CONESTOGA-ROVERS & ASSOCIATES

DRAFT REMEDIAL ACTION WORK PLAN

FORMER BUFFALO CHINA SITE
BUFFALO, NEW YORK

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1.0 INTRODUCTION

Conestoga-Rovers & Associates, Inc. (CRA) has prepared this Remedial Action Work Plan (RAWP) on behalf of Buffalo China, Inc. (Buffalo China) for the Former Buffalo China Site located in Buffalo, New York (Site). The location of the Site is shown on Figure 1.1.

Buffalo China has entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) to investigate and remediate, as appropriate, potential areas of environmental concern associated with the Site under the Brownfield Cleanup Program (BCP). A revised Draft Remedial Investigation (RI) Report presenting the findings of the RI and a revised Draft Alternatives Analysis Report (AAR) were submitted to the NYSDEC and the New York State Department of Health (NYSDOH) on May 25, 2010. The RI and AAR were accepted by the NYSDEC in a letter dated August 16, 2010. The final RI and AAR documents were submitted to the NYSDEC on September 27, 2010. The RAWP presented hereafter was developed based on the findings of the RI and AAR and has been completed in accordance with the NYSDEC Division of Environmental Remediation (DER) Draft Brownfield Cleanup Program Guide (BCP Guide) dated May 2004, 6 NYCRR Part 375 Environmental Remediation Programs (Part 375) effective December 14, 2006, and the NYSDEC DER Technical Guidance for Site Investigation and Remediation (DER-10) dated May 2010.

1.1 SITE DESCRIPTION

The Former Buffalo China Site is located at 51 Hayes Place in Buffalo, Erie County, New York. The Site layout is shown on Figure 1.2. The Site comprises approximately 10 acres and is bounded on the north by the CSX Railroad right-of-way, on the east by an attached warehouse and other commercial/industrial facilities, and on the south and west by commercial, industrial, and residential properties. Interstate I-190 is located nearby to the south of the Site, while the former City of Buffalo School 26 and adjacent playground is located a few hundred feet to the southwest. The nearest body of water is the Buffalo River, located approximately 1/4 to 1/2 mile south and east of the Site. The primary access to the Site is through the east side of the Site from Buffalo China Road or through the south side of the Site via the City of Buffalo street named Hayes Place.

The Site includes a manufacturing building, a warehouse, outdoor storage silos, a rail spur, roadways, and parking areas. The manufacturing building is a multi-story structure covering approximately 4 acres. The manufacturing building is connected to a

warehouse to the east. The warehouse is currently owned by Robinson Home Products. Another smaller building referred to as the Harrison Street Warehouse is located at the northwest end of the Site and covers an area of approximately 0.5 acres.

The property has been used for the manufacture of china for the past 100 plus years. During that time period, the manufacturing facility expanded to adjacent industrial properties that historically included the Standard Mirror Company and Atlas Wrecking. The Harrison Street Warehouse was once a part of the Standard Mirror Company facility.

The property is currently owned by Niagara Ceramics. Niagara Ceramics continues to manufacture china dinnerware at the Site. The Harrison Street Warehouse is presently used for storage.

The Site is located within the Buffalo Water Authority district, and all potable water is supplied through that system.

1.2 SITE INVESTIGATIONS

Previous investigations at the Site include a Phase I and Phase II Environmental Site Assessment (ESA), prepared by Environmental Audits, Inc. (EA) in 2004, a Supplemental Site Investigation (SSI) completed by CRA in 2006, and the BCP RI conducted from July 2007 through July 2009. The investigations identified the presence of inorganic compounds (i.e., metals), volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs) in soils at the Site at concentrations exceeding 6 NYCRR Part 375 Restricted Use Soil Cleanup Objectives (RUSCOs), and VOCs in groundwater samples at concentrations exceeding 6 NYCRR Part 703.5 Class GA Groundwater standards at both on- and off-Site locations.

Field activities, including subsurface soil sampling, groundwater monitoring well installation, groundwater sampling, and hydraulic monitoring and testing were conducted as part of these investigations. Brief descriptions of the investigative activities are presented in the following subsections. Full descriptions of the investigative activities conducted to date are presented in the RI Report.

The scope of the Phase II assessment completed by EA in 2004 included exterior subsurface borings (to a maximum 16 feet below grade); nine building interior subsurface borings (to a maximum 10 feet below grade); and soil sample collection,

screening and analysis. Selected soil samples were submitted for laboratory analysis for VOCs, SVOCs, and metals, or a subset thereof.

Investigation activities conducted by CRA in 2006 and between July 2007 and July 2009 included collection of surface soil samples, soil boring installation, collection and analysis of subsurface soil samples, monitoring well installation, groundwater sample collection and analysis, and soil vapor intrusion sampling.

1.2.1 SURFACE SOIL

Fifty-two surface soil samples, including two blind field duplicates, were collected by CRA from 25 locations, both on Site and off Site in May and August 2008 as part of the RI. One sample set consisting of one sample from 0 inches to 2 inches below ground surface (bgs) and one sample from 2 inches to 4 inches bgs were collected at each location. Table 1.1 provides a summary of surface soil samples collected and the analysis performed. Surface soil sample locations are shown on Figure 1.3. The samples were analyzed for either lead or the target analyte list (TAL) of metals plus cyanide.

1.2.2 SUBSURFACE SOIL

A total of 76 subsurface soil samples, including 4 blind field duplicates, were collected from 50 locations collected as part of the RI. Subsurface soil sample collection and analysis information is summarized on Table 1.2. The subsurface soil sample locations are also shown on Figure 1.3. Boring logs are presented in Appendix A. The samples were analyzed for one or more of the following parameters:

i) VOCs
ii) SVOCs
iii) Lead
iv) TAL metals plus cyanide
v) Pesticides
vi) Herbicides
vii) Polychlorinated biphenyls (PCBs)

1.2.3 GROUNDWATER

A total of 19 overburden monitoring wells and 15 bedrock monitoring wells were installed during RI activities. A summary of monitoring well information and sample collection and analysis is provided in Table 1.3. Monitoring well locations are shown on Figure 1.4. Well construction logs are presented in Appendix A. A total of 76 groundwater samples including 10 field duplicates were collected and analyzed for one or more of the following parameters:

i) VOCs
ii) SVOCs
iii) Total TAL metals plus cyanide
iv) Dissolved TAL metals plus cyanide
v) Total lead
vi) Dissolved lead
vii) Pesticides
viii) Herbicides
ix) PCBs

1.2.3.1 HYDRAULIC CONDUCTIVITY TESTING

Hydraulic conductivity testing was performed on the groundwater monitoring wells. Single well response tests were conducted at all each well. Two rising head and two falling head tests were conducted at each location. The four results for each well were used to calculate an average hydraulic conductivity for that well. The Site-wide average hydraulic conductivity for the overburden aquifer and the bedrock aquifer were calculated from the individual monitoring well hydraulic conductivity measurements. After the hydraulic conductivity fieldwork was completed, the well response data were analyzed using AQTESOLV™ software to calculate the hydraulic conductivity. The Site average overburden and bedrock hydraulic conductivity were calculated based on the AQTESOLV™ results. Table 1.4 provides a summary of the hydraulic conductivity testing results.

1.2.4 SOIL VAPOR INTRUSION

The soil vapor intrusion (SVI) investigation included the collection of sub-slab soil vapor samples and indoor air samples from four off-Site properties and outdoor air samples. Based on the evaluation of the data against the NYSDOH decision matrices, it was concluded that no further action such as monitoring or mitigation is warranted at three of the locations.

An evaluation of the soil vapor data collected from the fourth location against the NYSDOH decision matrices indicated that mitigation is necessary to address the presence of elevated VOC vapors beneath the building's basement slab. The mitigation at this location will be addressed through an interim remedial measure (IRM) once the property owner agrees to allow access to the property. Soil vapor intrusion is not discussed further in this work plan.

1.3 SUMMARY OF ENVIRONMENTAL CONDITIONS

The Site environmental properties that will influence the implementation of the remedial action (RA) include the composition of the overburden soils as well as the quality of on-Site soils and groundwater. The following subsections summarize the characterizations of these media.

1.3.1 OVERBURDEN MATERIALS

Cross-sections illustrating the overburden stratigraphy of the Site are presented on Figures 1.6 through 1.8. Figure 1.5 shows the cross-section alignments.

1.3.1.1 FILL

The fill encountered at the Site ranged in thickness from 0.5 feet to 16 feet, with the thickest fill encountered along the Soil Mound north of the Harrison Street Warehouse. The Soil Mound is approximately 10 feet higher in elevation than the surrounding Site topography. It should be noted that the borings at these locations began at the top of the Soil Mound, resulting in an increased measured thickness for the fill material. The average thickness of the fill considering only on-Site locations, and disregarding the soil mound thickness, is 3.1 feet.

1.3.1.2 NATIVE SOIL AND BEDROCK

The native soils underlying the fill generally consist of dense clay underlying sand and/or silt; however, the soil stratigraphy is highly variable, and silt and clay generally underlies the fill at the Site. The average clay thickness considering both on- and off-Site locations is 7.34 feet. The bedrock was overlain by clay at all investigation locations.

Bedrock cores were collected and logged at 15 bedrock monitoring well locations. These cores indicate a light to dark gray cherty limestone (the Onondaga Limestone). The limestone is massive and moderately fractured or broken at the top of the formation.

Based on field observations and the measured depth to the top of bedrock for on-Site and off-Site locations, the average depth to bedrock is 9.72 feet bgs. A top of bedrock surface contour map (Figure 1.9) was prepared based on the field measurements. A review of Figure 1.9 indicates that the top of bedrock surface beneath the Site dips similar to the gentle regional dip, which is to the south with a gradient of approximately 45 feet per mile. The bedrock surface is not flat, but tends to undulate, with localized mounds and depressions. These features could influence local groundwater flow in the overburden and shallow bedrock.

1.3.2 HYDROGEOLOGY

Groundwater is first encountered at the Site in the low permeability, silty clay. The average depth to groundwater is approximately 6.63 feet bgs across the Site based on the most comprehensive round of water level measurements obtained in July 2009.

As depicted on Figures 1.10 and 1.11, groundwater flow direction is generally to the west southwest at a gradient of 0.023 foot per foot in the overburden and 0.024 foot per foot in the bedrock. As shown on Figure 1.11, there is a component of groundwater flow to the east, east of MW-18A. Seasonal variations in groundwater elevations between January 2009 and July 2009 ranged from several tenths of a foot to slightly greater than a foot. From a seasonal perspective, it is anticipated that water levels would rise and fall congruently across the Site.

The hydraulic conductivity of the overburden ranged from approximately 1.48E-05 cm/sec at monitoring well MW-11 to 5.58E-04 cm/sec at monitoring well MW-7. The geometric mean hydraulic conductivity for the overburden wells is calculated to be 1.95E-04 cm/sec. The hydraulic conductivity of the bedrock ranged from approximately 2.24E-04 cm/sec at monitoring well MW-23A to 1.06E-01 cm/sec at

monitoring well MW-25A. The geometric mean hydraulic conductivity for the bedrock wells is calculated to be 2.79E-02 cm/sec.

1.4 NATURE AND EXTENT OF CONTAMINATION IN SOIL AND GROUNDWATER

The investigation and data analysis presented in the RI indicated that current or potential future risks to human health and/or the environment were present if there was direct exposure to:

i) Impacted groundwater

ii) Impacted subsurface soils

iii) Exposure to sub-slab soil gas through vapor intrusion into off-Site properties

The potential impact of soil vapor intrusion has been identified at one off-Site property. Mitigation of the potential impact will be addressed through an IRM upon agreement of the property owner and, therefore, not addressed further in this RAWP.

1.4.1 SHALLOW AND SUBSURFACE SOIL

A summary of soil analytical results that exceed the soil cleanup objectives (SCOs) for protection of groundwater in 6 NYCRR Part 375 is presented on Table 1.5 and Figure 1.12. A review of the data shows that VOCs, SVOCs, arsenic, and lead were detected in on-Site soils at concentrations that exceed the protection of groundwater criteria. The most significant exceedances are on the south side of the Harrison Street Warehouse.

1.4.2 GROUNDWATER

The concentrations of (VOCs), in the overburden and bedrock monitoring wells are shown on Figure 1.13 and summarized on Table 1.6. The analytical data have been compared to the NYSDEC standards and guidance values for Class GA (potable) groundwater, and detected concentrations exceeding the standards are highlighted on the table. Review of the data shows that the VOCs, primarily trichloroethene (TCE) and its degradation products, are present in overburden and bedrock groundwater and have migrated off Site.

1.5 POTENTIAL STANDARDS, CRITERIA, AND GUIDELINES

Applicable or relevant and appropriate standards, criteria, and guidelines (SCGs) were used to develop the Remedial Action Objectives (RAOs) and to scope and formulate remedial action technologies and alternatives. SCGs are categorized as:

i) Chemical-specific requirements that define acceptable exposure levels and may, therefore, be used in establishing preliminary remediation goals;

ii) Location-specific requirements that may set restrictions on activities within specific locations, such as floodplains or wetlands; and/or

iii) Action-specific requirements which may set controls or restrictions for particular treatment and disposal activities related to the management of hazardous wastes.

Potential SCGs are described in the following subsections.

1.5.1 CHEMICAL-SPECIFIC SCGs

Chemical-specific SCGs define health- or risk-based concentration limits in various environmental media for hazardous substances and contaminants. Concentration limits provide protective cleanup levels or may be used as a basis for estimating appropriate cleanup levels for the contaminants of concern (COCs) in the designated media. Chemical-specific SCGs may be used to determine treatment system discharge requirements or disposal restrictions for remedial activities and/or to assess the effectiveness or suitability of a remedial alternative. Chemical-specific SCGs are generally promulgated standards.

Potential chemical-specific SCGs that may apply to groundwater and soil at the Site are described in the subsections that follow.

1.5.1.1 GROUNDWATER

Site groundwater is considered Class GA. Class GA groundwater pertains to fresh groundwater found in the saturated zone of unconsolidated deposits and bedrock. The best usage of Class GA groundwater is a source of potable water supply; however, Site groundwater is not used as a drinking water source. The NYS water quality standards and guidance values for Class GA groundwater are stipulated in:

i) New York Water Classifications and Quality Standards (6 NYCRR Parts 609, and 700-704)

ii) Technical and Operation Guidance Standards (TOGS) 1.1.1, Ambient Water Quality Standards and Guidance Values dated October 22, 1993 (reissued June 1998)

1.5.1.2 SOIL

As stated in Part 375, the soil component of the remedial program shall achieve the lowest of the three potentially applicable contaminant specific SCOs for all soils above bedrock. NYSDEC has developed SCOs for protection of public health, for protection of groundwater, and for protection of ecological resources. The Fish and Wildlife Resource Impact Assessment (FWIA) completed as part of the RI concluded that there were no impacts to fish and wildlife on or near the Site due to dense urbanization and lack of natural habitats surrounding the Site. Therefore, the SCOs for the protection of ecological resources are not applicable to this Site. The SCOs for the protection of groundwater are more stringent than the protection of public heath SCOs and are applicable to the Site. The NYSDEC has determined that protection of groundwater SCOs are not appropriate for all areas of the Site, and that the SCOs for industrial use will also be applicable to the Site.

1.5.2 ACTION-SPECIFIC SCGs

Action-specific SCGs are determined by the particular remedial activities that are selected for the Site cleanup. Action-specific requirements establish controls or restrictions on the design, implementation, and performance of remedial activities.

The action-specific SCGs that may be applicable to potential Site remedial technologies are those identified under the following headings in Table 1.7:

i) Capping

ii) Excavation

iii) Surface water control

iv) Waste pile

v) Closure with waste in place

vi) Transporting hazardous waste off Site

1.5.3 LOCATION-SPECIFIC SCGs

Potential location-specific SCGs are requirements that set restrictions on activities depending on the physical and environmental characteristics of the Site or its immediate surroundings.

The Site is bounded by industrial, commercial, residential, and undeveloped properties. The FWIA completed during the RI concluded that there are no identified rare, threatened or endangered species, habitats of concern, or freshwater wetlands within a 1/2 mile radius of the Site.

Potential location-specific SCGs that may be applicable to potential Site remedial technologies are the City of Buffalo zoning ordinances and building codes.

1.6 SUMMARY OF THE SELECTED REMEDY

Based on the results of the RI, the RA for the Site addresses the presence of VOCs in on-Site and off-Site groundwater, and the presence of VOC, SVOCs, and metals in on-Site soils. The following Remedial Action Objectives (RAOs) were established for Site media:

i) To prevent unacceptable exposure/contact of human receptors to VOCs detected in on-Site and off-Site groundwater, and VOCs, SVOCs, and metals in Site soil

ii) To address overburden and bedrock groundwater impacts to the extent practicable so that groundwater conditions are consistent with the contemplated use of the Site as a commercial/industrial manufacturing facility

iii) To prevent or mitigate, to the extent practicable, further degradation of groundwater quality as a result of leaching from contaminated soils

iv) To prevent or mitigate, to the extent practicable, further migration of impacted groundwater to off-Site areas

v) To monitor the groundwater to confirm that the selected remedy is protective of human health and the environment

To accomplish these RAOs, the selected remedy consists of the following elements:

i) Excavation and off-Site disposal of unsaturated soils that exhibit concentrations of VOCs, SVOCs, and metals in excess of applicable NYSDEC standards or objectives. These soils are located primarily on the south and west sides of the Harrison Street warehouse

ii) Backfill and restoration of the excavated area similar to current conditions

iii) Monitored natural attenuation of VOCs and SVOCs in some discrete areas and institutional and engineering controls to minimize exposures to metals in Site soil

iv) In situ treatment through chemical oxidation of groundwater impacted by VOCs in on-Site soil

v) Post-remediation groundwater monitoring to evaluate the effectiveness of the remedy

vi) Institutional and engineering controls

1.7 CONTEMPLATED USE

The anticipated future use of the Site property is for continued industrial or future commercial/industrial businesses.

2.0 ENGINEERING EVALUATION OF THE REMEDY

As described in Section 1.6, the selected remedy for the Site is a combination of the following alternatives:

i) Soil Alternative 2 (SO Alternative 2): Monitored natural attenuation with institutional and engineering controls for soil impacted with VOCs, SVOCs and metals at some discrete locations

ii) Soil Alternative 3 (SO Alternative 3): Excavation and off-Site disposal of unsaturated soil impacted with VOCs, SVOCs and metals, primarily on the south and west sides of the Harrison Street warehouse

iii) Groundwater Alternative 4 (GW Alternative 4): In situ chemical oxidation of VOCs in overburden and bedrock groundwater

The following subsections present the engineering evaluations of each of the selected RAs. These evaluations were presented previously in the AAR.

2.1 SOIL ALTERNATIVE 2: MONITORED NATURAL ATTENUATION WITH INSTITUTIONAL AND ENGINEERING CONTROLS

In SO Alternative 2, no active remedial measures will be taken to address COCs in soil at the Site. VOC and SVOC COCs would be allowed to degrade naturally over time. Metals do not degrade naturally; however, analytical results for dissolved lead in Site groundwater were non-detect, indicating that lead present in on-Site soils has not impacted groundwater quality. A groundwater monitoring program will be conducted to evaluate the effectiveness of natural attenuation processes in protecting groundwater quality. The groundwater monitoring program will consist of both hydraulic and water quality monitoring in overburden and bedrock monitoring wells. The purpose of the hydraulic monitoring program is to confirm that the groundwater flow patterns are not changing over time resulting in off-Site impacts. Groundwater quality monitoring would be conducted to confirm the protectiveness of the remedy. Groundwater samples will be analyzed for SVOCs and dissolved metals. The five overburden plume wells shown on Figure 2.1 would be sampled as part of this remedy. The monitoring will be conducted in conjunction with GW Alternative 4. The timeframe for SO Alternative 2 is 7 years in conjunction with GW Alternative 4.

In SO Alternative 2, additional Institutional Controls beyond those already in place at the Site would be implemented to further restrict direct exposure to contaminated soil. Specifically, these are as follows:

i) Additional safe work practices and definitions of levels of personnel protective equipment (PPE) for specific work activities would be developed if necessary and implemented for subsurface maintenance or construction activities conducted within the limits of COC presence in unsaturated soils.

ii) A deed restriction and an environmental easement would be added to the existing deed. The deed restriction would inform the property owners of the Site history and restricted land use on the property. A deed restriction would also require the property owner to notify the NYSDEC before performing construction activities in areas within the limits of COC presence in soil. Any future conveyance of the property would be subject to these restrictions. The environmental easement would grant Buffalo China and its representatives access to the property to inspect and maintain institutional and engineering controls and conduct monitoring of the remedy. The restriction or restrictive covenants and easement would be drafted in accordance with applicable and relevant State and municipal legal codes to be enforceable.

iii) Maintenance of existing engineering controls (manufacturing building and warehouse floor slab) to prevent contact with impacted soil and implementation of institutional controls to restrict exposure to and migration of contaminated subsurface soil.

2.1.1 ASSESSMENT

Overall Protection of Human Health and the Environment: Maintaining the existing manufacturing building floor slabs as engineering controls, effective deed restrictions, and monitoring would be protective of human health by preventing potential exposure to contaminated soil. The potential future risk to the environment using SO Alternative 2 would not be reduced beyond that which will be achieved through natural attenuation and biological degradation of VOCs.

Compliance with SCGs: SO Alternative 2 would achieve the chemical-specific SCGs for organic constituents that apply to soil through the natural attenuation processes. SCGs would not be achieved for metals. Since no remedial action would be implemented, no action-specific SCGs apply to SO Alternative 2. The potentially applicable location-specific SCGs for this Alternative are the City of Buffalo zoning ordinances.

Reduction of Toxicity, Mobility, or Volume: SO Alternative 2 will provide reductions in toxicity and volume of the organic COCs in soil and groundwater over time. The mobility of the COCs will not be reduced through the implementation of SO Alternative 2.

Short-Term Effectiveness: No additional short-term risk to the community or the environment would be posed as a result of the implementation of SO Alternative 2. Risk to workers conducting the monitoring program would be mitigated through the implementation of safe work practices and proper PPE.

Long-Term Effectiveness and Permanence: The additional institutional controls established for SO Alternative 2 would make this Alternative effective in the long term as long as they are enforced until soil has been restored to the extent necessary for the intended future land use.

Land Use: SO Alternative 2 would achieve the soil RAOs for VOCs and SVOCs. However, SO Alternative 2 would not achieve the soil RAOs for metals and, therefore, would not be compatible with the intended future land use without implementation of an additional soil remedy.

Implementability: SO Alternative 2 can be readily implemented.

2.2 SOIL ALTERNATIVE 3: EXCAVATION WITH OFF-SITE DISPOSAL AND INSTITUTIONAL AND ENGINEERING CONTROLS

SO Alternative 3 includes:

i) Excavation of unsaturated soil containing VOCs and metals at concentrations exceeding SCGs

ii) Off-Site disposal of the excavated soil at a permitted landfill

iii) Maintenance of existing engineering controls (manufacturing building and warehouse floor slab) to prevent contact with impacted soil and implementation of institutional controls to restrict exposure to and migration of contaminated subsurface soil

The estimated areas from which soil would be excavated are shown on Figure 2.2. Area A will be excavated to remove soils in the unsaturated zone with VOC concentrations exceeding the Part 375 protection of groundwater SCOs. The area of impact is approximately 6,100 square feet (ft^2). The unsaturated zone extends to approximately 4 feet bgs in Area A. Approximately 900 cubic yards (CY) of soil would be excavated.

Excavations at Areas B through E will be limited to 100 $feet^2$ by 2 feet deep to address these discrete locations with lead above the protection of groundwater SCOs.

Soils will be pre-characterized for disposal. Based on the concentrations of VOCs around MW-5 and lead at BH-7 in Area A, it is anticipated that some of these soils would be characterized as hazardous waste. The remaining soils would be characterized as non-hazardous. Excavated soils would be transported to an off-Site, permitted treatment storage and disposal facility (TSDF) for treatment (if required) and disposal. Excavated soil likely would be removed from the Site concurrently with the excavation activities.

The excavation would then be backfilled with clean, imported, granular fill and regraded, as necessary, to promote drainage. The filled areas will be restored to existing conditions.

It is anticipated that excavation and backfilling would be completed in a 2-week period.

2.2.1 ASSESSMENT

Overall Protection of Human Health and the Environment: SO Alternative 3 would be protective of human health by preventing potential incidental exposure to contaminated soil. SO Alternative 3 would be protective of the environment by reducing the future potential transport of COCs in soil to off-Site areas as a result of wind dispersion, surface runoff, or other mechanical means. SO Alternative 3 would also eliminate the migration of COCs in soil to underlying groundwater

Compliance with SCGs: SO Alternative 3 would achieve the chemical-specific SCGs that apply to soils.

The potentially applicable action-specific SCGs for this Alternative are:

i) Capping

ii) Container Storage

iii) Excavation

iv) Surface Water Control

v) Waste Pile

vi) Closure with Waste in Place

vii) Transporting Hazardous Waste off Site

These SCGs would be satisfied by SO Alternative 3.

The potentially applicable location-specific SCGs for this Alternative are the City of Buffalo ordinances and building codes.

Reduction of Toxicity, Mobility, or Volume: SO Alternative 3 does not provide a reduction in toxicity or volume of COCs in excavated soil unless treatment is required at the disposal facility. Mobility of COCs in Site soil would be eliminated through the removal and transport of soil from the area.

SO Alternative 3 will assist in achieving the RAOs for VOCs in groundwater.

Short-Term Effectiveness: Soil excavation and backfill can be completed using standard techniques. Short-term hazards to workers would be mitigated through proper work and health and safety procedures. The short-term effectiveness of SO Alternative 3 would be almost immediate upon completion, since the potential for direct exposure of human receptors to Site soils would be eliminated immediately. Dust control and community air monitoring programs would be implemented during construction activities to control short-term risks posed to the community by SO Alternative 3.

Long-Term Effectiveness and Permanence: SO Alternative 3 is a permanent solution to prevent exposure to contaminated soils. The enforcement of the institutional controls to be established for SO Alternative 3 would make this Alternative effective to prevent exposure to chemicals in remaining impacted subsurface soils, if present.

Land Use: SO Alternative 3 would achieve the RAOs for soil and would be compatible with the intended future land use.

Implementability: SO Alternative 3 is implementable with some degree of difficulty. The final scope of work is highly dependent on the pre characterization sampling and waste disposal requirements as well as the confirmatory sampling results.

2.3 GROUNDWATER ALTERNATIVE 4: IN-SITU CHEMICAL OXIDATION WITH ENHANCED BIODEGRADATION, AND INSTITUTIONAL CONTROL

GW Alternative 4 would consist of in-situ chemical oxidation (ISCO) followed by enhanced biodegradation, and institutional controls.

In-situ chemical oxidation is site specific. Successful treatment is a function of delivery and oxidation demand. A sufficient amount of oxidants needs to be delivered specifically to targeted area for effective oxidation. The treatment performance is dependent on the soil chemistry to a great extent. A critical factor in the evaluation of ISCO treatment is determining the dosages of oxidant that are required to effectively oxidize the contaminants as well as the natural oxidant demand (NOD).

The preferred oxidant for this Site is hydrogen peroxide-activated sodium persulfate. Persulfate, in solution with TCE, reacts to form carbon dioxide, hydrogen and sodium cations, and chloride and sulfate anions, which would be expected to be present as sodium sulfate, and hydrochloric and sulfuric acids:

$$3Na_2S_2O_8 + C_2HCl_3 + 4H_2O \rightarrow 2CO_2 + 9H^+ + 3Cl^- + 6Na^+ + 6\,SO_4^{2-}$$

The reaction begins with an activation stage (shown below) where the presence of a hydrogen peroxide activator produces four free radicals in the form of two sulfate radicals and two hydroxyl radicals. Free radicals are very reactive intermediates that attach to the molecule to be oxidized and contain the energy necessary to cause it to decompose.

$$[S_2O_8^{-2} + H_2O_2 \rightarrow 2SO_4^{\bullet} + 2OH^{\bullet}]$$

Hydrogen peroxide activation of sodium persulfate results in the creation of the sulfate and hydroxyl radicals that serve as electron donors in the decomposition of chlorinated organic compounds. The sequential removal of chlorine atoms from TCE begins with the sulfate or hydroxyl radicals attaching to the trichloroethylene molecule at the double bond between the two carbon atoms. This leads to the initial removal of the hydrogen ion from the TCE molecule followed by the release of a chlorine anion. Once all three chlorine atoms are released as chloride anions, the remaining carbons atoms form carbon dioxide and the sulfate anion is released. The chloride and sulfate anions combine with sodium and hydrogen cations to form sulfuric and hydrochloric acids and sodium sulfate.

The oxidant would be applied to the subsurface through newly installed injection wells, in addition to an underground piping gallery. The piping gallery will be installed as part of a soil excavation remedy (SO Alternative 3). Upon completion of excavation of impacted unsaturated soil, a network of perforated PVC pipe will be installed horizontally at the base of the excavation. Vertical riser pipes will be connected to the gallery to allow for introduction of chemical oxidants. The excavation will be backfilled to return the area to existing grades. In addition, two lines of injection wells will be installed west of MW-21A and north of MW-13/13A, MW-6/6A, and MW-20/20A to act as a barrier to contaminant migration in these areas. Injection wells will also be installed upgradient of off-Site wells MW-11 and MW-14/14A. Figure 2.3 presents the proposed layout/locations for the gallery and injection wells. The actual layout and locations will be determined based on the ultimate extent of excavation and subsurface conditions. The need for installation of one or more vertical overburden and/or bedrock injection wells in the source area will be determined based on the effectiveness of the horizontal piping gallery.

The treatment would require quarterly oxidant injections over a period of 18 months. Although chemical oxidation is expected to treat more than 90 percent of the organic contaminants present, it is anticipated that in-situ enhanced biodegradation (ISEB) polishing would be required to meet cleanup levels. A period of 6 months after the last oxidant injection would be sufficient to ensure that the oxidant was exhausted and that dissolved oxygen would be reduced to pretreatment levels in the groundwater. It is possible that the bacterial populations may need to be augmented if they have not returned to pretreatment levels during the 6 month period. ISEB would then be initiated by the injection of soy-lactate substrate and nutrients for a 3 to 5 year period. It is expected that soy lactate applications would occur every other year while nutrient applications would be required annually. A bench scale treatability study is necessary to determine optimum oxidant and soy lactate doses and the need for bioaugmentation. Pilot-scale testing is recommended to determine optimum injection point spacing and injection rates.

Groundwater monitoring would be conducted on a semi-annual basis during treatment and for 2 years after treatment. The 2 years of post-treatment groundwater monitoring is an assumed time for cost estimating purposes. The actual length of time groundwater monitoring will be conducted will be based on the monitoring results. The groundwater monitoring network is shown on Figure 2.1. Plume wells will be sampled for VOCs and natural attenuation parameters to monitor COC concentrations and groundwater conditions. Samples from the perimeter wells would be analyzed for VOCs to monitor plume migration.

2.3.1 ASSESSMENT

Overall Protection of Human Health and the Environment: GW Alternative 4 would reduce the highest concentrations of COCs in groundwater, thus, immediately reducing the potential risk attributable to exposure to Site groundwater and enhancing the conditions under which natural attenuation processes can progress.

Compliance with SCGs: GW Alternative 4 would achieve the chemical-specific SCGs which apply to groundwater in the shortest timeframe compared to the other alternatives that were evaluated. The potentially applicable action-specific SCGs that applies to GW Alternative 4 is Container Storage. This SCG would be satisfied by GW Alternative 4.

Potentially applicable location-specific SCGs for this Alternative are the City of Buffalo ordinances and building codes.

Reduction of Toxicity, Mobility, or Volume: GW Alternative 4 will provide reduction of the toxicity, volume, and mobility of the COCs in groundwater. The volume of COCs in sub-slab vapor will also be reduced by GW Alternative 4.

Short-Term Effectiveness: Short-term hazards to workers during the in-situ treatment or monitoring events would be mitigated through the implementation of safe work practices and proper PPE. Mixing and pumping mechanisms may be present on the ground surface during the treatment and construction processes; however, all solutions would be containerized and no additional short-term risks would be posed to the community, the workers, or the environment.

Long-Term Effectiveness and Permanence: The implementation of GW Alternative 4 will achieve the groundwater RAOs. GW Alternative 4 would also reduce VOC concentrations to meet the soil RAOs for soils in the saturated zone.

Land Use: GW Alternative 4 would achieve the groundwater RAOs if the institutional controls are imposed and enforced until groundwater has been restored to the extent necessary for the intended future land use; however, GW Alternative 4 would not achieve the unsaturated soil RAOs and, therefore, would not be compatible with the intended future land use without implementation of a soil remedy.

Implementability: GW Alternative 4 can be readily implemented.

3.0 PROJECT PLANS AND SPECIFICATIONS

This section provides technical information with respect to the soil and groundwater remediation activities.

3.1 GENERAL

The general sequence of the remediation activities is as follows:

i) Soil excavation and off-Site disposal

ii) Installation of buried piping system and injection wells for use in the in-situ groundwater treatment

iii) Backfilling

iv) Restoration of the excavation area

v) Groundwater remediation

The excavation area will be restored to allow continued use for vehicle movement and parking as part of anticipated commercial/industrial activities. The groundwater remediation phase will be undertaken in a manner to allow active use of the Site for commercial/industrial activities concurrently.

A qualified remedial contractor(s) selected through competitive bidding will undertake the work according to the requirements, plans, and specifications provided herein.

3.2 SOIL EXCAVATION AND DISPOSAL

Pre-excavation Sampling and Analysis: Analytical data will be utilized to estimate the limits of soil excavation and develop preliminary characterizations for waste disposal. Soil borings will be installed within the identified area of remediation at the approximate locations shown on Figure 3.1. Soil samples will be collected at 2-foot intervals from approximately 2 feet bgs to the water table (approximately 5 feet bgs). Soil samples will be submitted for analyses of total TCL VOCs and TAL metals. A representative number of samples based on disposal facility requirements will also be analyzed for waste characterization parameters including Toxicity Characteristic Leachate Procedure (TCLP) VOCs, TCLP SVOCs, TCLP metals, PCBs, ignitability, corrosivity, and reactivity. Sample collection will be in accordance with CRA standard operating procedures. Sample analysis methods are presented in Appendix B.

The data obtained from the soil sampling will be combined with the existing soils analytical data and used to:

i) Estimate the vertical and horizontal extents of VOC and metals exceedances

ii) Evaluate the reuse of soils from the portions of the soil mound within the excavation as backfill in accordance with DER-10 Section 5.4(e)

iii) Evaluate waste characteristics and determine the applicability of Land Disposal Restrictions

The removal of impacted soil will be limited to the areas east and south of the Harrison Street Warehouse as shown in Figure 2.2.

As described in the RI and AAR Reports, exceedances of SVOCs objectives outside the identified excavation areas are at low levels, and lead exceedances overlain by concrete do not present a significant threat to human health or the environment. The effectiveness of monitored natural attenuation for SVOC soil impacts and the engineering controls preventing exposure and migration of lead will be evaluated by groundwater monitoring as discussed in Section 4.0.

Site Preparation: Upon mobilization of equipment and materials, the Site will be prepared for excavation activities. Generally, this will include erection of temporary safety fencing around the perimeter of the area to be excavated and barriers to limit access to the support area(s). Equipment access to and from the Site will be via the Hayes Place property entrance. Temporary decontamination facilities for equipment will be established in the support area. Personnel decontamination/hygiene facilities will also be established on Site. It is expected that the excavated soil will either be direct-loaded to haul vehicles or placed in roll-off containers awaiting pickup and removal. If analytical results indicate that soils from the soil mound can be reused on Site as backfill, the soils will be removed and staged. The approximate layout of temporary facilities is shown on Figure 3.2.

The remedial activities will have minimal interference with Site operations. If any area of excavation could restrict vehicular traffic necessary for Site operations, the contractor will coordinate with Site personnel to make accommodations, including but not limited to, scheduling work in that area at a time that will not affect the traffic and/or providing alternate traffic routes.

Any asphalt and/or concrete surfaces in the area of work will be saw cut and removed. The asphalt/concrete material will be disposed off Site at an appropriate recycling/disposal facility.

Soil Excavation and Handling: All soil will be excavated from within the pre-defined limits. The sequencing of completing excavation areas A through E will ultimately depend on the results of the pre-characterization sampling and how the excavated soils will need to be managed. Excavation A will begin inside the northeast corner of the building, with equipment access through the wall at the north end of the east wall where an overhead door was formerly located. Although excavation inside the building will be limited to the practical reach of the excavator, enough soil will be removed to allow for installation of horizontal infiltration piping at the top of the water table for the ISCO treatment. Throughout excavation activities, areas around the building footers will be sloped at a 1:1 grade to protect the structural integrity of the building. Excavation outside the building will proceed from the northeast corner to the east and southeast to the approximate limits shown on Figure 2.2. In general, the excavation will extend approximately 2 feet beyond the defined limits of exceedance to ensure that targeted soils are removed. The maximum depth of excavation will be the top of the water table at the time the work is performed (estimated 5 feet below grade).

Open cut excavation methods will be used, and the bottom surface of the excavation will be completed as close to level as practicable.

As discussed previously, soil will be excavated and loaded directly into haul vehicles or roll-off containers. Precautions will be taken to prevent excavated soil from contacting clean areas. This will include the use of plastic sheeting (6 mil poly) to protect areas where loading is taking place. Any soils that may be staged for reuse as backfill will be placed on plastic sheeting and covered to prevent contact with stormwater and runoff, as well as to prevent staged soils from becoming airborne. The plastic sheeting materials will ultimately be disposed of along with the soil at the off-Site disposal facility.

Dust Suppression: The following techniques will be applied as appropriate and necessary to control the generation and migration of dust during excavation activities:

i) Applying water on haul roads

ii) Wetting equipment and excavation faces

iii) Spraying water on buckets during excavation and dumping

iv) Hauling materials in properly tarped or watertight containers

v) Restricting vehicle speeds to 10 mph

vi) Covering excavated areas and material after excavation activity ceases

Effectiveness of the dust suppression measures will be evaluated based on the results of the air monitoring that will be conducted under the Community Air Monitoring Plan (CAMP) provided in Appendix C.

Erosion Control and Storm Water Management: All necessary and appropriate measures will be taken to control erosion and manage stormwater during excavation activities. Materials such as silt fence, hay, snow fence, and burlap will be utilized to contain soils with the excavation area and prevent contaminated soils from entering site storm sewers.

Post-Remediation Sampling: Post-remediation confirmatory sampling will be conducted at each excavation. Sampling will be conducted in accordance with CRA's standard operating procedures for confirmatory soil sampling at a frequency in accordance with DER-10 Section 5.4(b)(5). Confirmatory samples from Excavation A side walls will be analyzed for TCL VOCs and lead. No bottom confirmatory samples are being collected from Excavation Area A, as the groundwater and saturated soils will have yet to be addressed by the in-situ groundwater treatment. Side wall and bottom samples will be collected from Excavations B through E and analyzed for lead. Area A must be remediated to the Part 375 protection of groundwater SCOs . Areas B through E must be remediated to the Part 375 industrial use SCOs.

Backfilling and Site Restoration: The horizontal and vertical limits of the excavations will be measured and recorded prior to backfill. Once the results of the confirmatory soil samples are received and meet the applicable SCOs in Area A, installation of the ISCO infiltration piping system and backfilling can proceed. The first 1 foot above the water table will be backfilled with free-draining granular backfill material, with a uniform particle size, i.e., sand, for the installation of the ISCO injection piping system. Any backfill material imported to the Site must meet the requirements of DER-10 Section 5.4(e). Soils from the soil mound must meet the criteria outlined in DER-10 Section 5.4(e)(4) and be approved for use as backfill by the NYSDEC.

Backfilling operations will be carried out such that adequate heavy vibration equipment is used to compact the material. The backfill will be placed in loose lifts not exceeding 1.5 feet in thickness, and will be compacted to a minimum of 95 percent Modified Proctor maximum dry density (MPMDD) in any area subject to vehicular traffic. Representative samples of each source/type of backfill material will be collected and submitted to a geotechnical testing laboratory for determination of Modified Proctor

density in accordance with American Society for Testing and Materials (ASTM) D1557. Compaction testing will be performed at a sufficient frequency to document the placement and compaction results. Compaction testing will be performed using a nuclear density gauge in accordance with ASTM D2922.

The final restoration of the excavated area will be completed after construction of the injection wells and infiltration piping for the subsequent in-situ groundwater treatment described in Section 3.3. The traffic area will be restored with an asphalt pavement surface consisting of a 3-inch thick binder coarse with 1-inch topping underlain by 12 inches of compacted 2-inch run-of-crush stone placed over a geotextile fabric. The concrete slab inside the Harrison Street Warehouse will be replaced. The replacement concrete shall have a minimum design strength of 4,000 pounds per square inch (PSI) with an air content of 6 +/- 1 percent in order to protect against freeze/thaw cycles because the area is not heated. Other areas will be restored to match pre-excavation conditions.

Monitoring wells MW-5, MW-5A, MW-12, MW-19, and MW-19A will be replaced.

Health and Safety and Community Air Monitoring: A Site-specific Health and Safety Plan (HASP) will be implemented to address measures for worker and public protection during remedial activities. The HASP, including a Community Air Monitoring Plan (CAMP) prepared in accordance with DER-10 Appendices 1A and 1B is provided in Appendix C.

3.3 IN-SITU GROUNDWATER TREATMENT

The selected remedy for COCs in groundwater is in-situ chemical oxidation using hydrogen peroxide-catalyzed sodium persulfate. The in-situ treatment program will be conducted within the groundwater COC plume following completion of the soils excavation and disposal program. The in-situ treatment program will consist of:

i) A laboratory treatability study

ii) Full-scale treatment through injection of sodium persulfate solution at the source zone and downgradient barrier locations

iii) Treatment/performance monitoring

Descriptions of the components of the in-situ treatment program are presented in the following subsections.

3.3.1 LABORATORY TREATABILITY STUDY

A laboratory treatability study will be conducted prior to commencing full-scale treatment. The treatability study has been designed to gather the data necessary to:

i) Confirm the suitability of the oxidant chosen (catalyzed sodium persulfate)

ii) Determine the dosage of oxidant required to complete treatment as expeditiously as possible

iii) Assess the effectiveness of enhanced anaerobic biodegradation treatment of impacted soil and groundwater

iv) Determine appropriate amendments and doses to enhance biodegradation

The by-products expected to be produced by chemical oxidation of the COCs have been evaluated. They are carbon dioxide, chlorides, and water. Therefore, no adverse impacts to the environment would result from effects of by-products of the oxidation process.

The highest overburden and bedrock concentrations are present in the vicinity monitoring wells MW5 and MW5A. Therefore, the laboratory treatability study will be conducted using representative groundwater samples collected from the overburden and bedrock wells and overburden soil samples from this area.

The treatability study will include the following tasks:

TASK 1: ENVIRONMENTAL SAMPLE COLLECTION AND ANALYSES

Groundwater samples from monitoring wells MW5 and MW5A and soil samples from their near vicinity will be collected for use in the treatability study.

Samples of groundwater will be collected from wells MW5 and MW5A. The groundwater samples will be collected in amber glass bottles (without headspace). Four gallons of groundwater will be collected from each well. Two gallons of soil will be collected from the overburden saturated zone in the vicinity of wells MW5 and MW5A.

All samples will be packed in bubble wrap and shipped on ice under appropriate Chain of Custody to CRA's treatability study laboratory.

Upon arrival at the laboratory, the soil and groundwater samples will be visually examined. The soil sample will be homogenized in a "cold room" and one sub-sample will be collected and analyzed for:

i) pH

ii) Percent moisture

iii) Total organic matter (TOC)

iv) VOC

The groundwater sample will be analyzed for:

i) pH

ii) VOC

The analytical results of the soil and groundwater samples will provide a characterization of baseline conditions for the treatability study.

TASK 2: ISCO MICROCOSM TESTS

A series of batch microcosm tests will be conducted on the soil and groundwater samples. The tests will be designed to assess the effectiveness of chemical oxidation treatment of impacted soil and groundwater and to determine the optimum concentration range of the oxidant to be used for the full-scale application.

The groundwater microcosm tests will consist of placing 115 mL of groundwater in 125-mL serum bottles and mixing with 10 mL of sodium persulfate solutions at varying concentrations (5 percent, 10 percent, and 15 percent). The bottles will also receive H_2O_2 as a catalyst. The catalyst amounts will be 2 moles of H_2O_2 for every mole of sodium persulfate or enough H_2O_2 to adjust the pH of the groundwater to pH 10.5 and then an additional 2 moles of H_2O_2 for every mole of sodium persulfate. Control tests will be prepared similarly but without the use of an oxidizing agent solution. The bottles will be sealed immediately to prevent losses by volatilization and incubated in the dark at lab temperature for 2 weeks.

The microcosms tests performed on the soil will consist of placing 100 g of soil in glass jars and mixing with 25 mL of sodium persulfate solutions at varying concentrations (5 percent, 10 percent and 15 percent w/w). The bottles will also receive H_2O_2 as a catalyst. The catalyst amounts will be 2 moles of H_2O_2 for every mole of sodium

persulfate or enough H_2O_2 to adjust the pH of the soil to pH 10.5 and then an additional 2 moles of H_2O_2 for every mole of sodium persulfate. Control tests will be prepared similarly but without the use of an oxidizing agent solution. The jars will be sealed immediately and incubated in the dark at lab temperature for 2 weeks.

At the end of the incubation period, the microcosms will be sampled and analyzed for residual VOC.

TASK 3 – EVALUATION OF NATURAL OXIDANT DEMAND

The NOD of the soil sample will be assessed by placing 50 g of the composite soil in an 8-ounce (oz.) jar and adding 100 mL of 10 percent sodium persulfate catalyzed by H_2O_2. The initial sodium persulfate concentration will be measured by titration. The jars will be sampled after 1 week and the residual oxidant concentrations will be recorded.

TASK 4: BIODEGRADATION MICROCOSM TESTS

A series of batch tests will be conducted on the soil and groundwater samples to assess anaerobic biodegradation of chlorinated solvents. The tests will be designed to assess the effectiveness of various amendments for treatment of Site contaminants in the soils and to determine appropriate doses of amendments for full-scale application.

Site soil will be placed in jars with the following amendments:

i) Soil and groundwater only (biotic control)

ii) Soil, groundwater, and nutrients (diammonium sulfate and potassium dihydrogen phosphate)

iii) Soil, groundwater, lactate, yeast extract, and nutrients

iv) Soil, groundwater, lactate, yeast extract, nutrients, and a microbial inoculums

v) Soil, groundwater, lactate, nutrients, yeast extract, and sodium azide (abiotic control)

The batch tests will be sampled at t=0, t=4 weeks, t=8 and t=12 weeks and analyzed for residual chlorinated solvents.

TASK 5: REPORTING

Upon completion of the treatability study, the data will be compiled and evaluated to assess the treatment effectiveness and the appropriate amendments and doses for field application. A report describing the tests conducted, results obtained, and recommendations for the full-scale treatment program will be prepared and submitted to NYSDEC for approval.

3.3.2 FULL-SCALE TREATMENT

Full-scale in-situ chemical oxidation will commence as soon as possible following NYSDEC approval of the Treatability Study Report. The full-scale treatment program will be conducted as described in the following paragraphs. To optimize the treatment results, modifications of the treatment program may be necessary as it progresses. NYSDEC will be notified of all modifications prior to implementation.

The following preliminary design is envisioned for the full scale treatment and will be finalized based on the results of the treatability study and actual field conditions after the excavation activities are complete.

Injection Network**:** The injection network for the oxidant solution will consist of a horizontal infiltration gallery installed within a 7,500 ft^2 area in the vicinity of the eastern corner of the warehouse and proximal to monitoring wells MW-4, MW-5, MW-12, MW-18, and MW-19. The infiltration gallery will be installed in trenches into the base of the open excavation Area A. The pipe grid will be laid approximately 1 foot above the water table surface within a layer of free-draining granular backfill material, with a uniform particle size, i.e., sand. The depth of the piping will be approximately 5 feet bgs and the piping runs will be spaced at 25 feet apart. The piping will consist of 4-inch inner diameter (ID) perforated polyvinyl chloride (PVC) pipe with threaded connections. For access purposes, all injection points will be completed within protective casings mounted flush with the ground surface and will be fitted with lockable, watertight caps. Approximately 680 feet of piping will be used to install the gallery network. Approximately 80 to 100 feet of piping will be installed within the warehouse at the eastern corner of the structure. The remaining 580 to 600 feet of piping will be installed along the base of excavation Area A. The proposed injection network is shown on Figure 2.3. The infiltration gallery installation will be subject to change based on the findings and limits of the excavation activities.

The application of oxidant into the system will address chlorinated VOCs potentially absorbed to soils in the shallow water table below the excavation.

Overburden and bedrock injection wells installed for the application of oxidant solution will be installed in four areas outside the chlorinated VOC source zone. Figure 3.3 presents a schematic of a typical vertical injection well. The installation next to well MW-21A will consist of five overburden wells and one bedrock well. Two overburden wells and one bedrock well will be installed directly south of well MW-11 and east of well MW-14. Thirteen overburden wells and four bedrock wells will be installed as a downgradient barrier; these wells will be arranged in two offset rows parallel to wells MW-13, MW-6, and MW-20. Injection points will be constructed of slotted or perforated PVC pipe at least 1 inch in diameter. The points will be installed into open soil borings. The depth of each well and screen length will be determined based on actual field conditions at each location. Overburden injection wells will be backfilled with a coarse granular sandpack. The upper annular space of the soil boring will be finished with cement and/or asphalt only as necessary to support area use. Bedrock injection wells will be installed with bentonite seal and cement/bentonite grout.

Application of Solution: The oxidant solution utilized for the in-situ groundwater treatment program will be hydrogen peroxide-activated sodium persulfate. Subject to the results of the treatability study, a 30 percent sodium persulfate solution will be mixed with a 10 percent hydrogen peroxide solution and injected into the infiltration gallery and the overburden and bedrock wells. The catalyst for the sodium persulfate solution may be changed to sodium hydroxide based on the recommendations of the treatability study. Based on the current estimate of chemical mass and the anticipated spatial extent of contamination in the source zone, it is expected that a 30 percent solution containing 33,500 pounds of sodium persulfate in 13,500 gallons of water with 5,800 gallons of a 10 percent hydrogen peroxide solution will be injected during the treatment program. A 30 percent sodium persulfate solution will be mixed with a 10 percent hydrogen peroxide solution and injected into the overburden and bedrock wells outside the source area. A 30 percent solution containing 1,400 pounds of sodium persulfate in 560 gallons of water with 240 gallons of 10 percent hydrogen peroxide solution will be injected into each bedrock and overburden well during the treatment program. These doses and concentrations will be verified or amended based upon the results of bench-scale ISCO treatability testing. The dosing of sodium persulfate solution and the volume to be added to the soil and groundwater may also be adjusted during the full-scale treatment program if variable COC concentration and soil moisture contents are encountered.

Depending upon the quantity to be used and the ability to store materials at the Site, sodium persulfate will be purchased in either 1,100 pound or 2,200 pound supersacks. The solution will be prepared on Site in a polyethylene tank immediately prior to use by gradually adding the sodium persulfate to water with continuous mixing.

The sodium persulfate solution will be injected into the groundwater by pumping or gravity feed into the distribution system described previously. The pumping rate will be monitored and adjusted as necessary to ensure no adverse effects including basement flooding or other deleterious effects on neighboring properties.

Upon completion of the injection of solution on a day or at the end of an injection event, the mixing tank will be thoroughly rinsed and the rinsate will be pumped into the distribution system. The addition of the rinsate to the distribution system will aid in the dispersion of the solution and the prevention of accumulation of oxidant in the well points and piping system and the potential of corrosion. A minimum of 10 gallons of potable water will be injected into each injection point at the conclusion of each treatment event.

Frequency of Treatment**:** Six treatments over an 18 month period are expected to be performed to complete the treatment of VOCs in on-Site groundwater. The treatments will be made on a quarterly basis. The frequency and scheduling of treatment may be adjusted as the program proceeds based on the results of groundwater monitoring.

Polishing Treatment: The application of an enhanced anaerobic biodegradation polishing treatment will be evaluated upon completion of the ISCO treatment program. The ISEB program will consist of the injection of soy lactate emulsion once every two years with the injection of nutrient solution doses semi-annually. These injection events will take place in both the infiltration gallery and the surrounding wells.

A 10 percent solution containing 9,950 pounds of emulsified soy lactate in 13,100 gallons of water will be injected once every 2 years into the infiltration gallery. A 10 percent solution containing 310 pounds of emulsified soy lactate in 400 gallons of water will be injected into each bedrock and overburden well during the polishing treatment program. In addition to the soy lactate solution, semi-annual nutrient injections will occur in the infiltration gallery and the surrounding wells. A solution containing 40 pounds of diammonium sulfate and 3.5 pounds of sodium dihydrogen phosphate in 6,600 gallons of water will be injected into the infiltration gallery twice per year during the polishing treatment program. A solution containing 1.4 pounds of diammonium sulfate and 0.15 pounds of sodium dihydrogen phosphate in 235 gallons of water will be

injected into each bedrock and overburden well twice per year during the polishing treatment program.

The doses and concentrations of treatment reagents will be verified or amended based upon the results of ISEB bench-scale treatability testing. The dosing of the soy lactate and nutrient solutions and the volumes to be added to the soil and groundwater may also be adjusted during the full-scale treatment program to account for variations in the COC concentration and soil moisture contents encountered.

Groundwater monitoring activities to monitor the treatment program as well as plume migration and the effectiveness of the engineering controls for lead concentrations in soil are discussed in Section 4.

System Decommissioning: When, in agreement with NYSDEC, the on-Site in-situ groundwater treatment program is deemed complete, the treatment distribution system will be decommissioned to eliminate potential pathways for the introduction or transport of contaminants into the groundwater. Decommissioning of injection points will be consistent with the NYSDEC procedures for abandonment of monitoring wells by grouting in place. Piping distribution systems will be decommissioned by filling the pipe(s) with grout using a tremie method. All curb boxes and below grade vaults will be removed at the time of decommissioning and the areas will be restored to be consistent with the surrounding area and anticipated area use.

4.0 GROUNDWATER MONITORING

All groundwater sampling will be conducted using low flow methods in accordance with CRA's standard operating procedures. Groundwater monitoring will be conducted during the in-situ treatment program to collect the data necessary to verify the remaining chemical mass, reevaluate the estimates of sodium persulfate required to complete the restoration of the groundwater, and modify the injection scenario, if necessary. Whenever possible, the monitoring events will be scheduled 6 weeks prior to each injection to ensure that there is sufficient time to analyze the samples, interpret the data, and determine the sodium persulfate injection requirements prior to the injection event.

The groundwater monitoring program will consist of the sampling and analysis of groundwater samples from on-Site and off-Site plume wells as shown on Figure 2.1 for general parameters (pH and chloride), residual sodium persulfate, and VOCs. Additional analyses for samples collected from the plume wells for parameters such as dissolved oxygen and redox potential will be considered if it is found that these data are required to fully evaluate the effectiveness of the treatment.

The treatability study data and existing groundwater analytical database will provide the characterization of baseline conditions. Treatment effectiveness monitoring will commence immediately prior to beginning the second treatment event and will be conducted prior to each subsequent treatment event.

Measurements of pH will be made in the field at the completion of well purging. All other sample analyses will be performed at a licensed, accredited laboratory in accordance with the procedures described in the Quality Assurance Project Plan (QAPP) presented in Appendix B.

The groundwater monitoring program will include measurement of water levels in all on-Site and off-Site monitoring wells and evaluation of the water level elevations to track groundwater flow patterns.

The groundwater monitoring program will also include sampling and analysis for SVOCS and dissolved lead as part of SO Alternative 2 at the five overburden plume wells to verify that SVOC and lead concentrations in soil are not impacting groundwater quality.

Groundwater monitoring will also be conducted to monitor for plume migration at the perimeter wells shown on Figure 2.1. Samples from the perimeter wells will be analyzed for VOCs.

Groundwater monitoring for VOCs and dissolved lead will continue on a semi-annual frequency for a minimum of 2 years following the completion of the treatment program, at which time the necessity of continuation will be reviewed with NYSDEC.

5.0 INSTITUTIONAL AND ENGINEERING CONTROLS

The implementation of institutional controls is intended to reduce potential exposure to the COCs. Evidence that institutional controls are in place shall be submitted to NYSDEC within 30 days of NYSDEC approval of the instrument. The institutional controls envisioned for the Site include the restriction of property use to commercial/industrial purposes and prohibition of groundwater use until such time that the soil and groundwater are restored to acceptable quality as determined by NYSDEC.

Engineering controls for the Site consist of the existing concrete floor slabs that are currently in place in the manufacturing building and the Harrison Street Warehouse. These floors were approved as engineering controls to prevent contact with soils impacted with lead and to prevent water infiltration and potential migration of lead in site soils or dissolution into the groundwater.

6.0 HEALTH AND SAFETY PLANS

The project Health and Safety and Community Air Monitoring Plans are presented in Appendix C.

These plans have been prepared consistent with applicable governmental and non-governmental regulations and guidelines. In particular, the amended rules of OSHA Subpart H of Part 1910 (Title 29 Code of Federal Regulations (CFR) Part 1910.120) and the New York State Department of Health Generic Community Air Monitoring Plan.

Contractors will be required to provide Health and Safety Plans for their employees working at the Site that meet the minimum standards laid forth in Appendix C.

7.0 SCHEDULE

The tentative project schedule is presented on Figure 7.1.

Actual scheduling and sequencing of project activities will be revised, as necessary, based on approvals, access to off-Site areas, contractor availability, etc. The schedule will be adjusted as preparations proceed and NYSDEC will be advised at least 7 days prior to beginning a new activity.

8.0 REPORTING

Reporting associated with the RA shall consist of:

i) Monthly Progress Reports
ii) Chemical Oxidation Treatability Study Report
iii) Soils Remediation Report
iv) Site Management Plan
v) Final Engineering Report

These reports will include the content described in the following paragraphs.

Monthly Progress Reports: In accordance with the BCP Agreement, monthly progress reports will continue to be submitted on the 10th day of each month. The monthly progress reports include descriptions of actions taken during the reporting period, anticipated actions for the next reporting period, approved modifications or changes to the scope, sampling and analytical results, if any, information regarding percentage of completion, unresolved delays, and citizen participation activities.

Chemical Oxidation Treatability Study Report: The Chemical Oxidation Treatability Study Report will include detailed descriptions of the tests conducted, results obtained, and recommendations regarding the use of sodium persulfate for the full-scale treatment program. The treatability study report will also include the "recipe" for field preparation of the recommended dosage of sodium persulfate solution.

Soils Remediation Report: A Soils Remediation Report shall be prepared and submitted to NYSDEC following completion of the soils excavation and Site restoration. This report shall include:

i) Descriptions of the work performed
ii) Descriptions of deviations from the Work Plan with explanations of why the deviations were required
iii) "As Built" drawings delineating the area(s) excavated and restored and locations of underground utilities encountered (if any)
iv) Records of off-Site disposal of excavated soils and related waste

Site Management Plan: A Site Management Plan (SMP) will be developed for the Site. The SMP will include an institutional and engineering control (IEC) plan that will include an excavation plan, a summary of the requirements for the development of a HASP and CAMP, identification of the areas where activities for which the HASP and CAMP will be required, a monitoring plan, and property transfer provisions.

Final Engineering Report: The Final Engineering Report (FER) shall be submitted to NYSDEC within 90 days following completion of the Site remediation.

The FER shall include:

i) Descriptions of all work performed

ii) Descriptions of deviations from the Work Plan with explanations of why the deviations were required

iii) An evaluation of the satisfaction of the remedial goals and objectives

iv) "As Built" drawings delineating the area(s) excavated and restored, underground utilities relocated (if any), area of in-situ groundwater treatment, and remaining appurtenances

v) Records of off-Site disposal

The report shall be prepared in accordance with the "Brownfield Cleanup Program Guide" and DER-10 and shall include the following certification signed and sealed by a Professional Engineer:

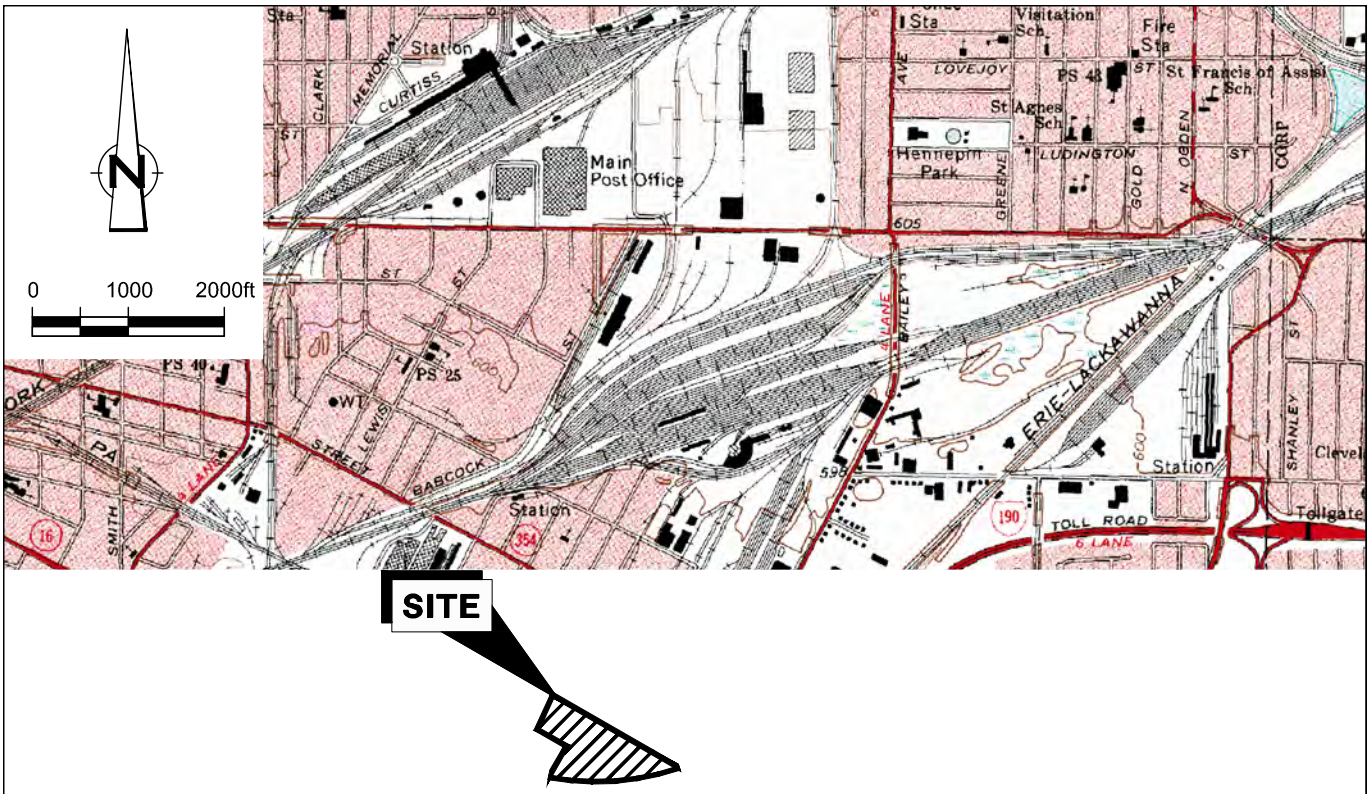
"I _____ certify I am currently a NYS registered professional engineer, I had primary direct responsibility for the implementation of the subject remedial program, and I certify that the Remedial Action Work Plan was implemented and that all construction activities were completed in substantial conformance with the DER-approved Remedial Action Work Plan.

All use restrictions, institutional controls, engineering controls, and/or any operation and maintenance requirements applicable to the Site are contained in the environmental easement created and recorded pursuant to ECL 71-3605 and that any affected local governments, as identified in ECL 71-3603, have been notified that such easement has been recorded.

A Site Management Plan has been submitted for the continual and proper operation, maintenance, and monitoring of any engineering controls employed at the Site including the proper maintenance of any remaining monitoring wells, and that such plan has been approved by DER.

Any financial assurance mechanisms required by DEC pursuant to Environmental Conservation Law have been executed."

FIGURES



REFERENCE:

UNITED STATES GEOLOGIC SURVEY BUFFALO NE, BUFFALO SE QUADRANGLE, NY
TOPOGRAPHIC, 7.5 MINUTES SERIES 1965
SCALE: 1:24,000

figure 1.1

SITE LOCATION MAP
ALTERNATIVES ANALYSIS REPORT
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York

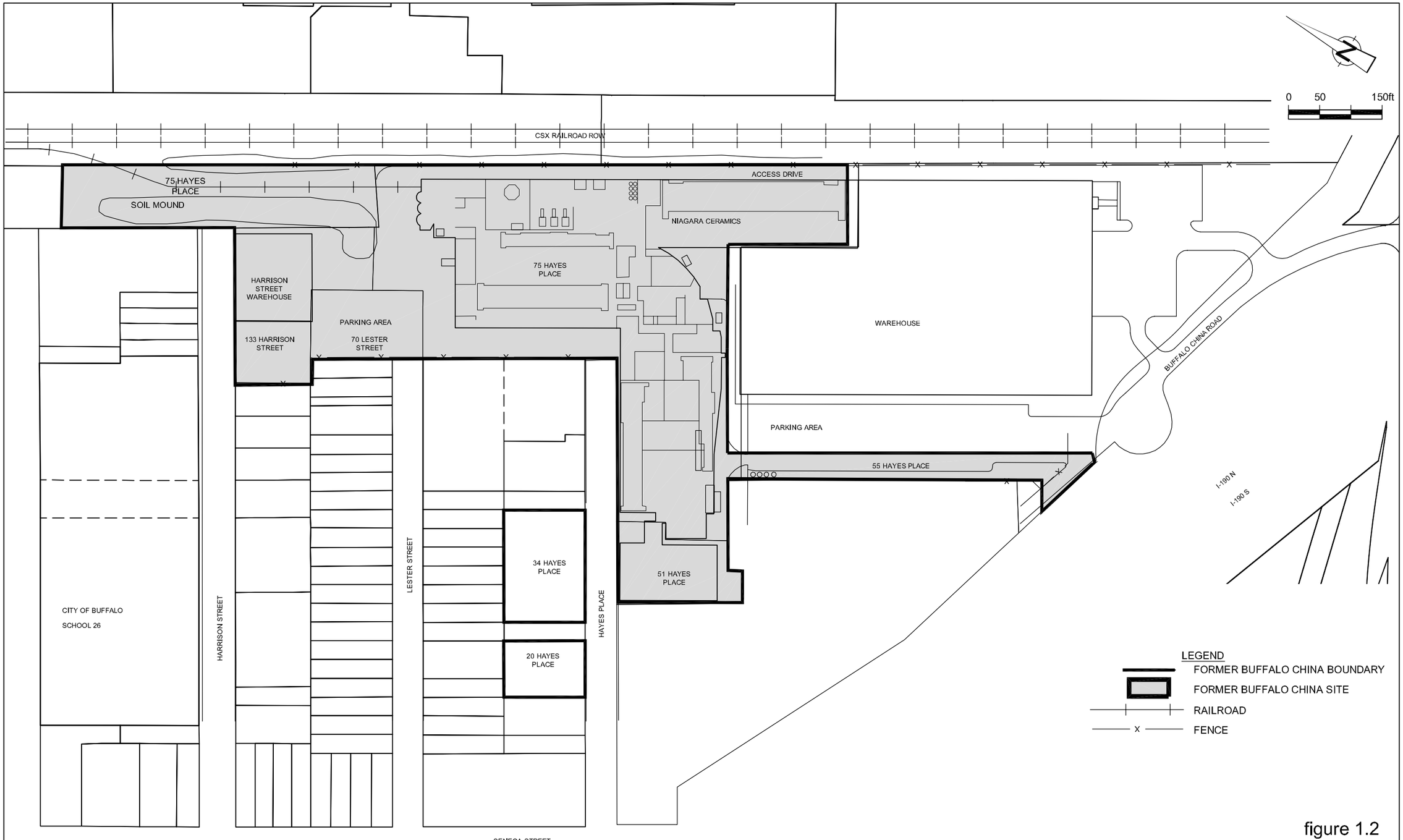


figure 1.2

SITE LAYOUT
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York

DRAWING SOURCE: ENVIRONMENTAL AUDITS, INC., PROJECT 0333 DRAWING NO. 1, MARCH 2004, CITY OF BUFFALO - GIS INFORMATION SYSTEM.

37191-00(010)GN-BU002 SEP 29/2010

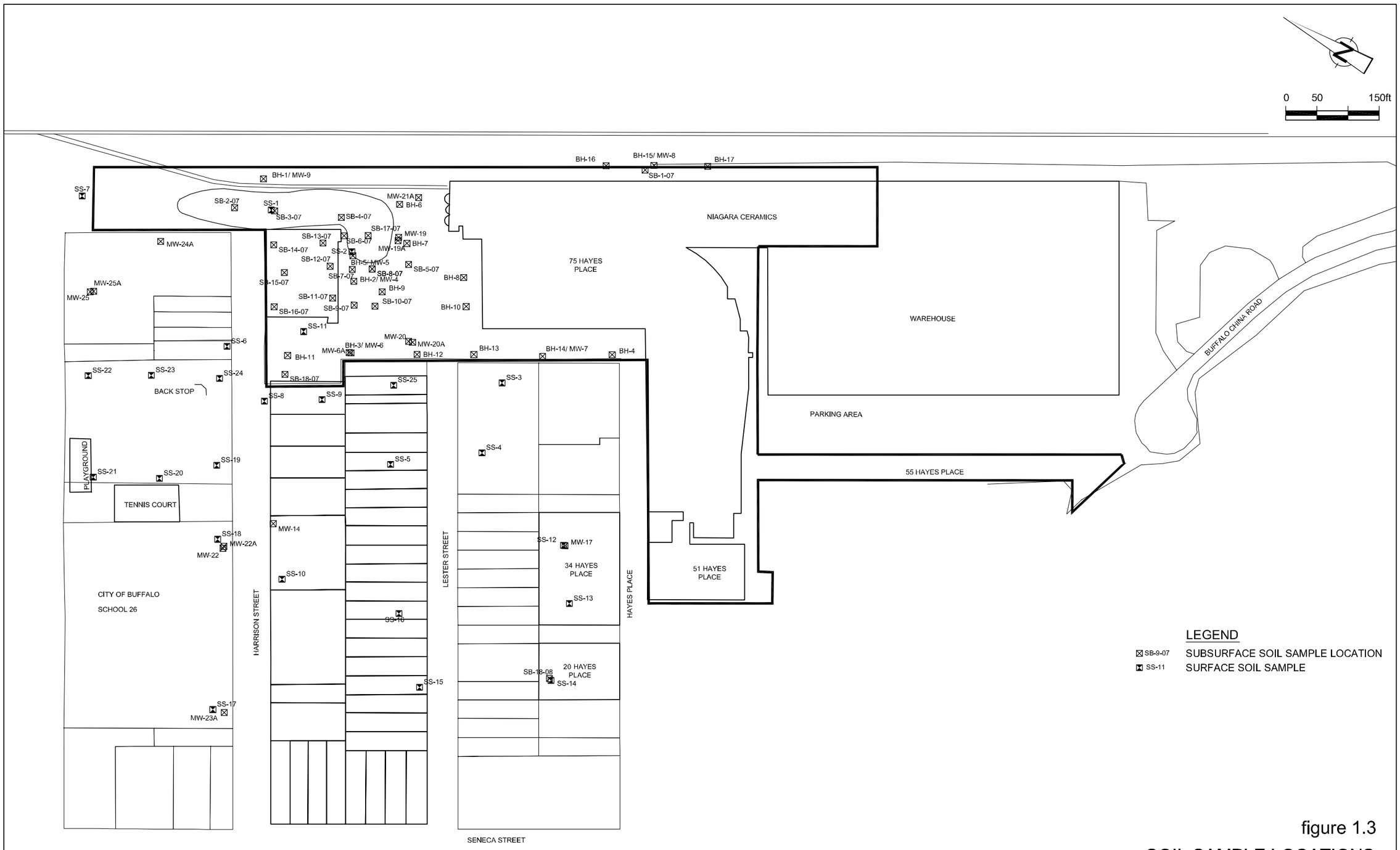


figure 1.3

SOIL SAMPLE LOCATIONS
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York

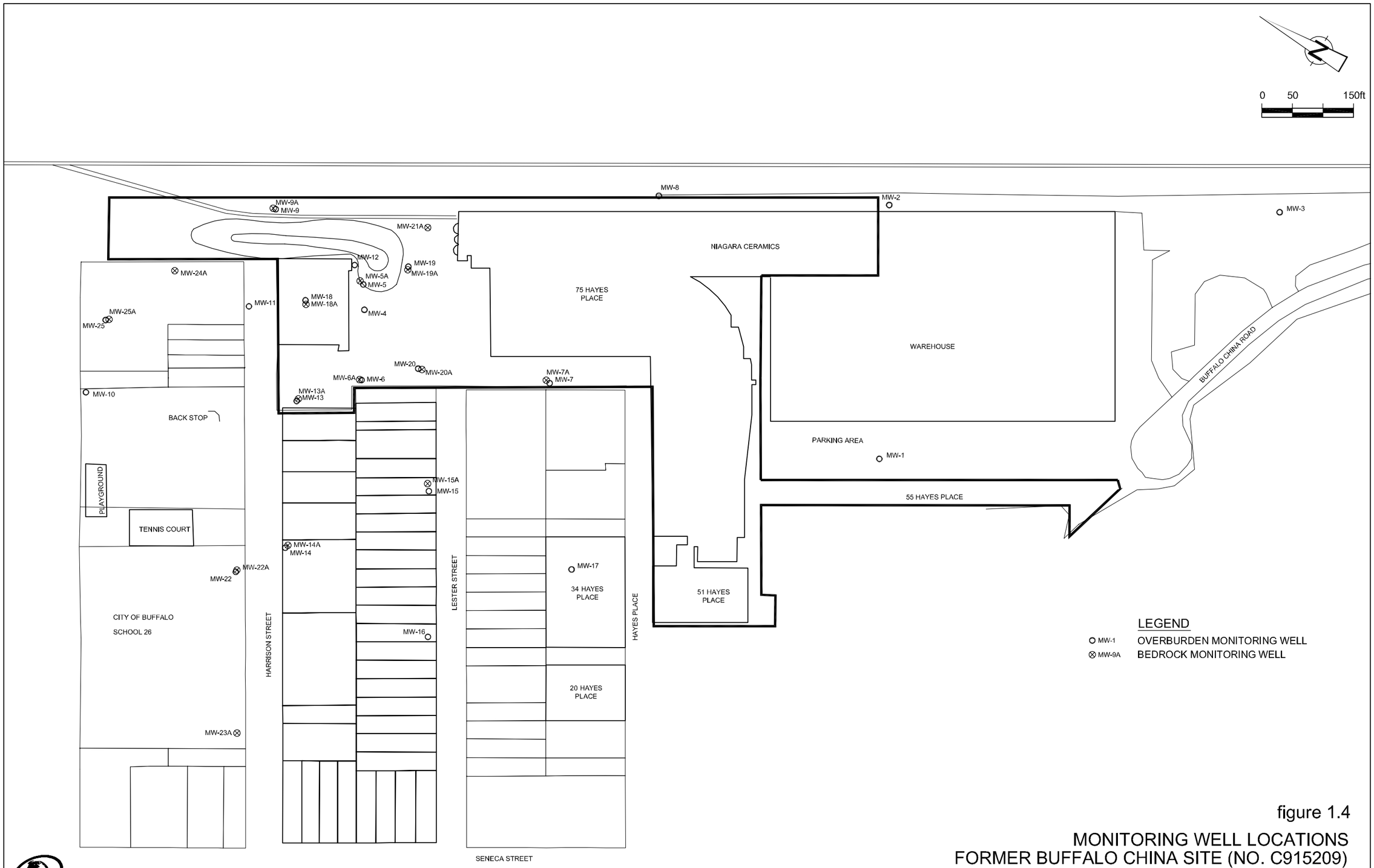


figure 1.4

MONITORING WELL LOCATIONS
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York

MW-9A
BH-1/ MW-9
MW-9

0 20 40ft

MW-21A
BH-6
C
SB-2-07
SB-3-07
SB-4-07
B'
MW-12
SB-6-07
SB-17-07
MW-19
MW-19A
BH-7
SB-13-07
A
SB-14-07
BH-5/ MW-5
MW-5A
MW-5
A'
SB-5-07
SB-12-07
B
MW-18
SB-15-07
MW-18A
SB-7-07
SB-8-07
MW-11
BH-8
BH-2/ MW-4
MW-4
BH-9
SB-11-07
SB-9-07
SB-10-07
BH-10
SB-16-07
C'

LEGEND

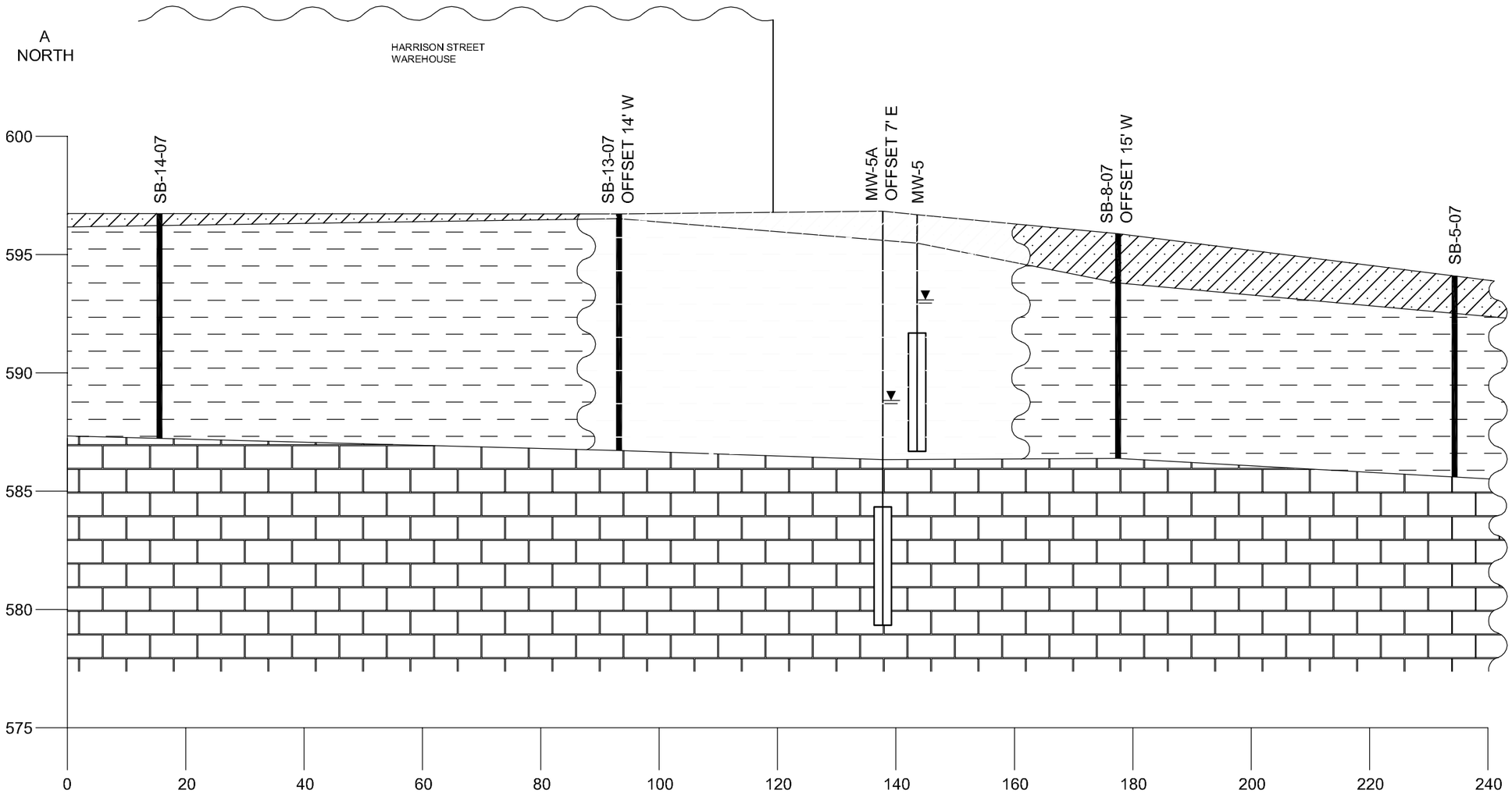
- BH-01 SOIL SAMPLE LOCATION
- MW-1 OVERBURDEN MONITORING WELL
- MW-9A BEDROCK MONITORING WELL
- PROPERTY LINE

MW-20
MW-20A
BH-3/ MW-6
MW-6A
MW-6
BH-12
BH-13
BH-11
MW-13A
MW-13
SB-18-07

figure 1.5

CROSS SECTION LOCATIONS
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York

37191-00(010)GN-BU005 SEP 29/2010



PROFILE D
SCALE: HORIZ 1"=20'
VERT 1"=5'

LEGEND

FILL

BEDROCK

CLAY

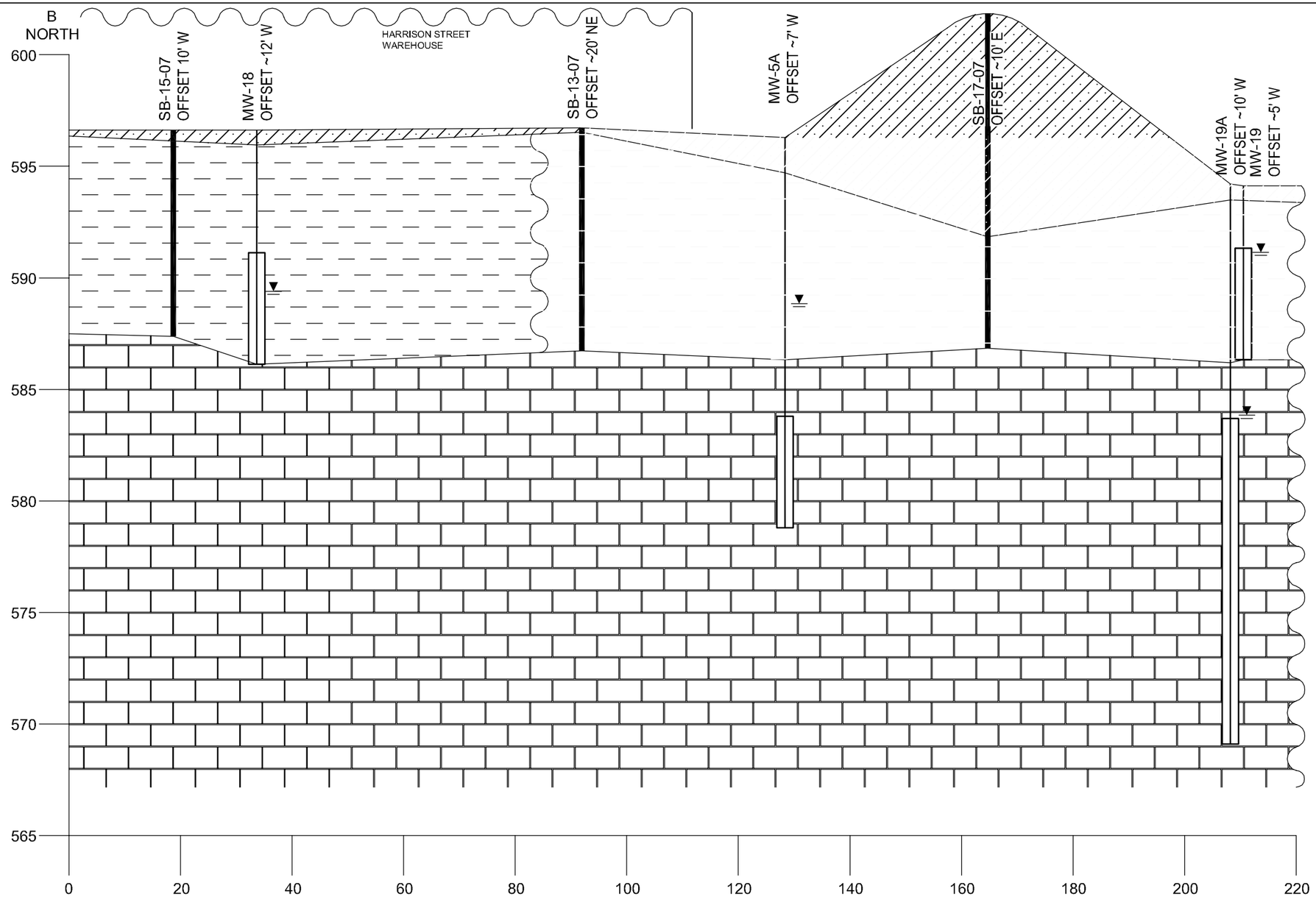
SOIL EXCEEDING POGW
CRITERIA FOR VOCs

WATER LEVEL ELEVATION
BASED ON JULY 2009 DATA

SOIL BORING

figure 1.6

CROSS SECTION A-A'
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York



PROFILE D
SCALE: HORIZ 1"=20'
VERT 1"=5'

LEGEND

FILL

CLAY

BEDROCK

SOIL EXCEEDING POGW CRITERIA FOR VOCs

WATER LEVEL ELEVATION BASED ON JULY 2009 DATA

SOIL BORING

figure 1.7

CROSS SECTION B-B'
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York

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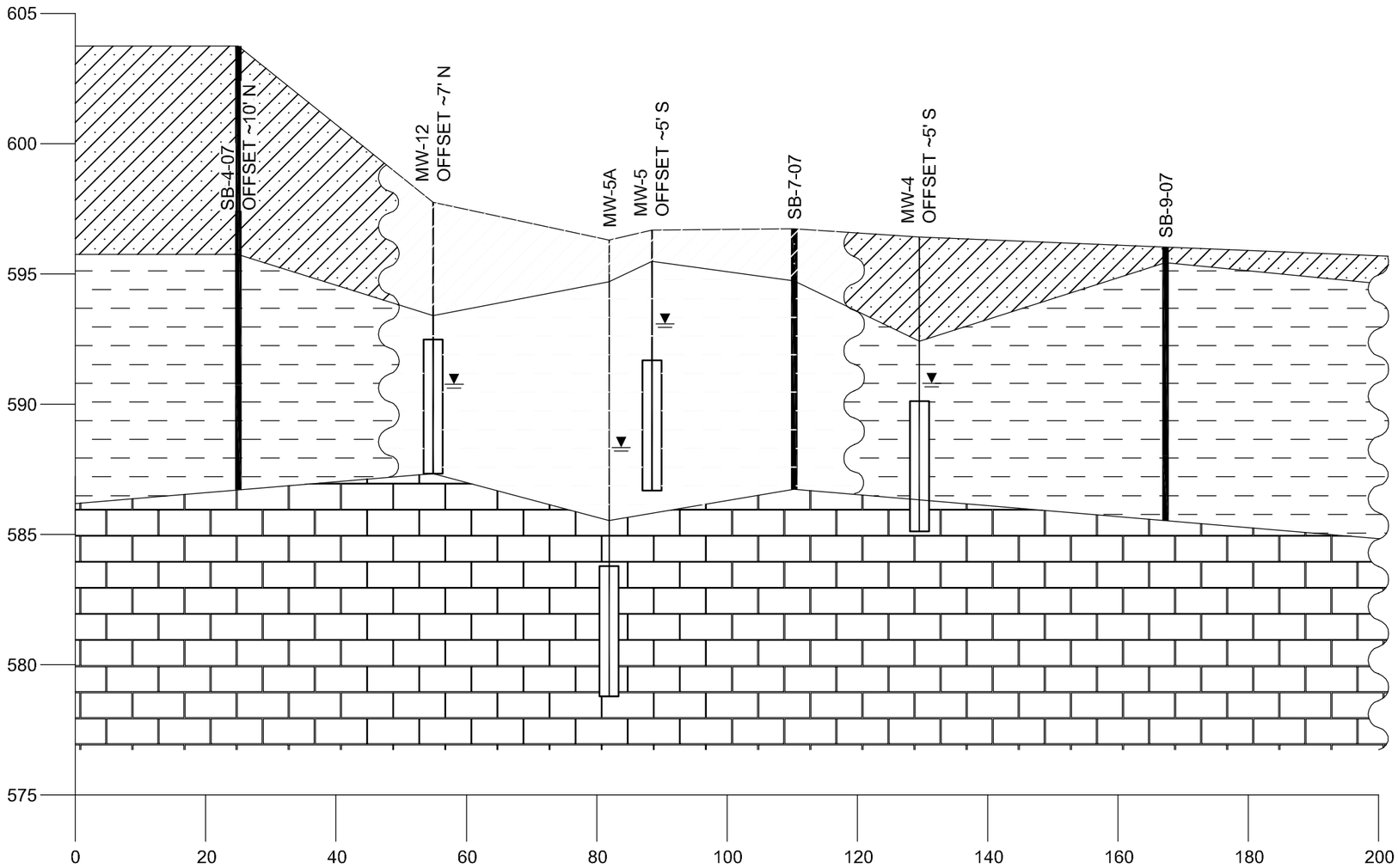
C
EAST

C'
WEST



PROFILE D
SCALE: HORIZ 1"=20'
VERT 1"=5'

LEGEND

FILL

CLAY

BEDROCK

SOIL EXCEEDING POGW CRITERIA FOR VOCs

WATER LEVEL ELEVATION BASED ON JULY 2009 DATA

SOIL BORING

figure 1.8

CROSS SECTION C-C'
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York

37191-00(010)GN-BU007 SEP 29/2010

0 50 150ft

MW-9A 587.78
MW-9 587.16
MW-21A 586.88
MW-12 587.00
MW-19 586.32
MW-5A 586.33
MW-19A 586.2
MW-5 586.68
MW-24A 590.73
MW-25A 590.97
MW-25 590.92
MW-11 586.01
MW-18 586.12
MW-18A 586.52
MW-8 577.59
MW-2 580.39
MW-3 584.92
NIAGARA CERAMICS
75 HAYES PLACE
WAREHOUSE
MW-20 584.79
MW-20A 585.31
MW-6A 584.35
MW-6 584.61
MW-7A 583.44
MW-7 583.78
MW-13A 586.91
MW-13 587.69
MW-10 588.95
BACK STOP
PARKING AREA
MW-1 579.73
BUFFALO CHINA ROAD
55 HAYES PLACE
PLAYGROUND
TENNIS COURT
MW-15A 584.92
MW-15 584.93
MW-14A 585.05
MW-14 584.31
MW-22A 580.73
MW-22 580.58
MW-17 581.10
34 HAYES PLACE
51 HAYES PLACE
CITY OF BUFFALO SCHOOL 26
LESTER STREET
HARRISON STREET
HAYES PLACE
MW-16 581.60
20 HAYES PLACE
MW-23A 577.40
SENECA STREET

590.00 589.00 588.00 587.00 586.00 585.00 584.00 583.00 582.00 581.00 580.00 579.00 578.00

LEGEND

MW-1 OVERBURDEN MONITORING WELL

MW-9A BEDROCK MONITORING WELL

figure 1.9

BEDROCK SURFACE ELEVATION CONTOURS
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York

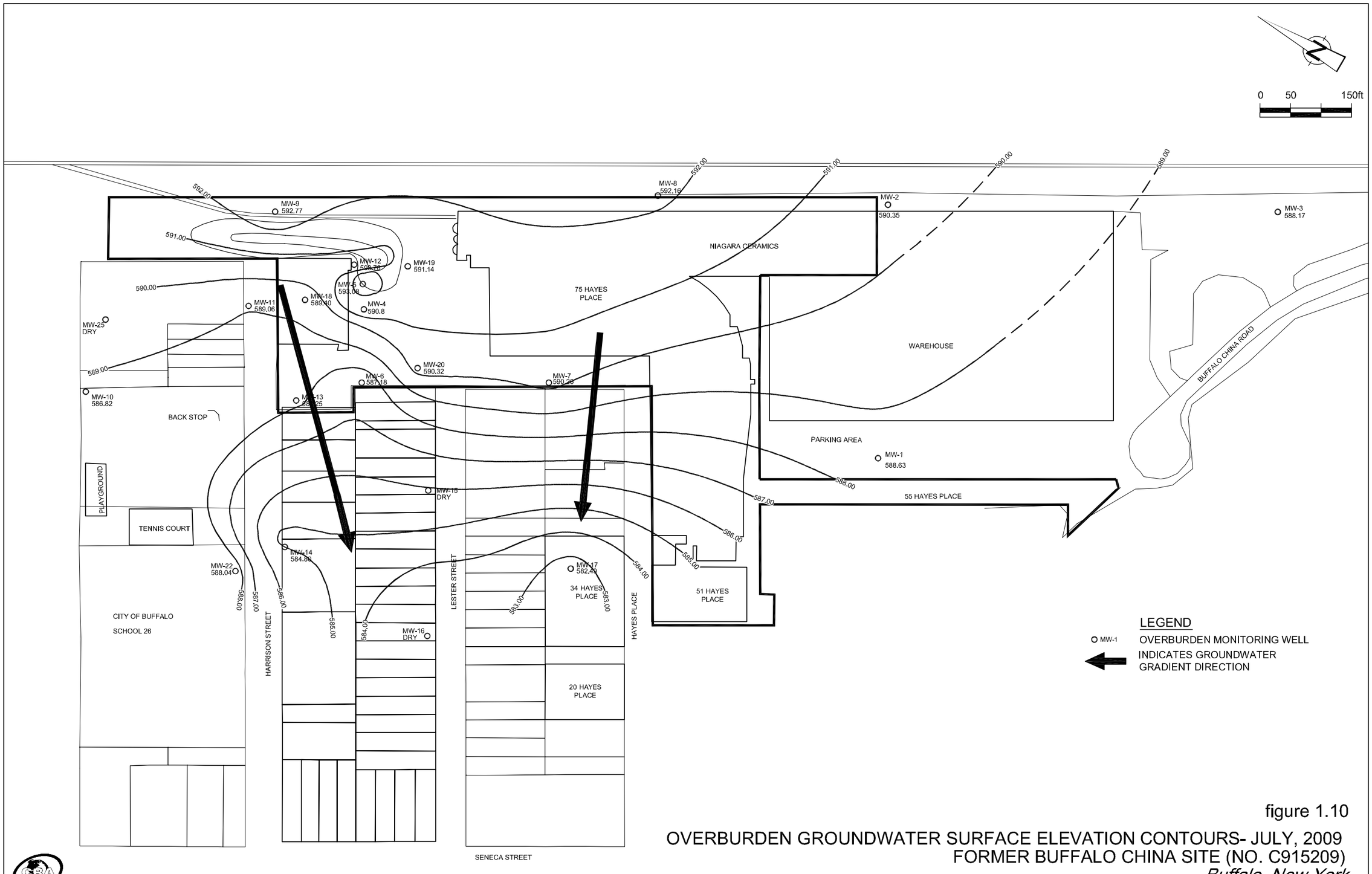


figure 1.10

OVERBURDEN GROUNDWATER SURFACE ELEVATION CONTOURS- JULY, 2009
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York

37191-00(010)GN-BU010 SEP 29/2010

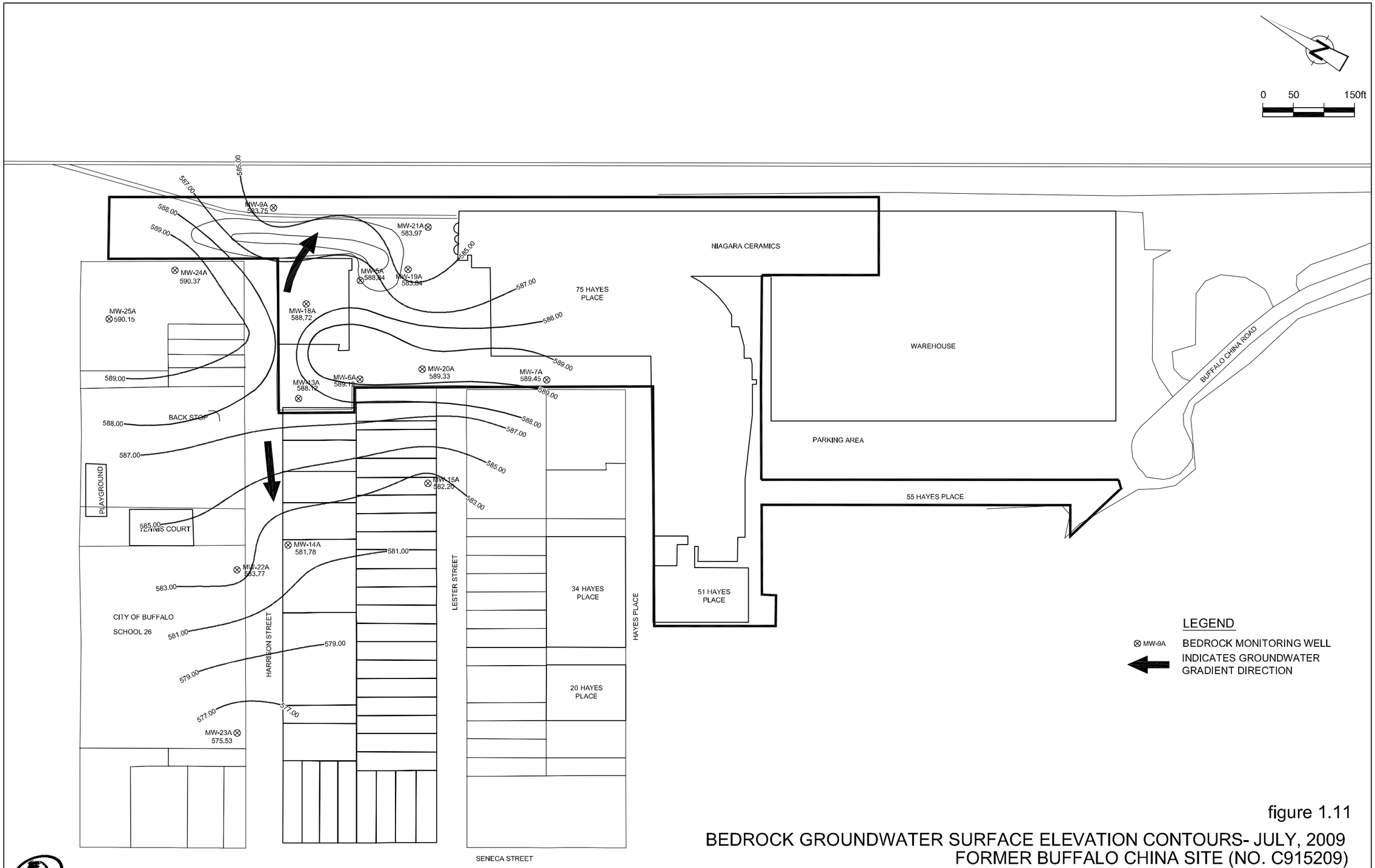


figure 1.11

BEDROCK GROUNDWATER SURFACE ELEVATION CONTOURS- JULY, 2009
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York

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SS-1	5/7/2008 0.15-0.33 ft BGS mg/kg	NYS SOIL CRITERIA
Metals		
Lead	2090 J	450

BH-1	5/2/2006 0.5-1 ft BGS mg/kg	NYS SOIL CRITERIA
Metals		
Lead	545	450

SB-6-07	7/30/2007 6-10.4 ft BGS mg/kg	7/30/2007 6-10.4 ft BGS mg/kg	NYS SOIL CRITERIA
VOCs			
Trichloroethene	0.51	0.5	0.47

BH-5	5/2/2006 0.5-1.2 ft BGS mg/kg	5/2/2006 1.6-2.5 ft BGS mg/kg	5/2/2006 5.5-6.5 ft BGS mg/kg	NYS SOIL CRITERIA
VOCs				
cis-1,2-Dichloroethene		15 J	1.2 J	0.25
Methylene Chloride			0.85 J	0.05
Trichloroethene		670	88	0.47
Metals				
Lead	1470			450

BH-15	5/2/2006 1.5-2 ft BGS mg/kg	NYS SOIL CRITERIA
Metals		
Lead	804	450

SB-2-07	7/27/2007 6.5-8 ft BGS mg/kg	7/27/2007 6.5-8 ft BGS mg/kg	NYS SOIL CRITERIA
Metals			
Lead	-	567	450
SVOCs			
Benzo(a)anthracene	1.5	3	1
Benzo(b)fluoranthene	-	3.3	1.7
Chrysene	1.4	2.7	1

MW-19	6/4/2009 6-8 ft BGS mg/kg	6/4/2009 6-8 ft BGS mg/kg	NYS SOIL CRITERIA
VOCs			
2-Butanone (Methyl ethyl ketone) (MEK)	0.24 J	0.26 J	0.12
Trichloroethene	1.8	1.3	0.47

MW-19A	5/27/2009 6-8 ft BGS mg/kg	NYS SOIL CRITERIA
VOCs		
Trichloroethene	4.6	0.47

SB-13-07	7/26/2007 6-8 ft BGS mg/kg	NYS SOIL CRITERIA
VOCs		
Acetone	0.1 J	0.05
cis-1,2-Dichloroethene	0.71	0.25
Trichloroethene	9.7	0.47

BH-7	5/2/2006 1.4-1.8 ft BGS mg/kg	NYS SOIL CRITERIA
Metals		
Lead	4980	450

SB-7-07	7/25/2007 3-6 ft BGS mg/kg	NYS SOIL CRITERIA
VOCs		
cis-1,2-Dichloroethene	0.3 J	0.25
Trichloroethene	6.8	0.47
SVOCs		
Benzo(a)anthracene	15	1
Benzo(b)fluoranthene	17	1.7
Benzo(k)fluoranthene	4.5	1.7
Chrysene	13	1
Indeno(1,2,3-cd)pyrene	8.5	8.2

SB-8-07	7/25/2007 3-6 ft BGS mg/kg	NYS SOIL CRITERIA
SVOCs		
Benzo(a)anthracene	0.82	1
Benzo(b)fluoranthene	0.91	1.7
Benzo(k)fluoranthene	0.31	1.7
Chrysene	0.79	1
Indeno(1,2,3-cd)pyrene	0.48	8.2
Metals		
Arsenic	21.4	16
Barium	2310	820
Lead	2230	450
Manganese	392	2000
Silver	189	8.3

BH-2	5/1/2006 0-1 ft BGS mg/kg	NYS SOIL CRITERIA
Metals		
Lead	816	450

BH-9	5/2/2006 0.5-1 ft BGS mg/kg	NYS SOIL CRITERIA
Metals		
Lead	9250	450

SB-11-07	7/26/2007 2-6 ft BGS mg/kg	NYS SOIL CRITERIA
Metals		
Lead	2160	450

SS-11	5/7/2008 0-0.17 ft BGS mg/kg	5/7/2008 0.15-0.33 ft BGS mg/kg	NYS SOIL CRITERIA
Metals			
Lead	738 J	742 J	450

BH-3	5/2/2006 0.5-1 ft BGS mg/kg	NYS SOIL CRITERIA
Metals		
Lead	2500 J	450

BH-13	5/3/2006 1.5-2.5 ft BGS mg/kg	NYS SOIL CRITERIA
SVOCs		
Benzo(a)anthracene	1.3	1
Benzo(b)fluoranthene	2.7	1.7
Chrysene	2.1	1

0 40 80ft

BH-1/ MW-9
SB-2-07
SS-1
SB-13-07
SB-6-07
BH-5/ MW-5
MW-19A
MW-19
BH-7
SB-8-07
SB-7-07
BH-2/ MW-4
BH-9
SB-11-07
SS-11
BH-3/ MW-6
BH-13
BH-15/ MW-8
BACK STOP

LEGEND
- MW-1 OVERBURDEN MONITORING WELL
- MW-9A BEDROCK MONITORING WELL
- BH-01 SOIL SAMPLE LOCATION
- PROPERTY LINE

figure 1.12

SOIL CRITERIA USED FOR EVALUATION OF ANALYTICAL RESULTS - 6 NYCRR PART 375 RESTRICTED USE SOIL CLEANUP OBJECTIVES FOR PROTECTION OF GROUNDWATER.

CONTAMINANT CONCENTRATIONS EXCEEDING PROTECTION OF GROUNDWATER CRITERIA IN SOIL
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York

MW-18A	7/22/2009 ug/L	NYS GROUNDWATER CRITERIA
VOCs		
cis-1,2-Dichloroethene	4600	5
Trichloroethene	26000	5

MW-18	7/22/2009 ug/L	NYS GROUNDWATER CRITERIA
VOCs		
cis-1,2-Dichloroethene	45 J	5
Tetrachloroethene	-	5
Trichloroethene	680	5

MW-21A	7/21/2009 ug/L	7/21/2009 ug/L	NYS GROUNDWATER CRITERIA
VOCs			
Acetone	110 J	-	50
cis-1,2-Dichloroethene	890	710 J	5
trans-1,2-Dichloroethene	11 J	7.2	5
Trichloroethene	2400	1900 J	5
Vinyl chloride	26 J	42	2

MW-12	7/22/2009 ug/L	NYS GROUNDWATER CRITERIA
VOCs		
cis-1,2-Dichloroethene	1100	5
Tetrachloroethene	63 J	5
Toluene	-	5
Trichloroethene	4400	5
Vinyl chloride	-	2

MW-19	7/20/2009 ug/L	NYS GROUNDWATER CRITERIA
VOCs		
cis-1,2-Dichloroethene	410 J	5
Trichloroethene	15000	5

MW-19A	7/20/2009 ug/L	NYS GROUNDWATER CRITERIA
VOCs		
cis-1,2-Dichloroethene	1100	5
Trichloroethene	4600	5
Vinyl chloride	70 J	2

MW-11	7/20/2009 ug/L	NYS GROUNDWATER CRITERIA
VOCs		
cis-1,2-Dichloroethene	350	5
trans-1,2-Dichloroethene	5.6	5
Trichloroethene	120	5

MW-5	7/22/2009 ug/L	NYS GROUNDWATER CRITERIA
VOCs		
1,1,2-Trichloroethane	-	1
cis-1,2-Dichloroethene	310000	5
Toluene	96000	5
Trichloroethene	410000	5

MW-5A	7/22/2009 ug/L	7/22/2009 ug/L	NYS GROUNDWATER CRITERIA
VOCs			
1,1-Dichloroethene	40 J	-	5
1,2-Dichloroethane	-	320 J	0.6
Acetone	280 J	-	50
cis-1,2-Dichloroethene	18000	27000	5
Methylene chloride	80 J	240 J	5
Tetrachloroethene	45 J	-	5
Toluene	24 J	-	5
trans-1,2-Dichloroethene	66 J	-	5
Trichloroethene	24000	35000	5
Vinyl chloride	83 J	-	2

MW-4	7/22/2009 ug/L	NYS GROUNDWATER CRITERIA
VOCs		
cis-1,2-Dichloroethene	1600	5
trans-1,2-Dichloroethene	29 J	5
Trichloroethene	2200	5
Vinyl chloride	-	2

MW-13A	7/22/2009 ug/L	NYS GROUNDWATER CRITERIA
VOCs		
cis-1,2-Dichloroethene	42000	5
trans-1,2-Dichloroethene	-	5
Trichloroethene	39000	5
Vinyl chloride	530 J	2

MW-20A	7/22/2009 ug/L	NYS GROUNDWATER CRITERIA
VOCs		
cis-1,2-Dichloroethene	620	5
Methylene chloride	5.9 J	5
trans-1,2-Dichloroethene	5.5 J	5
Trichloroethene	200	5
Vinyl chloride	14 J	2

MW-22	7/20/2009 ug/L	NYS GROUNDWATER CRITERIA
VOCs		
Trichloroethene	30	5

MW-20	7/22/2009 ug/L	NYS GROUNDWATER CRITERIA
VOCs		
cis-1,2-Dichloroethene	89	5
Trichloroethene	19	5
Vinyl chloride	5.5	2

MW-6A	7/22/2009 ug/L	NYS GROUNDWATER CRITERIA
VOCs		
cis-1,2-Dichloroethene	30	5

MW-14A	7/20/2009 ug/L	NYS GROUNDWATER CRITERIA
VOCs		
cis-1,2-Dichloroethene	120	5
Trichloroethene	190	5

MW-6	7/22/2009 ug/L	NYS GROUNDWATER CRITERIA
VOCs		
1,2,4-Trichlorobenzene	-	5
cis-1,2-Dichloroethene	740	5
Tetrachloroethene	-	5
trans-1,2-Dichloroethene	-	5
Trichloroethene	290	5
Vinyl chloride	-	2

0 50 150ft

MW-8 MW-2 MW-3 MW-9A MW-9 MW-21A MW-12 MW-19 MW-19A MW-5A MW-5 MW-18 MW-18A MW-24A MW-25A MW-11 MW-4 MW-10 MW-20 MW-20A MW-6A MW-6 MW-7A MW-7 MW-13A MW-13 BACK STOP MW-15A MW-15 MW-14A MW-14 MW-17 MW-16 MW-22 MW-22A MW-23A

NIAGARA CERAMICS

75 HAYES PLACE

55 HAYES PLACE

51 HAYES PLACE

34 HAYES PLACE

20 HAYES PLACE

PARKING

TENNIS COURT

CITY OF BUFFALO SCHOOL 26

HARRISON STREET

LESTER STREET

HAYES PLACE

SENECA STREET

LEGEND

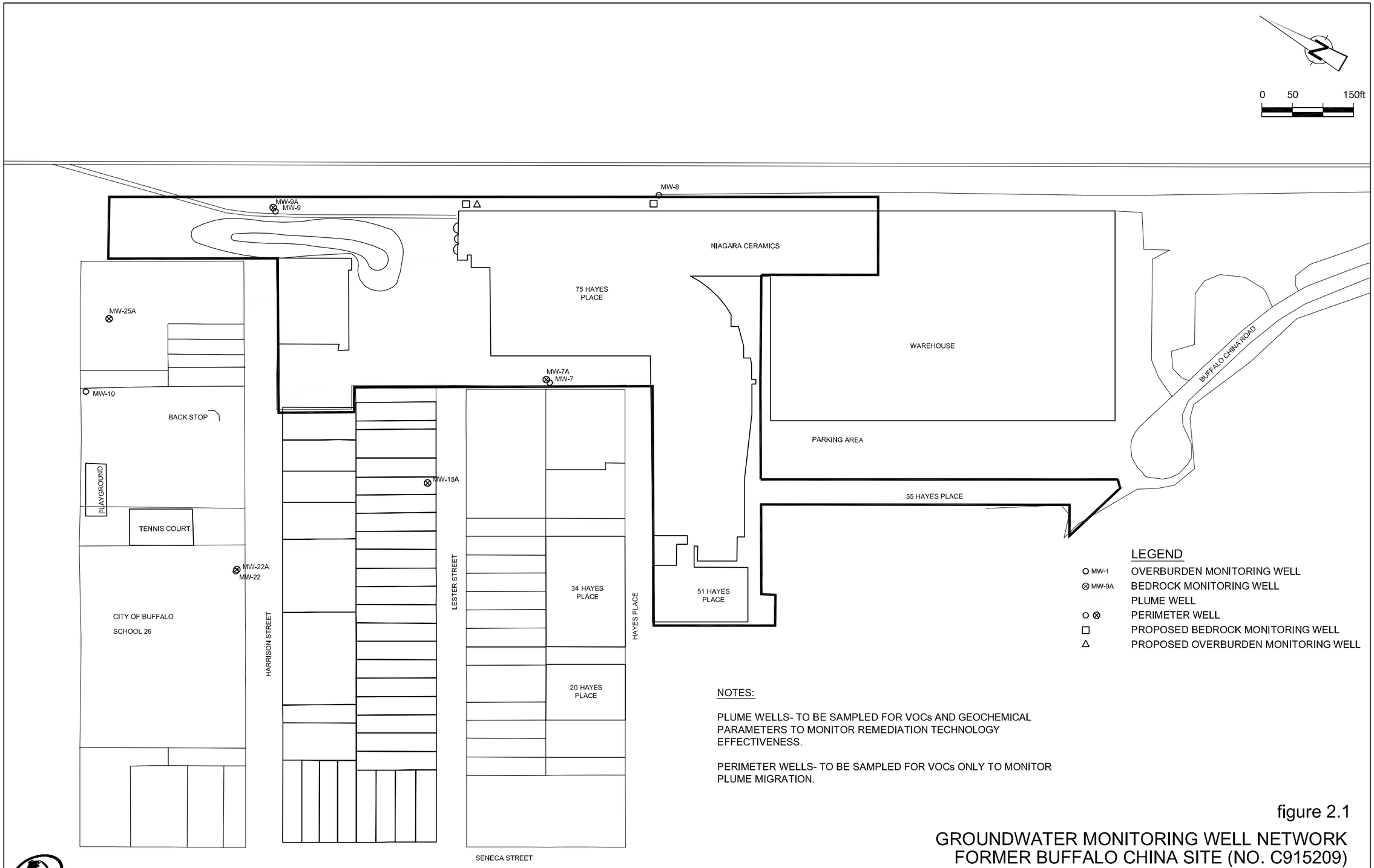
⊗ MW-9A BEDROCK MONITORING WELL

O MW-1 OVERBURDEN MONITORING WELL

figure 1.13

CONTAMINANT CONCENTRATIONS EXCEEDING CRITERIA IN GROUNDWATER
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York

GROUNDWATER CRITERIA USED FOR EVALUATION OF ANALYTICAL RESULTS - NYSDEC TOGS 1.1.1 AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES AND GROUNDWATER EFFLUENT LIMITATIONS JUNE 1998, JANUARY 1999 ERRATA SHEET, APRIL 2000 ADDENDUM, JUNE 2004 ADDENDUM.



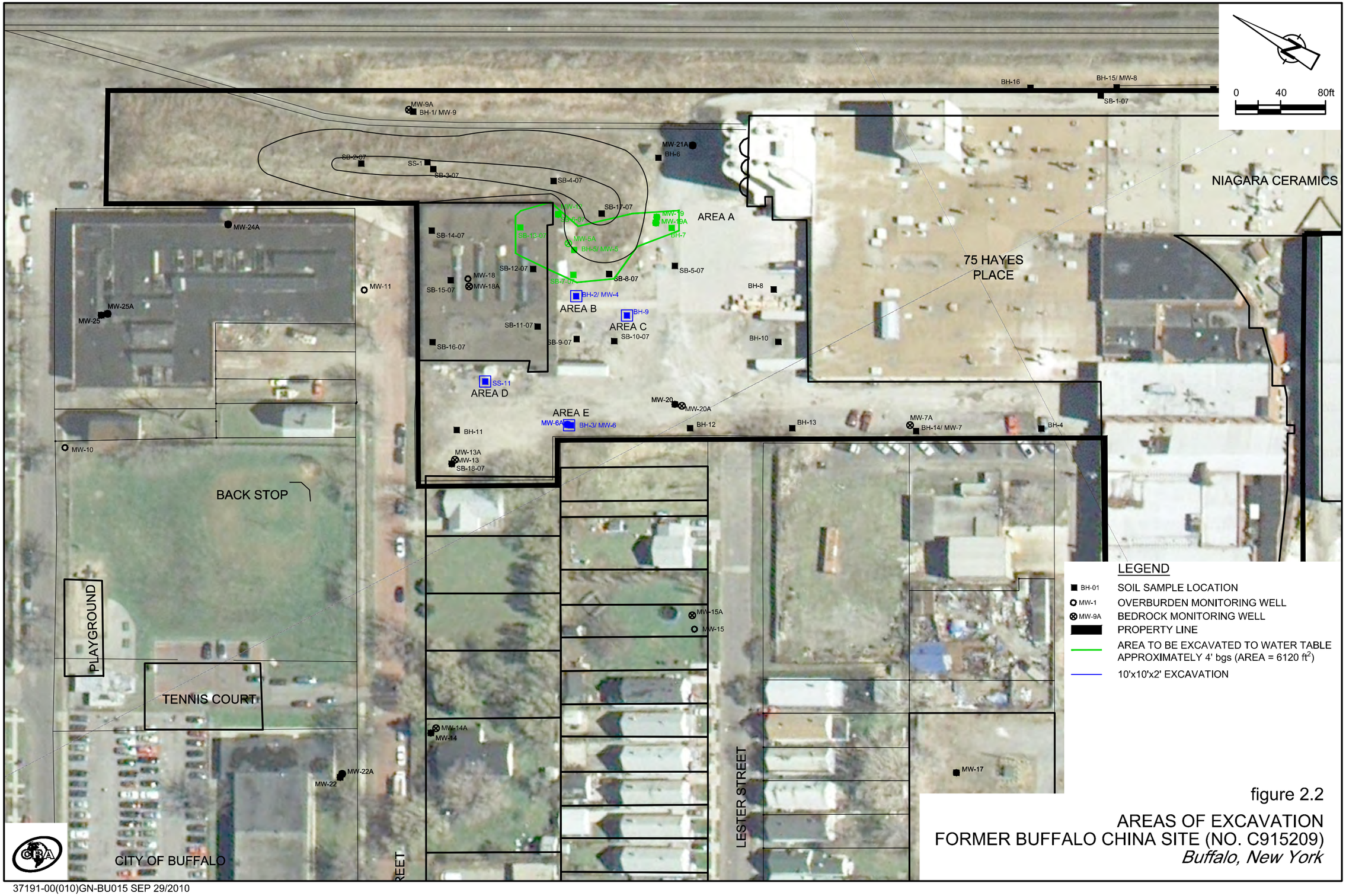
NOTES:

PLUME WELLS- TO BE SAMPLED FOR VOCs AND GEOCHEMICAL PARAMETERS TO MONITOR REMEDIATION TECHNOLOGY EFFECTIVENESS.

PERIMETER WELLS- TO BE SAMPLED FOR VOCs ONLY TO MONITOR PLUME MIGRATION.

figure 2.1

GROUNDWATER MONITORING WELL NETWORK
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York



LEGEND

BH-01	SOIL SAMPLE LOCATION
MW-1	OVERBURDEN MONITORING WELL
MW-9A	BEDROCK MONITORING WELL
	PROPERTY LINE
	AREA TO BE EXCAVATED TO WATER TABLE APPROXIMATELY 4' bgs (AREA = 6120 ft^2)
	10'x10'x2' EXCAVATION

figure 2.2

AREAS OF EXCAVATION
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York

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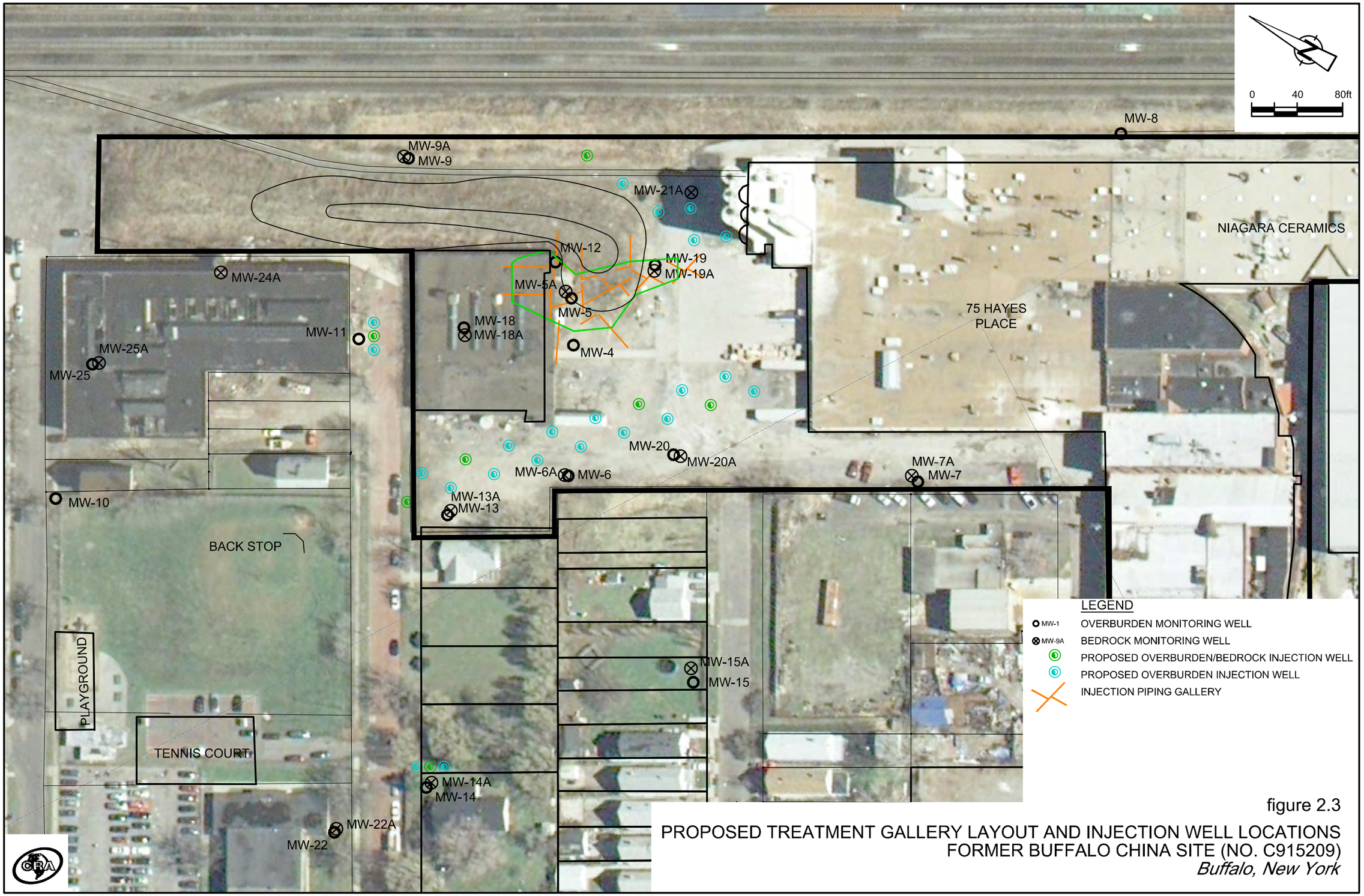

figure 2.3

PROPOSED TREATMENT GALLERY LAYOUT AND INJECTION WELL LOCATIONS
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York

37191-00(010)GN-BU016 SEP 29/2010

MW-9A
BH-1/ MW-9
SB-2-07
SS-1
SB-3-07
SB-4-07
MW-21A
BH-6
MW-12
SB-6-07
SB-17-07
MW-19
MW-19A
AREA A
SB-13-07
SB-14-07
BH-7
MW-5A
BH-5/ MW-5
SB-12-07
SB-5-07
MW-18
MW-18A
SB-7-07
SB-8-07
MW-11
SB-15-07
BH-8
BH-2/ MW-4
AREA B
BH-9
AREA C
SB-11-07
SB-10-07
SB-9-07
BH-10
SB-16-07
SS-11
AREA D
MW-20
MW-20A
AREA E
MW-6A
BH-3/ MW-6
BH-12
BH-13
BH-11
MW-13A
MW-13
SB-18-07

0 20 40ft

LEGEND

- PRECHARACTERIZATION/ DELINEATION SAMPLE LOCATION
- BH-01 SOIL SAMPLE LOCATION
- MW-1 OVERBURDEN MONITORING WELL
- MW-9A BEDROCK MONITORING WELL
- PROPERTY LINE
- AREA TO BE EXCAVATED TO WATER TABLE APPROXIMATELY 4' bgs (AREA = 6120 ft^2)
- 10'x10'x2' EXCAVATION

figure 3.1

APPROXIMATE LOCATIONS OF PRECHARACTERIZATION/ DELINEATION SAMPLES
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York

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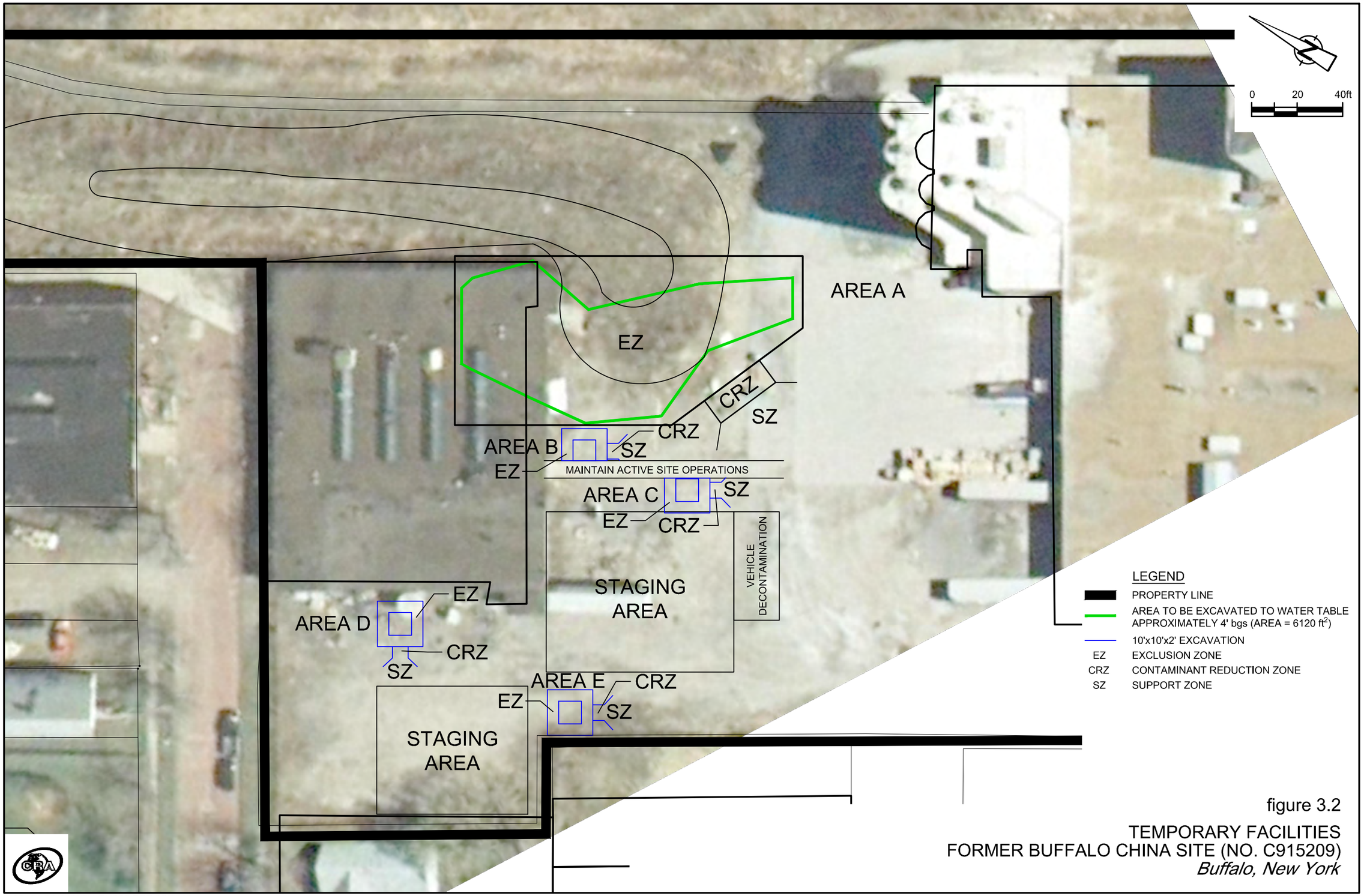


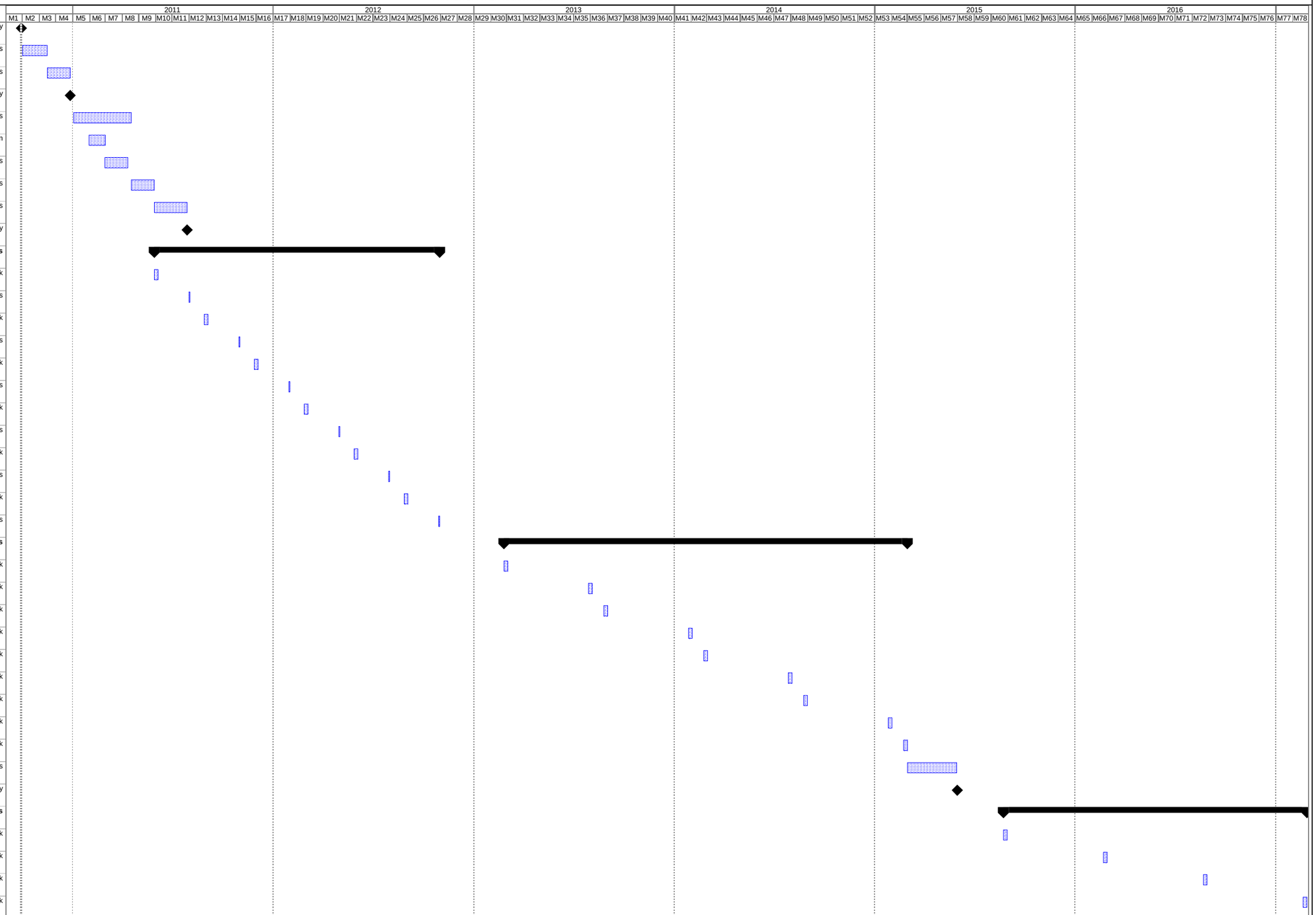
figure 3.2

TEMPORARY FACILITIES
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York

37191-00(010)GN-BU020 SEP 29/2010

FIGURE 7.1
PROPOSED PROJECT SCHEDULE
FORMER BUFFALO CHINA SITE NO. C915209

ID	Task Name	Duration
1	Submit Draft RAWP (9/30/2010)	1 day
2	Public Comment Period	45 days
3	Revise and Finalize RAWP	6 wks
4	NYSDEC Approval	1 day
5	Treatability Study	15 wks
6	Precharacterization Sampling and Analysis	1 mon
7	Contractor Procurement	6 wks
8	Excavation, Injection System Installation, and Restoration	6 wks
9	Preparation of Soil Remediation Report	2 mons
10	Submit Soil Remediation Report	1 day
11	**ISCO Program**	**520 days**
12	Initial Injection	1 wk
13	Monitoring Event	2 days
14	Injection 2	1 wk
15	Monitoring Event	2 days
16	Injection 3	1 wk
17	Monitoring Event	2 days
18	Injection 4	1 wk
19	Monitoring Event	2 days
20	Injection 5	1 wk
21	Monitoring Event	2 days
22	Injection 6	1 wk
23	Monitoring Event	2 days
24	**ISEB Program**	**735 days**
25	Field Measurements and Soy Lactate Application	1 wk
26	Monitoring Event	1 wk
27	Nutrient Application	1 wk
28	Monitoring Event	1 wk
29	Nutrient Application	1 wk
30	Monitoring Event	1 wk
31	Nutrient Application	1 wk
32	Monitoring Event	1 wk
33	Soy Lactate and Nutrient Application	1 wk
34	Preparation of Final Engineering Report	3 mons
35	Submit Final Engineering Report	1 day
36	**Semiannual Monitoring**	**553 days**
37	Event 1	1 wk
38	Event 2	1 wk
39	Event 3	1 wk
40	Event 4	1 wk



Project: 037191-Buffalo China Schedu
Date: Tue 9/28/10

Task | Milestone | Rolled Up Task | Rolled Up Progress | External Tasks | Group By Summary
Progress | Summary | Rolled Up Milestone | Split | Project Summary | Deadline

TABLES

TABLE 1.1

SUMMARY OF SURFACE SOIL SAMPLE COLLECTION AND ANALYSIS DETAILS
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

						Analysis/Parameters								
Sample ID	*Location*	*Sample Date*	*Sample Depth*	*Sample Type*	*Parent Sample ID*	*TCL VOCs*	*TCL SVOCs*	*Lead*	*TAL Metals + CN*	*Pesticides*	*Herbicides*	*PCBs*	*% Solids*	*Purpose*
Surface Soil														
SS-37191-050708-CMB-001	148 Milton Street (SS-7)	05/07/08	0-2"	N	-			X						To identify off-Site Impacts
SS-37191-050708-CMB-002	148 Milton Street (SS-7)	05/07/08	2-4"	N	-			X						To identify off-Site Impacts
SS-37191-050708-CMB-003	138 Harrison Street (SS-6)	05/07/08	0-2"	N	-			X						To identify off-Site Impacts
SS-37191-050708-CMB-004	138 Harrison Street (SS-6)	05/07/08	2-4"	N	-			X						To identify off-Site Impacts
SS-37191-050708-CMB-005	103 Harrison Street (SS-10)	05/07/08	0-2"	N	-				X					To identify off-Site Impacts
SS-37191-050708-CMB-006	103 Harrison Street (SS-10)	05/07/08	2-4"	N	-				X					To identify off-Site Impacts
SS-37191-050708-CMB-007	36 Lester Street (SS-16)	05/07/08	0-2"	N	-			X						To identify off-Site Impacts
SS-37191-050708-CMB-008	36 Lester Street (SS-16)	05/07/08	0-2"	FD	SS-37191-050708-CMB-007			X						Duplicate Sample
SS-37191-050708-CMB-009	36 Lester Street (SS-16)	05/07/08	2-4"	N	-			X						To identify off-Site Impacts
SS-37191-050708-CMB-010	22 Lester Street (SS-15)	05/07/08	0-2"	N	-			X						To identify off-Site Impacts
SS-37191-050708-CMB-011	22 Lester Street (SS-15)	05/07/08	2-4"	N	-			X						To identify off-Site Impacts
SS-37191-050708-CMB-012	20 Hayes Place (SS-14)	05/07/08	0-2"	N	-			X						To identify off-Site Impacts
SS-37191-050708-CMB-013	20 Hayes Place (SS-14)	05/07/08	2-4"	N	-			X						To identify off-Site Impacts
SS-37191-050708-CMB-014	34 Hayes Place (SS-13)	05/07/08	0-2"	N	-			X						To identify off-Site Impacts
SS-37191-050708-CMB-015	34 Hayes Place (SS-13)	05/07/08	2-4"	N	-			X						To identify off-Site Impacts
SS-37191-050708-CMB-016	34 Hayes Place (SS-12)	05/07/08	0-2"	N	-			X						To identify off-Site Impacts
SS-37191-050708-CMB-017	34 Hayes Place (SS-12)	05/07/08	2-4"	N	-			X						To identify off-Site Impacts
SS-37191-050708-CMB-018	Soil Mound (SS-1)	05/07/08	0-2"	N	-			X						Comparison of off-Site Results
SS-37191-050708-CMB-019	Soil Mound (SS-1)	05/07/08	2-4"	N	-			X						Comparison of off-Site Results
SS-37191-050708-CMB-020	NE Corner Harrison St. Warehouse (SS-2)	05/07/08	0-2"	N	-			X						Comparison of off-Site Results
SS-37191-050708-CMB-021	NE Corner Harrison St. Warehouse (SS-2)	05/07/08	2-4"	N	-			X						Comparison of off-Site Results
SS-37191-050708-CMB-022	West End Harrison St. Warehouse (SS-11)	05/07/08	0-2"	N	-			X						Comparison of off-Site Results
SS-37191-050708-CMB-023	West End Harrison St. Warehouse (SS-11)	05/07/08	2-4"	N	-			X						Comparison of off-Site Results
SS-37191-050808-CMB-001	55 Lester Street North (SS-3)	05/08/08	0-2"	N	-			X						To identify off-Site Impacts
SS-37191-050808-CMB-002	55 Lester Street North (SS-3)	05/08/08	2-4"	N	-			X						To identify off-Site Impacts
SS-37191-050808-CMB-003	55 Lester Street South (SS-4)	05/08/08	0-2"	N	-			X						To identify off-Site Impacts
SS-37191-050808-CMB-004	55 Lester Street South (SS-4)	05/08/08	2-4"	N	-			X						To identify off-Site Impacts
SS-37191-050808-CMB-005	58 Lester Street (SS-5)	05/08/08	0-2"	N	-			X						To identify off-Site Impacts
SS-37191-050808-CMB-006	58 Lester Street (SS-5)	05/08/08	2-4"	N	-			X						To identify off-Site Impacts
SS-37191-050808-CMB-007	127 Harrison Street Backyard (SS-9)	05/08/08	0-2"	N	-			X						To identify off-Site Impacts
SS-37191-050808-CMB-008	127 Harrison Street Backyard (SS-9)	05/08/08	2-4"	N	-			X						To identify off-Site Impacts
SS-37191-050808-CMB-009	127 Harrison Street Front Yard (SS-8)	05/08/08	0-2"	N	-			X						To identify off-Site Impacts
SS-37191-050808-CMB-010	127 Harrison Street Front Yard (SS-8)	05/08/08	2-4"	N	-			X						To identify off-Site Impacts
SS-37191-081308-CB-001	82 Harrison Street (SS-17)	08/13/08	0-2"	N	-				X					To identify off-Site Impacts

TABLE 1.1

SUMMARY OF SURFACE SOIL SAMPLE COLLECTION AND ANALYSIS DETAILS
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

						Analysis/Parameters								
Sample ID	*Location*	*Sample Date*	*Sample Depth*	*Sample Type*	*Parent Sample ID*	*TCL VOCs*	*TCL SVOCs*	*Lead*	*TAL Metals + CN*	*Pesticides*	*Herbicides*	*PCBs*	*% Solids*	*Purpose*
Surface Soil														
SS-37191-081308-CB-002	82 Harrison Street (SS-17)	08/13/08	2-4"	N	-				X					To identify off-Site Impacts
SS-37191-081308-CB-003	82 Harrison Street (SS-18)	08/13/08	0-2"	N	-				X					To identify off-Site Impacts
SS-37191-081308-CB-004	82 Harrison Street (SS-18)	08/13/08	2-4"	N	-				X					To identify off-Site Impacts
SS-37191-081308-CB-005	118 Harrison Street (SS-19)	08/13/08	0-2"	N	-			X						To identify off-Site Impacts
SS-37191-081308-CB-006	118 Harrison Street (SS-19)	08/13/08	2-4"	N	-			X						To identify off-Site Impacts
SS-37191-081308-CB-007	118 Harrison Street (SS-20)	08/13/08	0-2"	N	-				X					To identify off-Site Impacts
SS-37191-081308-CB-008	118 Harrison Street (SS-20)	08/13/08	2-4"	N	-				X					To identify off-Site Impacts
SS-37191-081308-CB-009	118 Harrison Street (SS-21)	08/13/08	0-2"	N	-			X						To identify off-Site Impacts
SS-37191-081308-CB-010	118 Harrison Street (SS-21)	08/13/08	2-4"	N	-			X						To identify off-Site Impacts
SS-37191-081308-CB-011	118 Harrison Street (SS-22)	08/13/08	0-2"	N	-			X						To identify off-Site Impacts
SS-37191-081308-CB-012	118 Harrison Street (SS-22)	08/13/08	2-4"	N	-			X						To identify off-Site Impacts
SS-37191-081308-CB-013	118 Harrison Street (SS-23)	08/13/08	0-2"	N	-			X						To identify off-Site Impacts
SS-37191-081308-CB-014	118 Harrison Street (SS-23)	08/13/08	2-4"	N	-			X						To identify off-Site Impacts
SS-37191-081308-CB-015	118 Harrison Street (SS-24)	08/13/08	0-2"	N	-				X					To identify off-Site Impacts
SS-37191-081308-CB-016	118 Harrison Street (SS-24)	08/13/08	2-4"	N	-				X					To identify off-Site Impacts
SS-37191-081308-CB-017	66 Lester Street (SS-25)	08/13/08	0-2"	N	-				X					To identify off-Site Impacts
SS-37191-081308-CB-018	66 Lester Street (SS-25)	08/13/08	2-4"	N	-				X					To identify off-Site Impacts
SS-37191-081308-CB-019	66 Lester Street (SS-25)	08/13/08	2-4"	FD	SS-37191-081308-CB-019				X					To identify off-Site Impacts

Notes:

'	Feet.
"	Inches.
CN	Cyanide.
SVOCs	Semi-volatile Organic Compounds.
TCL	Target Compound List.
VOCs	Volatile Organic Compounds.
N	Normal Sample
FD	Duplicate Sample

TABLE 1.2

SUMMARY OF SUBSURFACE SOIL SAMPLE COLLECTION AND ANALYSIS DETAILS
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

						Analysis/Parameters								
Sample ID	*Location*	*Sample Date*	*Sample Depth*	*Sample Type*	*Parent Sample ID*	*VOCs*	*SVOCs*	*Lead*	*TAL Metals + CN*	*Pesticides*	*Herbicides*	*PCBs*	*% Solids*	*Purpose*
S-37191-050206-PK-023	BH-1 S1	05/02/06	0.5'-1'	N	-			X						Characterize soil conditions near railroad tracks
S-37191-050206-PK-024	BH-1 S2	05/02/06	2'-2.4'	N	-			X						Characterize soil conditions near railroad tracks
S-37191-050106-JRR-001	BH-2 S1	05/01/06	0'-1'	N	-			X						Further characterize soil near SB-35 and SB-36
S-37191-050106-JRR-002	BH-2 S3	05/01/06	8'-10'	N	-	X	X							Further characterize soil near SB-35 and SB-36
S-37191-050206-PK-027	BH-3 S1	05/02/06	0.5-1'	N	-			X						Characterize soil south of SB-33 and SB-35
S-37191-050206-PK-028	BH-3 S2	05/02/06	2'-3'	N	-	X	X	X						Characterize soil south of SB-33 and SB-35
S-37191-050206-PK-029	BH-3 S3	05/02/06	4-5'	N	-	X	X							Characterize soil south of SB-33 and SB-35
S-37191-050306-PK-038	BH-4 S1	05/03/06	0.3'-1.2'	N	-			X						Characterize soil on south side of plant
S-37191-050306-PK-039	BH-4 S2	05/03/06	2.3'-3'	N	-			X						Characterize soil on south side of plant
S-37191-050206-PK-020	BH-5 S1	05/02/06	0.5'-1.2'	N	-			X						Characterize soil in parking area near soil mound
S-37191-050206-PK-021	BH-5 S2	05/02/06	1.6'-2.5'	N	-	X	X	X						Characterize soil in parking area near soil mound
S-37191-050206-PK-022	BH-5 S3	05/02/06	5.5'-6.5'	N	-	X	X							Characterize soil in parking area near soil mound
S-37191-050206-PK-011	BH-6 S1	05/02/06	0'-0.5'	N	-			X						Characterize soil north of SB-35
S-37191-050206-PK-012	BH-6 S3	05/02/06	1.5'-2'	N	-	X	X							Characterize soil north of SB-35
S-37191-050206-PK-013	BH-7 S1	05/02/06	0.5'-1'	N	-			X						Characterize soil conditions in parking lot
S-37191-050206-PK-014	BH-7 S2	05/02/06	1.4'-1.8'	N	-			X						Characterize soil conditions in parking lot
S-37191-050202-PK-015	BH-8 S1	05/02/06	0.5'-1'	N	-			X						Characterize soil conditions adjacent to plant
S-37191-050206-PK-016	BH-8 S2	05/02/06	1.4'-2.1'	N	-	X	X	X						Characterize soil conditions adjacent to plant
S-37191-050206-PK-017	BH-8 S3	05/02/06	2.9'-3.3'	N	-	X	X							Characterize soil conditions adjacent to plant
S-37191-050206-PK-018	BH-9 S1	05/02/06	0.5'-1'	N	-			X						Characterize soil conditions in parking area
S-37191-050206-PK-019	BH9-S2	05/02/06	2'-2.5'	N	-			X						Characterize soil conditions in parking area
S-37191-050206-PK-025	BH-10 S1	05/02/06	0.5'-1'	N	-			X						Characterize soil conditions in parking area
S-37191-050206-PK-026	BH-10 S2	05/02/06	1.3'-1.8'	N	-			X						Characterize soil conditions in parking area
S-37191-050106-JRR-003	BH-11 S1	05/01/06	0'-0.5'	N	-			X						Characterize soil conditions near SB-30 and SB-31
S-37191-050106-JRR-004	BH-11 S2	05/01/06	0.5'-3'	N	-			X						Characterize soil conditions near SB-30 and SB-31
S-37191-050306-PK-032	BH12 S1	05/03/06	0.3'01'	N	-			X						Characterize soil conditions south of SB-35 and SB-36
S-37191-050306-PK-033	BH12 S2	05/03/06	1.2'-2.5'	N	-	X	X	X						Characterize soil conditions south of SB-35 and SB-36
S-37191-050306-PK-034	BH12 S3	05/03/06	4'-5'	N	-	X	X							Characterize soil conditions south of SB-35 and SB-36
S-37191-050306-PK-035	BH-13 S1	05/03/06	0.5'-1.1'	N	-			X						Characterize soil conditions adjacent to plant
S-37191-050306-PK-036	BH-13 S2	05/03/06	1.5'-2.5'	N	-	X	X	X						Characterize soil conditions adjacent to plant
S-37191-050206-PK-037	BH-13 S3	05/03/06	4'-5'	N	-	X	X							Characterize soil conditions adjacent to plant
S-37191-050206-PK-030	BH-14 S1	05/02/06	0.5'-1.5'	N	-			X						Characterize soil on south side of plant
S-37191-050206-PK-031	BH-14 S2	05/02/06	2.5'-3'	N	-			X						Characterize soil on south side of plant
S-37191-050206-PK-007	BH-15 S1	05/02/06	1.5'-2'	N	-			X						Characterize soil on north side of plant
S-37191-050206-PK-008	BH-15 S2	05/02/06	3'-3.5'	N	-			X						Characterize soil on north side of plant
S-37191-050206-PK-009	BH-16 S1	05/02/06	0.75'-1.2'	N	-			X						Characterize soil on north side of plant

TABLE 1.2

SUMMARY OF SUBSURFACE SOIL SAMPLE COLLECTION AND ANALYSIS DETAILS
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

						Analysis/Parameters								
Sample ID	*Location*	*Sample Date*	*Sample Depth*	*Sample Type*	*Parent Sample ID*	*VOCs*	*SVOCs*	*Lead*	*TAL Metals + CN*	*Pesticides*	*Herbicides*	*PCBs*	*% Solids*	*Purpose*
S-37191-050206-PK-010	BH-16 S2	05/02/06	2.5'-3.2'	N	-			X						Characterize soil on north side of plant
S-37191-050206-PK-006	BH-17 S1	05/02/06	0' 0.5'	N	-			X						Characterize soil on north side of plant
S-37191-050206-PK-005	BH-17 S2	05/02/06	1'-1.5'	N	-			X						Characterize soil on north side of plant
SO-37191-072507-RN-SB-1	SB-1-07	07/25/07	2.0'-4.0'	N	-	X	X		X	X	X	X	X	Further characterize soil on north side of building
SO-37191-072707-RN-SB-2	SB-2-07	07/27/07	6.5'-8.0'	N	-	X	X	X						Characterize soil mound
SO-37191-072707-RN-SB-20	SB-2-07	07/27/07	6.5'-8.0'	FD	SO-37191-072707-RN-SB-2	X	X	X						Duplicate Sample
SO-37191-072707-RN-SB-3	SB-3-07	07/27/07	10.0'-13.0'	N	-	X	X		X	X	X	X	X	Characterize soil mound
SO-37191-072707-RN-SB-4	SB-4-07	07/27/07	2.0'-4.0'	N	-	X	X	X						Characterize soil mound
SO-37191-072507-RN-SB-5	SB-5-07	07/25/07	4.0'-8.0'	N	-	X	X		X	X	X	X	X	Further characterize soil in Parking Area
SO-37191-073007-CB-SB19	SB-6-07	07/30/07	6.0'-10.4'	N	-	X	X	X						Characterize soil east of Harrison St. Warehouse
SO-37191-073007-CB-SB-6	SB-6-07	07/30/07	6.0'-10.4'	FD	SO-37191-073007-CB-SB19	X	X	X						Duplicate Sample
SO-37191-072507-RN-SB-7	SB-7-07	07/25/07	3.0'-6.0'	N	-	X	X	X						Characterize soil east of Harrison St. Warehouse
SO-37191-072507-RN-SB-8	SB-8-07	07/25/07	3.5'-8.0'	N	-	X	X		X	X	X	X	X	Characterize soil east of Harrison St. Warehouse
SO-37191-072507-RN-SB-9	SB-9-07	07/25/07	3.0'-6.0'	N	-	X	X	X						Characterize soil east of Harrison St. Warehouse
SO-37191-072507-RN-SB-10	SB-10-07	07/25/07	3.0'-8.0'	N	-	X	X	X						Characterize soil east of Harrison St. Warehouse
SO-37191-072607-RN-SB-11	SB-11-07	07/26/07	2.0-'6.0'	N	-	X	X	X						Characterize soil under Harrison St. Warehouse
SO-37191-072607-RN-SB-12	SB-12-07	07/26/07	3.5'-6.0'	N	-	X	X		X	X	X	X	X	Characterize soil under Harrison St. Warehouse
SO-37191-072607-RN-SB-13	SB-13-07	07/26/07	6.0'-8.0'	N	-	X	X	X						Characterize soil under Harrison St. Warehouse
SO-37191-072607-RN-SB-14	SB-14-07	07/26/07	4.0'-8.0'	N	-	X	X	X						Characterize soil under Harrison St. Warehouse
SO-37191-072607-RN-SB-15	SB-15-07	07/26/07	4.0'-8.0'	N	-	X	X	X						Characterize soil under Harrison St. Warehouse
SO-37191-072607-RN-SB-16	SB-16-07	07/26/07	4.0'-8.0'	N	-	X	X	X						Characterize soil under Harrison St. Warehouse
SO-37191-072707-RN-SB-17	SB-17-07	07/27/07	6.0'-10.0'	N	-	X	X	X						Characterize soil mound
SO-37191-072707-RN-SB-27	SB-17-07	07/27/07	6.0'-10.0'	FD	SO-37191-072707-RN-SB-17	X	X	X						Duplicate Sample
SO-37191-073007-CB-SB-18	SB-18-07	07/30/07	4.0'-7.2'	N	-	X	X		X	X	X	X	X	Characterize soil near southern Site boundary
SB-37191-050908-JP-001	SB-18-08	05/09/08	0'-2.0'	N	-	X	X		X	X	X	X	X	To identify off-Site Impacts
SB-37191-050808-JP-011	MW-14	05/08/08	0'-2.0'	N	-	X	X		X	X	X	X	X	To identify off-Site Impacts
SB-37191-050908-JP-002	MW-17	05/09/08	0'-2.0'	N	-	X	X		X	X	X	X	X	To identify off-Site Impacts
SO-37191-052709-JJW-001	MW-6A	05/27/09	6'-8'	N	-	X								Further characterize on-Site soils
SO-37191-052709-JJW-002	MW-19A	05/27/09	6'-8'	N	-	X								Further characterize on-Site soils
SO-37191-060109-JJW-003	MW-20A	06/01/09	6'-8'	N	-	X								Further characterize on-Site soils
SO-37191-060109-JJW-004	MW-21A	06/01/09	2'-4'	N	-	X								Further characterize on-Site soils
SO-37191-060109-JJW-005	MW-22A	06/01/09	10'-12'	N	-	X								Identify off-Site impacts
SO-37191-060209-JJW-006	MW-23A	06/02/09	12'-14'	N	-	X								Identify off-Site impacts
SO-37191-060409-JJW-007	MW-20	06/04/09	2'-4'	N	-	X								Further characterize on-Site soils
SO-37191-060409-JJW-008	MW-19	06/04/09	6'-8'	N	-	X								Further characterize on-Site soils
SO-37191-060409-JJW-009	MW-19	06/04/09	6'-8'	FD	SO-37191-060409-JJW-008	X								Duplicate Sample
SO-37191-060809-JJW-010	MW-22	06/08/09	10'-12'	N	-	X								Further characterize on-Site soils

TABLE 1.2

SUMMARY OF SUBSURFACE SOIL SAMPLE COLLECTION AND ANALYSIS DETAILS
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

						Analysis/Parameters								
Sample ID	*Location*	*Sample Date*	*Sample Depth*	*Sample Type*	*Parent Sample ID*	*VOCs*	*SVOCs*	*Lead*	*TAL Metals + CN*	*Pesticides*	*Herbicides*	*PCBs*	*% Solids*	*Purpose*
SO-37191-062209-JJW-011	MW-24A	06/22/09	0'-2'	N	-	X								Identify off-Site impacts
SO-37191-062209-JJW-012	MW-25A	06/22/09	4'-6'	N	-	X								Identify off-Site impacts
SO-37191-062209-JJW-013	MW-25A	06/22/09	6'-8'	N	-	X								Identify off-Site impacts

Notes:

'	Feet.
"	Inches.
CN	Cyanide.
SVOCs	Semi-volatile Organic Compounds.
VOCs	Volatile Organic Compounds.
N	Normal Sample
FD	Duplicate Sample

TABLE 1.3

SUMMARY OF MONITORING WELL INFORMATION AND GROUNDWATER SAMPLE COLLECTION AND ANALYSIS DETAILS
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

										Analysis/Parameters								
Well ID	*Date of Installation*	*Sample / Measurement Date* [2]	*Top of Riser Elevation (ft above AMSL)*	*Bottom of Well Elevation (ft above AMSL)*	*Depth to Water (ft below top of riser)*	*Water Elevation (ft above AMSL)*	*Sampling Method*	*Sample ID*	*Sample Type*	*Parent Sample ID* (Sample ID of original sample for duplicates, etc.)	*TCL VOCs*	*TCL SVOCs*	*Total TAL Metals +CN*	*Dissolved TAL Metals*	*Total Lead*	*Dissolved Lead*	*Pesticides*	*Herbicides*	*PCBs*
MW-4	May-06	05/11/06	596.13	587.4	5.30	590.83	Bailer	GW-37191-051105-JRR-003	N	-	X								
		08/21/07			6.94	589.19	Bailer	WG-37191-082107-RN-001	N	-	X	X	X	X			X	X	X
		08/21/07			-	-	Bailer	WG-37191-082107-RN-002	FD	WG-37191-082107-RN-001	X	X	X	X			X	X	X
		05/28/08			5.00	591.13	Low Flow	WG-37191-052808-003	N	-	X	X	X	X			X	X	X
		05/28/08			-	-	Low Flow	WG-37191-052808-004	FD	WG-37191-052808-003	X								
		01/13/09			5.39	590.74	Low Flow	GW-37191-011309-JJW-002	N	-	X								
		07/22/09			5.84	590.29	Low Flow	WG-37191-072209-037	N	-	X								
MW-5	May-06	05/11/06	596.58	587.71	4.60	591.98	Bailer	WG-37191-051106-JRR-006	N	-	X								
		05/11/06			-	-	Bailer	WG-37191-051106-JRR-007	FD	WG-37191-051106-JRR-006	X								
		08/21/07			7.56	589.02	Bailer	WG-37191-082107-RN-003	N	-	X				X	X			
		05/28/08			4.42	592.16	Low Flow	WG-37191-052808-008	N	-	X				X	X			
		01/20/09			3.67	592.91	Low Flow	GW-37191-012009-JJW-011	N	-	X								
		07/22/09			5.47	591.11	Low Flow	WG-37191-072209-040	N	-	X								
MW-5A	Dec-08	01/20/09	596.29	579.33	NM	NM	Low Flow	GW-37191-012009-JJW-012	N	-	X								
		07/22/09			NM	NM	Low Flow	WG-37191-072209-038	N	-	X								
		07/22/09			-	-	Low Flow	WG-37191-072209-039	FD	WG-37191-072209-038	X								
MW-6	May-06	05/11/06	594.15	585.64	7.50	586.65	Bailer	WG-37191-051106-JRR-002	N	-	X								
		08/20/07			9.00	585.15	Bailer	NS	-	-									
		05/28/08			6.87	587.28	Low Flow	WG-37191-052808-002	N	-	X				X	X			
		01/20/09			6.52	587.63	Low Flow	GW-37191-012009-JJW-009	N	-	X								
		07/22/09			7.82	586.33	Low Flow	WG-37191-072209-035	N	-	X								
MW-6A	Jun-09	07/22/09	594.15	573.04	5.40	588.75	Low Flow	WG-37191-072209-033	N	-	X								
MW-7	May-06	05/11/06	592.03	583.78	2.14	589.89	Bailer	WG-37191-051106-001	N	-	X								
		01/21/09			1.88	590.15	Low Flow	GW-37191-012109-JJW-013	N	-	X								
		07/22/09			2.12	589.91	Low Flow	WG-37191-072209-030	N	-	X								
MW-7A	Dec-08	01/21/09	592.31	576.44	3.05	589.26	Low Flow	GW-37191-012109-JJW-014	N	-	X								
		07/22/09			3.14	589.17	Low Flow	WG-37191-072209-029	N	-	X								
MW-8	May-06	05/11/06	594.00	586.93	3.06	590.94	Bailer	WG-37191-051106-JRR-004	N	-	X				X	X			
		08/21/07			4.51	589.49	Bailer	WG-37191-082107-RN-006	N	-	X				X	X			
		05/28/08			2.52	591.48	Low Flow	WG-37191-052808-005	N	-	X				X	X			
		03/05/09			4.86	589.14	Low Flow	WG-37191-030509-001	N	-	X								
		07/21/09			3.54	590.46	Low Flow	WG-37191-072109-018	N	-	X								
MW-9	May-06	05/11/06	594.81	588.79	1.62	593.19	Bailer	WG-37191-051106-005	N	-	X								
		08/21/07			5.06	589.75	Bailer	WG-37191-082107-RN-007	N	-	X	X	X	X			X	X	X
		05/28/08			1.71	593.10	Low Flow	WG-37191-052808-001	N	-	X	X	X	X			X	X	X
		01/19/09			1.57	593.24	Low Flow	GW-37191-011909-JJW-006	N	-	X								
		07/21/09			2.75	592.06	Low Flow	WG-37191-072109-015	N	-	X								
MW-9A	Dec-08	01/19/09	594.94	567.98	11.02	583.92	Low Flow	GW-37191-011909-JJW-007	N	-	X								
		07/21/09			11.18	583.76	Low Flow	WG-37191-072109-014	N	-	X								
MW-10	Aug-08	09/19/08	596.45	587.25	7.61	588.84	Low Flow	WG-37191-091908-002	N	-	X				X	X			
		01/22/09			7.78	588.67	Low Flow	GW-37191-012209-JJW-015	N	-	X								
		07/20/09			7.82	588.63	Low Flow	WG-37191-072009-011	N	-	X								
MW-11	Aug-08	09/19/08	595.04	586.01	5.22	589.82	Low Flow	WG-37191-091908-001	N	-	X				X	X			
		01/22/09			5.61	589.43	Low Flow	GW-37191-012209-JJW-016	N	-	X								
		01/22/09			-	-	Low Flow	GW-37191-012209-JJW-017	FD	GW-37191-012209-JJW-016	X								
		07/20/09			6.41	588.63	Low Flow	WG-37191-072009-006	N	-	X								
MW-12 [1]	Jul-07	08/21/07	599.83	587.14	10.71	589.12	Bailer	WG-37191-082107-RN-004	N	-	X				X	X			
		08/21/07			-	-	Bailer	WG-37191-082107-RN-005	FD	WG-37191-082107-RN-004	X				X	X			
		05/28/08			9.15	590.68	Low Flow	WG-37191-052808-006	N	-	X				X	X			
		05/28/08			-	-	Low Flow	WG-37191-052808-007	FD	WG-37191-052808-006	X				X	X			
		01/13/09			8.82	591.01	Low Flow	GW-37191-011309-JJW-005	N	-	X								

TABLE 1.3

SUMMARY OF MONITORING WELL INFORMATION AND GROUNDWATER SAMPLE COLLECTION AND ANALYSIS DETAILS
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

										Analysis/Parameters								
Well ID	*Date of Installation*	*Sample / Measurement Date* [2]	*Top of Riser Elevation (ft above AMSL)*	*Bottom of Well Elevation (ft above AMSL)*	*Depth to Water (ft below top of riser)*	*Water Elevation (ft above AMSL)*	*Sampling Method*	*Sample ID*	*Sample Type*	*Parent Sample ID* (Sample ID of original sample for duplicates, etc.)	*TCL VOCs*	*TCL SVOCs*	*Total TAL Metals +CN*	*Dissolved TAL Metals*	*Total Lead*	*Dissolved Lead*	*Pesticides*	*Herbicides*	*PCBs*
		07/22/09			9.38	590.45	Low Flow	WG-37191-072209-036	N	-	X								
MW-13	Jul-07	08/20/07	594.83	587.67	DRY	DRY	NS	NS	-	-									
		05/28/08			DRY	DRY	NS	NS	-	-									
		01/19/09			DRY	DRY	NS	NS	-	-									
		07/22/09			DRY	DRY	NS	NS	-	-									
MW-13A	Dec-08	01/19/09	594.75	580.41	6.16	588.59	Low Flow	GW-37191-011909-JJW-008	N		X								
		07/22/09			6.71	588.04	Low Flow	WG-37191-072209-034	N		X								
MW-14	May-08	05/28/08	593.15	584.56	DRY	DRY	NS	NS	-	-									
		01/22/09			DRY	DRY	NS	NS	-	-									
		07/20/09			DRY	DRY	NS	NS	-	-									
MW-14A	Dec-08	01/22/09	593.37	578.45	11.40	581.97	Low Flow	GW-37191-012209-JJW-018	N	-	X								
		07/20/09			11.61	581.76	Low Flow	WG-37191-072009-005	N	-	X								
MW-15	May-08	05/28/08	592.49	585.31	DRY	DRY	NS	NS	-	-									
		01/23/09			DRY	DRY	NS	NS	-	-									
		07/20/09			DRY	DRY	NS	NS	-	-									
MW-15A	Dec-08	01/23/09	593.37	578.42	10.52	582.85	Low Flow	GW-37191-012309-JJW-019	N	-	X								
		07/20/09			10.75	582.62	Low Flow	WG-37191-072009-012	N	-	X								
MW-16	May-08	05/28/08	591.74	581.25	DRY	DRY	NS	NS	-	-									
		07/20/09			DRY	DRY	NS	NS	-	-									
MW-17	May-08	05/28/08	592.58	581.35	7.61	584.97	Low Flow	WG-37191-052808-009	N	-	X				X	X			
		01/20/09			4.48	588.10	Low Flow	GW-37191-012009-JJW-010	N	-	X								
		07/20/09			10.34	582.24	Low Flow	WG-37191-072009-013	N	-	X								
MW-18	Dec-08	01/13/09	596.13	586.42	6.01	590.12	Low Flow	GW-37191-011309-JJW-003	N	-	X								
		01/13/09			-	-	Low Flow	GW-37191-011309-JJW-004	FD	GW-37191-011309-JJW-003	X								
		07/22/09			6.77	589.58	Low Flow	WG-37191-072209-042	N	-	X								
MW-18A	May-09	07/22/09	596.35	580.62	8.00	588.35	Low Flow	WG-37191-072209-041	N	-	X								
MW-19	Jun-09	07/20/09	593.68	586.32	3.29	590.39	Low Flow	WG-37191-072009-002	N	-	X								
MW-19A	Jun-09	07/20/09	593.82	596.1	10.00	583.82	Low Flow	WG-37191-072009-001	N	-	X								
MW-20	Jun-09	07/22/09	593.32	584.79	3.98	589.34	Low Flow	WG-37191-072209-032	N	-	X								
MW-20A	Jun-09	07/22/09	593.06	574.41	3.95	589.11	Low Flow	WG-37191-072209-031	N	-	X								
MW-21A	Jun-09	07/21/09	590.98	569.78	7.17	583.81	Low Flow	WG-37191-072109-016	N	-	X								
		07/21/09			-	-	Low Flow	WG-37191-072109-017	FD	WG-37191-072109-016	X								
MW-22	Jun-09	07/20/09	592.34	580.58	6.12	586.22	Low Flow	WG-37191-072009-004	N	-	X								
MW-22A	Jun-09	07/20/09	592.23	557.93	8.49	583.74	Low Flow	WG-37191-072009-003	N	-	X								
MW-23A	Jun-09	07/20/09	590.65	556.5	15.66	574.99	Low Flow	WG-37191-072009-007	N	-	X								
		07/20/09			-	-	Low Flow	WG-37191-072009-008	FD	WG-37191-072009-007	X								
MW-24A	Jun-09	07/20/09	580.08	582.63	7.90	572.18	Low Flow	WG-37191-072009-010	N	-	X								
MW-25	Jun-09	07/20/09	598.13	590.92	DRY	DRY	NS	NS	-	-	X								
MW-25A	Jun-09	07/20/09	598.13	583.97	7.94	590.19	Low Flow	WG-37191-072009-009	N	-	X								

Notes:

[1] MW-12 is a stick up well.

[2] Wells were purged dry on 8/20/07. Analytical samples were collected on 8/21/07.

CN Cyanide.
SVOCs Semi-volatile Organic Compounds.
TCL Target Compound List.
VOCs Volatile Organic Compounds.
N Normal Sample
FD Duplicate Sample
NS Not Sampled

TABLE 1.4

SUMMARY OF HYDRAULIC CONDUCTIVITY VALUES
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

Well ID	*Year Installed*	*Year Established*	*Falling Head (cm/sec)*	*Rising Head (cm/sec)*	*Geometric Mean (cm/sec)*
MW-4	2006	2009	2.81E-05	3.68E-05	2.97E-05
			2.54E-05	--	
MW-5	2006	2009	2.05E-05	2.05E-05	2.04E-05
			2.10E-05	1.96E-05	
MW-5A	2008	--	Not Tested - NAPL		
MW-6	2006	--	Not Tested - Insufficient Water		
MW-6A	2009	2009	8.29E-04	7.87E-04	7.27E-04
			6.95E-04	6.15E-04	
MW-7	2006	2009	5.50E-04	5.01E-04	5.58E-04
			5.67E-04	5.51E-04	
			6.29E-04	--	
MW-7A	2009	2009	1.29E-03	1.36E-03	1.33E-03
			1.33E-03	1.35E-03	
MW-8	2006	2009	7.36E-05	3.75E-05	4.73E-05
			3.28E-05	5.53E-05	
MW-9	2006	2009	4.72E-04	4.64E-04	4.61E-04
			4.56E-04	4.51E-04	
MW-9A	2008	2009	3.67E-02	4.09E-02	4.44E-02
			4.93E-02	4.25E-02	
			5.47E-02	4.44E-02	
MW-10	2008	2009	4.36E-04	3.37E-04	2.18E-04
			1.28E-04	1.19E-04	
MW-11	2008	2009	1.52E-05	1.43E-05	1.48E-05
MW-12	2007	--	Tested, however, had irregular response		
MW-13	2007	--	Not tested - Insufficient water, dry		
MW-13A	2008	2009	6.39E-04	6.62E-04	6.40E-04
			6.39E-04	6.20E-04	
MW-14	2008	--	Not tested - Insufficient water, dry		
MW-14A	2008	2009	2.18E-02	1.54E-02	1.78E-02
			1.81E-02	1.66E-02	
MW-15	2008	--	Not tested - Insufficient water, dry		
MW-15A	2008	2009	7.94E-02	3.53E-02	6.01E-02
			6.06E-02	7.67E-02	

TABLE 1.4

SUMMARY OF HYDRAULIC CONDUCTIVITY VALUES
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

Well ID	*Year Installed*	*Year Established*	*Falling Head (cm/sec)*	*Rising Head (cm/sec)*	*Geometric Mean (cm/sec)*
MW-16	2008	--	Not tested - Insufficient water, dry		
MW-17	2008	--	Not tested - Insufficient water		
MW-18	2008	2009	1.47E-05 1.41E-05	1.74E-05 1.89E-05	1.61E-05
MW-18A	2009	2009	9.10E-04 8.54E-04	7.44E-04 8.31E-04	8.32E-04
MW-19	2009	2009	3.21E-05 --	-- --	3.21E-05
MW-19A	2009	2009	2.71E-02 2.55E-02	2.43E-02 2.65E-02	2.58E-02
MW-20	2009	2009	1.56E-05	--	1.56E-05
MW-20A	2009	2009	6.61E-04 5.92E-04	7.62E-04 5.65E-04	6.41E-04
MW-21A	2009	2009	5.88E-02 5.54E-02	7.77E-02 7.21E-02	6.53E-02
MW-22A	2009	2009	2.81E-03 3.04E-03	2.87E-03 3.00E-03	2.93E-03
MW-23A	2009	2009	2.89E-04 4.01E-04	1.31E-04 1.66E-04	2.24E-04
MW-24A	2009	2009	2.13E-03 1.85E-03	2.28E-03 2.15E-03	2.10E-03
MW-25	--	--	Not tested - Insufficient water, dry		
MW-25A	2009	2009	8.35E-02 1.50E-01	1.01E-01 1.01E-01	1.06E-01

TABLE 1.5

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING PROTECTION OF GROUNDWATER CRITERIA
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

Location ID:			***BH-1 S1***	***BH-2 S1***	***BH-3 S1***	***BH-5 S1***	***BH-5 S2***
Sample Name:			***S-37191-050206-PK-023***	***S-37191-050106-JRR-001***	***S-37191-050206-PK-027***	***S-37191-050206-PK-020***	***S-37191-050206-PK-021***
Sample Date:			***5/2/2006***	***5/1/2006***	***5/2/2006***	***5/2/2006***	***5/2/2006***
Depth:			***0.5-1 ft BGS***	***0-1 ft BGS***	***0.5-1 ft BGS***	***0.5-1.2 ft BGS***	***1.6-2.5 ft BGS***
On/Off - Site			***On-Site***	***On-Site***	***On-Site***	***On-Site***	***On-Site***
Parameters	***Units***	*6 NYCRR Part 375 Restricted Use Soil Cleanup Objectives - Protection of Groundwater*					
Volatile Organic Compounds							
2-Butanone (Methyl Ethyl Ketone)	mg/kg	0.12	--	--	--	--	29 U
Acetone	mg/kg	0.05	--	--	--	--	120 U
cis-1,2-Dichloroethene	mg/kg	0.25	--	--	--	--	**15 J**
Methylene chloride	mg/kg	0.05	--	--	--	--	29 U
Tetrachloroethene	mg/kg	1.3	--	--	--	--	29 U
Trichloroethene	mg/kg	0.47	--	--	--	--	**670**
Semivolatile Organic Compounds							
Benzo(a)anthracene	mg/kg	1	--	--	--	--	0.26 J
Benzo(b)fluoranthene	mg/kg	1.7	--	--	--	--	0.24 J
Benzo(k)fluoranthene	mg/kg	1.7	--	--	--	--	0.38 U
Chrysene	mg/kg	1	--	--	--	--	0.38 U
Indeno(1,2,3-cd)pyrene	mg/kg	8.2	--	--	--	--	0.091 J
Metals							
Arsenic	mg/kg	16	--	--	--	--	--
Barium	mg/kg	820	--	--	--	--	--
Lead	mg/kg	450	**545**	**816**	**2500 J**	**1470**	16.7
Manganese	mg/kg	2000	--	--	--	--	--
Silver	mg/kg	8.3	--	--	--	--	--

1.0 - Exceeds criteria.

U - Not present at the associated value.
J - Estimated concentration.
mg/kg - Milligrams per kilogram.

TABLE 1.5

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING PROTECTION OF GROUNDWATER CRITERIA
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

Location ID:			***BH-5 S3***	***BH-7 S2***	***BH-9 S1***	***BH-13 S2***	***BH-15 S1***
Sample Name:			***S-37191-050206-PK-022***	***S-37191-050206-PK-014***	***S-37191-050206-PK-018***	***S-37191-050306-PK-036***	***S-37191-050206-PK-007***
Sample Date:			***5/2/2006***	***5/2/2006***	***5/2/2006***	***5/3/2006***	***5/2/2006***
Depth:			***5.5-6.5 ft BGS***	***1.4-1.8 ft BGS***	***0.5-1 ft BGS***	***1.5-2.5 ft BGS***	***1.5-2 ft BGS***
On/Off - Site			***On-Site***	***On-Site***	***On-Site***	***On-Site***	***On-Site***
Parameters	***Units***	*6 NYCRR Part 375 Restricted Use Soil Cleanup Objectives - Protection of Groundwater*					
Volatile Organic Compounds							
2-Butanone (Methyl Ethyl Ketone)	mg/kg	0.12	2.9 U	--	--	R	--
Acetone	mg/kg	0.05	11 U	--	--	R	--
cis-1,2-Dichloroethene	mg/kg	0.25	**1.2 J**	--	--	0.0066 U	--
Methylene chloride	mg/kg	0.05	**0.85 J**	--	--	0.0066 U	--
Tetrachloroethene	mg/kg	1.3	1.3 J	--	--	0.0066 U	--
Trichloroethene	mg/kg	0.47	**88**	--	--	0.0014 J	--
Semivolatile Organic Compounds							
Benzo(a)anthracene	mg/kg	1	0.38 U	--	--	**1.3**	--
Benzo(b)fluoranthene	mg/kg	1.7	0.065 J	--	--	**2.7**	--
Benzo(k)fluoranthene	mg/kg	1.7	0.028 J	--	--	0.97	--
Chrysene	mg/kg	1	0.38 U	--	--	**2.1**	--
Indeno(1,2,3-cd)pyrene	mg/kg	8.2	0.03 J	--	--	1.4	--
Metals							
Arsenic	mg/kg	16	--	--	--	--	--
Barium	mg/kg	820	--	--	--	--	--
Lead	mg/kg	450	--	**4980**	**9250**	53.2	**804**
Manganese	mg/kg	2000	--	--	--	--	--
Silver	mg/kg	8.3	--	--	--	--	--

1.0 - Exceeds criteria.

U - Not present at the associated value.

J - Estimated concentration.

mg/kg - Milligrams per kilogram.

TABLE 1.5

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING PROTECTION OF GROUNDWATER CRITERIA
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

Location ID:			***MW-19***	***MW-19***	***MW-19A***	***SB-11-07***
Sample Name:			***SO-37191-060409-JJW-008***	***SO-37191-060409-JJW-009***	***SO-37191-052709-JJW-002***	***SO-37191-072607-RN-SB-11***
Sample Date:			***6/4/2009***	***6/4/2009***	***5/27/2009***	***7/26/2007***
Depth:			***6-8 ft BGS***	***6-8 ft BGS***	***6-8 ft BGS***	***2-6 ft BGS***
On/Off - Site			***On-Site***	***On-Site***	***On-Site***	***On-Site***
				Duplicate		
Parameters	***Units***	*6 NYCRR Part 375 Restricted Use Soil Cleanup Objectives - Protection of Groundwater*				
Volatile Organic Compounds						
2-Butanone (Methyl Ethyl Ketone)	mg/kg	0.12	**0.24 J**	**0.26 J**	0.29 U	0.0067 U
Acetone	mg/kg	0.05	1.1 UJ	1.1 UJ	1.2 UJ	0.027 U
cis-1,2-Dichloroethene	mg/kg	0.25	0.28 U	0.28 U	0.29 U	0.035
Methylene chloride	mg/kg	0.05	0.28 U	0.28 U	0.29 U	0.0067 U
Tetrachloroethene	mg/kg	1.3	0.046 J	0.053 J	0.078 J	0.037
Trichloroethene	mg/kg	0.47	**1.8**	**1.3**	**4.6**	0.21
Semivolatile Organic Compounds						
Benzo(a)anthracene	mg/kg	1	--	--	--	0.78
Benzo(b)fluoranthene	mg/kg	1.7	--	--	--	0.93
Benzo(k)fluoranthene	mg/kg	1.7	--	--	--	0.3
Chrysene	mg/kg	1	--	--	--	0.7
Indeno(1,2,3-cd)pyrene	mg/kg	8.2	--	--	--	0.55
Metals						
Arsenic	mg/kg	16	--	--	--	--
Barium	mg/kg	820	--	--	--	--
Lead	mg/kg	450	--	--	--	**2160**
Manganese	mg/kg	2000	--	--	--	--
Silver	mg/kg	8.3	--	--	--	--

1.0 - Exceeds criteria.

U - Not present at the associated value.

J - Estimated concentration.

mg/kg - Milligrams per kilogram.

TABLE 1.5

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING PROTECTION OF GROUNDWATER CRITERIA
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

Location ID:			***SB-13-07***	***SB-2-07***	***SB-2-07***	***SB-6-07***
Sample Name:			***SO-37191-072607-RN-SB-13***	***SO-37191-072707-RN-SB-2***	***SO-37191-072707-RN-SB-20***	***SO-37191-073007-CB-SB6***
Sample Date:			***7/26/2007***	***7/27/2007***	***7/27/2007***	***7/30/2007***
Depth:			***6-8 ft BGS***	***6.5-8 ft BGS***	***6.5-8 ft BGS***	***6-10.4 ft BGS***
On/Off - Site			***On-Site***	***On-Site***	***On-Site***	***On-Site***
					Duplicate	
Parameters	***Units***	*6 NYCRR Part 375 Restricted Use Soil Cleanup Objectives - Protection of Groundwater*				
Volatile Organic Compounds						
2-Butanone (Methyl Ethyl Ketone)	mg/kg	0.12	0.31 U	0.0062 U	0.0067 U	0.12 J
Acetone	mg/kg	0.05	**0.1 J**	0.025 UJ	0.023 J	1.1 U
cis-1,2-Dichloroethene	mg/kg	0.25	**0.71**	0.0014 J	0.0067 U	0.091 J
Methylene chloride	mg/kg	0.05	0.31 U	0.0062 U	0.0067 U	0.38 U
Tetrachloroethene	mg/kg	1.3	0.13 J	0.0062 U	0.0067 U	0.18 J
Trichloroethene	mg/kg	0.47	**9.7**	0.0019 J	0.0067 U	**0.51**
Semivolatile Organic Compounds						
Benzo(a)anthracene	mg/kg	1	0.082 U	**1.5**	**3**	0.2
Benzo(b)fluoranthene	mg/kg	1.7	0.082 U	1.6	**3.3**	0.2
Benzo(k)fluoranthene	mg/kg	1.7	0.082 U	0.73	1.3	0.085
Chrysene	mg/kg	1	0.082 U	**1.4**	**2.7**	0.19
Indeno(1,2,3-cd)pyrene	mg/kg	8.2	0.082 U	0.94	1.8	0.079
Metals						
Arsenic	mg/kg	16	--	--	--	--
Barium	mg/kg	820	--	--	--	--
Lead	mg/kg	450	7.3	229	**567**	6.2
Manganese	mg/kg	2000	--	--	--	--
Silver	mg/kg	8.3	--	--	--	--

1.0 - Exceeds criteria.

U - Not present at the associated value.

J - Estimated concentration.

mg/kg - Milligrams per kilogram.

TABLE 1.5

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING PROTECTION OF GROUNDWATER CRITERIA
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

Location ID:			***SB-6-07***	***SB-7-07***	***SB-8-07***	***S Harrison St WH (SS-11)***
Sample Name:			***SO-37191-073007-CB-SB19***	***SO-37191-072507-RN-SB-7***	***SO-37191-072507-RN-SB-8***	***SS-37191-050708-CMB-022***
Sample Date:			***7/30/2007***	***7/25/2007***	***7/25/2007***	***5/7/2008***
Depth:			***6-10.4 ft BGS***	***3-6 ft BGS***	***3.5-8 ft BGS***	***0 - 2 inches bgs***
On/Off - Site			***On-Site***	***On-Site***	***On-Site***	***On-Site***
			Duplicate			
Parameters	***Units***	*6 NYCRR Part 375 Restricted Use Soil Cleanup Objectives - Protection of Groundwater*				
Volatile Organic Compounds						
2-Butanone (Methyl Ethyl Ketone)	mg/kg	0.12	0.28 U	0.4 U	0.0061 U	-
Acetone	mg/kg	0.05	1.1 U	1.6 UJ	0.025 UJ	-
cis-1,2-Dichloroethene	mg/kg	0.25	0.066 J	**0.3 J**	0.0028 J	-
Methylene chloride	mg/kg	0.05	0.28 U	0.4 U	0.0061 U	-
Tetrachloroethene	mg/kg	1.3	0.086 J	0.4 U	0.0061 U	-
Trichloroethene	mg/kg	0.47	**0.5**	**6.8**	0.058	-
Semivolatile Organic Compounds						
Benzo(a)anthracene	mg/kg	1	0.37	**15**	0.82	-
Benzo(b)fluoranthene	mg/kg	1.7	0.48	**17**	0.91	-
Benzo(k)fluoranthene	mg/kg	1.7	0.074 U	**4.5**	0.31	-
Chrysene	mg/kg	1	0.33	**13**	0.79	-
Indeno(1,2,3-cd)pyrene	mg/kg	8.2	0.12	**8.5**	0.48	-
Metals						
Arsenic	mg/kg	16	--	--	**21.4**	**-**
Barium	mg/kg	820	--	--	**2310**	**-**
Lead	mg/kg	450	5.1	46.0	**2230**	**738 J**
Manganese	mg/kg	2000	--	--	392	-
Silver	mg/kg	8.3	--	--	**189**	**-**

1.0 - Exceeds criteria.

U - Not present at the associated value.
J - Estimated concentration.
mg/kg - Milligrams per kilogram.

TABLE 1.5

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING PROTECTION OF GROUNDWATER CRITERIA
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

Location ID:			***S Harrison St WH (SS-11)***	***Soil Mound (SS-1)***	***Soil Mound (SS-1)***
Sample Name:			***SS-37191-050708-CMB-023***	***SS-37191-050708-CMB-018***	***SS-37191-050708-CMB-019***
Sample Date:			***5/7/2008***	***5/7/2008***	***5/7/2008***
Depth:			***2 - 4 inches bgs***	***0 - 2 inches bgs***	***2 - 4 inches bgs***
On/Off - Site			***On-Site***	***On-Site***	***On-Site***
Parameters	***Units***	*6 NYCRR Part 375 Restricted Use Soil Cleanup Objectives - Protection of Groundwater*			
Volatile Organic Compounds					
2-Butanone (Methyl Ethyl Ketone)	mg/kg	0.12	-	-	-
Acetone	mg/kg	0.05	-	-	-
cis-1,2-Dichloroethene	mg/kg	0.25	-	-	-
Methylene chloride	mg/kg	0.05	-	-	-
Tetrachloroethene	mg/kg	1.3	-	-	-
Trichloroethene	mg/kg	0.47	-	-	-
Semivolatile Organic Compounds					
Benzo(a)anthracene	mg/kg	1	-	-	-
Benzo(b)fluoranthene	mg/kg	1.7	-	-	-
Benzo(k)fluoranthene	mg/kg	1.7	-	-	-
Chrysene	mg/kg	1	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	8.2	-	-	-
Metals					
Arsenic	mg/kg	16	**-**	**-**	**-**
Barium	mg/kg	820	**-**	**-**	**-**
Lead	mg/kg	450	**742 J**	30.8	**2090 J**
Manganese	mg/kg	2000	-	-	-
Silver	mg/kg	8.3	**-**	**-**	**-**

1.0 - Exceeds criteria.

U - Not present at the associated value.
J - Estimated concentration.
mg/kg - Milligrams per kilogram.

TABLE 1.6

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS EXCEEDING CRITERIA
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

Location ID:				*MW-4*	*MW-5*	*MW-5A*	*MW-5A*	*MW-6*
Sample Name:				*WG-37191-072209-037*	*WG-37191-072209-040*	*WG-37191-072209-038*	*WG-37191-072209-039*	*WG-37191-072209-035*
Sample Date:				*7/22/2009*	*7/22/2009*	*7/22/2009*	*7/22/2009*	*7/22/2009*
							Duplicate	
		New York State Water Quality						
Parameters	*Units*	*Standards*	*Guidance Values*					
Volatile Organic Compounds								
1,1-Dichloroethene	µg/L	5	NC	120 U	20000 U	**40 J**	1000 U	50 U
1,2-Dichloroethane	µg/L	0.6	NC	120 U	20000 U	120 U	**320 J**	50 U
Acetone	µg/L	NC	50	500 U	80000 U	**280 J**	4000 U	200 U
cis-1,2-Dichloroethene	µg/L	5	NC	**1600**	**310000**	**18000**	**27000**	**740**
Methylene chloride	µg/L	5	NC	120 U	20000 U	**80 J**	**240 J**	50 U
Tetrachloroethene	µg/L	5	NC	120 U	20000 U	**45 J**	1000 U	50 U
Toluene	µg/L	5	NC	120 U	**96000**	**24 J**	1000 U	50 U
trans-1,2-Dichloroethene	µg/L	5	NC	**29 J**	20000 U	**66 J**	1000 U	50 U
Trichloroethene	µg/L	5	NC	**2200**	**410000**	**24000**	**35000**	**290**
Vinyl chloride	µg/L	2	NC	120 U	20000 U	**83 J**	1000 U	50 U

1.0 - Exceeds criteria.

U - Not present at the associated value.

J - Estimated concentration.

NC - No criteria.

µg/L - Micrograms per liter.

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS EXCEEDING CRITERIA
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

Location ID:				*MW-6A*	*MW-7*	*MW-7A*	*MW-8*	*MW-9*
Sample Name:				*WG-37191-072209-033*	*WG-37191-072209-030*	*WG-37191-072209-029*	*WG-37191-072109-018*	*WG-37191-072109-015*
Sample Date:				*7/22/2009*	*7/22/2009*	*7/22/2009*	*7/21/2009*	*7/21/2009*
		New York State Water Quality						
Parameters	*Units*	*Standards*	*Guidance Values*					
Volatile Organic Compounds								
1,1-Dichloroethene	µg/L	5	NC	12 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	µg/L	0.6	NC	12 U	5.0 U	5.0 U	5.0 U	5.0 U
Acetone	µg/L	NC	50	22 J	20 U	20 U	20 UJ	20 UJ
cis-1,2-Dichloroethene	µg/L	5	NC	**30**	5.0 U	0.90 J	5.0 U	5.0 U
Methylene chloride	µg/L	5	NC	12 U	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	µg/L	5	NC	12 U	5.0 U	5.0 U	5.0 U	5.0 U
Toluene	µg/L	5	NC	12 U	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	µg/L	5	NC	12 U	5.0 U	5.0 U	5.0 U	5.0 U
Trichloroethene	µg/L	5	NC	12 U	5.0 U	5.0 U	1.1 J	5.0 U
Vinyl chloride	µg/L	2	NC	12 U	5.0 U	5.0 U	5.0 U	5.0 U

1.0 - Exceeds criteria.

U - Not present at the associated value.

J - Estimated concentration.

NC - No criteria.

µg/L - Micrograms per liter.

TABLE 1.6

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS EXCEEDING CRITERIA
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

Location ID:				*MW-9A*	*MW-10*	*MW-11*	*MW-12*	*MW-13A*
Sample Name:				*WG-37191-072109-014*	*WG-37191-072009-011*	*WG-37191-072009-006*	*WG-37191-072209-036*	*WG-37191-072209-034*
Sample Date:				*7/21/2009*	*7/20/2009*	*7/20/2009*	*7/22/2009*	*7/22/2009*
		New York State Water Quality						
Parameters	*Units*	*Standards*	*Guidance Values*					
Volatile Organic Compounds								
1,1-Dichloroethene	µg/L	5	NC	5.0 U	5.0 U	1.5 J	120 U	1200 U
1,2-Dichloroethane	µg/L	0.6	NC	5.0 U	5.0 U	5.0 U	120 U	1200 U
Acetone	µg/L	NC	50	20 UJ	20 UJ	12 J	500 U	5000 U
cis-1,2-Dichloroethene	µg/L	5	NC	5.0 U	5.0 U	**350**	**1100**	**42000**
Methylene chloride	µg/L	5	NC	5.0 U	5.0 U	5.0 U	120 U	1200 U
Tetrachloroethene	µg/L	5	NC	5.0 U	5.0 U	5.0 U	**63 J**	1200 U
Toluene	µg/L	5	NC	5.0 U	5.0 U	5.0 U	120 U	1200 U
trans-1,2-Dichloroethene	µg/L	5	NC	5.0 U	5.0 U	**5.6**	120 U	1200 U
Trichloroethene	µg/L	5	NC	5.0 U	0.86 J	**120**	**4400**	**39000**
Vinyl chloride	µg/L	2	NC	5.0 U	5.0 U	5.0 U	120 U	**530 J**

1.0 - Exceeds criteria.

U - Not present at the associated value.

J - Estimated concentration.

NC - No criteria.

µg/L - Micrograms per liter.

TABLE 1.6

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS EXCEEDING CRITERIA
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

Location ID:				*MW-14A*	*MW-15A*	*MW-17*	*MW-18*	*MW-18A*
Sample Name:				*WG-37191-072009-005*	*WG-37191-072009-012*	*WG-37191-072009-013*	*WG-37191-072209-042*	*WG-37191-072209-041*
Sample Date:				*7/20/2009*	*7/20/2009*	*7/20/2009*	*7/22/2009*	*7/22/2009*
		New York State Water Quality						
Parameters	*Units*	*Standards*	*Guidance Values*					
Volatile Organic Compounds								
1,1-Dichloroethene	µg/L	5	NC	5.0 U	5.0 U	5.0 U	50 U	1500 U
1,2-Dichloroethane	µg/L	0.6	NC	5.0 U	5.0 U	5.0 U	50 U	1500 U
Acetone	µg/L	NC	50	20 UJ	20 UJ	11 J	200 U	6000 U
cis-1,2-Dichloroethene	µg/L	5	NC	**120**	1.1 J	5.0 U	**45 J**	**4600**
Methylene chloride	µg/L	5	NC	5.0 U	5.0 U	5.0 U	50 U	1500 U
Tetrachloroethene	µg/L	5	NC	2.2 J	5.0 U	5.0 U	50 U	1500 U
Toluene	µg/L	5	NC	5.0 U	5.0 U	5.0 U	50 U	1500 U
trans-1,2-Dichloroethene	µg/L	5	NC	0.88 J	5.0 U	5.0 U	50 U	1500 U
Trichloroethene	µg/L	5	NC	**190**	4.5 J	5.0 U	**680**	**26000**
Vinyl chloride	µg/L	2	NC	5.0 U	5.0 U	5.0 U	50 U	1500 U

1.0 - Exceeds criteria.

U - Not present at the associated value.

J - Estimated concentration.

NC - No criteria.

µg/L - Micrograms per liter.

TABLE 1.6

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS EXCEEDING CRITERIA
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

Location ID:				*MW-19*	*MW-19A*	*MW-20*	*MW-20A*	*MW-21A*
Sample Name:				*WG-37191-072009-002*	*WG-37191-072009-001*	*WG-37191-072209-032*	*WG-37191-072209-031*	*WG-37191-072109-016*
Sample Date:				*7/20/2009*	*7/20/2009*	*7/22/2009*	*7/22/2009*	*7/21/2009*
		New York State Water Quality						
Parameters	*Units*	*Standards*	*Guidance Values*					
Volatile Organic Compounds								
1,1-Dichloroethene	µg/L	5	NC	500 U	200 U	1.3 J	25 U	50 U
1,2-Dichloroethane	µg/L	0.6	NC	500 U	200 U	5.0 U	25 U	50 U
Acetone	µg/L	NC	50	2000 UJ	800 UJ	20 U	100 U	**110 J**
cis-1,2-Dichloroethene	µg/L	5	NC	**410 J**	**1100**	**89**	**620**	**890**
Methylene chloride	µg/L	5	NC	500 U	200 U	5.0 U	**5.9 J**	50 U
Tetrachloroethene	µg/L	5	NC	500 U	200 U	5.0 U	25 U	50 U
Toluene	µg/L	5	NC	500 U	200 U	5.0 U	25 U	50 U
trans-1,2-Dichloroethene	µg/L	5	NC	500 U	200 U	3.0 J	**5.5 J**	**11 J**
Trichloroethene	µg/L	5	NC	**15000**	**4600**	**19**	**200**	**2400**
Vinyl chloride	µg/L	2	NC	500 U	**70 J**	**5.5**	**14 J**	**26 J**

1.0 - Exceeds criteria.

U - Not present at the associated value.

J - Estimated concentration.

NC - No criteria.

µg/L - Micrograms per liter.

TABLE 1.6

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS EXCEEDING CRITERIA
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

Location ID:				*MW-21A*	*MW-22*	*MW-22A*	*MW-23A*	*MW-23A*
Sample Name:				*WG-37191-072109-017*	*WG-37191-072009-004*	*WG-37191-072009-003*	*WG-37191-072009-007*	*WG-37191-072009-008*
Sample Date:				*7/21/2009*	*7/20/2009*	*7/20/2009*	*7/20/2009*	*7/20/2009*
				Duplicate				*Duplicate*
		New York State Water Quality						
Parameters	*Units*	*Standards*	*Guidance Values*					
Volatile Organic Compounds								
1,1-Dichloroethene	µg/L	5	NC	2.5 J	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	µg/L	0.6	NC	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Acetone	µg/L	NC	50	20 UJ	20 UJ	11 J	20 UJ	20 UJ
cis-1,2-Dichloroethene	µg/L	5	NC	**710 J**	1.5 J	5.0 U	0.99 J	5.0 U
Methylene chloride	µg/L	5	NC	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	µg/L	5	NC	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Toluene	µg/L	5	NC	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	µg/L	5	NC	**7.2**	5.0 U	5.0 U	5.0 U	5.0 U
Trichloroethene	µg/L	5	NC	**1900 J**	**30**	5.0 U	1.6 J	5.0 U
Vinyl chloride	µg/L	2	NC	**42**	5.0 U	5.0 U	5.0 U	5.0 U

1.0 - Exceeds criteria.

U - Not present at the associated value.

J - Estimated concentration.

NC - No criteria.

µg/L - Micrograms per liter.

TABLE 1.7

POTENTIAL ACTION-SPECIFIC STANDARDS, CRITERIA, AND GUIDELINES
REMEDIAL ACTION WORK PLAN
FORMER BUFFALO CHINA SITE (NO. C915209)
BUFFALO, NEW YORK

	Federal SCGs			*New York State SCGs*		
Activity	*Title*	*Subtitle*	*Citation*	*Title*	*Subtitle*	*Citation*
Surface Water Control	Standards for owners and operators of hazardous waste treatment, storage and disposal facilities	Design and operating requirements for waste piles	40 CFR 264.251(c),(d)	Hazardous waste treatment, storage and disposal facility permitting requirements	--	6 NYCRR Subpart 373-1 6 NYCRR Part 701 and Part 703
		Design and operating requirements for land treatment	40 CFR 264.273(c),(d)			
		Design and operating requirements for landfills	40 CFR 264.301(c),(d)			
Treatment (in a unit)	Standards for owners and operators of hazardous waste treatment, storage and disposal facilities	Design and operating requirements for waste piles	40 CFR 264.251	Hazardous waste treatment, storage and disposal facility permitting requirements	--	6 NYCRR Subpart 373-1
		Design and operating requirements for thermal treatment units	40 CFR 265.373	Interim status standards for owners and operators of hazardous waste facilities	--	6 NYCRR Subpart 373-3
		Design and operating requirements for miscellaneous treatment units	40 CFR 264.601	New York air pollution control regulations	General provisions Permits and certificates General prohibitions General process emission sources	6 NYCRR Part 200 6 NYCRR Part 201 6 NYCRR Part 211 6 NYCRR Part 212
Treatment (when waste will be land disposed)	Land disposal restrictions	Identification of waste	40 CFR 268.10-12	Hazardous waste treatment, storage and disposal facility permitting requirements	--	6 NYCRR Subpart 373-1
		Treatment Standards Waste	40 CFR 268 (Subpart D)			
		Specific prohibitions - Solvent wastes	40 CFR 268.30 RCRA Sections 3004 (d) (3), (e) (3) 42 USC 6924 (d) (3), (e) (3)	Interim status standards for owners and operators of hazardous waste facilities	--	6 NYCRR Subpart 373-3
Waste Pile	Standards for owners and operators of hazardous waste treatment, storage and disposal facilities	Design and operating requirements	40 CFR 264.251	New York air pollution control regulations	General provisions Permits and certificates General prohibitions General process emission sources	6 NYCRR Part 200 6 NYCRR Part 201 6 NYCRR Part 211 6 NYCRR Part 212
				Hazardous waste treatment, storage and disposal facility permitting requirements	--	6 NYCRR Subpart 373-1
				Interim status standards for owners and operators of hazardous waste facilities	--	6 NYCRR Subpart 373-3
Closure with Waste in Place	Standards for owners and operators of hazardous waste treatment, storage and disposal facilities	Closure and post-closure care	40 CFR 264.258			
		Post-closure care and groundwater monitoring	40 CFR 264.310			
Closure of Land Treatment Units	Standards for owners and operators of hazardous waste treatment, storage and disposal facilities	Closure of land treatment units	40 CFR 264.280	Final status standards for owners and operators of hazardous waste facilities	--	6 NYCRR Subpart 373-2
Transporting Hazardous Waste Off Site	Standards applicable to transporters of hazardous waste	--	40 CFR 263	Waste transport permits	--	5 NYCRR Part 364
				Hazardous waste manifest system and related standards for generators, transporters and facilities	--	6 NYCRR Part 372
Vapor Emissions	Air emissions standards for process vents	--	40 CFR 264 (Subpart AA)	NY air pollution control regulations	General provisions Permits and certificates	6NYCRR Part 200 6NYCRR Part 201