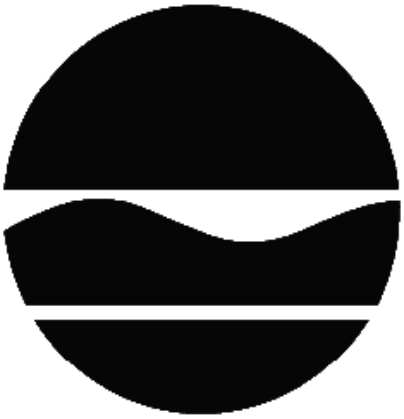
DECISION DOCUMENT

Former Buffalo China Site
Brownfield Cleanup Program
Buffalo, Erie County
Site No. C915209
May 2011



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

DECLARATION STATEMENT - DECISION DOCUMENT

Former Buffalo China Site
Brownfield Cleanup Program
Buffalo, Erie County
Site No. C915209
May 2011

Statement of Purpose and Basis

This document presents the remedy for the Former Buffalo China Site site, a brownfield cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Former Buffalo China Site site and the public's input to the proposed remedy presented by the Department.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. Excavation and off-site disposal of unsaturated zone soil that exceed the Protection of Groundwater Soil Clean-up Objectives (SCOs) for VOCs and the Industrial Use SCOs for metals. The excavation will be backfilled with either on-site soil which meets the above SCOs or imported off-site soil that meets the backfill material requirements for commercial use as set forth in 6 NYCRR Part 375-6.8(b).

2. The existing buildings and pavement at the site will form the site cover, upon successful remediation there will be no exposed surface soil exceeding industrial levels. A site cover will be maintained as a component of any future site development, which will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where the soil cover is required it will be a minimum of one foot of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for commercial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

3. Treatment of chlorinated ethene compounds (a type of volatile organic compound) in the soil and groundwater using an in-situ chemical oxidation technology. This process injects a chemical oxidant into the subsurface via injection wells or an infiltration gallery. The method of

injection and depth of injection is determined by the location of the contamination. As the chemical oxidant comes into contact with the contaminant, an oxidation reaction occurs that breaks down the contaminant into carbon dioxide and water. Several chemical oxidants are commercially available. Prior to the full implementation of this technology, laboratory and on-site pilot scale studies would be conducted to more clearly define design parameters. Between the pilot and the full scale implementations, it is estimated that injection points would be installed in the bedrock to address contaminated groundwater in that medium. The specific duration and frequency of the injection of the chemical oxidant would be determined during the pilot testing, with the goal being achieving groundwater standards.

4. Installation of a sub-slab depressurization system in an off-site home adjacent to the property.

5. Imposition of an institutional control in the form of an environmental easement for the controlled property that:

a. requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3).
b. allows the use and development of the controlled property for industrial use as defined by Part 375-1.8(g), though land use is subject to local zoning laws;
c. restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the Department, NYSDOH or County DOH;
d. prohibits agriculture or vegetable gardens on the controlled property;
e. requires compliance with the Department approved Site Management Plan;

6. A Site Management Plan is required, which will include the following:

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

This plan includes, but may not be limited to:

(i) a Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
(ii) descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
(iii) provisions for the management and inspection of the identified engineering controls;
(iv) maintaining site access controls and Department notification; and
(v) the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls;

b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan

includes, but not be limited to:

(i) monitoring of groundwater to assess the performance and effectiveness of the remedy;

(ii) a schedule of monitoring and frequency of submittals to the Department;

(iii) provision to evaluate the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified;

(iv) provision to evaluate the potential for soil vapor intrusion for existing buildings if building use changes significantly or if a vacant building become occupied.

(v) continue to evaluate soil vapor intrusion off-site with provision for implementing actions recommended to address exposures related to soil vapor intrusion.

c. an Operation and Maintenance Plan to assure continued operation, maintenance, monitoring, inspection, and reporting of for any mechanical or physical components of the remedy. The plan includes, but is not limited to:

(i) compliance monitoring of treatment systems to assure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;

(ii) maintaining site access controls and Department notification; and

(iii) providing the Department access to the site and O&M records.

7. A remedial design program would be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. An assessment of the potential for soil vapor intrusion will be included in that pre-design investigation. Green remediation principals and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

a. Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;

b. Reducing direct and indirect greenhouse gas and other emissions;

c. Increasing energy efficiency and minimizing use of non-renewable energy;

d. Conserving and efficiently managing resources and materials;

e. Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;

f. Maximizing habitat value and creating habitat when possible;

g. Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and

h. Integrating the remedy with the end use where possible and encouraging green and sustainable re-development

Declaration

The remedy conforms with promulgated standards and criteria that are directly applicable, or that are relevant and appropriate and takes into consideration Department guidance, as appropriate. The remedy is protective of public health and the environment.

6/27/2011

Date

Michael Cruden, Director
Remedial Bureau E

DECISION DOCUMENT

Former Buffalo China Site
Buffalo, Erie County
Site No. C915209
May 2011

SECTION 1: SUMMARY AND PURPOSE

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

The New York State Brownfield Cleanup Program (BCP) is a voluntary program. The goal of the BCP is to enhance private-sector cleanups of brownfields and to reduce development pressure on "greenfields." A brownfield site is real property, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant.

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

SECTION 2: SITE DESCRIPTION AND HISTORY

Location:
The site comprises approximately 8 acres and is bounded on the northeast by Conrail railroad tracks, on the east by the adjoining former Buffalo China Warehouse and other commercial and industria1 facilities, and on the south and west by residential properties. The former City of Buffalo School #26 and adjacent playground is located a few hundred feet to the west. The nearest body of water is the Buffalo River, located approximately 0.25 mile south and east of the site

Site Features:
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 building is connected to the Robinson Home Products Warehouse to the east. 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.

Current Zoning:

The site is currently zoned for industrial use and has an active manufacturing facility located within the boundaries of the site.

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

In November 2006 Buffalo China, Inc. applied to New York State's Brownfield Cleanup Program (BCP) to address the contamination found at the site. The Brownfield Cleanup Agreement was signed by NYSDEC in May 2007. The intended future use of the site is industrial.

Site Geology and Hydrology:
The Site is underlain by fill materials ranging in thickness from zero to 4 feet below ground surface (bgs). Fill materials are underlain by clay deposits which range in depth from 4 feet bgs extending to a depth of at least 16.9 feet bgs (the maximum depth penetrated by boreholes). Underlying the clay deposits is bedrock, which for the Buffalo area typically consists of Onondaga Limestone. The major regional aquifer in the area of the Site is located in the upper bedrock and the depth to groundwater is approximately 6.6 feet. Groundwater flow is to the southwest towards the residential area. Groundwater is not used as a source of potable water in the portion of Erie County in which the Site is located.

A site location map is attached as Figure 1.

SECTION 3: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to industrial use as described in Part 375-1.8(g) were/was evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the Remedial Investigation (RI) to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is available in the RI Report.

SECTION 4: ENFORCEMENT STATUS

The Applicant under the Brownfield Cleanup Agreement is a Participant. The Applicant has an obligation to address on-site and off-site contamination. Accordingly, no enforcement actions are necessary.

SECTION 5: SITE CONTAMINATION

5.1: Summary of the Remedial Investigation

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

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

The RI is intended to identify the nature (or type) of contamination which may be present at a site and the extent of that contamination in the environment on the site, or leaving the site. The RI reports on data gathered to determine if the soil, groundwater, soil vapor, indoor air, surface water or sediments may have been contaminated. Monitoring wells are installed to assess groundwater and soil borings or test pits are installed to sample soil and/or waste(s) identified. If other natural resources are present, such as surface water bodies or wetlands, the water and sediment may be sampled as well. Based on the presence of contaminants in soil and groundwater, soil vapor will also be sampled for the presence of contamination. Data collected in the RI influence the development of remedial alternatives. The RI report is available for review in the site document repository and the results are summarized in section 5.4.

5.1.1: Standards, Criteria, and Guidance (SCGs)

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

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

5.1.2: RI Information

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor
- indoor air

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

lead trichloroethene (tce)

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

- groundwater
- soil

5.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Decision Document.

There were no IRMs performed at this site during the RI.

5.3: Summary of Human Exposure Pathways

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

The site is partially fenced, which limits public access. Direct contact with contaminants in the soil is unlikely because the majority of the site is covered with buildings and pavement. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. People are not expected to come into direct contact with contaminated groundwater unless they dig below the ground surface. Volatile organic compounds in the groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Soil vapor intrusion sampling identified impacts in indoor air quality in an off-site building, and the indoor air of additional off-site buildings may be affected as well. The potential exists for the inhalation of site contaminants on-site due to soil vapor intrusion should the use of the site change or redevelopment occur.

5.4: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water. The RI report presents a detailed discussion of the existing and potential impacts from the site to fish and wildlife receptors.

Based upon investigations conducted to date, the primary contaminants of concern include trichloroethene and its associated degradation products. Trichloroethene is found in subsurface soil, in a limited area on the west side of the site at a maximum concentration of 670 ppm significantly above the soil cleanup objective (SCO) for the protection of groundwater (0.47)

ppm and above the industrial SCO of 400 ppm. The detected lead concentrations were also greater than the SCOs for industrial use of 3,900 ppm in two of 32 samples, at concentrations of 4,980 ppm and 9,250 ppm. These two soil samples were collected from the top 2 feet of soil. Samples collected of surface soil off-site showed lead levels typical of an urban area, at or slightly exceed the residential SCO for lead of 400 ppm.

Trichloroethene and its associated degradation products are also found in groundwater at the site, exceeding groundwater standards (typically 5 ppb), with a maximum concentration of 650,000 ppb in the overburden groundwater and 290,000ppb in bedrock groundwater. Trichloroethene, and its related degradation products, have migrated approximately 300 feet down-gradient off-site in the bedrock groundwater. The primary contaminant of the off-site area is trichloroethene, which is present at a maximum concentration of 190 ppb, in bedrock groundwater. The site is considered a significant threat due to the TCE contamination in off-site groundwater and the potential for vapor intrusions into nearby structures.

SECTION 6: ELEMENTS OF THE SELECTED REMEDY

The alternatives developed for the site and evaluation of the remedial criteria are present in the Alternative Analysis. The remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation and 6 NYCRR Part 375.

The selected remedy is a Track 4: Restricted use with site-specific soil cleanup objectives remedy.

The elements of the selected remedy, as shown in Figure 2, are as follows:

1. Excavation and off-site disposal of unsaturated zone soil that exceed the Protection of Groundwater Soil Clean-up Objectives (SCOs) for VOCs and the Industrial Use SCOs for metals. The excavation will be backfilled with either on-site soil which meets the above SCOs or imported off-site soil that meets the backfill material requirements for commercial use as set forth in 6 NYCRR Part 375-6.8(b).

2. The existing buildings and pavement at the site will form the site cover, upon successful remediation there will be no exposed surface soil exceeding industrial levels. A site cover will be maintained as a component of any future site development, which will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where the soil cover is required it will be a minimum of one foot of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for commercial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

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4. Installation of a sub-slab depressurization system in an off-site home adjacent to the property.

5. Imposition of an institutional control in the form of an environmental easement for the controlled property that:

a. requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3).
b. allows the use and development of the controlled property for industrial use as defined by Part 375-1.8(g), though land use is subject to local zoning laws;
c. restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the Department, NYSDOH or County DOH;
d. prohibits agriculture or vegetable gardens on the controlled property;
e. requires compliance with the Department approved Site Management Plan;

6. A Site Management Plan is required, which will include the following:

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

This plan includes, but may not be limited to:

(i) a Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
(ii) descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
(iii) provisions for the management and inspection of the identified engineering controls;
(iv) maintaining site access controls and Department notification; and
(v) the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls;

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

(i) monitoring of groundwater to assess the performance and effectiveness of the remedy;

(ii) a schedule of monitoring and frequency of submittals to the Department;

(iii) provision to evaluate the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified;

(iv) provision to evaluate the potential for soil vapor intrusion for existing buildings if building use changes significantly or if a vacant building become occupied.

(v) continue to evaluate soil vapor intrusion off-site with provision for implementing actions recommended to address exposures related to soil vapor intrusion.

c. an Operation and Maintenance Plan to assure continued operation, maintenance, monitoring, inspection, and reporting of for any mechanical or physical components of the remedy. The plan includes, but is not limited to:

(i) compliance monitoring of treatment systems to assure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;

(ii) maintaining site access controls and Department notification; and

(iii) providing the Department access to the site and O&M records.

7. A remedial design program would be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. An assessment of the potential for soil vapor intrusion will be included in that pre-design investigation. Green remediation principals and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

a. Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;

b. Reducing direct and indirect greenhouse gas and other emissions;

c. Increasing energy efficiency and minimizing use of non-renewable energy;

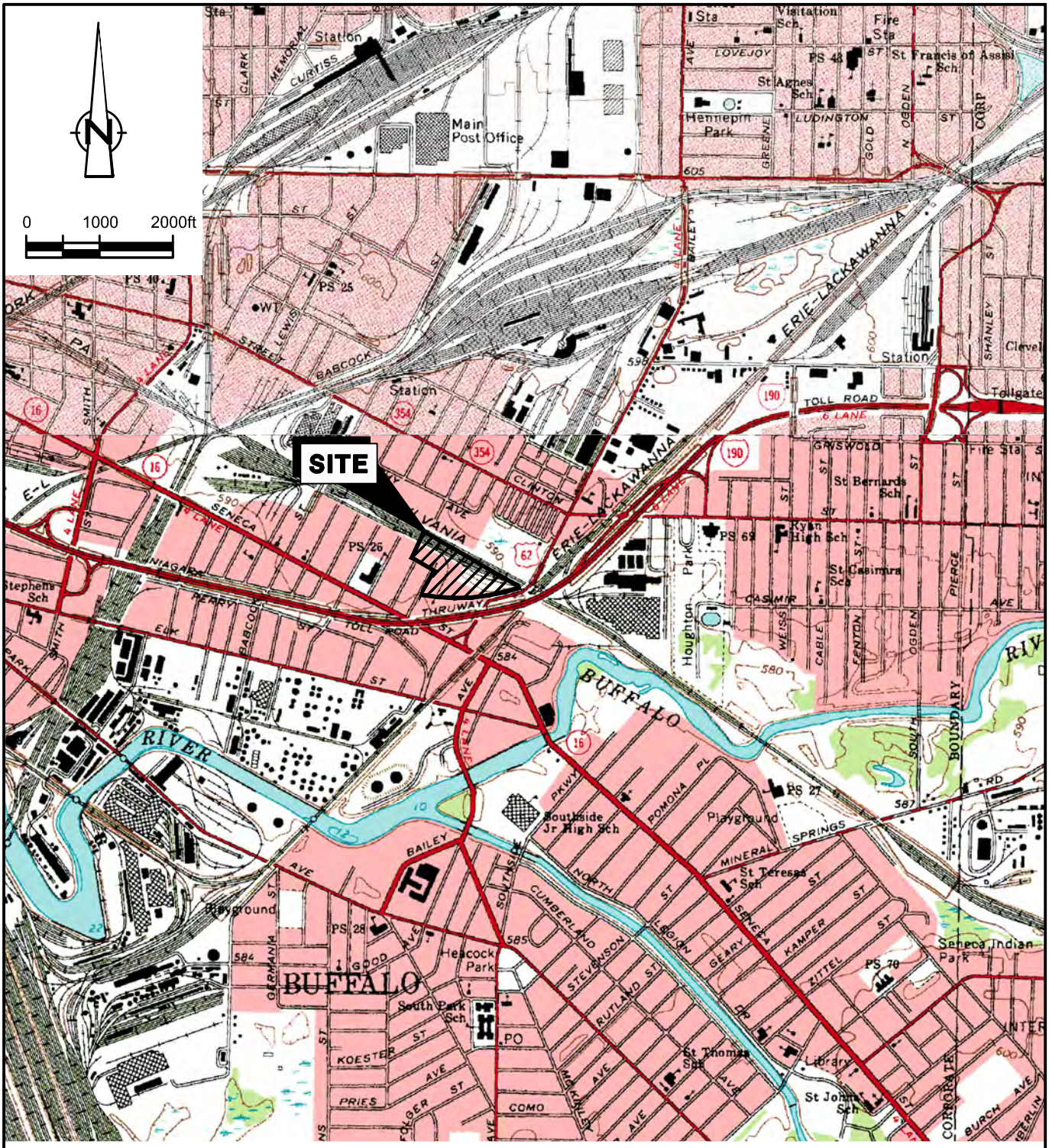
d. Conserving and efficiently managing resources and materials;

e. Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;

f. Maximizing habitat value and creating habitat when possible;

g. Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and

h. Integrating the remedy with the end use where possible and encouraging green and sustainable re-development



REFERENCE:

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

FIGURE 1

SITE LOCATION MAP
REMEDIAL INVESTIGATION
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York

CRA

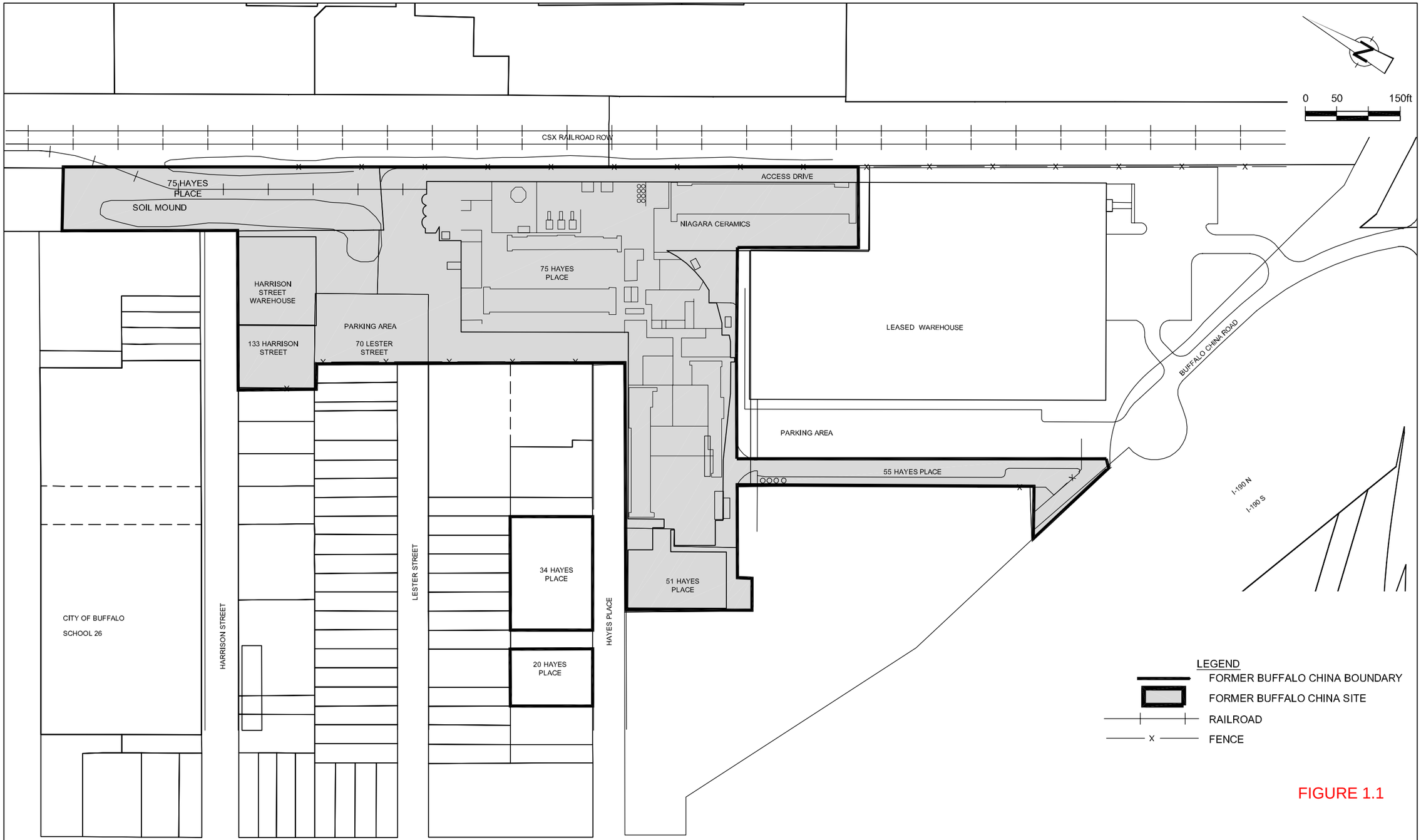


FIGURE 1.1

SITE LAYOUT
REMEDIAL INVESTIGATION
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(008)GN-BU013 FEB 26/2010

0 50 150ft

592.00
591.00
590.00
589.00
588.00
587.00
586.00
585.00
584.00
583.00

MW-9 592.77
MW-8 592.16
MW-2 590.35
MW-3 588.17
MW-12 590.76
MW-19 591.14
MW-5 593.08
MW-18 589.40
MW-11 589.06
MW-4 590.8
MW-25 DRY (590.92)
MW-20 590.32
MW-6 587.18
MW-7 590.28
MW-10 586.82
MW-13 588.25
MW-1 588.63
MW-25 DRY (584.93)
MW-14 584.89
MW-22 588.04
MW-17 582.49
MW-16 DRY (581.00)

NIAGARA CERAMICS
75 HAYES PLACE
LEASED WAREHOUSE
PARKING AREA
55 HAYES PLACE
BUFFALO CHINA ROAD
BACK STOP
PLAYGROUND
TENNIS COURT
CITY OF BUFFALO SCHOOL 26
HARRISON STREET
LESTER STREET
HAYES PLACE
34 HAYES PLACE
51 HAYES PLACE
20 HAYES PLACE
SENECA STREET

LEGEND

MW-1 OVERBURDEN MONITORING WELL

INDICATES GROUNDWATER GRADIENT DIRECTION

FIGURE 1.2

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

NOTE: (581.00) - INDICATES ELEVATION CORRESPONDING TO THE BOTTOM OF THE WELL.

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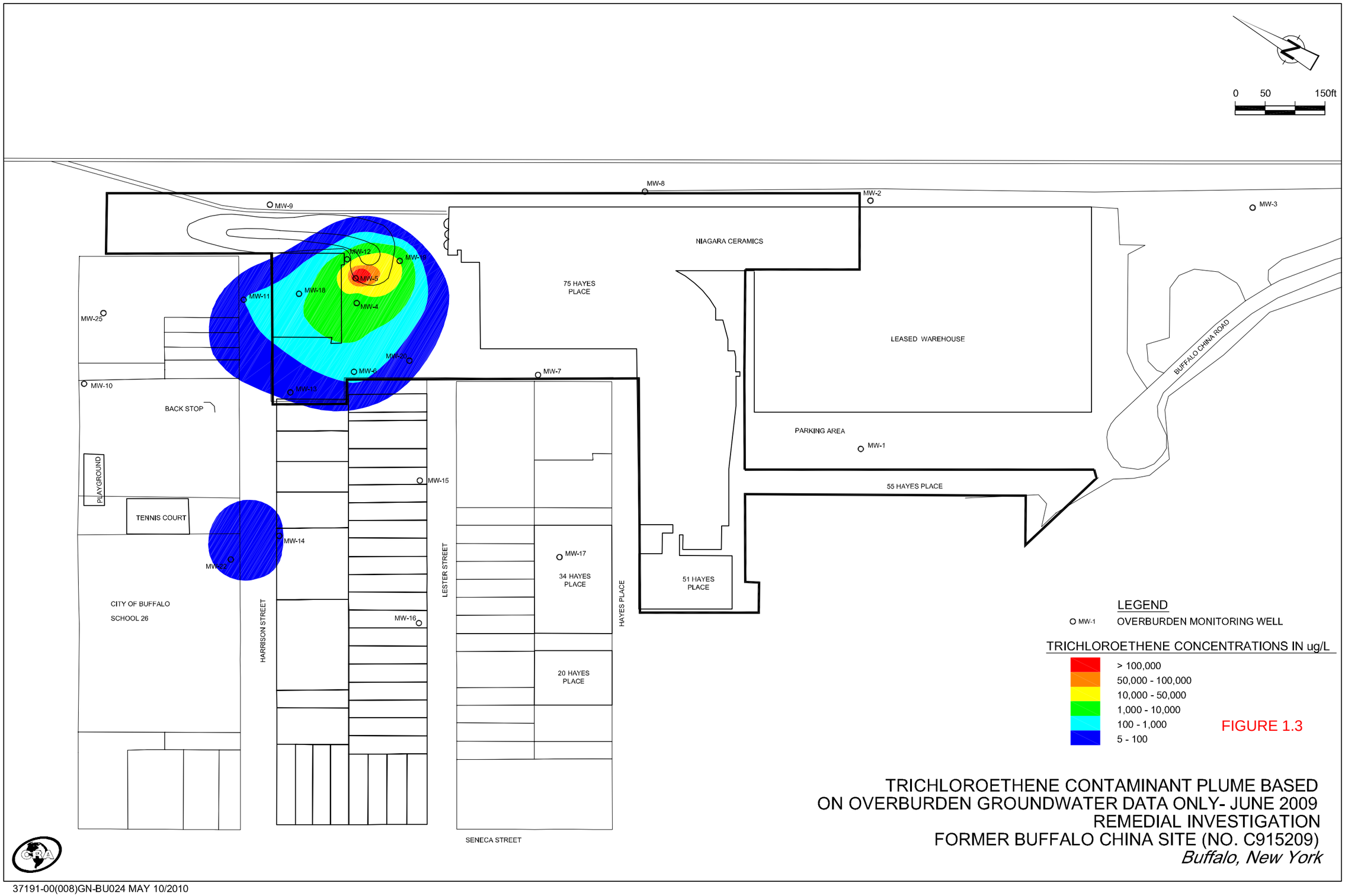

FIGURE 1.3

TRICHLOROETHENE CONTAMINANT PLUME BASED ON OVERBURDEN GROUNDWATER DATA ONLY- JUNE 2009 REMEDIAL INVESTIGATION FORMER BUFFALO CHINA SITE (NO. C915209)

Buffalo, New York

37191-00(008)GN-BU024 MAY 10/2010

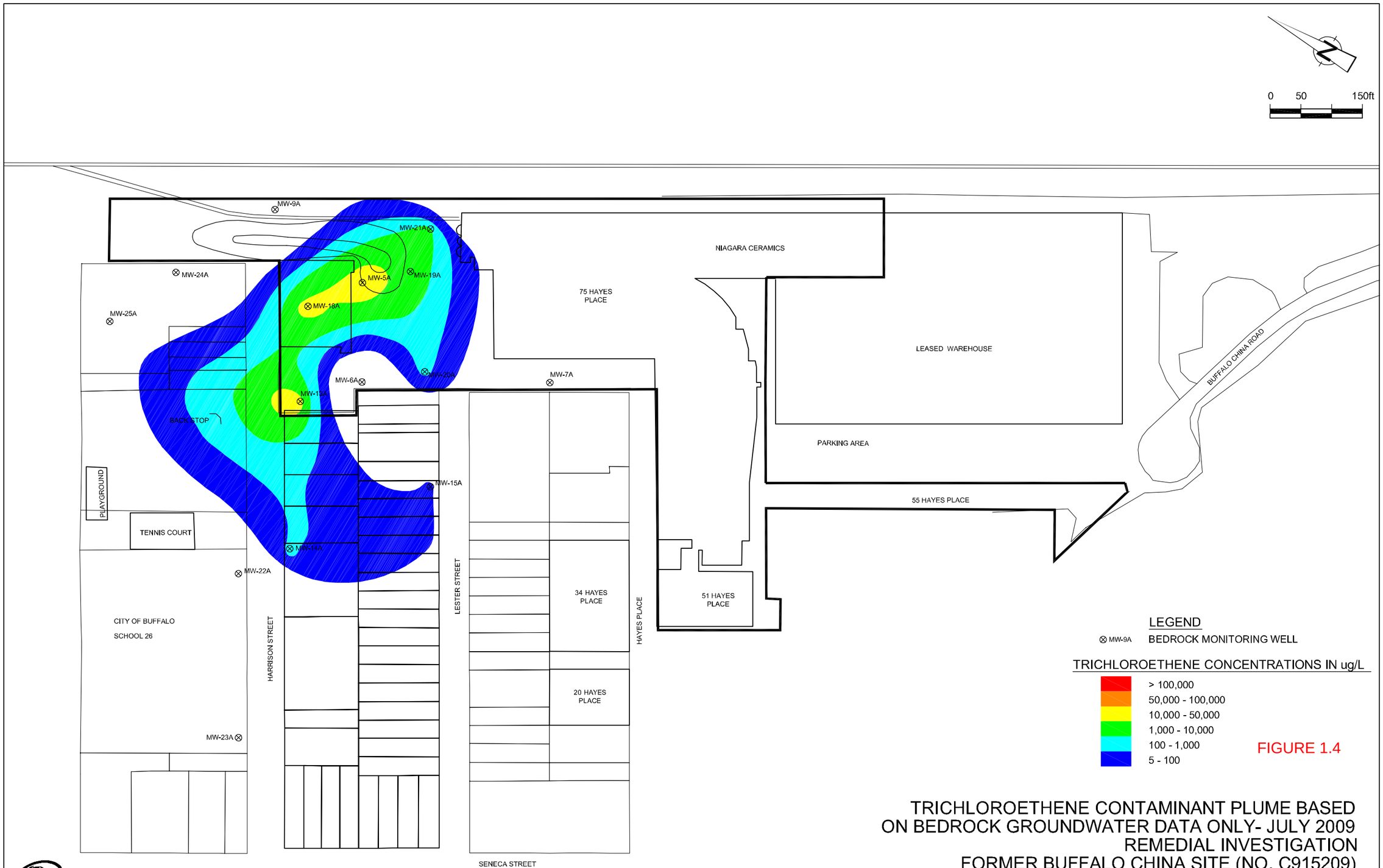

FIGURE 1.4

TRICHLOROETHENE CONTAMINANT PLUME BASED ON BEDROCK GROUNDWATER DATA ONLY- JULY 2009 REMEDIAL INVESTIGATION FORMER BUFFALO CHINA SITE (NO. C915209)

Buffalo, New York

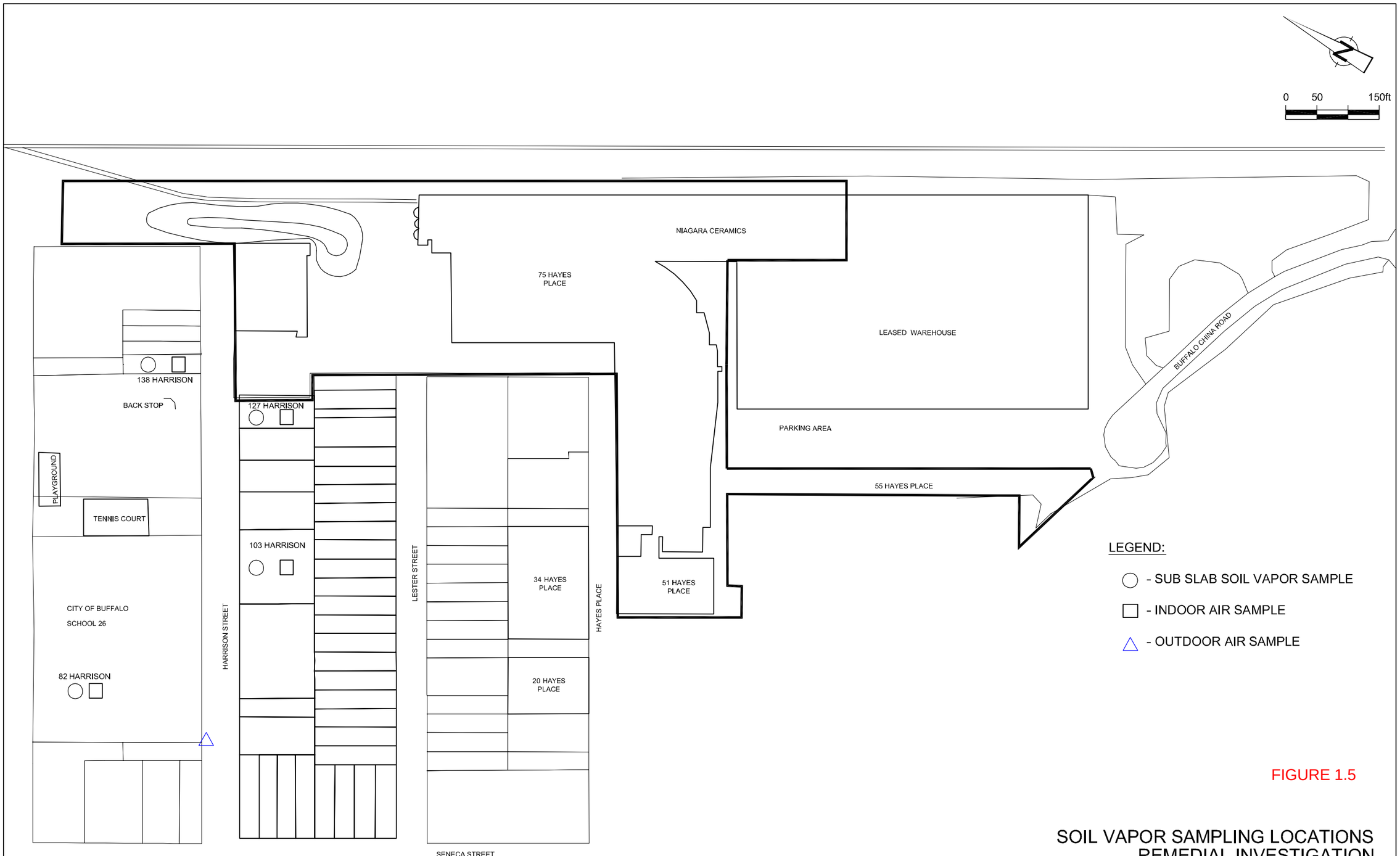

FIGURE 1.5

SOIL VAPOR SAMPLING LOCATIONS
REMEDIAL INVESTIGATION
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York

37191-00(008)GN-BU018 FEB 26/2010

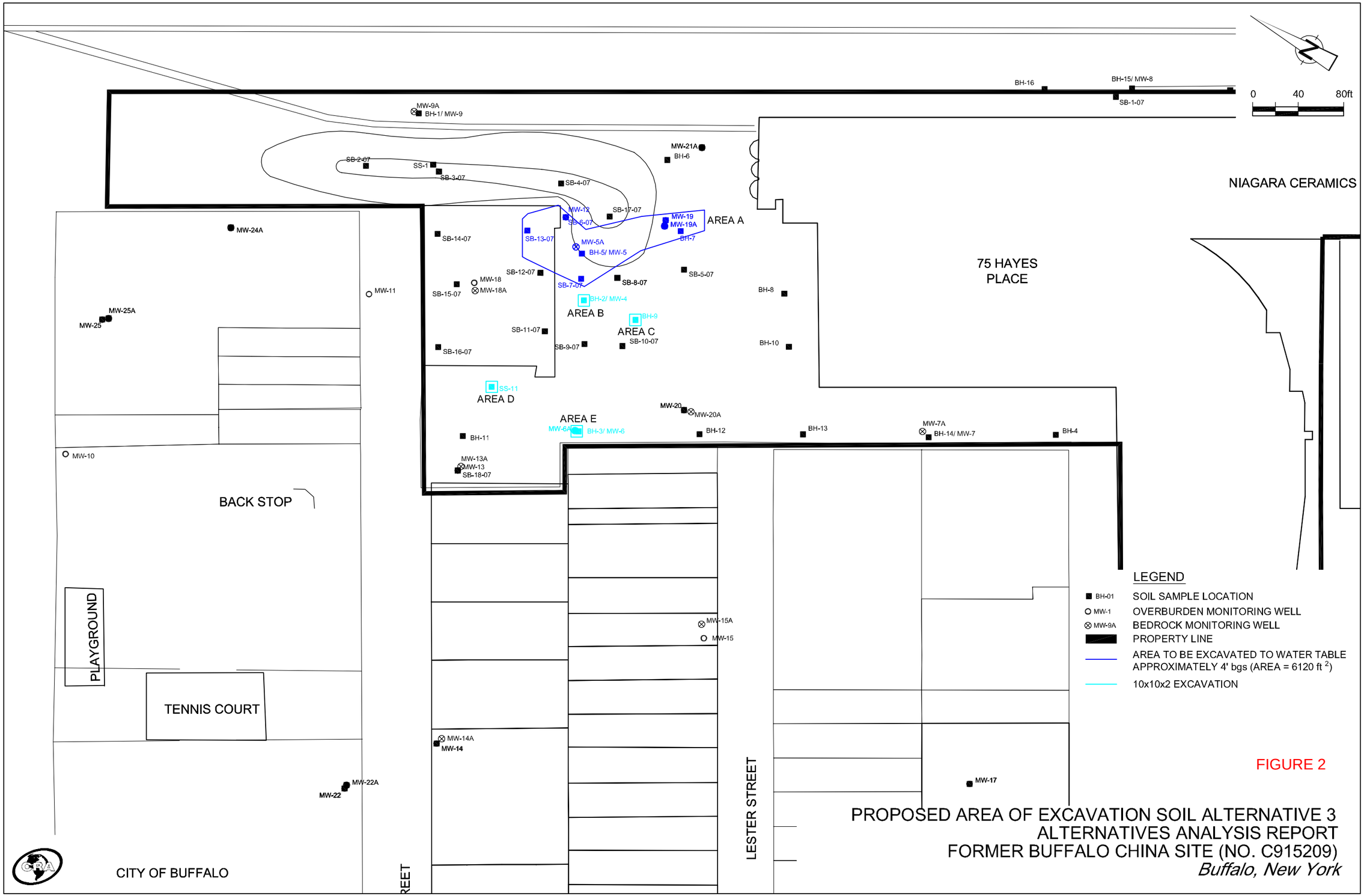

FIGURE 2

PROPOSED AREA OF EXCAVATION SOIL ALTERNATIVE 3
ALTERNATIVES ANALYSIS REPORT
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York

37191-00(009)GN-BU033 MAR 16/2010

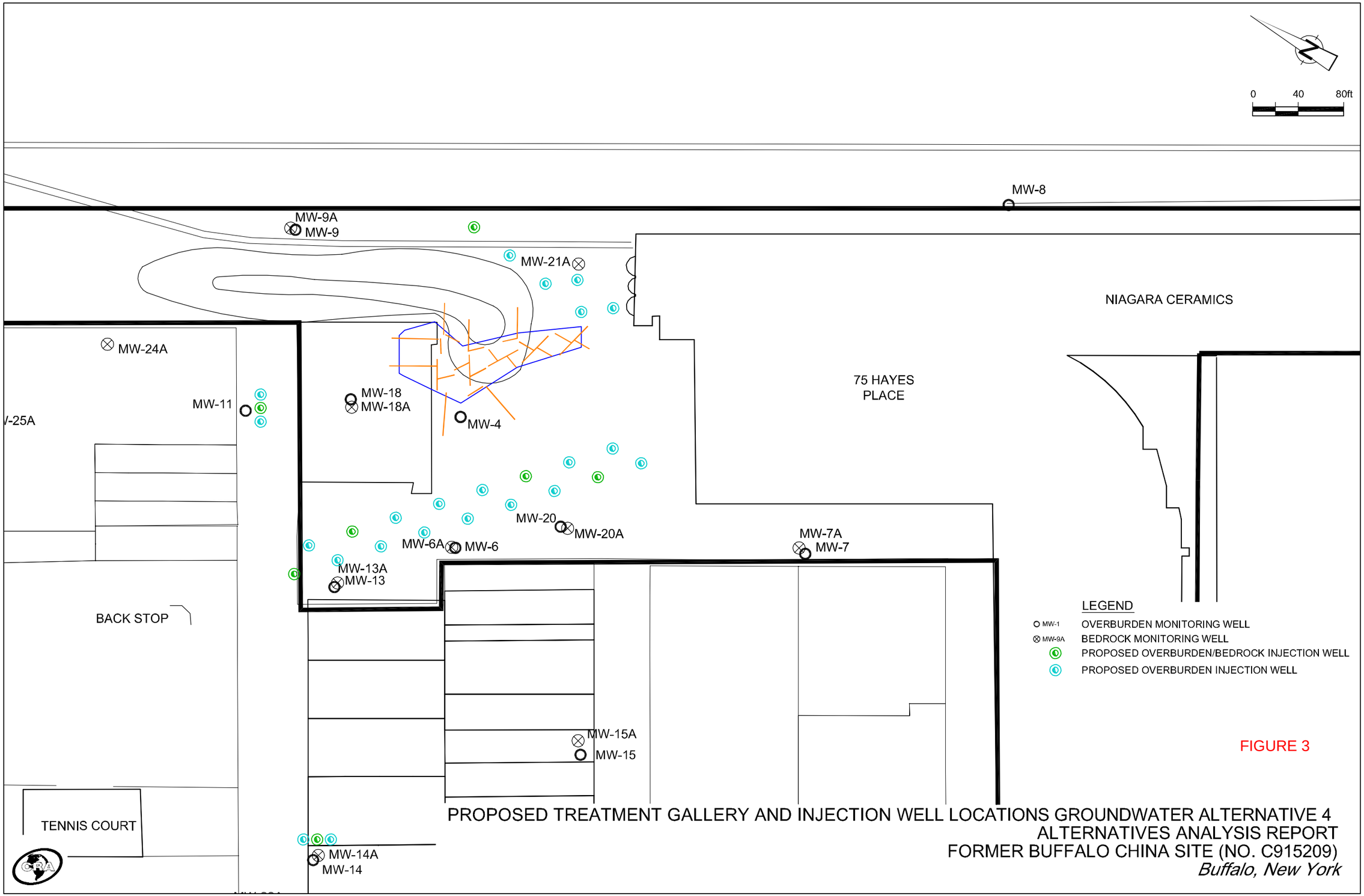

FIGURE 3

PROPOSED TREATMENT GALLERY AND INJECTION WELL LOCATIONS GROUNDWATER ALTERNATIVE 4
ALTERNATIVES ANALYSIS REPORT
FORMER BUFFALO CHINA SITE (NO. C915209)
Buffalo, New York

37191-00(009)GN-BU035 MAR 26/2010