REMEDIAL INVESTIGATION WORK PLAN

BROWNFIELDS CLEANUP PROGRAM
For
MOD-PAC CORP. SITE
1801 Elmwood Avenue, Buffalo, New York 14207
BCP # C915314

Prepared For:
MOD-PAC CORP.
1801 Elmwood, Buffalo, New York 14203
HEI Project No: e1601

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August 18, 2017

HAZARD EVALUATIONS

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1.0 INTRODUCTION

1.1 Project Background

This Remedial Investigation (RI) presents the proposed scope of work (Work Plan) at MOD-PAC CORP (MOD-PAC) facility located in the City of Buffalo, New York (Site), as shown on Figure 1 and Figure 2. The Applicant, MOD-PAC CORP., has been accepted into the Brownfield Cleanup Program (BCP) as a Participant.

The RI will be completed by Hazard Evaluations, Inc. (HEI) on behalf of MOD-PAC CORP. The work will be completed in general accordance with New York State Department of Environmental Conservation (NYSDEC) DER-10 guidelines. The work plan provides details on the site investigation to be undertaken. The Site investigation will be focused on subsurface conditions beneath the existing building, as well as the southern portion of the Site proposed for future development as a sports field area.

1.2 Site Background

The MOD-PAC Site (Site) is addressed as 1801 Elmwood Avenue, located in the City of Buffalo, Erie County, New York. The Site most recently consisted of six contiguous parcels which have recently been combined into one parcel totaling approximately 20.03 acres of land. The Site is bounded to the south by railroad tracks and to the west by Elmwood Avenue. Commercial and residential properties are located immediately to the north. Industrial occupants and the recently constructed Nardin Academy Athletic Center is located to the east. The property is located within an urban area, utilized for industrial, commercial, and residential purposes.

The entire Site was originally developed in the early 1900s by American Radiator and utilized as such until the late 1950s. Since that time, the building has been utilized for various manufacturing purposes including warehousing, and box and product packaging. MOD-PAC has occupied a portion of the building since the 1950s and has been expanded since that time and currently occupies the entire facility. A railroad spur has historically traversed the Site, extending into the facility's courtyard. The southern portion of the Site was originally occupied by American Radiator until the 1950s, at which time the buildings were demolished. The southern area has remained vacant and unused since that time, currently identified as gravel parking and overgrown vegetation.

MOD-PAC manufactures cartons that are used to package a wide range of consumer products that includes the simplest to the most expensive: from foodstuffs such as dry food, cakes and biscuits, chocolate and confectionary, frozen food, and convenience food; to non-food products such as household products, medical, and pharmaceuticals. The packaging gets products safely and securely from the point of production to the point of sale and use. Without packaging, food and other goods would be lost due to handling damage, lack of hygiene and insufficient information on product use.

Consumer health and safety is a top priority for MOD-PAC. Its goal is to continually improve its operations; from raw material intake, through design for compliance and manufacturing, to storage and delivery. Adopting industry best practices and rigorous work practices and quality procedures helps MOD-PAC to prevent health hazards or unacceptable changes in the characteristics of a food product that may result from excessive migration of components from the packaging material.

The southern portion of the Site is currently underutilized, underdeveloped property located in the City of Buffalo. The land has been vacant and over grown for over 25 years. Development has not occurred due to the significant presence of historical industrial fill throughout the area. The planned project is to design an inner-city youth sports center that helps meet the growing demand for facilities as identified in the Recreational Needs Assessment Study[1] conducted by the Buffalo Urban Development Corporation in January 2015. To that end MOD-PAC has formed a working relationship with Nardin Academy (Nardin) and has begun to develop alliances with other schools and neighborhood programs to facilitate developmental and competitive programming in a variety of indoor and outdoor sports.

The proposed complex will include one-to two-soccer fields, tennis courts, and possibly a softball diamond. Phase I of the project opened in October of 2016. Nardin completed construction of one of the only indoor soccer facilities in the City of Buffalo on the eastern adjoining facility. A 30,000 square foot indoor soccer and squash facility opened this year. The facility is open to the community and will serve the youth of Western New York. The new Sports Complex on the southern portion of the Site will support and complement the recently completed indoor facility. The Brownfield redevelopment project will repurpose the industrial land into an asset for the community.

1.3 Summary of Environmental Conditions

Hazard Evaluations, Inc. completed a limited Phase II investigation for Nardin Academy in October 2015 in order to assess if environmental factors that may impact the ability to develop the southern portion of the property as additional sports fields. The work included completion of 16 soil borings, 18 test pits and collection of soil and groundwater samples. An additional investigation was completed in December 2016 to assess if historical industrial fill and impacts were present throughout the Site limits. Twenty-six (26) additional soil borings, two hand augers, as well as additional analysis of soil and groundwater samples was completed. Appendix A includes the sample location figures and tables summarizing analytical data for the October 2015 and December 2016 investigation. A final report was not created for the December 2016 work.

The contamination at the Site is primarily due to fill which varies from 2 to 16 feet below ground surface. SVOCs (PAHs) and metals were encountered in the soil samples collected from the southern, underutilized portion of the Site at concentrations exceeding restricted residential soil cleanup objectives (RRSCO). The soils located in the western, eastern and northern portion currently occupied by the MOD-PAC facility

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[1] Recreational Needs Assessment Study, South Buffalo Brownfield Opportunity Area" presented to: Buffalo Urban Development Corporation presented by Paradigm Economics, Wendel Companies, Spicer Group, dated January 2015.

contained SVOCs (PAHs) and metals in the soil samples at concentrations exceeding commercial soil cleanup objectives (CSCO).

Trichloroethylene (TCE) and its associated degradation products were found in the groundwater samples collected from to location in the central areas of the Site, slightly exceeding groundwater standards (GS) of typically 5 ppb, with a maximum concentration of TCE of 16 ppb; dichloroethylene (DCE) of 32 ppb and vinyl chloride (VC) of 42 ppb. Chlorinated solvents were not detected in estimated downgradient groundwater sample locations.

1.4 Site Conditions

Based on the soil borings and test pits completed, various fill materials were encountered at each location, generally extending to depth ranging from two feet below grade to up to 16 feet below grade, or the full depth drilled. The fill material appeared to be typical industrial fill, including foundry sand and/or sand intermixed with concrete, broken brick pieces, gravel, slag, flyash, and asphalt intermixed throughout. Miscellaneous debris was also found within the fill included metal strips, metal pieces, buried concrete slab, railroad siding, and apparent underground utilities raceways.

Naturally deposited cohesive silt and clay with lesser amounts of sand and gravel were generally encountered below the fill material. Groundwater was identified at a few locations and did not appear consistent throughout the Site. Depth to groundwater, where encountered, generally ranged from 2 to 9 feet below grade. Groundwater was not encountered within the silty clay.

The Site is generally flat, with the much of the industrial portion of the Site covered by buildings, asphalt driveway, and broken asphalt/gravel vacant parcel. The southern portion of the Site includes heavily wooded areas along with fill/debris piles throughout. Based on a review of the Site topographic conditions as depicted on the USGS 7.5 minute Topographic Quadrangle Map of Buffalo NE and Buffalo NW, New York, shallow regional groundwater is expected to flow in a southwesterly direction toward Scajaquada Creek located approximately 0.60 miles southwest and toward the Niagara River located approximately 1.50 miles west of the Site. The Site does not have state or federal wetlands within property limits, nor is the Site located within a flood plan. Figure 4, obtained from the Erie County GIS On-line Mapping System, depicts nearby wetlands and/or floodplains which include the floodplain along Scajaquada Creek, located approximately 0.60 miles south of the Site.

The Site is currently serviced by municipal utilities, including potable water, sanitary and storm sewers from the City of Buffalo, natural gas and electric. There are no known groundwater supply wells on-site and the surrounding area is serviced with potable water.

2.0 PROJECT OBJECTIVES

The Site has not been comprehensively characterized; therefore, MOD-PAC intends to further investigate the soil/fill and groundwater (if encountered) at the Site. Data collected during the RI will be used to identify potential health risks and to evaluate remedial alternatives. The objectives of the RI include the following:

- Define the nature and extent of on-site contamination in both soil and groundwater.
- Identify on-site source areas of contamination, if any.
- Collect data of sufficient quantity and quality to evaluate potential threats to the public health and environment.
- Collect data of sufficient quantity and quality to evaluate remedial alternatives.

2.1 <u>Regulatory Criteria</u>

NYSDEC has applicable standards, criteria and guidance (SCG) values that will be used for this project. These goals are applicable when considering remedial alternatives. For purposes of the RI the following SCG will be utilized:

- 6 NYCRR Part 375-3 Brownfield Cleanup Program dated December 14, 2006.
- NYSDEC Policy CP-51/Soil Cleanup Guidance dated October 21, 2010.
- NYSDEC "DER-10 Technical guidance for Investigation and Remediation", dated May 2010.
- NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) document "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations" dated June 1998, amended January 1999 Errata Sheet, April 2000 Addendum and June 2004 Addendum.
- State Department of Health (NYSDOH) "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" dated October 2006.

Soil and groundwater samples will be collected in general accordance with NYSDEC and United Sates Environmental Protection Agency (USEPA) sample collection and handling methodologies. Samples selected for laboratory analysis will be submitted to a NYSDOH Environmental Laboratory Accreditation Program (ELAP) Contract Laboratory Protocol (CLP) certified laboratory, with a Category B deliverables package. Additionally, a Data Usability Summary Report (DUSR) will be prepared by a third-party data validator.

Sampling data will be used to evaluate remedial alternatives to meet the objectives identified above. Two data confidence levels will be considered, including field screening data and analytical level data. Field screening will include photoionization detector (PID), groundwater elevation measurement, and field groundwater analyses (pH, temperature, specific conductivity, turbidity). Analytical level data will be associated with select soil and groundwater samples submitted for chemical analysis to an independent laboratory.

2.2 Project Organization

HEI/S&A will establish a project team for successful completion of the project. The project team has not been finalized and subcontractors will be determined. Once the team has been finalized, appropriate resumes and information will be provided to NYSDEC. The anticipated project team is listed below:

Company	Name	Role
MOD-PAC CORP.	Daniel Keane	Property Owner/Occupant
Hazard Evaluations	Michele Wittman	Project Manager
C&S Companies	Timothy Hughes, PE	Project Engineer
C&S Companies	Victor O'Brien, PE	Civil Design
Hazard Evaluations	Mark Hanna, CHMM	Project Director/Environmental Health & Safety Manager
Hazard Evaluations	Eric Betzold	Project Geologist/Site Safety Officer
Alpha Analytical	Candace Fox	Analytical Laboratory Subcontractor
Trec Environmental	Keith Hambley	Geoprobe/Drilling Subcontractor
Data Validation Services	Judy Harry	Data Usability Subcontractor

Michele Wittman – Michele will be the Project Manager for the work and will be responsible for completion of each task, including coordination and supervision of field activities, adherence to work plan, schedule and budget. Additionally, Ms. Wittman will be responsible for development of the work plan, coordination of subcontractors, field project oversight and report preparations.

3.0 INVESTIGATION SCOPE OF WORK

3.1 Introduction

The proposed RI scope of work will include investigation for potential site contaminants in the soil/fill and groundwater at the Site. The scope of work includes twenty-eight (28) exterior soil boring locations, fourteen (14) interior soil boring locations, twelve (12) test pits, installation of nine (9) monitoring wells, and four (4) sub-slab vapor and indoor air sample locations. Proposed sampling locations are included on Figure 5 and summary of proposed analytical testing is presented on Table 1.

3.1.1 Tree Removal

Significant tree growth is present in the southern portion of the Site. The tree area may limit the ability to complete appropriate investigation activities. Therefore, the trees and underbrush will be removed prior to start of the Site investigation work. The trees are expected to be chipped and disposed off-site.

3.2 Field Investigation Activities

Prior to intrusive activities, HEI and appropriate subcontractors will contact Dig Safely New York a minimum of three business days prior to the commencement of the field work. Investigative procedures are described below:

3.2.1 Surface Soil Investigation

Surface soil samples will not be collected at areas of the Site currently covered with a building. Additionally, the proposed development in the southern portion of the Site is expected to be various sports field, asphalt parking areas and roadways. Therefore, no areas of currently exposed surface soil area are anticipated to remain in place after remedial work and Site development. As a result, surface soil samples will not be collected.

3.2.2 Subsurface Soil Investigation

Subsurface soil sampling will be focused on the soil constituents located within the fill material. Twenty-five (25) exterior soil borings and fourteen (14) interior borings will be completed. Nine (9) of the exterior soil borings will be converted to groundwater wells. Proposed soil boring locations are shown on Figure 5.

Interior soil borings will be cored through the concrete floor and will be completed with a drill rig equipped with a concrete core barrel. A drill rig capable of advancing a borehole using direct push method via a Geoprobe drill rig will be used to advance the twenty (20) interior locations, as well as nineteen (19) of the exterior soil boring locations that will not be converted to monitoring wells. The drill rig will advance the 1.5-inch diameter, 4-foot long core sample liner to the desired depth and retrieve soil core samples at four foot intervals. The total depth of interior and exterior borings is anticipated to be approximately 12 to 16 feet below grade, bottom of fill material, or spoon refusal, whichever is encountered first.

The nine (9) soil borings which will be converted to monitoring well locations will be advanced using a direct-push drill rig capable of advancing hollow-stem augers for installing 2-inch monitoring wells which are expected to be completed to greater depths of up to 16 to 20 feet below grade. Additionally, two exterior locations will also be completed using a direct-push drill rig to a depth of 20 to 24 feet below grade to assess if the native clay extends to greater depths.

Discrete subsurface soil samples will be field screened in approximate two-foot depth intervals for VOCs with a calibrated organic vapor meter equipped with a photoionization detector (PID). Organic vapor meter results and soil descriptions will be recorded on the field soil boring logs.

Soil samples will be selected for analysis based in field screening results, visual and olfactory observations. During initial investigations, various fill materials were encountered at each location, generally extending to a depth ranging from two to 16 feet below grade, or the full depth drilled. Naturally deposited cohesive silt and clay was generally encountered below the fill materials. HEI will collect representative samples from each of the identified fill types, as well as the underlying native clay soils, for appropriate laboratory analysis.

The sample interval identified as the most impacted (i.e., highest PID reading, visual/olfactory evidence of odors, staining, or product) will be selected for analysis. Should fill material be encountered, a discrete sample will be collected from each type of fill soil. In the event that no impacts were identified, the native soils directly below the fill/native interface will be selected for analysis. Additionally, attempts will be made to collected soil samples at vertical variations within the native soil.

Subsurface soil samples will be selected for analysis for the following as shown on Table 1 and briefly summarized below:

- 30 samples for Target Compound List (TCL) VOCs
- 40 samples for TCL semi-volatile organic compounds (SVOCs)
- 40 samples for Target Analyte List (TAL) metals
- 12 samples for polychlorinated bi-phenyls (PCBs)
- 4 samples for pesticides and herbicides

Actual sample locations will be selected in the field based on utility locations, field observations, screening results, and engineering judgment. Subsurface soil samples will be collected using dedicated stainless steel sampling tools. Select representative soil samples will be place in pre-cleaned laboratory-provided sample bottles, labeled and cooled to 4ºC in the field, and transported under chain-of-custody to a NYSDOH ELAP certified analytical laboratory.

3.2.3 Monitoring Well Installation

Nine (9) soil boring locations will be converted to monitoring wells using a direct-push drill rig capable of advancing hollow-stem augers to allow for installation of 2-inch diameter wells. The wells will be utilized for measurement of groundwater depth and collection of groundwater samples. The nine proposed locations are included on Figure 5.

After completion of the soil borings to depths expected to range from 16 to 20 feet below grade, a 2-inch diameter, schedule 40 PVC monitoring well will be installed at each location. An approximate 10 foot length of 0.010-inch machine slotted well screen will be installed at each location attached to the riser. The well screen depth will be backfilled with silica sand filter pack (estimated at size #0) from the base to approximately 2 feet above the well screen. A bentonite seal will be placed above the sand and hydrated to limit potential for down-hole contamination. The top of the well riser will be flush with the ground surface and completed with a locking J-plug. The well will be finished with a flush-mounted road box.

Groundwater samples will be collected from each of the monitoring wells using low flow sampling techniques. The total depth of the wells is expected to range from 16 to 20 feet below grade.

3.2.4 Monitoring Well Development

After a minimum of 24-hours from installation, the monitoring wells will be developed using dedicated disposable polyethylene bailers via purge methodology. Field parameters, including pH, temperature, turbidity, and specific conductance will be measured periodically until they become relatively stable (approximately 10% fluctuation or less). A minimum of three well volumes will be removed from each monitoring well, unless dry well conditions are encountered. Development water will be containerized in 55-gallon drums and sampled for future off-site disposal.

3.2.5 Groundwater Sampling

Prior to sample collection, static groundwater levels will be measured at each of the monitoring wells. The wells will be purged and field measurements of pH, specific conductivity, temperature and turbidity will be recorded and monitored for stabilization prior to sampling. Groundwater samples will be collected using low flow sampling techniques. If insufficient groundwater, new dedicated disposable bailers may be used to collect the groundwater samples. Purge water will be containerized in 55-gallon drums and sampled for future off-site disposal.

The nine (9) groundwater samples will be analyzed for the following parameters as summarized on Table 1:

- Target Compound List (TCL) VOCs
- TCL semi-volatile organic compounds (SVOCs)
- Target Analyte List (TAL) metals (dissolved phase only)
- Polychlorinated bi-phenyls (PCBs)
- Pesticides (4 locations only)
- Herbicides (4 locations only)

Groundwater samples will be placed in pre-cleaned laboratory-provided sample bottles, labeled and preserved in accordance with USEPA SW-846 methodology, and transported under chain-of-custody to a NYSDOH ELAP certified analytical laboratory.

3.2.6 Test Pit Excavations

Test pit excavations will be completed in the southern portion of the Site, where historical industrial fill was identified during initial investigations. Twelve (12) test pits will be completed to further investigate former underground structures (suspect utilities raceways), as well as the evaluation of fill material. The proposed locations are included on Figure 5. Test pits will be completed with a tracked excavator capable of reaching a minimum of 15 feet below grade. The depth of the test pit will extend into the native clay, bottom of fill material, equipment refusal or groundwater, whichever is encountered first.

Soil samples will be selected for analytical analysis based in field screening results, visual and olfactory observations. HEI will collect representative samples from each of the identified fill types, as well as the underlying native clay soils, for appropriate laboratory analysis.

The sample interval identified as the most impacted (i.e., highest PID reading, visual/olfactory evidence of odors, staining, or product) will be selected for analysis. Should fill material be encountered, a discrete sample will be collected from each type of fill soil. In the event that no impacts were identified, the native soils directly below the fill/native interface will be selected for analysis. Additionally, attempt will be made to collected soil samples at vertical variations within the native soil.

Subsurface soil samples will be selected for analysis for the following as shown on Table 1 and briefly summarized below:

- 8 samples for Target Compound List (TCL) VOCs
- 15 samples for TCL semi-volatile organic compounds (SVOCs)
- 15 samples for Target Analyte List (TAL) metals
- 4 samples for polychlorinated bi-phenyls (PCBs)

Actual sample locations will be selected in the field based on utility locations, field observations, screening results, and engineering judgment. Subsurface soil samples will be collected using dedicated stainless steel sampling tools. Select representative soil samples will be place in pre-cleaned laboratory-provided sample bottles, labeled and cooled to 4^{o}C in the field, and transported under chain-of-custody to a NYSDOH ELAP certified analytical laboratory.

3.2.7 Field Specific Quality Assurance/Quality Control Sampling

Field-specific quality assurance/quality control samples will be collected and analyzed, as summarized on Table 1 to support third-party data usability assessment effort. Site-specific QA/QC samples will include blind duplicate, matrix spike/matrix spike duplicate, rinsate blank, and trip blank.

3.3 Investigation- Derived Waste Management

During the completion of soil borings, removed materials will be placed into the borehole. The excess soil cuttings that cannot be replaced into the borehole will be containerized in 55-gallon drums. Based on analytical testing results, the excess soil may be utilized on-site, or disposed off-site. Development/purge water generated during well development and/or sampling activities will be containerized in 55-gallon drums for testing and future off-site disposal.

3.4 Soil Vapor Intrusion Investigation

Due to the presence of TCE at limited soil and groundwater sampling locations, a soil vapor intrusion (SVI) investigation will be completed to assess the potential for soil vapor intrusion concerns within the Site facility. The SVI will be focused on the current Site facility. The SVI work will be in done in general accordance with NYSDOH Final document entitled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York", dated October 2006.

3.4.1 Building Survey

An inspection of the existing on-site facility and product inventory will be conducted to assess the current conditions in proposed sampling areas and determine the likelihood of existing chemicals of concern that may be present that would influence the vapor test results. A PID will be used to monitor indoor air and scan vapors of individual containers that may be present. Any potential sources identified inside the facility will be removed prior to conducting the vapor test.

3.4.2 Site Preparation

In accordance with NYSDOH recommendations, the HVAC system should be activated.

3.4.3 Vapor Sampling

Three types of air samples will be collected, including sub-slab, ambient indoor air and ambient outdoor air samples, as follows:

Sub-Slab: HEI will install four (4) temporary sub-slab sampling points at locations as shown on Figure 5. Samples will be obtained through core-drilled holes into a competent portion of the concrete floor, away from cracks or drains. Clean, dedicated ¼-inch inside diameter polyethylene tubing will be placed into the hole and will not extend further than 2-inches into the sub-slab material. The corehole annulus will be sealed at the floor surface with modeling clay. Once it is determined that the sampling system is sealed, the sample probe and tube will be purged of one to three volumes, and sampling will be initiated.

The sub-slab soil gas sample will be collected using a 1-liter capacity Summa canister fitted with a laboratory calibrated flow regulation devise to allow the collection of the soil gas sample over an 8-hour sample collection time.

Ambient Indoor Air: An ambient indoor air sample will be collected concurrent with every sub-slab sample locations from approximately 3 to 4 feet above the slab floor. A total of 6 samples will be obtained. Samples will be collected over an 8-hour collection period.

Ambient Outdoor Air: One ambient outdoor sample will be collected at an upwind location from approximately 4 to 5 feet above the ground surface. A sample will be collected over an 8-hour collection period.

All sampling and purging flow rates will not exceed 0.2 liters per minute. Since the ambient outdoor air sample is dependent on wind flow direction, that sample location will be determined the day of the test.

3.4.4 Soil Vapor Sampling Leak Testing Procedures

Leak testing will be completed prior to collection of the sub-slab sample locations using a tracer gas. The tracer gas (i.e., helium) will be released at the ground surface immediately around the sub-slab sampling location prior to sample collection. The following procedure will be used:

- A helium meter will be used to monitor the presence of helium during purging and soil gas sample collection.
- A containment unit will be constructed to cover the sub-slab sampling system. In general, the containment will include a shroud set into bentonite to create a seal. The shroud will have a hole to allow for introduction of helium and a second to allow trapped air to escape.
- Prior to soil gas purging, helium will be introduced into the shroud and helium confirmed to be present.
- The helium meter will be connected in-line with the sub-slab sampling assembly to assess for presence of helium. Should the helium meter detect the presence of helium greater than 10 percent of the source concentration (measured under the shroud), then the sample location will not be utilized or sub-slab collection.

3.5 <u>Site Mapping</u>

A topographic base map will be prepared by a New York State-licensed surveyor. The surveyor will establish the horizontal location and vertical elevations. The map will include the RI investigation/sampling locations. Soil/fill boring locations will be field located and incorporated within the survey. Elevations of the ground surface and top of PVC riser will be measured for each monitoring well.

3.6 <u>Personnel Decontamination</u>

The degree of decontamination is a function of both the particular task and the physical environment in which it takes place. Decontamination procedures will remain flexible, thereby allowing the decontamination crew to respond appropriately to changing conditions at the Site. On-site sampling activities will be carried out in such a manner as to avoid gross contamination of site workers, personal protective equipment, machinery and equipment.

Between sampling locations (or sometimes between samples at one sampling location), and upon the completion of the daily field activities, site workers will proceed to the Contaminated Reduction Zone (CRZ) or mobile reduction zone area. Equipment (e.g., sampling tubes, shovels, tools, etc.) will be decontaminated in this area. Prior to leaving the Site for breaks, at the end of the work shift, or when PPE has been grossly contaminated, disposable boot covers, gloves, and suits will be removed and placed in a drum designated for the disposal of these materials. After removing PPE, each Site worker will wash with soap and fresh water prior to donning new PPE or leaving the Site for the day. All wash water and rinse water will be collected and disposed of in accordance with appropriate regulations.

3.9 Decontamination of Equipment

Equipment decontamination efforts will be conducted in the CRZ or mobile reduction zone areas. Gross contamination will first be removed with plastic scrapers or other appropriate tools. The equipment will be decontaminated at a temporary equipment decontamination pad in the CRZ via hand washing or pressure washing. Downhole tools and augers can be hand washed or pressure washed.

The decontamination of the direct push drilling rig, excavator, or other heavy equipment will be undertaken as necessary. Initially, scraping of the equipment will remove heavily caked materials prior to washing. Washing will then be accomplished by pressure washing. Water generated during decontamination activities will be collected, stored and profiled for future off-site disposal.

3.10 Disposal of Contaminated Materials

Potentially contaminated materials (gloves, clothing, sample sleeves etc.) will be bagged and segregated for proper disposal. Investigation derived waste will be managed in accordance with NYSDEC guidance regulations. All fluids collected during groundwater sampling and decontamination will be containerized and managed appropriately subsequent to field activities and decontamination procedures.

3.11 Stormwater Management

Remedial activities may result in surface water flow off-site and into adjacent properties. Silt fencing will be the primary sediment control measure, if deemed necessary. Prior to extensive soil excavation or grading activities, silt fencing will be installed around the perimeter of the construction area. The positioning of the silt fencing will be adjusted as necessary as work proceeds or Site conditions change. Silt fences will be maintained as deemed necessary and will remain in place until construction activities in an area are completed.

4.0 REMEDIAL INVESTIGATION/INTERIM REMEDIAL MEASURES/ ALTERNATAIVES ANALYSIS REPORT

Upon completion of the RI tasks, a RI report will be generated in general requirements as identified in DER-10 Section 3.14. The report will include the following information.

- Background and Site information.
- Description of investigation areas.
- Identify and characterize the sources of contamination.
- Comparison with cleanup levels during the alternatives analysis report (AAR).

- Describe the amount, concentration, environmental fate and transport (if necessary), location and other significant characteristics of the contaminants present.
- Define hydraulic factors, as needed.
- Provide a qualitative human exposure assessment.
- Identify actual or potential adverse impacts to fish and wildlife resources

An independent data validation expert will complete a third-party data view of the analytical data generated during the RI work. A Data Usability Summary Report (DUSR) will be prepared, with appropriate data qualifiers added to the results.

The RI report will also include an alternatives analysis report to evaluate a remedial approach. The AAR will evaluate the need for further remedial activities.

Remedial action objectives will be evaluated and developed to assure the selected remedy is protective of human health and the environment under the proposed future Site usage. Proposed soil cleanup objectives will be based on proposed future usage. Should further remedial requirements be identified, a list of potentially applicable remedial technologies will be developed and evaluated. Criteria to be evaluated for the remedy and protectiveness to public health and the environment include:

- Overall protection of the public health and the environment
- Standards, criteria and guidance (SCG)
- Long-term effectiveness and permanence
- Reduction of toxicity, mobility or volume of contamination through treatment
- Short-term impact and effectiveness
- Implementability
- Cost effectiveness
- Land use

The results of the AAR will identify a remedial alternative to be recommended for the Site, which will include a discussion on the reasons for the selection. Community acceptance and comments will be evaluated within the alternative selection.

5.0 ADDITIONAL PROJECT DOCUMENTS

Various supporting documents have been prepared associated with the RI work plan and included in the appendix as listed below.

5.1 Quality Assurance Project Plan

The Quality Assurance Project Plan (QAPP) was generated in general accordance with Section 2.4 in DER-10. The QAPP describes the quality assurance/quality control (QA/QC) protocols and guidance associated with the RI Work Plan to ensure the suitability and verifiable data result from the sampling and analysis.

The QAPP also provides procedures to be used during sampling of various media, field activities, and analytical laboratory testing. The QAPP is included in Appendix B.

5.2 Health and Safety Plan

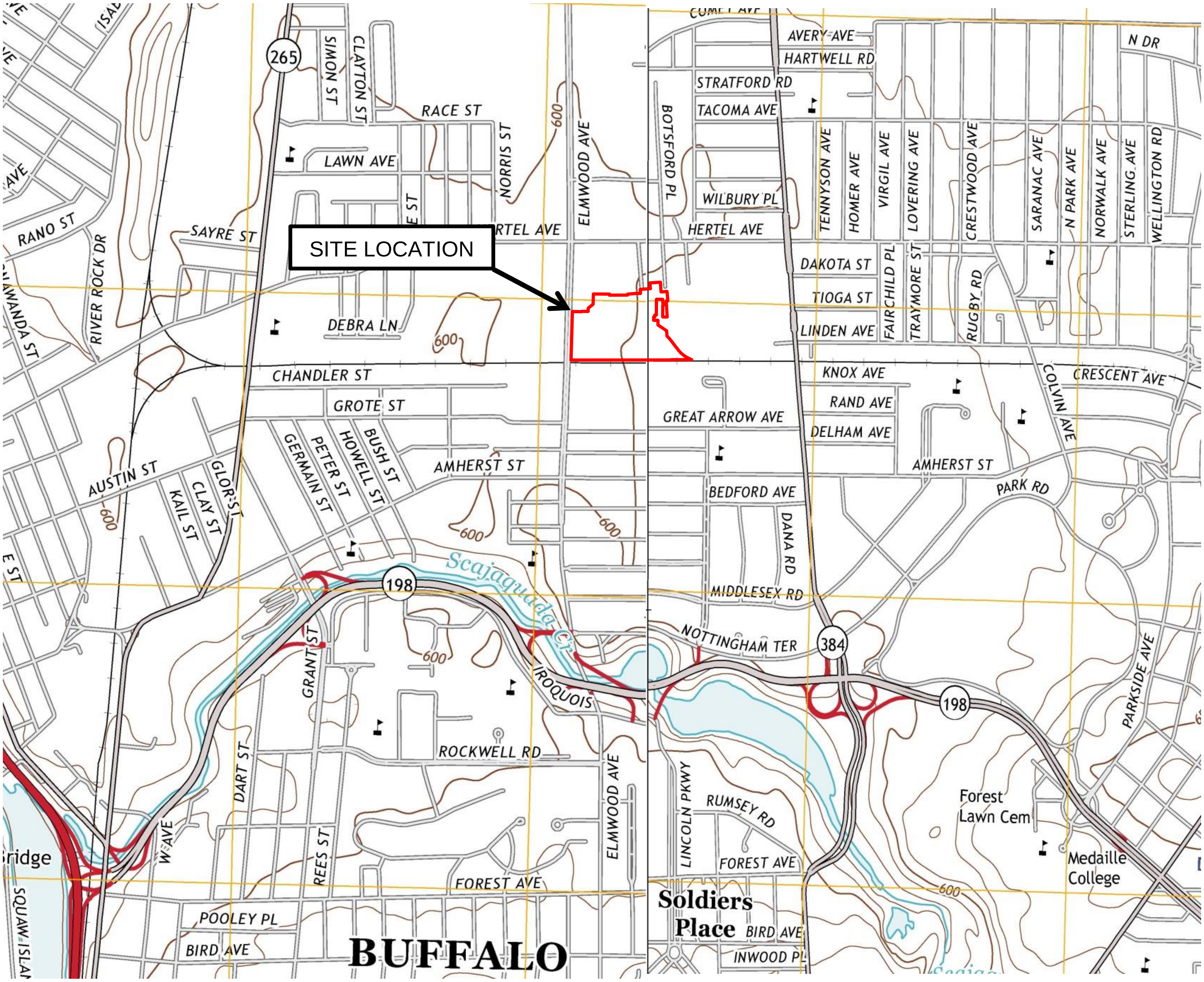
A Site-specific Health and Safety Plan (HASP) has been prepared for this project and included in Appendix C. The HASP will be enforced by HEI, and will apply to all Site visitors and subcontractors associated with the RI field activities. The HASP covers the on-Site investigation and interim remedial work. Subcontractors will be required to develop and implement their health and safety plan which reflects the requirements of this document.

The HASP will include a Community Air Monitoring Plan (CAMP) to describe particulate and volatile organic vapor monitoring to protect nearby community during the investigative activities.

6.0 PROJECT SCHEDULE

Figure 6 presents the tentative schedule for planned activities. A certificate of completion (COC) is anticipated by December 2018.

FIGURES



THIS DRAWING IS FOR ILLUSTRATIVE AND INFORMATIONAL PURPOSES ONLY AND WAS ADAPTED FROM USGS, BUFFALO NE & NW, NEW YORK 2013 QUADRANGLE.

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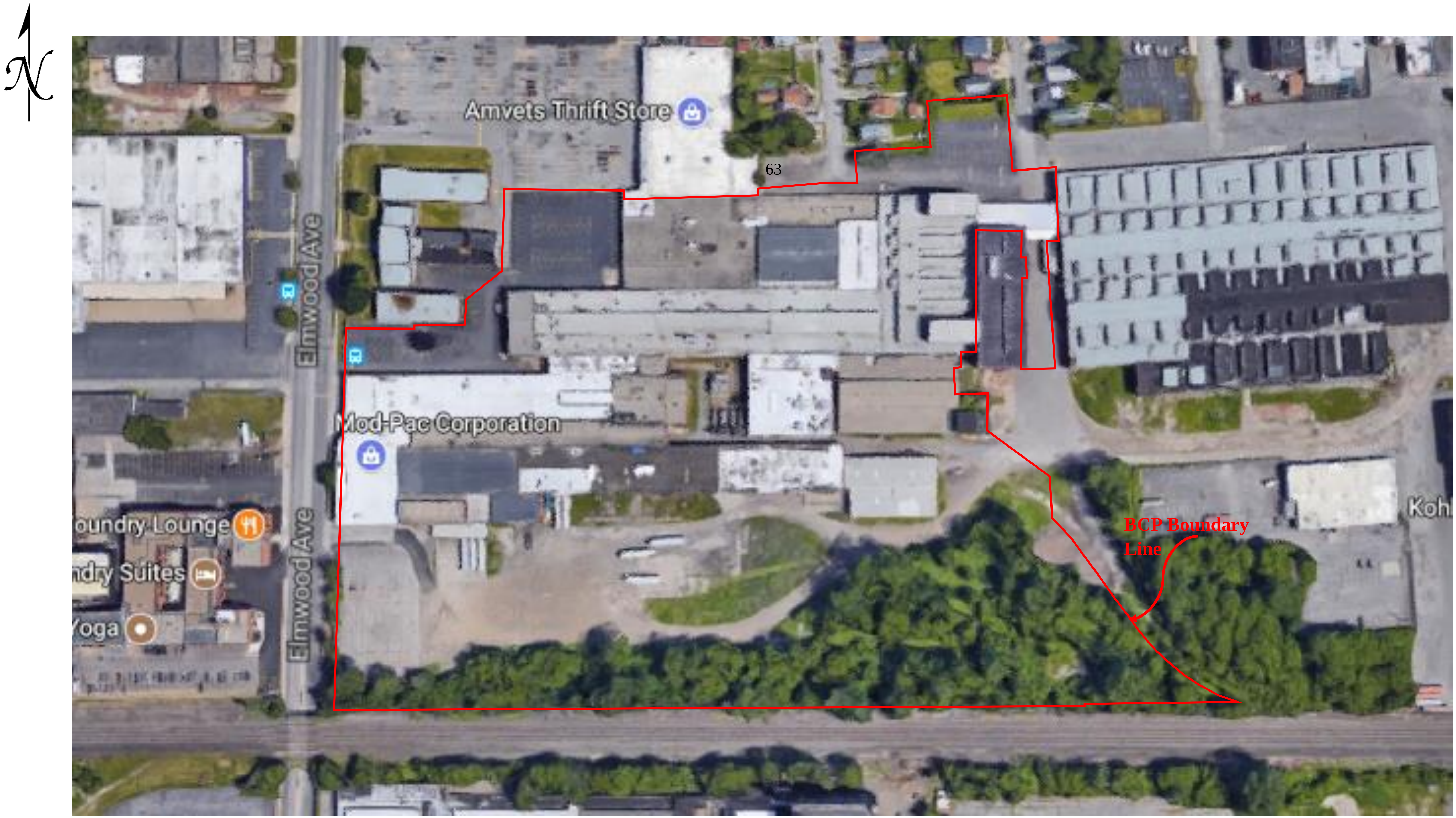
HAZARD EVALUATIONS, INC.

Phase I/II Audits – Site Investigations – Facility Inspections

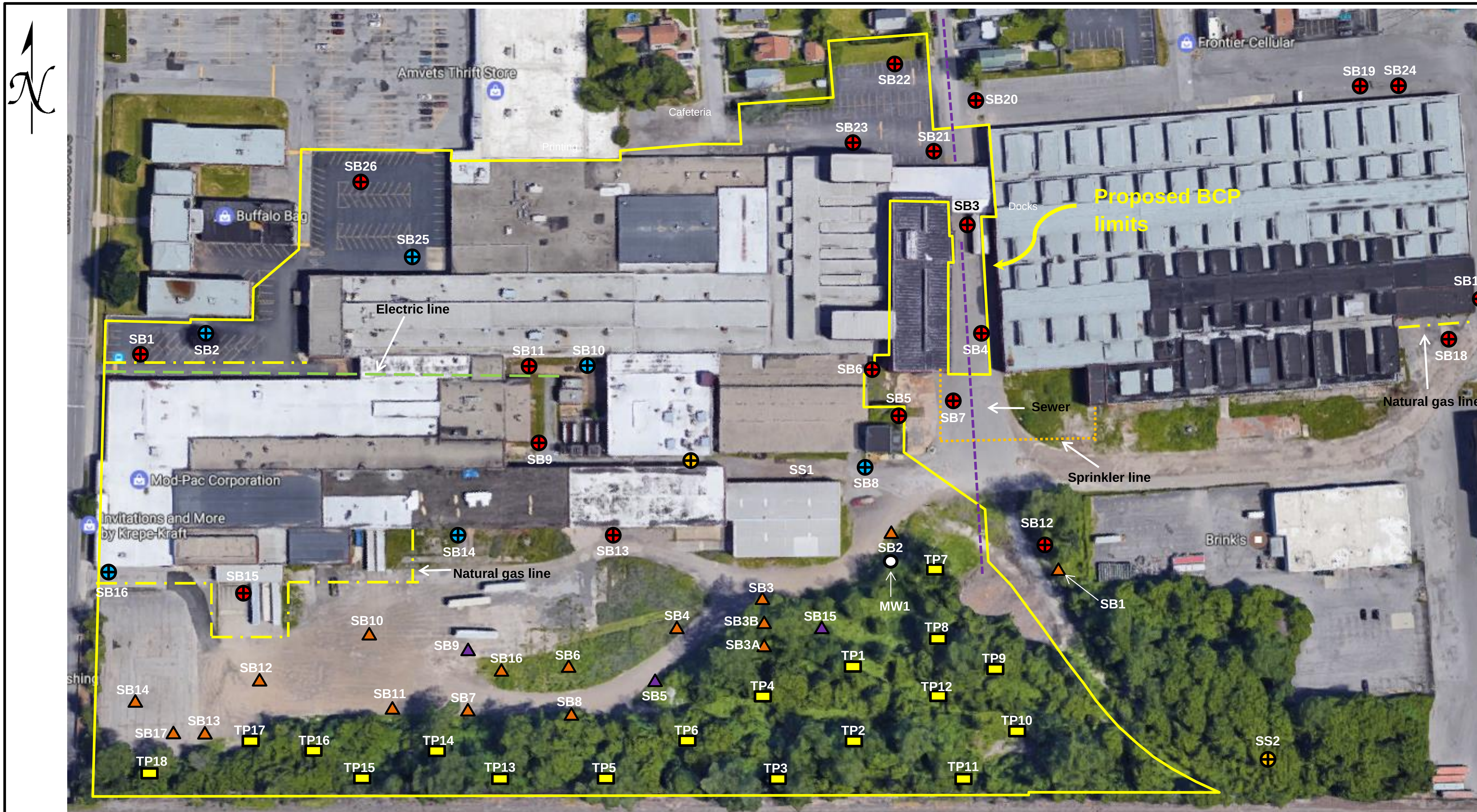
SITE LOCATION

MOD-PAC CORP.
1801 ELMWOOD AVE.
BUFFALO, NEW YORK

DRAWN BY: LSH	SCALE: NOT TO SCALE	PROJECT: e1605
CHECKED BY: EB	DATE: 07/2017	FIGURE NO: 1



HAZARD EVALUATIONS, INC.		
Phase I/II Audits – Site Investigations – Facility Inspections		
Site Limits 1801 ELMWOOD BUFFALO, NEW YORK		
MOD-PAC CORP BUFFALO, NEW YORK		
DRAWN BY: MMW	SCALE: not to scale	PROJECT: e1605
CHECKED BY:	DATE: 07/17	FIGURE NO: 2



KEY

- Soil Boring Locations (12/21-12/23/16)
- Soil Boring & Piezometer Locations (12/21-12/23/16)
- Surface Soil Locations (12/21-12/23/16)
- Soil Boring & Micro Well Locations (10/15-10/16/15)
- Soil Boring Locations (10/15-10/16/15)
- Test Pit Locations (10/15-10/16/15)
- MW1 – Existing Monitoring Well

HAZARD EVALUATIONS, INC.
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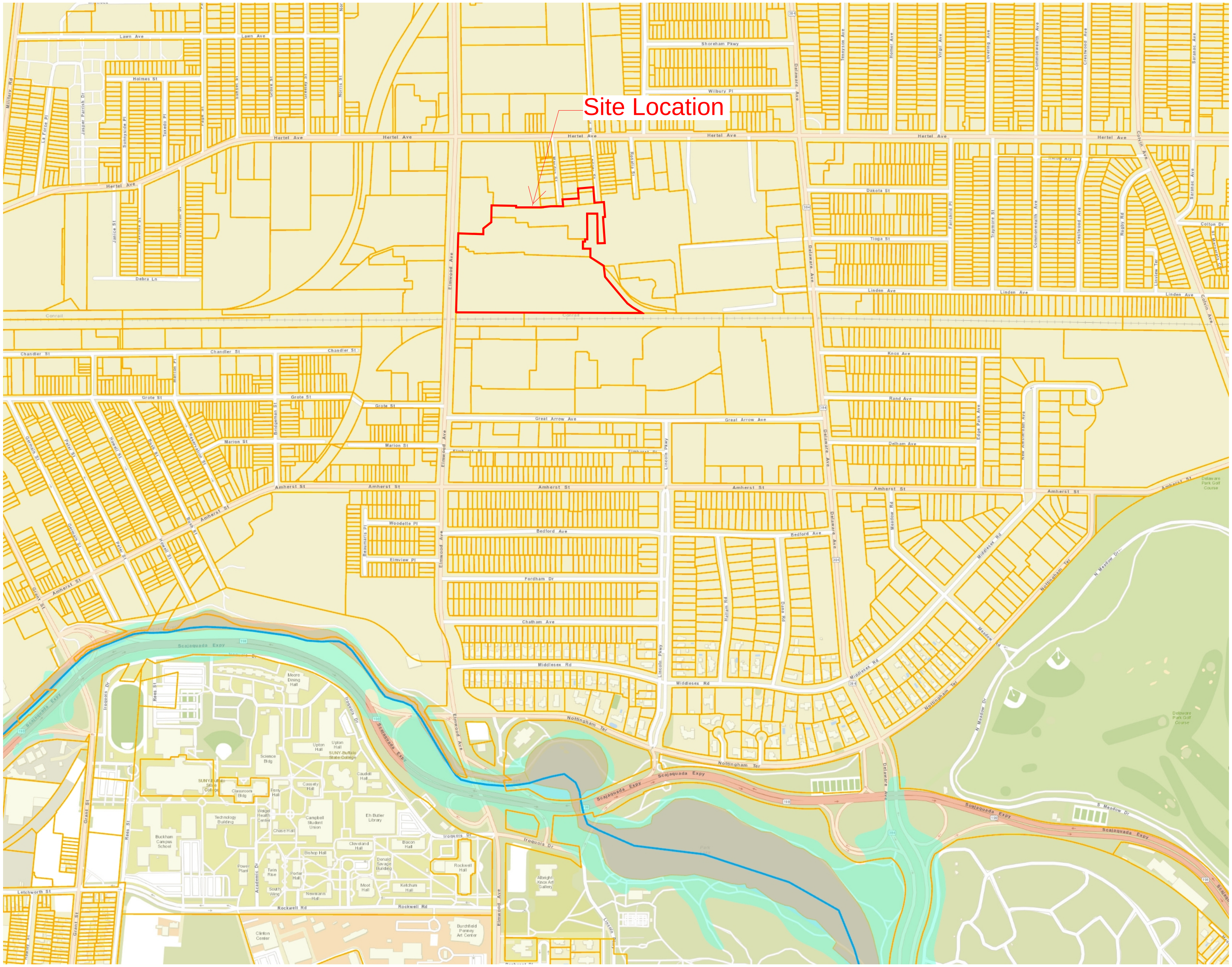
Previous Sampling Locations
MOD-PAC CORP.
1801 ELMWOOD AVENUE
BUFFALO, NEW YORK

DRAWN BY: LSH	SCALE: NOT TO SCALE	PROJECT: e1605
CHECKED BY: MMW	DATE: 07/17	FIGURE NO: 3

Erie County On-Line Mapping Application



Legend

- Parcels
- Streams
- Lakes / Ponds
- DEC Wetlands
- National Wetlands Inventory
  - Wetlands
  - No Digital Data
- FEMA Floodplains
- Municipal Boundaries

Figure 4
Nearby Wetland and Floodplain Locations

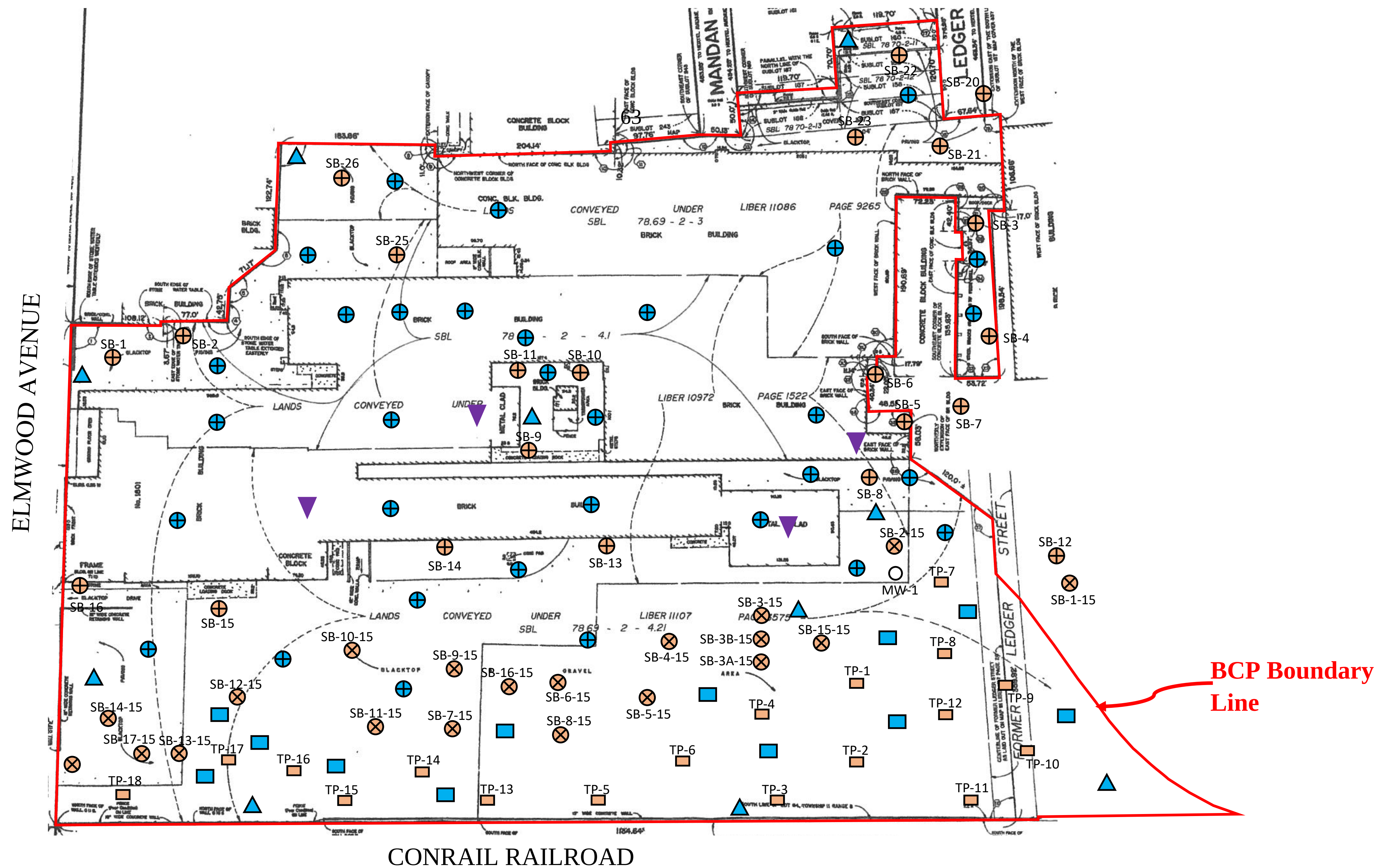
0 1,504.66 3,009.3 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere
THIS MAP IS NOT TO BE USED FOR NAVIGATION

ERIE COUNTY
DEPARTMENT OF ENVIRONMENT & PLANNING
OFFICE OF GIS

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

1: 18,056



KEY

- = Soil Boring Locations (12/2016)
- = Soil Boring Locations (10/2015)
- = Test Pit Locations (10/2015)
- = Proposed Soil Boring Location
- = Proposed Monitoring Well Location
- = Proposed Test Pit Location
- = Proposed Vapor Intrusion Sampling Location

HAZARD EVALUATIONS, INC.

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Proposed Exterior Investigation Locations

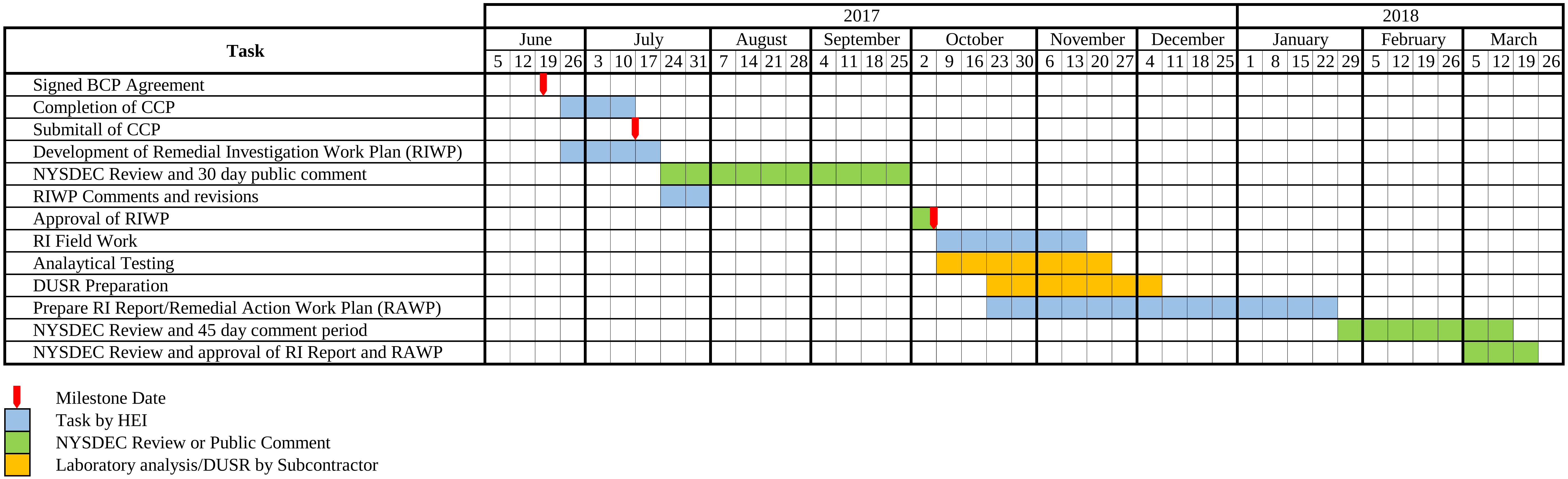
1801 ELMWOOD
BUFFALO, NEW YORK

MOD-PAC CORP

BUFFALO, NEW YORK

DRAWN BY: MMW	SCALE: 1" = 150'	PROJECT: e1605
CHECKED BY:	DATE: 07/17	FIGURE NO: 5

Figure 6
BCP Project Schedule
MOD-PAC Corp.
1801 Elmwood Ave, Buffalo, NY



TABLES

TABLE 1
Analytical Testing Program Summary
MOD-PAC CORP.
1801 Elmwood, Buffalo, NY
NYSDEC Brownfield Cleanup Program

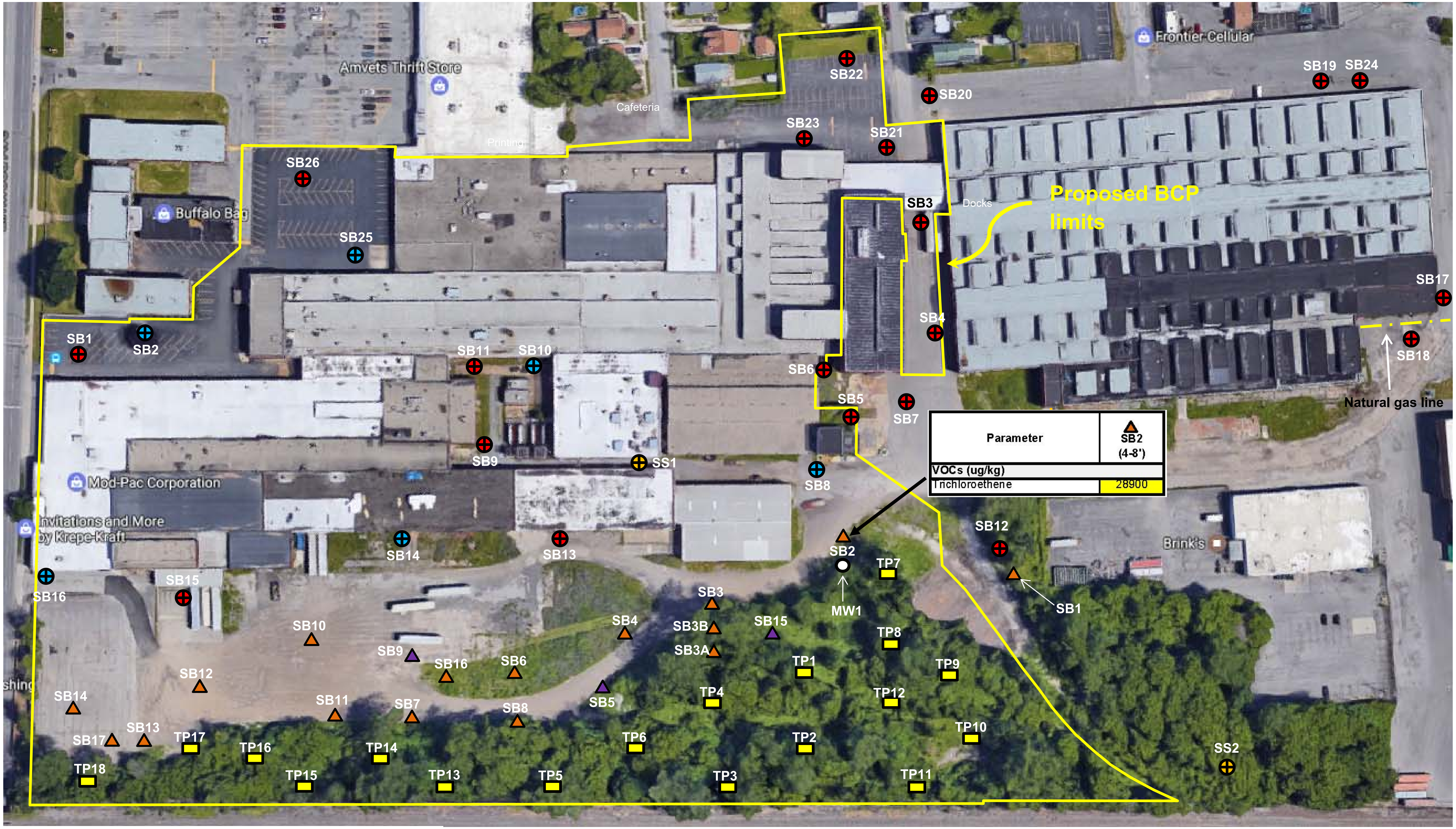
Location	Number of Proposed Locations	Matrix	TCL VOCS	TCL SVOCs	TAL METALS Total	TAL METALS dissolved	PCBs	Pest/ Herbs	VOC - TO-15
Surface Soil Samples									
Soil Boring	0	Soil	-	-	-	-	-	-	-
Duplicate		Soil	-	-	-	-	-	-	-
MS/MSD		Soil	-	-	-	-	-	-	-
Rinsate		Water	-	-	-	-	-	-	-
Total			**0**	**0**	**0**	**0**	**0**	**0**	**0**
Soil Borings - Subsurface Samples									
Soil Boring	40	Soil	20	30	30	-	10	4	-
Duplicate		Soil	1	2	2	-	1	1	-
MS/MSD		Soil	2	4	4	-	2	2	-
Rinsate		Water	1	2	2	-	1	1	-
Total			**24**	**38**	**38**	**0**	**14**	**8**	**0**
Test Pit Locations - Subsurface Samples									
Soil Boring	15	Soil	8	15	15	-	4	0	-
Duplicate		Soil	1	1	1	-	0	0	-
MS/MSD		Soil	2	2	2	-	0	0	-
Rinsate		Water	1	1	1	-	0	0	-
Total			**12**	**19**	**19**	**0**	**4**	**0**	**0**
Monitoring Wells									
Monitoring Well	9	Groundwater	9	9	9	9	4	4	-
Duplicate		Groundwater	1	1	1	1	1	1	-
MS/MSD		Groundwater	2	2	2	2	2	2	-
Rinsate		Water	1	1	1	1	1	1	-
Trip Blank		Water	1	-	-	-	-	-	-
Total			**14**	**13**	**13**	**13**	**8**	**8**	**0**
Sub-slab/Ambient Air samples									
Sub-slab	4	Air	-	-	-	-	-	-	4
Ambient Air	4	Air	-	-	-	-	-	-	4
Outdoor		Air	-	-	-	-	-	-	1
Duplicate		Air	-	-	-	-	-	-	1
MS/MSD		Air	-	-	-	-	-	-	2
Rinsate		Air	-	-	-	-	-	-	-
Trip Blank		Air	-	-	-	-	-	-	1
Total			**0**	**0**	**0**	**0**	**0**	**0**	**13**
			VOCs	SVOCs	METALS	METALS	PCBs	Pest/ Herbs	VOC - TO-15
		TOTAL SAMPLES	**50**	**70**	**70**	**13**	**26**	**16**	**13**

Notes:

TCL VOCs - Target Compound List Volatile Organic Compounds.
TCL SVOCs - Target Compound List Semi-volatile Organic Compounds.
TAL Metals - Target Analyte List Metals.
TCL PCBs - Target Compound List Polychlorinated Biphenyls.
VOC TO-15 - sub-slab, ambient air and soil vapor probe analysis

APPENDIX A

SEPTEMBER 2016 INVESTIGATION INFORMATION



Parameter	SB2 (4-8')
VOCs (ug/kg)	
Trichloroethene	28900

Notes:

1 – Detected concentrations for VOCs, SVOCs and PCB in ppb; metals in ppm

2 - Proposed Cleanup Standards = Restricted Residential in Southern Portion and Commercial in Central/Northern Portion

= exceeds Restricted Residential SCO

= exceeds Commercial SCO

= exceeds Industrial SCO

KEY

- Soil Boring Locations (12/21-12/23/16)
- Soil Boring & Piezometer Locations (12/21-12/23/16)
- Surface Soil Locations (12/21-12/23/16)
- Soil Boring & Micro Well Locations (10/15-10/16/15)
- Soil Boring Locations (10/15-10/16/15)
- Test Pit Locations (10/15-10/16/15)
- MW1 – Existing Monitoring Well

HAZARD EVALUATIONS, INC.

Phase I/II Audits – Site Investigations – Facility Inspections

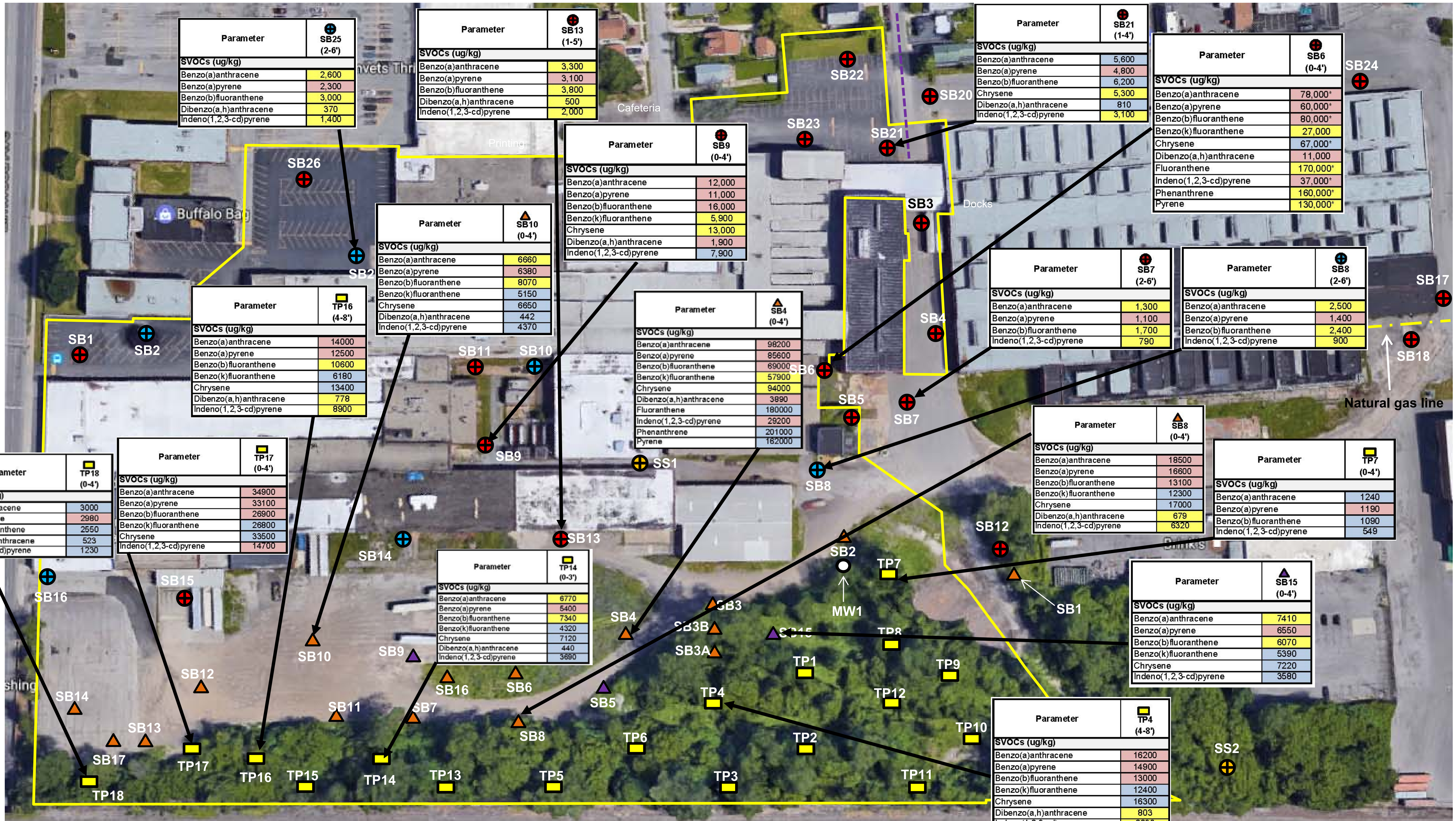
VOCs in Soil

MOD-PAC CORP.

1801 ELMWOOD AVENUE

BUFFALO, NEW YORK

DRAWN BY: LSH	SCALE: NOT TO SCALE	PROJECT: e1605
CHECKED BY: MMW	DATE: 2/17	FIGURE NO: III-B



Parameter	SB25 (2-6')
SVOCs (ug/kg)	
Benzo(a)anthracene	2,600
Benzo(a)pyrene	2,300
Benzo(b)fluoranthene	3,000
Dibenzo(a,h)anthracene	370
Indeno(1,2,3-cd)pyrene	1,400

Parameter	SB13 (1-5')
SVOCs (ug/kg)	
Benzo(a)anthracene	3,300
Benzo(a)pyrene	3,100
Benzo(b)fluoranthene	3,800
Dibenzo(a,h)anthracene	500
Indeno(1,2,3-cd)pyrene	2,000

Parameter	SB9 (0-4')
SVOCs (ug/kg)	
Benzo(a)anthracene	12,000
Benzo(a)pyrene	11,000
Benzo(b)fluoranthene	16,000
Benzo(k)fluoranthene	5,900
Chrysene	13,000
Dibenzo(a,h)anthracene	1,900
Indeno(1,2,3-cd)pyrene	7,900

Parameter	SB21 (1-4')
SVOCs (ug/kg)	
Benzo(a)anthracene	5,600
Benzo(a)pyrene	4,800
Benzo(b)fluoranthene	6,200
Chrysene	5,300
Dibenzo(a,h)anthracene	810
Indeno(1,2,3-cd)pyrene	3,100

Parameter	SB6 (0-4')
SVOCs (ug/kg)	
Benzo(a)anthracene	78,000*
Benzo(a)pyrene	60,000*
Benzo(b)fluoranthene	80,000*
Benzo(k)fluoranthene	27,000
Chrysene	67,000*
Dibenzo(a,h)anthracene	11,000
Fluoranthene	170,000*
Indeno(1,2,3-cd)pyrene	37,000*
Phenanthrene	160,000*
Pyrene	130,000*

Parameter	SB10 (0-4')
SVOCs (ug/kg)	
Benzo(a)anthracene	6660
Benzo(a)pyrene	6380
Benzo(b)fluoranthene	8070
Benzo(k)fluoranthene	5150
Chrysene	6650
Dibenzo(a,h)anthracene	442
Indeno(1,2,3-cd)pyrene	4370

Parameter	TP16 (4-8')
SVOCs (ug/kg)	
Benzo(a)anthracene	14000
Benzo(a)pyrene	12500
Benzo(b)fluoranthene	10600
Benzo(k)fluoranthene	6180
Chrysene	13400
Dibenzo(a,h)anthracene	778
Indeno(1,2,3-cd)pyrene	8900

Parameter	SB4 (0-4')
SVOCs (ug/kg)	
Benzo(a)anthracene	98200
Benzo(a)pyrene	85600
Benzo(b)fluoranthene	69000
Benzo(k)fluoranthene	57900
Chrysene	94000
Dibenzo(a,h)anthracene	3890
Fluoranthene	180000
Indeno(1,2,3-cd)pyrene	29200
Phenanthrene	201000
Pyrene	162000

Parameter	SB7 (2-6')
SVOCs (ug/kg)	
Benzo(a)anthracene	1,300
Benzo(a)pyrene	1,100
Benzo(b)fluoranthene	1,700
Indeno(1,2,3-cd)pyrene	790

Parameter	SB8 (2-6')
SVOCs (ug/kg)	
Benzo(a)anthracene	2,500
Benzo(a)pyrene	1,400
Benzo(b)fluoranthene	2,400
Indeno(1,2,3-cd)pyrene	900

Parameter	TP18 (0-4')
SVOCs (ug/kg)	
Benzo(a)anthracene	3000
Benzo(a)pyrene	2980
Benzo(b)fluoranthene	2550
Dibenzo(a,h)anthracene	523
Indeno(1,2,3-cd)pyrene	1230

Parameter	TP17 (0-4')
SVOCs (ug/kg)	
Benzo(a)anthracene	34900
Benzo(a)pyrene	33100
Benzo(b)fluoranthene	26900
Benzo(k)fluoranthene	26800
Chrysene	33500
Indeno(1,2,3-cd)pyrene	14700

Parameter	TP14 (0-3')
SVOCs (ug/kg)	
Benzo(a)anthracene	6770
Benzo(a)pyrene	5400
Benzo(b)fluoranthene	7340
Benzo(k)fluoranthene	4320
Chrysene	7120
Dibenzo(a,h)anthracene	440
Indeno(1,2,3-cd)pyrene	3690

Parameter	SB8 (0-4')
SVOCs (ug/kg)	
Benzo(a)anthracene	18500
Benzo(a)pyrene	16600
Benzo(b)fluoranthene	13100
Benzo(k)fluoranthene	12300
Chrysene	17000
Dibenzo(a,h)anthracene	679
Indeno(1,2,3-cd)pyrene	6320

Parameter	TP7 (0-4')
SVOCs (ug/kg)	
Benzo(a)anthracene	1240
Benzo(a)pyrene	1190
Benzo(b)fluoranthene	1090
Indeno(1,2,3-cd)pyrene	549

Parameter	SB15 (0-4')
SVOCs (ug/kg)	
Benzo(a)anthracene	7410
Benzo(a)pyrene	6550
Benzo(b)fluoranthene	6070
Benzo(k)fluoranthene	5390
Chrysene	7220
Indeno(1,2,3-cd)pyrene	3580

Parameter	TP4 (4-8')
SVOCs (ug/kg)	
Benzo(a)anthracene	16200
Benzo(a)pyrene	14900
Benzo(b)fluoranthene	13000
Benzo(k)fluoranthene	12400
Chrysene	16300
Dibenzo(a,h)anthracene	803
Indeno(1,2,3-cd)pyrene	8230

Notes:

1 – Detected concentrations for VOCs, SVOCs and PCB in ppb; metals in ppm

2 - Proposed Cleanup Standards = Restricted Residential in Southern Portion and Commercial in Central/Northern Portion

- (yellow) = exceeds Restricted Residential SCO
- (blue) = exceeds Commercial SCO
- (pink) = exceeds Industrial SCO

KEY

- Soil Boring Locations (12/21-12/23/16)
- Soil Boring & Piezometer Locations (12/21-12/23/16)
- Surface Soil Locations (12/21-12/23/16)
- Soil Boring & Micro Well Locations (10/15-10/16/15)
- Soil Boring Locations (10/15-10/16/15)
- Test Pit Locations (10/15-10/16/15)
- MW1 – Existing Monitoring Well

HAZARD EVALUATIONS, INC.

Phase I/II Audits – Site Investigations – Facility Inspections

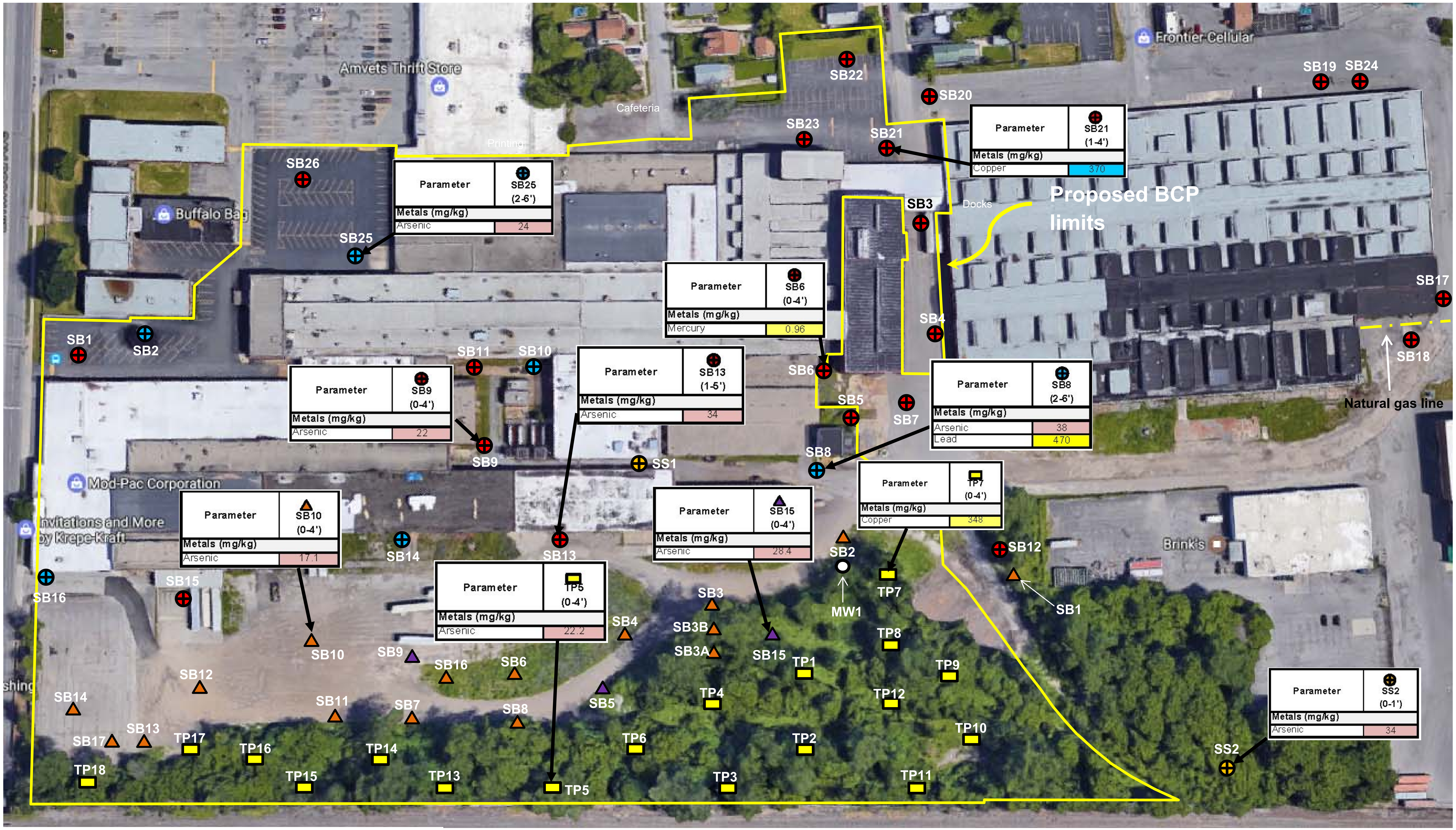
SVOCs in Soil

MOD-PAC CORP.

1801 ELMWOOD AVENUE

BUFFALO, NEW YORK

DRAWN BY: LSH	SCALE: NOT TO SCALE	PROJECT: e1605
CHECKED BY: MMW	DATE: 2/17	FIGURE NO: III-C



Notes:

1 – Detected concentrations for VOCs, SVOCs and PCB in ppb; metals in ppm

2 - Proposed Cleanup Standards = Restricted Residential in Southern Portion and Commercial in Central/Northern Portion

= exceeds Restricted Residential SCO

= exceeds Commercial SCO

= exceeds Industrial SCO

KEY

- Soil Boring Locations (12/21-12/23/16)
- Soil Boring & Piezometer Locations (12/21-12/23/16)
- Surface Soil Locations (12/21-12/23/16)
- Soil Boring & Micro Well Locations (10/15-10/16/15)
- Soil Boring Locations (10/15-10/16/15)
- Test Pit Locations (10/15-10/16/15)
- MW1 – Existing Monitoring Well

HAZARD EVALUATIONS, INC.

Phase I/II Audits – Site Investigations – Facility Inspections

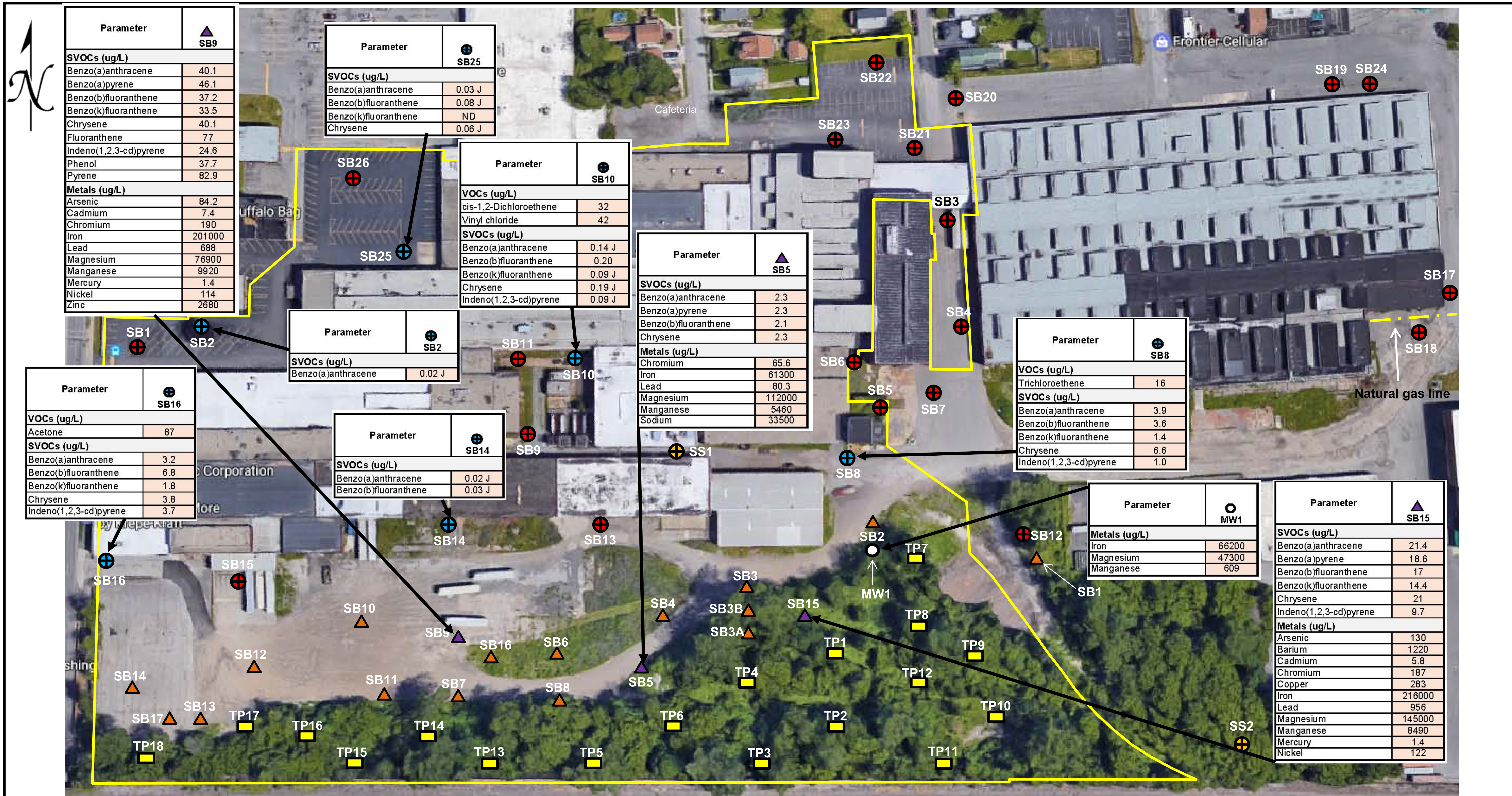
Metals in Soil

MOD-PAC CORP.

1801 ELMWOOD AVENUE

BUFFALO, NEW YORK

DRAWN BY: LSH	SCALE: NOT TO SCALE	PROJECT: e1605
CHECKED BY: MMW	DATE: 2/17	FIGURE NO: III-D



Parameter	SB9
SVOCs (ug/L)	
Benzo(a)anthracene	40.1
Benzo(a)pyrene	46.1
Benzo(b)fluoranthene	37.2
Benzo(k)fluoranthene	33.5
Chrysene	40.1
Fluoranthene	77
Indeno(1,2,3-cd)pyrene	24.6
Phenol	37.7
Pyrene	82.9
Metals (ug/L)	
Arsenic	84.2
Cadmium	7.4
Chromium	190
Iron	201000
Lead	688
Magnesium	76900
Manganese	9920
Mercury	1.4
Nickel	114
Zinc	2680

Parameter	SB25
SVOCs (ug/L)	
Benzo(a)anthracene	0.03 J
Benzo(b)fluoranthene	0.08 J
Benzo(k)fluoranthene	ND
Chrysene	0.06 J

Parameter	SB10
VOCs (ug/L)	
cis-1,2-Dichloroethene	32
Vinyl chloride	42
SVOCs (ug/L)	
Benzo(a)anthracene	0.14 J
Benzo(b)fluoranthene	0.20
Benzo(k)fluoranthene	0.09 J
Chrysene	0.19 J
Indeno(1,2,3-cd)pyrene	0.09 J

Parameter	SB5
SVOCs (ug/L)	
Benzo(a)anthracene	2.3
Benzo(a)pyrene	2.3
Benzo(b)fluoranthene	2.1
Chrysene	2.3
Metals (ug/L)	
Chromium	65.6
Iron	61300
Lead	80.3
Magnesium	112000
Manganese	5460
Sodium	33500

Parameter	SB2
SVOCs (ug/L)	
Benzo(a)anthracene	0.02 J

Parameter	SB16
VOCs (ug/L)	
Acetone	87
SVOCs (ug/L)	
Benzo(a)anthracene	3.2
Benzo(b)fluoranthene	6.8
Benzo(k)fluoranthene	1.8
Chrysene	3.8
Indeno(1,2,3-cd)pyrene	3.7

Parameter	SB14
SVOCs (ug/L)	
Benzo(a)anthracene	0.02 J
Benzo(b)fluoranthene	0.03 J

Parameter	SB8
VOCs (ug/L)	
Trichloroethene	16
SVOCs (ug/L)	
Benzo(a)anthracene	3.9
Benzo(b)fluoranthene	3.6
Benzo(k)fluoranthene	1.4
Chrysene	6.6
Indeno(1,2,3-cd)pyrene	1.0

Parameter	MW1
Metals (ug/L)	
Iron	66200
Magnesium	47300
Manganese	609

Parameter	SB15
SVOCs (ug/L)	
Benzo(a)anthracene	21.4
Benzo(a)pyrene	18.6
Benzo(b)fluoranthene	17
Benzo(k)fluoranthene	14.4
Chrysene	21
Indeno(1,2,3-cd)pyrene	9.7
Metals (ug/L)	
Arsenic	130
Barium	1220
Cadmium	5.8
Chromium	187
Copper	283
Iron	216000
Lead	956
Magnesium	145000
Manganese	8490
Mercury	1.4
Nickel	122

Notes:

1 – Detected concentrations for VOCs, SVOCs and metals in ppb;

2 - Proposed Cleanup Standards = Restricted Residential in Southern Portion and Commercial in Central/Northern Portion

= exceeds Groundwater Criteria

KEY

- Soil Boring Locations (12/21-12/23/16)
- Soil Boring & Piezometer Locations (12/21-12/23/16)
- Surface Soil Locations (12/21-12/23/16)
- Soil Boring & Micro Well Locations (10/15-10/16/15)
- Soil Boring Locations (10/15-10/16/15)
- Test Pit Locations (10/15-10/16/15)
- MW1 – Existing Monitoring Well

HAZARD EVALUATIONS, INC.

Phase I/II Audits – Site Investigations – Facility Inspections

Groundwater Concentrations

MOD-PAC CORP.

1801 ELMWOOD AVENUE

BUFFALO, NEW YORK

DRAWN BY: LSH	SCALE: NOT TO SCALE	PROJECT: e1605
CHECKED BY: MMW	DATE: 1/17	FIGURE NO: III-E

Table III-A
Volatile Organic Compound - Soil Analytical Testing Results Summary
1801 Elmwood Avenue Buffalo, New York

Parameter	October 2015																					
	SB1 (0-4')	SB2 (4-8')	SB4 (0-4')	SB8 (0-4')	SB10 (0-4')	SB12 (0-4')	SB14 (0-4')	SB15 (0-4')	TP4 (4-8')	TP4 (9-12')	TP5 (0-4')	TP7 (0-4')	TP10 (4-8')	TP11 (0-4')	TP14 (0-3')	TP16 (4-8')	TP17 (0-4')	TP18 (0-4')	UUSCO	RRUSCO	CUSCO	IUSCO
GC/MS Volatiles 8260C Analysis (ug/kg)																						
1,2,4-Trimethylbenzene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NT	NR	NR	NR	NR	3,600	52,000	190,000	380,000
1,3,5-Trimethylbenzene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NT	NR	NR	NR	NR	8,400	52,000	190,000	380,000
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	219	ND	ND	95.5	NT	ND	ND	ND	ND	50	100,000	500,000	1,000,000
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	60	4,800	44,000	89,000
2-Butanone (MEK)	ND	833	ND	ND	ND	ND	ND	ND	ND	28.1	ND	ND	ND	NT	ND	ND	ND	ND	120	100,000	500,000	1,000,000
cis-1,2-Dichloroethene	ND	10200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	250	100,000	500,000	1,000,000
trans-1,2-Dichloroethene	ND	788	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	190	100,000	500,000	1,000,000
Ethylbenzene	ND	ND	ND	ND	6.2	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	1,000	41,000	390,000	780,000
Isopropylbenzene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NT	NR	NR	NR	NR	NV	NV	NV	NV
Methylene chloride	17.2	ND	ND	4.7 B	6.6	3.8 B	1.8	3.7 B	4.4	ND	8.0	ND	11.2	NT	ND	ND	ND	ND	50	100,000	500,000	1,000,000
n-Butylbenzene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NT	NR	NR	NR	NR	12,000	100,000	500,000	1,000,000
n-Propylbenzene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NT	NR	NR	NR	NR	3,900	100,000	500,000	1,000,000
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	12,000	100,000	500,000	1,000,000
o-Xylene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NT	NR	NR	NR	NR	260	100,000	500,000	1,000,000
p-Isopropyltoluene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NT	NR	NR	NR	NR	NV	NV	NV	NV
p/m-Xylene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NT	NR	NR	NR	NR	260	100,000	500,000	1,000,000
sec-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	11,000	100,000	500,000	1,000,000
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	4.7	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	1,300	19,000	150,000	300,000
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	700	100,000	500,000	1,000,000
Trichloroethene	ND	28900	ND	ND	ND	ND	ND	4.3	3.8	ND	2.2	ND	ND	NT	ND	ND	ND	ND	470	21,000	200,000	400,000
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	20	900	13,000	27,000
Xylene (total)	ND	ND	ND	ND	47.1	ND	ND	ND	2.0	ND	ND	ND	ND	NT	519	ND	ND	ND	260	100,000	500,000	1,000,000

Parameter	December 2016																		
	SB1 (2-6')	SB6 (0-4')	SB7 (2-6')	SB8 (2-6')	SB9 (0-2')	SB9 (0-4')	SB10 (1-3')	SB11 (1-3')	SB13 (1-5')	SB14 (0-4')	SB16 (.5-4.5')	SB21 (1-4')	SB25 (2-6')	SS1 (0-1')	SS2 (0-1')	UUSCO	RRUSCO	CUSCO	IUSCO
GC/MS Volatiles 8260C Analysis (ug/kg)																			
1,2,4-Trimethylbenzene	NT	2.3 J	6.3	290 J	NT	1.9 J	NT	NT	13	NT	15	8.0	18	NT	NT	3,600	52,000	190,000	380,000
1,3,5-Trimethylbenzene	NT	4.6 J	2.4 J	79 J	NT	6.9	NT	NT	3.5 J	NT	4.2 J	2.6 J	6.4	NT	NT	8,400	52,000	190,000	380,000
Acetone	NT	4.0 J	14	ND	NT	2.7 J	NT	NT	6.1 J	NT	3.6 J	13	4.7 J	NT	NT	50	100,000	500,000	1,000,000
Benzene	NT	0.19 J	0.16 J	ND	NT	0.19 J	NT	NT	0.18 J	NT	ND	0.20 J	0.28 J	NT	NT	60	4,800	44,000	89,000
2-Butanone (MEK)	NT	ND	ND	ND	ND	ND	NT	NT	ND	NT	ND	ND	ND	NT	NT	120	100,000	500,000	1,000,000
cis-1,2-Dichloroethene	NT	ND	2.1	ND	ND	ND	NT	NT	ND	NT	ND	ND	ND	NT	NT	250	100,000	500,000	1,000,000
trans-1,2-Dichloroethene	NT	ND	ND	ND	ND	ND	NT	NT	ND	NT	ND	ND	ND	NT	NT	190	100,000	500,000	1,000,000
Ethylbenzene	NT	6.0	3.2	78	NT	11	NT	NT	5.1	NT	7.0	4.5	8.4	NT	NT	1,000	41,000	390,000	780,000
Isopropylbenzene	NT	0.46 J	0.30 J	9.9 J	NT	0.75 J	NT	NT	0.41 J	NT	0.52 J	0.38 J	0.88 J	NT	NT	NV	NV	NV	NV
Methylene chloride	NT	ND	ND	ND	ND	ND	NT	NT	ND	NT	ND	ND	ND	NT	NT	50	100,000	500,000	1,000,000
n-Butylbenzene	NT	0.62 J	0.17 J	31 J	NT	1.0 J	NT	NT	0.35 J	NT	0.33 J	0.16 J	0.50 J	NT	NT	12,000	100,000	500,000	1,000,000
n-Propylbenzene	NT	2.7	0.93 J	46 J	NT	6.0	NT	NT	2.0	NT	2.5	1.3	3.5	NT	NT	3,900	100,000	500,000	1,000,000
Naphthalene	NT	6.2	0.49 J	170 J	NT	3.4 J	NT	NT	0.74 J	NT	0.65 J	0.77 J	0.43 J	NT	NT	12,000	100,000	500,000	1,000,000
o-Xylene	NT	ND	ND	ND	NT	0.66 J	NT	NT	0.39 J	NT	0.40 J	ND	ND	NT	NT	260	100,000	500,000	1,000,000
p-Isopropyltoluene	NT	0.17 J	ND	ND	NT	0.17 J	NT	NT	ND	NT	ND	ND	0.15 J	NT	NT	NV	NV	NV	NV
p/m-Xylene	NT	2.9	12	340	NT	1.8 J	NT	NT	22	NT	32	18	36	NT	NT	260	100,000	500,000	1,000,000
sec-Butylbenzene	NT	0.14 J	ND	31 J	NT	0.17 J	NT	NT	ND	NT	ND	ND	0.18 J	NT	NT	11,000	100,000	500,000	1,000,000
Tetrachloroethene	NT	0.49 J	ND	ND	NT	ND	NT	NT	ND	NT	0.50 J	ND	ND	NT	NT	1,300	19,000	150,000	300,000
Toluene	NT	0.35 J	ND	ND	NT	0.36 J	NT	NT	0.59 J	NT	0.45 J	ND	0.45 J	NT	NT	700	100,000	500,000	1,000,000
Trichloroethene	NT	8.5	2.5	3,300	NT	0.58 J	NT	NT	0.20 J	NT	0.49 J	ND	0.37 J	NT	NT	470	21,000	200,000	400,000
Vinyl chloride	NT	ND	0.25 J	ND	NT	ND	NT	NT	ND	NT	ND	ND	ND	NT	NT	20	900	13,000	27,000
Xylene (total)	NT	2.9	12	340	NT	2.46	NT	NT	22.39	NT	32.4	18	36	NT	NT	260	100,000	500,000	1,000,000

Notes:

1.October 2015 sample analysis completed by Accutest Laboratories; December 2016 sample analysis completed by Alpha Analytical. Compounds detected in one or more samples are presented in this table. Refer to Appendix for the full analytical report.

2. ug/Kg = parts per billion; mg/kg= parts per million.

3. ND = not detected; NT= not tested; NV= no value; NR = not reported

4. Analytical results compared to NYSDEC Part 375-6; Remedial Program Soil Cleanup Objectives, Table 375-(a) Unrestricted Use Soil Cleanup Objective; and Table 375-6.8(b): Restricted Use Soil Cleanup Objectives.

5. * = Concentration of analyte exceeded range of the calibration curve, which required a re-analysis at a higher dilution factor.

6. Shading indicates:
exceeds UUSCO - Unrestriced Use Soil Cleanup Objective
exceeds RRUSCO - Restricted Residential Use Soil Cleanup Objective
exceeds CUSCO - Commercial Use Soil Cleanup Objective
exceeds IUSCO - Industrial Use Soil Cleanup Objective

Soil Boring & Micro Well Locations (10/15-10/16/16)
Soil Boring Locations (12/21-12/23/16)
Surface Soil Locations (12/21-12/23/16)
Test Pit Locations (10/15-10/16/16)
Soil Boring & Piezometer Locations (12/21-12/23/16)

Table III-B
Semi-Volatile Organic Compounds - Soil Analytical Testing Results Summary
1801 Elmwood Avenue Buffalo, New York

Parameter	SB1 (0-4')	SB2 (4-8')	SB4 (0-4')	SB8 (0-4')	SB10 (0-4')	SB12 (0-4')	SB14 (0-4')	SB15 (0-4')	TP4 (4-8')	TP4 (9-12')	TP5 (0-4')	TP7 (0-4')	TP10 (4-8')	TP11 (0-4')	TP14 (0-3')	TP16 (4-8')	TP17 (0-4')	TP18 (0-4')	UUSCO	RRUSCO	CUSCO	IUSCO
	October 2015																					
GC/MS Semi-volatiles 8270D Analysis (ug/kg)																						
2-Methylnaphthalene	565	ND	27600	1690	375	ND	ND	1010	1730	189	ND	ND	184	NT	2490	704	ND	ND	NV	NV	NV	NV
3&4-Methylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	330	100,000	500,000	1,000,000
Acenaphthene	ND	ND	14200	2970	859	ND	ND	964	2960	ND	143	265	132	NT	1450	1720	2980	246	20,000	100,000	500,000	1,000,000
Acenaphthylene	ND	ND	12900	2800	402	ND	ND	574	884	ND	ND	ND	ND	NT	248	593	2540	255	100,000	100,000	500,000	1,000,000
Acetophenone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	NV	NV	NV	NV
Anthracene	ND	ND	66400	11100	3210	121	ND	3330	7700	155	381	515	337	NT	3210	6570	11200	1020	100,000	100,000	500,000	1,000,000
Benzo(a)anthracene	196	ND	98200	18500	6660	403	ND	7410	16200	582	891	1240	637	NT	6770	14000	34900	3000	1,000	1,000	5,600	11,000
Benzo(a)pyrene	175	ND	85600	16600	6380	389	ND	6550	14900	444	842	1190	681	NT	5400	12500	33100	2980	1,000	1,000	1,000	1,100
Benzo(b)fluoranthene	222	ND	69000	13100	8070	324	ND	6070	13000	389	730	1090	600	NT	7340	10600	26900	2550	1,000	1,000	5,600	11,000
Benzo(g,h,i)perylene	ND	ND	32100	7090	4950	207	ND	3690	8700	256	514	629	499	NT	3390	9040	14200	1400	100,000	100,000	500,000	1,000,000
Benzo(k)fluoranthene	155	ND	57900	12300	5150	303	ND	5390	12400	313	704	916	433	NT	4320	6180	26800	2330	800	3,900	56,000	110,000
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	518	ND	NT	ND	ND	ND	1200	NV	NV	NV	NV
Biphenyl	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	NV	NV	NV	NV
Carbazole	ND	ND	21300	3840	1520	ND	ND	1490	4010	ND	200	275	168	NT	1830	2440	3960	432	NV	NV	NV	NV
Chrysene	239	ND	94000	17000	6650	393	ND	7220	16300	710	881	1270	724	NT	7120	13400	33500	2880	1,000	3,900	56,000	110,000
Dibenzo(a,h)anthracene	ND	ND	3890	679	442	ND	ND	ND	803	ND	ND	ND	ND	NT	440	778	ND	523	330	330	560	1,100
Dibenzofuran	165	ND	19300	3440	870	ND	ND	1140	2700	ND	ND	158	165	NT	1540	1410	ND	183	7,000	59,000	350,000	1,000,000
Fluoranthene	352	ND	180000	46000	15000	723	170	15000	37500	863	1880	2860	1580	NT	16400	28100	69800	7140	100,000	100,000	500,000	1,000,000
Fluorene	ND	ND	32800	4240	1130	ND	ND	1430	3890	ND	156	245	159	NT	1460	2040	3210	282	30,000	100,000	500,000	1,000,000
Indeno(1,2,3-cd)pyrene	ND	ND	29200	6320	4370	211	ND	3580	8230	221	471	549	298	NT	3690	8900	14700	1230	500	500	5,600	11,000
2-Methylnaphthalene	565	ND	27600	1690	375	ND	ND	1010	1730	189	ND	ND	184	NT	2490	704	ND	ND	NV	NV	NV	NV
Naphthalene	362	ND	33500	3230	597	ND	ND	991	3540	ND	ND	ND	203	NT	2680	1310	ND	ND	12,000	100,000	500,000	1,000,000
Phenanthrene	427	ND	201000	43400	13100	452	124	12300	32400	661	1440	2390	1490	NT	15100	22000	38000	3820	100,000	100,000	500,000	1,000,000
Pyrene	346	ND	162000	41800	13100	706	162	13300	32400	817	1600	2540	1650	NT	14000	23400	63500	6020	100,000	100,000	500,000	1,000,000

Parameter	SB1 (2-6')	SB6 (0-4')	SB7 (2-6')	SB8 (2-6')	SB9 (0-2')	SB9 (0-4')	SB10 (1-3')	SB11 (1-3')	SB13 (1-5')	SB14 (0-4')	SB16 (.5-4.5')	SB21 (1-4')	SB25 (2-6')	SS1 (0-1')	SS2 (0-1')	UUSCO	RRUSCO	CUSCO	IUSCO
	December 2016																		
GC/MS Semi-volatiles 8270D Analysis (ug/kg)																			
2-Methylnaphthalene	50 J	2,300	120 J	440	NT	700 J	NT	NT	80 J	NT	ND	450	250	NT	1,200	NV	NV	NV	NV
3&4-Methylphenol	ND	ND	ND	ND	NT	ND	NT	NT	ND	NT	ND	57 J	ND	NT	ND	330	100,000	500,000	1,000,000
Acenaphthene	ND	28,000	74 J	1,400	NT	2,800	NT	NT	580	NT	ND	980	290	NT	140 J	20,000	100,000	500,000	1,000,000
Acenaphthylene	ND	860	56 J	ND	NT	320 J	NT	NT	56 J	NT	ND	210	110 J	NT	98 J	100,000	100,000	500,000	1,000,000
Acetophenone	ND	ND	ND	ND	NT	ND	NT	NT	ND	NT	ND	ND	ND	NT	200	NV	NV	NV	NV
Anthracene	40 J	53,000*	210	2,200	NT	5,100	NT	NT	1,300	NT	ND	2,600	780	NT	280	100,000	100,000	500,000	1,000,000
Benzo(a)anthracene	140	78,000*	1,300	2,500	NT	12,000	NT	NT	3,300	NT	29 J	5,600	2,600	NT	610	1,000	1,000	5,600	11,000
Benzo(a)pyrene	150	60,000*	1,100	1,400	NT	11,000	NT	NT	3,100	NT	150	4,800	2,300	NT	540	1,000	1,000	1,000	1,100
Benzo(b)fluoranthene	230	80,000*	1,700	2,400	NT	16,000	NT	NT	3,800	NT	ND	6,200	3,000	NT	810	1,000	1,000	5,600	11,000
Benzo(g,h,i)perylene	140	32,000*	720	910	NT	6,500	NT	NT	1,800	NT	ND	2,700	1,200	NT	370	100,000	100,000	500,000	1,000,000
Benzo(k)fluoranthene	72 J	27,000	600	720	NT	5,900	NT	NT	1,200	NT	ND	2,300	980	NT	260	800	3,900	56,000	110,000
Butyl benzyl phthalate	ND	ND	ND	ND	NT	ND	NT	NT	ND	NT	ND	ND	ND	NT	ND	NV	NV	NV	NV
Biphenyl	ND	920 J	ND	ND	NT	ND	NT	NT	ND	NT	ND	90 J	49 J	NT	110 J	NV	NV	NV	NV
Carbazole	30 J	14,000	110 J	ND	NT	3,900	NT	NT	650	NT	ND	1,100	360	NT	160 J	NV	NV	NV	NV
Chrysene	180	67,000*	1,400	3,000	NT	13,000	NT	NT	3,400	NT	26 J	5,300	2,700	NT	710	1,000	3,900	56,000	110,000
Dibenzo(a,h)anthracene	32 J	11,000	180	300	NT	1,900	NT	NT	500	NT	ND	810	370	NT	110 J	330	330	560	1,100
Dibenzofuran	21 J	13,000	55 J	950	NT	1,600	NT	NT	300	NT	ND	610	180 J	NT	420	7,000	59,000	350,000	1,000,000
Fluoranthene	400	170,000*	2,800	6,800	NT	29,000	NT	NT	6,000	NT	55 J	13,000*	4,900	NT	1,200	100,000	100,000	500,000	1,000,000
Fluorene	ND	26,000	56 J	2,700	NT	2,600	NT	NT	540	NT	ND	1,000	290	NT	ND	30,000	100,000	500,000	1,000,000
Indeno(1,2,3-cd)pyrene	130 J	37,000*	790	900	NT	7,900	NT	NT	2,000	NT	ND	3,100	1,400	NT	380	500	500	5,600	11,000
2-Methylnaphthalene	ND	ND	ND	ND	NT	ND	NT	NT	ND	NT	ND	ND	ND	NT	ND	NV	NV	NV	NV
Naphthalene	80 J	1,500	140 J	350	NT	2,100	NT	NT	140 J	NT	ND	470	260	NT	910	12,000	100,000	500,000	1,000,000
Phenanthrene	190	160,000*	800	8,900*	NT	24,000	NT	NT	5,100	NT	47 J	9,600*	3,800	NT	1,500	100,000	100,000	500,000	1,000,000
Pyrene	320	130,000*	2,300	6,500	NT	21,000	NT	NT	5,300	NT	46 J	10,000*	4,300	NT	1,100	100,000	100,000	500,000	1,000,000

Notes:

1.October 2015 sample analysis completed by Accutest Laboratories; December 2016 sample analysis completed by Alpha Analytical. Compounds detected in one or more samples are presented in this table. Refer to Appendix for the full analytical report.

2. ug/Kg = parts per billion; mg/kg= parts per million.

3. ND = not detected; NT= not tested; NV= no value; NR = not reported

4. Analytical results compared to NYSDEC Part 375-6; Remedial Program Soil Cleanup Objectives, Table 375-(a) Unrestricted Use Soil Cleanup Objective; and Table 375-6.8(b): Restricted Use Soil Cleanup Objectives.

5. * = Concentration of analyte exceeded range of the calibration curve, which required a re-analysis at a higher dilution factor.

6. Shading indicates:
- exceeds UUSCO - Unrestriced Use Soil Cleanup Objective
- exceeds RRUSCO - Restricted Residential Use Soil Cleanup Objective
- exceeds CUSCO - Commercial Use Soil Cleanup Objective
- exceeds IUSCO - Industrial Use Soil Cleanup Objective

Soil Boring & Micro Well Locations (10/15-10/16/16)
Soil Boring Locations (12/21-12/23/16)
Surface Soil Locations (12/21-12/23/16)
Test Pit Locations (10/15-10/16/16)
Soil Boring & Piezometer Locations (12/21-12/23/16)

Table III-C
Metals and PCB - Soil Analytical Testing Results Summary
1801 Elmwood Avenue Buffalo, New York

Parameter	October 2015																					
	SB1 (0-4')	SB2 (4-8')	SB4 (0-4')	SB8 (0-4')	SB10 (0-4')	SB12 (0-4')	SB14 (0-4')	SB15 (0-4')	TP4 (4-8')	TP4 (9-12')	TP5 (0-4')	TP7 (0-4')	TP10 (4-8')	TP11 (0-4')	TP14 (0-3')	TP16 (4-8')	TP17 (0-4')	TP18 (0-4')	UUSCO	RRUSCO	CUSCO	IUSCO
Metals Analysis (mg/kg)																						
Aluminum	9780	5350	3080	19200	5780	3770	3420	9520	5610	23300	12500	5740	10000	NT	9010	7450	9860	5630	NV	NV	NV	NV
Antimony	ND	ND	ND	ND	ND	ND	ND	1.3	ND	ND	1.7	ND	ND	NT	ND	1.1	ND	ND	NV	NV	NV	NV
Arsenic	8.7	1.9	4.5	5.4	17.1	2.5	5.9	28.4	12.4	4.4	22.2	7.1	8.6	NT	11.1	14.9	8.6	6.1	13	16	16	16
Barium	68.9	19.7	32.5	207	93.4	19	17.4	144	85	162	131	139	55.1	NT	63.2	243	145	47.9	350	400	400	10,000
Beryllium	1.1	ND	ND	2.7	0.35	ND	ND	0.67	ND	1.2	1.1	0.42	0.42	NT	0.45	0.42	0.66	ND	7.2	72	590	2,700
Cadmium	ND	ND	ND	ND	0.65	ND	ND	1.7	0.46	0.4	0.93	1.2	ND	NT	0.64	0.9	0.54	0.4	2.5	4.3	9.3	60
Calcium	56300	34800	17700	104000	86400	39200	70900	29000	34600	2370	24700	72700	22200	NT	7050	48700	85700	47000	NV	NV	NV	NV
Chromium	10.7	4.8	16	9.9	18.5	6.9	25.3	41	11.3	25.9	20	27.4	11	NT	12.6	20.9	16.2	8.7	30	180	1,500	6,800
Cobalt	ND	ND	ND	ND	5.9	ND	ND	6.1	4.4	14.2	9.9	ND	ND	NT	6.4	6.5	7.4	5.4	NV	NV	NV	NV
Copper	16.1	2.7	15.3	8.1	43.1	4.9	4.4	73	23.1	20.6	66.6	348	24.2	NT	22	42.9	47.4	30.8	50	270	270	10,000
Cyanide, Total	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	27	27	27	10,000
Iron	28500	6510	10200	12200	56100	12800	21100	30100	30500	35000	33000	11200	18800	NT	58000	56400	27800	15200	NV	NV	NV	NV
Lead	32.8	11.7	31.4	52.1	63.2	99.4	101	190	95	15.9	156	159	87.7	NT	164	330	107	66.2	63	400	1,000	3,900
Magnesium	6950	4360	3470	10900	20400	4030	3810	6230	3890	5950	5470	17000	2630	NT	1210	6440	22800	7740	NV	NV	NV	NV
Manganese	1130	116	155	1820	520	478	278	921	486	444	561	313	1140	NT	891	605	441	331	1,600	2,000	10,000	10,000
Mercury	ND	ND	ND	0.045	0.045	ND	ND	ND	0.056	ND	0.18	0.081	ND	NT	0.28	0.26	0.21	0.043	0.18	0.81	2.8	5.7
Nickel	8.8	4.0	4.5	4.9	11.5	3.5	4.6	17.4	9.0	30.1	31.3	11.5	7.3	NT	12.8	21.4	19.2	18.9	30	310	310	10,000
Potassium	921	545	ND	1230	994	533	ND	1350	805	2790	1770	908	1550	NT	1350	1390	2160	950	NV	NV	NV	NV
Selenium	1.3	ND	ND	1.9	ND	ND	ND	ND	ND	ND	2.3	ND	ND	NT	ND	ND	ND	ND	3.9	180	1500	6800
Sodium	ND	ND	ND	525	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	NV	NV	NV	NV
Vanadium	18.7	10.4	13.2	12.7	40.7	16	16.1	26.2	17.4	33.9	28.4	13.4	21.8	NT	23.8	32.1	23.1	13.3	NV	NV	NV	NV
Zinc	55.4	16	44.6	48.4	146	18.3	10.5	270	150	108	277	198	141	NT	242	267	196	124	109	10,000	10,000	10,000
PCBs Analysis (ug/kg)																						
Aroclor 1254	NT	ND	NT	ND	NT	NT	NT	56.5	NT	ND	NT	NT	NT	NT	NT	NT	ND	NT	100	1,000	1,000	25,000
Aroclor 1260	NT	ND	NT	ND	NT	NT	NT	ND	NT	ND	NT	NT	NT	NT	NT	NT	ND	NT	100	1,000	1,000	25,000
Aroclor 1268	NT	ND	NT	ND	NT	NT	NT	ND	NT	ND	NT	NT	NT	NT	NT	NT	ND	NT	100	1,000	1,000	25,000
Total PCBs	NT	ND	NT	ND	NT	NT	NT	56.5	NT	ND	NT	NT	NT	NT	NT	NT	ND	NT	100	1,000	1,000	25,000
Hebicides Analysis (ug/kg)																						
Total Herbicides	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	ND	NT	NT	NT	NT	-	-	-	-

Parameter	December 2016																	
	SB1 (2-6')	SB6 (0-4')	SB7 (2-6')	SB8 (2-6')	SB9 (0-2')	SB9 (0-4')	SB10 (1-3')	SB11 (1-3')	SB13 (1-5')	SB14 (0-4')	SB16 (.5-4.5')	SB21 (1-4')	SB25 (2-6')	SS1 (0-1')	SS2 (0-1')	UUSCO	RRUSCO	CUSCO	IUSCO
Metals Analysis (mg/kg)																			
Aluminum	7,300	5,300	4,400	4,900	NT	5,800	NT	NT	4,100	NT	2,300	14,000	5,200	NT	5,400	NV	NV	NV	NV
Antimony	ND	ND	1.6 J	0.64 J	NT	1.0 J	NT	NT	ND	NT	ND	3.3 J	0.36 J	NT	3.8 J	NV	NV	NV	NV
Arsenic	4.8	6.3	5.9	38	NT	22	NT	NT	34	NT	2.2	12	24	NT	34	13	16	16	16
Barium	41	33	40	33	NT	79	NT	NT	41	NT	15	77	78	NT	80	350	400	400	10,000
Beryllium	0.84	0.23 J	0.26 J	0.22 J	NT	0.46	NT	NT	0.23 J	NT	0.10 J	0.48 J	1.2	NT	0.44	7.2	72	590	2,700
Cadmium	ND	ND	ND	ND	NT	0.60 J	NT	NT	ND	NT	ND	ND	0.27 J	NT	ND	2.5	4.3	9.3	60
Calcium	40,000	28,000	110,000	22,000	NT	27,000	NT	NT	33,000	NT	38,000	8,600	19,000	NT	7,200	NV	NV	NV	NV
Chromium	7.1	8.4	9.8	6.8	NT	19	NT	NT	60	NT	2.7	15	7.0	NT	16	30	180	1,500	6,800
Cobalt	2.4	3.3	2.2	3.3	NT	5.6	NT	NT	14	NT	1.3 J	6.2	4.4	NT	6.8	NV	NV	NV	NV
Copper	12	15	24	11	NT	130	NT	NT	42	NT	2.2	370	39	NT	66	50	270	270	10,000
Cyanide, Total	0.35 J	0.36 J	0.29 J	0.49 J	NT	0.44 J	NT	NT	0.33 J	NT	ND	2.8	2.1	NT	0.53 J	27	27	27	10,000
Iron	10,000	15,000	16,000	35,000	NT	40,000	NT	NT	180,000	NT	5,200	37,000	16,000	NT	56,000	NV	NV	NV	NV
Lead	22	50	35	470	NT	250	NT	NT	31	NT	130	200	78	NT	160	63	400	1,000	3,900
Magnesium	7,100	3,200	44,000	2,700	NT	3,600	NT	NT	2,800	NT	4,600	3,300	1,800	NT	1,100	NV	NV	NV	NV
Manganese	390	290	740	400	NT	660	NT	NT	1,400	NT	150	570	340	NT	860	1,600	2,000	10,000	10,000
Mercury	ND	0.96	0.03 J	ND	NT	0.12	NT	NT	0.31	NT	ND	0.04 J	0.077 J	NT	0.26	0.18	0.81	2.8	5.7
Nickel	5.2	7.4	6.3	6.8	NT	19	NT	NT	24	NT	2.3	18	9.8	NT	27	30	310	310	10,000
Potassium	740	380	420	500	NT	510	NT	NT	390	NT	180 J	770	500	NT	660	NV	NV	NV	NV
Selenium	ND	ND	ND	ND	NT	ND	NT	NT	ND	NT	ND	ND	ND	NT	ND	3.9	180	1500	6800
Sodium	380	74 J	170 J	170 J	NT	140 J	NT	NT	120 J	NT	90 J	280	300	NT	100 J	NV	NV	NV	NV
Vanadium	13	18	10	15	NT	24	NT	NT	95	NT	6.0	24	14	NT	20	NV	NV	NV	NV
Zinc	29	88	61	50	NT	180	NT	NT	37	NT	11	170	77	NT	130	109	10,000	10,000	10,000
PCBs Analysis (ug/kg)																			
Aroclor 1254	NT	NT	NT	ND	ND	NT	ND	19.8 J	NT	ND	NT	NT	NT	10.9 J	NT	100	1,000	1,000	25,000
Aroclor 1260	NT	NT	NT	3.72 J	11.7 J	NT	69.5	28.8 J	NT	ND	NT	NT	NT	17.9 J	NT	100	1,000	1,000	25,000
Aroclor 1268	NT	NT	NT	ND	ND	NT	97.0	ND	NT	ND	NT	NT	NT	ND	NT	100	1,000	1,000	25,000
Total PCBs	NT	NT	NT	3.72 J	11.7 J	NT	167	48.6 J	NT	ND	NT	NT	NT	28.8 J	NT	100	1,000	1,000	25,000
Hebicides Analysis (ug/kg)																			
Total Herbicides	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	-	-	-	-

Notes:
1.October 2015 sample analysis completed by Accutest Laboratories; December 2016 sample analysis completed by Alpha Analytical. Compounds detected in one or more samples are presented in this table. Refer to Appendix for the full analytical report.
2. ug/Kg = parts per billion; mg/kg= parts per million.
3. ND = not detected; NT= not tested; NV= no value; NR = not reported
4. Analytical results compared to NYSDEC Part 375-6; Remedial Program Soil Cleanup Objectives, Table 375-(a) Unrestricted Use Soil Cleanup Objective; and Table 375-6.8(b): Restricted Use Soil Cleanup Objectives.
5. * = Concentration of analyte exceeded range of the calibration curve, which required a re-analysis at a higher dilution factor.
6. Shading indicates:
- exceeds UUSCO - Unrestriced Use Soil Cleanup Objective
- exceeds RRUSCO - Restricted Residential Use Soil Cleanup Objective
- exceeds CUSCO - Commercial Use Soil Cleanup Objective
- exceeds IUSCO - Industrial Use Soil Cleanup Objective

Soil Boring & Micro Well Locations (10/15-10/16/16)
Test Pit Locations (10/15-10/16/16)
Soil Boring Locations (12/21-12/23/16)
Soil Boring & Piezometer Locations (12/21-12/23/16)
Surface Soil Locations (12/21-12/23/16)

Table III-D
Groundwater Analytical Testing Results Summary
1801 Elmwood Avenue Buffalo, New York
January 2017

	October 2015				December 2016						
Parameter	**SB5**	**SB9**	**SB15**	**MW1**	**SB2**	**SB8**	**SB10**	**SB14**	**SB16**	**SB25**	**Class GA Criteria (ug/L)**
Volatile Organic Compounds EPA Method 8260C TCL + STARS (ug/L)											
Acetone	ND	ND	ND	ND	16	3.5 J	ND	ND	87	21	50
Benzene	ND	ND	ND	ND	ND	0.24 J	ND	ND	ND	ND	1
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	32	ND	ND	ND	5
Methyl cyclohexane	ND	ND	ND	ND	ND	0.43 J	ND	ND	ND	ND	NV
Trichloroethene	ND	ND	ND	ND	ND	16	0.22 J	ND	ND	ND	5
Vinyl chloride	ND	ND	ND	1.5	ND	0.74 J	42	ND	ND	ND	2
Xylene (total)	ND	1.3	ND	ND	ND	ND	ND	ND	ND	ND	5
Semi Volatile Organic Compounds EPA Method TCL (ug/L)											
2-Methylnaphthalene	ND	ND	ND	ND	ND	0.51 J	ND	ND	0.41	0.06 J	NV
Acenaphthene	ND	3.9	2.8	ND	ND	4.0	ND	ND	0.83	0.50	20
Acenaphthylene	ND	6.2	ND	ND	ND	0.95 J	ND	ND	0.54	0.05 J	NV
Anthracene	ND	11.9	9.7	ND	ND	3.0	0.05 J	ND	1.3	0.08 J	50
Benzo(a)anthracene	2.3	40.1	21.4	ND	0.02 J	3.9	0.14 J	0.02 J	3.2	0.03 J	0.002
Benzo(a)pyrene	2.3	46.1	18.6	ND	ND	2.3	0.13 J	ND	3.0	ND	ND
Benzo(b)fluoranthene	2.1	37.2	17	ND	ND	3.6	0.20	0.03 J	6.8	0.08 J	0.002
Benzo(ghi)perylene	ND	27.3	10.5	ND	ND	1.1	0.09 J	ND	4.2	0.05 J	NV
Benzo(k)fluoranthene	ND	33.5	14.4	ND	ND	1.4	0.09 J	ND	1.8	ND	0.002
Carbazole	ND	2.7	3.7	ND	ND	ND	ND	ND	1.3 J	ND	NV
Chrysene	2.3	40.1	21	ND	ND	6.6	0.19 J	ND	3.8	0.06 J	0.002
Dibenzo(a,h)anthracene	ND	8.8	4	ND	ND	0.40 J	ND	ND	1.2	ND	NV
Dibenzofuran	ND	2.6	2.2	ND	ND	ND	ND	ND	1.0 J	ND	NV
Fluoranthene	4.3	77	41.5	ND	ND	11	0.32	ND	7.7	0.25	50
Fluorene	ND	4.2	4	ND	ND	6.9	ND	ND	1.2	0.20	50
Indeno(1,2,3-cd)pyrene	ND	24.6	9.7	ND	ND	1.0	0.09 J	ND	3.7	ND	0.002
Naphthalene	ND	2.2	2.4	ND	ND	0.70 J	ND	ND	1.4	0.11 J	10
Phenanthrene	2.1	33.8	35.5	ND	0.02 J	ND	0.20	ND	6.8	0.48	50
Phenol	ND	37.7	ND	ND	ND	ND	ND	ND	ND	ND	1
Pyrene	4	82.9	37.8	ND	ND	12	0.28	ND	6.3	0.15 J	50
Metals Analysis (ug/L)											
Aluminum	53300	80300	129000	777	NT	NT	NT	NT	NT	NT	-
Antimony	<6.0	<6.0	<6.0	<6.0	NT	NT	NT	NT	NT	NT	3
Arsenic	12.2	84.2	130	18.5	NT	NT	NT	NT	NT	NT	25
Barium	403	819	1220	107	NT	NT	NT	NT	NT	NT	1,000
Beryllium	ND	ND	4.9	ND	NT	NT	NT	NT	NT	NT	-
Cadmium	ND	7.4	5.8	ND	NT	NT	NT	NT	NT	NT	5
Calcium	244000	1050000	899000	185000	NT	NT	NT	NT	NT	NT	-
Chromium	65.6	190	187	ND	NT	NT	NT	NT	NT	NT	50
Cobalt	ND	58.5	63.5	ND	NT	NT	NT	NT	NT	NT	-
Copper	59.9	198	283	ND	NT	NT	NT	NT	NT	NT	200
Iron	61300	201000	216000	66200	NT	NT	NT	NT	NT	NT	300
Lead	80.3	688	956	5	NT	NT	NT	NT	NT	NT	25
Magnesium	112000	76900	145000	47300	NT	NT	NT	NT	NT	NT	35,000
Manganese	5460	9920	8490	609	NT	NT	NT	NT	NT	NT	300
Mercury	0.23	1.4	1.4	ND	NT	NT	NT	NT	NT	NT	0.7
Nickel	69.7	114	122	ND	NT	NT	NT	NT	NT	NT	100
Potassium	8470	11800	21200	6450	NT	NT	NT	NT	NT	NT	-
Selenium	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	10
Silver	<5.0	<5.0	<5.0	<5.0	NT	NT	NT	NT	NT	NT	50
Sodium	33500	18600	11500	14500	NT	NT	NT	NT	NT	NT	20,000
Thallium	<5.0	<5.0	<5.0	<5.0	NT	NT	NT	NT	NT	NT	-
Vanadium	88	169	256	ND	NT	NT	NT	NT	NT	NT	-
Zinc	273	2680	1050	ND	NT	NT	NT	NT	NT	NT	2,000

Notes:
1.October 2015 sample analysis completed by Accutest Laboratories; December 2016 sample analysis completed by Alpha Analytical. Compounds detected in one or more samples are presented in this table. Refer to Appendix for the full analytical report.
2. ug/L = part per billion
3. Analytical results compared to NYSDEC Class GA criteria obtained from the Division of Water Technical and Operational Guidance Series (TOGS 1.1.1), dated October 1993, revised June 1999, January 1999 errata sheet, and April 2000 addendum.
4. Gray shading indicates exceedance of NYSDEC Class GA Criteria.

Soil Boring & Micro Well Locations (10/15-10/16/16)

MW1 – Existing Monitoring Well

Soil Boring & Piezometer Locations (12/21-12/23/16)

APPENDIX B

QUALITY ASSURANCE PROJECT PLAN

QUALITY ASSURANCE PROJECT PLAN

BROWNFIELDS CLEANUP PROGRAM
For
MOD-PAC CORP.
1801 Elmwood Avenue, Buffalo, New York 14207
BCP # C915314

Prepared For:
MOD-PAC CORP.
1801 Elmwood Avenue, Buffalo, New York 14203
HEI Project No: e1605

Prepared By:
Hazard Evaluations, Inc.
3636 North Buffalo Road
Orchard Park, New York 14127
(716) 667-3130

August 18, 2017

HAZARD EVALUATIONS

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1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) has been cooperatively developed by Hazard Evaluations Inc. (HEI) and as prepared for MOD-PAC CORP. (MOD-PAC) addressed at 1801 Elmwood Avenue, Buffalo, New York. The QAPP was prepared in general accordance with the requirements of Section 2.4 of the New York Department of Environmental Conservation (NYSDEC) DER-10, Technical Guidance for Site Investigation and Remediation, dated May 2010 (DER-10).

The QAPP is designed to produce data of the quality necessary to achieve the project objectives. The objective of the quality assurance/quality control (QA/QC) protocol and procedures is to ensure the information, data, and decisions associated with the project are technically sound and properly documented.

1.1 Project Scope

This QAPP presents the project scope, objectives, organization, planned activities, data quality objectives, QA/QC procedures and sampling procedures. This project involves test borings, test pits, monitoring well installation, monitoring well development, subsurface soil and groundwater sample collection, and sub-slab vapor and ambient air sample collection. Proposed sampling locations are included on Figure 1 and a summary of the anticipated number of samples and analytical testing is included on Table 1. The project goal associated with the Remedial Investigation (RI) includes the following:

- Define the nature and extent of on-site contamination in both soil and groundwater.
- Identify on-site source areas of contamination, if any.
- Collect data of sufficient quantity and quality to evaluate potential threats to the public health and environment.
- Collect data of sufficient quantity and quality to evaluate remedial alternatives.

1.2 Project Organization

The general responsibilities of key project personnel are listed below. Resumes are included in Attachment A.

Project Manager:	Ms. Michele Wittman, HEI Director of Site Services, has responsibility for overall program/project management and coordination with NYSDEC and subcontractors.
Technical Coordinator:	Victor O'Brien, PE, is responsible for engineering aspects and responsibilities.
Field Team:	Mr. Eric Betzold will have overall responsibility for on-Site implementation of the Site Investigation project activities. The technical team will consist of experienced professionals (i.e.; engineers, geologists,

	scientists) to gather and analyze data, prepare project documentation and collection of various soil and groundwater samples.
QA Officer:	Mr. Mark Hanna, CHMM, will serve as Quality Assurance Officer (QAO), and will be responsible for laboratory and data validation, subcontractor procurement and assignment, as well as data usability reports. The QAO may conduct audits of the operations at the site to ensure that work is being performed in accordance with the QAAP.

1.3 Project Sub-Contractors

Subcontractor specialists will be contracted for services relating to drilling and monitoring well installation, laboratory/analytical services, data validation services, field surveying, and waste transportation and disposal. The subcontractors will be determined approved by NYSDEC prior to beginning of site work:

Laboratory Analysis:	Alpha Analytical - A laboratory certified under the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)
Data Validation:	Data Validation Services
Exploration Services:	To be determined.
Surveying:	To be determined.

2.0 FIELD INVESTIGATION PROCEDURES

Field sampling at MOD-PAC CORP. (Site) has been designed to obtain representative samples of various environmental media to assess impact that the Site may have to human health and the environment. The field investigation procedures include sampling for subsurface soils, groundwater, air and vapor samples.

Proposed sampling locations are included within the RI Work Plan. Environmental sampling and other field activities will be performed in general accordance with the appropriate techniques presented in the following guidance document:

DRAFT DER-10: Technical Guidance for Site Investigations and Remediation; NYSDEC Division of Environmental Remediation, May 2010.

Field activities are described in the following sections and in the RI Work Plan.

2.1 Air Monitoring

Air monitoring/screening of volatile organic compounds (VOC) for health and safety concerns will be performed with a portable organic vapor meter (OVM) equipped with a photoionization detector (PID) that is using a 10.6 electron volt (eV) bulb. Monitoring will be done during invasive activities which include soil borings, monitoring well installation, well development, and sampling. Detections of volatile compounds above background levels during air monitoring will require that the work be stopped until air monitoring levels decrease to acceptable background levels or until health and safety protocol are upgraded and approved by NYSDEC. On-site personnel will be outfitted in modified Level D personnel protection (i.e., hardhat, safety glasses, work boots and gloves).

2.2 Soil Screening and Logging

Subsurface soil samples will be collected from direct push macro-core samplers in general accordance with American Society for Testing and Material (ASTM) D6282-98: Standard Guide for Direct Push Soil Samples for Environmental Site Characteristics. Subsurface soil sampling from split-spoon samples advanced ahead of hollow steam augers will be completed in general accordance with ASTM D1586-99. A soil boring log will be prepared for each location to include date, boring location, drill rig type, blow counts, sample identification, sample depth interval, percent recovery, OVM reading, stratigraphic boundaries, and well installation information.

Subsurface soil will be sampled by opening the split-spoon sampler (borings) or slicing the core vertically down the middle with a sharp blade. Soil samples will be visually examined for evidence of suspect contamination (e.g., staining, odor) and field screened with a calibrated OVM. Portions of the soil samples may be placed in containers for future analytical testing. Different portions of the soil samples will be placed within sealable plastic bags and will be field screened the same day as collected. Prior to screening, the soil samples will be allowed to equilibrate to ambient temperature. The OVM sampling port will be placed within a corner of the bag. The peak reading will be recorded on the boring log.

2.3 Soil Sample Collection

Soil samples selected for VOC analysis will be collected using an Encore or Terracore sampling kit, limiting headspace by compacting the soil into the container. Samples for VOC will be placed into the appropriate container immediately after opening of the sampler, prior to making any field measurements or sample homogenization.

Remaining soil samples will be homogenized using a "coning and quartering" procedure. The soil will be removed from the sampling equipment and transferred to a clean surface (e.g., metal foil, steel pan, bowl, etc.) and thoroughly mixed to provide a more homogeneous sample to the lab. An aliquot of the sample will then be transferred to the required sample containers and sealed with the appropriate cap.

2.4 Soil Borings

Soil borings will be completed using either direct push subsurface investigation techniques or rotary drilling with continuous split-spoon sampling and hollow-stem augers. Drilling cuttings will be visually inspected and screened with an OVM and managed consistent with DER-10 requirements. Soil sampling will be conducted to define the subsurface conditions. During continuous sampling process, soil samples will be field screened for the presence of VOCs using an OVM. Soil samples for laboratory analysis will be selected in the field based on visual/olfactory observations and OVM screening results.

The drill rig/ soil probe rig, tools, augers, etc., will be decontaminated between holes at an on-site temporary decontamination pad or area. Decontamination will be accomplished using steam cleaning or high pressure wash equipment. Direct push sampling equipment and split-spoon sampling devices will be cleaned manually with non-phosphate detergent (i.e., Alconox) wash and potable water followed by a potable water rinse or a second steam cleaning followed by a distilled/deionized water rinse. All equipment will be cleaned prior to leaving the Site.

2.5 Test Pits

Test pits will be completed using a track-mounted excavator and bucket to provide a detailed visual examination of near surface soil, and fill materials present on-site. Samples will be collected through the use of a bucket, steel trowels and bowls, inspected and screened with an OVM and managed consistent with DER-10 requirements. Samples are collected from the walls and/or floor of the pit. Samples are placed directly into the appropriate sample containers. During the continuous sampling process, soil samples will be field screened for the presence of VOCs using an OVM. Soil samples for laboratory analysis will be selected in the field based on visual and olfactory observations and OVM screening results.

Sampling equipment will be cleaned manually with non-phosphate detergent (i.e., Alconox) wash and potable water followed by a potable water rinse or a second steam cleaning followed by a distilled/deionized water rinse. All equipment will be cleaned prior to leaving the Site.

2.6 Monitoring Well Installation

Monitoring wells will be constructed of two-inch ID flush coupled with Schedule 40, polyvinyl chloride (PVC) riser and screen. The actual installation depth and screen depth will be selected based on groundwater depth, observation of subsurface materials, and headspace screening test results. In general, the screen will consist of a maximum ten foot length of 0.010-inch machine slotted well screen. A schematic of the well construction detail is provided as Figure 2.

Following placement of the assembled screen and riser, the borehole will be backfilled. The well screen depth will be backfilled with silica sand filter pack (estimated at size #0) from the base to a minimum of one (1) foot above the well screen. A minimum one-foot layer of bentonite pellets will be placed above the sand filter and allowed to hydrate. A mixture of cement/bentonite water will be placed above the bentonite seal. The monitoring well will be completed by placing a locking steel casing or road box over the riser. Concrete will be then placed in the borehole around the protective casing and sloped away from the casing.

2.7 Monitoring Well Development and Sampling

2.7.1 Monitoring Well Development

Monitoring wells will be developed by utilizing either a dedicated tubing or new dedicated disposable bailer, depending on the field conditions. Fluids will not be added during the development process. New dedicated well development equipment will be utilized prior to development of each well. The well development procedure is listed below.

- Unlock Well cover. Survey the ambient air and air directly at the top of the well using the OVM.
- A pre-development static water level measurement will be taken.
- Sound the bottom of the well and agitate/loosen accumulated sediment.
- Calculate water volume in the well.
- Obtain initial field water quality measurements, including pH, specific conductance, turbidity, and temperature obtained using a Horiba U-22 water quality meter (or equivalent).
- Alternate water agitation methods such as moving a bailer or pump tubing up and down inside screened interval coupled with water removal methods (pumping or bailing) in order to suspend and remove solids/sediment from the wells.
- Record water quality meter measurements every one to three gallons of water removed. Record water quantities removed and water quality measurements.
- Development can cease when the following water quality criteria are met, or at least five well volumes have been removed:
  - Water is clear and free of sediment and turbidity is less than 50 nephelometric turbity units (NTUs);
  - pH is +/- 0.1 standard unit between readings;
  - Specific conductivities is +/-3% between readings; and
  - Temperature is +/-10% between readings.
- Record post-development water level readings. Development information will be recorded on well development logs.

After the water level has returned to its pre-purge level (or within a maximum of two hours, if the well has recharged sufficiently to allow sampling), samples will be collected from the middle of the screened portion of the well for overburden wells. If the water level is slow to recharge and does not reach its pre-purge level within two hours, then samples can be collected after sufficient water has recharged. Degree of recharge will be indicated in field notes, with time and depth-to-water noted.

2.7.2 Groundwater Sampling

Groundwater samples will be collected by utilizing low-flow sampling techniques with dedicated tubing or by conventional methods using a new dedicated disposable bailer. A peristaltic pump and new disposable high density polyethylene (HDPE) tubing will be used at each location. Tubing and sampling equipment will be cleaned upon arrival at the Site. After removal of three well volumes or well purging, the well will be sampled.

A Well Data Sheet should be completed during groundwater sampling. Each well to be sampled will have designated pre-labeled, certified clean, sample bottles. The following steps describe the groundwater sample procedure:

- Unlock and remove well cap. Test the air at the wellhead with the OVM.
- Measure the static water level. Determine the total well volume.
- Slowly lower the dedicated bailer or tubing into the well. Purge the well a minimum of three well volumes. If the well goes dry during bailing, allow for full recovery and sample. If recovery takes longer than 20 minutes, proceed to next well but return to sample within 24 hours.
- Fill the appropriate sample bottles. Two or three (depending on laboratory-specific requirements) 40-ml glass vials (with Teflon septa) will be used to collect samples for VOCs. Sample collection with the following sample collection order: volatile organic compounds, semi-volatile organic compounds, PCBs/pesticides/herbicides, and metals. If the well should go dry during sampling, the well will be re-sampled the next day. The second attempt to sample the well will proceed with the same sample order.
- Preservative for the various sampling preservatives will be added by the laboratory-provided jars. The following parameters require additional special handling:
  - VOC samples must be free of air bubbles. When the container is determined to be bubble free, the sample containers should be immediately chilled.
  - Metals analysis should be preserved with nitric acid to a pH less than two.
- Record pertinent information in the field logbook and well data sheet.
- Lock well, inspect well site, and note any maintenance required.
- Purged water will be containerized for future disposal.

2.8 Soil Vapor Intrusion Sampling

Soil vapor intrusion (SVI) investigation will be completed to assess potential for soil vapor intrusion concerns associated with the current on-site building. The SVI work will be done in general accordance with the NYSDOH Final document entitled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York", dated October, 2006. Specifically, the scope of work will include the following:

2.8.1 Pre-Sampling Building Inspection and Product Inventory

An inspection of the existing on-site building and product inventory will be conducted to assess the current conditions and determine the likelihood of existing chemicals of concern that may be present that would influence the vapor test results. The inspection should evaluate the type of structure, floor layout, air flows and physical conditions of the building. An example inventory form is included in Attachment B.

The presence and description of odors will be identified and a portable photoionization detector (PID) will be used to monitor indoor air and help evaluate potential odor sources. Any potential sources identified inside the building will be removed prior to conducting the vapor test.

2.8.2 Site Preparation

Sub-slab vapor samples and indoor air samples will be collected during the heating season as soil vapor intrusion is more likely to occur when the buildings heating system is in operation and doors/windows are closed. In accordance with NYSDOH recommendations, the heating, ventilation, and air conditioning (HVAC) system should be activated.

The southern portion of the building is occupied by a warehouse with limited heating available. A determination will be made if its HVAC system is operational in the warehousing area, and if activation is possible. If activation is possible, the HVAC system will be operational for 24 hours prior to sampling.

2.8.3 Vapor Sampling

Three types of air samples will be collected, including sub-slab, ambient indoor air and ambient outdoor air samples, as follows:

Sub-Slab Vapor Sample: The building floor will be inspected and any cracks, floor drains, sumps, etc., will be noted and recorded. Sample locations should be installed where the potential for ambient air infiltration via floor penetrations is minimal.

Temporary sub-slab vapor sampling points will be installed. A vacuum should not be used to remove debris from the sampling port area. The sub-slab vapor points will be installed as follows:

- The sampling port will be accessed through core-drilled holes into a competent portion of the concrete floor, away from cracks or drains.
- Clean, dedicated 1/8 to ¼-inch inside diameter inert tubing (e.g. polyethylene, nylon, Teflon, etc.) will be placed into the hole and will not extend further than two inches into the sub-slab material.

- Porous, inert backfill (e.g. glass beads, washed #1 crushed stone, etc.) will be added to cover about one-inch of the probe tip.
- The hole annulus will be sealed at the floor surface with non-VOC-containing, non-shrinking products (e.g. permagum grout, melted beeswax, putty, etc.).
- Once it is determined that the sampling system is sealed, the sample probe and tube will be purged of one to three volumes. Flow rates for purging should not exceed 0.2 liters per minute to minimize ambient air infiltration during sampling.
- Samples will be collected using conventional methods. The sampling canister and flow rate should allow for an eight-hour sample collected at a rate not to exceed 0.2 liters per minute. Sample canisters will be low-flow rate, summa canisters (one to six-liter in size) for analysis via United States Environmental Protection Agency (USEPA) Method TO-15.
- A sample data sheet will be completed for each sampling location. Sample sub-slab vapor probe sampling data sheet is included in Attachment B.

Ambient Indoor Air: An ambient indoor air sample will be collected concurrently with each sub-slab sample. Samples will be collected from a height to represent the breathing zone, approximately three to five feet above the slab floor.

The sampling duration should be set to an eight-hour sample due to future usage as commercial/light industrial. Samples will be collected using conventional methods. The sampling canister and flow rate should allow for an eight-hour sample collected at a rate not to exceed 0.2 liters per minute. Sample canisters should be low-flow rate, summa canisters (one to six-liter in size) for analysis via USEPA Method TO-15. After setup of the sampler, personal should avoid lingering in the immediate area of the sample. A sample data sheet will be completed for each sampling location. Sample sub-slab vapor probe sampling data sheet is included in Attachment B.

Ambient Outdoor Air: One ambient outdoor sample will be collected at an upwind location, away from wind obstructions (i.e., trees, bushes) and at a height above the ground to represent breathing zones, approximately three to five feet above the ground surface. Samples will be collected using conventional methods. The sampling canister and flow rate should allow for an eight-hour sample collected at a rate not to exceed 0.2 liters per minute. Sample canisters should be low-flow rate, summa canisters (one to six-liter in size) for analysis via USEPA Method TO-15. A sample data sheet will be completed for each sampling location. A sample sub-slab vapor probe sampling data sheet is included in Attachment B. Since the ambient outdoor air sample is dependent on wind flow direction, that sample location will be determined the day of the test.

2.8.4 Soil Vapor Sampling Leak Testing Procedures

When collecting soil vapor samples, a tracer gas can serve as a QA/QC measure to verify the integrity of the soil vapor probe seal. Leak testing will be completed prior to collection of the sub-slab sample locations using a tracer gas. The tracer gas (i.e. helium) will be released at the ground surface immediately around the sub-slab sampling location prior to sample collection. The following procedure will be used:

- A helium meter will be used to monitor the presence of helium during purging and soil gas sample collection.
- A containment unit will be constructed to cover the sub-slab sampling system. In general, the containment will include a shroud set into bentonite to create a seal. The shroud will have a hole to allow for introduction of helium and a second to allow trapped air to escape.
- Prior to soil gas purging, helium will be introduced into the shroud and helium confirmed to be present.
- The helium meter will be connected in-line with the sub-slab sampling assembly to assess for presence of helium. Should the helium meter detect the presence of helium greater than 10 percent of the source concentration (measured under the shroud), then the probe seal will be enhanced to reduce the infiltration of ambient air.
- Tracer gas confirmation will be completed at each temporary soil vapor probe location.

2.9 <u>Background Samples</u>

Due to the historical industrial usage of the Site and industrial nature of the Site contaminants, soils and groundwater samples have not been pre-designed as likely to characterize Site background conditions.

2.10 <u>Equipment Decontamination</u>

In order to reduce the potential for cross-contamination of samples collected during the project, sampling equipment will be decontaminated to ensure that data is acceptable. It is anticipated that most of the materials used in sample collection will be disposable one-time use materials, such as sampling containers, bailers, tubing, gloves, etc.

Non-dedicated material such as split-spoon samples, stainless steel mixing bowls, drill rig, water-level indicator, etc., will be decontaminated by the following methods:

- Steam clean the equipment within a dedicated decontamination area; or
- Decontaminate the equipment by scrubbing/washing with a laboratory-grade detergent (e.g. Alconox) to remove visible contamination,

followed by potable (tap) water and analyte-free water rinses. Tap water may be used from any treated municipal water system.

The effectiveness of the equipment decontamination of non-dedicated sampling equipment will be evaluated via analytical testing of rinsate blanks. Decontamination liquids, disposable equipment, and personal protective equipment (PPE) will be containerized for future disposal.

2.11 Storage and Disposal of Investigation-Derived Waste

The sampling methods and equipment have been selected to limit the need for decontamination and the volume of waste material to be generated. Investigation-derived material (e.g., drill cuttings and purge water) generated will be presumed to be non-hazardous waste and will be disposed at the boring or well from which the material was derived. Excess auger cuttings will be drummed and stored on Site for future disposal. Monitoring well development/purge water will be containerized in 55-gallon drums for testing and future off-site disposal.

Personal protective equipment and disposable sampling equipment will be placed in plastic garbage bags for disposal as a non-hazardous waste.

Decontamination water used in steam cleaning and/or spoon washing, and rinse-water, including detergent, may be generated during Site work. Tap and analyte-free water used for rinsing will be allowed to percolate back into the ground, or will be disposed into a sanitary system. Non-phosphate detergent and rinse-water will be disposed into a sanitary system.

2.12 Survey/Site Mapping

A topographic base map will be prepared by a New York State licensed surveyor. This will allow measurement of the actual exploration locations and elevations. The base map will include property lines, buildings, fence lines, and other key Site features. The surveyor will establish the horizontal location and vertical elevations. The map will include the RI investigation/sampling locations. Monitoring well vertical measurements will include the ground surface at exploration locations, plus the top of casing and top of riser at monitoring well locations. The top of riser will serve as the water level monitoring point. Soil/fill boring locations will be field located and incorporated within the survey. Elevations of the ground surface and top of PVC riser will be measured for each monitoring well.

3.0 SAMPLE HANDLING AND MANAGEMENT

Various environmental samples will be collected during the RI investigation work. The procedures below will assist in documentation and tracing of the various samples. During sampling, field personnel will wear disposable latex or nitrile gloves. Gloves will be changed and discarded between sampling locations.

Laboratory analysis samples will be placed in new laboratory-grade containers. Appropriate sample preservatives will be added to the sample containers by the laboratory prior to delivery to the project site. The specific volume and preservation of samples, if any, is summarized on Table 2. Samples will be shipped to the laboratory within 48-hours from sample collection. Samples will be kept in coolers, on ice, for shipment to the analytical laboratory.

3.1 Sample Label and Identification

Each field and QC sample will be identified by a self-adhesive, non-removable label placed on the sample containers. The label information will include, at a minimum, client name, Site location, data and time of collection, sample identification number, sampler's name, and notes, as needed, recorded in waterproof ink. All sample bottles within each shipping container will be individually labeled with the laboratory-provided label.

Each sample will be labeled with a unique identification using the following test location designations:

Designation	Media Type	Sample Location	Example
SB	Soil	Soil boring number with sample depth interval (x-x')	SB1 (8-10')
TP	Soil	Test pit number with sample depth interval (x-x')	TP3 (4-8')
MW	Groundwater	Monitoring well with well number	MW2
EX	Soil	Excavation confirmation sample with sample depth interval	EX3 (1-2')
SSV	Sub-slab vapor	Sub-slab vapor intrusion sample	SSV4
AA	Ambient air	Indoor air sample, concurrent with SSV	AA4
OA	Outdoor air	Outdoor air sample	OA1
TB	Trip blank	None – include day/month/year	TB1 – 10/25/16
RB	Rinsate blank	Any – rinsate of sampling equipment; include day/month/year	RB2 – 10/25/16
MS/MSD	Matrix spike/ matrix spike duplicate	Any – identify original sample location	SB1 MS MW2 MSD

Quality control (QC) field duplicate samples will be submitted blind to the laboratory; a fictitious sample identification will be created using the same system as the original. The sample identifications (of the original sample and its field duplicate) will be marked in the project-specific field book and on the copy of the chain-of-custody kept by the sampler and copied to the project manager.

3.2 Chain of Custody

A chain-of-custody form will trace the path of sample containers from the project Site to the laboratory. An example chain-of-custody is included in Attachment 2. The chain-of-custody documentation will accompany the samples from their inception until analysis. Pertinent field information will be included on the chain-of-custody, including client name, project name/location, sampler name, sample identification number, date, time, media, sample type (i.e., grab/composite), number of containers, analysis required, and preservation.

Samples will be packaged into coolers used for shipment. The cooler will be packed with ice (or equivalent) to maintain sample temperature at 4°C. The chain-of-custody forms will be signed and placed in a sealed plastic bag in the cooler. The cooler will be sealed and the custody seal placed over the cooler opening, designed to break if opened or disturbed. The custody seal will be signed and dated. Shipping tape will be wrapped around the cooler and over the custody seal. Sample receipt personnel at the laboratory will document whether the custody seals remained intact upon arrival and lab personnel will sign the chain-of-custody form.

4.0 FIELD DOCUMENTATION

Daily field activities will be recorded in a bound field notebook. The field notebook will include the following daily information for Site activities:

- Date, time of arrival, time of departure, weather conditions;
- Field staff, sub-contractors or other personnel on Site;
- Description of field activities and location of work area;
- Equipment used on Site (such as drill rig, operator);
- Field observations and descriptions, such as soil descriptions, well/piezometer installation information, evidence of contamination, staining, odors, etc.;
- Field measurements (OVM, water quality readings) and calibration;
- Sampling locations, depths, identification numbers, time, etc.;
- Sampling location measurements;
- Chain-of-custody information; and
- Modifications to scope of work or issues encountered.

Field notes may be transferred to soil boring logs, or monitoring well forms as part of the RI. Typical forms to be utilized during the field investigation are presented in Attachment 2 and include:

- Daily Field Report
- Soil Boring Log
- Test Pit Log
- Monitoring Well Installation Log
- Well Development Data Sheet
- Chain of Custody
- Building Inventory

- SVI Sampling Data Sheet

5.0 ANALYTICAL LABORATORY QA/QC PROTOCOLS

This section describes the analytical methods, principles and procedures that will be used to generate quality data. These protocols include laboratory calibration, field equipment calibration, QC sample collection and analysis, quantitative evaluation of data quality protocols and data qualification, if necessary.

5.1 Analytical Methods, Procedures and Calibration

Chemical analysis for samples collected during the field work will be completed by a laboratory capable of performing project specific analysis as included in this QAAP.

5.1.2 Analytical Methods

Sample analytical analysis will be consistent with the NYSDEC Analytical Services Protocols (ASP) Category B requirements. Specific methods and references for each parameter including sample preservation and holding times are shown on Table 2. Quantification and detections limits for all analysis are those specified under the appropriate test methods.

5.1.3 Laboratory Instrumentation & Equipment

Laboratory instruments and equipment will be calibrated following USEPA's SW-846 analytical methods protocol and laboratory requirements.

5.1.3 Field Equipment

Various field equipment will be used during the project. Calibration of the field equipment will be completed in accordance with manufacturer's specifications, prior to the start of each day.

Organic Vapor Meter – Real-time monitoring for VOCs will be done with an organic vapor meter (OVM) equipped with a photoionization detector (PID) to evaluate the nature and extent of potential petroleum or solvent impacts at the Site. The OVM will be calibrated on a daily basis in accordance with manufacturer's specifications.

Particulate Monitoring Equipment – Particulate air monitoring will be completed during soil excavation activities as noted in the Community Air Monitoring Plan (CAMP). Measurements will be collected along the upwind perimeter of the excavation areas to assess the amount of particulates naturally occurring in the air. The particulate meter will be regularly calibrated in accordance with the manufacturer's specifications.

Additional Field Equipment – Additional field equipment will be used as part of the project including an electric static water level indicator and Horiba U-22 water quality meter that measures pH, specific conductivity, temperature, dissolved oxygen, oxygen reduction potential, and turbidity. The meters will be calibrated in accordance with the manufacturer's specifications.

5.2 Quality Control Samples

Analytical methods, summarized on Table 2, to be utilized for laboratory sample analysis address the quality control to be used and the frequency of replicates, blanks and calibration standards for laboratory analytical equipment. Several types of field QC samples will be collected and submitted for laboratory analysis including trip blanks, sample duplicate, matrix spike and matrix spike duplicate.

Trip blanks – A trip blank sample monitors for potential impacts due to handling, transport, and cross-contamination from other samples during storage or laboratory contamination. The trip blanks, for aqueous VOCs only, will consist of analyte–free, reagent-grade water in VOC sampling containers to be used for the project. Trip blanks will be prepared at the laboratory, sealed, transported to the Site and returned without being opened to assess contamination that may have occurred during transport. Trip blanks will be submitted at a rate of one per cooler when aqueous VOCs are shipped to the laboratory.

Blind duplicates – Blind duplicate samples are used to monitor field and laboratory precision, as well as matrix heterogeneity. The samples are separate aliquots of the same sample, collected from the same location, at the same time, in the same manner as the first, and placed into a separate container. Each duplicate sample will be analyzed for the same parameters as the original sample collected that day. Blind duplicates will be collected at a frequency of one per 20 environmental samples of a given matrices (i.e. soil or groundwater).

Matrix spike/matrix spike duplicate (MS/MSD) – MS/MSDs are used to monitor precision and accuracy of the analytical method on various matrices. The samples are spiked with known quantities of target analytes at the laboratory. The MS/MSD will be collected at a frequency of one pair per 20 environmental samples of a given matrices (i.e. soil or groundwater).

Rinsate Blanks – The rinsate blank is used to indicate potential contamination from sample instruments used to collect and/or transfer samples. The rinsate blank will be generated by passing distilled water through and over cleaned sampling equipment. Rinsate blank samples will not be performed when dedicated disposal equipment is used. The rinsate blank will be collected at a frequency of one per 20 environmental samples of a given matrices (i.e. soil or groundwater).

5.3 Corrective Actions

If instrument performance or data fall outside acceptable limits, then corrective actions will be taken to resolve problems and restore proper functioning of the analytical system. Actions may include recalibration or standardization of instruments, acquiring new standards, replacing equipment, repairing equipment, and reanalyzing samples or redoing sections of work. Subcontractors providing analytical services should perform their own internal laboratory audits and calibration procedures with data review conducted at a frequency so that errors and problems are detected early, thus avoiding the prospect of redoing large segments of work.

6.0 DATA USABILITY

The main objective of the Data Usability Summary Report (DUSR) is to determine whether the data presented meets the project-specific needs for data quality and data use. Data validation will be performed and a DUSR will be prepared to meet the NYSDEC requirements for analytical data generated during the RI. The DUSR will be completed in general accordance with Appendix 2B of DER-10. The findings of the DUSR will be incorporated in the RI report. Waste characterization samples will not be validated.

TABLES

TABLE 2
Sample Container, Volume, Preserving and Holding Time Requirements
MOD-PAC CORP.
1801 Elmwood, Buffalo, New York
NYSDEC Brownfield Cleanup Program

PARAMETER DESCRIPTION	MATRIX	METHOD NO.	Quantity/ Bottle Type	Preservation	Holding Time
Soil Samples					
Volatiles, TCL list	Soil	5035/3035A/8260	Encore or Terracore Samplers	Freeze withint 48 hours	Freeze within 48 hours 14 days
Semi-Volatiles, TCL list	Soil	8270	(1) 4oz glass jar	Cool, 4 C	14 days
Metals, TAL (no CN)	Soil	6010/7000	(1) 4oz glass jar	none	180 days, Mercury 28 days
PCBs	Soil	8082	(1) 4oz glass jar	Cool, 4 C	365 days/40 days from extraction
Pesticides	Soil	8081	(1) 4oz glass jar	Cool, 4 C	14 days/40 days from extraction
Herbicides	Soil	8151	(1) 4oz glass jar	Cool, 4 C	14 days/40 days from extraction
Monitoring Wells					
Volatiles, TCL list	Water	8260	(3) 40ml vial	Cool, 4 C, HCL	14 days
Semi-Volatiles, TCL list	Water	8270	(2) 1 liter amber	Cool, 4 C	7 days
PCBs	Water	8082	(2) 1 liter amber	Cool, 4 C	7 days/40 days from extraction
Pesticides	Water	8081	(2) 500ml amber	Cool, 4 C	7 days/40 days from extraction
Herbicides	Water	8151	(2) 1 liter amber	Cool, 4 C	7 days/40 days from extraction
Metals, TAL	Water	6010	(1) 250ml plastic	HNO3	180 days
Mercury, Total	Water	7000	(1) 250ml plastic	HNO3	28 days
Metals, TAL (dissolved) field filtered	Water	6010	(1) 250ml plastic	HNO3	180 days
Mercury, Dissolved	Water	7000	(1) 250ml plastic	HNO3	28 days

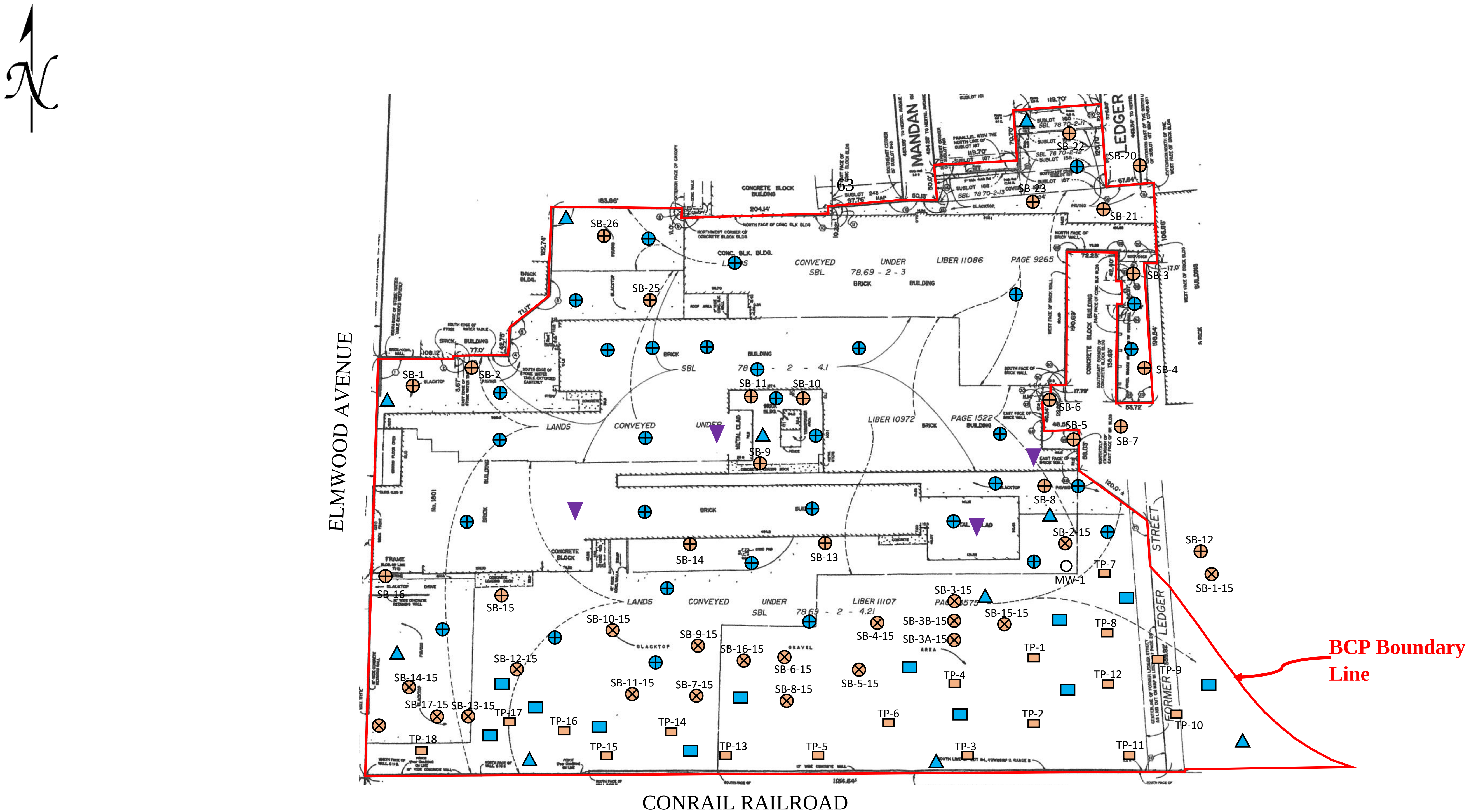
TABLE 1
Analytical Testing Program Summary
MOD-PAC CORP.
1801 Elmwood, Buffalo, NY
NYSDEC Brownfield Cleanup Program

Location	Number of Proposed Locations	Matrix	TCL VOCS	TCL SVOCs	TAL METALS Total	TAL METALS dissolved	PCBs	Pest/ Herbs	VOC - TO-15
Surface Soil Samples									
Soil Boring	0	Soil	-	-	-	-	-	-	-
Duplicate		Soil	-	-	-	-	-	-	-
MS/MSD		Soil	-	-	-	-	-	-	-
Rinsate		Water	-	-	-	-	-	-	-
Total			**0**	**0**	**0**	**0**	**0**	**0**	**0**
Soil Borings - Subsurface Samples									
Soil Boring	40	Soil	20	30	30	-	10	4	-
Duplicate		Soil	1	2	2	-	1	1	-
MS/MSD		Soil	2	4	4	-	2	2	-
Rinsate		Water	1	2	2	-	1	1	-
Total			**24**	**38**	**38**	**0**	**14**	**8**	**0**
Test Pit Locations - Subsurface Samples									
Soil Boring	15	Soil	8	15	15	-	4	0	-
Duplicate		Soil	1	1	1	-	0	0	-
MS/MSD		Soil	2	2	2	-	0	0	-
Rinsate		Water	1	1	1	-	0	0	-
Total			**12**	**19**	**19**	**0**	**4**	**0**	**0**
Monitoring Wells									
Monitoring Well	9	Groundwater	9	9	9	9	4	4	-
Duplicate		Groundwater	1	1	1	1	1	1	-
MS/MSD		Groundwater	2	2	2	2	2	2	-
Rinsate		Water	1	1	1	1	1	1	-
Trip Blank		Water	1	-	-	-	-	-	-
Total			**14**	**13**	**13**	**13**	**8**	**8**	**0**
Sub-slab/Ambient Air samples									
Sub-slab	4	Air	-	-	-	-	-	-	4
Ambient Air	4	Air	-	-	-	-	-	-	4
Outdoor		Air	-	-	-	-	-	-	1
Duplicate		Air	-	-	-	-	-	-	1
MS/MSD		Air	-	-	-	-	-	-	2
Rinsate		Air	-	-	-	-	-	-	-
Trip Blank		Air	-	-	-	-	-	-	1
Total			**0**	**0**	**0**	**0**	**0**	**0**	**13**
			VOCs	SVOCs	METALS	METALS	PCBs	Pest/ Herbs	VOC - TO-15
		TOTAL SAMPLES	**50**	**70**	**70**	**13**	**26**	**16**	**13**

Notes:

TCL VOCs - Target Compound List Volatile Organic Compounds.
TCL SVOCs - Target Compound List Semi-volatile Organic Compounds.
TAL Metals - Target Analyte List Metals.
TCL PCBs - Target Compound List Polychlorinated Biphenyls.
VOC TO-15 - sub-slab, ambient air and soil vapor probe analysis

FIGURES



KEY

- = Soil Boring Locations (12/2016)
- = Soil Boring Locations (10/2015)
- = Test Pit Locations (10/2015)
- = Proposed Soil Boring Location
- = Proposed Monitoring Well Location
- = Proposed Test Pit Location
- = Proposed Vapor Intrusion Sampling Location

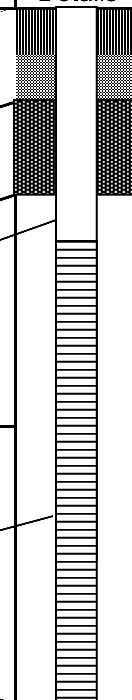
HAZARD EVALUATIONS, INC.		
Phase I/II Audits – Site Investigations – Facility Inspections		
Proposed Exterior Investigation Locations 1801 ELMWOOD BUFFALO, NEW YORK		
MOD-PAC CORP BUFFALO, NEW YORK		
DRAWN BY: MMW	SCALE: 1" = 150'	PROJECT: e1605
CHECKED BY:	DATE: 07/17	FIGURE NO: 1

Hazard Evaluations, Inc.	Date started: Date finished:	Hole No.: Sheet 1 of 1

Client:
Location:

Project No.: Proj. Mgr:	Drilling Co. Driller: Drill Rig:	Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	Well Construction Details	Field Analytical Readings	Well Details	Groundwater and Other Observations
				1" well completed w/ flush road box			
				Cement/bentonite mix (1' - 2')			
4	2	4-8		Bentonite pellets (2'-4')			
				1" sch. 40 PVC riser (0'-5')			
8	3	8-12		#0 sand (4'-15')			
12	4	12-15	N/A: Well completed w/ geoprobe drill rig	1" sch. 40 PVC (.010 slot screen).			
				Bottom of screen 15 feet bg.			
				Bottom of borehole 15 feet bg.			
16							
24							
30							



S=Split Spoon: ________ T= Shelby Tube: ________
R= Rock Core: ________ WH = Weight of Hammer
N = ASTM D1586

Backfill Well Key:
Grout
Sand
Cement/ Bentonite
Bentonite

Attachment 1

Resumes

HAZARD EVALUATIONS

C. Mark Hanna, CHMM
President, Principal

Mr. Hanna has over 34 years of experience in environmental pollution control and health/safety services. As principal for Hazard Evaluations, Inc., Mr. Hanna is responsible for all technical services. He specializes in hazardous materials/wastes management, site assessment and remediation, industrial compliance auditing, chemical exposure assessment, safety program development and implementation, and Process Safety Management and Risk Management Planning programs.

Mr. Hanna's career has included over 40 federal/state Superfund projects and over 1,500 due diligence projects. His industrial experience focuses on air, water, waste and chemical management compliance aspects at metal working, wood working, foundry, electroplating, printing and food production facilities.

Education

B.A., 1975, Biology, S.U.C. at Oswego, N.Y.

M.S., 1977, Natural Sciences (Toxicology Concentration), S.U.N.Y. at Buffalo, N.Y.

MEPC, 1982, Pollution Control, Pennsylvania State University

M.S., 1983 Forest Hydrology (Hydrogeology Minor), Pennsylvania State University

Professional Registrations

1985, Certified Hazardous Materials Manager, Senior Level

1989-1998, Registered Environmental Professional

1997, Certified Hazardous Materials Manager, Master Level

Key Skills

- Industrial Emission Permits and Controls
- Hazardous/Solid Waste Management
- Industrial Wastewater Pretreatment and Discharge Permits
- Waste Reduction and Pollution Prevention Programs
- Petroleum and Chemical Bulk Storage
- Industrial Stormwater Management
- Environmental Site Assessments
- Environmental Compliance Assessment
- Industrial Risk Management Program and Audit
- Remedial Investigations
- Brownfield Cleanup Program
- Budgeting & Cost Controls

Affiliations and Certifications

Academy of Hazardous Materials Management, Member
Erie County Local Emergency Planning Committee, Member
New York Water Environment Association, Member
International Institute of Ammonia Refrigeration, Member
OSHA 40 Hour 29 CFR 1910. (HAZWOPER) Certification

Environmental Project Highlights

- Performed site characterization for subsurface TCE contamination from historical improper disposal via septic system. Developed Interim Remedial Measures and Remedial Alternatives Reports and Work Plan for this Voluntary Brownfield Cleanup. Installed two banks of piezometers to allow both extraction of contaminated groundwater and injection of Potassium permanganate using continuously operating metering pumps. Recovered over 60 gallons of free product and significantly reduced contamination in groundwater in one year.

- Project Manager for the remediation of numerous (85+) underground petroleum storage tank sites located throughout Western New York. The primary method of remediation has been excavation/removal with appropriate management of tank contents and/or residues, cleaning and scrapping of the tanks and piping, and site restoration. Where petroleum releases were detected, excavation/removal of contaminated soil/fill was completed the majority of the time, with soil management including off-site disposal or on-site bio-treatment. In several cases, on-site vapor extraction systems or chemical oxidation systems with groundwater monitoring have been installed as the recommended remedial method.

- Project Manager for industrial site restoration project which involved the characterization of Lead-contaminated kiln brick surfaces. Appropriate characterization allowed demolition debris from kiln to be disposed of in-place on-site as solid waste material as authorized by NYSDEC. Area was then backfilled with structural flowable fill to allow reuse of floor space for manufacturing.

- Completed investigation and remediation (excavate and remove) of subsurface Lead contamination at an historical industrial site in Buffalo (NY).

- Project Manager for non-hazardous aspects of site remediation at former Frontier Chemical-Pendleton Site. Remedial tasks included sampling/analysis of wastes, emptying, cleaning and scrapping of bulk storage tanks and collecting/disposing of various on-site residuals.

- Project Manager for the installation of groundwater monitoring wells at AL Tech Specialty Steel's solid waste management unit located in Watervliet, NY. Prepared Closure Plan and Bid Specifications for the related RCRA surface impoundment. Addressed technical impact of surface run-off from adjacent landfill, steep terrain and on-site source for cover material. Prepared response package required by NYSDEC regarding the basis of design and construction practices completed during closure.

- Project Manager for the remediation of a cutting oil spill at a Lockport, NY machine shop. Cleanup activities included an underground storage tank removal, scarification of surface soils and inoculation of contaminated soils with petroleum biodegrading bacteria. Responsibilities included coordination of subcontractors, soil sampling, and preparation of report certifying contamination removal.

- Project Manager for industrial site restoration project for solid waste materials abandoned on-site in the on-site production of flowable fill as authorized by a NYSDEC Beneficial Use Determination. Flowable fill produced was used as structural fill to backfill subfloor tanks and large vaults to grade within the facility to allow reuse of the floor space. Tasks included CBS-registered process tank fluid removal and management, basement vault water management, chemical lab packing and disposal, PCBs-contaminated concrete characterization and disposal, UST closure and soil management, scrap and demolition debris management, and subsequent SEQR filing and Phase I Environmental Site Assessment.

Regulatory Compliance Project Highlights

- Project Manager for the development of numerous Process Safety Management and/or Risk Management Plan programs utilizing anhydrous ammonia for refrigeration, including Sorrento Lactalis, Inc.'s South Park (Buffalo, NY), Goshen, NY, Nampa, ID and San Jose, CA facilities, Upstate Niagara Cooperative, Inc.'s Culture (West Seneca, NY), Dale Road (Cheektowaga, NY) and Fulton (Rochester, NY) facilities, as well as Rosina Foods, Inc. (West Seneca, NY), Steuben Foods, Inc. (Elma, NY), Elmhurst Dairy, Inc. (Jamaica, NY), and Sodus Cold Storage, Inc. (Sodus, NY). Responsibilities included coordinating written program preparation, Process Hazard Analysis development, preparing release scenarios, evaluating and upgrading SOPs, developing MOC methods, etc.

- Provided consulting services to over 75 facilities nationwide regarding SARA Title III reporting requirements. Services included regulations and process reviews, mass balance calculations, purchasing and process data evaluation, database development and USEPA Tier Two and Form R preparation.

- Project Manager for numerous environmental compliance audits including, Mod-Pac Corp., Buffalo, NY (commercial printing), Sahlen Packing Co., Inc., Buffalo, NY (meat packing), Upstate Niagara Cooperative, Inc., Buffalo, NY (dairy products), MoldTech, Inc., Lancaster, NY (plastics), Sorrento Lactalis, Inc., Buffalo, NY (cheese manufacturing), Chautauqua Hardware Corp., Jamestown, NY (brass hardware), Thomson Professional Publishing, Webster, NY (printed media), Buffalo China, Inc., Buffalo, NY (lead glazed china), Brainerd Manufacturing Co., East Rochester, NY (electroplating and finishing), Falconer Die Casting Co., Inc., Lakewood, NY (aluminum and zinc casting), and Jensen Fittings Corp., North Tonawanda, NY (stainless pipe fittings). These audits emphasized the inspection of all manufacturing operations, hazardous materials and hazardous waste handling, wastewater treatment operations, air emissions and facility records to evaluate current practices with regard to RCRA, SARA, New York State Parts 200 (air), 360 (solid waste) and 370 (hazardous waste) regulations, USEPA Categorical Pretreatment Standards, UIC NESHAP & CFATS regulations, New York State SPDES regulations, and local sewer authority and fire and building department codes.

- Oversaw the modification of an industrial wastewater pre-treatment system for Whiting Door Manufacturing. Evaluated plant manufacturing wastewater sources, modified existing pretreatment system, developed wastewater pretreatment schedule, and completed wastewater discharge monitoring. Developed a Toxic Organics Management Plan to reduce cost of wastewater monitoring. Evaluated and assisted with the revision of municipal Industrial User Permit.

- Project Manager for Title V Clean Air Act permit development for Whiting Door Manufacturing Corp., Dinaire, Inc., Metalico Aluminum Recovery, Inc. and Flexo Transparent, Inc. Continued services include annual emission statements, 12-month rolling emissions determinations and semi-annual compliance reporting.

- Project Manager for Clean Air Act and/or NYSDEC Part 228 determinations and State Air Facility Permit or Air Facility Registration development for numerous industrial clients including Niagara Ceramics Corporation, Buffalo Metal Casting Co., Inc., ITT Standard/XYLEM, Metalico Rochester, Inc., Ulrich Planfiling Equipment Corp., United Silicone, Inc., U.S. Chrome Corp., Metalico Aluminum Recovery, Inc., Truck-Lite Co., Inc., Jensen Fittings Corp., API Delavan, Inc., Tapecon Inc., Dura-Plating, Inc., Buffalo China, Inc., Forsyth Industries, Inc., Jamestown Laminating Co., Classic Brass Inc., Ivaco Steel Processing (New York), LLC, Innovative Tool & Machine Co., Inc., and Whiting Door Manufacturing, Inc.

Victor J. O'Brien, P.E.

Department Manager

Victor O'Brien joined C&S in 1993 as a civil/structural engineer. As a Department Manager, he is primarily responsible for running the Site Development group but also includes QA/QC of drawings and specifications and project management and design of various types of civil and structural engineering projects. During his twenty three years of design experience, Victor has acquired extensive experience in the design of office parks, retail and institutional site development, K-12 School sites and athletic facilities, residential subdivisions, and has developed an expertise in the design of stormwater collection and management systems, stormwater pollution prevention plans and completion of drainage studies and reports.

Education

B.S., Civil Engineering, State University of New York at Buffalo, 1993

Registration and Certifications

Professional Engineer, New York

Professional Organizations

American Society of Civil Engineers

Society of American Military Engineers

Experience

New York State Office of Parks, West River Greenway Connector Trail, Grand Island, NY, 2017-Project Manager for the design of a $2 million, Local Administered Federal Aid (TAP Grant) 8-mile long pedestrian/bicycle trail along the west channel of the Niagara River.

One Canal Side Redevelopment, Benderson Development Company Buffalo, NY, 2012—Project Manager (civil) for the redevelopment of former Donavan State Office building including hardscape, stormwater management, utilities and landscaping.

Gun Creek Subdivision, Grand Island, NY, 2015—Project manager for the planning and design of a 250-unit residential subdivision including sewage pump station with 6" force main; stormwater management facilities consisting of five regional retention ponds; stream/culvert crossings, storm sewer, sanitary sewer and water main design.

First Source-Manufacturing, Warehouse and Office, Tonawanda, NY, 2015—Civil design for a 26-acre industrial facility. Design included 26 deep docks, parking for 26 tractor trailer, 184 car parks and associated drainage, landscaping and utility improvements.

Conventus Medical Office Building, Buffalo, NY, 2013-Civil design for a five story medical office building on the buffalo medical campus. This ultra-urban site required the use of a green roof to meet water quality and quantity requirements, which also helped achieve LEED Platinum certification.

East Canal, Erie Canal Harbor Development Corp. (ECHDC), Buffalo, NY, 2012—Project management, lead civil and structural designer and construction design-support for the $6 million canal reproduction, including fountains, lighting and public plaza environment.

Canal Side, Erie Canal Harbor Development Corp. (ECHDC), Buffalo, NY, 2012—Lead site/structural engineer for the $22 million canal reproduction, three (3) reproduction bridges, ice rink and public environment.

Catholic Health Offices, Buffalo, NY, 2011—Project manager for the site design and permitting for a new administration headquarters and parking garage for Catholic Health system. LEED certification in process.

Grand Island Gateway Center, Grand Island, NY, 2010—Project manager for the planning and design of a 144-acre industrial park, including wetland delineation, mitigation & permitting; traffic study; sewage pump station with two miles of 8" force main; stormwater management facilities consisting of three regional retention ponds; four stream/culvert crossings and 8,000 feet of new roadway. Estimated project cost $7 million.

Bemus Point Stowe Ferry Facilities Upgrades, Chautauqua County, NY, 2010—Project manager and structural design for the reconstruction of ferry landings on Chautauqua Lake. The LAFA project included new sheet piling seawalls, rehabilitation of the existing concrete abutments; new approach roadways and railings; lighting; new steel framed wood deck ramps; a rail system on steel piles to facilitate winter removal of the ferry and all required environmental permitting. Estimated construction cost $650,000.

Elderwood Assisted Living & Patio Homes, Penfield, NY, 2010—Project manager for the planning and design of a 90 unit assisted living building and26 patio homes on a 12 acre site including access roads, stormwater management facilities, water main and 1,000 feet of new public sanitary sewer. Estimated project cost $2 million.

HealthNow, Buffalo, NY, 2008—Project manager & civil engineer for the construction of a new Blue Cross/Blue Shield headquarters on an 8-acre brown field site, including evaluation of civil LEED requirements for silver certification. Project cost: $750,000.

Hillcrest Subdivision, Wheatfield, NY, 2005—Civil design for a 247-unit residential subdivision. Included preparation of DEIS, downstream sanitary sewer monitoring and analysis and regional drainage analysis of 700-acre watershed.

Crestwood Commons, Wheatfield, NY, 2006—Project Manager and civil design for a 48-unit apartments and 48-unit patio homes in a retirement community.

500 Corporate Parkway, Amherst, NY, 1997—Structural design of a two-story, 85,000-square-foot steel moment-frame structure with below-grade parking and a 300-foot long pedestrian bridge.

Senior Housing Projects, Various—Site designs included parking and access roads, storm water management, site grading.

- Woodlands Senior Housing, Wheatfield, NY
- Tonawanda Senior Housing, Tonawanda, NY
- Crestmount Senior Housing, Tonawanda, NY
- Southwestern Senior Housing, Hamburg, NY

Eckhardt Road Bridge, Boston, NY, 2002—Structural design of a single span, 10.1-m wide by 24-m long pre-stressed concrete multi-box girder structure with conventional concrete abutments founded on steel H-piles. Significant streambed armoring and scour protection measures were incorporated, including a 35-m long cast –in-place concrete retaining wall. Estimated construction cost $1 million.

Reconstruction of Beach Ridge Road, Pendleton, NY, 2002—Project manager for the rehabilitation of a 3.3-mile segment of rural minor arterial. The selected design scheme consisted of significant shoulder widening, pavement rehabilitation and incorporation of a closed drainage system. Substandard horizontal curves were also improved by increase of super-elevation. Estimated construction cost $3.5 million.

Lyndon Boulevard Reconstruction, Falconer, NY, 2000—Design of new road alignment for industrial park access within a partially developed industrial park. The design included new public water mains and rehabilitation/relining of an existing brick storm sewer using cured in place liner and the design of a sewage pump station and force main. Estimated construction cost $1.2 million.

Allen Street Drainage Improvements, Chautauqua County, NY, 1998 -Watershed analysis, structural and hydraulic design of a Class B dam for a stormwater detention facility in. Project included miscellaneous drainage improvements and detention facilities to mitigate nuisance flooding. Project cost: $1.3 million.

Canal Side, Buffalo, NY, 2010 –Structural design of thrust blocks for the relocation of a public 48" water main at the Canalside Development.

Strollo RV Sales, West Seneca, NY, 2008- Design of a water main extension for the town of West Seneca/Erie County Water Authority to serve a private development.

Grand Island, NY, 2000 and 2009 – Design of public water distribution systems for a 105 lot residential subdivision and 140 acre industrial park.

Storm Drainage Discharge Study, Greater Buffalo International Airport, Buffalo, NY, 1997— Drainage study and report for the evaluation and repair of a 300,000-cubic-foot underground reinforced concrete retention vault and pump equipment.

City of Buffalo, 1995-1998 – Water main replacement design for Amherst, Peter Bush, Germain, Grote, Chandler and Seneca Streets.

Eastern States Grain Mill Demolition, Tonawanda, NY 2000—Project engineer for the demolition of silos, grain mills and environmental remediation and utility disconnection to create a shovel ready development site.

Oswego Harbor Silo Demolition, Oswego, NY — Design engineer for the demolition of grain silos and elevators at the Port of Oswego.

Buffalo Memorial Auditorium Demolition, Buffalo, NY 2008 — Design engineer and preparation of construction docs for demolition, utility termination and final site preparation.

Adison Central School District, Addison, NY& Grand Island Central Schools, Grand Island, NY 2014—Project manager for district wide capital improvement programs. Projects included new athletic fields, 8-lane synthetic surface running track, scoreboards, bleachers, building additions and parking lots with associated storm drainage design, Stormwater Pollution Prevention Plan & SPDES permitting, sanitary sewer and water system design.

Onondaga Community College, Syracuse, NY, 2011—Design engineer for the multi-purpose college arena including stormwater treatment and detention, utilities, truck access and parking.

Onondaga Community College, Syracuse, NY, 2012—Design engineer for the Academic II building addition including stormwater treatment and detention, utilities, and fire access lanes.

Infrastructure Build-Out-University at Buffalo, North Campus, Amherst, NY, 2011—Civil design for a 700-foot road extension and intersection redesign including, realignment of a 4-lane divided highway, roundabout design. Project cost: $2.7 million.

South Ellicott Student Housing-University at Buffalo, North Campus, Amherst, NY, 2011— Civil engineering for a 600-unit student housing complex site. Project cost: $4 million.

Demolition

Eastern States Grain Mill Demolition, Tonawanda, NY 2000—Project engineer for the demolition of silos, grain mills and environmental remediation and utility disconnection to create a shovel ready development site.

Oswego Harbor Silo Demolition, Oswego, NY — Design engineer for the demolition of grain silos and elevators at the Port of Oswego.

Buffalo Memorial Auditorium Demolition, Buffalo, NY 2008 — Design engineer and preparation of construction docs for demolition, utility termination and final site preparation.

Education

Onondaga Community College, Syracuse, NY, 2011—Design engineer for the multi-purpose college arena including stormwater treatment and detention, utilities, truck access and parking.

Onondaga Community College, Syracuse, NY, 2012—Design engineer for the Academic II building addition including stormwater treatment and detention, utilities, and fire access lanes.

Infrastructure Build-Out-University at Buffalo, North Campus, Amherst, NY, 2011—Civil design for a 700-foot road extension and intersection redesign including, realignment of a 4-lane divided highway, roundabout design. Project cost: $2.7 million.

South Ellicott Student Housing-University at Buffalo, North Campus, Amherst, NY, 2011— Civil engineering for a 600-unit student housing complex site. Project cost: $4 million.

Public School District Building Condition Surveys:

Buffalo City Schools, Buffalo, NY, 2010—Completed district wide (72 buildings) State Education Dept. (SED) building conditions surveys for civil systems.

Grand Island Central Schools, Grand island, NY, 2010—Completed district wide (6 buildings) State Education Dept. (SED) building conditions surveys for civil systems.

West Seneca Central Schools, West Seneca, NY, 2009—Completed district wide (13 buildings) State Education Dept. (SED) building conditions surveys for civil systems.

Yonkers City School District , Yonkers, NY 2006—Completed district wide (30 buildings) State Education Dept. (SED) building conditions surveys for civil systems.

Summit Educational Resources, Amherst, NY, 1998—Structural design for a 70,000-square-foot, steel moment-frame structure.

K-12 School Designs, Various—

Capital Improvements, Grand Island CSD, Grand Island, NY, 2013—Project manager for the civil design of capital improvements including synthetic turf field for football, soccer and lacrosse; 1,000 seat bleachers and press box, 8-lane synthetic surface track with field events areas; football scoreboard; baseball field improvements with new dugouts; tennis court resurfacing; site work for building and parking lot additions, stormwater management and Stormwater Pollution Prevention Plan.

Capital Improvements, Addison CSD, Addison, NY, 2013—Project manager for the civil design of capital improvements including new sod soccer field with bleachers, press box and 8-lane synthetic surface track with field events areas; two practice soccer fields; new tennis courts; renovation of existing baseball and softball fields and new baseball and softball fields; dugouts and scoreboards for baseball and soccer; site work for building and parking lot additions, stormwater management and Stormwater Pollution Prevention Plan.

Capital Improvements, Brockport CSD, Brockport, NY, 2013—Project manager for the civil design of capital improvements including natural sod turf field for football and soccer; 8-lane synthetic surface track and field events areas; football scoreboard; baseball field improvements; site work for building and parking lot additions, stormwater management and Stormwater Pollution Prevention Plan.

Capital Improvements, Depew CSD, Depew NY, 2010—Design of new synthetic turf football field and 8-lane synthetic surface track with steeplechase, 1,000-seat bleachers and press box; scoreboard; site work for building and parking lot additions, stormwater management system and Stormwater Pollution Prevention Plan**.**

- New Elementary, Lackawanna, NY
- New Ulysses Byas & Centennial Elementary Schools, Roosevelt, NY
- New Roosevelt Middle School, Roosevelt, NY
- Additions and Alterations Randolph CSD, Randolph, NY
- Additions and Alterations Frewsberg CSD, Frewsberg, NY
- Additions and Alterations West Seneca Central School District
- Additions and Alterations Addison CSD, Addison, NY

Municipal

Bemus Point Stowe Ferry Facilities Upgrades, Chautauqua County, NY, 2010—Project manager and structural design for the reconstruction of ferry landings on Chautauqua Lake. The LAFA project included new sheet piling seawalls, rehabilitation of the existing concrete abutments; new approach roadways and railings; lighting; new steel framed wood deck ramps; a rail system on steel piles to facilitate winter removal of the ferry and all required environmental permitting. Estimated construction cost $650,000.

Eckhardt Road Bridge, Boston, NY, 2002—Structural design of a single span, 10.1-m wide by 24-m long pre-stressed concrete multi-box girder structure with conventional concrete abutments founded on steel H-piles. Significant streambed armoring and scour protection measures were incorporated, including a 35-m long cast –in-place concrete retaining wall. Estimated construction cost $1 million.

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Allen Street Drainage Improvements, Chautauqua County, NY, 1998 -Watershed analysis, structural and hydraulic design of a Class B dam for a stormwater detention facility in. Project included miscellaneous drainage improvements and detention facilities to mitigate nuisance flooding. Project cost: $1.3 million.

Private Development

Grand Island Gateway Center, Grand Island, NY, 2010—Project manager for the planning and design of a 144 acre industrial park, including wetland delineation, mitigation & permitting; traffic study; sewage pump station with two miles of 8" force main; stormwater management facilities consisting of three regional retention ponds; four stream/culvert crossings and 8,000 feet of new roadway. Estimated project cost $7 million.

Elderwood Assisted Living & Patio Homes, Penfield, NY, 2010—Project manager for the planning and design of a 90 unit assisted living building and26 patio homes on a 12 acre site including access roads, stormwater management facilities, water main and 1,000 feet of new public sanitary sewer. Estimated project cost $2 million.

HealthNow, Buffalo, NY, 2008—Project manager & civil engineer for the construction of a new Blue Cross/Blue Shield headquarters on an 8-acre brown field site, including evaluation of civil LEED requirements for silver certification. Project cost: $750,000.

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500 Corporate Parkway, Amherst, NY, 1997—Structural design of a two-story, 85,000-square-foot steel moment-frame structure with below-grade parking and a 300-foot long pedestrian bridge.

Senior Housing Projects, Various—Site designs included parking and access roads, storm water management, site grading.

- Woodlands Senior Housing, Wheatfield, NY
- Tonawanda Senior Housing, Tonawanda, NY
- Crestmount Senior Housing, Tonawanda, NY

- Southwestern Senior Housing, Hamburg, NY

Park Place Subdivision, Grand Island, NY, 2000—Civil design for a 105-unit residential subdivision including sanitary sewer, water main, stormwater management facilities and box culvert stream crossing.

Aviation

Storm Drainage Discharge Study, Greater Buffalo International Airport, Buffalo, NY, 1997— Drainage study and report for the evaluation and repair of a 300,000-cubic-foot underground reinforced concrete retention vault and pump equipment.

Industrial

First Source-Manufacturing, Warehouse and Office, Tonawanda, NY.—Civil design for a 26-acre industrial facility. Design included 26 deep docks, parking for 26 tractor trailer, 184 car parks and associated drainage, landscaping and utility improvements.

Grand Island Gateway Center, Grand Island, NY, 2010—Project manager for the planning and design of a 144 acre industrial park, including wetland delineation, mitigation & permitting; traffic study; sewage pump station with two miles of 8" force main; stormwater management facilities consisting of three regional retention ponds; four stream/culvert crossings and 8,000 feet of new roadway. Estimated project cost $7 million.

Conventus Medical Office Building, Buffalo, NY, 2012-Civil design for a five story medical office building on the buffalo medical campus. This ultra-urban site required the use of a green roof to meet water quality and quantity requirements, which also helped achieve LEED certification.

Catholic Health Offices, Buffalo, NY, 2010—Project manager for the site design and permitting for a new administration headquarters and parking garage for Catholic Health system. LEED certification in process.

HAZARD EVALUATIONS

Michele M. Wittman, P.G.
Director of Site Services

Ms. Wittman is a Geologist with over 24 years of professional experience in conducting a variety of environmental projects for both private and public clients. Clients have included industry, governmental agencies, developers, legal firms, financial institutions, and engineering firms. Project work has included conducting and managing Phase I and Phase II Environmental Site Assessments throughout New York and surrounding states, Brownfield Cleanup Program project investigations and site remediation, hydrogeologic investigations, remedial option evaluation and cost estimating, and remediation of soil and groundwater.

Ms. Wittman's responsibilities have ranged from supervising field and technical activities, completion of field work including soil classification, well installation, collection of environmental laboratory samples, excavation oversight; training staff, data analysis, report preparation and review, and client contact. Additionally, responsible for developing and maintaining client relationships, account and project management, bidding, contracting and scheduling and financial management including budgets, proposals, profit/loss assessment. Ms. Wittman has also acted as business manager which included business development and client management, generation of marketing materials; supervising administration staff, and office management.

Ms. Wittman also previously held the position as Assistant Vice President and Environmental Risk Analysis Officer at an international financial institution. During her tenure at this position, Ms. Wittman reviewed hundreds of environmental reports and provided remedial cost estimates to evaluate the potential risk and future losses.

Education

B.A., 1994, Geology, State University of New York at Buffalo

B.S., 1994, Social Sciences-Environmental Studies, State University of New York at Buffalo

Professional Registrations

2002, Professional Geologist, Washington, #29940

Key Skills

- Brownfield Cleanup Program
- Environmental Site Assessments
- Remedial Investigations
- Feasibility Studies
- Geologic Evaluations
- Hydrogeologic Investigations
- Soil Testing
- Budgeting & Cost Controls
- Bidding/Estimating/Proposals
- Subcontractor/Crew Management

Affiliations and Certifications

New York State Council of Professional Geologists, Member
Buffalo Association of Professional Geologists, Member
Air and Waste Management Association of Western New York, Member
OSHA 40 Hour 29 CFR 1910. (HAZWOPER) Certification

Project Highlights

Brownfield Cleanup Program - Commercial Facility, North Tonawanda, New York
Reviewed previous Phase I and II work done by others for a client that purchased property and held responsible for previous owner spill associated with historic gasoline station. Completed additional investigation and provided remedial recommendations and cost estimate. After discussion regarding property development, completed Brownfield Cleanup Program application and approval. Field work anticipated for Winter 2014/2015.

Remedial Action Plan Evaluation – Former Bulk Petroleum Terminal, Rochester, New York
Developed Remedial Action Plan for former terminal property that underwent extensive subsurface investigations resulting in over 70 borings and 80 soil sample analyses. Initial remedial estimates (by others) included significant soil excavation and remedial costs. Our evaluation included comparison to NYSDEC CP-51 soil guidance for assessment of potential remediation. As such, based on minimal groundwater contamination and identification of significant impacts at greater depths, and negotiation with NYSDEC, no soil remediation was needed.

Management of Environmental Conditions – Retail Gasoline Chain, Western New York
Evaluated environmental concerns associated with 75 different retail gasoline stations. Reviewed regulatory information, previous reports, and data analysis to assess current environmental status. Developed a summary of findings and recommendation of action for each property. Further evaluations included Phase II investigation and continued monitoring of remedial efforts. Developed remedial cost estimate ranges for locations current undergoing remedial work.

Voluntary Cleanup Program - Commercial Facility, Hamburg, New York
Completed a Phase I ESA and identified historical dry cleaner. Conducted investigation and identified contamination beneath the building floor slab and behind the building (i.e. back door). Interim remedial measures (IRM) included soil removal, resulting in approximately 200 tons of soil that was disposed at a hazardous waste landfill. A soil vapor intrusion study was done and identified the presence of compounds To achieve site closure, negotiated a remedial solution that included confirmation sampling of soils around the building structure and installation of a sub-slab depressurization/vent system.

Contract to Closure, Remedial Activities, Commercial Facility, Rochester, New York.
Two former gasoline stations were located at adjoining properties. Our client wanted to develop the Site for commercial use. Completed a Site Investigation and identified subsurface soil contamination, groundwater contamination and separate phase product. Developed a Remedial Work Plan that included removal of separate phase product and implementation of in-situ chemical oxidation via hydrogen peroxide injections to further reduce contaminants in soil and groundwater. Remedial action also included asbestos abatement and building. The Site received a “no further action” letter and has been developed as a retail bank.

True Bethel Baptist Church – Technical Consultant
Senior Project Manager on the NYSDEC first ever Technical Assistance Grant (TAG) to a community group impacted by a brownfield site. Reviewed site technical documents, attended public meetings and interacted on behalf of the community with NYSDEC and its representatives and contractors on the Site.

Other Environmental Projects
Managed and completed hundreds of Phase I, Phase II, and remediation projects for variety of clients, including lawyers, financial institutions, retail clients and municipal agencies throughout WNY

HAZARD EVALUATIONS

Eric J. Betzold
Project Geologist

Mr. Betzold is a Geologist with over four years of experience in conducting a variety of environmental investigations and remediation at various types of properties. As a Project Geologist, Mr. Betzold has performed Phase I Environmental Site Assessments to include historical review, site reconnaissance and report preparation. Mr. Betzold's responsibilities with Phase II Environmental Site Assessments include soil borings, test pits, soil sampling, groundwater monitoring well installation and samplings. Additionally, Mr. Betzold completed evaluation and reporting requirements.

In addition to his duties in the site assessment field, Mr. Betzold is involved in local Western New York Stormwater and Wastewater compliance work, including sampling and data interpretations. Mr. Betzold plays a key role in report preparation under a multitude of environmental compliance requirements.

Education

B.A., Geology, 2012, State University of New York at Buffalo

Key Skills

- Environmental Site Assessments
- NYSDEC Stormwater Compliance
- BSA & ECSA Wastewater Compliance
- NYSDEC MSGP Compliance
- Geologic Interpretation
- Soil Testing
- Field Technology
- Project Management
- Assessment of Vapor Intrusion

Affiliations and Certifications

OSHA 40 Hour 20 CFR 1910. (HAZWOPER) Certification

Attachment 2

Field Forms

HAZARD EVALUATIONS

Date: ____________ Project No.: ____________

Client: ______________________________

Project: ______________________________

Site: ______________________________

Weather: ______________________________

3752 N. Buffalo Rd.
Orchard Park, NY 14127
P (716) 667-3130
F (716) 667-3156

FIELD INVESTIGATION REPORT

(Start typing here making sure underline is on and text is justified. Hit tab at the end of the very last row to extend the underline to the right margin).

Signature ______________________ Title ______________________

HAZARD EVALUATIONS

3752 N. Buffalo Road
Orchard Park, NY 14127
716-667-3130

Boring No:

Project Name & Location ______________________ HEI Representative: ____________

Project Number: ______________________

Start Date ____________ End Date ____________ Type of Drill Rig ____________

GW Depth While Drilling ____________ Drilling Contractor ____________

GW Depth at Completion ____________ Sampler Type: ____________

Sample Depth (ft)	Sample No.	Sample Interval (feet)	Recovery (inches)	SAMPLE DESCRIPTION	OVM Reading (ppm)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
18					
20					
22					
24					

Notes:

General Notes:

1 - Boundary between soil types represented with stratification line. Transitions may be gradual. Depths are approximate.
2 - Groundwater (GW) depths approximate at time of sampling. Fluctuations in groundwater may occur.
3 - f=fine; m=medium; c=coarse
4 - and (36-50%); some (21-35%); little (11-20%); trace (1-10%)

MC - Geoprobe Macrocore SS - Split Spoon SH - Shelby Tube BC - Bedrock Core

Well Data Sheet

Date: ______________________ Job #: ______________________

Crew: ______________________

Well Depth: ______________________

Initial *Phase* Level: ______________________

Initial *Water* Level: ______________________

Volume Calculation: ______________________

DTB-DTW*__________=1-well vol

Purge Record

Time	Volume	pH	Cond.	Temp.	Turbidity

Purge Method: Bailer/Submersible Pump

Initial Water Quality ______________________

Final Water Quality ______________________

SAMPLE RECORD

Date: ______________________

Time: ______________________

Crew: ______________________

Method: ______________________

Sample ID: ______________________

Water Quality: ______________________

pH: ______________________

Conductivity: ______________________

Temperature: ______________________

Turbidity: ______________________

Volume: ______________________

Analysis: ______________________

Chain of Custody #: ______________________

Sample Type: ______________________

Diameter	Multiply by
1"	0.041
2"	0.163
3"	0.367
4"	0.653
6"	1.468
8"	2.61

Comments: ______________________

Signature: ______________________

ALPHA ANALYTICAL

NEW YORK CHAIN OF CUSTODY

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page
of

Date Rec'd in Lab

ALPHA Job #

Project Information

Project Name:
Project Location:
Project #
(Use Project name as Project #) ☐
Project Manager:
ALPHAQuote #:

Turn-Around Time

Standard ☐ Due Date:
Rush (only if pre approved) ☐ # of Days:

Client Information

Client:
Address:

Phone:
Fax:
Email:

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Billing Information

☐ Same as Client Info
PO #

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information

Please identify below location of applicable disposal facilities.

Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ **Done**
☐ **Lab to do**
Preservation
☐ **Lab to do**

(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials									Sample Specific Comments	Total Bottle

Preservative Code:	Container Code
A = None	P = Plastic
B = HCl	A = Amber Glass
C = HNO_3	V = Vial
D = H_2SO_4	G = Glass
E = NaOH	B = Bacteria Cup
F = MeOH	C = Cube
G = $NaHSO_4$	O = Other
H = $Na_2S_2O_3$	E = Encore
K/E = Zn Ac/NaOH	D = BOD Bottle
O = Other	

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type								
Preservative								

Relinquished By:	Date/Time	Received By:	Date/Time

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

Soil Vapor Intrusion - Structure Sampling Building Questionnaire **Structure ID :** _______________

Site No. : ______________________ **Site Name** : ____

Date: ______________________ **Time:** ____

Structure Address : ____

Preparer's Name & Affiliation : ____

Residential ? ☐ **Yes** ☐ **No** **Owner Occupied ?** ☐ **Yes** ☐ **No** **Owner Interviewed ?** ☐ **Yes** ☐ **No**

Commercial ? ☐ **Yes** ☐ **No** **Industrial ?** ☐ **Yes** ☐ **No** **Mixed Uses ?** ☐ **Yes** ☐ **No**

Identify all non-residential use(s) : ____

Owner Name : ____ **Owner Phone** : ( ) __________ - ___________

Secondary Owner Phone : ( ) __________ - ___________

Owner Address (if different) : ____

Occupant Name : ______________________________________ **Occupant Phone** : ( ) __________ - __________

Secondary Occupant Phone : ( ) __________ - ___________

Number & Age of All Persons Residing at this Location : ____

Additional Owner/Occupant Information : ____

Describe Structure (style, number floors, size) : ____

____

Approximate **Year Built** : ______________________ Is the building **Insulated**? ☐ Yes ☐ No

Lowest level : ☐ Slab-on-grade ☐ Basement ☐ Crawlspace

Describe Lowest Level (finishing, use, time spent in space) : ____

____

Floor Type: ☐ Concrete Slab ☐ Dirt ☐ Mixed : ____

Floor Condition : ☐ Good (few or no cracks) ☐ Average (some cracks) ☐ Poor (broken concrete or dirt)

Sumps/Drains? ☐ Yes ☐ No Describe : ____

Identify other floor penetrations & details : ____

____

Wall Construction : ☐ Concrete Block ☐ Poured Concrete ☐ Laid-Up Stone

Identify any wall penetrations : ____

____

Identify water, moisture, or seepage: location & severity (sump, cracks, stains, etc) : _________________________________

____

Heating Fuel : ☐ Oil ☐ Gas ☐ Wood ☐ Electric ☐ Other : ___________________________

Heating System : ☐ Forced Air ☐ Hot Water ☐ Other : ____________________________________

Hot Water System : ☐ Combustion ☐ Electric ☐ Boilermate ☐ Other: __________________________

Clothes Dryer : ☐ Electric ☐ Gas Where is dryer **vented** to? ______________________________

If combustion occurs, describe where air is drawn from (cold air return, basement, external air, etc.) : ___________________

____

Fans & Vents (identify where fans/vents pull air from and where they vent/exhaust to) : _______________________________

____

Describe factors that may affect indoor air quality (chemical use/storage, unvented heaters, smoking, workshop):

____

Attached garage ? ☐ Yes ☐ No Air fresheners ? ☐ Yes ☐ No

New carpet or furniture ? ☐ Yes ☐ No What/Where ? ____________________

Recent **painting** or **staining** ? ☐ Yes ☐ No Where ? : ____________________

Any **solvent** or **chemical-like** odors ? ☐ Yes ☐ No Describe : ____________________

____

Last time **Dry Cleaned** fabrics brought in ? ____________ What / Where ? ____________________

Do any building occupants use solvents at work ? ☐ Yes ☐ No Describe : ____________________

Any testing for Radon ? ☐ Yes ☐ No Results : ____________________

Radon System/Soil Vapor Intrusion Mitigation System present ? ☐ Yes ☐ No If yes, describe below

____

Lowest Building Level Layout Sketch

- Identify and label the locations of all sub-slab, indoor air, and outdoor air samples on the layout sketch.
- Measure the distance of all sample locations from identifiable features, and include on the layout sketch.
- Identify room use (bedroom, living room, den, kitchen, etc.) on the layout sketch.
- Identify the locations of the following features on the layout sketch, using the appropriate symbols:

B or **F**	Boiler or Furnace	o	Other floor or wall penetrations (label appropriately)
HW	Hot Water Heater	**xxxxxxx**	Perimeter Drains (draw inside or outside outer walls as appropriate)
FP	Fireplaces	**######**	Areas of broken-up concrete
WS	Wood Stoves	● SS-1	Location & label of sub-slab vapor samples
W/D	Washer / Dryer	● IA-1	Location & label of indoor air samples
S	Sumps	● OA-1	Location & label of outdoor air samples
@	Floor Drains	● PFET-1	Location and label of any pressure field test holes.

Structure Sampling - Product Inventory

Homeowner Name & Address: ______________________________ **Date:** __________

Samplers & Company: ______________________________ **Structure ID:** __________

Site Number & Name: ______________________________ **Phone Number:** __________

Make & Model of PID: ______________________________ **Date of PID Calibration:** __________

Identify any Changes from Original Building Questionnaire : ______________________________

Product Name/Description	Quantity	Chemical Ingredients	PID Reading	Location

HAZARD EVALUATIONS

AIR/VAPOR SAMPLING FIELD DATA SHEET

Client: ____________________________ Project No.: _________________

Site Name & Address: ____

Person(s) Performing Sampling: ____

Sample Identification: ______________

Sample Type: ☐ Indoor Air (ambient) ☐ Outdoor Air ☐ Soil Vapor ☐ Sub-slab Vapor

Date of Collection: _______________ Setup Time: ___________ Stop Time: ___________

Sample Depth: ____________________

Sample Height: ____________________

Sampling Method(s) & Device(s): ____

Purge Volume: ____________________

Sample Volume: __________________

Sampling Canister Type & Size (if applicable): ________________________________

Canister # __________________ Regulator # __________________

Vacuum Pressure of Canister Prior to Sampling: _________________

Vacuum Pressure of Canister After Sampling: __________________

Temperature in Sampling Zone: __________________

Apparent Moisture Content of Sampling Zone: _________________________

Soil Type in Sampling Zone: _______________________

Standard Chain of Custody Procedures Used for Handling & Delivery of Samples to Laboratory:

☐ Yes ☐ No. If no, provide reason(s) why? ________________________

Laboratory Name: ____

Analysis: ____

Comments:

____

____

____

____

Sampler's Signature ___________________________________ Date: ________________

APPENDIX C

HEALTH AND SAFETY PLAN

HEALTH AND SAFETY PLAN

BROWNFIELDS CLEANUP PROGRAM
For
MOD-PAC CORP.
1801 Elmwood Avenue, Buffalo, New York 14207
BCP # C915314

Prepared For:
MOD-PAC CORP.
1801 Elmwood Avenue, Buffalo, New York 14203
HEI Project No: e1605

Prepared By:
Hazard Evaluations, Inc.
3636 North Buffalo Road
Orchard Park, New York 14127
(716) 667-3130

August 18, 2017

HAZARD
EVALUATIONS

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1.0 INTRODUCTION

This Health & Safety Plan (HASP) has been developed for the Remedial Investigation/Alternatives Analysis Report (RI) to be completed by Hazard Evaluations, Inc. (HEI) for MOD-PAC CORP. (MOD-PAC) at 1801 Elmwood Avenue, Buffalo, Erie County, New York as shown on Figure 1, on behalf of MOD-PAC CORP. (Applicant) as part of the Brownfield Cleanup Program (BCP). The proposed work will include completion of soil borings, test pits, installation of monitoring wells, soil and groundwater sampling, soil excavation and sampling, vapor intrusion sampling and report preparation. Such activities mandate the performance of tasks with a potential to expose remediation workers to various environmental contaminants previously identified on-site, primarily involving historical industrial fill potentially including semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), metals, and chlorinated solvents. Limited exposure potential may be related to commercial substances used for equipment decontamination. A general listing of the work tasks to be completed is as follows:

1. Soil sampling using a direct push method (Geoprobe) and hollow stem auger equipment
2. Test pit excavation with a track mounted excavator and bucket.
3. Soil sample collection and analysis
4. Monitoring well installation, purging and development
5. Groundwater sampling using disposable bailers, and analysis
6. Soil vapor intrusion sampling and analysis
7. Excavation, stockpiling and off-site disposal of contaminated soil
8. Backfilling of excavated area with clean fill and regrading
9. Underground storage tank (UST) removal

The intent of this HASP is to identify and present appropriate safety procedures to be followed by investigation/remediation workers involved with project activities throughout the performance of the RI. Such procedures are designed to reduce the risk of remediation worker exposure to the primary substances of concern.

The procedures also address several other physical hazards that may be encountered during the RI activities. Recommended safety procedures presented herein may be modified as the RI proceeds based upon conditions encountered at the site, with the mutual agreement of HEI, New York State Department of Environmental Conservation (NYSDEC), New York State Department of Health (NYSDOH), and Applicant. A copy of this HASP (including any modifications) will be maintained on-site throughout the duration of the RI field work to be used as a reference by HEI and their subcontractors. An initial safety meeting will be conducted at the site prior to the initiation of the sampling activities to inform all affected remediation workers of potential exposures and hazards.

2.0 SITE DESCRIPTION AND HISTORY

2.1 Site Description

The MOD-PAC Site is addressed as 1801 Elmwood Avenue located in the City of Buffalo, Erie County, New York. The Site most recently consisted of six contiguous parcels which have recently been combined into one parcel totaling approximately 20.03 acres of land. The Site is bound to the south by railroad tracks and to the west by Elmwood Avenue. Commercial and residential properties are located immediately to the north. Industrial occupants and the recently constructed Nardin Academy Athletic Center is located to the east. The property is located within an urban area, utilized for industrial, commercial, and residential purposes.

2.2 Site History

The entire Site was originally developed in the early 1900s by American Radiator and utilized as such until the 1970s. Since that time, the building has been utilized for various manufacturing purposes including warehousing, and box and product packaging. MOD-PAC has occupied a portion of the building since the 1950s and has been expanded since that time and currently occupies the entire facility. A railroad spur has historically traversed the Site, extending into the facility's courtyard. The southern portion of the Site was originally occupied by American Radiator until the 1950s, at which time the buildings were demolished. The southern area has remained vacant and unused since that time, currently identified as gravel parking and overgrown vegetation.

3.0 ASSIGNED RESPONSIBILITIES

Specific safety responsibilities have been established for the performance of the RI as indicated below:

3.1 Environmental Health & Safety Manager

The Environmental Health & Safety Manager (EHSM) has the authority to commit any resources necessary to implement an effective RI safety program, thereby protecting the health of affected Site workers. The EHSM will delegate responsibilities, as necessary, to the Project Manager (PM) in order to facilitate various aspects of this HASP. The resolution of any on-site safety issues encountered during the RI will be coordinated by the EHSM.

3.2 Project Manager

The Project Manager (PM) will be responsible for the overall project including implementation of the HASP. The PM will coordinate with the Site Safety Officer (SSO) to ensure that project goals of the project are met in a manner consistent with the HASP requirements.

3.3 Site Safety Officer

The Site Safety Officer (SSO) will be responsible for ensuring that the recommended safety procedures are followed during sampling activities. The SSO will supervise HEI employees and subcontractors throughout the duration of the field work. The SSO is knowledgeable of general construction safety practices and remediation worker protection techniques. Responsibilities will include:

- Ensuring day-to-day compliance with HASP safety procedures;
- Maintaining adequate personal protective equipment (PPE) supplies;
- Calibration and maintenance of monitoring instruments;
- Authority to stop work activities at any time if unsafe work conditions are identified;
- Implementing personnel decontamination procedures;
- Initiate emergency response procedures;
- Maintain a diary of activities with safety relevance; and
- Establishing and assuring adequate records of all:
  - Occupational injuries and illnesses;
  - Accident investigations;
  - Reports to insurance carrier or state compensation agencies;
  - Records and reports required by local, state and/or federal agencies; and
  - Property or equipment damage.

3.4 Site Workers

Affected site workers will include HEI employee and subcontractor employees. Site workers must comply with all aspects of the HASP and its safety procedures. Personnel entering the Site will have completed training requirements for hazardous waste site operations in accordance with Occupational Safety and Health Administration (OSHA) 29CFR 1910.120(c); 29CFR 1910.146(d); and 29CFR 1910.147(c). Site workers and SSO must have completed appropriate medical surveillance as required by OSHA 29CFR 1910.120(f).

3.5 Subcontractors

Various subcontractors will be utilized on the Site during RI activities, such as driller and excavation contractor. Subcontractors are responsible for development of their own HASP that is at least as stringent. A copy of this HASP will be provided to the subcontractors for informational purposes. Subcontractors will be informed of potential health and safety hazards, as well as environmental monitoring data collected during field activities.

4.0 TRAINING AND SAFTETY MEETINGS

4.1 Training

Site personnel assigned to the Site will be in compliance with the training requirements of 29 CFR 1910 and 1926 as listed below. Site personnel will have met one of the following requirements prior to the start of on-site activities.

- A 40-hour minimum hazardous materials safety and health course, as stipulated in 29 CFR 1926.65 (e)(3); and
- An eight-hour minimum refresher course per year after the 40-hour minimum training has occurred (29 CFR 1926.65 (e)(8)).

On-site managers and supervisors must be in compliance with the additional supervisory training requirements of 29 CFR 1926.65 (e)(4). Emergency responders must be in compliance with the additional training requirements of 29 CFR 1926.65 (e)(7). Appropriate certificates of participating in training programs will be maintained at HEI offices.

4.2 Safety Meetings

Site workers and subcontractors will be familiar with the Site and facility layout, have an understanding of known and potential hazards, and details within this HASP. On-site safety meetings will occur daily, or as needed to assist site workers and subcontractors in conducting activities safely. Attending personnel must sign an attendance sheet. Site workers must attend a safety meeting prior to being allowed to work on-site.

5.0 PERSONAL PROTECTIVE EQUIPMENT

An important aspect for site worker safety is correct selection of personal protective equipment (PPE). The levels of protection listed below are based on 29 CFR 1910.120. The majority of site activities will be conducted in Level D protection. This level of protection was selected based on the types and measured concentrations of the hazardous substances in the samples previously collected and their associated hazards and/or toxicity; and potential or measured exposure to substances in air, splashes of liquids or other indirect contact with material due to the task being performed.

Level D will generally consist of the following:

- Coveralls; or long pants and long sleeve shirt to provide protection from dermal contact with soil
- High visibility safety vest
- Steel toe work boots
- Safety glasses
- Hard hat
- Chemical-resistant gloves

Additional equipment can be donned at SSO requirements, including disposable boots, hearing protection, safety vest, or disposable outer chemical coveralls (Tyvek suits).

Level C will generally consist of the following:

- Full or half face air purifying respirator (APR) equipped with appropriate organic vapor canisters and/or other chemical cartridges.
- Chemical resistant clothing, such as Tyvek suit. Suits will be one piece with booties, hood, and elastic wristbands.
- High visibility safety vest (disposable)
- Outer chemical-resistant gloves (i.e. nitrile or neoprene) and inner latex gloves
- Steel toe work boots
- Hard hat

Level B will generally consist of the following:

- Self-contained breathing apparatus (SCBA) in a pressure demand mode, or supplied air with escape SCBA.
- Chemical resistant closing, such as Tyvek suit. Suits will be one piece with booties, hood, and elastic wristbands.
- High visibility safety vest (disposable)
- Outer chemical-resistant gloves (i.e. nitrile or neoprene) and inner latex gloves
- Chemical resistant tape over PPE as needed (i.e. at glove/Tyvek location)
- Steel toe work boots
- Hard hat

6.0 HAZARD ANALYSIS

Many hazards are associated with environmental work on a site. The hazards listed below deal specifically with those hazards associated with the management of potentially contaminated soil, air, and groundwater including, physical hazards and well as environmental hazards.

6.1 Chemical Hazards

The primary chemical hazardous substance known or suspected at the subject site is semi-volatile organic compounds (SVOCs) and metals and that are present within the historical industrial fill due to former industrial operations. Additional contaminants that may be present include volatile organic compounds (VOCs) associated with past petroleum storage as well past industrial usage. A summary of hazards associated with these chemicals is include on Table 1. The list has been developed based on planned activities and potential Site conditions. The most likely routes of chemical exposure during site work includes skin absorption and inhalation of airborne dust particles. The information was used to develop the levels of PPE to be used during the duration of RI field work on-site.

6.2 Physical/General Hazards

Based on the proposed scope of work to be completed, the following potential physical hazards have been identified:

- Slip/Trip/Fall – Due to the timing of the project, some areas may have icy surfaces that will increase the possibility of accidental falls. Additionally, good housekeeping practices such as cleaning up garbage and stored materials from the work area are essential to reduce the occurrence of trips and falls.

- Vehicle and machinery in motion hazards – A drill rig will be utilized for soil sample collection. To minimize potential hazards, the drilling subcontractor will be responsible for health and safety of its personnel, equipment and operations. Utilities must be called in via Dig Safely New York and/or Site owner. Cones and flags will be set up around each work area, as necessary. Workers must be aware of pinch points when setting the rig and lowering mast/pull rods. PPE must be worn to prevent eye injury. All body parts, clothing, and manual tools must be kept three to five feet from moving equipment when possible. Gloves and PPE must be worn when working with rods and cleaning equipment. Monitoring of the breathing zone will be completed as necessary to ensure vapors are below action levels. Each worker must have an awareness of muscle strain. All sampling liners must be opened in a motion away from the body and hands. The rig cannot be moved with the mast in a raised position.

- Electrical – Heavy equipment (e.g., excavator, backhoe, drill rig) shall not be operated within ten feet of high voltage lines. Working near wet areas should also be taken into consideration when working with electrical equipment. Surge protectors and ground fault protectors must be used in such conditions.

- Noise – Heavy machinery creates excessive and loud noise levels. Over-exposure can result in hearing damage or loss. Proper hearing protection shall be worn during exposure to noise from heavy equipment.

- Underground utilities – The proper utility clearance will be obtained before conducting any digging or drilling operations.

- Excavation and soil sampling through use of heavy equipment – Excavations that are greater than four feet in depth require a protective system prior to entry into the excavation. The Project Manager will be responsible for determining if the excavation requires safety shoring. Personnel will not be permitted to work under suspended or raised loads, and shall always wear highly visible clothing. PPE, including steel-toed boots, safety glasses, and hard hats must be worn. Personnel should not walk directly in back of, or to the side of, heavy equipment without the operator’s knowledge. Engineering controls can be implemented such as water for particulate control.

- Cold Stress – Site work is scheduled during the winter and early spring months and therefore cold weather may present hazards. Frostbite and hypothermia can occur quickly and the signs and symptoms of such should be known. Signs of hypothermia include slurred speech, confusion, and an overall warm sensation. Frostbite can be identified by red/frozen skin, numbness, and lack of sensation on the skin. In each case, the victim should be moved to a warm place. With frostbite, the affected area should be placed in warm water and wrapped with a warm towel. Medical attention is necessary after initial treatment.

- Heat stress – Although not anticipated due to the time of year operations will occur, heat stress is a severe hazard that can result in heat fatigue or even heat stroke. Signs and symptoms of heat stroke include red, dry, and hot skin as well as confusion, a rapid pulse, and nausea. Adequate shade and drinking liquids should be provided to personnel working in hot weather conditions. If a person is suspected to be suffering from heat fatigue or stroke, transport to a cool place and place cold compresses on the neck and armpits. Call 911 immediately.

- Weather (i.e. lightning storm) – On-site personnel shall cease operation at the first sign of a thunderstorm/lightning strike. Workers should seek shelter within a permanent building and stay away from tall structures trees, telephone poles, and drill rigs/equipment.

6.3 Biological Hazards

Biological hazards can be caused by contact with land animals, birds, insects, and plants. Irritation, illness, and in extreme cases, permanent disability or death can occur. The Site is located in an urban area within the City of Buffalo and field work will occur in winter/early spring. Rodents are considered the most likely biological hazards at this Site. Contact with rodents, more specifically rats, shall be avoided. If bitten or scratched by any type of rodent or fur-bearing animal, medical treatment should be sought immediately. Insect bites and stings are not considered a serious threat due to the time of year that work is planned to take place. Insect bites and stings can cause irritation and transmit disease. If stung by an insect, apply cold water and soap and immediately apply a cold compress to the area to limit swelling. If the victim is allergic to such bite or sting, immediate medical care may be necessary.

7.0 SITE MONITORING

Air monitoring will be performed on-site in order to track contamination levels. By knowing these levels, safety is insured for personnel working on-site. A Photoionization Detector (PID) equipped with a 10.6 electron volt (eV) lamp will be utilized during field monitoring.

7.1 Soil Borings and Monitoring Wells

On-site monitoring will be completed by the SSO or Site worker assigned to oversee drilling operations, soil sampling and monitoring well installation/sampling. The PID will be utilized to monitor the breathing zone, the borehole, and subsurface samples for the presence of volatile organic compounds (VOCs). Auger spoils will also be monitored. Fluids produced from monitoring well development and sampling will also be monitored with the PID.

7.2 Action Levels

Work area ambient air monitoring for VOCs will be completed within the breathing zone periodically. Action levels will be based on the PID readings. The action level assumes that background level of organics is close to non-detect. Background VOC readings will be recorded daily. Action levels are listed below.

Sustained PID Reading	Action	Minimum Respiratory Protection
0 to 10 ppm*	None	None – Level D
10 to 25 ppm	Monitor for 15 minutes; if concentration does not decrease to under 10 ppm, upgrade PPE; consider venting area	Full-face Air-purifying respirator with organic vapor cartridges – Level C
>25 ppm	Monitor for 15 minutes; Consider venting area, upgrade PPE	Suspend work or supplied-air full face respirator – Level B

* parts per million

7.3 Particulate Monitoring

Monitoring for particulates will be completed periodically in the Site worker breathing zone. The decision to upgrade levels of PPE will be made in conjunction with consideration for weather conditions, wind conditions and anticipated duration of field activity. Background particulate concentrations will be measured and recorded on a daily basis.

8.0 COMMUNITY AIR MONITORING PLAN

A Community Air Monitoring Plan (CAMP) requires monitoring of VOCs and particulates at downwind locations and is intended to provide a level of protection for neighboring residences and businesses. Continuous monitoring will during ground intrusive activities. The completed CAMP is attached in Attachment A.

9.0 SITE ACTIVITY AREAS AND ACCESS CONTROL

Prior to the initiation of the RI, three work zones will be established to facilitate the implementation of the HASP. Prior to commencement of field work, a further definition of where these zones will be set up will be established. Guidelines for establishing work areas is as follows.

- Exclusion Zone (EZ) – Primary exclusion zones will be established around each intrusive field activity, such as soil boring or excavation area. Locations will be identified by the placement of orange cones. Site workers in these areas must wear appropriate PPE. Upon leaving EZ, if PPE becomes contaminated, Site workers must remove and dispose of gloves and any other disposable PPE. After removing the PPE, Site workers should thoroughly wash their hands. Access to the EZ will be limited to Site workers only for both safety and data integrity purposes.

- Contamination Reduction Zone (CRZ) – A CRZ will be established between the EZ and property limit, and provides an area for decontamination of Site equipment. The specific location of this pad will be field determined, but will be out of the way of Site activities and sampling activities. Portable wash stations will be set up in the CRZ and will consist of a potable water supply, hand soap and disposable towels. An Alconox solution will be available to decontaminate equipment used in the sampling locations. The SSO will monitor equipment cleaning procedures to ensure their effectiveness. Equipment will be adequately cleaned and Site workers will remove contaminated PPE prior to either entering the Support Zone or leaving the Site for the day once sampling activities have been completed. A fire extinguisher and first aid kit will be located in this area.

- Support Zone (SZ) – The SZ is considered to be clean, and PPE are not required. The SZ will be an area on-site adjacent to the CRZ in which supplies or equipment are stored and maintained. PPE is donned in the SZ prior to entering the CRZ.

10.0 DECONTAMINATION PROCEDURES

Decontamination procedures for personnel and equipment will be implemented when exiting the work area. Decontamination involves physically removing contaminants and generally includes the removal of contamination, avoiding spreading contamination from the work zone, and avoiding exposure of unprotected personnel outside of the work zone to contaminants.

10.1 Prevention of Contamination

The first step in decontamination is to establish standard operating procedures that minimize contact with hazardous substances, and thereby the potential for contamination. Site workers should be aware of the importance of minimizing contact with hazardous substances and the use of appropriate practices and procedures for Site operations. HEI utilizes this approach by ensuring Site workers:

- Stress work practices that minimize contact with hazardous substances (e.g., do not walk through areas of obvious contamination, do not directly touch potentially hazardous substances, etc.);

- Protect sampling instruments from gross contamination by bagging and make openings in the bag for sample ports and sensors that contact site materials; and

- Wear disposable outer garments and use disposable equipment where appropriate.

10.2 Personal Decontamination

The degree of contamination exposure is a function of both a particular task and the physical environment in which it takes place. The following decontamination procedures will remain flexible, thereby allowing the decontamination crew to respond appropriately to changing conditions at the Site. It is expected that Site workers will be exposed to soil/fill potentially contaminated with SVOCs, metals, PCBs, and petroleum compounds. On-site sampling activities will be carried out in such a manner as to avoid gross contamination of Site workers, personal protective equipment, machinery and equipment.

Between sampling locations (or sometimes between samples at one sampling location), and upon the completion of the daily field activities, Site workers will proceed to the CRZ. Equipment (e.g., sampling tubes, shovels, tools, etc.) will be decontaminated in this area. Prior to leaving the Site for breaks, at the end of the work shift, or when PPE has been grossly contaminated, disposable boot covers, gloves, and suits will be removed and placed in a drum designated for the disposal of these materials. After removing PPE, each Site worker will wash with soap and fresh water prior to donning new PPE or leaving the site for the day. All wash-water and rinse-water will be collected and disposed of in accordance with appropriate regulations.

10.3 Decontamination during Medical Emergencies

In the event of a minor, non-life-threatening injury or medical problem, Site workers should follow the decontamination procedures as defined above and then administer first aid. If prompt, live-saving first aid is required, decontamination procedures should be omitted and immediate first aid should be administered, unless the environmental conditions are considered immediately dangerous to Life or Health (IDLH). In this case, the victim should be moved to a clean area and life-saving care should be instituted immediately without considering decontamination.

Outside garments can be removed (depending on the weather) if they do not cause delays, interfere with treatment or aggravate the problem. Respirators and backpacks must always be removed. Chemical-resistant clothing can be cut away. If the outer contaminated garments cannot be safely removed, the individual should be wrapped in plastic, rubber or blankets to help prevent contaminating the insides of ambulances and medical personnel. Outside garments will then be removed at the medical facility. No attempt should be made to wash or rinse the victim at the site. One exception would be if it is known that the individual has been contaminated with an extremely toxic or corrosive material which could also cause severe injury or loss of life.

10.4 Decontamination of Equipment

Decontamination efforts will be conducted in the CRZ. Gross contamination will first be removed with plastic scrapers or other appropriate tools. The equipment will be decontaminated at a temporary equipment decontamination pad in the CRZ via hand washing or pressure washing. Alconox and water will then be used to wash the equipment with a cleaning brush. The equipment will then be rinsed with deionized water. The equipment will then be allowed to air dry for a sufficient time prior to reuse or removal from the Site. Downhole tools and augers can be hand washed or pressure washed.

The decontamination of the direct push drilling rig will be undertaken (if necessary) when all on-site activities have been completed. Initially, scraping of the equipment will remove heavily caked materials prior to washing. Washing will then be accomplished with Alconox and water or pressure washing. Water generated during decontamination activities will be collected, stored and profiled for future off-site disposal.

10.5 Disposal of the Contaminated Materials

Potentially contaminated materials (i.e., gloves, clothing, sample sleeves etc.) will be bagged and segregated for proper disposal. Investigation derived waste will be managed in accordance with NYSDEC guidance. All fluids collected during groundwater sampling will be containerized and managed appropriately subsequent to field activities.

11.0 EMERGENCY RESPONSE

In the event of an emergency, the SSO will coordinate on-site emergency response activities. Appropriate authorities will be immediately notified of the nature and extent of the emergency. The emergency contact list is included on Table 2. The route and directions to the hospital are included as Figure 2.

11.1 Response Procedures

In the event of an emergency or acute exposure symptom, remediation workers will signal distress to the SSO. The SSO will be responsible for the response to emergencies and must:

- Have available a summary of the associated risk potential of the project so that it can be provided to any authorities or response personnel in the event of an emergency;
- Maintain an Emergency Contact List (Table 2) and post it in a visible location
- Maintain a map detailing directions to the nearest hospital (Figure 2); and
- Ensure appropriate safety equipment is available at the site.

11.2 Communications

Cell phones will be the primary means of communicating with emergency support services/facilities.

11.3 Evacuation

In the event of an emergency situation, such as fire, explosion, etc., all personnel will evacuate and assemble in a designated assembly area. The SSO will contact outside services (i.e. police, fire, etc.) as required. Under no circumstances will personnel be allowed to re-enter the area once the emergency signal has been given. The SSO must see that emergency equipment is available and emergency personnel notified.

11.4 Fire or Explosion

In the event of a fire or explosion, the SSO will immediately evaluate the Site. The Buffalo Fire Department will then be notified immediately, and advised of the situation and the identification of any hazardous materials involved.

11.5 Personal Injury

Only basic emergency first aid will be applied on-site as deemed necessary. The SSO will supply available chemical specific information to appropriate medical personnel, as requested. First Aid kits supplied by HEI and its subcontractors will conform to Red Cross and other applicable good health standards, and will consist of a weatherproof container with individually sealed packages for each type of item. First Aid kits will be fully equipped before being sent to the Site.

11.6 Adverse Weather Conditions

In the event of adverse weather conditions, the SSO will determine if work can continue without sacrificing the safety of remediation workers. Some of the items to be considered prior to determining if work should continue are the potential for heat stress, inclement weather-related working conditions (heavy snow) and the operation of field instruments.

11.7 Traffic, Heavy Equipment & Machinery

Site workers must remain aware of the heavy equipment and machinery being used during RI activities. Site workers will be required to wear a high visibility safety vest during on-site work activities.

11.8 Utilities

Prior to the beginning of Site activities, all available drawings of the facility will be examined to determine the presence of underground or sub-slab utilities. HEI anticipates that a magnetic pipe and cable locator will be effective in the prevention of encountering underground utilities.

11.9 Emergency Contingency Plan

In the case of a spill emergency (e.g., tank/drum release, spill, fire, etc.), this section will describe the procedures to be followed during the event.

11.9.1 Contamination Emergency

It is unlikely that a contamination emergency will occur; however, if such an emergency does occur, the specific work area shall be shut down and immediately secured. The area in which the contamination occurred shall not be entered until the arrival of trained personnel who are properly equipped with the appropriate PPE and monitoring instrumentation.

11.9.2 Spill/Air Release

In the event of a spill or air release of hazardous materials on-site, the specific area of the spill or release shall be shut down and immediately secured. The area in which the spill or release occurred shall not be entered until the cause can be determined and Site safety can be evaluated. The NYSDEC Spill Response unit shall be notified immediately. The spilled material shall be immediately contained.

11.9.3 Unknown Drums or USTs

In the event that unidentified containerized substances, including USTs, are discovered during soil sampling or soil excavation, work will be ceased immediately until hazards are addressed. The SSO will then visually assess the situation and identify any leaks or releases from the container. If leaking is identified, the spilled material shall be immediately contained. Upon visual assessment of releases and safety, properly trained personnel will then sample and remove/dispose of the waste/container.

11.10 Additional Safety Practices

The following are important safety precautions and practices that will be enforced during the field activities.

- Eating, drinking, smoking, chewing gum or tobacco or any activity that increases the probability of hand-to mouth transfer and ingestion of hazardous substances is prohibited during the RI activities.
- Remediation worker hands and face must be thoroughly washed before leaving the CRZ or before eating, drinking or other activity.
- Contact with potentially contaminated surfaces should be avoided whenever possible.
- The number of remediation workers and the amount of equipment should be minimized.
- Alcoholic beverages will not be consumed during work hours by Site personnel. Personnel using prescription drugs may be limited in performing specific tasks (i.e. operating heavy equipment) without written authorization from a physician.

12.0 RECORDS AND REPORTING

The SSO will be responsible for establishing and maintaining adequate records of activities which take place at the Site. The records will pertain to Site workers involved in the project, regardless of their employer, as well as any agency personnel. A basic list of the information to be maintained is as follows:

- Occupational injuries or illnesses
- Accident investigations
- Reports to insurance carrier or State Compensation agencies
- Records and reports required by local, state and federal agencies
- Property or equipment damage
- Third party injury or damage claims
- Environmental testing logs

Tables

Table 1
Hazard Characteristics of Potential Contaminants of Concern

Contaminant	Potentially Impacted Media	Carcinogenicity/Symptoms of Acute Exposure	Occupational Exposure Values* ACGIH TLV OSHA PEL NIOSH IDLH
Benzene	Soil, Groundwater	Confirmed human carcinogen. Symptoms include irritation to eyes, skin, nose, respiratory system; headache; nausea; giddiness, fatigue.	PEL - 10 ppm; IDLH - 500 ppm; TLV - 0.5 ppm; STEL - 2.5 ppm
Chlorinated Organic Compounds	Soil, Groundwater	Exposure to the vapors of many chlorinated organic compounds such as vinyl chloride, tetrachloroethylene, 1,1,1-trichloroethane, trichloroethylene and 1,2-dichloroethylene and other chlorinated hydrocarbons may result in various symptoms including irritation of the eyes, nose and throat, drowsiness, dizziness, headache, blurred vision, uncoordination, mental confusion, flushed skin, tremors, nausea, vomiting, fatigue and cardiac arrhythmia. The liquid if splashed in the eyes, may cause burning irritation and damage. Repeated or prolonged skin contact with the liquid may cause dermatitis. Some of these compounds are considered to be potential human car-cinogens.	Refer to 29 CFR 1910.1017 for exposure values
Toluene	Soil, Groundwater	Insufficient data from carcinogenic studies to classify substance as a potential carcinogen. Symptoms include irritation to eyes, nose; fatigue; weakness; euphoria; headache; lacrimation.	PEL - 10 ppm; IDLH - 500 ppm; TLV - 20 ppm; STEL - 150 ppm
Ethyl Benzene	Soil, Groundwater	Confirmed animal carcinogen with unknown relevance to humans. Symptoms include irritation to eyes, skin, mucous membranes; headache; narcosis.	PEL - 5 ppm; IDLH - 800 ppm; TLV - 20 ppm; STEL - 30 ppm
o-, m-, and p-Xylenes	Soil, Groundwater	Insufficient data from carcinogenic studies to classify substance as a potential carcinogen. Symptoms include irritation to eyes, nose, throat; dizziness; excitement; drowsiness; nausea; vomiting.	PEL - 100 ppm; IDLH - 900 ppm; TLV - 100 ppm; STEL - 150 ppm
Polynuclear Aromatic Hydrocarbons (PAH's)	Soil, Groundwater	Many PAH's found in fuel oil and coal tar pitch volatiles (creosote) are confirmed human carcinogens. Symptoms include dermatitis and bronchitis.	Some PAH's have no established exposure values. Others considered coal tar pitch volatiles have an ACGIH TLV and OSHA PEL value of 0.2 mg/m^3.
Cadmium	Soil	Suspected human carcinogen. Symptoms include pulmonary edema; difficulty breathing; cough; tightness in chest; substernal pain; headache; chills; nausea; vomiting; diarrhea; asnosmia.	PEL - 0.2 mg/m3; IDLH - 50 mg/m3; TLV - 0.01 mg/m3 (these limits are expressed for Cd dust)
Chromium	Soil	Hexavalent chromium compounds are confirmed human carcinogens. Symptoms include irritation to the respiratory system; nasal septum perforation; sensitization dermatitis (hexavalents). Irritation to the eyes; sensitization dermatitis (trivalents).	PEL - 0.5 mg/m3; IDLH - 250 mg/m3; TLV - mg/m3 (insoluable)
Lead	Soil	Confirmed animal carcinogen with unknown relevance to humans. Symptoms include weakness; tremor; irritation to eye; constipation; abdominal pain.	PEL - 0.05 mg/m3; IDLH - 100 mg/m3; TLV - 0.5 mg/m3
Mercury	Soil	Insufficient data from carcinogenic studies to classify substance as a potential carcinogen. Symptoms include irritation to eyes, skin; cough; chest pain; difficulty breathing; irritability; indecision; headache; fatigue; weakness; salivation.	PEL - 0.025 mg/m3 (acceptable ceiling concentration); IDLH - 2 mg/m3; TLV - 0.025 mg/m3 (elemental/inorganic)
Polychlorinated Biphenyl (PCBs)	Soil	Confirmed human carcinogen. Symptoms include dermal and ocular lesions, irregular menstrual cycles and a lowered immune response. Other symptoms included fatigue, headache, cough, and unusual skin sores	PEL - 1 mg/m3; IDLH - 5 mg/m3; TLV - 1 mg/m3

ACGIH TLV – American Conference of Governmental Industrial Hygienists Threshold Limit Value; Concentrations in ppm of mg/m3 based on an 8-hour TWA

OSHA PEL – Occupational Safety and Health Admiration Permissible Exposure Limits; Concentrations are shown in parts per million (ppm) or milligrams per cubic meter (mg/m3) based on an 8-hour time weighted average (TWA)

NIOSH IDLH – National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health; Concentrations in ppm or mg/m3

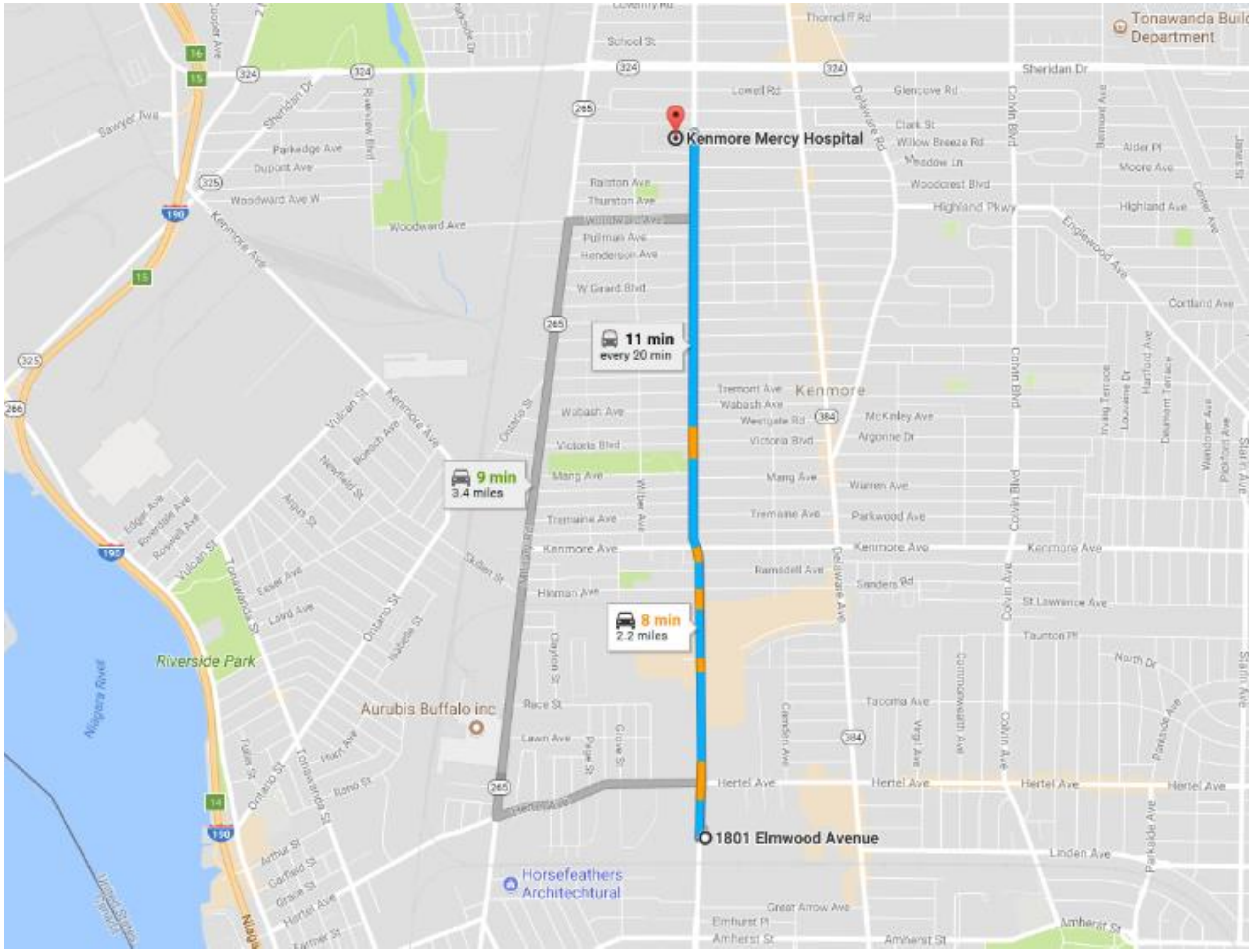
OSHA STEL - Short Term Exposure Limit

Table 2
Emergency Contacts

Agency	Contact	Phone Number
Buffalo Police	Emergency	911
Buffalo Fire/First Aid	Emergency	911
Ambulance	Emergency	911
Poison Control Center	-	
Hospital	Kenmore Mercy Hospital 2950 Elmwood Ave, Buffalo, NY 14217	(716) 447-6100
NYSDOH	Stephen Lawrence Empire State Plaza Corning Tower Rm. 1787 Albany, NY 12237	(518) 402-7860
NYSDEC	Anthony Lopes 270 Michigan Ave. Buffalo, NY 14203	(716) 851-7220
NYSDEC	SPILL Hotline	(800) 457-7362
Hazard Evaluations	Michele Wittman 3752 N. Buffalo Rd. Orchard Park, NY 14127	Office: (716) 667-3130 Cell: (716) 574-1513
C&S Companies	Timothy Hughes, PE 141 Elm St, Suite 100, Buffalo, NY 14203	(716) 955-3025
MOD-PAC CORP.	Daniel Keane 1801 Elmwood Avenue Buffalo, NY 14203	(716) 861-5385

Directions to Hospital - Kenmore Mercy Hospital: Head north on Elmwood Avenue toward Hertel Avenue, hospital entrance is on the left.

Figures



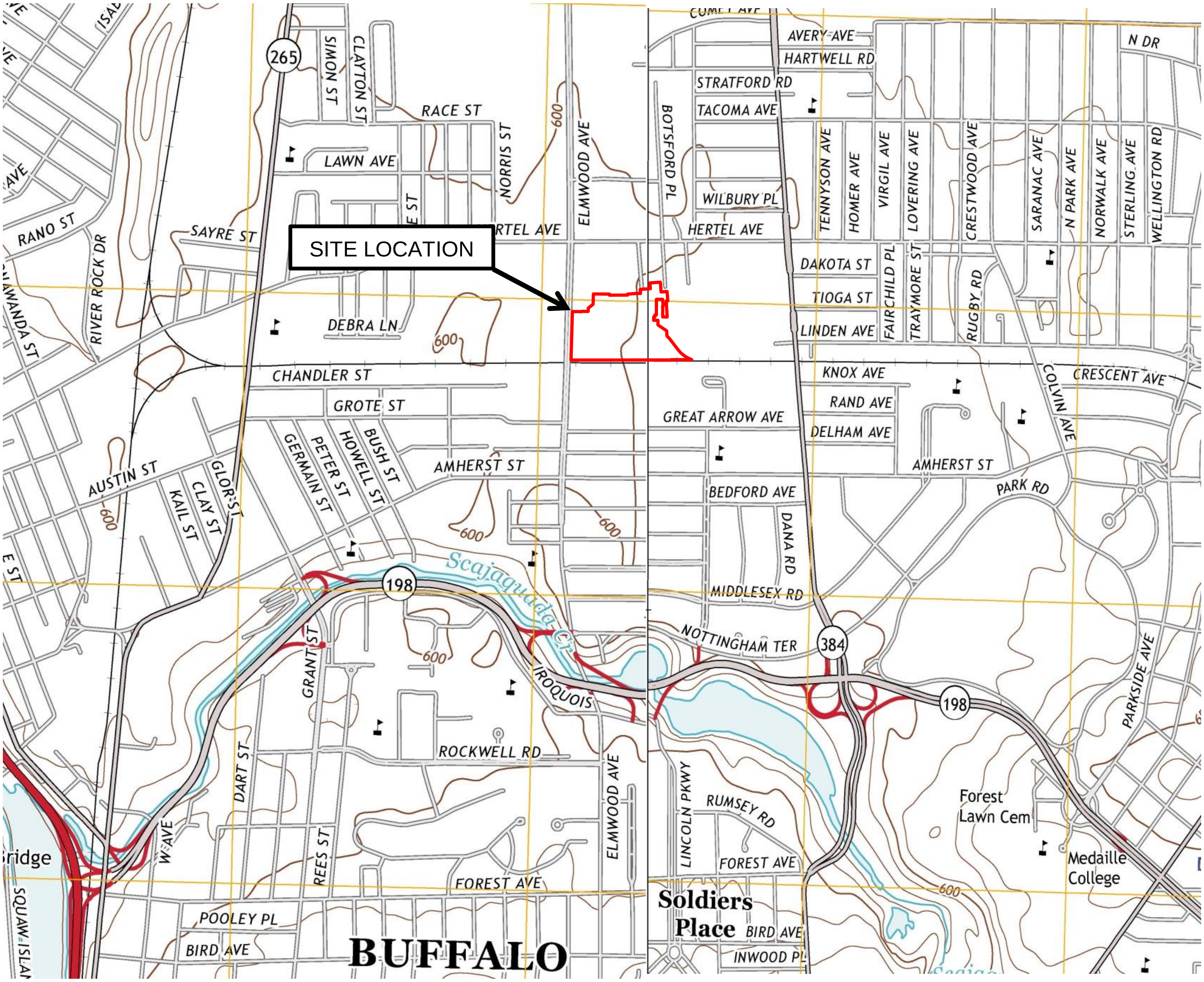
<u>Directions:</u> Head north on Elmwood Avenue toward Hertel Avenue. Kenmore Mercy Hospital will be on the left

HAZARD EVALUATIONS, INC.

Phase I/II Audits – Site Investigations – Facility Inspections

HOSPITAL DIRECTIONS
1801 ELMWOOD AVENUE
BUFFALO, NEW YORK

DRAWN BY: GB	SCALE: NOT TO SCALE	PROJECT: e1605
CHECKED BY: MW	DATE: 07/17	FIGURE NO: 1



THIS DRAWING IS FOR ILLUSTRATIVE AND INFORMATIONAL PURPOSES ONLY
AND WAS ADAPTED FROM USGS, BUFFALO NE & NW, NEW YORK 2013 QUADRANGLE.

HAZARD EVALUATIONS, INC.		
Phase I/II Audits – Site Investigations – Facility Inspections		
SITE LOCATION MOD-PAC CORP. 1801 ELMWOOD AVE. BUFFALO, NEW YORK		
DRAWN BY: LSH	SCALE: NOT TO SCALE	PROJECT: e1605
CHECKED BY: EB	DATE: 07/2017	FIGURE NO: 1

Attachment A

Community Air Monitoring Plan

COMMUNITY AIR MONITORING PLAN

BROWNFIELDS CLEANUP PROGRAM
For
MOD-PAC CORP.
1801 Elmwood Avenue, Buffalo, New York 14207
BCP # C915314

Prepared For:
MOD-PAC CORP.
1801 Elmwood Avenue, Buffalo, New York 14203
HEI Project No: e1605

Prepared By:
Hazard Evaluations, Inc.
3636 North Buffalo Road
Orchard Park, New York 14127
(716) 667-3130

August 18, 2017

HAZARD
EVALUATIONS

TABLE OF CONTENTS

LIST OF ATTACHMENTS

1.0 INTRODUCTION

This Community Air Monitoring Plan (CAMP) has been developed Remedial Investigation/Alternatives Analysis Report (RI) to be completed by Hazard Evaluations, Inc. (HEI) and for MOD-PAC CORP. at 1801 Elmwood Avenue, Buffalo, Erie County, New York, on behalf of MOD-PAC CORP. (Applicant) as part of the Brownfield Cleanup Program (BCP).

The CAMP requires real-time monitoring of volatile organic compounds (VOCs) and particulates (dust) at downwind perimeter of each designated work area. The CAMP will be implemented during the excavation and removal of soils from the courtyard and vacant lot areas of the subject site. This CAMP will be completed in general accordance with NYSDEC DER-10 Appendix 1A, as included in Attachment A. Proposed locations include one upwind and one downwind location within the working area. Due to the large area and amount of sampling points at the site, HEI will determine monitoring points prior to intrusive activities. In addition, wind conditions will be observed during intrusive activities, which may influence the locations of the monitoring points.

2.0 VOLATILE ORGANIC COMPOUND AIR MONITORING

VOCs will be monitored at the downwind perimeter of the work are on a continuous basis and periodically during non-intrusive activities. VOC monitoring will be done using an organic vapor meter (OVM) equipped with a photoionization detector (PID) to provide real-time recordable air monitoring data.

VOCs will also be monitored and recorded at the downwind perimeter of the immediate work area(s). Upwind concentrations will be measured at the beginning of each day before activities begin and periodically throughout the day to establish background conditions. The downwind VOC monitoring device will also be checked periodically throughout the day to assess emissions and the need for corrective action. VOC monitoring action levels as per *DER-10 Technical Guidance for Site Investigations and Remediation* is as follows:

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If the organic vapor level at the perimeter of the work area persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions take to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less; but in no case than that 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shut down.

3.0 PARTICULATE AIR MONITORING

The remediation crew will make all efforts to suppress dust and particulate matter during the handling of contaminated soil. Fugitive dust and particulate monitoring will be completed in accordance with DER-10 Appendix 1B, as included in Attachment B. The following techniques have been shown to be effective for the controlling the generation and migration of dust during construction activities:

(a) Applying water on haul roads;
(b) Wetting equipment and excavation faces;
(c) Spraying water on buckets during excavation and dumping;
(d) Hauling materials in properly tarped or watertight containers;
(e) Restricting vehicle speeds to 10 mph;
(f) Covering excavated areas and material after excavation activity ceases; and/or
(g) Reducing the excavation size and/or number of excavations.

Care will be taken not to use excess water, which can result in unacceptably wet site conditions. Use of atomizing sprays will prevent overly wet conditions, conserve water and provide an effective means of suppressing fugitive dust.

Weather conditions will be evaluated during remedial work. When extreme wind conditions make dust control ineffective, as a last resort, remedial actions may need to be suspended.

Dust and particulate monitoring will be conducted near approximate upwind and downwind perimeters of the work area, when possible. If visual evidence of dust is apparent in other locations, monitoring equipment will be placed where necessary. Dust monitoring may be suspended during period of precipitation and snow cover.

Particulate air monitoring will be done with a DataRAM-4 (or similar), which will be capable of reading particles less than 10 micrometers in size (PM-10) and equipped with an audible alarm feature which will indicate exceedances. Dust monitoring devices will be recorded periodically throughout the day to assess emissions and the need for corrective actions. Particulate monitoring action levels as per *DER-10 Technical Guidance for Site Investigations and Remediation* is as follows:

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter ($\mu g/m^3$) greater than background for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 ($\mu g/m^3$) above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 ($\mu g/m^3$) above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m3 of the upwind level and in preventing visible dust migration.

4.0 DOCUMENTATION

All 15-minute readings will be recorded and be available for or State (NYSDEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

5.0 WIND DIRECTION

Prevailing wind direction will be recorded at the beginning of each work day by visual observations of an on-site windsock. As wind direction may change throughout the work day, direction will be reestablished if a significant change in direction is observed. The wind direction results will be utilized to determine the placement of the monitoring equipment.

Attachment A

NYSDEC DER-10 Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

> **Continuous monitoring** will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.
>
> **Periodic monitoring** for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

<u>VOC Monitoring, Response Levels, and Actions</u>

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

<u>Particulate Monitoring, Response Levels, and Actions</u>

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

Attachment B

NYSDEC DER-10 Appendix 1B
Fugitive Dust and Particulate Monitoring

Appendix 1B
Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

(a) Objects to be measured: Dust, mists or aerosols;
(b) Measurement Ranges: 0.001 to 400 mg/m3 (1 to 400,000 :ug/m3);
(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m3 for one second averaging; and +/- 1.5 g/m3 for sixty second averaging;
(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
(e) Resolution: 0.1% of reading or 1g/m3, whichever is larger;
(f) Particle Size Range of Maximum Response: 0.1-10;
(g) Total Number of Data Points in Memory: 10,000;
(h) Logged Data: Each data point with average concentration, time/date and data point number
(i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
(l) Operating Temperature: -10 to 50^{o} C (14 to 122^{o} F);
(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m3 (15 minutes average). While conservative,

this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m3, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m3 continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

(a) Applying water on haul roads;
(b) Wetting equipment and excavation faces;
(c) Spraying water on buckets during excavation and dumping;
(d) Hauling materials in properly tarped or watertight containers;
(e) Restricting vehicle speeds to 10 mph;
(f) Covering excavated areas and material after excavation activity ceases; and
(g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m3 action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

Appendix 1C
DEC Permits Subject to Exemption

In accordance with section 1.10, exemptions from the following permit programs may be granted to the person responsible for conducting the remedial programs undertaken pursuant to section 1.2:

Air - Title 5 permits
Air - State permits
Air - Registrations
Ballast Discharge
Chemical Control
Coastal Erosion Hazard Areas
Construction of Hazardous Waste Management Facilities
Construction of Solid Waste Management Facilities
Dams
Excavation and Fill in Navigatable Waters (Article 15)
Flood Hazard Area Development
Freshwater Wetland
Hazardous Waste
Long Island Wells
Mined Land Reclamation
Navigation Law - Docks
Navigation Law - Floating Objects
Navigation Law - Marinas
Non-Industrial Waste Transport
Operation of Solid Waste Management Facilities
Operation of Hazardous Waste Management Facilities
State Pollution Discharge Elimination Systems (SPDES)
Stream Disturbance
Tidal Wetlands
Water Quality Certification
Water Supply
Wild, Scenic and Recreational Rivers