

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau E

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July 26, 2019

Mr. Daniel G. Keane
Mod-Pac Corp
850 New Burton Road, Suite 201
Dover, DE 19904

Rosalia Capital LLC
1209 Orange Street
Wilmington, DE 19801

RE: Mod-Pac Corp., Site No: C915314
City of Buffalo, Erie County
Remedial Investigation/Interim Remedial
Measures/Alternatives Analysis Report &
Decision Document

Dear Mr. Keane:

The New York State Department of Environmental Conservation (Department) and the New York State Department of Health (NYSDOH) have reviewed the Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report (RI/IRM/AAR) for the Mod-Pac site, revised February 19, 2019 and prepared by Wittman GeoSciences, PLLC & Hazard Evaluations, Inc., on behalf of Mod-Pac Corp. The RI/IRM/AAR is hereby approved. Please ensure that a copy of the approved RI/AAR is placed in the document repository. The draft plan should be removed.

Enclosed is a copy of the Department's Decision Document for the site. The remedy is to be implemented in accordance with this Decision Document. Please ensure that a copy of the Decision Document is placed in the document repository.

Please contact the Department's Project Manager, Anthony Lopes, 716-851-7220 at your earliest convenience to discuss next steps. Please recall the Department requires notice three (3) days prior to the start of field work.

Sincerely,



Michael J. Cruden, P.E.
Director
Remedial Bureau E
Division of Environmental Remediation

Enclosure

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DECISION DOCUMENT

MOD-PAC CORP.
Brownfield Cleanup Program
Buffalo, Erie County
Site No. C915314
July 2019



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

DECLARATION STATEMENT - DECISION DOCUMENT

**MOD-PAC CORP.
Brownfield Cleanup Program
Buffalo, Erie County
Site No. C915314
July 2019**

Statement of Purpose and Basis

This document presents the remedy for the MOD-PAC CORP. 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 MOD-PAC CORP. 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 gas 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 contaminant source areas, including:

- concentrated solid or semi-solid hazardous substances per 6 NYCRR Part 375-1.2(a)(1) including metals impacted soil from five (5) "hot spot" areas, one in the center and 4 in the vacant southern portion of the site;

All on-site soils which exceed the site-specific action levels (SSALs) described below will be excavated and transported off site for disposal.

<u>Analyte</u>	<u>SSAL</u>
Arsenic	30 mg/kg
Cadmium	9.3 mg/kg
Copper	270 mg/kg
Lead	1,500 mg/kg

Approximately 1,800 cubic yards of contaminated soil will be removed from the site.

3. Backfill

On-site soil which does not exceed the above excavation criteria may be used below the cover system described in remedy element #4 to backfill the excavation to the extent that a sufficient volume of on-site soil is available and establish the designed grades at the site.

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil or complete the backfilling of the excavation and establish the designed grades at the site.

The site will be re-graded to accommodate installation of a cover system as described in remedy element #4 below.

4. Cover System

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

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

5. In-Situ Chemical Oxidation or Reduction

In-situ chemical oxidation (ISCO) will be implemented to treat chlorinated volatile organic compounds (cVOCs) in on-site groundwater. A chemical oxidant will be injected into the subsurface to destroy the contaminants in an approximately 13,000 square foot area located in the central eastern portion of the site where chlorinated related compounds were elevated in the groundwater via direct push borings from 5 to 10 feet below ground surface.

6. Treatment Remedy Shutdown

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

7. Vapor Mitigation

Three existing on-site buildings will be required to have a sub-slab depressurization system (SSDS), or other acceptable measures, to mitigate the migration of vapors into the building from soil and/or groundwater.

8. Engineering and Institutional Controls

Imposition of an institutional control in the form of an environmental easement and a Site Management Plan, as described below, will be required. The remedy will achieve a Track 4 commercial cleanup at a minimum and will include an environmental easement, and site management plan as described below.

9. Institutional Control

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

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

10. 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 Paragraph 9 above.

Engineering Controls:

The soil cover discussed in Paragraph 4 and the sub-slab depressurization system discussed in Paragraph 7 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use, and/or groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any new buildings developed in the future on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 4 above will be placed in any areas where the upper one foot of exposed surface soil exceeds the applicable soil cleanup objectives (SCOs);
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

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 on and off site to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department;
- 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, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:

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

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.

7/25/2019



Date

Michael Cruden, Director
Remedial Bureau E

DECISION DOCUMENT

MOD-PAC CORP.
Buffalo, Erie County
Site No. C915314
July 2019

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:

North Park Library
Attn: Paul Guminski
975 Hertel Avenue
Buffalo, NY 14216
Phone: 716-875-3748

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 MOD-PAC Site is a 20-acre site located at 1801 Elmwood Avenue in an urban area in the City of Buffalo. The site is bound by railroad tracks to the south, Elmwood Avenue to the west, and commercial/residential properties to the north and east.

Site Features: The site is relatively flat and includes an occupied 500,000 square foot manufacturing facility with vacant land to the southern 1/3 of the property.

Current Zoning and Land Use: The site is currently active and zoned for commercial, and industrial use.

Past Uses of the Site: Until the 1950s the entire site was used for the manufacturing of automobile radiators and after the 1970s has been utilized for various manufacturing purposes including warehousing, and box and product packaging manufacture.

Site Geology and Hydrogeology: The site is underlain by 2-16 feet of miscellaneous fill (soil intermixed with foundry sand, concrete, brick, slag, fly ash, metal, railroad siding, and asphalt) underlain by a silt/clay layer. Depth to groundwater is 2 to 9 feet below ground surface (fbgs) and flows to the southwest.

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 commercial 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

A BCP applicant may be either a "Participant" or a "Volunteer."

A “Participant” is an applicant who either (i) was the owner of the site at the time of the disposal or discharge of contaminants; or (ii) is otherwise responsible according to applicable principles of statutory or common law liability, unless such person’s liability arises solely as a result of such person’s ownership or operation of or involvement with the site subsequent to the disposal or discharge.

A “Volunteer” is an applicant other than a participant, including a person whose liability arises solely because of such person’s ownership or operation of or involvement with the site subsequent to the disposal or discharge of contaminants provided that such person exercises appropriate care with respect to the contamination.

The Applicant under the Brownfield Cleanup Agreement is a Participant. The Applicant has an obligation to address on-site and off-site contamination. However, the Department has determined that this site does not pose a significant threat to public health or the environment; accordingly, no enforcement actions are necessary.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

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

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

The RI is intended to identify the nature (or type) of contamination which may be present at a site and the extent of that contamination in the environment on the site or leaving the site. The RI reports on data gathered to determine if the soil, groundwater, soil vapor, indoor air, surface water or sediments may have been contaminated. Monitoring wells are installed to assess groundwater and soil borings, or test pits are installed to sample soil and/or 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
- indoor air
- sub-slab vapor

6.1.1: Standards, Criteria, and Guidance (SCGs)

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

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

6.1.2: RI Results

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

trichloroethene (TCE)	cadmium
cis-1,2-dichloroethene	copper
vinyl chloride	lead
arsenic	polycyclic aromatic hydrocarbons (PAHs)

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.

The following IRMs were completed in August thru September 2018:

1. Repair existing asphalt hardscape in several areas of the parking lot including:
 - excavation and offsite disposal of approximately 120 cubic yards of fill material under settled areas as needed to provide a stable subbase;
 - backfilling excavations with pre-approved virgin #2 crushed stone as per 6 NYCRR Part 375-6.7(d);
 - replace blacktop in areas of cracking; and
 - upgrade/redesign storm water drainage to prevent future settlement.

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.

Nature and Extent of Contamination:

Soil was analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), and pesticides. Based on the investigations conducted to date, the primary contaminants of concern in soil consist of metals including arsenic, cadmium, copper, and lead.

Surface Soil (0-2 inches below ground):

The only metal exceeding commercial use soil cleanup objectives (CUSCOs) is arsenic (up to 141 ppm, CUSCO 16 ppm). Individual PAH compounds were detected above CUSCOs however, total SVOCs in any individual sample did not exceed 500 ppm.

The remaining metals, VOCs, pesticide, herbicide, and PCB concentrations were below CUSCOs.

Contaminant distribution does not indicate any off-site impacts to surface soil related to this site.

Subsurface Soil:

Metals exceeding CUSCOs include arsenic (up to 109 ppm, CUSCO 16 ppm); cadmium (up to 9.3 ppm, CUSCO - 9.3 ppm), copper (up to 314 ppm, CUSCO 270 ppm), and lead (up to 3,310 ppm, CUSCO 1,000 ppm). Individual PAH compounds were detected above CUSCOs however, total SVOCs in any individual sample did not exceed 500 ppm.

VOCs, PCBs, pesticides and herbicides were either not detected or were reported at concentrations below CUSCOs.

Contaminant distribution data does not indicate any off-site impacts to subsurface soil related to this site.

Groundwater

Samples were tested for VOCs, SVOCs, metals, polychlorinated biphenyls (PCBs), pesticides herbicides, perfluoro alkyl substances (PFAs) and 1,4 dioxane. The primary contaminants of concern exceeding groundwater quality standards (GWQSs) are VOCs: trichloroethene (up to 290 ppb, GWQS 5 ppb), vinyl chloride (up to 25 ppb, GWQS 2 ppb), and cis-1,2-dichloroethene (up to 180 ppb, GWQS 5 ppb).

Metals exceeding GWQS's were either low and/or naturally occurring metals and therefore not COCs. Individual SVOCs slightly exceed GWQSs but are not considered significant contaminants of concerns.

Polychlorinated biphenyls (PCBs), pesticides and herbicides were either not detected or reported at concentrations below their GWQSs.

Perfluorooctanic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) were reported at concentrations of up to 51.2 parts per trillion (ppt) and 28.3 ppt respectively. The screening limit for both compounds is 10 ppt. The groundwater is not used as a source of drinking water and the total concentrations of PFOA and PFOS were below the 500 ppt screening limit. 1, 4 dioxane was not detected.

Off-site groundwater exceeding GWQSs include VOCs trichloroethene (up to 8.4 ppb, GWQS 5 ppb), and acetone (up to 53 ppb, GWQS 50 ppb).

Data indicates low level VOC impacts in groundwater related to this site.

Soil Vapor & Indoor Air

Soil vapor was found to be impacted by site-related contamination. TCE was detected in sub-slab vapor samples at concentrations up to 27,300 ug/m³. TCE was also detected in indoor samples at concentrations up to 2.25 ug/m³ which exceeds the New York State Department of Health guideline for TCE in air (2ug/m³). Based on the sub-slab and indoor air concentrations in some buildings on site, actions are necessary to reduce the potential for inhalation exposures to site contaminants. Soil vapor intrusion concerns are limited to on-site areas.

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*.

The northern portion of the site is covered with buildings and pavement; however, people may come into contact with contaminated soil or groundwater if they dig below the surface. The remainder of the site is vacant, and access is not restricted; therefore, people who enter the site could contact contaminants in the soil by walking on it, 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. People are breathing site contaminants in indoor air at levels above air guidelines. This impact is limited to three buildings on-site and represents a health concern.

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

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water 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 referred to as a Track 4 Commercial Use remedy with Site Specific Soil Cleanup Objectives.

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 gas 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 contaminant source areas, including:

- concentrated solid or semi-solid hazardous substances per 6 NYCRR Part 375-1.2(a)(1) including metals impacted soil from five (5) "hot spot" areas, one in the center and 4 in the vacant southern portion of the site;

All on-site soils which exceed the site-specific action levels (SSALs) described below will be excavated and transported off site for disposal.

<u>Analyte</u>	<u>SSAL</u>
Arsenic	30 mg/kg
Cadmium	9.3 mg/kg
Copper	270 mg/kg
Lead	1,500 mg/kg

Approximately 1,800 cubic yards of contaminated soil will be removed from the site.

3. Backfill

On-site soil which does not exceed the above excavation criteria may be used below the cover

system described in remedy element #4 to backfill the excavation to the extent that a sufficient volume of on-site soil is available and establish the designed grades at the site.

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil or complete the backfilling of the excavation and establish the designed grades at the site.

The site will be re-graded to accommodate installation of a cover system as described in remedy element #4 below.

4. Cover System

A site cover will be required to allow for commercial use of the site in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is to be used it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: concrete, paved surface parking areas, sidewalks, building foundations, building slabs, and artificial turf athletic field.

5. In-Situ Chemical Oxidation or Reduction

In-situ chemical oxidation (ISCO) will be implemented to treat chlorinated volatile organic compounds (cVOCs) in on-site groundwater. A chemical oxidant will be injected into the subsurface to destroy the contaminants in an approximately 13,000 square foot area located in the central eastern portion of the site where chlorinated related compounds were elevated in the groundwater via direct push borings from 5 to 10 feet below ground surface.

6. Treatment Remedy Shutdown

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

7. Vapor Mitigation

Three existing on-site buildings will be required to have a sub-slab depressurization system (SSDS), or other acceptable measures, to mitigate the migration of vapors into the building from soil and/or groundwater.

8. Engineering and Institutional Controls

Imposition of an institutional control in the form of an environmental easement and a Site Management Plan, as described below, will be required. The remedy will achieve a Track 4 commercial cleanup at a minimum and will include an environmental easement, and site management plan as described below.

9. Institutional Control

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

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

10. 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 Paragraph 9 above.

Engineering Controls:

The soil cover discussed in Paragraph 4 and the sub-slab depressurization system discussed in Paragraph 7 above.

This plan includes, but may not be limited to:

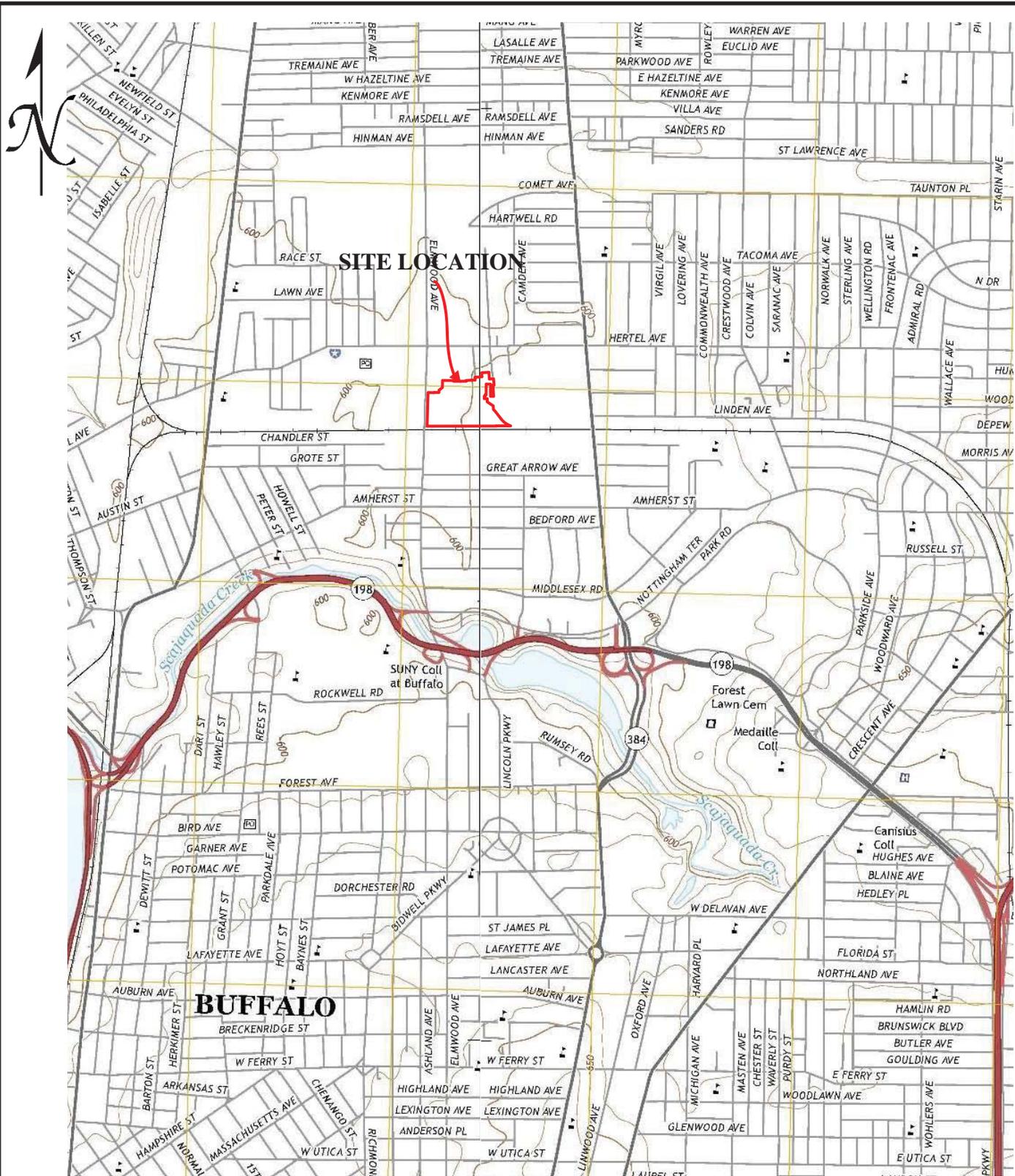
- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use, and/or groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any new buildings developed in the future on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 4 above will be placed in any areas where the upper one foot of exposed surface soil exceeds the applicable soil cleanup objectives (SCOs);
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

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 on and off site to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department;
- 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, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:

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



WITTMAN GEOSCIENCES

SITE LOCUS PLAN
1801 ELMWOOD AVENUE
BUFFALO, NEW YORK

DRAWN BY: MMW	SCALE: NOT TO SCALE	PROJECT: 18-103
CHECKED BY: MMW	DATE: 08/2018	FIGURE NO: 1

Base map adapted from USGS topographic maps Buffalo NE and NW, New York quadrangle, dated 2016

GRAPHIC SCALE



(IN FEET)
1 inch = 100 ft.

Legend

- = Existing asphalt/Concrete
- = Existing Building
- = Proposed new asphalt/roadway or one-foot cover area
- = Building with proposed Active SSDS
- = Proposed Hot Spot Excavation Area

ELMWOOD AVENUE (FORMERLY MACPHERSON STREET)

ELMWOOD AVENUE

MANDAN STREET

LEDGER STREET



MAP OF INVESTIGATION LOCATIONS AS LOCATED DECEMBER, 2017 & FEBRUARY 15, 2018
McINTOSH & McINTOSH, P.C.

BCP Limits

Remedial Action in Spring 2019

CONRAIL (FORMERLY NEW YORK CENTRAL RAILROAD)

WITTMAN GEOSCIENCES, PLLC	Recommended Remedial Alternative 3	DRAWN BY: MMW	SCALE: 1" = 100'	PROJECT: 18-103
	1801 Elmwood, Buffalo, NY	CHECKED BY: MMW	DATE: 12/2018	FIGURE NO: 14