REMEDIAL INVESTIGATION/ INTERIM REMEDIAL MEASURES WORK PLAN

FOR

1360 NIAGARA STREET SITE
CITY OF BUFFALO, ERIE COUNTY, NEW YORK

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ACRONYM LIST

AAR	Alternatives Analysis Report
ACM	Asbestos-containing Material
ASP	Analytical Services Protocol
BGS	Below Ground Surface
BSA	Buffalo Sewer Authority
CAMP	Community Air Monitoring Plan
CPP	Citizen Participation Plan
DER	Department of Environmental Remediation
DUSR	Data Usability and Summary Report
EDD	Electronic Data Deliverable
ELAP	Environmental Laboratory Accreditation Program
HASP	Health and Safety Plan
IRM	Interim Remedial Measures
MS/MSD	Matrix Spike / Matrix Spike Duplicate
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PAH	Polycyclic Aromatic Hydrocarbons
PID	Photo-ionization Detector
RI	Remedial Investigation
RI/AAR/RWP	Remedial Investigation / Alternative Analysis Report/ Remedial Work Plan
SCO	Soil Cleanup Objectives
Site	3.43-Acre portion of 903 Ellicott Street, Buffalo, New York
SVOC	Semi-volatile Organic Compounds
U.S. EPA	United States Environmental Protection Agency
VOC	Volatile Organic Compounds

EXECUTIVE SUMMARY

This document presents the Remedial Investigation and Interim Remedial Measures Work Plan for the Brownfield Cleanup Program Site No. C915302 located on a 1.83-acre portion of Niagara Street in Buffalo, New York (the "Site"). The project details are summarized below:

Contaminant Source and Constituents

The contamination is associated with urban fill located on the Site. Constituents in the fill requiring remediation include semi-volatile organic compounds (SVOCs) and metals. Additionally, groundwater at the site contains volatile organic compounds (VOCs) the source of which is a spill at an upgradient site.

Extent of Contamination

The urban fill containing elevated concentrations of contaminants generally extends to three to four feet below grade and is present across the Site. The contaminated groundwater is located in the northern portion of the site.

Proposed Site Redevelopment

The Site's developers intend to renovate the existing 80,000-square-foot structure to accommodate approximately 50 residential apartment units with first floor retail and/or commercial space of approximately 3,200 square feet.

Remedial Investigation

To characterize site conditions and identify the appropriate remedy for the Site, a Remedial Investigation (RI) will be implemented. The RI will include the collection and analysis of urban fill, native soil, and groundwater samples.

Interim Remedial Measures

Because the contaminants are understood to exist within the urban fill at the Site, this document presents the proposed plan to address these contaminants through removal and off-site disposal. The known groundwater contamination is not the responsibility of the site owner and is being addressed by others.

1 INTRODUCTION

This Remedial Investigation/Interim Remedial Measures (RI/IRM) Work Plan provides a description of the procedures that will be implemented to characterize the nature and extent of contamination of soil at the Garrett Leather Site (the "Site") and the proposed methods to address that contamination. The Site has been assigned New York State Department of Environmental Conservation (NYSDEC) Site No. C915302. This RI/IRM Work Plan has been prepared in accordance with Division of Environmental Remediation "Technical Guidance for Site Investigation and Remediation" (DER-10). To effectively characterize the environmental conditions, this RI/IRM Work Plan discusses the following:

- Current and historic site conditions
- Contaminants of concern and the extent of the contamination
- Extent of RI activities
- Quality controls and protocols for analytical sampling
- Health and safety procedures to protect site workers and the local community
- Community participation activities
- Proposed remedial measures

On February 9, 2016, 1360 Niagara Street Owner, LLC and Ciminelli Real Estate Corporation, (collectively "Applicants") acting as BCP Volunteers, submitted a BCP Application to remediate and develop a portion of 1336, 1340, and 1360 Niagara Street in the City of Buffalo, New York. Investigative and remedial actions covered under this RI/IRM will include the entire 1.83-acre Site.

The Site is the location of the planned rehabilitation of a currently industrial building to a mixed use residential and commercial structure. An RI will be implemented to further evaluate the extent of the contaminated fill material and to aid in the preparation of an Alternatives Analysis Report (AAR). **Section 4 Remedial Investigation** describes the scope of the investigation during remediation. This document also described proposed IRM actions intended to address the contamination present at the Site.

Closure sampling will be conducted during the performance of the RI. The results of the closure sampling will determine if remedial SCOs are achieved during the subsequent IRM.

1.1 Site Description

The Garrett Leather Site is located in the City of Buffalo's West Side along Niagara Street. The Site currently consists of a four-story building with a basement and a parking area, which is a combined total of approximately 80,000-square-feet. Vacant land that was previously developed with buildings, which have since been demolished, is located on the southern portion of the Site.

Figure 1 shows the location of the Site and **Figure 2** shows the Project Area and Site Boundaries.

1.2 Site History

The land comprising the Site was first developed as multiple residential properties and a lubricating factory by 1889. According to historical Sanborn Maps, from 1889 to 1986 the Site was occupied by a planing mill. In 1919, the Mentholatum Building was constructed, which

operated as a health and wellness company that manufactured various pharmaceutical and skin care products until 1998. Garrett Leather purchased the property in 2001, with operations including treatment and warehousing of bulk leather products.

Aboveground storage tanks and underground storage tanks for the Mentholatum Building historically used for fuel at a former planing mill were all located on Site. In addition to the presence of contaminants in on-Site urban fill, groundwater contamination at the Site appears to be migrating from ChemCore (located north of the Site). Past uses of the Site, use of fill throughout the Site and groundwater effects from the ChemCore Site have all contributed to contamination.

1.3 Site Geography, Geology, and Hydrogeology

The Site generally slopes to the west at an approximate elevation of 593 feet above mean sea level. The Site contains an 80,000-square-foot, four-story building, asphalt parking lots as well as some exposed soil areas.

Urban fill is present at the Site at depths ranging from about three to four feet below grade. Urban fill is defined as material coming from anthropogenic sources of the material re-worked to build a site to a defined grade. The urban fill material at the Site contains:

- Crushed Rock
- Sand
- Silt
- Clay
- Plastics
- Construction Debris
- Lumber Ash/Cinders
- Ceramics
- Bricks
- Metal

Native soil encountered beneath the fill consisted of Silty Clay – organic clays of medium to high plasticity and variable silt content with a reddish brown clay appearance.

Groundwater migration on site is limited due to fine-grained nature of the soil. Based on a review of NYSDEC data, the Site is not underlain by any mapped principal or primary aquifers. Groundwater at and in the vicinity of the Site is not used for public drinking water supply.

2 SUMMARY OF ENVIRONMENTAL CONDITIONS

2.1 Environmental Reports

Site characterization efforts were recently conducted to assess contaminant concentrations at the Site and the results are summarized on **Figure 3**. This site characterization was conducted as a Phase I and Phase II Environmental Site Assessment. **Appendix A** contains these previous environmental reports.

During that work, C&S conducted a preliminary sampling program to characterize soil conditions at the Site. The characterization program consisted of the advancement of 22 soil borings within the Site at depths of approximately 16 feet below grade or to the top of bedrock, including some

borings on the portion of Brace Street between 1340 and 1360 Niagara Street. The program also consisted of sampling and analysis of 23 soil/fill samples. Each soil sample was analyzed for volatile organic compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), Polychlorinated biphenyls (PCBs) and Metals. Analytical results from the investigation are summarized in **Section 2.2** below.

AMD Environmental completed asbestos and lead-based paint surveys at the Site in 2015. These surevys identified both asbestos and lead-based paint in a number of areas within the building. Appendix A contains the corresponding reports.

2.2 Nature and Extent of Contamination

Site soils consist of three to four feet of urban fill material. Based on investigations conducted to date, the known contaminants of concern in the urban fill include SVOCs and metals including arsenic, copper, lead, mercury and zinc. Additionally, several chlorinated solvents and a few polychlorinated biphenyls at depths of up to four feet.

NYSDEC Restricted Residential Use SCOs were exceeded in 10 of the 18 subsurface sample locations within the Site boundaries. SVOCs at concentrations ranging from 0.34 ppm to 46 ppm significantly exceeded Restricted Residential Use SCOs in the northern and southern areas of the Site.

Metals marginally to significantly exceeded SCOs in fill throughout the entire Site. Concentrations of copper were detected above Restricted Residential Use SCOs of 270 ppm in the northern and south western portions of the Site at 490 ppm to 3800 ppm. Concentrations of arsenic were detected above Restricted Residential Use SCOs of 16 ppm in the northern and south western portions of the Site at 17 ppm to 32 ppm. Concentrations of lead were detected above Restricted Residential Use SCOs of 400 ppm in the northern portions of the Site at 520 to 2200 ppm. Mercury was detected (1.7 ppm) above Restricted Residential Use SCOs in one boring at the northern property boundary.

Other than chromium exceedance above Unrestricted Use, no other analytes exceeded SCOs. The variation in analyte concentrations across the Site indicates that the source of contamination in soil samples is the variable urban fill material and no discrete source is located on-site or off-site. Contaminated soil is expected to be limited to the top three to four feet of fill material.

Groundwater at the Site was investigated due to current remedial monitoring at the ChemCore property to the adjacent north. Groundwater contamination exists at the site at 30 to 50 feet below grade within the bedrock due to a migrating groundwater plume containing chlorinated solvents emanating from ChemCore. One of six monitoring wells located on Site exceeded NYS Ambient Water Quality Standards and Guidance Values (TOGS 1.1.1 for all four of the contaminants of concern, the following chlorinated solvents: cis-1,2-dichloroethene (DCE), tetrachloroethene (PCE), trichloroethene (TCE) and vinyl chloride (VC). Additionally, groundwater samples in five of six monitoring wells exceeded TOGS 1.1.1 for one or more of the contaminants above and one well did not contain concentrations of chlorinated solvents of TOGS 1.1.1.

3 OBJECTIVES, SCOPE AND RATIONALE

The objectives of the scope of work described in this Work Plan are to evaluate contaminant impacts to soil and identify and evaluate appropriate remedial actions necessary to redevelop the Site. The investigation work will include evaluating the magnitude and extent of contaminant

impacts, conducting a qualitative exposure assessment for actual or potential exposures to contaminants at the Site and/or emanating from the Site, and producing data that will support the development of an acceptable RI Report and subsequent Alternatives Analysis Report (AAR). The IRM portion of this document details the remedial methods proposed to address the contamination present at the Site.

The RI is based on information previously gathered regarding historical operations conducted at the Site, the results of the limited site characterization, and the project objectives. The RI will include the following:

- Soil Evaluation – This task will consist of two primary elements: urban fill and underlying native soils.
    - The urban fill will be characterized to identify the extent and magnitude of contamination within the fill. This material will also be the subject of waste characterization sampling because subsequent remedial activities would likely include the excavation and off-site disposal of the urban fill.
    - The underlying native soils will be characterized to determine the depth of impacts from the overlying urban fill and the depths at which remedial efforts may be terminated.
- Groundwater Evaluation – Subsequent to completing the above tasks, existing groundwater monitoring wells will be utilized on Site to confirm previous sampling results and evaluate if the on-Site urban soil impacts groundwater quality.

The proposed IRM is intended to address the contamination known to exist within the urban fill. The IRM tasks include excavating the urban fill and backfilling the excavation.

The RI and IRM activities will be completed in accordance with NYSDEC Division of Environmental Remediation: Technical Guidance for Site Investigation and Remediation dated May 2010 (DER-10).

4 REMEDIAL INVESTIGATION

A previous soil investigation encountered fill material at the Site that is impacted by VOCs, SVOCs, and metals at concentrations above NYSDEC Soil Cleanup Objectives (SCOs). This part of the RI/IRM Work Plan describes the scope of investigative work necessary to collect sufficient data to determine the extent of contaminated fill material which will support a subsequent remedial actions. This section of the RI/IRM Work Plan includes:

- Field Investigation
- Sampling Program
- Laboratory Analysis

4.1 Field Investigation

The RI intends to supplement the previous site characterization information by the advancement of soil borings, utilization of existing monitoring wells, and collecting and analyzing soil and groundwater samples.

4.1.1 Soil Boring Program

The advancement of soil borings across the Site will facilitate sampling of native material and fill material. To ensure complete coverage of the Site, a 50-foot by 50-foot grid will be established across the Site, as shown on **Figure 4**, resulting in 26 grid locations. From the borings, fill and native soil samples will be collected to document Site conditions.

A direct push soil boring study will be implemented at the site. Each soil boring should be advanced into native material, up to 16 feet (ft) below the ground surface (bgs) or to the top of bedrock, or at the discretion of the project geologist and with consultation from NYSDEC. Investigative locations will be chosen to target those areas known or suspected to be the locations of structures of concern. Exploration locations will be located with a global positioning system or tape measured from existing site features**.**

Soils from the borings will be continuously assessed for visible or olfactory indications of impairment, and/or indication of detectable volatile organic compounds (VOCs) with a photo ionization detector (PID). Positive indications from any of these screening methods are collectively referred to as "evidence of impairment."

Soils from the split-spoons will be screened in the field for visible impairment, olfactory indications of impairment, evidence of NAPLs, and/or indication of detectable VOCs with a PID, collectively referred to as "evidence of impairment" and the results will be recorded on boring logs.

Soil boring logs will be completed and include soil description, PID readings, etc. The boring logs will be included in the RI Report.

Fill Sampling

Fill samples will be collected from the borings based on evidence of impairment and to provide characterization across the Site. In 15 of the 26 grids, one urban fill sample will be collected and analyzed for the following:

- Target Compound List (TCL) volatile organic compounds (VOCs)
- TCL semivolatile organic compounds (SVOCs)
- TCL pesticides
- Polychlorinated biphenyls (PCBs)
- Target Analyte List (TAL) metals
- Total mercury
- Total cyanide
- Hexavalent chromium (from 4 of 10 samples only)

Additionally, four samples will be collected from the urban fill for waste disposal characteristics. The waste characterization analysis will include:

- Toxicity Characteristic Leaching Procedure (TCLP) VOCs
- TCLP SVOCs
- TCLP pesticides/herbicides
- PCBs
- TCLP metals
- Reactivity

- Corrosivity
- Ignitability

Fill samples will be collected from the perimeter of the Site in order to characterize offsite conditions. A total of 16 permeter fill samples will be collected and analyzed for the following:

- TCL semivolatile organic compounds (SVOCs)
- Target Analyte List (TAL) metals

Native Soil Sampling

Native soil will be visually assessed and sampled in each of the 26 grid locations. In order to assess the impact of fill on the underlying native soil, a soil sample will be collected from the top two feet of native material in each grid location. In 9 grid locations, an additional native soil sample will be taken at a depth of 15 feet below grade. The 35 native soil samples will be collected and analyzed for:

- TCL VOCs
- TCL SVOCs
- TCL pesticides
- PCBs
- TAL metals
- Total mercury
- Total cyanide
- Hexavalent chromium (from 12 of 35 samples only)

Based on the results, the 35 native soil samples will also serve as the final confirmatory samples during the subsequent remedial activities.

In addition to collecting samples at the top of the native material, three additional samples will be collected at one-foot intervals below the first native soil sample. These deeper samples will be submitted to the laboratory but held until the uppermost native soil sample is analyzed. If any analytes exceed the respective SCOs, the next deeper sample will be analyzed for only those compounds that exceed the SCO. If the concentrations in that sample also exceeds the SCOs, the next lower sample will be analyzed and the results will be compared to the SCOs. The process will be repeated for the third sample, if necessary. The intent of this sampling scheme is to identify the depth of remedial investigation and use the sampling results as the confirmatory sample results for the IRMs.

4.1.2 Groundwater Monitoring

To characterize groundwater conditions at the Site, five existing monitoring wells will be utilized. The existing wells are located throughout the Site for monitoring evaluated by ChemCore, as shown in **Figure 5**.

The monitoring wells will be developed through the removal of up to ten well volumes using dedicated bailers or a peristaltic or submersible pump.

Groundwater sampling will be conducted using low-flow purging and sampling techniques. Before purging the well, water levels will be measured using an electric water level sounder capable of measuring to the 0.01 foot accuracy. Peristaltic or bladder pumps using manufacturer-

specified tubing will be used for purging and sampling groundwater. Calibration, purging and sampling procedures will be performed as specified by the USEPA[1] for low-flow sampling. Decontamination will be conducted after each well is sampled to reduce the likelihood of cross contamination. Calibration times, purging volumes, water levels and field measurements will be recorded in a field log and will be provided in the RI Report.

The groundwater samples will be analyzed for the following analyte list:

- TCL VOCs
- TCL SVOCs
- TCL pesticides
- PCBs
- TAL metals
- Total mercury
- Total cyanide
- Hexavalent chromium

Drilling decontamination, development, and purge fluids will be stored in 55 gallon steel drums and sampled prior to disposal or being allowed to infiltrate the ground surface of the Site. Excess soil will be placed in a drum for subsequent removal.

A second round of groundwater sampling will be performed approximately four weeks after the first round. The second round of groundwater samples will be analyzed for the same analytes as in the first round.

4.2 Sampling Plan and Laboratory Analysis

Table 1 summarizes the sampling program described in the sections above. Additionally, Quality Assurance/Quality Control (QA/QC) samples will be collected, and the following describes the minimum number of samples per media type.

- Soil samples (excluding waste characteristic samples)
  - Blind duplicate – 5%
  - Matrix Spike/Matrix Spike Duplicate (MS/MSD) – 5%
- Groundwater samples
  - Trip blank – 1 per shipment
  - Blind Duplicate – 5%
  - Matrix Spike/Matrix Spike Duplicate (MS/MSD) – 5%

C&S will utilize the services of an NYSDOH Environmental Laboratory Approval Program (ELAP) certified laboratory for analytical testing. The laboratory results for the samples will be reported in a Category B deliverables package to facilitate validation of the data, and a third party validator will review the laboratory data and prepare a Data Usability Summary Report (DUSR). The validator will evaluate the analytical results for the field samples and quality assurance/quality control samples and compare the findings to USEPA guidance to determine the accuracy and validity of the results.

[1] U.S. EPA Region 1 Low Stress (low-flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, January 19, 2010.

Summaries of the RI activities will be submitted to the NYSDEC as monthly progress reports and will be included in the RI Report. All data submitted to the NYSDEC will be in approved electronic data deliverable (EDD) format.

5 QUALITY ASSURANCE AND QUALITY CONTROL PROTOCOLS

To ensure that suitable and verifiable data results are obtained from the information collected at the Site, quality assurance procedures are detailed in this section.

5.1 Sampling Methods, Analytical Procedures and Documentation

5.1.1 Sampling Methods

Sampling procedures will be conducted in accordance with the NYSDEC *Sampling Guidelines and Protocols Manual*. Collection of representative samples will include the following procedures:

- Ensuring that the sample taken is representative of the material being sampled;
- Using proper sampling, handling and preservation techniques;
- Properly identifying the collected samples and documenting their collection in field records;
- Maintaining chain-of-custody; and
- Properly preserving samples after collection.

Soil Sampling

Soil sampling will be performed using two methods: (1) field screening using a PID; and (2) grab samples. Whether soil samples are collected from the excavator bucket, direct-push rig sleeves, or split-spoons, they will be collected as grab samples that are split and placed into jars supplied by the laboratory as well as into individual zip-lock bags for screening. Screening soil samples will be allowed to sit in sealed zip-lock bag for a short period of time (minimum of five minutes). Head space measurements will then be taken from each zip-lock bag. To prevent cross contamination, zip-lock bags will not be reused and will be properly disposed. Calibration of all electronic field screening equipment will be completed daily and will be done to manufacturer's specifications.

As detailed in the *Sampling Guidelines and Protocols Manual*, grab samples will be placed in 4-ounce and 8-ounce, wide-mouth, glass jars. Sample jars will immediately be placed on ice in a cooler.

Perimeter fill sampling will be conducted during the RI and consists of 16 fill material samples collected from the BCP Site boundary. As discussed with the DEC, if contaminated urban fill exists at depths along the building in which excavation of all contaminated urban fill becomes unfeasible, then sidewall samples will be collected as outlined in DER-10.

Closure sampling will be conducted during the RI and consist of 35 native soil samples across the Site.

Water Sampling

Groundwater sampling will be conducted in accordance with USEPA guidance for low-flow purging and sampling, as described in **Section 4**.

Water samples will be collected in 40 ml and 1-liter glass jars and immediately placed on ice. The water will be analyzed for VOC, SVOC, PCBs, pesticides and metals on a standard turnaround time.

QA/QC Sampling

Duplicate samples will be collected from a minimum of 5% of the locations, and will be selected randomly. Based on an estimate of 15 urban fill samples, 35 native soil samples, 16 perimeter samples (As outlined in DER-10, additional perimeter sidewall samples may be collected based on the extent of the excavation along the building foundation) and 8 groundwater samples; four duplicate soil and two water samples will be collected. Matrix Spike /Matrix Spike Duplicates (MS/MSD) will also be collected on a 5% allocation.

Quality Assurance/Quality Control samples will not be collected and analyzed for the waste characterization sampling.

Table 6-1: Summary of Estimated Sampling

Sample Type	***Matrix***	***Est. #***	***Purpose***
Urban Fill - Site	Soil	15	Characterization
Urban Fill - Permiter	Soil	16	Characterization
Native Soil	Soil	35	Confirmatory
Groundwater	Water	8	Characterization
Duplicate Soil	Soil	4	QA/QC
Duplicate Groundwater	Water	2	QA/QC
MS/MSD –So.	Soil	4/4	QA/QC
MS/MSD –Aq.	Water	2/2	QA/QC
	Total	**92**	

5.1.2 Analytical Procedures

Laboratory Analysis

Laboratory analysis will be conducted by a third-party laboratory that is accredited by the NYSDOH Environmental Laboratory Accreditation Program (ELAP). Laboratory analytical methods will include the most current NYSDEC Analytical Services Protocol (ASP).

Soil and groundwater samples sent to a certified laboratory will be analyzed in accordance with EPA SW-846 methodology for the following contaminants:

- Target Compound List for Volatile Organic Compounds (EPA Method 5035);
- Target Compound List for Semi-volatile Compounds (EPA Method 8270);

- TCL Pesticides (USEPA 8081);
- PCBs (USEPA 8082); and
- Target Analytes List for Metals (EPA Method 6010).

Category B deliverable will be requested to be used in a third-party data validation.

Data Usability

Data Usability Summary Report (DUSR) will be performed by a third-party data consultant using the most recent methods and criteria from the U.S. EPA. The DUSR will assess all sample analytical data, blanks, duplicates and laboratory control samples and evaluate the completeness of the data package. The waste characterization samples will not be validated.

5.1.3 Documentation

Custody Procedures

As outlined in NYSDEC *Sampling Guidelines and Protocols*, a sample is in custody under the following conditions:

- It is in your actual possession;
- It is in your view after being in your physical possession;
- It was in your possession and then you locked or sealed it up to prevent tampering; or
- It is in a secure area.

The environmental professional will maintain all chain-of-custody documents that will be completed for all samples that will leave the Site to be tested in the laboratory.

Air Monitoring

Air monitoring will be conducted to verify no impacts to ambient air. Air monitoring will be conducted during the soil boring program on northern and eastern BCP Site boundaries. The monitoring will include periodic screening for VOCs. All records will be kept on-site during the investigation and will be made available for regulatory inspection. A daily air monitoring log will be maintained through the end of remedial investigation field activities. The specifics of the air monitoring procedures and criteria are detailed in the CAMP.

6 HEALTH AND SAFETY

To verify the safety of the workers and the local community during the performance of the work, monitoring practices of the work environment will be in place during all phases of RI activities. A Health and Safety Plan (HASP) was prepared that details procedures for maintaining safe working conditions and minimizing the potential for exposure to hazardous material. The HASP is provided in **Appendix D**.

Air monitoring during RI activities will be conducted using PID. Details on air monitoring are provided in the Community Air Monitoring Plan (CAMP). The CAMP is provided in **Appendix C**.

7 INTERIM REMEDIAL MEASURES

The following steps will be implemented to address the known contamination within the urban fill at the Site:

- Removal of approximately 4,000 cubic yards of urban fill for off-site disposal or treatment at a regulated facility.
- If necessary, dewatering of the excavation area and the treatment of captured water.
- Use of confirmatory soil sample results generated during the RI to show compliance with the Restricted Residential Use Soil Cleanup Objective.
- As discussed with the DEC, if contaminated urban fill exists at depths along the building in which excavation of all contaminated urban fill becomes unfeasible, then this portion of the property will be covered with clean backfill and capped with concrete.
- Mitigation of asbestos containing materials and addressing lead-based paint within the building.

This section of the report will identify the steps to be taken to remediate the Site.

7.1 Site Control

Site control is an important aspect of this remedial program. In order to safeguard the health and safety of site workers and the general public, access to all remedial work areas will be restricted. Perimeter fencing will be installed to facilitate site control. Additionally, temporary construction fencing will be erected around accessible excavations and staging areas to prevent unauthorized personnel from entering these areas as appropriate.

7.2 Site Preparation

Site preparation activities will include the following:

7.2.1 Water Collection and Treatment System

Contingent plans will be created to address stormwater, if any, in the excavation. These plans include the potential for pumping the excavation water using temporary sumps or a vacuum truck into steel holding tanks. Stored water will either be shipped for off-site treatment at a licensed treatment facility or will be characterized and treated, if necessary, on-site and discharged to the sanitary sewer under a Buffalo Sewer Authority permit.

7.3 Excavation

Excavation is planned to occur across the Site and will include the removal and off-site disposal of all fill material. Fill excavated from the Site will not be reused at other sites.

The depth of the excavation will be based on the sampling completed and is estimated to be approximately three to four feet. The RI sampling will include one native soil sample from each 50-foot by 50-foot grid location. These native soil samples will be used as confirmation samples for the IRM.

Although petroleum or other similar impacts are not anticipated, a C&S scientist or engineer will screen the removed fill for visual and olfactory observations and for total volatile compounds using a photoionization detector (PID). All grossly contaminated material will be removed, the impacted material will be evaluated and may be handled separately from the remaining fill at the Site.

Excavated fill may be direct-loaded onto trucks for off-site disposal or stockpiled and loaded onto trucks for off-site disposal. Excavated fill to be stockpiled on-site will be placed on and covered by a minimum of double 6-mil polyethylene sheeting which is sufficiently anchored to prevent any wind and water erosion. The cover will be inspected at least once per day with corrective action taken as needed. The inspections and any corrective actions will be documented in logs and will occur until the fill materials have been properly removed and disposed off-site.

Good housekeeping practices will be followed during excavation activities to prevent leaving contaminated material on the ground surface and from being tracked onto the road during transporation (e.g., precautions will be taken to prevent impacts to the ground surface due to material spilled from the excavator bucket).

Transportation of all wastes will be completed by properly permitted vehicles. To the extent practicable, trucks will travel along routes that avoid residential areas.

7.4 Soil Cover and Cap

As discussed with the DEC, in locations were the excavation of urban fill cannot feasibly achieve a Restricted Residential Use cleanup due to access restictions or structural integrity concerns due to excavating along the building foundation, urban fill will be removed to the deepest possible depth followed by the placement of at least 2 feet of clean backfill and capped with concrete or asphalt.

7.5 Backfilling

The excavation at the Site will be backfilled to grade with material such as clean soil, crushed stone, and/or concrete as per below. For each source of backfill that is imported to the Site, one of the following will be completed prior to importing the backfill.

a. Documentation will be provided to NYSDEC as to the source of the material and the consistency of the material in accordance with the exemption for no chemical testing listed in DER-10 Section 5.4(e)(5); **OR**

b. Chemical testing will be completed in direct accordance with Table 5.4(e)10 from DER-10. This table is provided below :

Recommended Number of Soil Samples for Soil Imported To or Exported From a Site			
Contaminant	**VOCs**	**SVOCs, Inorganics & PCBs/Pesticides**	
Soil Quantity (cubic yards)	**Discrete Samples**	**Composite**	**Discrete Samples/Composite**
0-50	1	1	3-5 discrete samples from different locations in the fill being provided will comprise a composite sample for analysis
50-100	2	1	
100-200	3	1	
200-300	4	1	
300-400	4	2	
400-500	5	2	
500-800	6	2	
800-1000	7	2	
1000	Add an additional 2 VOC and 1 composite for each additional 1000 Cubic yards or consult with DER		

Taken from DER-10 - Table 5.4(e)10

In the event that laboratory analytical testing is conducted, the results for each new source of fill must meet the values provided in Appendix 5 of DER-10 (provided as Appendix C in this Work Plan) for Unrestricted Use and must receive approval by the NYSDEC.

7.6 Air Monitoring

Continuous air monitoring will be conducted at upwind and downwind locations during all ground intrusive activities as per DOH Generic CAMP (CAMP) included in **Appendix C**. A particulate monitor will be used at a downwind location on the perimeter of the Site. Another handheld detector was used in the excavation to ensure that the worker area was safe.

The action threshold for VOCs established in the CAMP is 5 ppm above background. If this value is exceeded for the 15-minute average work will be halted and work may resume once instantaneous readings fall below 5 ppm work. The action level for dust is 100 micrograms per cubic meter over background during a 15-minute average. If this limit is exceeded, dust suppression techniques will be employed, including using water to wet the area.

Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures

When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices should be considered to prevent exposures related to the work activities and to control dust and odors. Consideration should be given to implementing the planned activities when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring should occur within the occupied structure(s). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.

If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 mcg/m^3, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 mcg/m^3 or less at the monitoring point.

7.7 Erosion and Dust Controls

As part of the remedial actions to be performed at the Site, measures will be needed to limit erosion and dust generation. Erosion control and dust suppression techniques will be employed as necessary to limit erosion and fugitive dust generated in disturbed areas during remediation and redevelopment activities. Such techniques may be employed even if the community air monitoring results indicate that particulate levels are below action levels. Techniques may include but are not limited to:

- Using silt fencing, hay bales, and/or mulching
- Applying water on haul roads
- Wetting equipment and excavation surfaces
- Hauling materials in properly tarped or watertight containers
- Limiting vehicle speed on the Site
- Limiting the size of excavations
- Covering excavated areas and materials following excavation

Effectiveness of the dust suppression measures will be evaluated based on the results of the air monitoring that will be conducted under the Site-Specific Community Air Monitoring Plan provided in **Appendix C**.

7.8 Confirmatory Sampling

The RI will determine the depth of impacts from the overlying urban soil. The Interim Remedial Measure includes excavation to uncontaminated native material. Excavation depths will be determined from the RI results; additional confirmatory sampling will not be necessary. The NYSDEC will inspect and approve excavations prior to backfilling.

7.9 Asbestos and Lead-Based Paint

The IRMs will also include the mitigation of asbestos and lead-based paint within the building. The mitigation activities will follow all appropriate local, state, and federal guidance and laws pertaining to such materials, including NYSDOL Code Rule 56.

7.10 Discussion of Interim Remedial Measures

The IRM as described above will be effective in remediating the Site.

All contaminated urban fill will be properly excavated and disposed off-site, and the remaining native soil will be analyzed to ensure compliance with applicable SCOs.

Backfill materials will meet NYSDEC requirements for backfill at BCP sites. The asbestos containing materials and lead-base paint within the building will be mitigated. Although groundwater contamination from the adjacent property will remain, the City of Buffalo prohibits that use of groundwater. Additionally, the placement of an easement on the Site will ensure that future Site uses and activities will remain as restricted residential, commercial or industrial. The implementation of a site management plan will also provide guidance on the site handling of any contaminated material during future work, should such a situation arise.

8 REPORTING

Based on the results of the work described above, one report will be prepared to describe the methodologies and results of the RI and IRM. The report will also identify and evaluate additional remedial activities for the Site, if any. The RI and IRM portions of the Report will describe:

- Investigative methods;
- Observations and findings;
- Inspection/Monitoring observations of the remedial measures;
- Results of the community air monitoring program; and
- Analytical results.

The Alternatives Analysis Report (AAR) portion of the Report will include the following elements:

- An Alternatives Analysis
  - Description of remaining contamination, if any
  - Identification of potential, additional remedial measures
  - Evaluation of potential, additional remedial measures, including no action following the remediation
  - Identification of recommended additional remedy

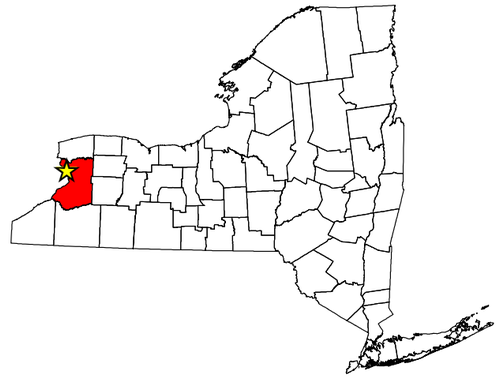
The documents will be submitted to the NYSDEC for review and approval.

9 SCHEDULE

It is assumed that NYSDEC will promptly review this RI/IRM Work Plan followed by a 30-day comment period. Below is an anticipated schedule of milestones for the remediation of the Site.

Anticipated Date	**Milestone**
December 2016:	Prepare/Execute of Brownfield Cleanup Agreement
February 2017:	Implement Remedial Investigation
March 2017:	Analysis and Evaluation of Remedial Investigation
April – May 2017:	Implement Interim Remedial Measures
June 2017:	Completion of Remediation
July 2017:	Submit Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
September 2017:	Submit Final Engineering Report and other Brownfield Cleanup Program Requirements as needed (e.g. Environmental Easement, Site Management Plan)
November 2017:	Receive Certificate of Completion

FIGURES



Legend

BCP BOUNDARY

0 200 400 800

Feet

Document Path: F:\Project\E67 - Ciminelli Development\E67.018.001 - Garrett Leather BCP Application\Planning-Study\Reports\RI-IRM Work Plan\GIS\Maps\FIGURE 1_SITE_LOCATION.mxd

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GARRETT LEATHER
REMEDIAL INVESTIGATION-INTERIM REMEDIAL MEASURES
WORK PLAN
BUFFALO, NEW YORK
APRIL 2016

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO:	E67.018.001
DATE:	APRIL 2016
DRAWN BY:	S. HERBERGER
DESIGNED BY:	S. HERBERGER
CHECKED BY:	

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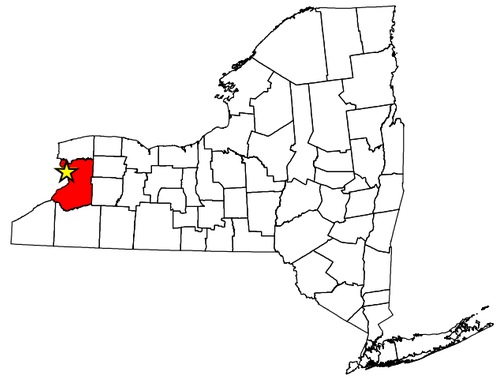
SITE LOCATION

FIGURE 1



Legend

BCP BOUNDARY

0 50 100 200

Feet

Document Path: F:\Project\E67 - Ciminelli Development\E67.018.001 - Garrett Leather BCP Application\Planning-Study\Reports\RI-IRM Work Plan\GIS\Maps\FIGURE 2_SITE_DETAIL.mxd

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REMEDIAL INVESTIGATION-
INTERIM REMEDIAL MEASURES
WORK PLAN
BUFFALO, NEW YORK
APRIL 2016

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO: E67.018.001
DATE: APRIL 2016
DRAWN BY: S. HERBERGER
DESIGNED BY: S. HERBERGER
CHECKED BY:

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SITE DETAIL

FIGURE 2

Legend

- BCP Boundary
- PROPERTY BOUNDARIES
- NOT SAMPLED
- SAMPLE EXCEEDED UNRESTRICTED USE CRITERIA FOR AT LEAST ONE COMPOUND
- SAMPLE EXCEEDED RESIDENTIAL USE CRITERIA FOR AT LEAST ONE COMPOUND
- SAMPLE EXCEEDED RESTRICTED RESIDENTIAL USE CRITERIA FOR AT LEAST ONE COMPOUND
- SAMPLE EXCEEDED COMMERCIAL USE CRITERIA FOR AT LEAST ONE COMPOUND
- SAMPLE EXCEEDED INDUSTRIAL USE CRITERIA FOR AT LEAST ONE COMPOUND

0 50 100 200 Feet

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1336, 1340 AND 1360 NIAGARA STREET REMEDIAL INVESTIGATON-INTERIM REMEDIAL MEASURES BUFFALO, NEW YORK

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO:	E67.018.001
DATE:	SEPT. 15, 2015
DRAWN BY:	C. MARTIN
DESIGNED BY:	C. MARTIN
CHECKED BY:	

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2015 SITE CHARACTERIZATION MAP

FIGURE 3

Legend

- BCP Boundary
- Proposed Transformer PCB Samples
- Proposed Fill Sampling
- Proposed Perimeter Sample Location
- Native Sampling at 15 feet or above top of bedrock
- Native Sampling

0 30 60 120 Feet

Document Path: F:\Project\E67 - Ciminelli Development\E67.018.002 - Garrett Leather BCP Project\Planning-Study\Reports\RI-IRM Work Plan\GIS\Maps\FIGURE 4_PROPOSED SAMPLES.mxd

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PROPOSED SOIL SAMPLE LOCATIONS

FIGURE 4

Legend

- GW Wells
- BCP Boundary

0 30 60 120 Feet

Document Path: F:\Project\E67 - Ciminelli Development\E67.018.002 - Garrett Leather BCP Project\Planning-Study\Reports\RI-IRM Work Plan\GIS\Maps\FIGURE 5_GW WELLS.mxd

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GROUNDWATER WELL LOCATIONS

FIGURE 5

TABLES

Table 1 – Proposed Remedial Investigation Sampling Program

Task	Location	Number of Samples	Lab Analysis
Urban Fill Samples	50-foot by 50-foot grid	15	TCL VOCs, SVOCs and pesticides, PCBs, TAL Metals, Cyanide, Hex Chromium
	Perimeter	16	TCL SVOC and TAL metals
	Site-wide	4	TCLP VOCs, SVOCs, pesticides, herbicides, and metals, PCBs, reactivity, corrosivity, ignitability
Native Soil Samples	Site-wide	27	TCL VOCs, SVOCs and pesticides, PCBs, TAL Metals, Cyanide, Hex Chromium
Native Soil Samples at 15 Feet or Top of Bedrock	Site-wide	8	TCL VOCs, SVOCs and pesticides, PCBs, TAL Metals, Cyanide, Hex Chromium
Groundwater Samples	Site-wide	8 (Two Events total)	TCL VOCs, SVOCs and pesticides, PCBs, TAL Metals, Cyanide, Hex Chromium