ESA) performed for the Niagara County Development Corporation, and a 2010 ESA performed by the Department. In 2019, an additional ESA was conducted by Jade Environmental Engineering, PLLC solely on Building 3.

Site Geology & Hydrogeology: A 6-to-18-inch concrete slab exists across the site. Beneath the slab the overburden consists of fill and gravel within the top 2 feet below ground surface (fbgs). Silty soil, clay, and sand layers were identified below the fill to a depth of approximately 27 fbgs. Bedrock was encountered at 27 fbgs, bedrock in this area consists of Lockport Dolostone formation underlain by Rochester Shale formation.

Overburden groundwater across the site is shallow, encountered between 6 and 7 fbgs. The groundwater flow direction for the overburden zone is to the north. Two bedrock zones have also been identified extending beyond 27 fbgs (Lockport Dolostone and Rochester Shale). The suspected groundwater flow for the bedrock zones is to the northwest, towards the Erie Canal.

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 restricts the use of the site to restricted residential use (which allows for commercial use and industrial use) as described in 6 NYCRR 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 Volunteer. The Volunteer 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 is conducting additional investigation and remedial activities to address and eliminate exposures to the off-site contamination. Remedial work associated with the off-site will be completed under the Harrison Place Off-Site (Site ID: C932177A).

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:

- soil;
- groundwater;
- air;
- indoor air; and
- sub-slab soil 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 contaminants of concern identified at this site is/are:

benzene;
toluene;
lead;
trichloroethene (TCE);
tetrachloroethene (PCE);

cis-1,2-dichloroethene (cis-DCE); and vinyl chloride (VC).

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

- soil;
- groundwater;
- indoor air, and
- soil vapor.

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.

The RI was conducted in the spring of 2021. Samples were collected from subsurface fill, native subsurface soil, groundwater, outdoor air, indoor air, and sub-slab soil vapor. Subsurface fill (4 inches to 4 feet below ground surface [fbgs]) and native soil (4 to 27 fbgs) were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), metals, and per- and polyfluorinated (PFAS). Groundwater was analyzed for VOCs, SVOCs, pesticides, PCBs, metals, PFAS, and 1,4-dioxane. Sub-slab soil vapor was analyzed for VOCs. The RI determined that chlorinated VOCs are the primary contaminants of concern at the site in soil, groundwater, and sub-slab soil vapor/indoor air. Chlorinated VOCs detected on-site include tetrachloroethene (PCE), trichloroethene (TCE), and cis-1,2-dichloroethene (cis-DCE). The RI also identified limited petroleum related VOCs in groundwater and lead exceeding the applicable soil cleanup objectives.

A Supplemental Remedial Investigation (SRI) was conducted in the spring of 2022. The purpose of the SRI was to better define the vertical and horizontal extent of the impacts in the subsurface soils, overburden and bedrock groundwater. During the SRI, eight additional soil borings were completed to bedrock, five overburden groundwater wells were installed, one Lockport Dolostone bedrock well was installed, and two Rochester Shale bedrock wells were installed. The additional monitoring wells were installed both on- and off-site of the BCP site. A total of eight subsurface soil samples were collected and all wells on-site were sampled. All samples were analyzed for VOCs.

Subsurface Soils:

During the RI and SRI, twenty-seven samples were collected from 4 inches below ground surface (bgs) to 27 fbgs. Sixteen of the twenty-seven samples were analyzed for VOCs, SVOCs, metals, pesticides, herbicides, PCBs, and PFAS. SVOCs, pesticides, herbicides, PCBs, or PFAS were not detected at levels exceeding RRSCOs. The remaining eleven samples were only analyzed for VOCs.

The following contaminants were detected in subsurface soils exceeding RRSCOs:

- TCE was detected in 6 of 27 sample locations exceeding the RRSCO of 21 ppm. Concentrations ranged from ND to 420 part per million (ppm); and
- Lead was detected in 2 of 16 sample locations exceeding the RRSCO of 400 ppm. Concentrations ranged from 6.2 to 2,260 ppm.

The following chlorinated VOCs were detected in subsurface soils exceeding PGW SCOs:

- PCE was detected in 2 of 27 sample locations exceeding the PGW SCO of 1.3 ppm. Concentrations ranged from ND to 2.2 ppm;
- TCE was detected in 9 of 27 sample locations exceeding the PGW SCO of 0.47 ppm. Concentrations ranged from ND to 420 ppm; and
- cis-DCE was detected in 1 of 27 sample locations exceeding the PGW SCO of 0.25 ppm. Concentrations ranged from ND to 0.74 ppm.

Of the twenty-seven samples collected, nine samples were collected from a depth greater than 14 fbgs. The most significant subsurface soil exceedances were identified between 14 fbgs and bedrock (27 fbgs) located along the northern and western portions of the site. Sub-surface soil contamination does not appear to be migrating off-site.

Overburden Groundwater:

On-site overburden groundwater samples were collected from seven monitoring wells generally screened at depths between 4 and 27 fbgs. All samples were analyzed for VOCs. Four of the eight samples were also analyzed for SVOCs, metals, pesticides, herbicides, PCBs, and PFAS. There were no SVOCs, herbicides, PCBs, or PFAS detected above groundwater quality standards (GWQS).

The following chlorinated VOCs were detected in on-site overburden groundwater exceeding the GWQS:

- TCE was detected in 6 of 7 overburden monitoring wells exceeding the GWQS of 5 ppb. Concentrations ranged from ND to 620,000 ppb; and
- cis-DCE was detected in 4 of 7 overburden monitoring wells exceeding the GWQS of 5 parts per billion (ppb). Concentrations ranged from ND to 5,700 ppb.

A sample was also collected from the standing water located in the basement sump. PCE (up to 650 ppb), TCE (up to 850 ppb), and cis-DCE (up to 370 ppb) were all detected in the basement sump water, indicating that contaminated groundwater is collecting in the sump.

Chlorinated VOC impacts in the overburden groundwater are widespread across the site. The most elevated concentrations are present in the north central portion of the site, proximate to MW-2. Additionally, the sample collected from the basement sump displayed elevated levels of chlorinated VOCs that may volatilize into indoor air. Off-site overburden groundwater concentrations were significant both north and south of the Site. Off-site, TCE concentrations ranged from 440 to 230,000 ppb. PCE was also detected up to 1,600 ppb and cis-DCE was detected up to 1,900 ppb. The most elevated off-site overburden groundwater concentrations were located downgradient of the site to the north. The investigation results indicate that on-site groundwater is migrating off-site. The full extent of the off-site contamination in the overburden groundwater has not yet been determined.

Lockport Dolostone Bedrock Groundwater:

On-site bedrock groundwater samples were collected from two monitoring wells installed in the Lockport Dolostone. The wells were completed as open hole construction from depths between 26 and 41 fbgs. Both samples were analyzed for VOCs, SVOCs, metals, pesticides, herbicides, PCBs, and PFAS. There were no SVOCs, herbicides, PCBs, or PFAS detected above GWQS.

The following chlorinated VOCs were detected in on-site Lockport Dolostone groundwater exceeding the GWQS:

- TCE was detected in 2 of 2 Lockport Dolostone monitoring wells exceeding the GWQS of 5 ppb. Concentrations ranged from 28 to 26,000 ppb; and
- cis-DCE was detected in 1 of 2 Lockport Dolostone monitoring wells exceeding the groundwater quality standards (GWQS) of 5 ppb. Concentrations ranged from ND to 1,900 ppb.

The Lockport Dolostone monitoring well BMW-3, located on the west side of the site, displayed the highest chlorinated VOC concentrations on-site. Downgradient and offsite, elevated chlorinated VOCs were detected in the Lockport Dolostone bedrock groundwater. Chlorinated VOCs detected off-site include trans-1,2-dichloroethene up to 120 ppb, PCE up to 550 ppb, TCE up to 8,100 ppb, cis-DCE up to 3,900 ppb, and VC up to 230. Benzene was also detected off-site up to 550 ppb. Chlorinated VOC concentrations decrease off-site as groundwater flows downgradient. The investigation results indicate that contaminated groundwater has migrated off-site in the Lockport Dolomite. The full extent of the off-site contamination in the Lockport Dolostone has not yet been determined.

Rochester Shale Bedrock Groundwater:

An on-site bedrock groundwater sample was collected from one monitoring well installed in the Rochester Shale. The well was completed as an open hole construction from 65.2 to 75.2 fbgs. The sample was analyzed for VOCs.

VOCs detected in the on-site Rochester Shale groundwater exceeding the GWQS include:

- benzene was detected at concentration of 58 ppb exceeding the groundwater quality standards (GWQS) of 1 ppb;

- toluene was detected at concentration of 63 ppb exceeding the groundwater quality standards (GWQS) of 5 ppb;
- cis-DCE was detected at concentration of 63 ppb exceeding the groundwater quality standards (GWQS) of 5 ppb; and
- TCE was detected at concentration of 590 ppb exceeding the groundwater quality standards (GWQS) of 5 ppb.

An off-site bedrock groundwater sample was collected from one monitoring well installed in the Rochester Shale. Chlorinated VOCs including PCE up to 340 ppb, TCE up to 37,000 ppb, and cis-DCE up to 780 ppb were detected in the off-site Rochester Shale monitoring well. The off-site monitoring well displayed higher chlorinated VOC concentrations than the on-site well. The full extent of the off-site contamination in the Rochester Shale has not yet been determined.

Soil Vapor Intrusion:

Six sub-slab soil vapor samples were collected below the concrete slab along with six co-located indoor air samples in the on-site building. Due to standing water, only an indoor air sample was collected near the basement sump. All samples were analyzed for VOCs.

Chlorinated VOCs detected in the indoor air include cis-DCE up to 1,900 ug/m^3, PCE up to 2,260 ug/m^3, TCE up to 4,800 ug/m^3, and VC up to 61 ug/m^3. All of the 7 indoor air samples exceeded the NYSDOH air guidance value of 2 ug/m^3 for TCE. At 1 of the 7 indoor air samples TCE exceeded the NYSDOH immediate action level of 20 ug/m^3.

Chlorinated VOCs detected in the sub-slab soil vapor include cis-DCE up to 3.7 ug/m^3, 1,1,1-trichloroethane up to 24 ug/m3, PCE up to 12,000 ug/m^3, and TCE up to 34,000 ug/m^3.

Remedial actions are required to address exposures from soil vapor intrusion (SVI) due to TCE, PCE, and cis-DCE on-site. Sub-slab soil vapor and indoor air samples collected off-site indicate that chlorinated VOCs have migrated and are impacting off-site buildings.

6.4: Summary of Human Exposure Pathways

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

Direct contact with contaminants in the soil is unlikely because the majority of the site is covered with buildings and pavement. Contaminated groundwater at the site is not used for drinking or other purposes and the site is served by a public water supply that obtains water from a different source not affected by this contamination. However, a portion of the structure has standing water that is contaminated with volatile organic compounds and may represent a potential health concern if people trespass into the space and come in contact with the water or inhale contaminated vapor volatizing from the water. Volatile organic compounds in the groundwater and 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. Soil vapor intrusion sampling identified impacts in indoor air quality that represent a health concern in portions of the on-site building that are not regularly used. Soil vapor intrusion sampling identified impacts in indoor air quality that represent a health concern in off-site buildings as well.

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.

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.
- Remove the source of ground 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 contamination.

Soil Vapor

RAOs for Public Health Protection

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

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 Residential Use remedy.

The selected remedy is referred to as the Source Excavation and In-Situ Groundwater Treatment with Site Management remedy.

The elements of the selected remedy, as shown on Figure 3, 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; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings shall be constructed, at a minimum, to meet the 2020 Energy Conservation Construction Code of New York (or most recent edition) to improve energy efficiency as an element of construction.

2. Excavation

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

- grossly contaminated soil as defined in 6NYCRR Part 375-1.2(u);
- soils containing photo-ionization detector (PID) readings greater than 100 ppm; and
- soils which exceed the protection of groundwater soil cleanup objectives (PGW SCOs), as defined by 6 NYCRR Part 375-6.8, for trichloroethylene (TCE), tetrachloroethane (PCE), cis-1,2-dichloroethlyene (cis-DCE), and vinyl chloride (VC) found in site groundwater above standards.

Approximately 10-tons of contaminated soil meeting the above criteria will be removed from the site. Collection and analysis of confirmation samples at the remedial excavation extent will be used to verify that excavation criteria for the site have been achieved. If confirmation sampling indicates that the excavation criteria were not achieved by the planned extent of excavation, the Applicant must notify the Department, and the Department will determine if further remedial

excavation is necessary. Further excavation for development, if necessary, will proceed after confirmation samples demonstrate that excavation criteria for the site have been achieved.

3. Backfill

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site. The site will be re-graded to accommodate installation of a cover system as described in remedial element 4.

4. Cover System

A site cover currently exists and will be maintained to allow for restricted residential use of the site. Any site redevelopment will maintain the existing site cover. The site cover may include paved surface parking areas, a concrete slab, sidewalks, or soil where the upper two feet of exposed surface soil meets the applicable SCOs for restricted residential use. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

5. In-Situ Chemical Oxidation

In-situ chemical oxidation (ISCO) will be implemented to treat chlorinated solvent contamination in the overburden soil and groundwater. The chemical oxidant will be injected into the subsurface to destroy the contaminants in the following areas:

- Area A – A 900-square foot area located beneath the presumed source area in the north central portion of the site. Oxidizing amendments will be applied via injection wells screened from approximately 12 to 26 feet below ground surface. If additional injections are deemed necessary, the groundwater chemistry will be analyzed to determine the amendment(s) that would be most effective and efficient at further reducing groundwater concentrations; and
- Area B – A 9,000-square foot area located in the central portion of the site. Oxidizing amendments will be applied via injection wells screened from approximately 9 to 26 fbgs. If additional injections are deemed necessary, the groundwater chemistry will be analyzed to determine the amendment(s) that would be most effective and efficient at further reducing groundwater concentrations.

6. In-Situ Chemical Reduction

In-situ chemical reduction (ISCR) will be implemented to treat chlorinated solvent contamination in the Lockport Dolostone and Rochester Shale bedrock groundwater. The chemical reducing amendment(s) will be injected into the subsurface to destroy the contaminants in the following areas:

- Area C – A 3,200-square foot area located in the western portion of the site. Treatment of Area C includes the Lockport Dolostone bedrock zone, amendments will be applied via injection wells screened from approximately 26 to 56 fbgs;
- Area D – A 3,200-square foot area located in the western portion of the site. Treatment of Area D includes the Rochester Shale bedrock zone, amendments will be applied via injection wells screened from approximately 65 to 75 fbgs;
- Area F – A 2,100-square foot area located in the northern portion of the site. Treatment of Area F includes the Lockport Dolostone bedrock zone, amendments will be applied via injection wells screened from approximately 26 to 56 fbgs; and

- Area G – A 2,100-square foot area located in the northern portion of the site. Treatment of Area F includes the Rochester Shale bedrock zone, amendments will be applied via injection wells screened from approximately 65 to 75 fbgs.

7. Enhanced Bioremediation

In-situ enhanced biodegradation will be employed to treat chlorinated solvent contamination in the Lockport Dolostone and Rochester shale bedrock groundwater in the source areas located under Building 3. These injections will occur after the completion of the injection events of remedial elements 5 and 6. The biological breakdown of contaminants through anaerobic reductive dechlorination will be enhanced by injecting bacterial cultures into the subsurface to promote microbe growth. Amendments will be introduced into the subsurface via injection wells in Areas A, B, C, D, F, and G. Separate amendments to serve as an ongoing energy source for the bacteria will be injected to sustain biological activity.

8. In-Situ Treatment using Activated Carbon

Activated carbon will be injected into the overburden to create a barrier wall to prevent the migration of chlorinated solvent contamination in overburden groundwater. In the area of the captured contamination, conditions will be maintained that will allow anaerobic degradation of chlorinated solvents to occur. The activated carbon barrier will be added to the subsurface along the downgradient boundary of the site via injection wells screened from approximately 9 to 26 fbgs. The barrier will span a distance of approximately 180-feet proximate to the northern site boundary.

9. Vapor Mitigation

Any on-site buildings 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/or groundwater.

10. 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 6 NYCRR Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for restricted residential use as defined by 6 NYCRR 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 Niagara County DOH; and
- require compliance with the Department- approved Site Management Plan.

11. Site Management Plan

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

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

Institutional Controls: The Environmental Easement discussed in remedial element 10,

Engineering Controls: The soil cover discussed in remedial element 4; the groundwater treatment remedies discussed in remedial elements 5, 6, 7, and 8; and the vapor mitigation system discussed in remedial element 9.

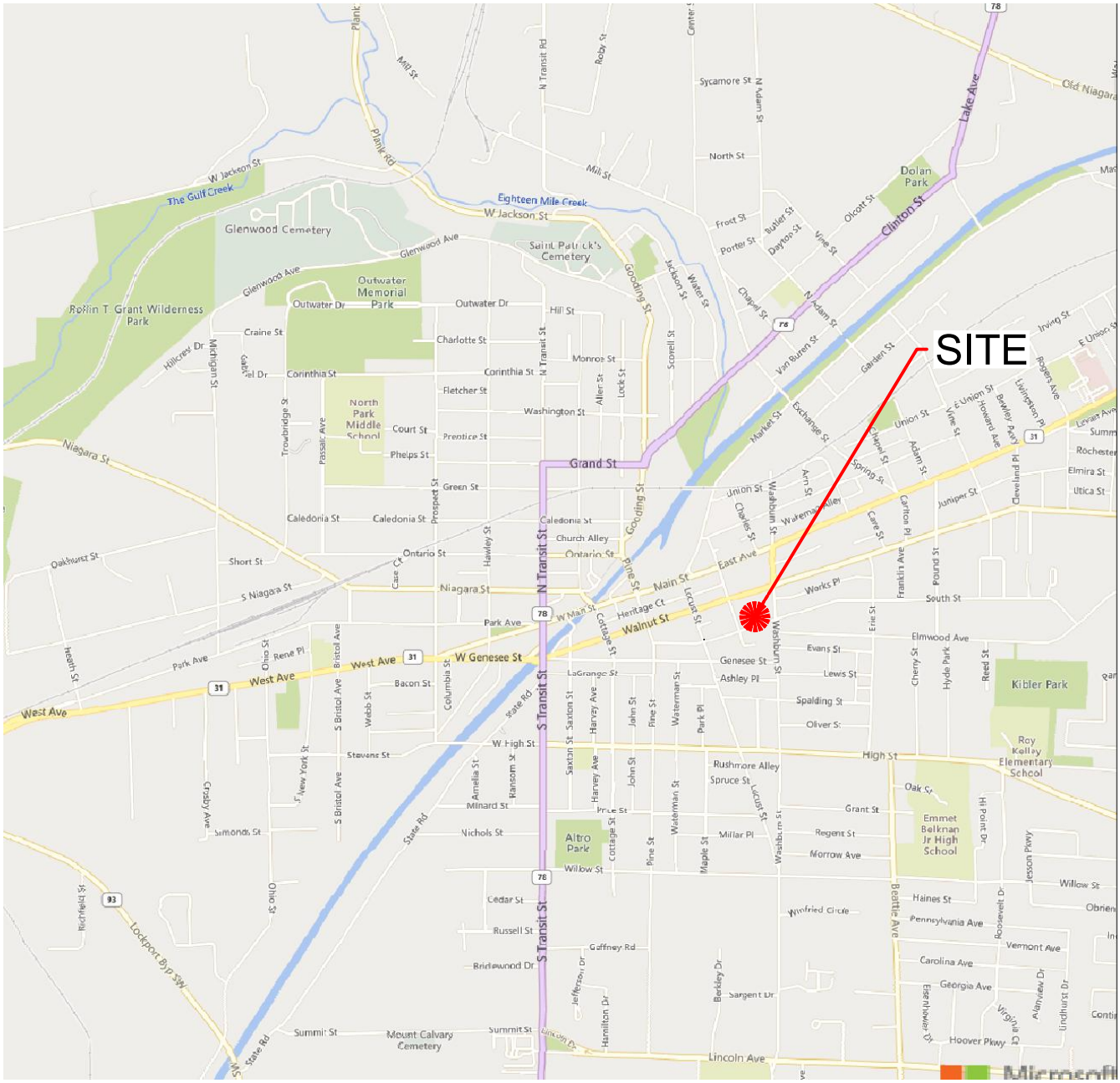
This plan includes, but may not be limited to:

- 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;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b) a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
   - monitoring of groundwater to assess the performance and effectiveness of the remedy;
   - a schedule of monitoring and frequency of submittals to the Department; and
   - monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

c) an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, inspection, and reporting of any mechanical or physical components of the active vapor mitigation system(s). The plan includes, but is not limited to:
   - procedures for operating and maintaining the system(s); and
   - compliance inspection of the system(s) to ensure proper O&M as well as providing the data for any necessary reporting.

FIGURE 1A



SCALE: 1 INCH = 2,000 FEET
SCALE IN FEET
(approximate)

BENCHMARK IN ASSOCIATION WITH TURNKEY ENVIRONMENTAL RESTORATION, LLC

2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

PROJECT NO.: T0099-022-001

DATE: JANUARY 2023

DRAFTED BY: RFL

SITE LOCATION & VICINITY MAP

RI/AA REPORT

HARRISON PLACE SITE
BCP SITE NO. C932177
LOCKPORT, NEW YORK

PREPARED FOR

KEARNEY REALTY & DEVELOPMENT GROUP, INC.

BCP Site

Tax Parcels

Harrison Off-site Investigation (C932177)

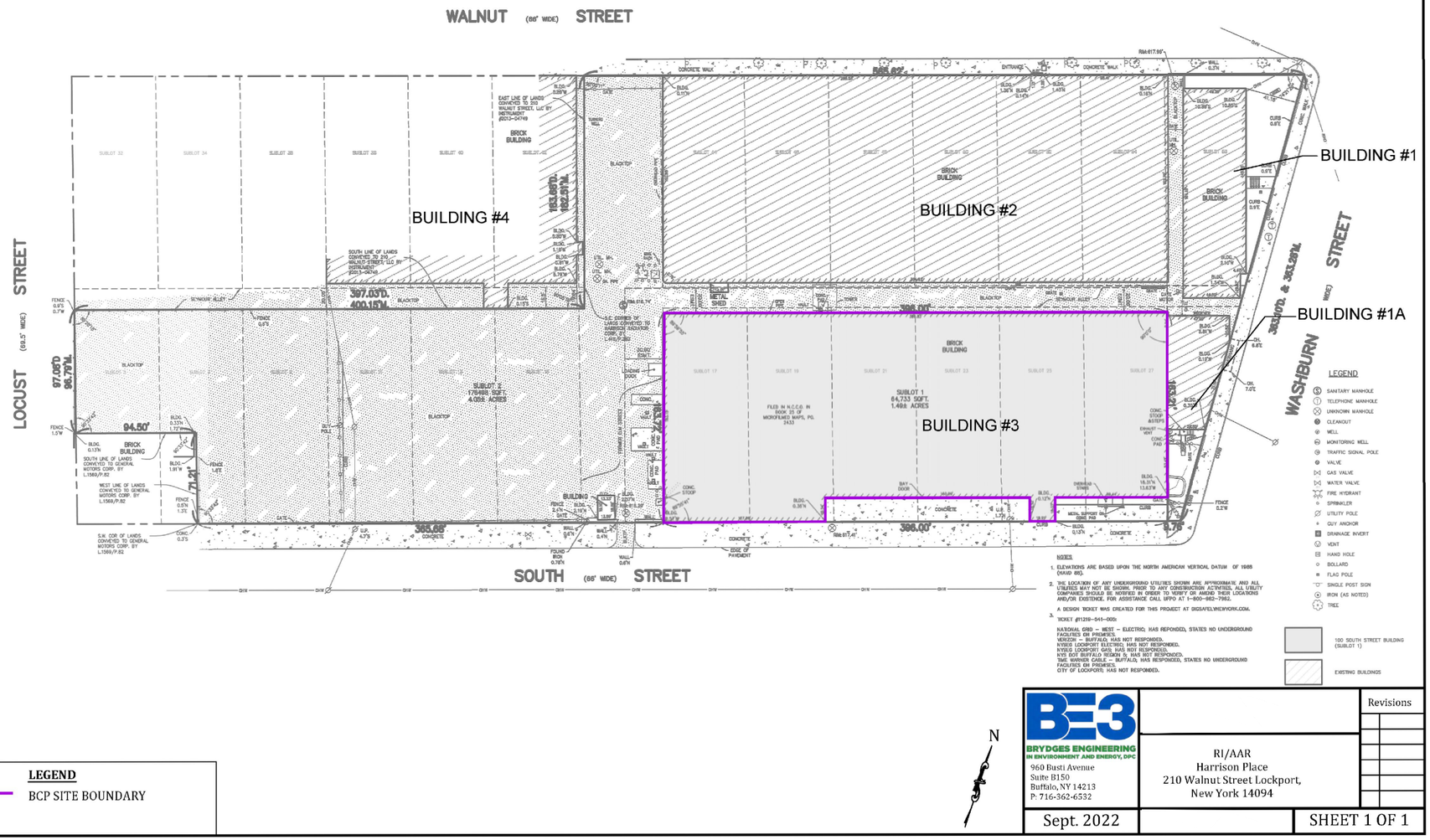
Figure 1B – Harrison Place Site

Lockport, Niagara County NY

Date: June 15, 2023

Scale: 1 inch = 140'

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation



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RI/AAR
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New York 14094

Revisions

Sept. 2022

SHEET 1 OF 1

DATE: JANUARY 2023
DRAFTED BY: RFL

BENCHMARK IN ASSOCIATION WITH TURNKEY ENVIRONMENTAL RESTORATION, LLC

2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218,
(716) 856-0599

JOB NO.: 0684-022-001

SITE SURVEY

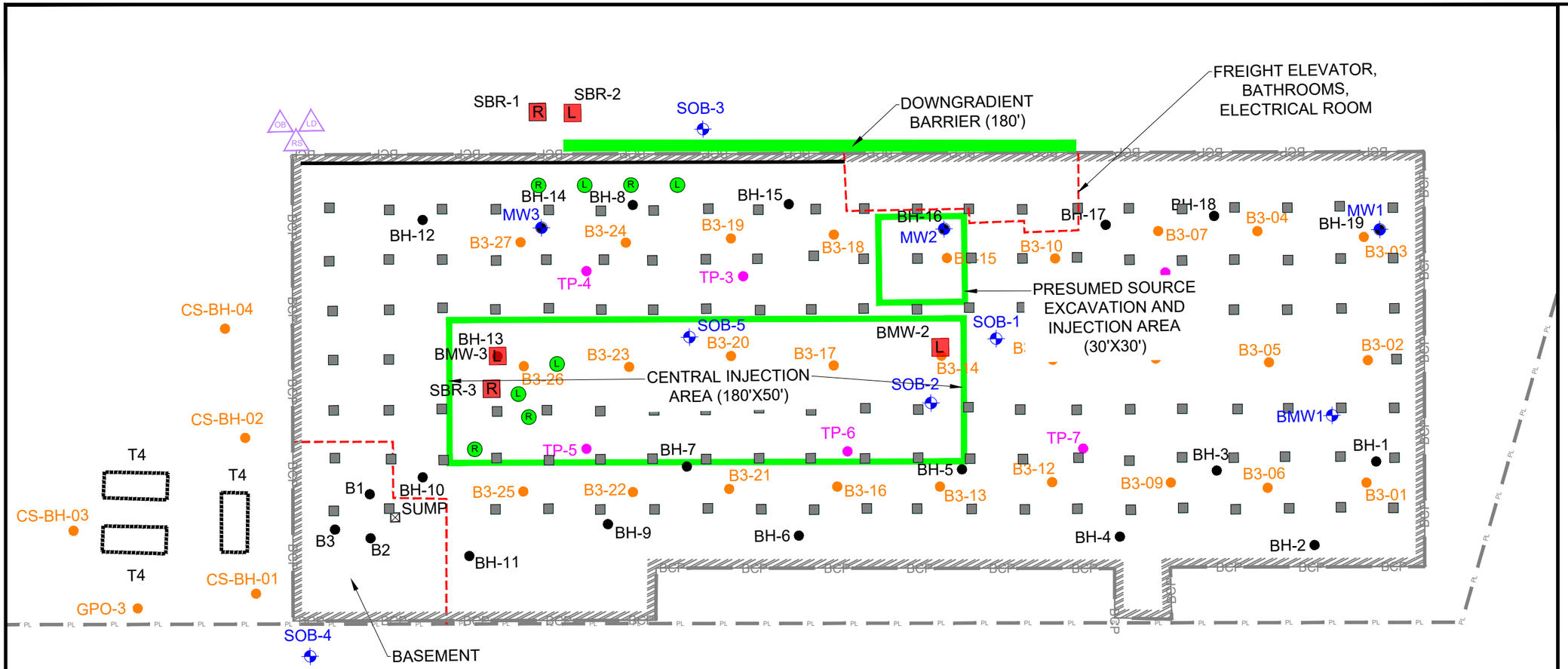
RI-AA REPORT

HARRISON PLACE SITE
BCP SITE NO C932177
LOCKPORT, NEW YORK

PREPARED FOR

KEARNEY REALTY & DEVELOPMENT GROUP, INC.

FIGURE 2



SCALE: 1 INCH = 40 FEET
SCALE IN FEET
(approximate)

DATE: MARCH 2023
DRAFTED BY: RFL

LEGEND:

PL	PROPERTY BOUNDARY
BCP	BCP SITE BOUNDARY
	EXTERIOR BUILDING WALL
	INTERIOR BUILDING WALL OR FEATURE
	FORMER UST LOCATION (PANAMERICAN, JAN 2010 ESA)
SUMP	BASEMENT SUMP
	BUILDING COLUMN
S0B-1 MW-1 BMW-1	OVERBURDEN WELLS
SBR-1 R	ROCHESTER SHALE BEDROCK WELLS
BMW-3 L	LOCKPORT DOLOSTONE BEDROCK WELLS
BH-1	SOIL BORING (BE3, OCT 2022 BCP RI)
B3-01	SOIL BORING BUILDING #3 (NYSDEC, DEC 2010 ESA)
CS-BH-04	SOIL BORING EXTERIOR (PANAMERICAN ENVIRONMENTAL, JAN 2010 ESA)
TP-1	"TEST POINT" SOIL BORING (JADE ENVIRONMENTAL, DEC 2019 SUBSURFACE INV.)

TRACK 4 REMEDIAL PLAN:

L	PROPOSED LOCKPORT DOLOSTONE BEDROCK INJECTION
R	PROPOSED ROCHESTER SHALE BEDROCK INJECTION
	PROPOSED WELL CLUSTER (OVERBURDEN, LOCKPORT AND ROCHESTER WELLS)
	PROPOSED GRID INJECTIONS

NOTES:
1. THE BCP SITE WILL BE SUBJECT TO AN ENVIRONMENTAL EASEMENT.
2. AN ACTIVE SUBSLAB DEPRESSURIZATION SYSTEM WILL BE INSTALLED THROUGHOUT THE BUILDING.

TURNKEY ENVIRONMENTAL RESTORATION, LLC
IN ASSOCIATION WITH
BENCHMARK
2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218,
(716) 856-0599

JOB NO.: 0684-022-001

PLANNED REMEDIAL ACTION TO ACHIEVE RRSCOs (TRACK 4)

REMEDIAL ACTION WORK PLAN

HARRISON PLACE SITE
BCP SITE NO C932177
LOCKPORT, NEW YORK

PREPARED FOR

KEARNEY REALTY & DEVELOPMENT GROUP, INC.

FIGURE 3