Brownfield Cleanup Program
Final Engineering Report
For The
111 Hydraulic Street Project
Site No. C915235

Prepared For:

598 Main Street LLC
726 Exchange Street Suite 825
Buffalo, New York 14210

Prepared By:

AFI Environmental
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APRIL 2011

CERTIFICATIONS

I, _____, am currently a registered professional engineer licensed by the State of New York, I had primary direct responsibility for implementation of the remedial program activities, and I certify that the Remedial Investigation and Interim Remedial Measures (RI/IRM) Work Plan was implemented and that all construction activities were completed in substantial conformance with the Department-approved RI/IRM Work Plan.

I certify that the data submitted to the Department with this Final Engineering Report demonstrates that the remediation requirements set forth in the Remedial Action Work Plan and in all applicable statutes and regulations have been or will be achieved in accordance with the time frames, if any, established in for the remedy.

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, _____, of [business address], am certifying as Owner's Designated Site Representative (and if the site consists of multiple properties): [and I have been authorized and designated by all site owners to sign this certification] for the site.

_____	_____	_____
NYS Professional Engineer #	Date	Signature

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LIST OF ACRONYMS

Acronym	Definition
AAR	Alternative Analysis Report
ACM	Asbestos Containing Materials
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
CAMP	Community Air Monitoring Plan
COC	Certificate of Completion
C&D	Construction and Demolition
CP	Citizen Participation
CY	Cubic Yard
DUSR	Data Usability Summary Report
EBDI	Empire Building Diagnostics, Inc.
ELAP	Environmental Laboratory Accreditation Program
ESA	Environmental Site Assessment
EPA	Environmental Protection Agency
fbgs	feet below ground surface
FER	Final Engineering Report
HASP	Health and Safety Plan
IC	Institutional Controls
IRM	Interim Remedial Measure
NOI	Notice of Intent
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOL	New York State Department of Labor
PID	Photo-ionization
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objective
REC	Recognized Environmental Conditions
RI	Remedial Investigation
RSCO	Recommended Soil Cleanup Objective
SCO	Soil Cleanup Objective
SVOC	Semi-Volatile Organic Compound
SWPPP	Stormwater Pollution Prevention Plan
TAGM	Technical and Administrative Guidance Memorandum
TCL	Target Compound List
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

1.0 BACKGROUND AND SITE DESCRIPTION

The applicant, 598 Main Street LLC entered into a Brownfield Cleanup Agreement (BCA) (Site # C915235) with the New York State Department of Environmental Conservation (NYSDEC) in June 2010, to investigate and remediate a 2.02^{+}/- acre property located in the City of Buffalo, New York. The property was remediated to Restricted Residential level soil cleanup objectives (SCOs).

The site is located in the City of Buffalo, County of Erie, New York (See Figure 1). The 2.02^{+}/- acre Brownfield Cleanup Program (BCP) property is comprised of seven (7) contiguous Parcels as identified below.

797/799 Seneca Street – SBL No. 122.27.6.2

819 Seneca Street – SBL No. 122.27.6.3

111 Hydraulic Street – SBL No. 122.27.6.11

105 Hydraulic Street – SBL No. 122.27.6.10

742 Carroll Street – SBL No. 122.27.6.9

746 Carroll Street – SBL No. 122.27.6.8

764 Carroll Street – SBL No. 122.27.6.7

The site is bordered by Seneca Street to the north, Hydraulic Street to the west, Griffin Street to the east, and Carroll Street to the south (See Figure 2). The boundaries of the Site are more fully described in the Metes and Bounds description included in Appendix A.

A series of 'Limited' Phase II Environmental Site Assessments (ESAs) were completed by AFI Environmental (AFI) in June 2006 and April 2007 to assess Recognized Environmental Conditions (RECs) identified during the Phase 1 ESA which was completed by AFI and dated July 2004 (updated February 2010). The Phase 1 ESA identified RECs pertaining to the potential presence of underground storage tanks (USTs) at the site through visual observations of mounds, exposed piping and historical records, an open NYSDEC spill case, areas of concern including onsite disposal of metals and sand blasting waste, improper storage of petroleum products from gas tank removal and storage and off site (adjacent, up-gradient, and cross-gradient) areas of concern related to dry cleaning and commercial uniform cleaning operations.

Phase II ESA field activities were performed in June 2006 and April 2007 through the advancement of soil borings, hand auger investigations and the collection of soil samples for laboratory analysis. Test Pit installation was conducted in November 2009 and January 2010 to evaluate the condition of the soils to depth and to determine if USTs were buried at the site, exterior to the former 'Door Store' in the areas of concern.

Soil Sample analytical results indicated concentrations of Volatile Organic Compounds (VOCs), Polycyclic Aromatic Hydrocarbons (PAHs) and Arsenic, Barium, Chromium, Lead, and Mercury (metals) exceeding the New York State Department of Environmental Conservation Recommended Soil Cleanup Objectives (RSCOs) and NYSDEC BCP Track 1 Soil Cleanup Objectives.

Based on the results of these investigations, AFI recommended that a BCP application be submitted to the NYSDEC.

The Remedial Investigation/ Interim Remedial Measures (RI/IRM) Work Plan was approved by the NYSDEC on August 10, 2010. The NYSDEC Division of Environmental Remediation monitored the IRM activities to verify the work was performed in accordance with the BCA, the approved Work Plan, and DER-10.

An electronic copy of this FER with all supporting documentation is included as Appendix U.

2.0 SUMMARY OF SITE REMEDY

2.1 REMEDIAL ACTION OBJECTIVES

Based on the results of the Remedial Investigation (RI), the following Remedial Action Objectives (RAOs) were identified for this site.

2.1.1 Groundwater RAOs

RAOs for groundwater include:

- Prevent ingestion or direct contact with groundwater containing concentrations of contaminants exceeding groundwater quality standards.

2.1.2 Soil RAOs

RAOs for soil/fill include:

- Removal of certain impacted soil/fill to levels protective of human health (Part 375 Restricted Residential SCOs)
- Prevention of ingestion or direct contact with soil/fill that contains chemicals of potential concern above Part 375 Restricted Residential SCOs.

RAOs for Environmental Protection:

- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota due to ingestion/direct contact with contaminated soil that would cause toxicity or bioaccumulation through the terrestrial food chain.

2.1.3 Surface Water RAOs

RAOs for Public Health Protection:

- Prevent ingestion of contaminated water.

RAOs for Environmental Protection:

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

2.2 DESCRIPTION OF INTERIM REMEDIAL MEASURES (IRM)

The site was remediated in accordance with RI/IRM Work Plan (August 2010). The following remedial work was completed as an IRM. The factors considered during the selection of the remedy are those listed in 6NYCRR 375-1.8. The following are the components of the IRM:

1. Asbestos Survey for Asbestos Containing Materials (ACMs) in accordance with NYSDOL Code Rule 56 and EPA Protocols of:
   a. Single family residence at 746 Carroll St;
   b. Former 'Good Door Store' Building at 797 Seneca St;
   c. 111 Hydraulic (residential 2-car garage)
2. Asbestos Abatement of ACMs in accordance with NYSDOL Code Rule 56 and EPA Protocols of:
   a. Single family residence at 746 Carroll St;
   b. Former 'Good Door Store' Building at 797 Seneca St;
3. Inventory, consolidation, collection and disposal of discarded automobile gas tanks, auto and truck parts, 20# propane tanks, lubricating oils, paints, coatings, flammable liquids, roof coatings and other miscellaneous wastes;
4. Inventory, consolidation and removal of leaking drums re-packed into over-pack containers;
5. Demolition and removal of all buildings and structures including the removal of: underground and overhead utilities, concrete footers, foundations, floor pads, driveways, and parking lots;
6. Recycling of approximately 2660 tons of clean concrete and asphalt removed from the paved parking areas, building footers, foundation walls and concrete floor slabs;
7. Testing, pumping and disposal of liquids and sludge from USTs by NOCO Recovery and Safety-Kleen;
8. Cleaning and removal of eleven (11) Underground Storage Tanks (USTs);
9. Closure of Historic Petroleum Spill # 0650564 through the cleaning of the concrete UST Tank Vault, removal of approximately 1,400 tons of petroleum impacted soils, and sampling of the clean vault floor;
10. On-site excavation of impacted soil/fill which began by the removal of the concrete floor slab, from the buildings; followed by scraping and disposal of 6" to 18" of visually impacted surface soil from the entire site. Initially the excavation was conducted in phases and extended to the depth limits identified in the RI/IRM Work Plan with additional depth of soil excavation in the areas identified as 'hot spots'. Once the depth of excavation had achieved the limits as outlined in the RI/IRM Work Plan; investigative soil sampling and visual observation of the excavated areas was conducted. The initial results of the visual observations and testing were unacceptable. As such, the Applicant made the decision to expand the lateral and vertical limits of the excavation across the entire site until a visually clean bottom of native soils (clay) was exposed and until the excavation had extended past the property lines on all sides of the site.

This resulted in the excavation and disposal of over 14,630 tons of material and a clean (native clay) floor to the excavated area;

11. Upon completion of the excavation activities (exposing clean native clay) post excavation soil sampling was conducted. All post excavation soil samples were collected from the floor of the excavation utilizing a grid, approved by the DEC, to determine the location of confirmatory sampling locations. Additionally, discrete samples were collected for analysis from the walls of the excavation, (now located offsite) as per the DEC's direction (See Tables 3a and 3b respectively);
12. Placement and Compaction of approved backfill and establishment of temporary, positive drainage to reduce potential for pooling water in low areas.

Upon completion of the planned IRM activities and the additional lateral and vertical excavation conducted at the site, no additional remedial work is required to meet Restricted Residential SCOs. This condition is confirmed by the Remedial Investigation/Alternative Analysis/ Interim Remedial Measures Report (RI/AAR/IRM) included in Appendix B.

3.0 INTERIM REMEDIAL MEASURES REMEDIAL CONTRACTS

The remedy for this site was performed as a single project, and no other interim remedial measures, operable units or separate construction contracts were performed for which Construction Completion Reports were prepared. Details of the IRM activities are included in Section 4.0

4.0 DESCRIPTION OF INTRERM REMEDIAL ACTION

The remedial work, which was completed at the Site as an IRM, was conducted in accordance with the NYSDEC-approved RI/IRM Work Plan for the 111 Hydraulic Street Site (August 2010), as summarized in Section 2.0, above.

Based on the above, the RI/IRM Work Plan became, in essence, the Remedial Action Work Plan. Any deviations from the RI/IRM Work Plan are noted in section 4.8.

4.1 GOVERNING DOCUMENTS

4.1.1 Site Specific Health & Safety Plan (HASP)

All remedial work performed under this Remedial Action was in full compliance with governmental requirements, including site and worker safety requirements mandated by Federal OSHA.

The site specific Health and Safety Plan (HASP) was complied with for all remedial and invasive work performed at the Site. A copy of the HASP was included in Appendix B of the NYSDEC approved RI/IRM Work Plan.

Mr. Elby Benton served as the on-site Health and Safety Officer throughout the field program. This person reported directly to the Project Manager.

4.1.2 Quality Assurance Project Plan (QAPP)

The QAPP was included as Appendix A of the RI/IRM Work Plan approved by the NYSDEC (August 2010). The QAPP describes the specific policies, objectives, organization, functional activities and quality assurance/quality control (QA/QC) activities designed to achieve the project data quality objectives.

4.1.3 Community Air Monitoring Plan (CAMP)

A Community Air Monitoring Plan (CAMP) that described particulate and vapor monitoring to protect the neighboring community during intrusive site investigation and remediation activities was included in the approved RI/IRM Work Plan (August 2010). The CAMP was included as part Appendix C of the department approved RI/IRM Work Plan.

Routine (half-hour) Community Air Monitoring was performed during intrusive site activities, using an EntryRAE 3000 PID and a Lighthouse 3016 Particulate meter. Results of the CAMP

monitoring related to remedial activities are included in Appendix O.

4.1.4 Storm-Water Pollution Prevention Plan (SWPPP)

The erosion and sediment controls for all remedial activities were performed in conformance with the requirements presented in the New York State Guidelines for Urban Erosion and Sediment Control and the site-specific Storm Water Pollution Prevention Plan for IRM Soil Remediation & Excavation, prepared by Advanced Design Group Professional Engineering, P.C., on August 23, 2010.

A Notice of Intent (NOI) was submitted to the NYSDEC's Division of Water for soil remediation activities under the BCA for 111 Hydraulic Street Project Site No.: C915235 on August, 9, 2010.

Stormwater and surface water/rain/snow melt that entered the excavation was collected in a sump constructed at the low end of the excavation. In general, the water was observed to be visibly 'clean' and free of any extensive sheen. The sump water was pumped from the sump to the existing onsite drainage inlet as per the SWPPP.

4.1.5 Community Participation Plan

The NYSDEC has coordinated and led community relations throughout the course of the BCP project. The applicant and AFI have supported the NYSDEC's community relation activities as necessary. A Citizen Participation (CP) Plan was included as Appendix D of the Department-approved RI/IRM Work Plan (August 2010). The CP Plan followed the NYSDEC's template for BCP sites.

As required for BCP sites, copies of the BCP application, RI/IRM Work Plan, including the HASP, CP and QAPP, for the site were provided to the County of Erie: Buffalo & Erie Public Library, 1 Lafayette Square, Buffalo, New York for public review.

Fact Sheets were prepared and mailed to the Department's approved Citizen Participation distribution list. A copy of the Fact Sheets issued to date are provided in Appendix C.

Once the NYSDEC approves the Final Engineering Report, a final Fact Sheet will be prepared and distributed to announce that (1) remediation has been completed; and (2) the Certificate of Completion (COC) has been issued.

4.2 REMEDIAL PROGRAM ELEMENTS

4.2.1 Contractors and Consultants

AFI Environmental served as the Engineer of Record. The following contractors also completed various tasks as noted:

- Advanced Design Group designed and certified the stormwater pollution prevention plan (SWPPP) for the remedial excavation activities on the site.
- Diamond Hurwitz Scrap Co. (Scrap Processor License No. 508912) transported eleven (11) USTs and associated piping to their Buffalo scrap yard for metal recycling located at 267 Marilla Street, Buffalo, 14220. All USTs were inspected and cleaned by AFI Environmental prior to offsite transport.
- Empire Building Diagnostics Inc. (EBDI) provided asbestos abatement services (NYSDOL License No. 29326), demolition of onsite structures, remedial excavation equipment and operators for soil/fill/debris, and spreading and compaction of certified clean fill.
- IsleChem, LLC. (NYSDOH ELAP ID No. 11862) performed air sample and soil sample analysis related to the RI and IRM activities. Islechem, LLC also performed the Asbestos survey and third party abatement Project Monitoring to EBDI for the abandoned residential structure located at 764 Carroll Street and the former 'Door Store' building located at 797 Seneca Street (NYSDOL Asbestos License #29449).
- Lawrence J. Zygaj, PLS, PC, a NYS Licensed Land Surveyor, performed all stakeout, cut and fill documentation and produced all topographic maps for the project (License 049714-1).
- LCA Development and Boehmer Transportation supplied No. 1, No. 2 and No. 3 stone and gravel acquired from Buffalo Crushed Stones Plant 23 Wehrle Drive Quarry for stormwater control, drainage and driveways/parking areas.
- McEwen Trucking and Gravel Products, Inc. delivered certified compactable back fill material from their permitted gravel pit (NYSDEC Site No. 90489) located at 10782 Sharp Street, East Concord, NY 14055.
- Nature's Way Environmental Consultants and Contractors, Inc. installed overburden and bedrock monitoring wells as part of the RI. Nature's Way's licensed Geologist classified soils and prepared boring logs and well installation logs.
- NOCO Distribution, LLC (NYSDEC Permit No. 9A-430) conducted pre-disposal sampling, pumped, transported, and disposed of approximately 10,346 gallons of oil/water mix from the 15,000 gallon No. 6 fuel oil tank to their Tonawanda, NY location (NYSDEC Permit No. 9-1464-0009/00046).
- Paradigm Environmental Services, Inc. (NYSDOH ELAP ID No. 10958) performed soil sample analysis related to the RI and IRM activities.
- Phoenix Environmental Laboratories, Inc. (NYSDOH ELAP ID No. 11301) performed soil

and groundwater sample analysis related to the RI and IRM activities.

- Safety-Kleen (NYSDEC Permit No. SC-017) assisted with inventory, consolidation, transportation and disposal of four (4) drums and seven (7) small containers of various lubricants, spent solvents, paints, coatings, flammable liquids and other miscellaneous household hazardous wastes collected from within the 'Former Door Store' building prior to demolition; and collection and disposal of approximately 355 gallons of residual fluids from three (3) USTs (USTs No. 4, 5 & 6).
- Zoladz Trucking (NYSDEC Permit No. 9A-499) transported contaminated soil/fill/debris for disposal at Waste Management's MSW landfill located in Chaffee, NY (NYSDEC Permit Number 9-1462-0000100006).

4.2.2 Site Preparation

Prior to intrusive activities, Dig Safe New York was notified of the areas of planned excavation and a pre-excavation utility clearance request was made on August 19, 2010 for excavations expected to commence on August 24, 2010. AFI engineers reviewed the planned investigation locations to "pre-clear" on-site areas for sub-grade utilities and production-related lines. Utility marker layout was completed prior to initiation of intrusive activities on August 24, 2010.

Documentation of agency approvals required by the RI/IRM Work Plan is included in Appendix T.

Two (2) NYSDEC-approved project information signs were erected at the project entrance along Hydraulic Street and along Seneca Street and remained in place during all phases of the remedial activities.

AFI mobilized, on August 24, 2010, to install stormwater drainage controls as per the detail of SWPPP prepared by Advanced Design Group (ADG). A pre-construction meeting was held by AFI and EBDI at the site on August 24, 2010.

The stormwater management control area was excavated, as designed, directing controlled flow towards the onsite drainage inlet (DI). The DI was cross drilled allowing for controlled flow of stormwater runoff to settle prior to discharge to the onsite receiver. The area was backfilled with #1 & #2 crusher run stone supplied by Buffalo Crushed Stone and delivered by LCA Development. The stormwater drainage system was completed as per ADGs detail drawing and photographed for the project record.

The planned remedies were phased and the phased areas were separated and controlled by protective fencing to allow for simultaneous activities. All intrusive phases were isolated until the collection of end point soil samples confirmed closure of that particular phase. Until confirmatory

soil analytical results documenting the removal of impacted soils to the achieved SCO were received, workers were restricted from these areas (exclusion zones).

An equipment/truck wash station was constructed onsite and a personal decontamination trailer unit was mobilized to the site for use by site personnel when leaving the exclusion area. Both decon systems were used on an as-needed basis.

Utilities (water, gas, electric, etc.) were disconnected to the residential structure at 764 Carroll Street and 797 Seneca Street. This included National Grid removing the onsite utility poles on the 797 Seneca Street property prior to the planned demolition activities.

An asbestos (ACM) survey and subsequent abatements were completed at the former 'Door Store' building and at the 1 ½ story abandoned single family residential structure. The ACM surveys were performed by Islechem, LLC and the pre-demolition ACM abatements were performed by EBDI.

Prior to building demolition, all waste materials were removed from the interior of the former 'Door Store' building by Safety-Kleen (see section 4.3.2.1)

EBDI demolished the former 'Door Store' building beginning on Saturday September 11, 2010, the 1 ½ story abandoned single family residential structure on Thursday, September 23rd, 2010 and the standalone garage on October 18th and 19th 2010. (See section 4.3.3)

4.2.3 General Site Controls

Temporary construction fencing was installed around the perimeter of the site leaving controlled ingress/egress points. A construction office trailer was established at the primary ingress point with signage requiring all visitors to sign in at the office before proceeding onsite. The daily exclusion zone was established and demarcated with temporary construction fencing by AFI and moved as excavations expanded. A Photo Ionization Detector (PID) was used to monitor VOC levels up and downwind of the site as per the CAMP Plan. All excavation work was overseen by an experienced AFI scientist.

AFI personnel completed Daily Site Notes to keep track of daily activities, on site visitors, contractors and any deviations from the RI/IRM work plan as related to the remedial activities. Copies of the daily notes are presented in Appendix F.

Waste characterization soil samples were collected for both metal and petroleum contaminated soils and submitted for analysis. An equipment/truck decontamination station was constructed onsite for decontamination of vehicles prior to leaving the site and a separate personal decontamination trailer was installed for use by site personnel on an as-needed basis. First-Aid kits and eye-wash stations were installed in the Project Office Trailer and Personal Decontamination Unit.

A schedule for conducting Safety Meetings was established as part of the HASP. Air monitoring, including employee breathing zone, background and work area was conducted to create a Negative Exposure Assessment (NEA) for employees working in the exclusion area during regular remediation activities to ensure safe levels of airborne metal contaminants as per OSHA. Exclusion areas were delineated by temporary construction fence which mimicked the phasing of the project.

Access to the Exclusion Area was controlled by AFI. In addition to the requirements for visitors to sign in/out when entering the Site, all workers entering the Exclusion Area were required to sign in/out of the exclusion area and were informed of the Site Specific Health and Safety Plan.

All project records were available onsite in the construction office trailer during all phases of the Remedial Action.

4.2.4 Nuisance Controls

- A hydrant permit (#1769) was acquired from the City of Buffalo for the use of city hydrants, affixed with fire hoses, to water the site during excavation and demolition activities as a means of dust control.
- A temporary truck/tire decon area was constructed and used to decon trucks and equipment on an as needed basis.
- The site was excavated in a manner which allowed trucks to enter on stone and/or concrete as another means to control dust.
- A 'Bobcat' skid steer with rotating street brush was used to clean truck egress points on city streets during excavation and backfilling activities on an as needed basis.
- Site access was controlled by a temporary construction fence, supplied and erected by EBDI around the entire perimeter of the site. The site remained secure through the submittal of this report.
- All guests and visitors were required to sign in at AFI's Mobile office trailer. OSHA required Safety Signs were affixed to the fence.
- No odors were generated during IRM activities which required odor controls.
- No nuisance complaints from the public were received during IRM activities.

4.2.5 CAMP Results

AFI conducted community air monitoring in accordance with NYSDEC TAGM 4031 Fugitive Dust Suppression and Particulate Monitoring. Air monitoring was conducted both upwind and downwind of the excavation activities, using an EntryRAE PID (Serial Number 180-902011) to

continuously monitor for VOCs and a Lighthouse 3016 IAQ Particulate Meter (Serial Number 071144005) to monitor particulates In addition two (2) BDX II air sample pumps were placed daily in upwind and downwind locations during intrusive activities and the samples collected were analyzed for Arsenic, Barium, Chromium and Lead in air (which were the metals detected during soil sampling as part of the RI)

All monitoring results for VOCs, Particulates and Metals conformed to the CAMP perimeter particulate requirements of 100 ug/m^3 and the organic vapor requirement of less than 5 parts per million (the EntryRAE was calibrated daily at start up).

In one instance visible dust was observed during the building demolition. As a result, excavation activities were curtailed until the water spray was increased to mitigate this fugitive dust from migrating off-site.

Copies of all field data sheets and metals in air laboratory analysis relating to the CAMP are provided in Appendix O.

4.2.6 Reporting

AFI completed Daily Notes during RI/IRM activities while onsite for activities from August 24, 2010 through February 4, 2011. All daily site notes are presented electronically in Appendix F. The photo log of RI/IRM activities is included in electronic format in Appendix G.

4.3 CONTAMINATED MATERIALS REMOVAL

4.3.1 Asbestos Abatement

An ACM survey and subsequent abatements were completed at the former 'Door Store' building and at the 1½ story abandoned single family residential structure. The ACM surveys were performed by Islechem, LLC and the pre-demolition ACM abatements were performed by EBDI (NYSDOL License No. 29326).

Ten (10) linear foot of Air-Cell pipe insulation and 1,160 square foot of Vinyl Asbestos Floor Tile were removed from the former 'Door Store' building located at 797 Seneca Street on Thursday, August 19, 2010.

Two-hundred (200) square foot of Vinyl Asbestos Floor Tile was removed from the residence at 764 Carroll Street on Tuesday, September 7, 2010.

All asbestos abatement activities and waste transportation was performed by EBDI (NYSDEC Permit No. 9A-329). Asbestos waste was disposed of at Allied Waste Niagara Falls Landfill, LLC

(Solid Waste Management No. 32S11) located at 5600 Niagara Falls Blvd., Niagara Falls, New York. Asbestos inspection and closeout documents are included in Appendix D.

4.3.2 Waste Material Removal

AFI inventoried, collected and staged, on 6 mil plastic sheeting, automobile gas tanks, auto and truck parts, various containers of lubricating oils, paints, roof coatings and tar, flammable liquids, sealants, degreasers, antifreeze, 20# propane bottles and household aerosol cans from inside and outside of the former 'Door Store' building. Prior to demolition, these abandoned materials were inventoried, sorted and prepared for transportation and proper disposal by Safety-Kleen.

4.3.2.1 Drum/Container Disposal Details

One (1) 55 gallon drum of racing fuel, One (1) 55 gallon drum of paint and paint thinners, One (1) 55 gallon drum of roofing tar, One (1) 55 gallon drum of aerosols, one (1) 10 gallon poly container of waste gasoline, one (1) 10 gallon steel container of ZEP Formula 166, One (1) 5 gallon poly container of anti-freeze, One (1) 5 gallon poly container of maintenance motor and lubricating oil, One (1) 5 gallon poly container of cleaner degreaser, One (1) 5 gallon poly container of foam sealant, and one (1) 5 gallon steel container of aluminum roof coating were inventoried, over packed, containerized and disposed of by Safety-Kleen (NYSDEC Permit No. SC-017) at their 3700 Lasrange Road, Smithfield, Kentucky and 109 Connecticut Drive, Burlington Industrial Park, New Jersey facilities. Disposal receipts are included in electronic format in Appendix M.

Three (3) drums of RI well drilling spoils were emptied into soil/fill stockpiles which were hauled as non-hazardous contaminated soil to Waste Management, Inc's Landfill located at 10860 Olean Rd, Chaffee, New York.

4.3.3 Building Demolition

EBDI used two (2) track mounted excavators to demolish the former 'Door Store' building beginning on Saturday, 9/11/10. The building demolition debris was sorted for recyclables and waste. Metals, brick/block and unadulterated wood were sorted from waste debris for recycling/reuse. The waste debris was taken to Allied Waste Services Niagara Falls Landfill. The concrete floors and footers were left intact as per EBDI's demo contract with the client (removed later as part of the IRM).

The abandoned 1½ story single family residential structure was demolished and live loaded into a walking floor trailer by EBDI on Thursday, September 23, 2010 for disposal at Allied Waste Services Niagara Falls Landfill.

The standalone garage at 111 Hydraulic Street was demolished by EBDI on October 18th and 19th 2010. The building was stripped by hand leaving only the garage frame which was then knocked down with a track excavator. The building was sorted and disposed of offsite at Allied Waste Services Niagara Falls Landfill.

4.3.4 Concrete and Asphalt Removal

After the building demolition, and to gain access to the impacted soils, a concrete slab (former 'Door Store' building floor), footers, basement walls, and asphalt parking areas were removed. The concrete varied in thickness. The majority of the concrete was about 6-8 inches thick and was removed using a Komatsu 200LC excavator. Thicker areas of concrete (1-2 feet), which consisted primarily of old building footers and subsurface basement walls, were broken up with an excavator mounted rock buster, prior to removal from the site.

Approximately 2,660 tons of concrete and asphalt were broken up on-site and transported to Southport Rail and Transfer, LLC (Permit #15W51) and Battaglia Demolition Processing Facility (Permit #15W31) C&D processing facilities, for recycling, via 133 tri-axle dump trucks loads. See Appendix L for Tabulated Load Summaries.

4.3.5 Excavation and Disposal of Impacted Soil/Fill

Impacted soil excavation, testing, and loading for disposal began on Monday, August 30, 2010 under the direction and continuous observations of AFI's project managers and field engineers/ scientists. Excavation and loading was completed by EBDI operators utilizing two (2) track mounted excavators, skid-steer and two (2) crawler/dozers. All impacted soils were loaded in to Zoladz Trucking Inc.'s, tandem-axle, dump trucks (NYSDEC Permit No. 9A-499). Each load was accompanied by a properly executed waste manifest which included; date, description of the material (contaminated soil), the signature of the generator, the shipper (truck number and operator), and the intended disposal site. All impacted soil was shipped to Waste Management Inc's (WMI) Chaffee Landfill, located in Chaffee, NY. (See Appendix J for Landfill Approval and Appendix M for copies of Shipping Manifests).

Initially, the site remedy (excavation and offsite disposal) proceeded in phases (see Figure 3) with excavation of surface soils to the depths identified in the IRM Work Plan, including the additional excavation in areas previously identified as "hot spots" (petroleum impacted soils). The planed excavation included the removal of the upper 6"-18" of material across the entire site, it also included the initial excavation of 'hot-spot' areas to a depth of 4'-6' bg; and it opened and exposed for observation and excavation, previously unseen nuisance soils lying beneath the floor slab of the

preexisting building. These areas were excavated 18”-24”.

Upon completion of planned excavation in each of the initial phases; DEC supervised soil sampling was conducted in accordance with the RI/IRM. The purpose of the sampling was to complete the RI consistent with the WP and to document the level of cleanup achieved by the IRM and to evaluate potential alternatives if the remedial cleanup goals had not been met. Based on the analytical results collected after the initial phases of excavation, the Applicant made the decision to expand the lateral and vertical limits of the excavation to remove all visually impacted soils. The Department was advised of the increased expansion of the excavation during discussions of the RI/IRM sampling results. The IRMWP was amended to allow for removal of all soils exhibiting nuisance characteristics. Excavation was expanded until a visually clean bottom of native soils was exposed in all areas across the site. The lateral limit of excavation was extended in all directions so that sidewalls of the excavations were positioned outside the property boundary. This resulted in the excavation of and disposal of over 14,630 tons of soil/fill material. (Approximately 1,400 tons of the impacted soil was directly associated with the closure of DEC Petroleum Spill # 0650564)

Upon completion of the expanded IRM excavation activities, post excavation soil samples were collected from the floor of the excavation. The onsite confirmatory sample locations were selected using a grid pattern approved by the DEC program manager. Additionally, discrete samples were collected for analysis from the four (4) sidewalls (offsite) as per the DEC’s direction. This verification sampling resulted in the confirmation of the Applicant achieving Track 2 Restricted Residential SCOs across the site.

4.3.5.1 Soil/Fill Disposal Details

A total of fifteen (15) waste characterization samples were collected, prior to disposal, to properly characterize the soils for acceptance and disposal at Waste Management Inc’s (WMI) Chaffee, NY Landfill. (See Table 4 for Waste Characterization Analytical Results and Appendix J for Department approval letters for soil disposal)

A total of 14,630 tons of impacted soils were transported by Zoladz Trucking (NYSDEC Permit No. 9A-499) for disposal. Each truck load of contaminated soil leaving the site for WMI’s Chaffee landfill received a waste manifest, which was tracked by AFI personnel showing; date, generator, type and description of waste, transporter, and disposal site. AFI personnel also logged trucks and workers/drivers in and out of the site, tracked the truck and manifest ticket numbers, and confirmed disposal tonnages for each load. Electronic copies of all soils disposal manifests are included in Appendix M.

4.3.6 UST Removal and Closure of NYSDEC Spill Number 0650564

On Thursday, September 30, 2010, three (3) USTs, all part of a large, interconnected, T-shaped, concrete-lined, tank farm were uncovered during soil excavation activities.

- UST #1 - Previously 'closed in place', filled with bentonite and estimated at approximately 5,000 gallon capacity;
- UST #2 - Previously closed in place filled with bentonite and estimated at approximately 8,000 gallon capacity;
- UST #3 - Total capacity of 15,000 gallons which contained 10,346 gallons of #6 fuel oil /water mix was sampled by both AFI and NOCO Distribution, LLC in tank prior to pumping, cleaning and disposal of the tank and its contents.

Previously 'closed in place' UST#1 and UST#2 were cleaned, scraped, double rinsed with high pressure steam and inspected prior to being shipped offsite for recycling.

USTs#4, #5, and #6, previously 'closed in place', were discovered just west of the former courtyard under the concrete floor slab and footer of the former 'Door Store' building. The capacity of each of the three (3) USTs was approximately 200 gallons each. All residual fluids were removed by Safety-Kleen and pumped into two (2) 330 gallon holding tanks while analytical test results were being conducted on the contents. A total of 355 gallons of fluid was containerized and properly labeled for shipping from the three (3) USTs.

Three (3) 100 gallon capacity vertically staged, 'closed in place' USTs (UST#7, $8, and #9) were removed from a sealed section of the concrete tank farm vault. These USTS were discovered just to the north of UST#1 (See Figure #4 for UST Locations).

One 100 gallon UST (UST #10) and one 300 gallon UST (UST #11) were discovered beneath the concrete floor slab of the former 'Door Store'. Both USTs were previously closed in place and contained no fluid. Both tanks were emptied of their soil content, inspected, and shipped for recycling.

All USTs removed from the site were transported to Diamond Hurwitz Scrap, LLC for metal recycling.

4.3.6.1 UST Liquid Disposal Details

NOCO Distribution, LLC (NYSDEC Permit No. 9A-430) of Tonawanda, New York transported and disposed of approximately 10,346 gallons of liquid water/oil mix from UST #3, the 15,000 gallon No. 6 fuel oil tank.

Safety-Kleen pumped and disposed of 355 gallons of residual fluids from USTs No. 4, 5 and 6.

The fluids were collected in two (2) 330 gallon plastic totes and sampled prior to disposal by Safety-Kleen (NYSDEC Permit No. SC-017).

4.3.6.2 Closure of NYSDEC Spill Number 0650564

During the RI/IRM excavation activities, a number of USTs were unearthed as described above (UST#1 through UST #11). Upon discovery, each UST encountered was inspected, and if necessary, sampled, pumped, cleaned of content and then prepared for recycling. During these activities, it was determined that UST#3 was the source of the previously reported (historic) NYSDEC Spill number 0650564.

The spatial extent of contamination was restricted to the area within the concrete UST vault formed by the foundation walls. The dimensions of the UST vault and the resulting final excavation depth (to clean virgin soils) was shaped in the form of a large 'T' with the leg dimensions 102' x 18' and each cross wing measured 18' x 32'. All visually impacted soils contained within the concrete sidewalls of the UST tank farm were removed to a depth of 17.5 feet bg. A total of 1400 tons of impacted soils were transported for disposal to Waste Management Inc's Landfill in Chaffee, NY.

Excavation for Spill Number 06506564 was completed on October 12, 2010. NYSDEC program representative, Mr. Jaspal Walia P.E., was contacted to inspect and confirm that the floors and concrete sidewalls of the excavation were clean and all impacted soils were removed prior to backfilling. A composite sample, created from three (3) soil samples collected from the floor of the excavation under the direction of the NYSDEC representative, was submitted for analysis. No sidewall samples were collected due to the presence of the clean concrete foundation walls. AFI requested approval for the closure of the tank farm excavation and historic spill number prior to backfilling. Concrete footers and foundations were eventually removed and disposed of as C&D material during a later phase of the IRM. The composite sample identified as "sample ID: UST Tank Farm", was analyzed for 8260 STARS & 8270 STARS as per the DEC's field decision. The results were all below unrestricted SCOs and only contained trace levels of VOCs (16.2 ug/kg n-butylbenzene, 37.0 ug/kg of sec-butylbenzene, 28.4 ug/kg of n-propylbenzene and 14.0 ug/kg of Isopropylbenzene).The analytical results can be found in Appendix P.

4.3.7 On-Site Reuse

There were no materials reused or relocated on site as a result from the IRM activities. All impacted material was removed from the site.

4.4 IMPORTED BACKFILL

Virgin backfill materials were imported to the site from three (3) distinct sources. The

NYSDEC was notified of name and address of all source locations and a representative sample was collected and sent for analyses from each location; prior to delivery. Each source material was analyzed according to the methods and frequency outlined in the RI/IRM Work Plan.

Crushed Aggregate Stone (1 inch-3 inch) – 664.99 tons of virgin crushed aggregate material was imported from the properly permitted Buffalo Crushed Stone Wehrle Plant # 23, Quarry. AFI personnel sampled the material and submitted the sample to an approved laboratory for analysis. The samples were analyzed in accordance with the requirements of RI/IRM Work Plan for TCL VOCs, TCL SVOCs, pesticides, PCBs, and TAL metals plus cyanide.

Compactable Fill – 13,299.55 tons of virgin compactable fill was imported from McEwen Trucking and Gravel (Mine -NYSDEC 90489). This material was sampled by AFI personnel and analyzed by an approved lab according to the procedure outlined above and in concert with the RI/IRM WP prior to being utilized.

Clay Fill – 200 cubic yards of virgin, clean clay fill was imported from Viscose Contracting. AFI sampled the virgin material at the source and analyzed the samples in accordance with the requirements of RI/IRM Work Plan. Since this source was not a permitted mine location the frequency of sampling was increased. Ten (10) twenty (20) yard dump trucks delivered approximately 200 Cubic Yards of clean clay fill to the site. Each load was inspected to assure that the material was consistent with the texture, color and consistency of the source material.

Analytical Sampling Documentation is provided in Appendix R. A table of all sources of imported backfill with quantities for each source is shown in Table 7. Tables summarizing chemical analytical results for backfill, in comparison to allowable levels, are provided in Table 5.

4.5 CONTAMINATION REMAINING AT THE SITE

The 111 Hydraulic Building Site was remediated to soil contaminate levels which were confirmed to be consistent with Track #2, Restricted Residential SCOs. The achieved cleanup objectives are consistent with the goals of the BCP Agreement and intended future use of the site. All Residual contamination remaining at the site, which was recorded above the ***Unrestricted*** SCOs is at very low levels and is limited to a few Metals and limited location (See Table 3a and Figure 6 for a summary of exceedances and locations).

The entire site was excavated to a depth where native layer of clean clay was exposed (See Photos). On-site, verification soil sample results indicate the IRM cleanup achieved Track #2 Restricted Residential SCOs across the entire site. Most locations achieved Unrestricted SCOs; therefore, the minimal residual contamination remaining on-site does not warrant institutional or engineering controls or specific Environmental Easements.

Table 3b and Figure 7 show the off-site sample results. This table shows analytical results,

for samples collected just outside the property and project boundaries, most are sidewall samples collected from the limits of the excavation which was terminated just off the edge of the property. Some of these results are above restricted and unrestricted SCOs; however these exceedances are for sidewall samples collected outside the property boundary (See Figure 7) and reflect the remaining contamination beyond the limits of the excavation activities.

The intended use of the site does not require any Institutional Controls or Long-Term Management and thus no Site Management Plan is necessary.

4.6 BACKFILLING

The site was backfilled after the completion of RI/IRM activities to prevent pooling of surface water and promote positive drainage. Backfill cover is comprised of 1 foot to 17.5 feet of clean compactable fill, virgin, clean clay, and #1 and #2 stone aggregate. (see Figure 8 for Final Backfill Elevations)

4.7 OTHER ENGINEERING CONTROLS

The remedy for the site did not require the construction of any other engineering control systems.

4.8 DEVIATIONS FROM THE REMEDIAL ACTION WORKPLAN

The NYSDEC approved RI/IRM Work Plan stated that proposed excavation of impacted soils would be to a minimum 6 inches to 18 inches across the entire site, with possible excavation to a depth of 4 to 6 feet in previously identified 'hot-spot' areas. Three (3) 'hot-spots' associated with high VOCs and SVOCs beneath the concrete pad of the building were planned for excavation to a depth of 24 inches bg. All of the deviations discussed below are a result of the increased excavation and additional disposal of impacted soils or source material encountered at the Site, and include:

- **Increased depth of surface excavation-** Minimum excavation depth across the entire site was increased to 18 to 24 inches below grade (bg).
- **Increased UST and petroleum impacted soil removal-** multiple previously abandoned and or closed in-place orphan USTs were encountered and revealed additional petroleum impacted soils, at depth, resulting from USTs, or improperly drained surface tanks or source material. As such, significant areas of the site were excavated greater than 4 to 6 feet and select areas were excavated to 16 to 17 feet below grade surface (FBGS). The overall extent of petroleum contamination was significantly greater than anticipated in the RI/IRM WP. This resulted in the excavation and disposal of a much larger quantity of impacted soils.

- **Extended IRM timeline-** Based on the additional excavation, the excavation time-line was extended to allow for the larger quantity of material being shipped to and from the site.
- **Increased areas of excavation to address elevated Metals and PAHs**- The increased depth and spatial extent of the excavation revealed previously undetected building foundations and basements. These foundations and buried structures had been previously backfilled with unacceptable contaminated fill materials; the Applicant choose to excavate and clean these areas until Track #2 Restricted Residential SCOs were obtained.
- **Replacement of damaged Bedrock Well BR-16 with BR-17-** Bedrock well # BR-16 was damaged during the excavation activities and was properly abandoned and relocated and replaced in close proximity to the original location with BR-17.

All deviations from the work plan were discussed with and verbally pre-approved by the Department.

5.0 REMEDIAL INVESTIGATION (RI) REPORT

The purpose of the RI field activities was to more fully define the nature and extent of contamination on the BCP Site, and to collect data of sufficient quantity and quality to perform the remedial alternatives evaluation. On-site field activities included: surface soil sampling; monitoring well installation; groundwater sampling of newly installed monitoring wells; and, collection of hydraulic data.

Field team personnel collected environmental samples in accordance with the rationale and protocols described in the Quality Assurance Project Plan (QAPP) submitted with the RI/IRM Work Plan. USEPA and NYSDEC-approved sample collection and handling techniques were used. Samples collected for chemical analysis were analyzed in accordance with USEPA SW-846 methodology with an equivalent Category B deliverable package to meet the definitive-level data requirements. Analytical results were evaluated by a third-party data validation expert in accordance with provisions described in the QAPP.

5.1 FIELD INVESTIGATION ACTIVITIES

5.1.1 Soil/Fill Investigation

Initially, the site remedy (excavation and offsite disposal) proceeded in phases (See Figure 3) with excavation of surface soils and 'hotspot' areas across the entire site to the depths identified in the IRM WP. Upon completion of the early phases of excavation and the previously identified 'hotspot' areas, interim soil sampling and analysis for COPCS was conducted to chart remedial progress. A review of the initial test results indicated that additional excavation or other alternatives may be required to achieve the proposed Remedial Soil Cleanup Objectives. Based on the planned future disposition of the property; the Volunteer Applicant made the decision to expand and continue the lateral and vertical limits of excavation; until a visually clean bottom of native soil was exposed across the entire site and the achievement of the Restricted Residential Track 2 SCOs were obtained.

The outcome of the additional excavation directive resulted in the excavation of additional impacted soil and exposure of virgin clay floor across the entire site which was continued to slightly past the property boundaries ending with the side walls of the excavation located just outside the project limits (offsite).

Post excavation soil samples were collected from the floors and sidewalls of the excavated areas under the guidance and observation of the DEC program manager. The DEC approved, sampling approach called for analysis of six (6) offsite samples, collected from the excavation sidewalls, and twenty-one (21) onsite samples collected from the floor of the excavation utilizing a DEC approved sampling grid. Results of verification sampling confirmed the expanded IRM excavation activities achieved Track 2 Restricted Residential SCOs across the site. See Figure 6 and 7 for the sample

locations and Tables 3a and 3b for exceedances of Unrestricted SCOs.

5.1.2 Soil/Fill Analyses

Soil/fill samples were collected using dedicated stainless steel sampling tools. Soil samples were placed in pre-cleaned laboratory provided sample bottles, cooled to 4ºC in the field, and transported under chain-of-custody command to Phoenix Environmental Laboratories, Inc., located in Manchester, Connecticut, a New York State Department of Health (NYSDOH) ELAP-certified analytical Laboratory.

Onsite Confirmatory Sampling for Full List of Parameters

The 'Seneca Frontage Basement' sample and C106-S-Supplemental sample, were both analyzed for the full list of parameters as outlined in the RI/IRM Work Plan. The list of analysis included: Target Analytes (TAL) Metals, TCL VOCs, TCL SVOCs, Petroleum Hydrocarbons, PCBs, and Cyanide. All samples were collected and analyzed in accordance with the RI/IRM Work Plan or as directed by DEC Project Manager. The results are summarized in Table 3a and lab results are included in Appendix P.

Additional Onsite Confirmatory Sampling

Onsite confirmatory floor samples C101, C102, C103, C104, C105, C107-S-Supplemental, C108, C109, C110, C111, and C112 were analyzed for RCRA Metals, Petroleum Hydrocarbons, Chlorinated Solvents, and PAHs. Samples C113 and C114 were analyzed for Priority Pollutant List Metals, Chlorinated Solvents, PAHs, and Petroleum Hydrocarbons. Soil samples SL#1, SL#6, and SL#9 were analyzed for Priority Pollutant List Metals, Hexavalent Chromium and Cyanide. Sample SL#21 was analyzed for TAL Metals, Cyanide, Petroleum Hydrocarbons, Chlorinated Solvents, and PAHs. The composite floor sample from the 'UST Tank Pit Floor' was analyzed for 8260-STARS (VOCs) and 8270-STARS (SVOCs). Sample SL#5 was analyzed for Hexavalent Chromium, PAHs, Priority Pollutant List Metals and Cyanide.

Offsite Sampling

Off-site sidewall soil sample, West Sidewall #1, was analyzed for RCRA Metals, Petroleum Hydrocarbons, Chlorinated Solvents, and PAHs. Two off-site sidewall samples, East Sidewall #1 and South Sidewall #1, were analyzed for RCRA Metals and PAHs. Two off-site sidewall samples, SL#4 and SL#11, were analyzed for Priority Pollutant Metals, Cyanide and Hexavalent Chromium. Sample SL#7 was analyzed for Metals, Cyanide, Hexavalent Chromium and 8270-STARS (SVOCs) per the

DEC request. The Results for the off-site samples are summarized in Table 3b and lab reports are included in Appendix P.

5.1.3 Groundwater Investigation

Prior to the current RI/IRM activities AFI personnel provided oversight for the installation of a total of ten (10) overburden monitoring wells (MW-1 through MW-5 and MW-7 through MW-11) within the project boundaries. Eight (8) of the wells were installed on November 17 and 18, 2009 and two (2) were installed December 18, 2009. The construction details, sampling methodology, and analytical results of AFI's previous investigation are detailed in AFI's February 2010 Report, "*Summary of November and December 2009 Well Installation Activities for Property comprised of 105 and 111 Hydraulic St, 777 and 797 Seneca St, 742 and 746 Carroll St, Buffalo, NY,"*. During this prior investigation, overburden monitoring wells MW#3 and MW#11were sampled and results indicated slightly elevated levels of cis-1,2-Dichloroethene and Vinyl Chloride in MW#11.

AFI personnel also provided oversight for the installation of four (4) onsite Bedrock Wells (BR-12, BR-15, BR-16, BR-17). BR-12 was completed on June 24, 2010, BR-15 on June 28, 2010, and BR-16 on June 29, 2010 which was prior to RI/IRM activities. BR-17 was installed on December 17, 2010 (to replace BR-16 which was damaged during IRM excavation activities).

As a result of IRM excavation activities most of the overburden wells were removed (destroyed). The remaining wells were: overburden monitoring wells MW-4 and MW-7 and bedrock wells (BR-12, BR-15 and BR-17). Figure 5 shows the locations of the remaining overburden and bedrock monitoring wells which were sampled after the completion of IRM activities.

5.1.4 Monitoring Well Installation

Monitoring wells were installed in accordance with the approved RI/IRM Work Plan. Monitoring well construction details for the remaining overburden (MW-4 and MW-7) and bedrock (BR-12, BR-15, and BR-17), wells are presented on the Monitoring Well Installation Logs in Appendix S.

5.1.5 Groundwater Sample Collection

Project specific monitoring wells were developed prior to sampling to remove residual sediments and ensure good hydraulic connection with the water-bearing zone. A minimum of three well volumes were removed from each well. Prior to sample collection, static water levels were measured and recorded from all on-site monitoring wells. Following water level measurement, AFI personnel purged and sampled monitoring wells with dedicated hand bailers.

Prior to and immediately following collection of groundwater samples, field measurements for pH, specific conductance, temperature, turbidity, and water level as well as visual and olfactory field observations were recorded. All collected groundwater samples were placed in pre-cleaned, pre-preserved laboratory provided sample bottles, cooled to 4°C in the field, and transported under chain-of-custody to Phoenix Environmental Laboratories.

5.1.6 Groundwater Sample Analysis

Groundwater samples were collected from overburden wells MW-4 and MW-7 and bedrock wells BR-12, BR-15 and BR-17. Groundwater samples were analyzed for TCL VOCs, TCL SVOCs, TAL Metals, petroleum Hydrocarbons, PCBs and Total Cyanide. Insufficient sample volume due to slow well recovery at BR-15 was discussed with the Department and it was decided to eliminate the testing for PCBs and Total Cyanide based on Site history.

All samples were collected and analyzed in accordance with USEPA SW-846 methodology with equivalent NYSDEC Category B deliverables to allow for independent third-party data usability assessment.

5.1.7 Field Specific Quality Assurance/Quality Control Sampling

In addition to the soil/fill and groundwater samples described above, field-specific quality assurance/quality control (QA/QC) samples were collected and analyzed to ensure the reliability of the generated data as described in the QAPP and to support the required third-party data usability assessment effort. Site-specific QA/QC samples included matrix spikes, matrix spike duplicates, blind duplicates, and trip blanks.

5.2 SITE MAPPING

A Site map was developed during the RI field investigation. All sample points and relevant Site features were located on the map. AFI employed Professional Land Surveyor Larry J. Zygaj, PLS, PC to locate and plot the locations of all soil borings and the location and final elevations of the top of the well casings for the newly installed wells relative to State Planar Grid Coordinates and the distance above mean sea level (USGS Vertical datum). The Surveyor identified the elevations of the top of the well risers to the nearest .01 of an inch. A Groundwater Flow Direction Map showing the general direction of groundwater flow was prepared based on water level measurements collected by AFI personnel during the onsite sampling events and is presented relative to USGS vertical datum (see Figure 10).

6.0 SITE PHYSICAL CHARACTERISTICS

The physical characteristics of the Site observed during the RI are described in the following sections.

6.1 SITE TOPOGRAPHY AND DRAINAGE

The Site is generally flat lying with limited distinguishable Site features. Precipitation (i.e., rain or melting snow) moves via surface flow to pre-existing onsite and offsite storm drains located along Seneca Street, Hydraulic Street, and Carroll Street. Surface and shallow groundwater flow are likely to be impacted by various cycles of development and backfilling, as well as the existing hydraulic stormwater raceway juxtaposed to northwest corner of the site.

6.2 GEOLOGY AND HYDROGEOLOGY

6.2.1 Geologic Setting

The Site incorporates approximately 2.02 acres of fairly level land situated in the City of Buffalo, Erie County, New York. According to the United States Geological Survey (USGS) Topographic Map, the Site lies at approximately 580 to 590 feet above Mean Sea Level.

The Site is generally flat and is situated approximately one mile north of the Buffalo River. The unconsolidated geologic materials (soil) encountered at the Site range in thickness from approximately 16 to 20 feet thick.

The geology at the Site is generally described as fill materials overlying dense brown and reddish/reddish-brown silty clay. The fill materials consist of silt, sand, and gravel with varying amounts of brick fragments at depths ranging from 1.5 to 5 feet below ground surface (fbgs). Native materials consist of dense silty clay with varying amounts of sand and gravel to depths up to 20 fbgs.

The Site is situated in the Central Lowlands Physiographic Province, characterized by nearly flat lying rocks of Devonian, Silurian and Ordovician Age. Bedrock underlying the Site is mapped as middle Devonian Onondaga Limestone.

6.2.2 Hydrogeologic Setting

Subsurface investigation activities conducted at the Site indicate that the uppermost groundwater bearing unit is situated at or near the interface between the soil and bedrock. Groundwater elevation data suggest that groundwater flows toward the south with an interpreted hydraulic gradient of 0.05 feet per foot (ft/ft). This southward flow direction is consistent with the expectation that groundwater may be locally controlled by the Buffalo River, which is located less than one mile south of the Site.

7.0 INVESTIGATION RESULTS BY MEDIA

The following sections discuss the Post-Remedial Activities/Remedial Investigation analytical results. Tables 3a, 3b and 8 summarize the onsite soil, offsite soil, and groundwater analytical data, respectively. Table 3a includes the onsite post-excavation floor sample results that were used for RI soil characterization, per the approved alternative sampling program. Appendix P includes the laboratory analytical data packages. Onsite sample locations are shown on Figure 6.

7.1 SOIL/FILL

Table 3a presents the analytical results for onsite soil samples and a comparison of detected chemical parameters to the Unrestricted Use Soil Cleanup Objectives (SCOs) and Restricted Residential SCOs for protection of public health per regulations contained in 6NYCRR Part 375-6 (December 2006). Although the Site is intended to be used for restricted-residential/commercial purposes, evaluating a more restricted-use scenario is a requirement of the BCP; soil analytical data compared to Part 375 Unrestricted SCOs. Sample results are described below according to contaminant class. The full set of analytical data is included in Appendix P.

7.1.1 Volatile Organic Compounds

The levels for all seventeen (17) samples analyzed for VOCs were reported at or below the Unrestricted SCOs or Restricted Residential SCOs. All VOC sample results were below the reporting detection limits except those listed below.

The Seneca Frontage Basement sample had three chemical constituents that were above the laboratory reporting limit of 6.4 ug/L; Trichloroethene (51 ug/L), cis-1,2-Dichlororethene (130 ug/L) and Tetrachloroethene (13 ug/L). Although these analytes were positively identified by the lab, the DUSR report shows that the numerical value is only an approximate concentration of the analyte in the sample.

The UST Tank Pit Floor sample only contained trace (below Unrestricted SCOs) levels of n-Butylbenzene, sec-Butylbenzene, N-Propylbenzene and Isopropylbenzene at 16.2, 37.0, 28.4 and 14.0 ug/kg respectively.

Sample C101 contained trace (below Unrestricted SCOs) levels of Tetrachloroethene (54.2 ug/Kg). Samples C101 through C114 all contained trace levels of Methylene chloride at levels well below Unrestricted SCOs. All levels of Methylene chloride were found by the DUSR data validator to be positively identified but the numerical values are approximate concentrations of the analyte in the sample.

No other chemical constituents were above the laboratory detection limits after DUSR data

validation.

7.1.2 Semi-Volatile Organic Compounds

All seventeen (17) samples analyzed for SVOCs were reported at or below the laboratory detection limit. As such, all sample concentrations were below Part 375 Unrestricted and Restricted Residential SCOs.

7.1.3 Metals and Cyanide

Ten (10) of the nineteen (19) samples analyzed for Metals were below the Unrestricted SCOs for all reported Metals.

Nine (9) of the nineteen (19) samples collected and analyzed for Metals exceeded Unrestricted SCOs, but were below the Restricted SCO levels. The exceedances of the Unrestricted SCOs were limited to one reported value of Arsenic at 14.7 mg/kg, one reported value of Copper 54.5 mg/kg, one reported value for Nickel 32.0 mg/kg, six (6) locations where Lead was detected 64.4 to 386 mg/kg, Mercury in five (5) locations .222 mg/kg to .81 mg/kg, and three (3) locations with Zinc 130 mg/kg to 369 mg/kg.

All five (5) samples collected and analyzed for Cyanide were reported below the laboratory detection limit.

None of the soil/fill samples exceeded the Part 375 Restricted Residential SCOs for Metals or Cyanide.

7.1.4 Polychlorinated Biphenyls

All samples analyzed for PCBs were reported as non-detectable (below the laboratory detection limits).

7.1.5 Summary

The entire 111 Hydraulic Street Project Site was excavated to varying depths until a layer of clean native clay was exposed. As described above, all concentrations of post-excavation VOCs, SVOCs, and PCBs were well below Part 375 Unrestricted SCOs. Verification sampling confirmed the remediation to be consistent with Track #2, Restricted Residential SCOs. The achieved cleanup objectives are consistent with the intended use of the site.

Onsite residual contamination with levels above the ***Unrestricted*** SCOs is minimal, and

includes only a limited list of Metals (See Table 3a and Figure 6). As a result, the remaining onsite contamination is characterized as de-minimus and does not warrant institutional or engineering controls.

7.2 GROUNDWATER

Table 8 presents a comparison of the detected groundwater parameters collected from onsite monitoring wells compared with Class GA Groundwater Quality Standards (GWQS) per NYSDEC TOGS 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (June 1998). The analytical results for groundwater monitoring completed in January 2011 (MW-4, MW-7, BR-12, BR-15, and BR-17) and February 2011 (MW-7), conducted after the completion of IRM activities are discussed in the following sections.

7.2.1 Volatile Organic Compounds

January 2011

Two VOCs (Acetone, and Methyl Ethyl Ketone) were detected at concentrations above GWQS in the sample collected from overburden well MW-7 during the January 2011 groundwater sampling event. This result was suspected as being a lab anomaly and the 3rd party DUSR validator indicated that this sample had been subjected to improper dilution by the lab and improperly reported; they listed the data as 'Not Usable'. As such, MW-7 was re-sampled in February 2011 to collect usable data. (See discussion below)

February 2011

No VOCs were detected above GWQS in the overburden or bedrock during the re-sampling of MW-7 conducted in February 2011. The second set of data for this sampling event and location was deemed useable after DUSR review and the results are presented in Table 8 and are included in Appendix P.

7.2.2 Semi-Volatile Organic Compounds

Slightly elevated levels of Benz(a)anthracene (0.07 ug/L), Benzo(b)fluoranthene (0.07 ug/L), Benzo(k)fluoranthene (0.03 ug/L), Chrysene (0.07 ug/L), and Indeno (1,2,3-cd)pyrene (0.04 ug/L) were detected above the GWQS in overburden well MW-7 during the February 2011 sampling.

All other SVOCs were detected below the GWQS in the overburden and bedrock.

7.2.3 Volatile Organic Compounds

In overburden well MW-4,analytical results showed trace amounts of acetone (2.5 ug/L) and Methyl t-butyl ether (MTBE) (5.9 ug/L).

In the bedrock well BR-12, analytical results showed trace amounts of acetone (.66 ug/L), Benzene (.81 ug/L), cis-1,2-Dichloroethene (1.1 ug/L) and Vinyl Chloride (.70 ug/L).

Bedrock well BR-15 revealed trace amounts of acetone (47 ug/L), Benzene (.50 ug/L), cis-Carbon Disulfide (.56 ug/L) m&p-Xylene (.92 ug/L), Methyl ethyl ketone (7.4 ug/L), MTBE (.58 ug/L), and Toluene (.70 ug/L).

Bedrock well BR-17 revealed trace amounts of cis-1,2-Dichloroethene (.38 ug/L) and Vinyl Chloride (.24 ug/L).

All VOCs were below the GWQS in the overburden and in bedrock.

7.2.4 Metals and Cyanide

All Metals and Cyanide were detected below the GWQS in the overburden and bedrock.

7.2.5 Polychlorinated Biphenyls

All samples analyzed for PCBs were reported as non-detectable (below the laboratory detection limits and GWQS).

7.2.5 Summary

As described above and presented in Table 8, all reported levels of PCBs, Metals, VOCs and most SVOCs in overburden and bedrock monitoring wells were below GWQS except the slightly elevated concentrations of several SVOCs detected in monitoring well MW-7, which is a down-gradient, overburden monitoring well location (See Section 7.2.2 above). Low level exceedances were limited to the following; Benz(a)anthracene (0.07 ug/L), Benzo(b)fluoranthene (0.07 ug/L), Benzo(k)fluoranthene (0.03 ug/L), Chrysene (0.07 ug/L), and Indeno (1,2,3-cd)pyrene (0.04 ug/L), and are a remnant of the previous petroleum spill located within 20 ft of the well location. All chemical constituents recorded for bedrock well BR-12, located within ten feet of MW-7, were listed as non-detect and below reportable levels.

All leaking USTs, discarded gas and diesel fuel tanks and other source material; along with over 1,400 tons of petroleum contaminated soil, which was associated with this previously reported

petroleum spill, have been exhumed, removed, and/or excavated to clean clay. Based on the level of remedial activities conducted in this area (extensive excavation to clean clay at 16-17 ft) and the nature of the recorded GWQS exceedances (slightly elevated levels of SVOCs) no additional remedial action, institutional or engineering controls or environmental easements above the limitations consistent with 'Restricted Residential Development' are warranted. This recommendation is supported by the fact that the area is supplied with municipal water from the City of Buffalo and that there are No Public Potable Water Supply wells within the general vicinity. It is also consistent with the future intended use of the site as Restricted Residential/Commercial building, which is planned to cover the entire site.

7.3 DATA USABILITY SUMMARY

In accordance with the RI Work Plan, the laboratory analytical data from this investigation was independently assessed and, as required, submitted for independent review. KR Applin & Associates performed the data usability summary assessment, which involved a review of the summary form information and sample raw data, and a limited review of associated QC raw data. Specifically, the following items were reviewed:

- Laboratory Narrative Discussion
- Custody Documentation
- Holding Times
- Surrogate and Internal Standard Recoveries
- Matrix Spike Recoveries/Duplicate Recoveries
- Field Duplicate Correlation
- Preparation/Calibration Blanks
- Control Spike/Laboratory Control Samples
- Instrumental IDLs
- Calibration/CRI/CRA Standards
- ICP Interference Check Standards
- ICP Serial Dilution Correlations
- Sample Results Verification

The Data Usability Summary Report (DUSR) was conducted using guidance from the USEPA Region 2 validation Standard Operating Procedures, the USEPA National Functional Guidelines for Data Review, as well as professional judgment.

In summary, 99% of the soil and 94.8% of the water sample results are usable as reported, or with minor qualification. However, several results (37 of the 3,708 soil analytes and 34 of 1,231 water analytes tested) were identified as 'not usable', and were rejected. This label was based on the lack of detections of certain chemical parameters in duplicated samples that were analyzed. In cases where the data for a critical sample location or media was listed as 'not useable' a separate sampling event was scheduled and a full set of a samples was collected, at that location, and included duplicates and trip blanks. DUSR was again conducted on these supplemental samples and these 'useable' results are presented. As such, the rejected data has not compromised or affected the achievement of our data objectives. All data qualifications have been incorporated into the summary data tables. Appendix Q includes the complete DUSR.

8.0 FATE AND TRANSPORT OF COPCS

The soil/fill and groundwater sample analytical results were incorporated with the physical characterization of the Site to evaluate the fate and transport of COPCs in Site media. The mechanisms by which the COPCs can migrate to other areas or media are briefly outlined below.

8.1 FUGITIVE DUST GENERATION

Volatile and non-volatile chemicals present in soil can be released to ambient air as a result of fugitive dust generation. However, the site soil has been removed to meet restricted residential standards and the excavation was backfilled with imported virgin sand and gravel. Furthermore, the Site will be developed for residential/commercial land use, and the majority of the Site will be covered by structures, asphalt, concrete, and grass/ornamental landscaping. This migration pathway is therefore not considered relevant under the current and reasonably anticipated future land use.

8.2 VOLATILIZATION

Volatile chemicals present in soil/fill and groundwater may be released to ambient or indoor air through volatilization either from or through the soil/fill underlying current or future building structures. Volatile chemicals typically have a low organic-carbon partition coefficient, low molecular weight, and a high Henry's Law constant.

No volatile organic compounds were detected in on-Site soils above 6NYCRR Part 375 Unrestricted use SCOs, thus eliminating the pathway for of VOCs.

8.3 SURFACE WATER RUNOFF

The potential for soil particle transport with surface water runoff is low, as the Site has been cleaned up to restricted-residential standards, and the majority of Site will be covered with asphalt and building foundations. Furthermore, the Site is serviced by the Buffalo Sewer Authority's (BSA's) combined sanitary/storm water collection system. BSA's collection system provides a mechanism for controlled surface water transport that will ultimately result in sediment capture in the BSA's grit chambers followed by disposal at a permitted sanitary landfill. As such, surface water runoff is not considered a relevant migration pathway.

8.4 LEACHING

Leaching refers to chemicals present in soil/fill migrating downward to groundwater as a result of infiltration of precipitation. However, all source area soils have been removed from the Site

during IRM activities to below restricted residential standards. As such, leaching is not considered a relevant migration pathway.

8.5 GROUNDWATER TRANSPORT

Groundwater underlying the Site migrates generally to the south. Chemicals present in groundwater may be transported across the Site via this pathway.

The site and surrounding area are serviced by a municipal (supplied) water service, with no evidence of potable wells within 1 mile of the subject property. Therefore, onsite and offsite exposure via ingestion of contaminated groundwater is unlikely.

8.6 EXPOSURE PATHWAYS

Based on the analysis of chemical fate and transport provided above, potential exposure pathways by which contaminants may reach onsite and offsite receptors include ingestion of contaminated groundwater, dermal contact with contaminated groundwater. However, the site and surrounding area are serviced by a municipal supplied potable water source. Therefore, onsite and offsite exposure via ingestion of contaminated groundwater is unlikely.

Excavation depths and clean clay were exposed at depths below conventional foundation and buried utility construction exposure depths. Exposure of the low levels of exceedances above the Un-Restricted Residential SCOs to onsite or offsite receptors via incidental dermal contact is also unlikely.

9.0 QUALITATIVE RISK ASSESSMENT

9.1 POTENTIAL HUMAN HEALTH RISKS

The identification of potential human receptors is based on the characteristics of the Site, the surrounding land uses, and the probable future land uses. The 111 Hydraulic Street Project Site is currently vacant. Under un-remediated Site use conditions, human contact with site-related COPCs can be expected to occur primarily by three type of receptors: trespassers who may traverse or use the property; on-Site commercial workers; and, construction workers that may access subsurface soil and/or groundwater at the Site. Trespassers may be comprised of children, adolescents, and adults, whereas construction workers would be limited to adults. However, trespassers could be considered receptors only if the existing backfill were compromised, such as during subsurface construction activities.

In terms of planned future use, of the now remediated Site; the current Site owner (598 Main Street LLC) intends to redevelop the Site for residential/commercial use. This planned use is consistent with surrounding property use and Site zoning. Accordingly, the reasonably anticipated future use of the Site is for restricted residential/commercial purposes.

For the trespasser and construction worker scenarios, health-risk based lookup values specifically addressing these types of receptors are not widely published, since estimates of exposure frequency and duration tend to be site-specific in nature. However, the NYSDEC has published health risk-based lookup values for several chemicals under various exposure scenarios in the June 2006 document entitled “New York State Brownfield Cleanup Program Development of Soil Cleanup Objectives Technical Support Document” (a.k.a., “Technical Support Document”). The Technical Support Document forms the basis for the health-based SCOs presented in 6NYCRR Part 375-6. Based on incorporation of these types of receptors and exposures, the restricted residential commercial health-based SCOs presented in the Technical Support Document are considered protective of human health under both the current and future site use condition.

9.2 POTENTIAL ECOLOGICAL RISKS

The 111 Hydraulic Street Site is a former commercial/industrial facility located within a highly developed, urban area in the City of Buffalo. The Site is currently vacant, providing little or no wildlife habitat or food value. No natural waterways are present on or adjacent to the Site. The reasonably anticipated future use is residential/commercial with the majority of the Site covered by buildings, concrete sidewalks and asphalt. As such, no unacceptable ecological risks are anticipated under the current or reasonably anticipated future use scenario.

10.0 OVERALL SUMMARY OF RI FINDINGS

The RI data suggest no onsite source of groundwater impact from the 111 Hydraulic Street Site or conditions requiring groundwater remedial measures. The trace levels of SVOCs detected in overburden monitoring well MW-7 are likely a remnant of the previously recorded NYSDEC petroleum spill which was identified in close proximity to the well location, or it may be a result of fugitive releases migrating onsite from offsite locations with published documentation of the same elevated chemical constituents in groundwater (i.e. the American Linen BCP Site which is hydraulically up-gradient).

No soil/fill analytes were detected above restricted-residential SCOs following IRM activities. In fact, only a few select metals were identified at concentration which were slightly above the levels for unrestricted SCOs; all other results were well below restricted residential SCOs.

Based on the RI findings, AFI concludes that no further groundwater or soil vapor investigation activities are necessary to complete the Remedial Investigation.

Assessment of chemical fate and transport indicates that chemicals of concern in the 111 Hydraulic Street site area are not migrating offsite at significant concentrations and/or rates. Qualitative risk assessment yields no unacceptable health risks under the current or reasonably anticipated future use scenario. No unacceptable ecological risks were indicated based on the cover type and Site setting.

11.0 ALTERNATIVE ANALYSIS REPORT

The 111 Hydraulic Street Project site has already been subjected to interim remedial measures in the form of soil/fill excavation, contaminant source and UST removal.

11.1 REMEDIAL ACTION OBJECTIVES

The final remedial measure for the Site must satisfy Remedial Action Objectives (RAOs), which are site-specific statements that convey the goals for minimizing or eliminating substantial risks to public health and the environment. For the 111 Hydraulic Street Site, appropriate RAOs are:

- Removal of on-site impacted soil/fill to levels protective of human health.
- Prevent migration of contaminants that may result in groundwater contamination.

In addition to achieving RAOs, the remedy is evaluated against the following criteria per the approved RI/AAR Work Plan consistent with 6NYCRR Part 375-1.8(f):

- **Overall Protection of Public Health and the Environment**. This criterion is an evaluation of the remedy's ability to protect public health and the environment, assessing how risks posed through each existing or potential pathway of exposure are eliminated, reduced, or controlled through removal, treatment, engineering controls, or institutional controls.
- **Compliance with Standards, Criteria, and Guidance (SCGs)**. Compliance with SCGs addresses whether a remedy will meet applicable environmental laws, regulations, standards, and guidance.
- **Long-Term Effectiveness and Permanence**. This criterion evaluates the long-term effectiveness of the remedy after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: (i) the magnitude of the remaining risks (i.e., will there be any significant threats, exposure pathways, or risks to the community and environment from the remaining wastes or treated residuals), (ii) the adequacy of the engineering and institutional controls intended to limit the risk, (iii) the reliability of these controls, and (iv) the ability of the remedy to continue to meet RAOs in the future.
- **Reduction of Toxicity, Mobility or Volume with Treatment**. This criterion evaluates the remedy's ability to reduce the toxicity, mobility, or volume of site contamination. Preference is given to remedies that permanently and significantly reduce the toxicity, mobility, or volume of the wastes at the site.
- **Short-Term Effectiveness**. Short-term effectiveness is an evaluation of the potential short-term adverse impacts and risks of the remedy upon the community, the workers, and the environment during construction and/or implementation. This includes a discussion of how

the identified adverse impacts and health risks to the community or workers at the site will be controlled, and the effectiveness of the controls. This criterion also includes a discussion of engineering controls that will be used to mitigate short term impacts (i.e., dust control measures), and an estimate of the length of time needed to achieve the remedial objectives.

- **Implementability**. The implementability criterion evaluates the technical and administrative feasibility of implementing the remedy. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc.

- **Cost**. Capital, operation, maintenance, and monitoring costs are estimated for the remedy and presented on a present worth basis.

11.2 ALTERNATIVES EVALUATION

Because the IRM achieved removal of all impacted soil/fill on-site to levels below Part 375 restricted residential use SCOs, and in most locations below unrestricted levels; the IRM successfully achieved the above-described remedial action objectives. Accordingly a "No Further Action" alternative is screened below.

In developing and screening the remedial alternatives, NYSDEC's Part 375 regulations also require that the reasonableness of the anticipated future land use be factored into the evaluation. The regulations identify 16 criteria that must be considered. These criteria and the resultant outcome for the 111 Hydraulic Street Site are presented in Appendix E. As indicated, Appendix E supports Restricted Residential use as the reasonably anticipated future use of the 111 Hydraulic Street property.

11.2.1 No Further Action

"No further action" is defined as conducting no additional cleanup activities at the Site.

Overall Protection of Public Health and the Environment – Since the IRM achieved removal of all on-site impacted soil/fill to residential use SCOs, the No Further Action alternative is protective of human health and the environment and successfully achieves the RAOs for the Site.

Compliance with SCGs – The IRM was performed in accordance with applicable, relevant, and appropriate standards, guidance, and criteria. Accordingly, the "No Further Action" alternative satisfies this criterion.

Long-Term Effectiveness and Permanence – The IRM achieved removal of all source

material (i.e., impacted soil/fill and an underground storage tank). As such, the No Further Action alternative is expected to provide long-term effectiveness and permanence.

Reduction of Toxicity, Mobility, or Volume with Treatment – Through removal of all on-site impacted soil/fill, the IRM permanently and significantly reduced the toxicity, mobility, and volume of Site contamination. Accordingly, the "No Further Action" alternative satisfies this criterion.

Short-Term Effectiveness – The short-term adverse impacts and risks to the community, workers, and environment during implementation of the IRM were effectively controlled. Temporary safety construction fencing was placed around the outer perimeter of the work area to distinguish the work zone and discourage trespassing. During soil/fill excavation and loading activities, dust monitoring was performed to assure conformance with NYSDOH-approved community air monitoring action levels. Erosion and sedimentation control were accomplished at the work perimeter by excavating the perimeter to below surrounding grade and installation of silt fencing. The potential for chemical exposures and physical injuries were reduced through safe work practices, proper personal protection, environmental monitoring, establishment of work zones and site control, and appropriate decontamination procedures. The IRM achieved the RAOs for the Site in approximately 20 weeks.

Implementability – No technical or action-specific administrative implementability issues were associated with implementation of the IRM.

Cost – The capital cost of the IRM was approximately $2,500,000. No capital or operation and maintenance costs are associated with the No Further Action alternative.

11.3 RECOMMENDED REMEDIAL MEASURE

Based on the above screening and the conclusions of the Remedial Investigation and Final Engineering Report, the IRM satisfies the remedial action objectives and is protective of human health and the environment. Accordingly, **"No Further Action"** is the recommended final remedial approach for the 111 Hydraulic Street Site. Most confirmatory soil sample locations achieved Track 1 Unrestricted SCOs, and all locations achieved Restricted Residential SCOs. The minimal residual metals contamination remaining on-site does not warrant institutional or engineering controls, a site management plan or specific Environmental Easements.

12.0 REFERENCES

1. AFI Environmental, *Additional Investigations for Contaminated Soil, Addendum No. 1 at 797 Seneca Street, Buffalo, NY*, July 17, 2006,

2. AFI Environmental, *Brownfield Cleanup Program RI/IRM Work Plan For The 111 Hydraulic Street Project Site No. C915235*, August 2010.

3. AFI Environmental, *Environmental Investigation Report, Summary of November 2009 & January 2010 Test Pit Installation Activities for Property Comprised of the Following Addresses: 105 and 111 Hydraulic St, 777 and 797 Seneca St, 742 and 746 Carroll St, Buffalo, New York 14210,* February 2010.

4. AFI Environmental, *Environmental Investigation Report; Summary of November & December 2009 Monitoring Well Installation Activities, Property Comprised of the Following Addresses: 105 and 111 Hydraulic St, 777 and 797 Seneca St, 742 and 746 Carroll St, Buffalo, New York 14210*, February 2010.

5. AFI Environmental, *Investigations for Contaminated Soil at 797 Seneca Street, Buffalo NY,* July 3, 2006

6. AFI Environmental, *Phase I Environmental Site Assessment 797/799 Seneca St, 819 Seneca St, 111 Hydraulic St, 105 Hydraulic St, 742 Carroll St, 746 Carroll St, 764 Carroll St, 768 Carroll St and 777 Seneca St, Buffalo, New York, 14210*, January 2010.

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16. New York State Department of Environmental Conservation. *Executive Law Section 916(a) 19 NYCRR Section 600.5.* October 2009. Web. 24 March 2011 http://www.dec.ny.gov/regs/4486.html

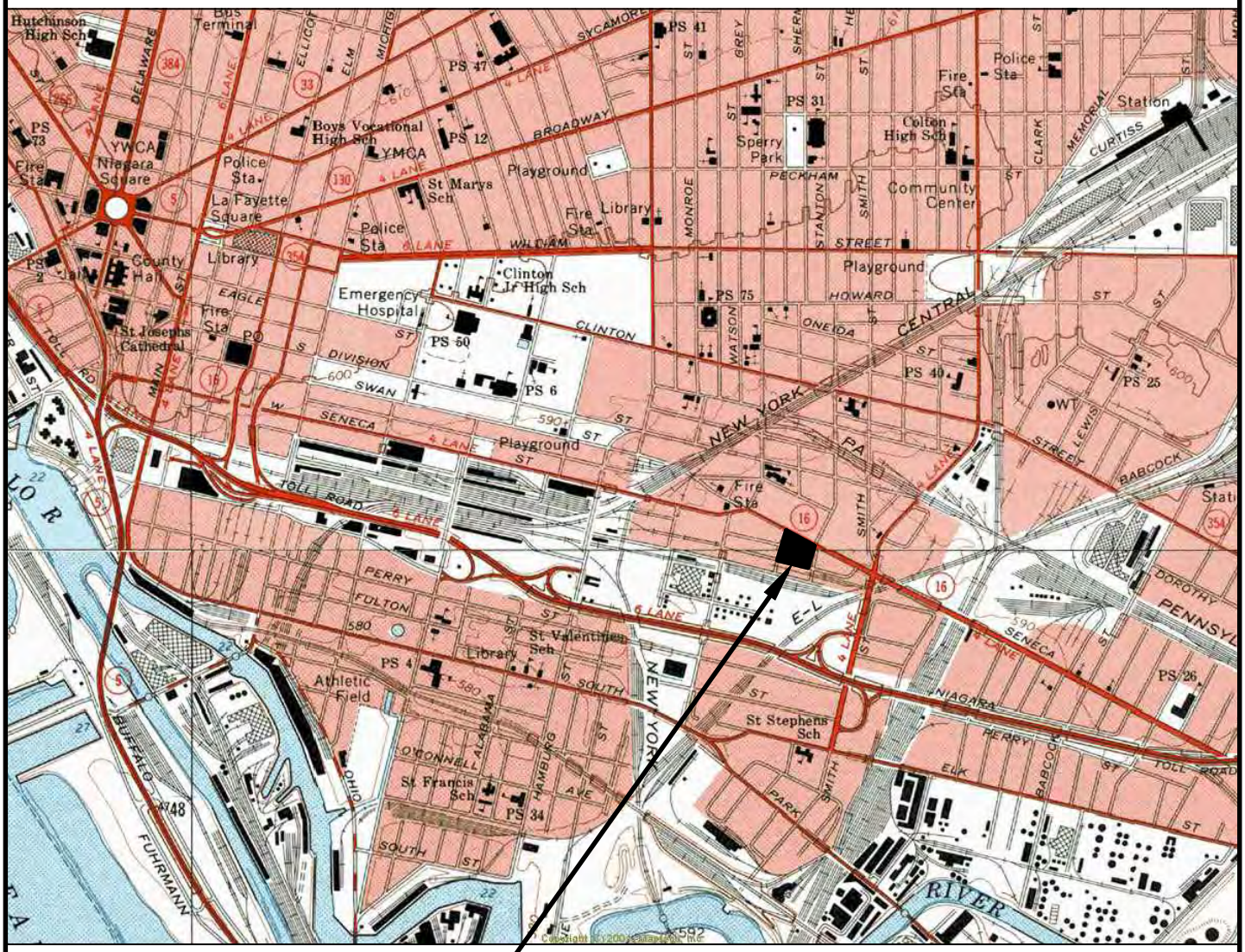
17. New York State Department of Environmental Conservation. Technical and Operational Series (TOGS) 1.1.1* *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations.* June 1998 Edition. Addendum June 2004

18. U.S. Environmental Protection Agency. *Requirements for Quality Assurance Project Plans for Environmental Data Operations (EPA QA/R-5).* October 1998.

19. U.S. Environmental Protection Agency, Region II. *CERCLA Quality Assurance Manual, Revision I.* October 1989.

20. United States Department of Agriculture, Soil Conservation Service. 2007. *Soil Survey of Erie County, New York.* July

111 HYDRAULIC STREET PROJECT SITE
SITE NO. C915235



PROJECT SITE

N42°–52'–30"±
W078°–50'–50"±

Survey Date	Revision Date	Comment

Project Site Map

Figure 1

City of Buffalo County of Erie
State of New York

LAWRENCE J. ZYGAJ, PLS, PC
NYS Land Surveyor – License No. 049714–1
222 Bear Road
Cowlesville, New York 14037
Office: (585) 652–8483 Fax: (585) 652–1137

Date: 1/8/2011	Scale: 1" = 2000'+/–	Drawn by:	LJZ
Job No.: 03014	Drawing: Figure1.dwg	Checked by:	LJZ

BCP Parcel Boundary Approximate

Not to Scale

AFI ENVIRONMENTAL
7815 BUFFALO AVE
P.O. BOX 4049
NIAGARA FALLS, NY 14304
(716) 283-7645

PROJECT NO.: YB-111HYDRAULICBCP

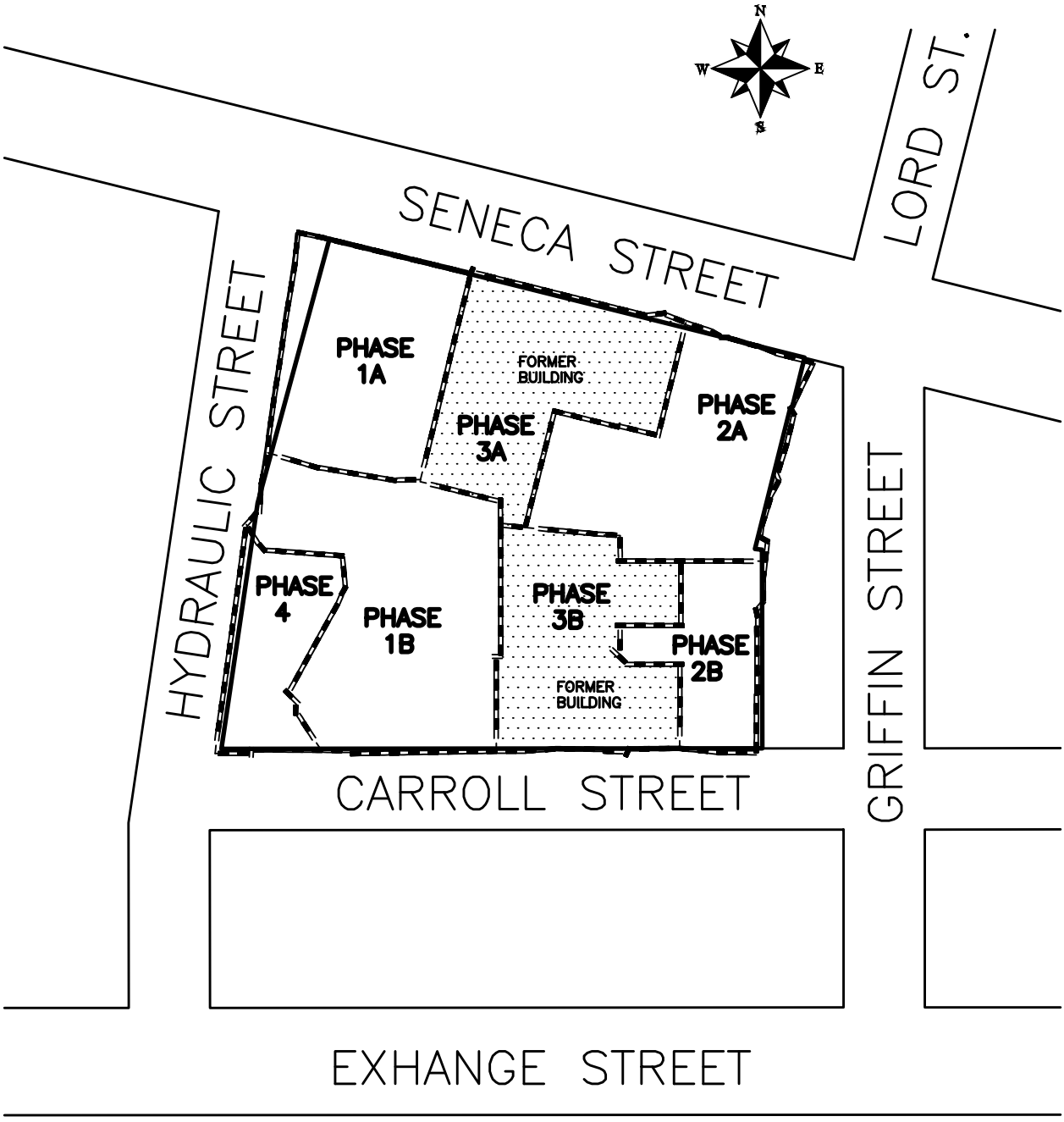
DRAFTED BY: GSH

SITE PLAN (AERIAL)

RI / AAR / IRM REPORT

111 HYDRAULIC STREET SITE
BCP SITE No.: C915236
BUFFALO, NY 14210
PREPARED FOR
598 MAIN STREET LLC

FIGURE 2



Survey Date	Revision Date	Comment

Project Phasing Map

Figure 3

City of Buffalo County of Erie
State of New York

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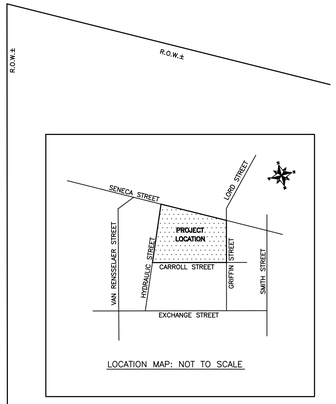
Date: 1/8/2011	Scale: 1" = 100'	Drawn by: LJZ
Job No.: 03014	Drawing: Figure3.dwg	Checked by: LJZ

Volume Report Sun Nov 21 09:59:53 2010
Comparing Grid: C:/Documents and Settings/All Users/Documents/Jobs/Jobs 2003/03014/2010SenecaStreet/Excavation/FebSurface.grd
and Grid: C:/Documents and Settings/All Users/Documents/Jobs/Jobs 2003/03014/2010SenecaStreet/Excavation/03014BotExcav.grd
Grid corner locations: 5000.00,5200.00 to 5400.00,5555.00
Grid resolution X: 80, Y: 71 Grid cell size X: 5.00, Y: 5.00
Area in Cut : 89,971.1 S.F., 2.07 Acres
Area in Fill: 921.5 S.F., 0.02 Acres
Total inclusion area: 90,892.6 S.F., 2.09 Acres
Cut to Fill ratio: 1457.76
Average Cut Depth: 3.32 Average Fill Depth: 0.22
Max Cut Depth: 17.49 Max Fill Depth: 0.48
Cut (C.Y.) / Area (acres): 5307.53
Fill (C.Y.) / Area (acres): 3.64
Cut volume: 299,017.8 C.F., 11,074.73 C.Y.
Fill volume: 205.1 C.F., 7.60 C.Y.

111 HYDRAULIC STREET PROJECT SITE
SITE NO. C915235



LOCATION MAP: NOT TO SCALE

LEGEND	
———	CONTOUR OF BOTTOM EXCAVATION
- - - - -	GRADE PRIOR TO IRM
■	UST LOCATIONS
———	BCP PROPERTY BOUNDARY

NOTE: FIELD SURVEYS WERE CONDUCTED FROM SEPTEMBER 2010 THROUGH DECEMBER 2010 AS SITE EXCAVATION PROGRESSED.

Survey Date	Revision Date	Comment
2/15/2010		Initial topographic survey
2/15/2010	11/2/2010	Survey bottom of excavation
2/15/2010	12/10/2010	Add UST (underground storage tanks) 1-11

Contour Map of Final Excavations with UST Locations

Figure 4
Part of Lot 15 Township 11 Range 8 H.L.C.
City of Buffalo County of Erie
State of New York

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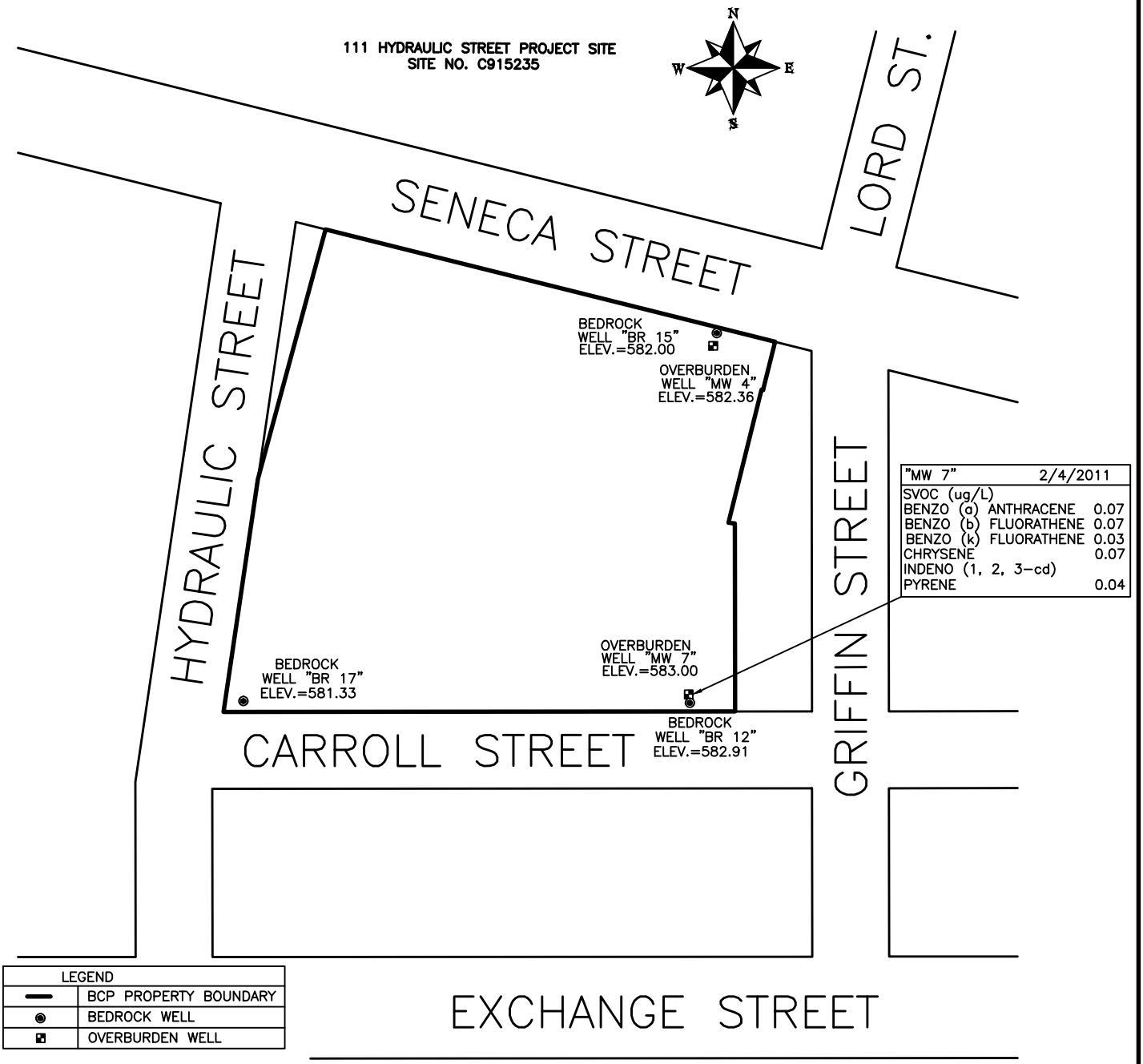
Date: 2/15/2010 Scale: 1" = 20' Drawn by: LJZ
Job No.: 03014 Drawing: Figure4.dwg Checked by: LJZ

ALL UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE. BEFORE YOU DIG, DRILL, OR BLAST, CALL UFPO AT 1-800-962-7962.

PRIMARY BENCHMARK: "X" CUT IN BOLT OF HYDRANT AT NE CORNER OF EXCHANGE AND VAN RENSSELAER STREETS. ELEVATION 585.12' PER SHEET 1 OF 7 – EXCHANGE STREET SANITARY SEWER CONSTRUCTION PLANS PREPARED BY BUFFALO SEWER AUTHORITY APRIL 1995

BENCHMARK: "X" CUT ON SOUTH BOLT OF HYDRANT; ELEVATION 586.63



Survey Date	Revision Date	Comment

Monitoring Well Location Map

Figure 5

City of Buffalo County of Erie

State of New York

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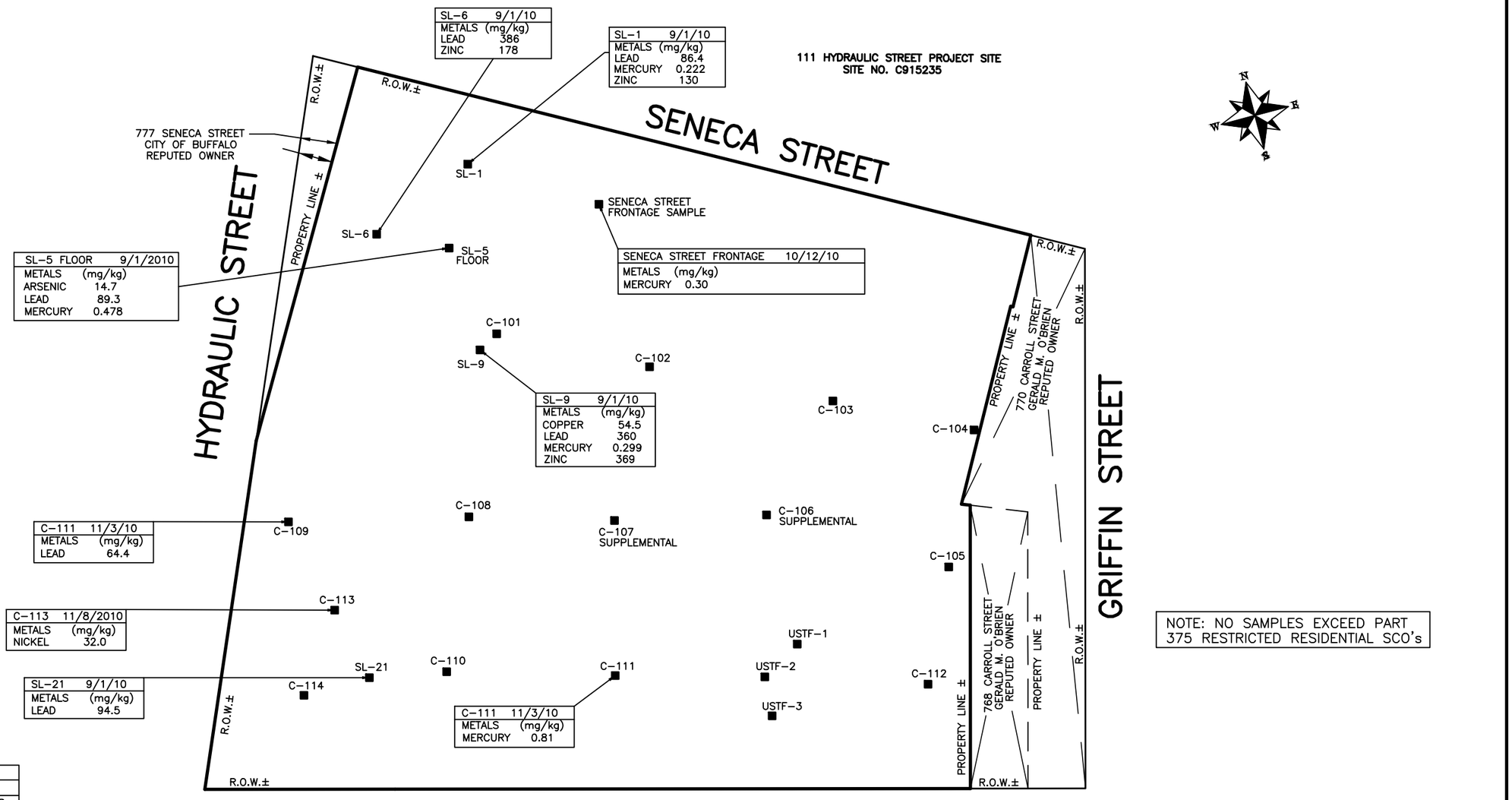
Date: 1/8/2011 Scale: 1" = 100' Drawn by: LJZ

Job No.: 03014 Drawing: Figure5R1.dwg Checked by: LJZ

SAMPLE	ELEVATION
SL-1	581.20
SL-5 FLOOR	581.51
SL-6	581.59
SL-9	581.04
SL-21	580.76
C-101	580.19
C-102	578.39
C-103	579.64
C-104	580.13
C-105	580.18
C-106 SUPPLEMENTAL	575.59
C-107 SUPPLEMENTAL	577.68
C-108	579.74
C-109	579.97
C-110	579.73
C-111	580.20
C-112	580.63
C-113	576.40
C-114	574.54
USTF-1	570.82
USTF-2	571.13
USTF-3	576.67
SENECA STREET FRONTAGE SAMPLE	580.81



NOTE: NO SAMPLES EXCEED PART 375 RESTRICTED RESIDENTIAL SCO's

LEGEND	
▬	BCP PROPERTY BOUNDARY
■	FINAL ENDPOINT SAMPLE LOCATIONS

SAMPLE DESIGNATION — SAMPLE DATE

"SL 1"	1/1/2011
BENZO (a) ANTHRACENE	0.01

CONSTITUENT — SAMPLE RESULTS THAT EXCEED 6NYCRR PART 375.6.8(a) UNRESTRICTED SCO's

Copies from the original of this survey map, not marked with the original of the Land Surveyor's seal, shall not be considered a valid true copy, and should be assumed to be an unauthorized copy.

Unauthorized alteration or addition to a survey map bearing a licensed Land Surveyor's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

0' 50' 100'

GRAPHIC SCALE 1" = 50'

Survey Date	Revision Date	Comment
11/7/2010	12/4/2010	Add C-107 Supplemental

Onsite Sample Locations with Exceedances of Unrestricted SCO's
Figure 6
City of Buffalo County of Erie
State of New York

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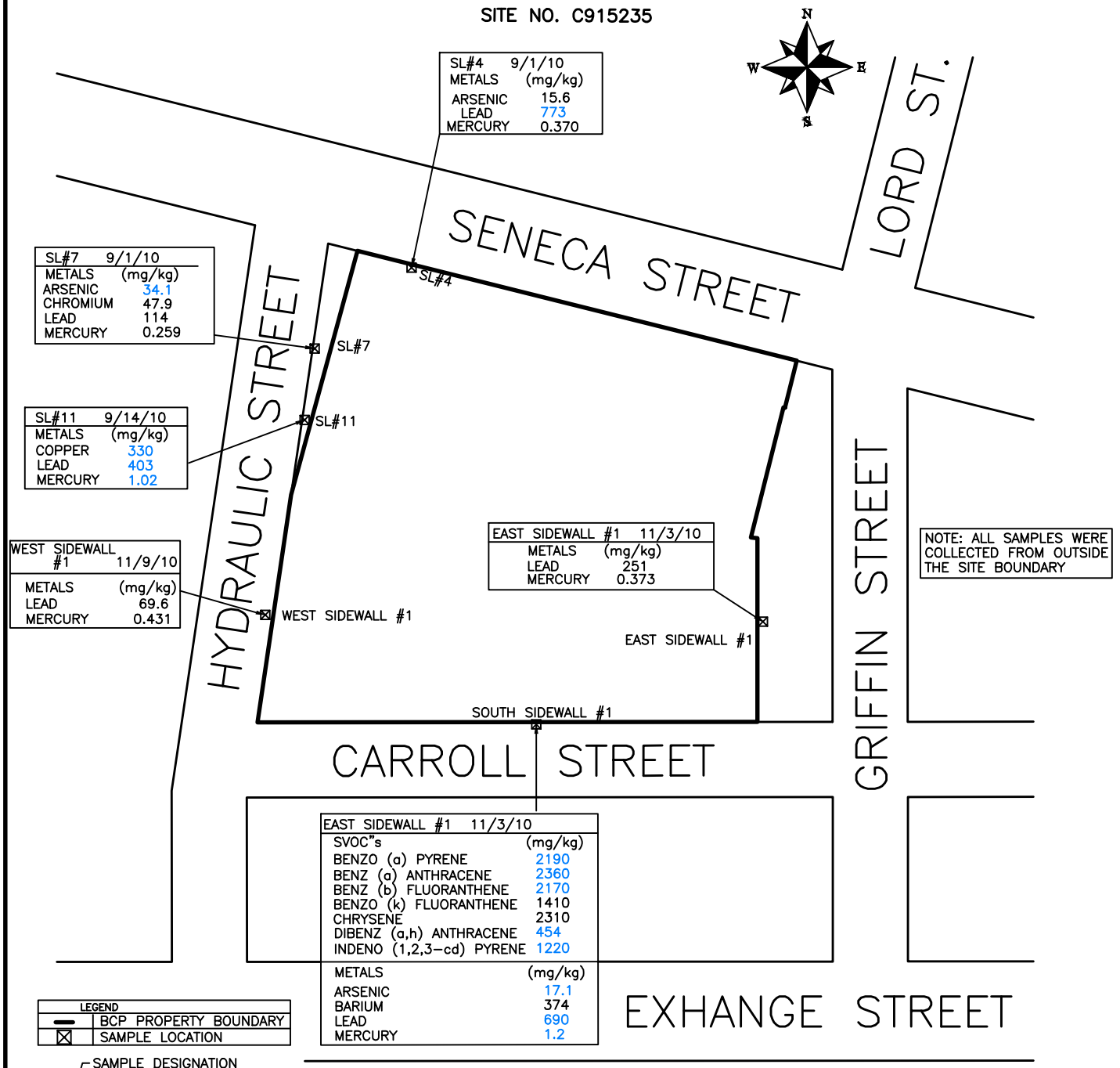
Date: 11/7/2010 Scale: 1" = 50' Drawn by: LJZ
Job No: 03014 Drawing: Figure6R2.dwg Checked by: LJZ

SITE NO. C915235



Survey Date	Revision Date	Comment

Offsite Sampling Locations (sidewalls)

Figure 7

City of Buffalo County of Erie
State of New York

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Date: 1/8/2011 Scale: 1" = 100' Drawn by: LJZ

Job No.: 03014 Drawing: Figure7R1.dwg Checked by: LJZ

111 HYDRAULIC STREET PROJECT SITE
SITE NO. C915235

SENECA STREET
(66' WIDE)

LORD STREET

HYDRAULIC STREET
(50' WIDE)

GRIFFIN STREET
(50' WIDE)

CARROLL STREET
(FORMERLY STEUBEN STREET)
(50' WIDE)

R.O.W.

PROPERTY LINE

CONCRETE SIDEWALK

LAWN

POLE

SANITARY MANHOLE

ELEC. HANDHOLE

LIGHT STANDARD

GAS FLAG

WATER SERVICE VALVE

HYDRANT

GAS SERVICE VALVE

GAS VALVE

WATER METER

CATCHBASIN 578.92
INVERT 577.15

BEDROCK
WELL "BR 15"
ELEV.=582.00

OVERBURDEN
WELL "MW 4"
ELEV.=576.25

BEDROCK
WELL "BR 17"
ELEV.=581.33

OVERBURDEN
WELL #7
ELEV.=583.00

BEDROCK
WELL "BR 12"
ELEV.=582.91

MH RIM 581.82
12"PVC NE INV. 576.32

PAVED TRENCH

(3) GAS VALVES

LEGEND	
———	BCP PROPERTY BOUNDARY
———	CONTOUR OF FINAL BACKFILL
◉	MONITORING WELL LOCATIONS

SEE DRAWING "03014SENECATOPO.DWG" LAST DATED 9/2/2010 FOR ADDITIONAL UTILITY INFORMATION

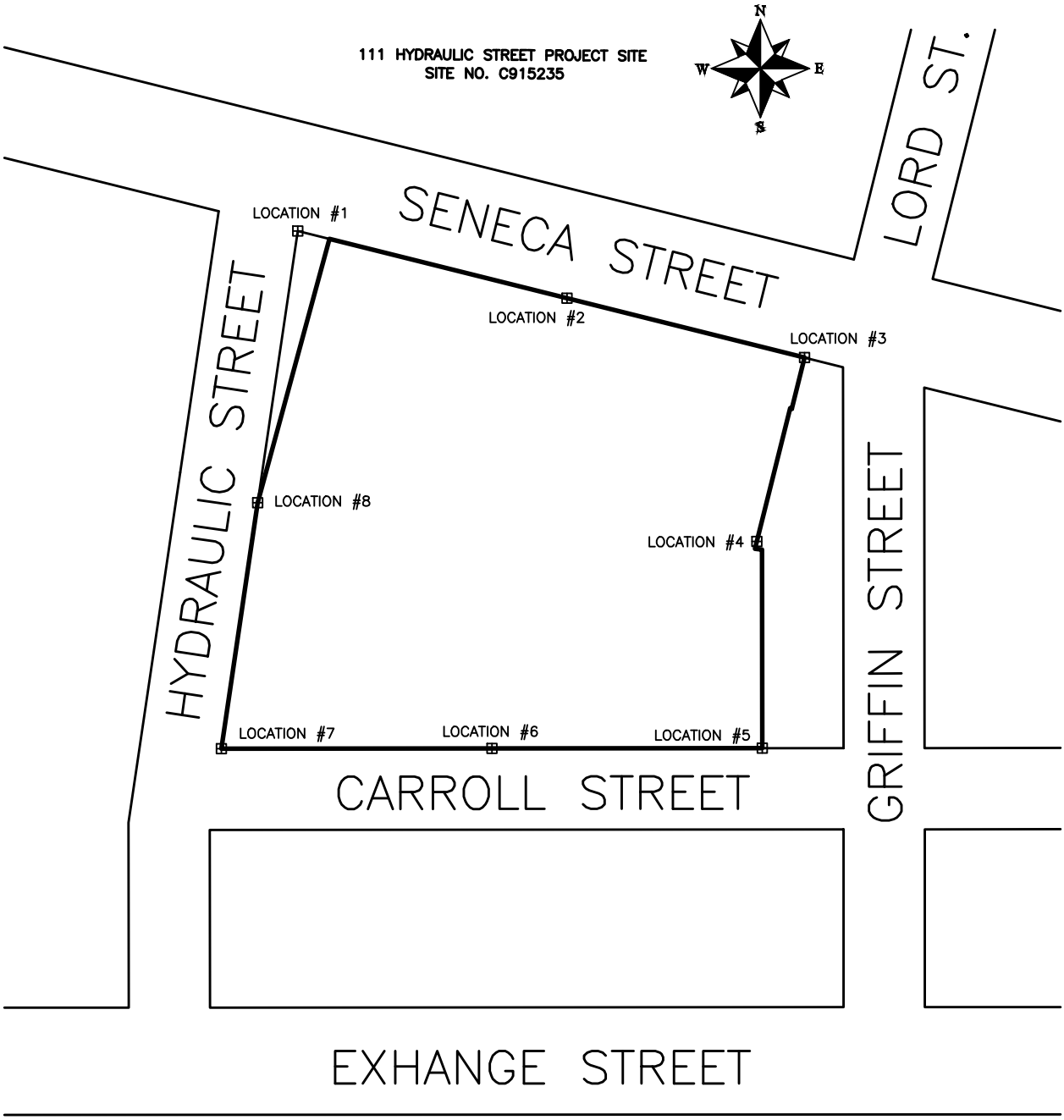
Survey Date	Revision Date	Comment

Backfill Contour Map

Part of Lot 15 Township 11 Range 8 H.L.C.
Figure 8
City of Buffalo County of Erie
State of New York

LAWRENCE J. ZYGAJ, PLS, PC
NYS Land Surveyor – License No. 049714-1
222 Bear Road
Cowlesville, New York 14037
Office: (585) 652-8483 Fax: (585) 652-1137

Date: 1/7/2011 Scale: 1" = 20' Drawn by: LJZ
Job No.: 03014 Drawing: Figure8.dwg Checked by: LJZ



LEGEND	
⊞	PUMP LOCATIONS
━━	BCP PROPERTY BOUNDARY

Survey Date	Revision Date	Comment

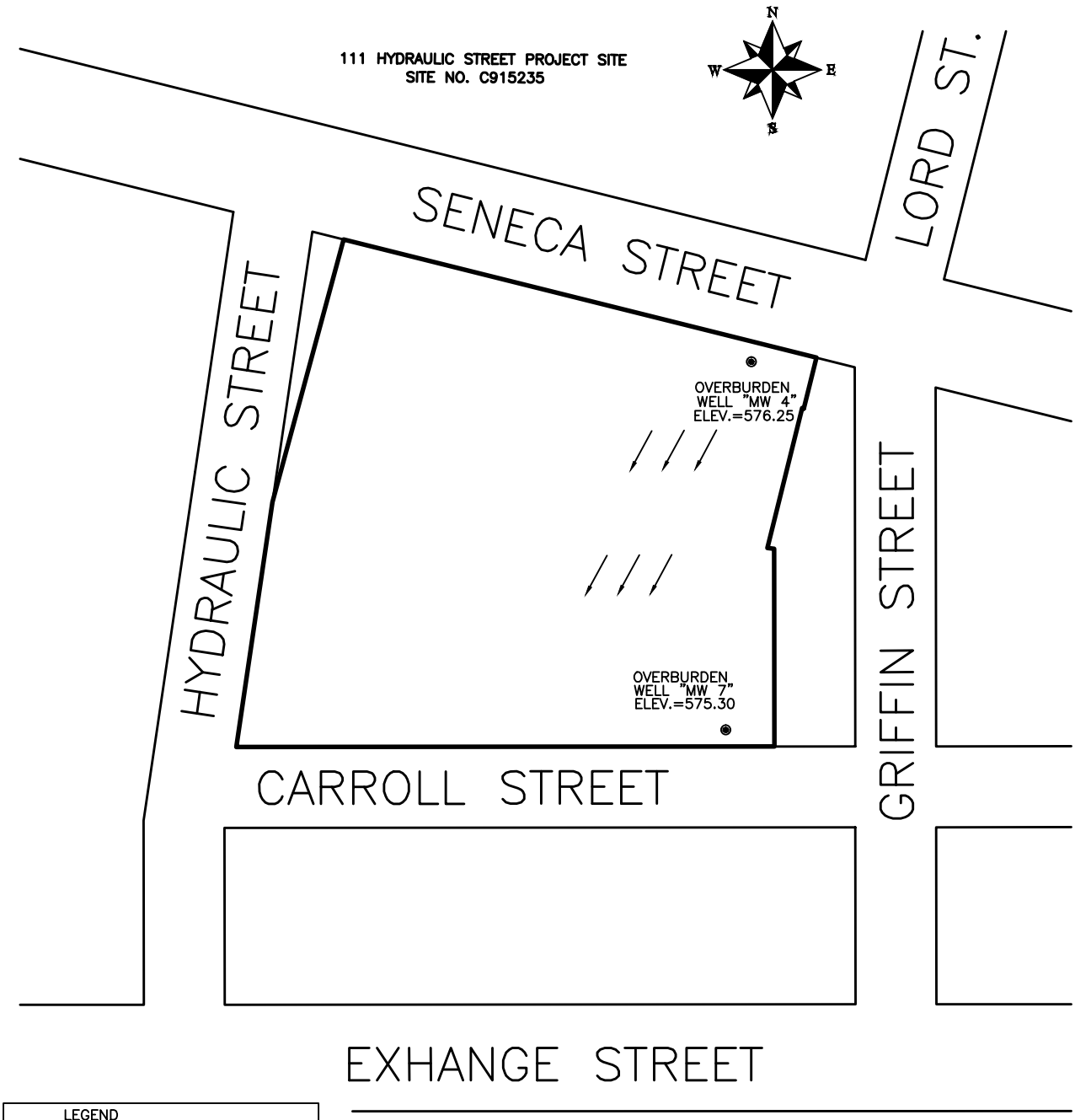
Air Monitoring Station Locations

Figure 9

City of Buffalo County of Erie
State of New York

LAWRENCE J. ZYGAJ, PLS, PC
NYS Land Surveyor – License No. 049714–1
222 Bear Road
Cowlesville, New York 14037
Office: (585) 652–8483 Fax: (585) 652–1137

Date: 1/8/2011	Scale: 1" = 100'	Drawn by:	LJZ
Job No.: 03014	Drawing: Figure9R1.dwg	Checked by:	LJZ



LEGEND	
▬▬	BCP PROPERTY BOUNDARY
———	PARCEL BOUNDARIES
◉	MONITORING WELL LOCATIONS
←———	GROUNDWATER FLOW DIECTION

NOTE: GROUNDWATER FLOW IS BASED OFF OF CURRENT OVERBURDEN MEASUREMENTS.

Survey Date	Revision Date	Comment

Groundwater Flow Direction Map

Figure 10

City of Buffalo County of Erie

State of New York

LAWRENCE J. ZYGAJ, PLS, PC
NYS Land Surveyor – License No. 049714–1
222 Bear Road
Cowlesville, New York 14037
Office: (585) 652–8483 Fax: (585) 652–1137

Date: 1/8/2011	Scale: 1" = 100'	Drawn by:	LJZ
Job No.: 03014	Drawing: Figure5R1.dwg	Checked by:	LJZ

TABLE #1
Soil Cleanup Objectives (SCOs) for the Project
111 Hydraulic Building Site
Buffalo, New York

Final 3/16/11 rev2

PARAMETER	CAS Number	Restricted Residential SCO[1]
Volatile Organic Compounds (VOCs) - mg/kg		
1,1,1-Trichloroethane	71-55-6	**100**
1,1-Dichloroethane	75-34-3	**26**
1,1-Dichloroethene	75-35-4	**100**
1,2-Dichlorobenzene	95-50-1	**100**
1,2-Dichloroethane	107-06-2	**3.1**
cis-1,2-Dichloroethene	156-59-2	**100**
trans-1,2-Dichloroethene	156-60-5	**100**
1,3-Dichlorobenzene	541-73-1	**49**
1,4-Dichlorobenzene	106-46-7	**13**
1,4-Dioxane	123-91-1	**13**
Acetone	67-64-1	**100**
Benzene	71-43-2	**4.8**
n-Butylbenzene	104-51-8	**100**
Carbon tetrachloride	56-23-5	**2.4**
Chlorobenzene	108-90-7	**100**
Chloroform	67-66-3	**49**
Ethylbenzene	100-41-4	**41**
Hexachlorobenzene	118-74-1	**1.2**
Methyl ethyl ketone	78-93-3	**100**
Methyl tert-butyl ether	1634-04-4	**100**
Methylene chloride	75-09-2	**100**
n-Propylbenzene	103-65-1	**100**
sec-Butylbenzene	135-98-8	**100**
tert-Butylbenzene	98-06-6	**100**
Tetrachloroethene	127-18-4	**19**
Toluene	108-88-3	**100**
Trichloroethene	79-01-6	**21**
1,2,4-Trimethylbenzene	95-63-6	**52**
1,3,5- Trimethylbenzene	108-67-8	**52**
Vinyl chloride	75-01-4	**0.9**
Xylene (mixed)	1030-20-7	**100**
PCBs - mg/kg		
PCB-1016	1336-36-3	**1**
PCB-1221	1336-36-3	**1**
PCB-1232	1336-36-3	**1**
PCB-1242	1336-36-3	**1**
PCB-1248	1336-36-3	**1**
PCB-1254	1336-36-3	**1**
PCB-1260	1336-36-3	**1**
PCB-1262	1336-36-3	**1**
PCB-1268	1336-36-3	**1**

PARAMETER	CAS Number	Restricted Residential SCO[1]
Semi-Volatiles Organic Compounds - mg/kg		
Acenaphthene	83-32-9	**100**
Acenapthylene	208-96-8	**100**
Anthracene	120-12-7	**100**
Benzo(a)pyrene	56-55-3	**1**
Benz(a)anthracene	50-32-8	**1**
Benz(b)fluoranthene	205-99-2	**1**
Benzo(g.h.i.)perylene	191-24-2	**100**
Benzo(k)fluoranthene	207-08-9	**3.9**
Chrysene	218-01-9	**3.9**
Dibenz(a,h)anthracene	53-70-3	**0.33**
Fluoranthene	206-44-0	**100**
Fluorene	86-73-7	**100**
Indeno(1,2,3-cd)pyrene	193-39-5	**0.5**
m-Cresol	108-39-4	**100**
Naphthalene	91-20-3	**100**
o-Cresol	95-48-7	**100**
p-Cresol	106-44-5	**100**
Pentachlorophenol	87-86-5	**6.7**
Phenanthrene	85-01-8	**100**
Phenol	108-95-2	**100**
Pyrene	129-00-0	**100**
Total Metals - mg/kg		
Arsenic	7440-38-2	**16**
Barium	7440-39-3	**400**
Beryllium	7440-41-7	**72**
Cadmium	7440-43-9	**4.3**
Chromium	16065-83-1	**180**
Copper	7440-50-8	**270**
Total Cyanide		**27**
Lead	7439-92-1	**400**
Manganese	7439-96-5	**2,000**
Mercury		**0.81**
Selenium	7782-49-2	**180**
Nickel	7440-02-0	**310**
Silver	7440-22-4	**180**
Zinc	7440-66-6	**10,000**

NOTES:

1. Values per 6NYCRR Part 375-6.8(b) for Track 2 Restricted Residential SCOs

TABLE #2
Offsite Soil/Waste Disposal Volumes and Facilities
111 Hydraulic Building Site, Buffalo NY 14210

Final 3/16/11 rev2

Material/Item	Quantity	Units	Responsible Company	Disposal Location
Metal/Petroleum Contaminated Soil	14,630	Tons	Zoladz Trucking	Waste Management Inc. Chaffee, NY Landfill
Steel USTs (recycled for scrap)	11	Tanks	AFI Environmental	Diamond Hurwitz Scrap
Tank Liquids	355	Gallons	Safety-Kleen	Safety-Kleen
Tank Liquids from #6 UST	10,346	Gallons	NOCO	NOCO Recovery
Former Good Door Store Household Wastes (lube oil, paint, flammables, roofing tars, etc.)	10	55 gal drums, 10 and 5 gal containers	Safety-Kleen	Safety-Kleen
Clean C&D (concete, bricks)	2,660	Cubic Yards	Empire Building Diagnostics and Battaglia Demolition	Southport Rail & Transfer and Battaglia Demolition Processing Facility

TABLE #3a
Remedial Performance/Documentation Sampling Results (On-site Floors)
111 Hydraulic Building Site
Buffalo, New York

Final 4/5/11 rev3

PARAMETER[1, 3]	Unrestricted SCO[2]	Restricted Residential SCO[2]	C101[4]	C102[4]	C103[4]	C104[4]	C105[4]	C106-S	C107-S[4]	C108[4]	C109[4]	C110[4]	C111[4]	C112[4]	C113	C114	SL-1	SL-5	SL-6	SL-9	SL-21	UST Tank Farm Floor[5]	Seneca Frontage Basement
			3-Nov-10	3-Nov-10	3-Nov-10	3-Nov-10	3-Nov-10	4-Nov-10	18-Nov-10	3-Nov-10	3-Nov-10	3-Nov-10	3-Nov-10	3-Nov-10	8-Nov-10	9-Nov-10	1-Sep-10	1-Sep-10	1-Sep-10	1-Sep-10	8-Sep-10	12-Oct-10	12-Oct-10
Total Metals - mg/kg																							
Arsenic	**13**	**16**	10.7	8.40	2.11	7.33	9.44	3.92	3.6	9.03	7.73	5.69	2.84	11.0	8.88 J	2.99 J	6.71	14.7	8.16	11.8	7.08	NA	1.1 J
Copper	**50**	**270**	NA	NA	NA	NA	NA	18.7	NA	NA	NA	NA	NA	NA	24.4 R	13.4 R	27.4	35.1	19.2	54.5	25.4	NA	7.78 J
Lead	**63**	**400**	10.1	13.1	18.7	10.3	12.8	12.5	7.5	18.7	64.4	16.2	22.1	16.6	10.2 J	21.7 J	86.4	89.3	386	360	94.5	NA	21.4 J
Mercury	**0.18**	**0.81**	0.0137	0.0161	0.175	0.0179	0.0384	0.0219	0.10 U	0.0217	0.0853	0.0235	0.81	0.0222	0.0188	0.0207	0.222 J	0.478 J	0.0075 J	0.299 J	0.119	NA	0.30 J
Nickel	**30**	**310**	NA	NA	NA	NA	NA	23.1	NA	NA	NA	NA	NA	NA	32.0 J	16.1 J	9.53	17.1	12.6	19.6	22.2	NA	21.9 J
Zinc	**109**	**10,000**	NA	NA	NA	NA	NA	79.7	NA	NA	NA	NA	NA	NA	64.5	74.2 J	130	99.7	178	369	104	NA	87.5 J

NOTES:
1 . Only those parameters detected at concentrations exceeding Tract 1 Unrestricted SCOs, in a minimum of one sample location, are presented in this table; All analytical results for all parameters sampled are included in Appendix P.
2. Values per NYSDEC Part 375 Soil Cleanup Objectives (December 2006).
3. Parameter analysis was determined as per the DEC representative's field decisions at the time of sampling.
4. Samples were collected for RCRA Metals analysis as per the DEC Representatives Field Direction which does not include analysis of Cu, Ni or Zn.
5. Sample only analyzed for 8260 STARS and 8270 STARS as per the DEC Representatives Field Direction for closure of the UST Tank Farm and Historic Spill Number 0650564.

DEFINITIONS:
NA = Sample not analyzed for parameter.
U = The analyte was not detected at the sample quantitation limit.
J = The analyte was positively identified: the numerical value is approximate concentration of the analyte in the sample.

= Result Exceeds 6NYCRR Part 375-6.8(a) Unrestricted SCOs
= Result Exceeds 6NYCRR Part 375-6.8(b) Restricted Residential SCOs

TABLE #4
Waste Characterization Soil Analytical Data
111 Hydraulic Building Site
Buffalo, New York
Final 4/6/11 rev3

PARAMETER[1,2]	Sample #1	Sample #2	Sample #3	Sample #4	Sample #5	Sample #6	Sample #7	Sample #8	Sample #9	Sample #10	Sample #11	Sample #12	Sample #13	Sample #14	Sample #15
	16-Aug-10	24-Aug-10	30-Aug-10	16-Aug-10	10-Sep-10	15-Sep-10	30-Sep-10	30-Sep-10	5-Oct-10	5-Oct-10	5-Oct-10	13-Oct-10	25-Oct-10	25-Oct-10	25-Oct-10
Volatile Organic Compounds (VOCs) - ppm															
Methyl Ethyl Ketone	ND	0.35	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Metals - ppm															
Arsenic	ND	0.02	0.01	NA	ND	ND	ND	ND	ND	ND	ND	0.02	ND	ND	0.01
Barium	0.94	1.09	0.67	NA	0.366	0.688	0.19	0.89	1.22	1.02	1.05	1.05	1.52	1.32	0.95
Cadmium	0.005	0.025	ND	NA	ND	ND	ND	ND	0.012	0.005	0.005	ND	ND	ND	ND
Chromium	ND	ND	ND	NA	ND	ND	0.12	ND	0.01	ND	ND	ND	ND	ND	0.01
Lead	0.511	0.206	0.15	0.002	ND	0.203	ND	0.26	0.365	0.268	0.241	0.27	0.043	0.102	0.833
Selenium	0.01	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES:
1. Samples were only analyzed for parameters as requested by Waste Management Landfill for soil disposal purposes.
2. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect. The full set of analytical results are included in Appendix H.

DEFINITIONS:
NA = Sample not analyzed for parameter. (not required for Disposal)
ND = Parameter not detected above Labortory Detection Limit
ppm = Parts Per Million

TABLE #5
Analytical Results and Associated Limits for Imported material
111 Hydraulic Building Site
Buffalo, New York

Final 4/5/11 rev3

PARAMETER[1]	CAS Number	Unrestricted SCO[2]	Restricted Residential SCOs[2]	LCA Gravel	McEwan	Visone Virgin Clay
				Source Buffalo Crushed Stone	Site No . 90489	
Total Metals - mg/kg						
Arsenic	7440-38-2	**13**	**16**	2.94	9.15	1.40
Barium	7440-39-3	**350**	**400**	9.63	42.9	113
Beryllium	7440-41-7	**7.2**	**72**	ND	0.396	0.70
Cadmium	7440-43-9	**2.5**	**4.3**	3.79	0.350	0.41
Chromium	16065-83-1	**30**	**180**	5.84	9.15	19.7
Copper	7440-50-8	**50**	**270**	2.71	29.4	32.2
Lead	7439-92-1	**63**	**400**	27.9	10	14.1
Manganese	7439-96-5	**1,600**	**2,000**	478	455	540
Mercury		**0.18**	**0.81**	0.008	0.0093	ND
Selenium	7782-49-2	**3.9**	**180**	ND	0.190	ND
Nickel	7440-02-0	**30**	**310**	5.2	20.3	24.2
Zinc	7440-66-6	**109**	**10,000**	1530	129	66.4

NOTES:
1. Only those parameters detected at a minimum of one sample location are presented in this table, all other compounds were reported as non-detect. The full set of analytical results can be found in Appendix R.
2. Values per NYSDEC Part 375 Soil Cleanup Objectives (December 2006).

DEFINITIONS:
ND = Parameter not detected above laboratory detection limit.
NA = Sample not analyzed for parameter.

= Exceeds 6NYCRR Part 375-6.8(a) Unrestricted SCOs
= Exceeds 6NYCRR Part 375-6.8(b) Restricted Residential SCOs

Table #6
UST Disposal Characterization Results
111 Hydraulic Building Site
Buffalo, NY 14220
Final 3/17/11 rev2

PARAMETER[1,2]	Solvent UST #5	Solvent UST #6	UST #7-9
	13-Oct-10	13-Oct-10	18-Oct-10
Volatile Organic Compounds (VOCs)- µg/L			
Acetone	ND	ND	16.6
Benzene	ND	ND	0.708
Carbon Disulfide	ND	14	NA
Ethylbenzene	580	ND	ND
Isopropylbenzene	120	8.7	NA
m&p-Xylene	3200	NA	NA
Methyl tert-butyl ether	ND	33	NA
n-Propylbenzene	160	11	NA
p-Isopropyltoluene	ND	27	NA
Toluene	1500	ND	2.61
1,2,4-Trimethylbenzene	1300	9.3	NA
1,3,5- Trimethylbenzene	410	66	NA
Vinyl chloride	ND	66	ND
Xylene (mixed)	4900	8.5	4.71
Total Metals- mg/L			
Arsenic	0.02	0.032	0.019
Barium	0.385	0.363	1
Cadmium	0.008	0.087	ND
Chromium	0.005	0.051	0.020
Lead	0.209	1.2	0.275
Manganese	NA	NA	NA
Silver	0.001	0.006	ND

NOTES:
1. Samples were only analyzed for parameters required for disposal purposes.
2. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect. The full set of analytical results are included in Appendix H.

DEFINITIONS:
NA = Sample not analyzed for parameter.
ND = Parameter not detected above Labortory Detection Limit

TABLE #7
Backfill Quatities and Sources
111 Hydraulic Building Site
Buffalo, New York

Final 3/16/11 rev2

MATERIAL	Stone from Buffalo Crushed Stone	Compactable Fill from McEwan Gravel and Trucking	Clay from Visone Construction
	Source - Buffalo Crushed Stone Quarry	Source - Site No . 90489	Source - Virgin Clay
#1 and #2 Crusher Run	405.11 Tons		
# 2 Crusher Run	47.10 Tons		
#3 Crusher Run	46.32 Tons		
Compactible Fill		13,299.55 Tons	
Virgin Clay			200 Cubic Yards

Table #8
Groundwater Sampling After Remedial Action
111 Hydraulic Building Site
Buffalo, NY 14220
Final 4/5/11 rev4

CONTAMINANT[1]	CAS Number	Maximum Allowable Concentration[2]	Overburden Wells		Bedrock Wells		
			MW4	MW7[3]	BR12	BR15	BR17
			Jan-11	Feb-11	Jan-11	Jan-11	Jan-11
Volitile Organic Compounds (VOCs) - ug/L							
Acetone	67-64-1	**50**	2.5	ND	0.66	47	ND
Benzene	71-43-8	**1**	ND	ND	0.81	0.50	ND
Carbon Disulfide	75-15-0	**60**	ND	ND	ND	0.56	ND
cis-1,2-Dichloroethene	156-59-2	**5**	ND	ND	1.1	ND	0.38
m&p-Xylene	108-38-3 &	**5**	ND	ND	ND	0.92	ND
Methyl ethyl ketone	78-93-3	**50**	ND	ND	ND	7.4	ND
Methyl t-butyl ether (MTBE)	1634-04-4	**10**	5.9	ND	ND	0.58	ND
Toluene	108-88-3	**5**	ND	ND	ND	0.70	ND
Vinyl chloride	75-01-4	**2**	ND	ND	0.70	ND	0.24
Total Metals - ug/L							
Arsenic	7440-38-2	**25**	ND UJ	ND UJ	ND UJ	1.5	ND UJ
Barium	7440-39-3	**1,000**	932	46	385	841	403
Chromium	16065-831	**50**	ND J	1.9	ND J	ND U	ND J
Copper	7440-508	**200**	ND UJ	ND J	ND U	5.0	ND U
Lead	7439-92-1	**25**	1.6	ND UJ	ND	ND	1.2 J
Manganese	7439-96-5	**300**	140	114 J	23	ND U	102
Nickel	7440-02-0	**100**	1.9 J	3.2	ND	9.0	0.9
Silver	7440-22-4	**50**	ND	ND U	0.9	ND	ND
Zinc	7440-66-6	**2,000**	17	11 J	ND U	22	ND U
Semi-Volatile Organic Compounds (SVOCs) - ug/L							
Benzoic acid	65-85-0	**N/A**	ND UJ	NA	55 *J	10 J	ND UJ
Benz(a)anthracene	56-55-3	**0.002**	ND	0.07	ND	ND	ND
Benzo(a)pyrene	50-32-8	**N/A**	ND	0.05	ND	ND	ND
Benzo(b)fluoranthene	205-99-2	**0.002**	ND	0.07	ND	ND	ND
Benzo(k)fluoranthene	207-08-9	**0.002**	ND	0.03	ND	ND	ND
Bis(2-ethylhexyl)phthalate	117-81-7	**5**	ND	3.0 J	ND	4.8	ND
Chrysene	218-01-9	**0.002**	ND	0.07	ND	ND	ND
Indeno (1,2,3-cd)pyrene	193-39-5	**0.002**	ND	0.04	ND	ND	ND
Phenanthrene	85-01-8	**50**	ND	0.09	ND	0.28	ND

NOTES:
1. Only those parameters detected at a minimum of one sample location are presented in this table, all other compounds were reported as non-detect. The full set of analytical results can be found in Appendix P.
2. Values per NYSDEC TOGS 1.1.1 (Table 1 & Table 5).
3. Sample was collected again in February as well was resampled as per direction of DEC.

DEFINITIONS:
NA = Sample not analyzed for parameter.
ND = Parameter not detected above laboratory detection limit.
U = The analyte was not detected at the sample quantization limit.
J = The analyte was positively identified: the numerical value is approximate concentration of the analyte in the sample.
UJ = The analyte was not detected above reported sample quantization limit, however the reported quantization limit is approximate concentration of the analyte in the sample.
N = The analysis indicated the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
* = Results taken from diluted sample analysis.

= Result exceeds Class GA Groundwater Quality Standards (GWQS) per NYSDEC TOGS 1.1.1

PHOTO RECORD

111 Hydraulic Building Site

Site No. C915235 Buffalo, NY 14210

PROJECT: YB-111HydraulicBCP

Photo 1 –Project Site

Photo 4 – Building Demolition

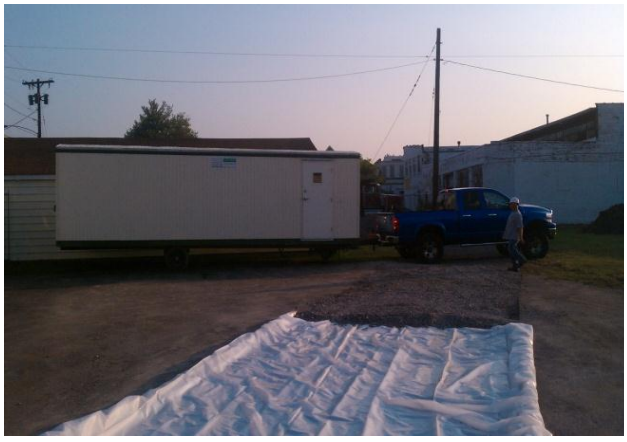


Photo 2 – Project Office

Photo 5 – Loading Contaminated Soils

Photo 3 – Monitoring Well Installation

Photo 6 – UST Removal – Phase 3b

PHOTO RECORD

111 Hydraulic Building Site
Site No. C915235 Buffalo, NY 14210
PROJECT: YB-111HydraulicBCP

Photo 7 – UST #1 & 2 Tank Pit – After Removal

Photo 8 – UST #3 Tank Pit – After Removal

Photo 9 – Phase 1a – Excavated to Clean Soils

Photo 10 – Phase 1b – Excavated to Clean Soils

Photo 11 – Phase 2a – Excavated to Clean Soils

Photo 12 – Phase 2b – Excavated to Clean Soils

PHOTO RECORD

111 Hydraulic Building Site
Site No. C915235 Buffalo, NY 14210
PROJECT: YB-111HydraulicBCP

Photo 13 – Phase 3a - Excavated to Clean Soils

Photo 16 – Final Excavation Viewed from South

Photo 14 – Phase 3b – Excavated to Clean Soils

Photo 17 – Final Excavation Viewed from West

Photo 15 – Phase 4 – Excavated to Clean Soils

Photo 18 – Post Excavation Sampling

PHOTO RECORD

111 Hydraulic Building Site

Site No. C915235 Buffalo, NY 14210

PROJECT: YB-111HydraulicBCP

Photo 19 – Back Filling Site

Photo 20 – Back Filling Site