REMEDIAL INVESTIGATION/ALTERNATIVES ANALYSIS REPORT

31 TONAWANDA STREET SITE
AND
150 TONAWANDA STREET/FORMER CSX VACANT RAIL PROPERTY
BUFFALO, NEW YORK 14207
NYSDEC SITE # C915299

Prepared for:

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October 2019

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CERTIFICATION

I John B. Berry certify that I am currently a NYS registered professional engineer as defined in 6 NYCRR Part 375 and that this Remedial Investigation/Alternative Analysis Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

STATE OF NEW YORK
JOHN B. BERRY
LICENSED PROFESSIONAL ENGINEER
No. 046600

John B. Berry, PE

I Jason Brydges certify that I am currently a NYS registered professional engineer as defined in 6 NYCRR Part 375 and that this Remedial Investigation/Alternative Analysis Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

5-20-20

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1.0 INTRODUCTION

31 Tonawanda Street LLC owner of the 31 Tonawanda Street/Former CSX Vacant Rail Property Site (NYSDEC Site #C915299) located at 31 Tonawanda Street and 150 Tonawanda Street, Buffalo, New York 14207 (see **Figure 1**) has entered into a Brownfield Cleanup Agreement (BCA) with the NYSDEC under the Voluntary section of the "Brownfield Cleanup Program (BCP) Act". 31 Tonawanda Street LLC has contracted BE3/Panamerican (BE3/PEI) to conduct a Remedial Investigation (RI) and prepare an Alternatives Analysis Report (AAR) as required by the BCA and complete remedial measures, as necessary. This document presents both the RI results and the AAR for the Site.

For this report the term "Site" will be used when referencing both the 31 Tonawanda and the 150 Tonawanda locations together and when discussing each location separately each will be referred as property, i.e. 31 Tonawanda property and 150 Tonawanda property.

This RI/AAR is being completed in accordance with BCP requirements as defined in section 375-3.8 of the 6 NYCRR Part 375 Environmental Remediation Program Regulations. It is anticipated that the remedial measure selected will lead to a Site remedy as defined in Part 375-1.8(g)(2)(ii); achieve Restricted-residential use Soil Cleanup Objectives as defined in Part 375-6.8(b); and mitigate any environmental impacted media issues at the Site. The owner plans, upon completion of remediation, to redevelop the Site. The current plans consist of renovating the 31 Tonawanda property building for use as self-storage with a small portion of the building used for steel fabrication and one-two studio-type residential units are also planned. The 150 Tonawanda property will be redeveloped into self-storage units.

1.1 SITE BACKGROUND

The project includes two separate properties both located in the City of Buffalo; one on the west side (150) and one on the east side (31) of Tonawanda Street.

The 31 Tonawanda property is an approximately 1.86–acre property located adjacent to Scajaquada Creek on the southeast corner of Tonawanda and West Streets. The 0.90-acre 150 Tonawanda property is vacant railroad property located on the west side of Tonawanda Street just north of the former rail depot/freight house/office located at 68 Tonawanda Street. Both properties are located in the Black Rock area of the City of Buffalo and are located within the City of Buffalo Tonawanda Street Corridor Brownfield Opportunity Area (BOA). The Tonawanda Street Corridor BOA is comprised of 514 acres of primarily under-utilized industrial brownfields in northwest Buffalo stretching from Scajaquada Creek (Creek) to just south of the Tonawanda municipal boundary, and along Chandler Street. The Site is strategically located with access to major highways, a bi-national railway, Black Rock Canal, the Niagara River, Scajaquada Creek, and the Jesse Kregal trail system which provides a creek side east-west connection between the Niagara River and Delaware Park.

31 Tonawanda Street

The 31 Tonawanda property contains an irregularly shaped, approximately 114,731 square foot, 1-3 story building. The property features are dominated by the building complex which occupies the majority of the property and the immediately adjacent features. The property is bound by the Creek and the off ramp of the Scajaquada Expressway (State Highway 198) to the south and east; Tonawanda Street to the west and West Avenue to the north. The existing building complex was initially constructed in the early 1900's as Fedder Manufacturing Company. The only green space is limited to an area along the Creek on the northeast and east side of the property. A smaller area of grass/vegetation is located on the southern side as the property abuts the Expressway off ramp and the Creek. The Creek bank in the rear of the property contains large stones along the shoreline. Currently the building is a mostly vacant former manufacturing facility. There are two parts to the building. The rectangular section on the east (Creek) side has a 25,000 square foot floor plate, with three floors and a full, deep, usable basement, for a total useable space of 100,000 square feet. The west side of the building is 40,000 square feet, has a large high bay area, and a lower section that wraps around the south side.

The Site and surrounding area have a long historic industrial use and is located in what was formerly a highly industrial area. Commercial use of the general area occurred in the early 1800's situated around Black Rock. The industrial history of the properties and adjacent properties has had a significant effect on the environmental impacts affecting both the area and the subject properties. In the late 1800s, the United States Electric Light and Power Company of Buffalo (later called the Buffalo General Electric Company) had a plant for arc lighting on the southern portion of the 31 Tonawanda property and the Thompsons Shingle Mill was located on the northern portion. The electric company was an experimental station of the National High Temperature Furnace Company. Sometime after 1900 the Fedder's Manufacturing Company occupied the 31 Tonawanda property until it sold the complex to Black Rock Trade Center, Inc. in 2005. Fedders began as a metalworking shop started by Theodore C. Fedder's. The Fedders complex was initially located on the subject parcel and eventually expanded across West Avenue to also occupy the adjacent northern parcel along Tonawanda Street (57 and 71 Tonawanda Street). Initially Fedders made milk cans and kerosene tanks for Standard Oil Co. and bread pans for National Biscuit Co. Later Fedders converted the plant to making radiators for automobiles. During World War I the company also made radiators for airplanes and manufactured appliances for heating and electrical refrigeration. During World War II Fedders received contracts to make links and clips for machine-gun belts and garand-rifle bullets. In the late 1940's through the 1960s Fedders made room air conditioners and electric water coolers, heaters, radiators, radiator cores and home radiators, convectors, hot-water boilers and women's handbag frames, as well as heat-transfer equipment, including convectors, condensers, evaporators, and dehumidifiers. By 1990 the company was sold to FEDCO who manufactured automobile heating equipment. The Fedders complex had a history of using various chemicals, oils, solvents and other materials in their manufacturing process. The processes at the property included metal stamping, soldering, brazing, welding, painting, acid washing and degreasing. Industrial wastes were reported to include solder dross, degreasing still bottoms including trichloroethylene (TCE) and tetrachloroethene, petroleum-based lubricating fluids and other products and wastes.

150 Tonawanda Street

The 150 Tonawanda property has been associated with rail operations since the mid-late 1800's. By the late 1800's the property contained freight platforms and separate freight depots. As a freight depot, much of the raw and manufactured products that supported the surrounding industry and residential community were probably temporarily stored at this location. Materials where on/off loaded from freight trains on the western rail side of the property and off/on loaded to vehicles on the eastern Tonawanda Street side of the property. By 1916 the Freight house building was located on the adjacent southern parcel and rail tracts extended across the subject rail parcel.

In general, the more than a century of intense industrialization has altered the natural setting throughout both properties and the area can best be described as highly disturbed. Soil borings indicate that urban fill material (fill) exists at both properties to a depth that varies form about two (2) to six (6) feet below ground surface (bgs). Reddish-Brown clay or silty clay was observed below the fill level. Bedrock beneath the project area is Onondaga limestone, consisting of Middle Devonian age limestone and chert. It lies deeply buried beneath glacial deposits and no rock outcroppings are visible on the ground surface. Soils within the project area are classified as Urban Land (Ud) - highly developed for commercial, industrial or residential use, and much of the ground surface is covered by impervious features (e.g., buildings, streets, and paved parking lots). Based upon readily accessible environmental databases and field investigations at the properties, the zone at 12-16 feet below ground surface was observed to be very wet, which may correspond to the localized groundwater elevation. The adjacent Creek flows in a westerly direction into the River via the Black Rock Canal. In general, drainage and shallow groundwater flow is to the west/southwest towards these water bodies.

Site boundary/topographic survey maps are provided in **Appendix G**.

1.2 PREVIOUS INVESTIGATIONS

The following is a list of investigation reports completed on the properties:

- Phase I Environmental Site Assessment 31 Tonawanda Street; City of Buffalo, Erie County, New York; completed by PEI for Buffalo Niagara RIVERKEEPER and The Buffalo Niagara River Land Trust in May 2011.
- Phase II Environmental Site Assessment– 31 Tonawanda Street, Buffalo, New York; completed by PEI for Wayne Bacon/Jack Ruh in September 2014.
- Limited Sub-Slab Soil/Subsurface Assessment– 31Tonawanda Street, Buffalo, New York; completed by PEI for Wayne Bacon/Jack Ruh; March 2015.
- Phase I Environmental Site Assessment 120 (68) Tonawanda Street and Adjacent Vacant Rail Road Property (150 Tonawanda), City of Buffalo, Erie County, New York" Completed by PEI for Mr. Ed Hogel in February 2013.
- Phase II Environmental Site Assessment– Former CSX Property North of 120 Tonawanda Street, Buffalo, New York; prepared for 31 Tonawanda Street LLC; Mr. Wayne Bacon & Mr. Jack Ruh; prepared by PEI February 2, 2016.

The following are the key findings of the above ESAs.

May 2011 – Phase I Environmental Site Assessment Report (31 Tonawanda)

In May 2011, PEI conducted a Phase I ESA on the subject Site. The Phase I noted several Recognized Environmental Conditions (RECs) including:

- Foundry and machine shop operations were located in close proximity to the property. Environmental contamination associated with these facilities include elevated levels of lead and other metals in near and subsurface soils and wastes associated with slag/foundry sands such as phenols. Other contaminants, including solvents and petroleum products are typically associated with drummed materials. It is possible that releases from these facilities have impacted area surface and near-surface soils above "normal" urban background with regard to metals and polycyclic aromatic hydrocarbons (PAH).
- A former MGP plant was located east and nearby the plant during the early 1900's until the 1950's. A second MGP plant was located west along the River during the early 1900's. Remedial actions at the adjacent Iroquois Gas/Westwood Pharmaceutical Site found a highly

concentrated oily material adjacent to the FEDCO facilities (31 Tonawanda property) in 1998.

- The property and/or adjacent Fedders property have a history of chemical and petroleum use and storage. Fedders manufactured automotive components including radiators, heaters, and transmission oil coolers and included operations such as metal stamping, soldering, brazing, welding, painting, acid washing and degreasing. Industrial wastes were reported to include solder dross, degreasing still bottoms including trichloroethylene (TCE) and tetrachloroethene (PCE), petroleum-based lubricating fluids and other products and wastes. A number of investigation reports suggest industrial environmental concerns with adjacent properties including chemical and petroleum tank removal and remediation. Past investigations on adjacent/nearby properties concluded that volatile and semi-volatile organic compounds and metal compounds were found across the site in surface and subsurface soil, sediments and groundwater.
- It is probable that due to the nature of the commercial use of the facility, small spills of materials have occurred over the lifetime of the facility which may have migrated to floor drains and or through cracks in the cement floor. Based on property and adjacent/nearby property use history potential vapor concerns exist.
- A 1950 Sanborn Map indicates that a small gasoline tank was located in the northeast portion of the property. City of Buffalo Fire and permit records indicate tanks associated with Fedders listed under 57 Tonawanda Street. A 1943 City Department of Fire record suggests that a 550-gallon UST was located in front of 17 Tonawanda Street at Fedders.
- The property may contain fill of unknown quality

September 2014 – Phase II Environmental Site Assessment Report (31 Tonawanda)

The scope of work for this Phase II ESA was based on the findings of the Phase I ESA noted above. The work was completed by PEI in two distinct phases; phase 1 was completed in April 2014 and consisted of the advancement of a series of Geoprobe borings around the exterior of the building with one inside the building followed by phase 2 in September 2014 which included a series of borings to evaluate the lateral extent of contamination identified in one location during phase 1.

Phase 1 Investigation - A total of ten (10) Geoprobe borings were advanced during the Phase 1 in an array around the west and east perimeter of the 31 Tonawanda property structure (refer to **Figure 3**). Borings were advanced to an average depth of 12 feet below ground surface. At each location, visual observations were recorded and field screening of soil for volatile organic compound (VOC) concentrations was conducted using the PID.

The field observations indicated that silty clay from 1-15 feet below ground surface (bgs) under an asphalt layer exists along Tonawanda Street while sand (possibly foundry sand) and silt to about 12-16 feet bgs exists along the creek side of the property especially on the southeastern portion. Some clay exists under the asphalt areas in the northeast portion of the property. The zone at 12-16 feet was observed to be wet to very wet especially in the southeast portion of the property and this may correspond to the bottom of the creek level. Elevated PID readings and odors (strong but indistinguishable) were observed at only two locations; borehole BH-5 at a depth of 8-16 feet bgs and in borehole BH-7 (odor only) at a depth of 9-12 feet bgs. Borehole BH-5 was located in the southeast portion of the property along the creek and borehole BH-7 was located in the northeast portion of the property adjacent to the creek (refer to **Figures 3**).

A total of three (3) soil samples were collected for laboratory analysis. These included: a sample from the 9 -12-foot depth bgs from borehole BH-5 (odor and elevated PID of 400 + ppm); a sample from borehole BH-7 from the 9-12-foot depth bgs (odor); and a soil sample from BH-8 at 5-8 feet bgs (no odor or elevated PID readings). Samples were analyzed for the full NYSDEC Part 375 Brownfields parameter list – metals, volatile and semi-volatile organic compounds, pesticides and PCBs.

Phase 2 Investigation - During the phase 1 portion of this ESA subsurface investigation elevated concentration levels of Trichloroethylene (TCE) were detected along with other compounds in boring BH-5 at a depth of between 9 and 12 feet bgs. The objective of this follow-up phase 2 investigation was to assess the radial extent and better define the concentration of TCE around borehole BH-5 outside the adjacent structure. A total of seven (7) borings were advanced in a north and south direction from the phase 1 borehole BH-5 (refer to **Figure 3**). The field observations were consistent with the phase 1 findings. Fill consisting of sand (possibly foundry sand) and silt to about 12-16 feet bgs exists along the creek side of the property in the southeastern portion. The zone at between 8-16 feet was observed to be wet to very wet (this may correspond to the bottom of the creek level). Additionally, an odor in BH5-3N was different from the other borings and resembled a coal tar odor. Analytical results indicated the presents of a several PAHs and a few VOCs and metal compound concentrations that exceeded Restricted Residential SCOs at depths up to 12 feet below grade.

One (1) soil samples was collected for laboratory analysis from BH5-3N at a depth of 12-16 feet bgs. The purpose was to determine if elevated solvent concentrations existed in boreholes where screening and observations suggested little impact. The intent was to confirm the aerial extent of the solvent impact. This sample was analyzed for VOCs and coal tar constituents (added based on the odor in BH5-3N).

See **Phase 2 ESA Tables - Table 1**, 31 Tonawanda Street, for the Phase 1 and 2 analytical results.

March 2015 – Limited Sub-Slab Soil/Sub-Surface Assessment Report (31 Tonawanda)

PEI completed the sub-floor, subsurface soil assessment at the southeast corner of the 31 Tonawanda property. The Phase II ESA described above indicated elevated concentrations of solvents in subsurface soils along the eastern-southern portion of the property. The purpose of the scope was to assess if a plume or potential source of the solvents found during the Phase II ESA exists under the building slab in the southeastern portion of the building.

The scope included: coring through the cement/wood floor and advancing four (4) soil borings using Geoprobe® direct push technology; soil screening using a total organic vapor monitor/photoionization detector (PID). Borings were advanced to an average depth of 12 feet below ground surface (bgs). The field observations indicated that fill consisting of sand (possibly foundry sand), ash and brick was located to about 8-9 feet bgs in all the borings. In the borings completed along the eastern wall wet to very wet silty sandy clay with gravel was observed below the fill. A chemical odor and elevated PID readings (40 ppm total organic vapors) were also observed in these borings at that depth. The soil profile was similar to that found outside the building in that area. See **Figure 3** for Boring locations and analytical results.

A total of three (3) soil samples were collected for laboratory analysis. These included: a sample from the 8-12-foot depth bgs from Core/Boring C-1 (odor and elevated PID of 40+ ppm); a sample from Core/Boring C-3 from the 6-8-foot depth bgs (slightly elevated PID results); and a soil sample from C-4 at 6-8 feet bgs (slightly elevated PID readings). Based on the Phase II results and the objective of the assessment, the sub-slab soil samples were analyzed for volatile organic compounds (VOC) only (see **Phase 2 ESA Tables -Table 2**- Floor Boring Samples 3/19/15).

February 2016 – Phase II Environmental Site Assessment Report (150 Tonawanda - Former CSX

Property)

At the time of this Phase II ESA the current 150 Tonawanda property was known as 120 Tonawanda Street or described as property north of 120 Tonawanda Street.

Surface and subsurface conditions were investigated by excavating a series of nine (9) slit-trenches across the property. The location of trenches and sampling points were based on field observations and an effort to gain representative samples across the property while at the same time ensuring that areas of concern were assessed.

This was a limited Phase 2 environmental assessment designed to assess fill conditions across the property. The assessment indicated that the site contained mostly fill material which is present across the property to a depth of 4- 6 feet bgs. Generally, the fill consisted of black sandy fill mixed with brown soil, concrete, brick and other debris. The exception was test trenches TP8 and TP9 which were advanced through the raised berm along Tonawanda Street (see **Figure 2**). The berm material was observed to be dark silty soil. In all test trenches tight clay was encountered below the fill and perched groundwater was encountered in most trenches at 5 - 6 feet bgs.

Historical information indicates that this area contained rail lines and a few depot buildings that were separate from the main depot adjacent to the south. The surface and subsurface soil analytical results indicate that various PAH compounds and a few metals were detected in both surface and subsurface soil samples. The concentrations were compared to the NYSDEC Final Restricted Use Soil Cleanup Objectives (SCOs) as presented in 6 NYCRR Part 375-6.8 (b). This comparison found that some PAH and metal compound concentrations in both surface and subsurface soils to a depth of 6 to 7 feet bgs that slightly exceeded the SCOs for residential use and/or residential-restricted use and commercial use in some instances (see **Phase 2 ESA Tables -Table 1**).

1.3 Constituents of Concern (COCs)

Based on the prior investigations, the primary constituents of concern (COCs) at the Site are:

- **31 Tonawanda Street** - SVOCs (PAHS) and VOCs (solvents/petroleum related compounds) in the soils, VOCs (solvents/PFAS related compounds) in the groundwater, and VOCs (solvents) in the building soil vapor.

- **150 Tonawanda Street** - SVOCs and metals in soils.

1.4 Identification of Standards, Criteria and Guidance (SCGs)

SCGs are promulgated requirements (i.e., standards and criteria) and non-promulgated guidance that govern activities that may affect the environment and are used by the NYSDEC at various stages in the investigation and remediation of a site. The following are the primary SCGs for this project:

- NYSDEC 6 NYCRR Part 375 – Environmental Remediation Programs December 2006;
- NYSDEC DER-10 – Technical Guidance for Site Investigations and Remediation May 2010;
- NYSDEC - Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations June 1998 (TOGS);
- NYSDEC Policy – CP-51- Soil Cleanup Guidance; Date Issued: October 21, 2010; and,
- New York State Department of Health (NYSDOH) October 2006 Guidance for Evaluating Soil Vapor Intrusion in the State of New York and its May 2017 amendment.

2.0 REMEDIAL INVESTIGATION

Investigation activities were performed in accordance with the requirements of the RI work plan *(Work Plan for Remedial Investigation, 31 Tonawanda Street Site and 150 Tonawanda Street Site* #C915299*, March 2018)* that was approved by NYSDEC Region 9 as part of the BCP process. Daily field reports describing investigation field activities are provided in **Appendix E**. The RI activities were completed between August 2018 and September 2018 at the site with a supplemental investigation of the subsurface below the 31 Tonawanda Street building crawl space area conducted in February 2019.

2.1 BACKFILL/SOIL INVESTIGATION

The primary purpose of the soil assessment was to supplement existing data for the Site by visually inspecting and describing surface and subsurface conditions through the collection and analyses of soil samples. Soil borings were installed and samples collected as follows:

150 Tonawanda Street– A total of six (6) borings were installed in an approximate grid pattern to assess the entire site with a focus on areas where impacted soils were previously identified. A total of three (3) surface soil samples, three (3) subsurface soil samples in fill and three (3) native soil samples were collected from the soil borings (refer to **Figure 2**). Soil borings were advanced to a maximum depth of eight feet bgs. Borings were ended at refusal or native material. Continuous soil sampling was conducted using the Geoprobe® with a two-inch diameter sampler

31 Tonawanda – Building Exterior

A total of six (6) borings were installed in the east side of the site between the building and the Creek with a focus on areas where impacted soils were previously identified and locations not covered in previous investigations. A total of three (3) surface soil samples, six (6) subsurface soil samples in fill and one (1) native soil sample were collected from the soil borings (refer to **Figure 3**).

Soil borings were advanced to a maximum depth of 20 feet bgs using Geoprobe® direct push technology. Borings were ended at refusal or native material. Continuous soil sampling was conducted using the Geoprobe® with a two-inch diameter sampler.

31 Tonawanda – Building Interior

To assess soil conditions below the crawl space section of the building where historical chemical operations were indicated a total of eight (8) borings were installed in this area. (refer to **Figure 3A**). The crawl space area has a combination of metal/concrete/wooden floor with a three (3) to four (4) foot space beneath it to a soil floor. Four of the eight borings were not completed due to slag in one boring and concrete in the others resulting in the inability of completing the borings due to refusal. The remaining four (4) soil borings were advanced between eight (8) and 16 feet bgs. Continuous soil sampling was conducted using the Geoprobe® with a two-inch diameter sampler. The objective of the supplemental assessment within the crawl space section of the building was to assess contaminate levels in the vadose (non-water bearing) zone versus the depths that were moist or wet indicating contact with groundwater.

The precise location of borings and sampling were based on field observations and specifically targeted potential contaminant features to obtain samples representative of the Site while ensuring that areas of concern were examined. Coordinates of all boring and sample locations were established with a field

GPS unit (with the exception of within the building where GPS unit does not function) and are provided in **Table 6.**

The following was completed during each boring:

- A description of the soil stratigraphy was made (refer to boring logs in **Appendix A**);
- Visual observations (staining, odors, etc.), as encountered;
- Total organic vapor monitoring was completed using a PID as each boring was installed; and
- Cleaning of equipment between each boring location.

A MiniRae 3000 PID with a 11.7 eV Lamp was used for VOC screening. PID readings above background were recorded on the boring logs. No elevated PID reading were recorded during the 150 Tonawanda Street property boring program. A number of elevated PID readings were recorded during the 31 Tonawanda property boring program. Maximum PID readings and comments for each 31 Tonawanda Street property boring are as follows.

Boring	PID Reading/Elevation	Comment
31-BH-1	28.2 ppm at 11.5 feet	Odor & Product noted (8' -13')- Staining outside core (13'-16')
31-BH-2	27.7 ppm at 20 feet	Odor & Staining (11'-18')-Strong odor/Product in core (19'-20')
31-BH-3S	0.2 ppm at 12 feet	Odor (11'-12')
31-BH-4	0.3 ppm at 11.5 feet	
31-BH-5	224 ppm at 7.5 feet	Black sands/strong odor (6'-9')
31-BH-6	22.1 ppm at 4 feet	Black sand/odor (4'-6')
31 SBH-1	10 ppm at 4 feet	Black sand (1'-4')
31 SBH-3	10 ppm at 4 feet	
31 SBH-4	30 ppm at 10 feet	
31 SBH-5	40 ppm at 10 feet	

All PID readings recorded at other depths within these borings are presented in the boring logs (**Appendix A**) and the daily field reports (**Appendix E**).

All soil samples collected were analyzed for NYSDEC Part 375 brownfield constituents (target compound list (TCL) VOCs and SVOCs, VOC/SVOC tentatively identified compounds (TICs), Part 375 metals + Cyanide, pesticides, and PCBs). Soil samples were collected based on PID readings, visual observations and to obtain representative soils across the Site. Surface soil samples were collected from the upper two (2) inches from the top of the borehole core and were not analyzed for volatile compounds. Subsurface soil samples were collected generally from fill materials, however, samples of what was believed to be native soil were also collected to ascertain if the native soil has been impacted.

The samples were submitted to a NYSDOH Environmental Laboratory Approval Program (ELAP) certified laboratory and a full Contract Laboratory Program (CLP). Samples were analyzed in accordance with NYSDEC Category B, with full CLP-type analytical data package deliverables. Analytical results for all soil samples are discussed in Section 4.0.

2.2 Groundwater Investigation

A total of four (4) overburden groundwater monitoring wells were installed at the 150 Tonawanda Street property (see **Figure 5**) and a total of five (5) overburden groundwater monitoring wells were installed at the 31 Tonawanda Street property (see **Figure 6**) using a conventional track mounted drill rig with hollow stem auger drilling. Wells were installed per the RIWP. Well construction diagrams are provided in **Appendix A**.

The following are the measured well depths and water levels from the top of casing at the time of sampling (see **Table 9** Groundwater Elevations):

150 Tonawanda Street

- MW-1 – 40.10 feet to bottom of well – 6.70 feet to standing water
- MW-2 – 39.00 feet to bottom of well – 7.40 feet to standing water
- MW-3 – 38.60 feet to bottom of well – 9.30 feet to standing water
- MW-4 – 39.00 feet to bottom of well – 5.50 feet to standing water

31 Tonawanda Street

- MW-1 – 19.80 feet to bottom of well – 7.8 feet to standing water
- MW-2 – 30.20 feet to bottom of well – 5.2 feet to standing water
- MW-3 – 18.0 feet to bottom of well – 6.3 feet to standing water
- MW-4 – 20.10 feet to bottom of well – 8.1 feet to standing water
- MW-5 – 22.60 feet to bottom of well – 13.30 feet to standing water

One (1) groundwater sample was collected from each of the wells. Well development and sampling were conducted in accordance with the RIWP. All samples were analyzed for TCL VOCs and SVOCs, VOC/SVOC TICs, Part 375 metals + Cyanide, pesticides, and PCBs. Select samples were also analyzed for Per-polyfluoroalky (PFAS) and 1,4 Dioxane. NYSDEC agreed that one (1) upgradient and two (2) downgradient groundwater samples at each site will be analyzed for these compounds (150 Tonawanda – MW-1, MW-3 and MW-4 and 31 Tonawanda – MW-2, MW-3 and MW-4).

It should be noted that there was a sheen observed on the purge water in MW-1 along with a slight odor. There was also a solvent odor in the purge water for MW-3.

During the crawl space investigation, a groundwater sample was collected from the SBH-3 boring within the building by installing a temporary piezometer.

2.3 Building Environmental Condition Assessment

Environmental condition assessments were conducted at the 31 Tonawanda building. These included an asbestos containing materials (ACM) survey, lead-based paint (LBP) survey and a PCB inventory/assessment. **Figure 3** shows the location of the building and a summary description of the building is provided in Section 1.1.

A New York State licensed asbestos firm, AMD Environmental Consultants, Inc. of Buffalo, New York, conducted the asbestos survey including the lead-based paint assessment and PCB inventory which they are also licensed to perform.

The results of the ACM survey indicated the presence of ACM in the building in a number of materials such as transite panels/siding, window glazing, wiring, etc. (see complete list in **Appendix F**). Sampling of window caulking for PCB content indicated that the material sampled was found to be below the 50-ppm threshold for PCB's by laboratory analysis. A review of the X-Ray florescence (XRF) instrument results indicates that LBP is present and shows deterioration on interior and exterior building components in the building. There are approximately 478 PCB containing light ballasts in the building that will have to be properly disposed of if remove during renovation.

Detail reports for the above surveys/assessments are provided in **Appendix F**.

2.4 Sub-Slab Soil Vapor Intrusion Investigation

The 31 Tonawanda Building is to remain and renovated under the new planned development. This building has a partial basement and a crawl space (see Section 1.1 for complete description). Based on site history and previous sampling analytical results, a vapor intrusion investigation was completed that consisted of sampling vapors from beneath the floor slab and within the building and crawl space (i.e., indoor air). An air/vapor sample was collected from each of six (6) locations across the concrete sub-slab floor. Four (4) ambient indoor air samples and one (1) crawl space indoor air sample were also collected along with one (1) outdoor ambient air sample (see **Figure 4** for sampling locations). To collect sub-slab air/vapor samples, the concrete floor was drilled removing a concrete core and collecting an air (vapor) sample using a one-inch probe and a Summa canister. Summa canisters were also used to collect indoor/outdoor air samples. Sample collection was in accordance with the October 2006, New York State Department of Health *Guidance for Evaluating Soil Vapor Intrusion in the State of New York, as amended in* May 2017. Section 4.5 discusses the results of the sampling program.

Photographs of all investigation work are provided in **Appendix C**.

3.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

3.1 Surface Features

150 Tonawanda Street

The 0.90-acre 150 Tonawanda Street property is a former rail property and is vacant land covered with vegetation. The site is generally flat and gently sloping from west to east and north to south. Surface drainage is generally laterally in all directions towards low spots but primarily towards the east and south and the storm drains located along Tonawanda Street to the east and southeast.

31 Tonawanda Street

The 31 Tonawanda Street property is an approximately 1.86–acre property. Approximately 70 percent of the property is covered by a building. The only green space is limited to an area along the Creek on the northeast and east side of the property. A smaller area of grass/vegetation is located on the southern side as the property abuts the Expressway off ramp and the Creek. Green space drainage flows toward the Creek.

A topographic and boundary survey map for each property are provided in **Appendix G**.

3.2 Geology/Hydrogeology

In general, the more than a century of intense industrialization has altered the natural setting throughout both properties and the area can best be described as highly disturbed. Soil borings indicate that urban fill material (fill) exists at both properties to a depth that varies from about three (3) to eight feet (8) below ground surface (bgs) at the 150 Tonawanda property and 13 to 18 feet bgs at the 31Tonawanda.property. The backfill consists of miscellaneous dark brown and gray-brown gravel, sand and silty clay type soils, including trace amounts of organics, concrete, brick, rock, wood and other materials. Reddish-Brown clay or silty clay was observed below the fill level. The geology on the east side of the 31 Tonawanda Street property along the Creek and below the crawl space area of the

building is slightly different. The geology in this area includes silty sandy fill with some silty clay and it is possible that the Creek may have been wider in past history which may explain the silty wet zone 8-16 feet below ground surface. Bedrock beneath the project area is Onondaga limestone, consisting of Middle Devonian age limestone and chert. It lies deeply buried beneath glacial deposits and no rock outcroppings are visible on the ground surface. Soils within the project area are classified as Urban Land (Ud) - highly developed for commercial, industrial or residential use, and much of the ground surface, in general, is covered by impervious features (e.g., buildings, streets, and paved parking lots), however, the 150 Tonawanda property is mostly cover with vegetation.
Based on measured groundwater depths from the monitoring wells installed at each property, groundwater flows from the east-southeast to the west-northwest at the 150 Tonawanda Street property and from the northwest to the southeast toward the Creek at the 31 Tonawanda Street property.

Groundwater contours are provided on **Figure 5** for the 150 Tonawanda property and **Figure 6** for the 31 Tonawanda property. Groundwater elevations are provided on **Table 9**.

3.3 DEMOGRAPHY AND LAND USE

Currently the building at the 31 Tonawanda Street property is a mostly vacant former manufacturing facility. There are two parts to the building both with different anticipated uses. The rectangular section on the east (Creek) side has a 25,000 square foot floor space, with three floors and a full, deep, usable basement, for a total useable space of 100,000 square feet. The west side of the building is 40,000 square feet, has a large high bay area, and a lower section that wraps around the south side. The development process includes:

- The rectangular 3-story section on the east (creek) side will be converted in stages to self-storage. In the initial phase the first, second and third floors will be converted to self-storage. The first floor will have an approximately 1,000-square foot office and the balance will be self-storage with individually rented out units ranging in size from 5ft. x 5ft. to 10 ft. x 20ft. The second and third floors will be more of the same, individually rented units. The basement will be left unfinished at this time;
- The 25,000 square foot high bay area and southern 15,000 square feet of single-story area is anticipated to be used by E.B Atlas Steel for metal fabrication; and,
- One-two studio-type residential units are planned for the facility.

The 150 Tonawanda Street property is currently vacant land which will be converted to a storage unit complex.

4.0 NATURE AND EXTENT OF CONTAMINATION

4.1 INTRODUCTION

This section discusses the results of the RI activities, and the nature and extent of contaminants detected in the media investigated. The assessment is based on the RI program combined with the data obtained in previous investigations to provide an overview of the nature and extent of impacts at the site.

All soil and groundwater samples were submitted for analysis to Paradigm Environmental Services, Inc. a New York State certified laboratory. Air samples were submitted for analysis to Centek Laboratory, LLC., also, a New York State certified laboratory. A New York State licensed asbestos firm, AMD Environmental Consultants, Inc. of Buffalo, New York, conducted the asbestos survey including the lead-based paint assessment and PCB inventory which they are also licensed to perform.

All soil, groundwater and air analytical data were validated by KR Applin & Associates (EDU), a certified data validator. Data Usability Summary Reports (DUSR Text Only) for all data is provided in **Appendix B**.

Complete laboratory analytical results and DUSRs are provided in **Appendix J (CD).**

4.2 POTENTIAL SOURCES

This section discusses potential sources of contamination that have resulted in the impacted soil and groundwater detected during the RI and previous investigations at the site. Historical operations at the Site and urban fill across the Site are the most likely sources of any impacts to the site soils and possibly groundwater.

150 Tonawanda Street

Historical operations at the property and man placed fill across the property are the most likely sources of any impacts to the soils.

The property has been associated with rail use and freight storage since the mid-late 1800's. Railroad environmental issues sometimes involve diesel fuel and other petroleum products and rail areas have also been associated with other contaminants such as heavy metals, chlorinated hydrocarbons, and PAHs above NYSDEC guidelines. In general, soils at former rail road properties typically consist of fill near the surface which is typically a black cindery fill layer consistent with materials typically found at rail yards including cinder, gravel, coal and sometimes slag. The property was used as a rail depot which most likely supported the industries across Tonawanda Street and the general area. It is unknown what was stored at this facility during rail operations.

The RI revealed elevated levels of PAHs and metals in the fill soils which are commonly found in railroad related sites and urban fill material in general. PAHs were above restricted residential soil cleanup objectives (SCOs) for the site and were detected in samples collected at the surface and up to 6 to 7 feet bgs. Elevated concentrations of metals were also detected but not above the SCOs for the property.

PAHs are a group of chemicals that are formed during incomplete burning of wood, coal, gas, garbage or other organic substances and are widely distributed in the environment and particularly in older urban environments where coal, gas, and petroleum were burned for heat and other energy uses such as at the industrial operations on the Site. In general, PAHs along with metal compounds are not very mobile in soils, in that they have low solubilities with water and tend to adsorb to the soil grains. These compounds do not readily breakdown in the environment and PAHs deposited from combustion of coal or other fuels years ago on the Site would most likely still be present today.

31 Tonawanda Street

Historical operations in the building and man placed fill that surrounds the building are the most likely sources of any impacts to the site soils and groundwater. Various historic operations in the building as discussed below most likely also led to the impacts of the groundwater on the property.

The existing building complex was initially constructed in the early 1900's as Fedder Manufacturing Company. The Fedder's complex had a history of using various chemicals, oils, solvents and other materials associated with the manufacturing of metal parts and products associated with automobiles and radiators. The processes at the property included metal stamping, soldering, brazing, welding, painting, acid washing and degreasing. Industrial wastes were reported to include solder dross, degreasing still bottoms including trichloroethylene (TCE) and tetrachloroethene, petroleum-based lubricating fluids and other products and wastes.

The RI revealed the presences of several elevated solvent compound concentrations in the soil and groundwater particularly in the southeast section of the property (see **Figure 6**). A few elevated petroleum related compounds were detected in some areas of the property most notably in the northeast corner near a location of a former gasoline tank and pump (BH-5) at a depth of 4 to 6 feet bgs. The sub-slab vapor intrusion assessment conducted as part of the RI throughout the 31 Tonawanda Street building revealed elevated solvents in the sub-slab vapors and indoor air, which may be attributable to the presence of solvent compounds in the groundwater samples. Sources of these elevated compounds most likely are from the historic on-site facility operations discussed above. Elevated levels of PAHs and metals were also detected in the soils during the RI and as at the 150 Tonawanda property are commonly found in urban fill material.

The findings of the sampling analytical program are further described below:

4.3 Soil Sample Analytical Results

The following provides a summary of the results of the RI soil sample analytical program. Also discussed in this section are the results from the previous Phase II ESA programs. Compounds detected during the Phase II programs are summarized in **Phase 2 ESA Tables.** Soil compounds detected during the RI are summarized in tables as follows for both the 150 and 31 Tonawanda Street properties.

150 Tonawanda Street

- RI **Table 1** and **Figure 2** (August 2018)
- Phase 2 ESA **Table 1** (January 2016)

31 Tonawanda Street

- RI **Table 2** and **Figure 3** (August 2018)
- RI **Table 10** and **Figure 3A** (February 2019)
- Phase 2 ESA **Table 1** (April 2014)
- Phase 2 ESA **Table 2** (March 2015)

The tables provide a comparison of the analytical results with 6 NYCRR Part 375-6.8 Site Cleanup Objectives (SCOs). The figures present compounds that exceed Part 375 Restricted Resident values. Since the total site is anticipated to be cleaned up to Restricted Residential SCOs the below sections discuss only exceedances of the Restricted Residential SCOs.

4.3.1 Semi-Volatile Organic Compounds

150 Tonawanda Street

Numerous SVOCs consisting primarily of PAHs were detected in most soil samples in both the RI and Phase 2 ESA programs except for the RI boring samples BH-4 (2.8'-4') and BH-6 (5.5'-6') where no SVOCs were detected. A summary of the number of samples with SVOC concentration levels exceeding Restricted Residential SCOs includes the following:

- ....Phase II soil samples – 5 samples of 6 collected; and,
- ....RI boring soil samples – 6 samples of 9 collected.

The PAH exceedance levels, in most cases, only slightly exceeded Restricted residential SCOs and ranges from surface samples to samples at 6 to 7 feet bgs.

31 Tonawanda Street

Numerous SVOCs consisting primarily of PAHs were detected in all of the RI and Phase 2 ESA programs soil samples in both the RI and Phase 2 ESA programs. A summary of the number of samples with SVOC concentration levels exceeding Restricted Residential SCOs includes the following:

- ....Phase 2 ESA soil samples – 2 samples of 4 collected; and,
- ....RI boring soil samples – 6 samples of 10 collected.

The PAH concentration levels, in most cases, only slightly exceeded Restricted residential SCOs.

4.3.2 Pesticides/PCBs

150 Tonawanda Street

Pesticides and PCBs were detected in most RI and Phase 2 ESA soil samples but at concentration levels below Restricted-residential SCOs.

31 Tonawanda Street

Pesticides and PCBs were detected in most RI and Phase 2 ESA soil samples but at concentration levels below Restricted-residential SCOs.

4.3.3 Metals

150 Tonawanda Street

Metals were detected in all soil samples from both the Phase II and the RI program. No metal compounds exceeded Restricted Residential SCOs in the RI program samples and three (3) metal compounds slightly exceeded Restricted Residential SCOs in five (5) of the six (6) samples collected during the Phase 2 ESA at sampling depths ranging from the surface up to 5 to 6 feet bgs.

31 Tonawanda Street

Metals were detected in all soil samples from both the Phase II and RI programs. Two (2) metal compounds exceeded Restricted Residential SCOs in one sample in the RI program and three (3) metal compounds exceeded Restricted Residential SCOs in three (3) of the four (4) samples collected during the Phase 2 ESA. Sample depths at which metals exceeded Restricted Residential SCOs ranged from 4 to 12 feet bgs

4.3.4 Volatile Organic Compounds

150 Tonawanda Street

No VOC concentrations were detected in the Phase II ESA or the RI soil samples that exceeded Restricted Residential SCOs.

31 Tonawanda Street

Several solvent/petroleum related VOCs were detected in all six (6) samples from the RI program and the six (6) samples collected in the Phase 2 ESA programs. A number of these VOC concentration levels exceeded Restricted Residential SCOs at sample depths from the surface up to 12 to 15 feet bgs. VOC exceedances are as follows:

<u>RI Program (2018)</u>

- BH-1 (13.5'-15')
  - cis-1,2-Dichloroethene – 152 ppm versus 100 ppm SCO
  - Vinyl Chloride – 30.7 ppm versus 0.09 ppm SCO
- BH-5 (4'-6')
  - Ethylbenzene – 168 ppm versus 41 ppm SCO
  - m,p-Xylene – 595 ppm versus 100 ppm SCO
  - 1,2,4-Trimethylbenzene – 91.4 ppm versus 52 ppm SCO

<u>RI Crawl Space Program (February 2019)</u>

- SBH-4 (8')
  - Trichloroethene – 1662 ppm versus 21 ppm SCO
- SBH-4 (12')
  - cis-1,2-Dichloroethene – 1970 ppm versus 100 ppm SCO
  - Trichloroethene – 7340 ppm versus 21 ppm SCO
- SBH-5 (12')
  - 1,1,1- Trichloroethene – 667 ppm versus 100 ppm SCO
  - 1,2-Dichloroethane – 246 ppm versus 3.1 ppm SCO
  - cis-1,2-Dichloroethene – 221 ppm versus 100 ppm SCO
  - Trichloroethene – 474 ppm versus 21 ppm SCO
  - Vinyl Chloride – 4.02 ppm versus 0.9 ppm SCO

<u>Phase 2 ESAs</u>

- BH-5 (9'-12') (2014)
  - cis-1,2-Dichloroethene – 880 ppm versus 100 ppm SCO
  - Trichloroethene – 6960 ppm versus 21 ppm SCO
- C-1 (8'-12') (2015 – Crawl Space)
  - 1,1,1-Trichloroethane – 670 ppm versus 100 ppm SCO
  - 1,1-Dichloroethane – 31.5 ppm versus 26 ppm SCO
- C-3 (6'-8') (2015 – Crawl Space)
  - Trichloroethene – 1630 ppm versus 21 ppm SCO
- C-4 (6'-8') (2015 – Crawl Space)
  - Trichloroethene – 244 ppm versus 21 ppm SCO

4.3.5 Soil Results Summary

150 Tonawanda Street

The results of the RI and Phase 2 ESA soils investigation indicate that a number of SVOCs (PAHs) were detected throughout soil/fill material at variable levels slightly above Restricted-residential SCOs.

In no sample did the total PAHs exceed 500 ppm, a NYSDEC criteria. The RI results indicated that no metal compounds exceeded Restricted Residential SCOs, however, a few metals exceeded Restricted Residential SCOs in the Phase 2 ESA results. Primarily, arsenic exceeded its SCO in 4 of the 6 samples collected. Metals and PAH exceedances range from the soil surface to 7 feet bgs.

No pesticides/PCBs or VOCs were detected above Restricted Residential SCOs in either the RI or the Phase 2 ESA programs.

Figure 2 presents all of the analytical results that exceed Restricted Residential SCOs for both the RI and the Phase 2 ESA.

31 Tonawanda Street

The results of the RI and Phase 2 ESA soils investigations indicate that a number of SVOCs (PAHs) and some metals were detected throughout soil/fill material at variable levels above Restricted-residential SCOs. In no sample did the total PAHs exceed 500 ppm, a NYSDEC criteria. Soil samples collected during the Phase 2 ESA and the crawl space RI in the sub-slab soil boings conducted through the floor of the building crawl space detected elevated VOCs (solvents) that exceeded Restricted Residential SCOs. Elevated solvent compounds above SCOs were also detected in soil samples from borings installed exterior to the building adjacent the crawl space exterior wall (RI BH-1 and September 2014 ESA BH-5). The soil sample from RI BH-5 (4'-6') detected petroleum related VOCs that exceeded Restricted Residential SCOs. Elevated metals, SVOCs and VOCs were detected in samples that ranged from the surface to 15 feet bgs

The elevated petroleum compounds are most likely associated with a former tank and pump in the northeast portion of the property near west street. The elevated solvent compounds are mostly associated with the southeast portion of the property.

Figures 3 and 3A presents all of the analytical results that exceed Restricted Residential SCOs for both the RI and the Phase 2 ESAs.

4.4 Groundwater Sample Analytical Results

The following provides a summary of the RI groundwater (GW) sample analytical program. Compound concentration levels detected in GW samples collected during the RI are compared to Class GA Groundwater Quality Standards (NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations - June 1998) in the following tables and figures.

- 150 Tonawanda Street – **Table 4** and **Figure 5**
- 31 Tonawanda Street – **Table 5** and **Figure 6**

Per the directive of NYSDEC, groundwater samples from one upgradient and two downgradient wells at each property (150 and 31) were also sampled for Per-polyfluoroalky (PFAS) and 1,4 Dioxane compounds. The results of these analysis are provided in **Table 7** (150) and **Table 8** (31).

Groundwater elevations for both properties are provided in **Table 9** and groundwater contours are shown on **Figures 5** (150) and **Figure 6** (31).

4.4.1 Semi-Volatile Organic Compounds

150 Tonawanda Street

SVOCs were not detected in any of the GW samples.

31 Tonawanda Street

One (1) SVOC was detected in MW-3 at a concentration that exceeded its TOGs guideline (Bis(2-ethylhexyl) phthalate 49.2 ppb versus 5 ppb TOGs).

4.4.2 Pesticides/PCBs

150 Tonawanda Street
Pesticides were detected in all four (4) GW samples, however, only two (2) pesticides (Heptachlor and Heptachlor Epoxide) were detected at concentrations slightly above TOGs guidelines.

One (1) PCB compound was detected in monitoring well (MW-3) that slightly exceeded its TOGs guideline (PCB-1260 at 0.134 ppm versus 0.09 ppm TOGs).

31 Tonawanda Street

Pesticides were detected in two (2) of the five (5) monitoring wells. Heptachlor slightly exceeded TOGs guidelines in MW-3 and Heptachlor, Heptachlor Epoxide and Dieldrin slightly exceeded TOGs guidelines in MW-5.

PCB-1260 was detected in two (2) of the five (5) monitoring wells. PCB-1260 exceeded its TOGs guideline in MW-1 (1.81 ppm versus 0.09 ppm TOGs) and in MW-2 (1.22 ppm versus 0.09 TOGs).

4.4.3 Metals

150 Tonawanda Street

Metal compounds were detected in each of the GW samples with only the metal Manganese exceeding its TOGs guideline in two (2) of the wells (MW-2 - 405 ppm and MW-4 – 1400 ppm versus 300 ppm TOGs guidance value).

31 Tonawanda Street

Metal compounds were detected in each of the GW samples with only the metal Manganese exceeding its TOGs guideline in MW-2 (547 ppm versus 300 ppm TOGs).

4.4.4 Volatile Organic Compounds

150 Tonawanda Street

VOCs were detected in two (2) of the four (4) monitoring well samples but at concentration levels below TOGs guidelines.

31 Tonawanda Street

VOCs were detected in all the GW samples. Several Solvent related VOCs were detected at concentration levels that exceeded TOGs guidance values in Monitoring wells MW-3, MW-4, MW-5 and

SBH-3 The VOC exceedances of TOGs values were as follows.

- MW-3
    - o cis-1,2-Dichloroethene – 37,500 ppb versus 5 ppb TOGs value
    - o 1,1,1-Trichloroethane – 188,000 ppb versus 5 ppb TOGs value
    - o 1,1-Dichloroethane – 75,700 ppb versus 5 ppb TOGs value
    - o 1,1-Dichloroethene – 2,510 ppb versus 5 ppb TOGs value
    - o Vinyl Chloride – 5,080 ppb versus 2 ppb TOGs value

- MW-4
    - o Cis-1,2-Dichloroethene – 5.26 ppb versus 5 ppb TOGs value

- MW-5
    - o 1,4-Dioxane – 49.4 ppb versus 1.0 ppb TOGs value

- SBH-3 (crawl Space)
    - o cis-1,2-Dichloroethene – 369 ppb versus 5 ppb TOGs value
    - o 1,1,1-Trichloroethane – 51.1 ppb versus 5 ppb TOGs value
    - o 1,1-Dichloroethane – 42 ppb versus 5 ppb TOGs value
    - o Trichloroethene – 194 ppb versus 5 ppb TOGs value
    - o Vinyl Chloride – 147 ppb versus 2 ppb TOGs value

It should be noted that 1,4-Dioxane was analyzed by the laboratory using Method 8620-VOCs (the above results) and also by Method 8270 under the emergent contaminant sampling discussed in section 4.4.5.

4.4.5 PFAS & 1,4 Dioxane

150 Tonawanda Street

MW-1, MW-3 and MW-4 were tested for Per-polyfluoroalky (PFAS) and 1,4 Dioxane compounds (Method 8270). A few PFAS compounds were detected in each of the monitoring well samples tested, but the total of all PFAS compound values did not exceed the NYSDREC guideline value for PFAS totals. 1,4-Dioxane was not detected in any of the three wells tested.

31 Tonawanda Street

MW-2, MW-3 and MW-4 samples were tested for Per-polyfluoroalky (PFAS) and 1,4-Dioxane compounds. PFAS compounds were detected in each of the wells with the total PFAS compound values not exceeding the NYSDEC guideline value for PFAS total of 0.5 ppb. However, the individual NYSDEC guideline value for both PFOS and PFOA of the PFAS compounds was exceeded in MW-3 and MW-4 (refer to Table 8)

1,4-Dioxane analyzed using Method 8270 exceeded the NYSDEC guideline in MW-3 (5020 ppb versus 1.0 ppb guideline) and in MW-4 (9.78 ppb versus 1.0 ppb guideline). As noted in section 4.4.4 1,4-Dioxane was also analyzed as part of the 375 VOCs under Method 8260 and exceeded the NYSDEC guideline in MW-5.

4.4.6 Groundwater Results Summary

150 Tonawanda Street

The groundwater analytical results indicate minor impacts to groundwater. Only one metal compound (Manganese) had an elevated concentration above its TOGs value in two of the wells (MW-2 and MW-4) and is most likely the result of natural variability in soils and/or from the fill materials present on the property. One PCB compound was detected at a concentration slightly above its TOGs value in MW-3. Two pesticide compounds were also detected in three of the monitoring wells at concentrations slightly above their TOGs values. No SVOCs were detected in any of the groundwater samples and two (2) VOCs were detected in two (2) of the four (4) well samples at concentrations below their TOGs values. A few PFAS compounds were detected in each of the three monitoring well samples tested with the total of all PFAS compound values not exceeding the NYSDEC guideline value for PFAS totals. 1,4-Dioxane was not detected in any of the three wells tested.

31 Tonawanda Street

Only one metal compound (Manganese) was detected in one monitoring well (MW-2) above its TOGs value. One PCB compound (PCB-1260) was detected in both MW-1 and MW-2 at concentrations that exceeded their TOG values. A few pesticide compounds were detected in MW-3 and MW-5 that slightly exceeded their TOG values. One (1) SVOC was detected in MW-3 at a concentration that exceeded its TOGs guideline (Bis(2-ethylhexyl) phthalate).

Solvent-related VOCs appear to be impacting GW in the wells installed at the southeast side of the site (between the building and the Creek). Solvent related VOCs were detected at elevated concentrations in MW-3, MW-4 and MW-5 with significant elevated compound concentrations above TOGs values detected in the MW-3 sample. The groundwater sample collected from boring SBH-3 during the February 2019 RI within the building crawl space also indicated the presence of several solvent related VOCs at elevated concentrations that exceeded their TOG values.

MW-2, MW-3 and MW-4 samples were tested for Per-polyfluoroalky (PFAS) and 1,4-Dioxane compounds. PFAS compounds were detected in each of the wells with the total PFAS compound values not exceeding the NYSDEC guideline value for PFAS total of 0.5 ppb. However, the individual NYSDEC guideline value for both PFOS and PFOA of the PFAS compounds was exceeded in MW-3 and MW-4 (refer to Table 8)

1,4-Dioxane analyzed using Method 8270 exceeded the NYSDEC guideline in MW-3 (5020 ppb versus 1.0 ppb guideline) and in MW-4 (9.78 ppb versus 1.0 ppb guideline). As noted in section 4.4.4 1,4-Dioxane was also analyzed as part of the 375 VOCs under Method 8260 and exceeded the NYSDEC guideline in MW-5.

4.5 Sub-Slab Soil Vapor Analytical Results

Six (6) sub-slab vapor samples, five (5) indoor ambient air samples (One sample in crawl space-1A-05) and one outside air sample were collected from the 31 Tonawanda building and analyzed in accordance with the approved work plan. Samples were submitted to a NYSDEC certified contract laboratory and analyzed for TCL VOCs by EPA method TO-15. The TO-15 VOC compounds detected in the samples collected are summarized in **Table 3** and discussed in detail below.

The goals of collecting sub-slab vapor samples were to identify potential impacts from soil vapor on the indoor building air. New York State currently does not have any standards, criteria or guidance values for concentrations of compounds in sub-slab vapor. Additionally, there are no databases available of background levels of volatile chemicals in subsurface vapors. However, the NYSDOH has developed in their guidance document decision matrices as a risk management tool to provide guidance on a case-by-case basis about actions that should be taken to address current and potential exposures related to soil vapor intrusion. The matrices are intended to be used when evaluating the results from buildings with full slab foundations such as the 31 Tonawanda building. The NYSDOH has developed guideline values for acceptable background levels for eight specific VOCs in ambient air. The matrices encapsulate the data evaluation processes and actions recommended to address potential exposures for the eight specific VOCs.

The NYSDOH has developed three matrices (refer to **Appendix H)** to use as tools in making decisions when soil vapor may be entering buildings.

Soil Vapor/Indoor Air Matrix	Volatile Chemical
Matrix A	carbon tetrachloride, 1,1-dichloroethene, *cis*-1,2-dichloroethene, and trichloroethene
Matrix B	methylene chloride, tetrachloroethene, and 1,1,1-trichloroethane
Matrix C	vinyl chloride

Using the Matrix, A, B and C models from the Guidance, the concentrations of these VOCs detected at the site were evaluated as follows:

- Matrix A - Concentrations of 1,1-Dichloroethene, carbon tetrachloride and cis-1,2-Dichloroethene are less than 1 ug/m3 in all indoor air samples (with the exception of the crawl space discussed later) and concentrations for these compounds in all six (6) sub-slab samples are less than 60 ug/m3 resulting in "No Further Action" for these compounds based on the matrix model. Concentrations of trichloroethene (TCE) ranged from 4.4 to 20 ug/m3 in the indoor air samples with the crawl space sample being 230 ug/m3 and concentrations for this compound in all six (6) sub-slab samples ranged from 40 to 650 ug/m3, which resulted in "Mitigate" at each of the six (6) sub-slab locations based on the matrix model.

- Matrix B – Concentrations of methylene chloride are less than 3 ug/m3 for all indoor air samples and concentrations for this compound in all sub-slab samples are less than 100 ug/m3 resulting in "No further action" related to this compound based on the matrix model. Concentrations of tetrachloroethene (PCE) were non-detect in the indoor air samples, however, concentrations for this compound in three (3) of the sub-slab samples (SS-01 @ 2500 ug/m3, SS-02 @ 2900 ug/m3 and SS-03 @ 2100 ug/m3) resulted in "Mitigate" at each of these three (3) sub-slab locations. Concentrations of 1,1,1-trichloroethane resulted in "Monitor" for SS-2 and SS-03 and "Identify Source" for SS-04 and SS-05.

- Matrix C - The concentration of vinyl chloride was less than 0.2 ug/m3 in all indoor air samples and concentrations for this compound in all the sub-slab samples were less than 6 ug/m3 resulting in "No further action" related to this compound.

4.5.1 Assessment of Matrix Results:

The sub-slab vapor analytical results reveal that trichloroethene (TCE) was detected in all six (6) Sub-slab samples at elevated concentrations that when applied to the Indoor Air Decision Matrices requires mitigation to reduce TCE concentrations. It should be noted that TCE was detected in the outdoor background sample but at a low concentration (1.3 ug/m3). Analytical results also revealed that tetrachloroethene (PCE) was detected in three (3) Sub-slab samples at elevated concentrations that when applied to the Indoor Air Decision Matrices requires mitigation to reduce PCE concentrations.

Testing for the other NYSDOH assigned volatile chemicals for Indoor Air Decision Matrices indicated that “No Further Action” is required for these compounds with the exception of 1,1,1-trichloroethane, which resulted in “Monitor” for SS-2 and SS-03 locations and “Identify Source” at SS-4 and SS-5 locations.

Table 3 provides all of the TO-15 VOC results and **Figure 4** provides the sample locations and analytical results with recommended actions.

5.0 FATE AND TRANSPORT OF CONTAMINANTS OF CONCERN

The soil, groundwater and air sample analytical results were incorporated with the physical site conditions to evaluate the fate and transport of constituents of concern (COC) in Site media. COC for the Site include PAHs, metals and VOCs (solvent/petroleum related compounds). The mechanisms by which the COC can migrate to other areas or media are briefly outlined below.

The new development at the 150 Tonawanda property will cover most of the site with a building and pavement, which will require the removal and off-site disposal of impacted soils and/or placement of clean fill/hardscape at the site. Approximately 70 percent of the 31 Tonawanda site is covered by the property building which will be renovated as part of the new development. The remaining open area will primarily be paved for parking.

5.1 FUGITIVE DUST

150 Tonawanda Street

Chemicals present in soil can be released to ambient air because of fugitive dust generation. Presently, most of the site is covered with heavy vegetation and/or grassed areas that limits any fugitive dust generation.

Impacted soil/fill will be excavated and/or covered with a building slab or other hardscape as part of the remedial work and new development. During new development a large portion of the site will be covered by the building, asphalt/concrete pavement/sidewalks and any remaining areas will be landscaped. However, during construction/remedial work fugitive dust maybe generated. A health and safety plan along with a community air monitoring plan will be prepared as required by the Remedial Action Work Plan (RAWP) called for under the BCP which will minimize fugitive dust concerns during this time.

The fugitive dust migration pathway is not at present a relevant pathway. During remedial construction, however, fugitive dust migration will be more relevant, but not relevant thereafter due to the proposed new site development.

31 Tonawanda Street

Chemicals present in soil can be released to ambient air because of fugitive dust generation. Presently, the Site is approximately 70 percent covered with an existing building, asphalt pavement or grassed areas that limits any fugitive dust generation for most of the property.

Impacted soil/fill will be excavated as part of the remedial work and new development. However, during construction/remedial work fugitive dust maybe generated. A health and safety plan along with a community air monitoring plan will be prepared as required by the Remedial Action Work Plan (RAWP) called for under the BCP, which will minimize fugitive dust concerns during this time.

The fugitive dust migration pathway is not at present a relevant pathway. During remedial construction, however, fugitive dust migration will be more relevant and not be relevant thereafter due to the proposed new site development.

5.2 Surface Water

150 Tonawanda Street

There are no surface bodies of water directly on the property. The potential for impacted soil particle transport with surface water runoff is low at present due to the cover system previously described over most of the Site. Presently, most site runoff is collected in the Tonawanda Street storm water collection system. Surface water will not be allowed to collect during the remedial work therefore there will be no impacted soil transport to surface water during remediation.

The property will be covered by new building structure, paved areas and have a storm water collection system. Impacted soils remaining on-site will have a cover system preventing surface water contamination.

31 Tonawanda Street

As previously mentioned, a building covers approximately 70 percent of this property. The remaining open area behind the building (east side) is covered with broken asphalt, stone and vegetation along the property boundary at the Creek side slope. This open area currently drains to the Creek located directly to the east of the property line.

The existing building is to remain and be renovated during the new development. Impacted soil will be removed and/or covered with clean fill or hardscape in the open area east of the building preventing surface water contamination.

5.3 Volatilization

150 Tonawanda Street

As noted in Section 4, only a few VOCs were detected in soil and groundwater samples at concentrations significantly below Restricted Residential SCOs. The volatilization pathway, therefore, is not a relevant pathway the 150 Tonawanda Street property.

31 Tonawanda Street

Several solvent and petroleum related VOCs were detected in fill/soil samples from two (2) of the soil borings external to the building (BH-1(13.5’-15’) and BH-5(4’-6’)) at concentrations above Restricted-residential SCOs. Several solvent related VOCs were also detected in the building crawl space soil samples (SBH-4 and SBH-5) at concentrations above Restricted-residential SCOs. Groundwater samples collected from on-site monitoring wells (MW-3, MW-4, MW-5 and crawl space groundwater sample from boring SBH-3) indicated the presence of several solvent related VOCs in the groundwater at concentrations above TOGs guideline values. In particular, the groundwater sample from MW-3 located directly outside the building east wall had detected several solvent VOCs at concentrations significantly higher than their TOGs values. Solvent related VOCs were also detected in the Building sub-slab/indoor vapor samples at concentrations that will require mitigation based on the NYSDOH vapor intrusion guidelines.

There appears to be a volatilization pathway from the groundwater through the soils to the sub-slab bedding material beneath the building and from there into the building indoor air. To mitigate vapor intrusion in the building prior to renovation and occupancy a sub slab vapor mitigation system will be installed in the building. The mitigation system will exhaust collected sub slab soil vapors above the building roof level. Groundwater will also be bio-treated through the installation of injection wells with the purpose of remediating solvent levels in the groundwater.

Petroleum related VOCs detected in the BH-5 sample at four (4) to six (6) feet in depth will be mitigated by excavating the impacted soils in this area and disposing at an approved offsite landfill.

5.4 Leaching

150 Tonawanda Street

Leaching refers to chemicals present in soil/fill migrating downward to groundwater as a result of infiltration of precipitation. As noted above, a few VOCs were detected in the fill/soils at very low concentrations below Restricted Residential SCOs and only two (2) VOCs were detected in groundwater samples at concentrations significantly below TOGs values.

Both SVOCs (PAHs) and metals were detected in the site soils up to 7 feet bgs, however, these compounds are not very mobile in soils, in that they have low solubility with water and tend to adsorb to the soil grains. These compounds do not readily breakdown in the environment and PAHs deposited from combustion of coal or other fuels years ago would most likely still be present today. No SVOCs were detected in the groundwater samples. Several metals were detected in the groundwater but only one (1) compound (Manganese) was detected above its TOGs value. Metal compounds in groundwater are common under natural conditions and the area surrounding the site has been primarily industrial which may also be a source for metals in the groundwater.

Based on the above, the potential for COCs to be leached from the on-site soils to groundwater is minimal.

31 Tonawanda Street

As noted above, several solvent and petroleum VOCs were detected in the fill/soils east of the building at concentrations exceeding Restricted residential SCOs at depths of 15 feet bgs. Solvent related VOCs were also detected in the groundwater samples from monitoring wells east of the building, and in some cases, well above TOGs values. Most of the significantly elevated solvent impacts appear to be located in the south-southeast area of the property. Petroleum impacts were restricted to an isolated area in the northeast corner of the property and most likely associated with a former gasoline tank/pump located in that area near West Street. Light non-aqueous phase liquids (LNAPLs) such as gasoline have less density than water and will float on the water table. Dense non-aqueous phase liquids (DNAPLs), such as chlorinated solvents are denser than water and will sink. Both SVOCs (PAHs) and metals were detected in the site soils; however, as noted under 150 Tonawanda Street above these compounds are not very mobile in soils. One (1) SVOC was detected in MW-3 at a concentration that exceeded its TOGs guideline (Bis(2-ethylhexyl) phthalate) and only one (1) metal (manganese) was detected in MW-2 above its TOGs value.

Based on the results of the RI some leaching of VOCs in the soils to the groundwater may be occurring. The elevated concentrations of solvent VOCs in the groundwater is most likely attributable to direct movement of chemicals from historic building operation, spills etc. through cracks in the floors and/or trenches within the building and infiltrated soils beneath the building and migrating to the groundwater. Based on the soil sample analytical results and total organic vapor readings during sampling, it appears that the highest concentrations have migrated towards and into the groundwater zone.

The subsurface between the soil surface and the water table is the vadose zone which consists of the unsaturated zone directly below the ground surface and the capillary fringe directly above the water table. The pore spaces in this vadose zone are typically filled with air or soil gas. Soil moisture is normally present as a small percentage of that void space and this can vary during rain or snow melt events for outside soil or for soil under building when leaks, spills or water floods/fluid releases occur inside the building. In the case of the 31 Tonawanda Street building there may also be influence from the adjacent creek which is subject to flooding and possibly seiche events. Seiche events are periodic oscillations of water level set in motion by some atmospheric disturbance passing over a large water body. In the case of Lake Erie and Buffalo, its usually when strong southwest winds flow across Lake Erie and the mouth of the Niagara River. When this occurs water can be reversed in adjacent small streams and tributaries.

Due to seasonal water table fluctuations, the thickness of the vadose zone is variable. The nature of contaminate migration is associated with its chemical and physical properties (physiochemical properties) and that of the soil (mineral composition, structure and stratigraphy, porosity and density, and particle size) in the vadose zone. Sand, gravel and silt will be less restrictive in terms of migration than silty clay or clay materials or soils with higher organic carbon content. The finer grained clayey soils will restrict movement of organic compounds. Chlorinated solvents are typically heavier than water and will likely migrate downward in the vadose zone. In the case of the building at 31 Tonawanda Street it appears that periodic or continue releases of materials from process vessels or dripping during transportation or storage of materials resulted in the release through the floor especially in the southeast corner to the soil below. Upon release into the subsurface, the heavy weight or dense non-aqueous phase liquid contaminants such as chlorinated solvents move downward under the influence of gravity and capillary forces. Since these were historical releases and based on the chemical/physical properties of the soil and contaminants, the RI data indicates that the majority of these releases have migrated down into the smear zone and water table. Although contaminants can move through the vadose zone relatively quickly, they partition into and move through groundwater extremely slowly. The groundwater saturated zone is below the water table. The pore spaces are almost completely filled with water and dissolved contaminants. The top of the saturated zone will vary depending upon seasonal water table fluctuations or other influences noted above.

The smear zone is the area of soil contamination that may exist, at varying extents, within the zone of water table fluctuations that have occurred since the time of contaminant discharge. Based on the RI data, it appears that the bulk of the contaminant mass exists in the smear zone and water table.

5.5 Groundwater Transport

150 Tonawanda Street

It is shown on Figure 5 that groundwater flow across the 150 Tonawanda Street property is from the east-southeast to west-northwest. This flow direction, however, is opposite to that at the adjoining 68 Tonawanda Street property. A review of the water levels in Table 9 show that the water level for well MW-4 is 2.2 to 2.9 feet higher than the other wells, which produces the west-northwest flow when contoured. It is important to note that the water level in well MW-4 was measured 1.5 months later than the other wells, which may explain the differences in groundwater elevations. The NYSDEC has generated groundwater contour maps using elevations obtained from the four (4) BCP sites in the area; these contours show that groundwater flow across the 150 Tonawanda Street property from the west-northwest to the east-southeast when the water level from well MW-4 is removed.

No VOCs or SVOCs were detected in the groundwater above TOGs guidelines and one (1) metal, one (1) PCB and a few pesticides were detected slightly above TOGs guidelines. Since the property and surrounding area are serviced by municipal water, which will also be used for the new development, significant exposure to any chemicals in the groundwater are minimal at this property.

31 Tonawanda Street

Groundwater underlying this property migrates from basically the west-northwest to the east-southeast across the Site toward the Scajaquada Creek which is immediately adjacent to the property.

Chemicals present in groundwater may be transported beneath the property via this pathway. The contaminant concentrations detected in the groundwater in MW's 3, 4, 5 and SBH-3 indicate that the chlorinated solvents are potentially migrating within groundwater towards the east/southeast towards the creek. The remediation will include treating the groundwater to reduce/eliminate any potential offsite impacts.

Since the Site and surrounding area are serviced by municipal water and the City prohibits the use of groundwater for drinking or process use, local receptors are greatly reduced. Therefore, significant potential exposure to any chemicals in the groundwater is minimal with the exception of the Creek. As noted above, a treatment system will be installed to reduce/eliminated potential offsite impacts to the Creek.

5.6 Exposure Pathway Summary

150 Tonawanda Street

Based on the above assessment, the pathway through which site COCs could reach receptors at significant exposure concentrations is minimal. Mitigation of the dust/skin contact pathway associated with site contaminants will be mitigated through a cover system.

31 Tonawanda Street

Based on the above assessment, the pathway through which Site COCs could reach receptors at significant exposure concentrations is minimal except for impacted sub-slab vapors entering the existing building impacting indoor air quality and impacted groundwater potentially reaching the creek. Mitigation of both of these impacts will be part of the final remedy for this property.

6.0 QUALITATIVE EXPOSURE ASSESSMENT

6.1 Human Exposure Risks

150 Tonawanda Street

The property in its present condition provides minimum human exposure risks as related to COCs in the site soils and groundwater. The elevated COCs in soils are primarily PAHs and metals which are not very mobile in soils, in that they have low solubility with water and tend to adsorb to the soil grains. Their moving to possibly effect the human population off property is considered minimal.

The proposed property remediation will include covering impacted soils with new development hardscape. The site will be graded to drain and then new hardscape cover will be placed across the entire property to include eight (8) inches +/- of clean stone and four (4) inches +/- of asphalt. The proposed remediation and new development will remove human exposure to the site COCs.
The primary population at-risk would-be construction workers performing remedial activities. However, contractor health and safety plans will be in effect as will be required by a Remedial Action Work Plan during all remediation activities to minimize any human exposure.

The RI program noted a few elevated metal and pesticide compounds in the groundwater along with a single PCB in one well that exceeded NYSDEC TOGs Guidance. No additional remedial actions are deemed necessary since Municipal water supply will be used for all site water requirements of the new development thereby eliminating any future human exposure. A restriction on the use of groundwater will also be placed on the site.

31 Tonawanda Street

The property in its present condition provides minimum human exposure risks as related to COCs in the Site soils and groundwater. Presently, soil vapors entering the site building present a moderate human exposure risk (the building is presently occupied part time in a portion of the building) that will be mitigated under the final remedy prior to or as part of the building renovation.

The elevated COCs in soils are primarily solvent VOCs, petroleum VOCs, PAHs and metals and were detected at depth in boreholes (greater than three (3) feet) and therefore not subject to human direct exposure. As discussed above PAHs and metals will not impact off-site receptors. Elevated solvent and petroleum related VOCs detected in the groundwater at present have no human exposure since the entire area is on municipal water supply and groundwater is not used for human consumption or use.

The proposed property remediation will include: removing and/or covering impacted soils to meet Restriced residential SCOs; installing a vapor mitigation system in the building and groundwater will be treated to eliminate/reduce impacted groundwater from reaching the Scajaquada Creek. Upon completeion of the final remedy human exposure to site COCs will be reduced/eliminated.

The primary population at-risk would-be construction workers performing remedial activities. However, contractor health and safety plans will be in effect as required by a Remedial Action Work Plan during all remediation activities to minimize any human exposure.

Municipal water supply will be used for all water requirements of the new development thereby eliminating any future direct human exposure via ground water.

6.2 Ecological Exposure Risks

150 Tonawanda Street

The new development will cover 100 percent of the Site with building and paved areas. The property provides limited wildlife habitat and has no pond/water features. The DER-10 Appendix 3C Fish and Wildlife Resources Impact Analysis (FWRIA) Decision Key is provided in **Appendix D**. No FWRIA is needed based on the completed decision key process because the property will be remediated to Restricted Residential status. The property does not have a habitat of an endangered, threatened or special concern species present. Therefore, no unacceptable ecological risks are anticipated under the current or any anticipated future site-use scenario.

31 Tonawanda Street

The property in its current condition is not a habitat to wildlife. The Scajaquada Creek receives groundwater as well as surface runoff from the property, though only approximately a half acre of the property is open land not covered by the building. Erosion in some locations may transport minimally impacted soils to the creek. As noted, solvent related VOCs have been detected in the groundwater. The site remedy will include direct treatment of the groundwater to reduce/eliminate any potential offsite impacts.

Under the BCP the property is to be remediated to meet Part 375 Restricted Residential SCOs. The remediation for the open property areas will include removal and/or covering impacted site soils. The cover system under the new development will include placement of clean soil material and/or paved areas (parking and driveways).

The DER-10 Appendix 3C Fish and Wildlife resources Impact Analysis (FWRIA) Decision Key is provided in **Appendix D**. No FWRIA is needed based on the completed decision key process. This determination is based on the site being remediated to Restricted Residential status. The site does not have a habitat of an endangered, threatened or special concern species present.

Therefore, no unacceptable ecological risks are anticipated under the current or any anticipated future site use upon completion of the remediation scenario.

7.0 REMEDIAL ALTERNATIVES ANALYSIS

7.1 Remedial Action Objectives

The final remedial measures for the 31/150 Tonawanda Street Site must satisfy Remedial Action Objectives (RAOs). Remedial Action Objectives are site-specific statements that convey the goals for minimizing or eliminating substantial risks to public health and the environment. The primary RAOs identified for the Site are the following:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Prevent the discharge of contaminants to surface water.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

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

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

7.2 ALTERNATIVES SELECTION FACTORS

In addition to achieving RAOs, NYSDEC's Brownfield Cleanup Program calls for an evaluation of remedial alternatives in accordance with 6 NYCRR Part 375-3 and DER-10 Technical Guidance for Site Investigation and Remediation. This alternatives analysis section evaluates the remedial alternative developed for the site using the following selection factors:

- **Overall Protection of Public Health and the Environment**. This criterion is an evaluation of the remedy's ability to achieve each of the RAOs, and protect public health and the environment, assessing how each existing or potential pathway of exposure is 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. The SCGs applicable to this site are listed in section 1.4.
- **Long-Term Effectiveness and Permanence**. This criterion is an evaluation of the long-term effectiveness and permanence of an alternative or remedy after implementation.
- **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 contamination at the Site.
- **Short-Term Effectiveness**. Short-term effectiveness is an evaluation of the potential short-term adverse impacts and human exposures, and nuisance conditions during construction and/or implementation. This includes a discussion of how the identified adverse conditions 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. Sustainability is also evaluated.
- **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**. This criterion evaluates the overall cost effectiveness of an alternative or remedy.
- **Community Acceptance**. This criterion evaluates the public's comments, concerns, and overall perception of the remedy.

7.3 LAND USE EVALUATION

In developing and screening remedial alternatives, NYSDEC's Part 375 regulations require that the reasonableness of the anticipated future land use be factored into the evaluation. The future land use will meet Part 375 Restricted-residential site use category.

The 150 Tonawanda Street property will be used to construct self-storage units. For the 31 Tonawanda Street property there are two parts to the building both with different anticipated use. The rectangular section on the east (creek) side has a 25,000 square feet (SF) floor plan, with three floors including a usable basement, for a total useable space of 100,000 SF. The west side of the building is approximately 40,000 SF. The refurbishing of the building will include converting portions of the building to self-storage rental units, office space and possibly one or two residential units.

The proposed use is consistent with land use plans. The close proximity to Buffalo State University yields the possibility to be accessible to this expanding campus. In addition, being located near the Peace Bridge and major highways makes these properties particularly attractive. The project area and scope fit well within The New York State Brownfield Opportunity Area (BOA) Program which the properties are a part of. The Site is located in Lower Tonawanda Street Redevelopment Area portion of the BOA. The project represents a significant opportunity to put in place a land use that fits with the BOA plan and will be one of the lead projects that kick starts the needed re-development in this area of the City. This redevelopment will help the area capitalize on its strategic assets; an opportunity to start a process aimed at repairing neighborhood edges that have been disproportionately impacted by industrial uses over time and creating new opportunities for working and living within the BOA.

7.4 SELECTION OF ALTERNATIVES FOR EVALUATION

The results of the RI and a previous Phase 2 environmental assessments indicate the following.

150 Tonawanda Street

- ....Fill soils across the property were found to have elevated PAHs and metal compounds both in the surface and subsurface soils above Part 375 Restricted-residential SCOs.

- ....One (1) metal compound, two (2) pesticide compounds and one (1) PCB compound were detected in the groundwater samples from the four (4) monitoring wells installed as part of the RI at concentration levels that exceed TOGs Groundwater Guidance Values.

31 Tonawanda Street

- ....Fill soils in the open area east of the building were found to have elevated PAHs and metal compounds both in the surface and subsurface soils above Part 375 Restricted-residential SCOs.

- ....Fill soils beneath the crawl space area of the building and in the open area mostly southeast of the building were found to have elevated solvent related VOCs in the subsurface soils above

Part 375 Restricted-residential SCOs.

- ....Fill soils in the open area mostly in a small northeast area of the property were found to have elevated petroleum related VOCs in the subsurface soils above Part 375 Restricted-residential SCOs.

- ....The results of the RI vapor intrusion study indicated that the solvent related VOCs exists in the indoor air and soil vapor in the sub-slab soils beneath the building at concentration levels that require mitigation.

- ....The building environmental condition assessment indicated the presence of asbestos, LBP and PCB containing material in the building.

- ....Solvent related VOCs were detected in the three (3) groundwater monitoring wells installed in the southeast area of the property at concentration levels that exceed TOGs Groundwater Guidance Values.

Based on the completion of the RI program the following remedial alternatives have been selected for evaluation:

- **Alternative 1**

  150 Tonawanda Street – Grade property to drain and acceptance for placement of storage units. After grading cover entire property with new development hardscape all to meet Part 375-3.8 Track 4 and Part 375-6.8 Restricted-residential SCOs with the exception of a five (5+/-) foot landscaped strip along the eastern site perimeter (refer to **Figure 7**).

  31 Tonawanda Street – Remove top one foot of impacted soils from open area east of the building (refer to **Figure 8**) and backfill with hardscape (4" asphalt and 8" clean stone) to meet Part 375-3.8 Track 4 - Part 375-6.8 Restricted-residential SCOs. Remove petroleum impacted soil in area of BH-5. Install a soil vapor mitigation system below the building. Treat the groundwater in the southeast area of the property and beneath the building crawl space area to meet TOGs groundwater cleanup requirements.

  See section 7.4.1 for alternative details.

- **Alternative 2 - Partial Excavation and Groundwater Treatment with Engineering Controls**

  150 Tonawanda Street – Remove impacted soils from open areas and backfill with clean fill/hardscape to meet the Part 375-6.8 Protection of Groundwater SCOs.

  31 Tonawanda Street - Excavation of all soil/fill exterior to the building where concentrations exceed the Protection of Groundwater SCOs. Treat the groundwater in the southeast area of the property and beneath the building crawl space area to meet TOGs groundwater cleanup requirements.

- **Alternative 3 – Unrestricted use**

  150 Tonawanda Street – Remove impacted soils from open areas and backfill with clean fill/hardscape to meet the Part 375-6.8 Protection of Groundwater SCOs.

31 Tonawanda Street - A true Unrestricted cleanup calls for all soil & fill that exceeds unrestricted SCOs to be removed. To accomplish that all soils beneath the building that exceed Unrestricted SCOs would need to be removed which could be to depts that exceed 20 feet and could endanger the structure.

The following section discusses the evaluation of these alternatives.

7.4.1 Alternative 1

The details of this alternative include:

150 Tonawanda Street

1 – Grade property to drain and acceptance for placement of storage units. After grading cover entire property with new development hardscape all to meet Part 375-3.8 Track 4 and Part 375-6.8 Restricted-residential SCOs with the exception of a five (5+/-) foot landscaped strip along the eastern site perimeter (refer to **Figure 7**).

2 – Cut and fill calculations indicate that after grading approximately 300 to 500 cy of clean fill will be required to bring the site to grade prior to placement of the one foot of hardscape. Any excavated material from the installation of buried utilities will be disposed of offsite at an approved facility and backfilled with clean stone and/or other approved material.

31 Tonawanda Street

1 - Remove top one foot of impacted soils from open area east of the building (refer to **Figure 8**) and backfill with hardscape (4" asphalt and 8" clean stone) to meet Part 375-3.8 Track 4 - Part 375-6.8 Restricted-residential SCOs

2 - Remove petroleum impacted soils in the vicinity of RI borehole BH-5 (approximately 20 feet by 20 feet to 9 feet deep is anticipated). Confirmation samples will be collected from sidewalls and bottom to confirm all impacted material that exceeds Restricted-residential SCOs for petroleum VOCs has been removed. The area will then be backfilled with clean fill and hardscape.

3 - Install a sub-slab depressurization system (SSDS) in the building to mitigate sub surface vapors from entering into the building interior. A Vacuum will be created at a number of below slab and crawl space locations (field testing and design will determine number and locations) by piping from these locations to roof mounted fans where sub-slab vapors will be discharged. The proposed system design is provided in **Appendix K**.

4 – In-situ groundwater treatment through installation of injection points exterior to and along the southeast building wall as well as within the building crawl space area. The following treatment system is being considered that has been shown to be an effective method for the mineralization (degradation) of chlorinated solvents. Injection points will extend to a maximum depth of 22 Feet.

- Anaerobic BioChem and zero valent iron (ABC+) by REDOX Tech, LLC.

A groundwater monitoring program will be established to assess attenuation of impacts to the groundwater over time. The proposed system design is provided in **Appendix L**.

The narrow area between the property line and the southeast building wall where the injection points will be installed opposite the crawl space will have the top two feet of existing impacted soil removed and sent to a landfill and replace with clean fill (refer to **Figure 8**).

5 - Remove and properly dispose of any sediment from building trenches/drains.

Note, the RI data suggests that historical releases of chlorinated solvents have migrated to the smear zone and water table zone primarily in the southeast area of the property. Insitu treatment of the groundwater is directed at remediation of this zone coupled with vapor intrusion mitigation throughout the building.

This alternative also includes provisions for managing the Site upon completion of remediation with implementation, through an Environmental Easement (EE) of Institutional Controls (ICs) and Engineering Controls (ECs) as follows:

Imposition of an IC in the form of an environmental easement for the controlled property that:

- Requires the remedial party or site owner to complete and submit to the NYSDEC a periodic certification of IC/EC in accordance with NYSDEC Part 375-1.8(h)(3);
- Allows the use and development of the controlled property for Restricted-residential, commercial, and industrial uses as defined by Part 375-1.8(g)., although land use is subject to local zoning laws;
- Restricts the use of Groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH;
- Requires monitoring of groundwater treatment and sub-slab vapor extraction for a set period of time; and
- Requires compliance with the approved Site Management Plan.

A Site Management Plan (SMP) is required that includes the following:

- An IC/EC plan that identifies all use restrictions and ECs for the Site and details the steps and media specific requirements necessary to ensure the IC and/or ECs remain in place and effective. The IC's are as discussed above, and the EC's include developed soil cover system and groundwater monitoring;
- An Excavation Plan which details provisions for management of future excavations in areas of remaining contamination;
- A monitoring plan for groundwater and the vapor mitigation systems;
- Descriptions of the provisions of the environmental easement including any land use or groundwater use restrictions;
- Provisions for the management and inspection of the identified ECs;
- Maintaining site access controls and NYSDEC notifications; and,
- The steps necessary for the periodic reviews and certifications of the IC/ECs.

Overall Protection of Public Health and the Environment – Alternative 1 is protective of human health and the environment at **31 Tonawanda** with the removal of one (1) foot of impacted soil from the open area east of the building including the petroleum impacted soils in the area of BH-5 and covering these areas with hardscape to meet Restricted residential SCOs. The installation of a vapor mitigation system in the building will mitigate impacted soil vapors from entering the building. The treatment of groundwater will reduce groundwater impacts to meet TOGs guidelines. Alternative 1 is protective of human health and the environment at **150 Tonawanda** with the covering of the complete property with hardscape.

The clean soil and hardscape covered areas will be incorporated into the SMP as an engineering control for the Site and Institutional and engineering controls will be implemented to prevent more restrictive forms of future site use (e.g., unrestricted and residential) and restrict any use of the groundwater at the Site. Under ICs/ECs, the groundwater will be monitored at 31 Tonawanda, and the cover system will be inspected, monitored and maintained, and the SMP Excavation Work Plan will apply to any future disturbance of soils beneath the cover system. The SMP also requires the implementation of an approved health and safety plan for all future work.

Compliance with SCGs – Alternative 1 is a Part 375 track 4 remedy with some soils exceeding the Restricted Residential SCOs remaining below an approved cover system at both properties. Initial groundwater samples from the on-site wells at 31 Tonawanda indicated that several solvent related VOCs exceed NYSDEC TOGs groundwater guidelines in monitoring well MW-3 and the crawl space groundwater sample from boring SBH-3. This alternative will require treatment of the groundwater in the southeast area of the property through installation of treatment injection points. With the groundwater treatment coupled with the sub-slab vapor extraction system, it is expected that, along with natural attenuation, these impacts will be reduced. A groundwater monitoring program will be established through the SMP to assess groundwater quality for a set timeframe.

Long-Term Effectiveness and Permanence – 150 Tonawanda - The remedial measure will effectively achieve RAOs and meet Restricted Residential SCOs. **31 Tonawanda** - The removal of the open area impacted fill soils to meet Restricted residential SCOs and backfilling with clean hardscape meets the RAOs for soil in this area. The installation of a sub-slab depressurization system in the building with ongoing monitoring through the SMP will meet the RAOs for soil vapor. The groundwater treatment proposed will greatly reduce or eliminate impacts to the groundwater leaving the property. Attenuation of remaining impacts to the groundwater will be monitored over time through a mandated SMP monitoring well sampling program. Leaching or volatilization from lesser impacted soils remaining below the building in the vadose zone and up to 22 feet in depth will be treated by the combination groundwater injection system and the sub slab depressurization system respectively.

The SMP requires periodic inspection and monitoring of the cover system for the Site to assure its integrity and the SMP excavation work plan will apply to any future disturbance of the remaining impacted soils including the requirement to prepare an approved health and safety plan for all work. The SMP will also require groundwater sampling and vapor system monitoring at the 31 Tonawanda property.

Reduction of Toxicity, Mobility, or Volume with Treatment – The remedial measure will either permanently or significantly reduce the mobility of contamination in the soils at the Site through the cover systems. The volume of impacted soil will be reduced at the 31 Tonawanda property by excavation and offsite disposal of the top one (1) foot of impacted soils across open areas and removal of petroleum impacted soil to Restricted residential SCOs at BH-5. The volume of impacted groundwater will be reduced through treatment. Leaching or volatilization from impacted soils remaining below the building will be treated by the groundwater injection system and the sub-slab depressurization system respectively.

The site Management Plan will include: an excavation work plan to address any impacted soil/fill encountered during future development and/or maintenance activities and include a site-wide Inspection program to assure that the ICs/ECs placed on the Site have not been altered and remain effective. This alternative will not, however, reduce the toxicity of the soil contaminants left in place upon completion of the remedial measure. Therefore, this alternative partially satisfies this criterion.

Short-Term Effectiveness – Potential short-term adverse impacts and human exposures may occur during construction (remediation and new development). However, any adverse impacts should be minimal. A Remedial Action Work Plan (RAWP) will be implemented prior to remediation which will require the contractor to prepare and implement a site-specific health and Safety plan to cover all workers. The soil vapor mitigation system to be installed at the 31 Tonawanda Street building adheres to the remedial objective for this media of protection of public health by eliminating the potential for soil vapor intrusion into the renovated building. A groundwater treatment system will be designed to reduce impacts in the immediate short term along with a monitoring program established through the SMP to assess effectiveness. It is assumed, at this time, that cleanup levels will be achievable in less than five (5) years. However, groundwater sampling after Five (5) years will provide data if additional treatment will be required beyond this timeframe. Periodic inspections of the cover system per the SMP requirements will prevent ingestion/direct contact with contaminated soil and prevent inhalation of contaminants in soil that may remain below the cover system. This alternative is sustainable through the environmental easement and the implementation of the SMP.

Implementability – There are no implementation issues related to the proposed remediation or related to the Institutional and Engineering Controls placed on the Site under this alternative.

Community Acceptance – Community acceptance will be evaluated based on comments to be received from the public in response to Fact Sheets, public comment periods on documents and other planned Citizen Participation activities. To-date there have been no public comments during any of the public comment periods.

Cost – The values used in estimating alternatives are order-of-magnitude estimates for comparing alternatives and are not meant to be a specific remedial criterion. The estimated cost for this Alternative is $1.1 million. The cost summaries for this alternative is provided in **Appendix I.**

7.4.2 Alternative 2 – Partial Excavation and Groundwater Treatment with Engineering Controls

The details of this alternative include:

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This alternative would necessitate remediation of all soil/fill where concentrations exceed the Protection of Groundwater SCOs or to bedrock. Based on RI data It is estimated that this would require soil removal to a depth of approximately six (6) to eight (8) feet (approximate fill and natural soil interface) across the entire property and Backfill with clean soil or hardscape to meet new development grades.

Confirmation soil sampling would be conducted at the fill - natural soil interface to assess if material remaining meet Protection of Groundwater SCOs.

The RI results for groundwater indicated only minor exceedances of TOGs guidelines of a single metal and PCB compound as well as two (2) pesticide compounds and may be considered a general condition of the groundwater in the area and will not require treatment. The removal of all impacted soil/fill from across the Site will also remove any potential source area and reduce any impacts to groundwater. Therefore, this alternative assumes that no groundwater remediation or long-term monitoring would be required. This alternative will also restrict the use of Groundwater as a source of potable or process water.

31 Tonawanda Street

This alternative will necessitate remediation of all soil/fill exterior to the building where concentrations exceed the Protection of Groundwater SCOs or to bedrock. Based on RI data It is estimated that this would require soil removal to approximately 20 feet bgs across the entire open area east of the building. The area would be backfilled with clean soil or hardscape to meet new development grades.

To meet NYSDOH guidance for soil vapor intrusion in the building a sub-slab depressurization system or equivalent will be installed.

Treatment of groundwater will be required to reduce/eliminate solvent related VOCs in the groundwater as detected in the monitoring wells installed during the RI.

A groundwater monitoring program will be established (EC) to assess attenuation of impacts to the groundwater.

Overall Protection of Public Health and the Environment – This alternative would achieve the corresponding Part 375 Protection of Groundwater SCOs, which are designed to be protective of human health under the reuse scenario.

Compliance with SCGs – This alternative would comply with SCOs and groundwater cleanup guidelines as specified in TOGs.

Long-Term Effectiveness and Permanence – Since Protection of Groundwater SCOs are very similar to the Unrestricted Use SCOs this alternative would achieve removal of most if not all contaminant sources and residual impacted fill/soil; therefore, no fill/soil exceeding the Protection of Groundwater SCOs would remain on the Site other than what is under the building at the 31 property. As such, this alternative would provide long-term effectiveness and permanence. Groundwater treatment at the 31 Tonawanda property will reduce/eliminate groundwater impacts and the vapor mitigation system will eliminate vapor contaminates from the indoor air. Engineering Controls would be implemented for these systems.

Reduction of Toxicity, Mobility, or Volume with Treatment – Through removal of contaminate sources and impacted fill/soil, this alternative would permanently and/or significantly reduce the toxicity, mobility, and volume of Site contamination along with the cleanup of groundwater through treatment and natural attenuation.

Short-Term Effectiveness – The short-term adverse impacts and risks to the community, workers, and environment during implementation of this alternative would increase. The duration of time community, workers, and the environment is exposed to possible fugitive dust would increase.

Implementability – Technical implementability of this alternative would be more difficult compared to the Alternative 1. Sheet piling would need to be installed at the east side of the 31-property boundary to remove impacted soils up to the property boundary. Slope stability will be of concern along the Creek bank.

Community Acceptance – Community acceptance will be evaluated based on comments to be received from the public in response to Fact Sheets, public comment periods on documents and other planned Citizen Participation activities.

Cost - The capital cost of implementing an Unrestricted Use alternative is estimated at approximately $2.1 million. (see **Appendix I**).

7.4.3 Alternative 3 - Unrestricted Use

The details of this alternative include:

150 Tonawanda Street

An Unrestricted Use alternative would necessitate remediation of all soil/fill where concentrations exceed the Unrestricted SCOs or to bedrock. Based on RI data It is estimated that this would require soil removal to a depth of approximately six (6) to eight (8) feet (approximate fill and natural soil interface) across the entire property and Backfill with clean soil or hardscape to meet new development grades.

Confirmation soil sampling would be conducted at the fill - natural soil interface to assess if material remaining meets Unrestricted SCOs.

The RI results for groundwater indicated only minor exceedances of TOGs guidelines of a single metal and PCB compound as well as two (2) pesticide compounds and may be considered a general condition of the groundwater in the area and will not require treatment. The removal of all impacted soil/fill from across the Site will also remove any potential source area and reduce any impacts to groundwater. Therefore, this alternative assumes that no groundwater remediation or long-term monitoring would be required. This alternative will also restrict the use of Groundwater as a source of potable or process water.

31 Tonawanda Street

An Unrestricted Use alternative would necessitate remediation of all soil/fill exterior to the building and within the building crawl space where concentrations exceed the Unrestricted SCOs or to bedrock. Based on RI data It is estimated that this would require soil removal to approximately 20 feet bgs across the entire open area east of the building and the crawl space area. The area would be backfilled with clean soil or hardscape to meet new development grades.

To meet NYSDOH guidance for soil vapor intrusion in the building a sub-slab depressurization system or equivalent will be installed that would be monitored over a five (5) year timespan to assess reliability.

Treatment of groundwater will be required to reduce/eliminate solvent related VOCs in the groundwater as detected in the monitoring wells installed during the RI.

A groundwater monitoring program will be established (EC) to assess attenuation of impacts to the groundwater over a five (5) year time frame. Injection wells may also be installed inside the barrier wall possibly in the crawl space area for introducing bio-treatment to accelerate contaminate degradation in the groundwater.

No EE or SMP will be required for this alternative except for an EC of monitoring groundwater for five (5) years.

Overall Protection of Public Health and the Environment – The Unrestricted Use alternative would achieve the corresponding Part 375 SCOs, which are designed to be protective of human health under any reuse scenario.

Compliance with SCGs –Unrestricted Use alternative would comply with SCOs and groundwater cleanup guidelines as specified in the TOGs.

Long-Term Effectiveness and Permanence – The Unrestricted Use alternative would achieve removal of all contaminant sources and residual impacted fill/soil; therefore, no fill/soil exceeding the Unrestricted SCOs would remain on the Site other than what is under the building at the 31 property. As such, the Unrestricted Use alternative would provide long-term effectiveness and permanence. Groundwater treatment at the 31 Tonawanda property will reduce/eliminate groundwater impacts and the vapor mitigation system will eliminate vapor contaminates from the indoor air. Post-remedial monitoring and certifications would not be required other than groundwater monitoring for assessing natural attenuation of groundwater quality for the five (5) monitoring period.

Reduction of Toxicity, Mobility, or Volume with Treatment – Through removal of contaminate sources and impacted fill/soil, the Unrestricted Use alternative would permanently and/or significantly reduce the toxicity, mobility, and volume of Site contamination along with the cleanup of groundwater through treatment and natural attenuation.

Short-Term Effectiveness – The short-term adverse impacts and risks to the community, workers, and environment during implementation of the Unrestricted Use alternative would increase. The duration of time community, workers, and the environment is exposed to possible fugitive dust would increase.

Implementability – Technical implementability of the Unrestricted Use alternative would be more difficult compared to the Alternative 1. Sheet piling would need to be installed at the east side of the 31-property boundary to remove impacted soils up to the property boundary. Slope stability will be of concern along the Creek bank. Excavation of all impacted soils below the crawl space may endanger the building foundations.

Community Acceptance – Community acceptance will be evaluated based on comments to be received from the public in response to Fact Sheets, public comment periods on documents and other planned Citizen Participation activities.

Cost - The capital cost of implementing an Unrestricted Use alternative is estimated at approximately $2.3 million. (see **Appendix I**).

7.5 RECOMMENDED REMEDIAL ALTERNATIVE

Based on the alternative's analysis evaluation, Alternative 1 satisfies the remedial action objectives and is fully protective of human health and the environment. Therefore, Alternative 1 is the recommended final remedy for the Site.

8.0 FINDINGS AND CONCLUSIONS

8.1 REMEDIAL INVESTIGATION

The RI tasks were completed in accordance with a defined scope of work and approved RIWP. The following provides a summary of the investigation activities:

150 Tonawanda Street

- Assessment of fill soil materials across the property by installing six (6) soil borings across the property and collecting a total of nine (9) soil samples;

- Assessment of groundwater conditions by installing four (4) on-site overburden groundwater monitoring wells and collecting a total of four (4) groundwater samples;
- Performed laboratory analysis on all soil/water samples. Analysis included Part 375 metals, TCL VOCs plus TICs (no surface soil samples), TCL SVOCs plus TICs, PCBs and pesticides; and,
- Assessment of groundwater conditions in three (3) of the wells for new parameters PFAS and 1,4 Dioxane compounds.

Summary of Results by Medium

Soil

The results of the RI and Phase 2 ESA soils investigations indicate that a number of SVOCs (PAHs) were detected throughout soil/fill material at variable levels slightly above Restricted-residential SCOs. In no sample did the total PAHs exceed 500 ppm, a NYSDEC criteria. The RI results indicated that no metal compounds exceeded Restricted Residential SCOs, however, a few metals exceeded Restricted Residential SCOs in the Phase 2 ESA results. Primarily, arsenic exceeded its SCO in 4 of the 6 samples collected. No pesticides/PCBs or VOCs were detected above Restricted Residential SCOs in either the RI or the Phase 2 ESA programs. Metals and PAH exceedances range from the soil surface to 7 feet bgs.

Figure 2 presents all of the analytical results that exceed Restricted Residential SCOs for both the RI and the Phase 2 ESA. RI **Table 1** and ESA Table 1 present all soil analytical results

Groundwater

The groundwater analytical results indicate minor impacts to groundwater. Only one metal compound (Manganese) had an elevated concentration above its TOGs value in two of the wells (MW-2 and MW-4) and is most likely the result of natural variability in soils and/or from the fill materials present on the property. One PCB compound was detected at a concentration slightly above its TOGs value in MW-3. Two pesticide compounds were also detected in three of the monitoring wells at concentrations slightly above their TOGs values. No SVOCs were detected in any of the groundwater samples and two (2) VOCs were detected in two (2) of the four (4) well samples at concentrations below their TOGs values. A few PFAS compounds were detected in each of the three monitoring well samples tested with the total of all PFAS compound values not exceeding the NYSDEC guideline value for PFAS totals. 1,4 Dioxane was not detected in any of the three wells tested.

Figure 5 presents all of the analytical results that exceed TOGs guidelines for the RI and shows groundwater contours. RI **Table's 4** and **7** present all groundwater analytical results including emerging contaminant results.

31 Tonawanda Street

- Assessment of exterior fill soil material across the property by installing six (6) soil borings across the property and collecting a total of 10 soil samples;
- Assessment of building crawl space soil material by installing four (4) borings in the crawl space area and collecting a total of 10 soil samples;
- Assessment of groundwater conditions by installing five (5) on-site exterior overburden groundwater monitoring wells and collecting a total of five (5) groundwater samples along with collecting one groundwater grab sample from a crawl space soil boring;

- Performed laboratory analysis on all soil/water samples. Analysis included Part 375 metals, TCL VOCs plus TICs (no surface soil samples), TCL SVOCs plus TICs, PCBs and pesticides;
- Assessment of groundwater conditions in three (3) of the wells for new parameters PFAS and 1,4 Dioxane compounds;
- Assessment of sub-slab vapor intrusion in the site building by collecting six (6) sub-slab vapor samples, five (5) indoor air samples, one (1) crawl space sample and one (1) outdoor air sample. Performed laboratory analysis on all air samples for TO-15 VOCs; and,
- Performed a building materials assessment (asbestos, lead based paint and PCBs).

<u>Summary of Results by Medium</u>

Soil

The results of the RI and Phase 2 ESA soils investigations indicate that a number of SVOCs (PAHs) and some metals were detected throughout the exterior soil/fill material at variable levels above Restricted-residential SCOs. In no sample did the total concentration levels of PAHs exceed the NYSDEC criteria of 500 ppm. Soil samples collected during the Phase 2 ESA and RI Crawl Space Investigation in the sub-slab soil boings through the floor of the building crawl space detected elevated VOCs (solvents) that exceeded Restricted Residential SCOs. Elevated solvent compounds above SCOs were also detected in soil samples from borings installed exterior to the building adjacent the crawl space exterior wall (RI BH-1 and September 2014 ESA BH-5). The soil sample from RI BH-5 (4'-6') detected petroleum related VOCs that exceeded Restricted Residential SCOs. Elevated metals, SVOCs and VOCs were detected in samples that ranged from the surface to 15 feet bgs

Figure's 3 and 3A present all of the analytical results that exceed Restricted Residential SCOs for both the RI and the Phase 2 ESAs. RI **Tables 2** and **10**, and ESA **Tables 1 and 2**, present the soil analytical results.

Groundwater

Only one metal compound (Manganese) was detected in one monitoring well (MW-2) above its TOGs value. One PCB compound (PCB-1260) was detected in both MW-1 and MW-2 at concentrations that exceeded their TOGs value. A few pesticide compounds were detected in MW-3 and MW-5 that slightly exceeded their TOGs values. One (1) SVOC was detected in MW-3 at a concentration that exceeded its TOGs guideline (Bis(2-ethylhexyl) phthalate).

Solvent-related VOCs appear to be impacting GW in the wells installed at the east side of the site (between the building and the Creek). Solvent related VOCs were detected at elevated concentrations in MW-3, MW-4, MW-5 and the crawl space grab sample with significant elevated compound concentrations above TOGs values detected in the MW-3 sample.

The VOC exceedances of TOGs values were as follows.

- <u>MW-3</u>
    - Cis-1,2-Dichloroethene – 37,500 ppb versus 5 ppb TOGs value
    - 1,1,1-Trichloroethane – 188,000 ppb versus 5 ppb TOGs value
    - 1,1-Dichloroethane – 75,700 ppb versus 5 ppb TOGs value
    - 1,1-Dichloroethene – 2,510 ppb versus 5 ppb TOGs value
    - Vinyl Chloride – 5,080 ppb versus 2 ppb TOGs value

- <u>MW-4</u>
    - Cis-1,2-Dichloroethene – 5.26 ppb versus 5 ppb TOGs value

- <u>MW-5</u>
    - 1,4-Dioxane – 49.4 ppb versus 1.0 ppb TOGs value

- <u>SBH-3 (crawl Space)</u>
    - cis-1,2-Dichloroethene – 369 ppb versus 5 ppb TOGs value
    - 1,1,1-Trichloroethane – 51.1 ppb versus 5 ppb TOGs value
    - 1,1-Dichloroethane – 42 ppb versus 5 ppb TOGs value
    - Trichloroethene – 194 ppb versus 5 ppb TOGs value
    - Vinyl Chloride – 147 ppb versus 2 ppb TOGs value

MW-2, MW-3 and MW-4 samples were tested for Per-polyfluoroalky (PFAS) and 1,4-Dioxane compounds. PFAS compounds were detected in each of the wells with the total PFAS compound values not exceeding the NYSDEC guideline value for PFAS total of 0.5 ppb. However, the individual NYSDEC guideline value for both PFOS and PFOA of the PFAS compounds was exceeded in MW-3 and MW-4 (refer to Table 8)

1,4-Dioxane analyzed using Method 8270 exceeded the NYSDEC guideline in MW-3 (5020 ppb versus 1.0 ppb guideline) and in MW-4 (9.78 ppb versus 1.0 ppb guideline). As noted in section 4.4.4 1,4-Dioxane was also analyzed as part of the 375 VOCs under Method 8260 and exceeded the NYSDEC guideline in MW-5

Figure 6 presents all of the analytical results that exceed TOGs guidelines and shows groundwater contours. RI **Tables 5** and **8** present all groundwater analytical results including emerging contaminant results.

Sub-Slab Vapor

The sub-slab vapor analytical results reveal that trichloroethene (TCE) was detected in all six (6) Sub-slab samples at elevated concentrations that when applied to the Indoor Air Decision Matrices requires mitigation to reduce TCE concentrations. It should be noted that TCE was detected in the outdoor background sample but at a low concentration (1.3 ug/m3). Analytical results also revealed that tetrachloroethene (PCE) was detected in three (3) Sub-slab samples at elevated concentrations that when applied to the Indoor Air Decision Matrices requires mitigation to reduce PCE concentrations.

Testing for the other NYSDOH assigned volatile chemicals for Indoor Air Decision Matrices indicated that "No Further Action" is required for these compounds with the exception of 1,1,1-trichloroethane resulting in "Monitor" for SS-2 and SS-03 locations and "Identify Source" at SS-4 and SS-5 locations. **Table 3** provides all of the TO-15 VOC results and **Figure 4** provides the sample locations and analytical results with recommended actions.

Building Environmental Condition Assessment

The results of the ACM survey indicated the presence of ACM in the building in a number of materials such as transite panels/siding, window glazing, wiring, etc. (see complete list in **Appendix F**). Sampling of window caulking for PCB content indicated that the material sampled was found to be below the 50-ppm threshold for PCB's by laboratory analysis. A review of the X-Ray florescence (XRF) instrument results indicates that LBP is present and shows deterioration on interior and exterior building components. There are approximately 478 PCB containing light ballasts in the building that will have to be properly disposed of if remove during renovation. Detail reports for the above surveys/assessments are provided in **Appendix F**.

8.2 ALTERNATIVES ASSESSMENT

An Alternatives Analysis was completed to evaluate potential remedial alternatives that satisfy site-specific remedial action objectives. Based on that analysis, the selected remedy is Alternative 1 which includes the following remedial activities at each location.

150 Tonawanda Street

1 – Grade property to drain and acceptance for placement of storage units. After grading cover entire property with new development hardscape all to meet Part 375-3.8 Track 4 and Part 375-6.8 Restricted-residential SCOs with the exception of a five (5+/-) foot landscaped strip along the eastern site perimeter (refer to **Figure 7**).

2 – Cut and fill calculations indicate that after grading approximately 300 to 500 cy of clean fill will be required to bring the site to grade prior to placement of the one foot of hardscape. Any excavated material from the installation of buried utilities will be disposed of offsite at an approved facility and backfilled with clean stone and/or other approved material.

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1 - Remove top one foot of impacted soils from open area east of the building (refer to **Figure 8**) and backfill with hardscape (4” asphalt and 8” clean stone) to meet Part 375-3.8 Track 4 - Part 375-6.8 Restricted-residential SCOs

2 - Remove petroleum impacted soils in the vicinity of RI borehole BH-5 (approximately 20 feet by 20 feet to 9 feet deep is anticipated). Confirmation samples will be collected from sidewalls and bottom to confirm all impacted material that exceeds Restricted-residential SCOs for petroleum VOCs has been removed. The area will then be backfilled with clean fill and hardscape.

3 - Install a sub-slab depressurization system (SSDS) in the building to mitigate sub surface vapors from entering into the building interior. A Vacuum will be created at a number of below slab and crawl space locations (field testing and design will determine number and locations) by piping from these locations to roof mounted fans where sub-slab vapors will be discharged. The proposed system design is provided in **Appendix K**.

4 – In-situ groundwater treatment through installation of injection points exterior to and along the southeast building wall as well as within the building crawl space area. The following treatment system is being considered that has been shown to be an effective method for the mineralization (degradation) of chlorinated solvents. Injection points will extend to a maximum depth of 22 Feet.

- Anaerobic BioChem and zero valent iron (ABC+) by REDOX Tech, LLC.

A groundwater monitoring program will be established to assess attenuation of impacts to the groundwater over time. The proposed system design is provided in **Appendix L**.

The narrow area between the property line and the southeast building wall where the injection points will be installed opposite the crawl space will have the top two feet of existing impacted soil removed and sent to a landfill and replace with clean fill (refer to **Figure 8**).

5 - Remove and properly dispose of any sediment from building trenches/drains.

Note, the RI data suggests that historical releases of chlorinated solvents have migrated to the smear zone and water table zone primarily in the southeast area of the property. Insitu treatment of the groundwater is directed at remediation of this zone coupled with vapor intrusion mitigation throughout the building.

This alternative also includes provisions for managing the Site upon completion of remediation with implementation, through an Environmental Easement (EE) of Institutional Controls (ICs) and Engineering Controls (ECs) as follows:

Imposition of an IC in the form of an environmental easement for the controlled property that:

- Requires the remedial party or site owner to complete and submit to the NYSDEC a periodic certification of IC/EC in accordance with NYSDEC Part 375-1.8(h)(3);
- Allows the use and development of the controlled property for Restricted-residential, commercial, and industrial uses as defined by Part 375-1.8(g)., although land use is subject to local zoning laws;
- Restricts the use of Groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH;
- Requires monitoring of groundwater treatment and sub-slab vapor extraction for a set period of time; and
- Requires compliance with the approved Site Management Plan.

A Site Management Plan (SMP) is required that includes the following:

- An IC/EC plan that identifies all use restrictions and ECs for the Site and details the steps and media specific requirements necessary to ensure the IC and/or ECs remain in place and effective. The IC's are as discussed above, and the EC's include developed soil cover system and groundwater monitoring;
- An Excavation Plan which details provisions for management of future excavations in areas of remaining contamination;
- A monitoring plan for groundwater and the vapor mitigation systems;
- Descriptions of the provisions of the environmental easement including any land use or groundwater use restrictions;
- Provisions for the management and inspection of the identified ECs;
- Maintaining site access controls and NYSDEC notifications; and,
- The steps necessary for the periodic reviews and certifications of the IC/ECs.

The selected remedial alternative fully satisfies the remedial action objectives and is protective of human health and the environment. Therefore, this alternative is the recommended final remedial approach for 31 Tonawanda Site.

REMEDIAL INVESTIGATION TABLES

TABLE 1

150 TONAWANDA STREET - RI SOIL BORING SAMPLE ANALYTICAL RESULTS SUMMARY

Contaminants	Sample Identification				Date Sampled: 8/15/18					PART 375 Soil Cleanup Objectives			
	BH-1 (6-7')	BH-2 (0 -1') Surface	BH-2 (8 -10') Native	BH-3 (4 - 6')	BH-4 (0 -1') Surface	BH-4 (2.8 -4') Native	BH-5 (2 - 4')	BH-6 (0-1') Surface	BH-6 (5.5 -8') Native	Unrestricted Use	Residential	Restricted Residential	Protection of Groundwater
METALS													
Arsenic	8.17	4.23	5.18	6.92	**15.10**	3.38	3.96 J	6.37	3.51	13	16	16	16
Barium	116	96.8	119.0	107.0	82.3	129.0	64.2	68.9	94.6	350	350	400	820
Beryllium	0.877	0.703	0.840	0.990	0.670	1.090	0.580	0.580	0.960	7.2	14	72	47
Cadmium	0.361	0.541	0.401	0.960	1.11	0.380	0.54 J	0.670	0.380	2.5	2.5	4.3	7.5
Chromium	20.6	15.8	20.9	**33.9**	14.5	25.9	24.7 J	11.2	23.9	30	36	180	NA
Copper	28.3	22.9	21.0	**96.5**	**141.0**	18.7	**54.2 J**	30.3	19.1	50	270	270	1720
Lead	36.6	27.7	12.0	**119.0**	**271.0**	12.5	23.1 J	**134.0**	8.2	63	400	400	450
Manganese	325	197	395	479	477	329	1560 J	680	366	1600	2,000	2,000	2,000
Total Mercury	0.042	**0.36**	0.03	0.13	**0.24**	0.04	0.05	**0.32**	0.02	0.18	0.81	0.81	0.73
Nickel	21.4	17.3	22.3	27.3	21.7	27.3	20 J	9.42	23.4	30	140	310	130
Selenium	ND	ND	ND	ND	1.1	ND	ND	ND	ND	3.9	36	180	4
Silver	0.487	0.84	1.26	1.79	**2.98**	1.69	1.98	1.09	1.37	2	36	180	8.3
Tot Cyanide	ND	ND	ND	ND	ND	ND	ND	ND	ND	27	27	27	40
Zinc	**115**	78.7	61.3	**144**	**199**	73.1 J	71.3	**128**	60.1	109	2200	10,000	2,480
PCBs													
PCB-1254	ND	ND	ND	ND	ND	ND	ND	**0.14 J**	ND	0.1	1	1	3.2
PCB-1260	0.021 J	0.04 J	ND	0.04 J	ND	ND	ND	ND	ND	0.1	1	1	3.2
PESTICIDES													
4,4-DDT	**0.005**	ND	ND	ND	ND	ND	ND	**0.032**	ND	0.0033	1.7	7.9	136
4,4-DDE	ND	**0.005 J**	ND	ND	ND	ND	ND	0.009 J	ND	0.0033	1.8	8.9	17
4,4-DDD	ND	ND	ND	ND	ND	ND	ND	**0.01 J**	ND	0.0033	2.6	13	14
beta-BHC	ND	ND	ND	ND	ND	ND	ND	0.007 J	ND	0.036	0.072	0.36	0.09
Delta-BHC	ND	ND	ND	ND	0.004	ND	ND	0.004	ND	0.04	100	100	0.25
Endosulfan Sulfate	0.002 J	0.003 J	ND	0.005 J	ND	ND	ND	0.007 J	ND	2.4	4.8	24	1000
Endrin	0.004 J	ND	ND	0.004 J	ND	ND	ND	0.01 J	ND	0.014	2.2	11	0.06
Endrin Ketone	0.004	ND	ND	ND	0.008 J	ND	ND	0.014	ND	NA	NA	NA	NA
Dieldrin	ND	0.002 J	ND	ND	ND	ND	ND	**0.009 J**	ND	0.005	0.039	0.2	0.1
Aldin	ND	ND	ND	ND	ND	ND	ND	**0.01 J**	ND	0.005	0.019	0.097	0.19
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.042	0.42	2.1	0.38
SEMIVOLATILE ORGANIC COMPOUNDS													
Acenaphthene	0.311 J	0.4	ND	0.177 J	0.93	ND	ND	0.36	ND	20	100	100	98
Acenapthylene	ND	ND	ND	ND	ND	ND	ND	0.32	ND	100	100	100	107
Anthracene	0.389	1.22	ND	0.566	0.67	ND	ND	0.97	ND	100	100	100	1000
Benz(a)anthracene	**1.140**	**4.02**	0.185 J	**1.16**	**1.3**	ND	0.393	**2.56**	ND	1	1	1	1
Benzo(a)pyrene	0.981	**3.89**	ND	0.89	**1.03**	ND	0.355	**2.08**	ND	1	1	1	22
Benzo(b)fluoranthene	**1.170**	**4.36**	ND	0.865	**1.38**	ND	**1.08**	**2.26**	ND	1	1	1	1.7
Benzo(g,h,i)perylene	0.732	2.93	ND	0.589	0.708	ND	0.73	1.34	ND	100	100	100	1000
Benzo(k)fluoranthene	0.735	**2.28**	ND	0.779	**1.01**	ND	0.321	**1.4**	ND	0.8	1	3.9	1.7
Chrysene	**1.240**	4.32	0.216 J	**1.19**	**1.45**	ND	0.773	**2.56**	ND	1	1	3.9	1
Dibenz(a,h)anthracene	0.209 J	**0.61**	ND	0.202 J	0.266 J	ND	0.255 J	**0.36**	ND	0.33	0.33	0.33	1000
Fluoranthene	2.34	9.02	0.303	2.48	1.76	ND	0.642	5.85	ND	100	100	100	1000
Fluorene	ND	0.38	ND	0.25 J	ND	ND	ND	0.326	ND	30	100	100	386
Naphthalene	0.281 J	0.18	ND	0.182 J	1.19	ND	ND	0.34	ND	12	100	100	12
Indeno(1,2,3-cd)pyrene	**0.705**	**2.73**	ND	**0.601**	**0.736**	ND	**0.715**	**1.35**	ND	0.5	0.5	0.5	8.2
Phenanthrene	1.440	4.79	0.42	1.94	1.23	ND	0.247 J	3.92	ND	100	100	100	1000
Pyrene	1.890	7.61	0.33 J	1.97	1.52	ND	0.499	5.02	ND	100	100	100	1000
TICs	21 J	20.2 J	ND	5.0 J	28.9 J	4.1 J	4.7 J	19.7 J	ND	NA	NA	NA	NA
Volatile Organic Compounds													
Acetone	ND	NA	ND	0.013 J	NA	0.04	ND	NA	ND	0.05	100	100	0.05
cis-1,2-Dichloroethene	0.004 J	NA	ND	ND	NA	ND	ND	NA	ND	0.25	59	100	0.25
m,p-Xylene	0.005 J	NA	ND	ND	NA	ND	ND	NA	ND	0.26	100	100	1.6
Toluene	0.006 J	NA	ND	ND	NA	ND	ND	NA	ND	0.7	100	100	0.7
TICs	ND	NA	ND	ND	NA	ND	ND	NA	ND	NA	NA	NA	NA

ND - Non-Detect NA - Not Applicable All Data is Validated J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

(red) >/= to Residential/Restricted-Residential SCO and Unrestricted Use SCO All values in ppm

(green) >Unrestricted Use SCO but <Residential/Restricted-Residential SCO

(blue) >Unrestricted Use & Residential SCO but <Restricted-Residential SCO

TABLE 2

31 TONAWANDA STREET - RI SOIL BORING SAMPLE ANALYTICAL RESULTS SUMMARY

Contaminants	Sample Identification					Date Sampled: 8/16/18					PART 375 Soil Cleanup Objectives			
	BH-1 (0-3')	BH-1 (13.5 -15')	BH-2 (19- 20') Native	BH-3S (12 -13.5')	BH-4 (0 -1') Surface	BH-4 (11.5 - 12')	BH-5 (0-2') Surface	BH-5 (4 - 6')	BD-6 (0 - 2') Surface	BH-6 (4 - 6')	Unrestricted Use	Residential	Restricted Residential	Protection of Groundwater
METALS														
Arsenic	3.9	4.21	1.33	6.61	7.18	11.5	7.45	4.16	6.01	8.96	13	16	16	16
Barium	20.8	74.2	26.4	102	158	93.9	180	61.8	88.6	269	350	350	400	820
Beryllium	0.058	0.52	0.138	0.544	0.556	0.59	0.499	0.134	0.476	0.394	7.2	14	72	47
Cadmium	0.509	0.68	0.361	0.997	1.18	0.72	1.23	1.61	0.805	**2.55**	2.5	2.5	4.3	7.5
Chromium	9.9	16	6.5	21.6	17.9	13.9	18.2	7.14	18.4	28.1	30	36	180	NA
Copper	**121**	28.2	14	**150**	**66.8**	29.8	**102**	**141**	**34.4**	**1480**	50	270	270	1720
Lead	59.5	**68.3**	7.19	**120**	**249**	46.3	**309**	**190**	**134**	**346**	63	400	400	450
Manganese	198	221	306	238	624	213	516	246	438	175	1600	2,000	2,000	2,000
Total Mercury	0.08	**0.46**	0.01	**0.56**	**0.69**	**0.38**	**0.43**	**0.21**	0.13 J	**1.34**	0.18	0.81	0.81	0.73
Nickel	6.94	20.3	8.08	19.2	15.7	40.9	16.3	9.83	14.1	16.3	30	140	310	130
Selenium	0.337	0.731	0.411	1.22	1.12	0.746	0.888	0.697	0.576 J	1.16	3.9	36	180	4
Silver	0.168	0.266	ND	0.628	0.395	ND	0.546	0.171	0.21 J	0.58	2	36	180	8.3
Zinc	**119**	85.9	83.5	**219**	**248**	**950**	**286**	**1180**	**155**	**1350**	109	2200	10,000	2480
Cyanide	0.0004 J	ND	ND	ND	ND	0.71 J	ND	0.001 J	ND	ND	27	27	27	40
PCBs														
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1	1	1	3.2
PCB-1260	0.035 J	ND	ND	ND	ND	ND	ND	0.068 J	ND	ND	0.1	1	1	3.2
PESTICIDES														
4,4-DDT	**0.033 J**	ND	ND	ND	ND	ND	ND	**0.006**	**0.005**	0.003 J	0.0033	1.7	7.9	136
4,4-DDE	ND	ND	ND	ND	ND	ND	ND	ND	**0.004 J**	ND	0.0033	1.8	8.9	17
4,4-DDD	ND	ND	ND	0.005 J	ND	ND	ND	**0.005 J**	**0.004 J**	ND	0.0033	2.6	13	14
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.002 J	0.02	0.097	0.48	0.02
beta-BHC	**0.24**	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.036	0.072	0.36	0.09
Endosulfan 11	ND	ND	ND	ND	ND	ND	ND	0.004 J	ND	ND	2.4	4.8	24	102
Endosulfan Sulfate	0.076 J	ND	ND	ND	ND	ND	0.002 J	ND	ND	0.007 J	2.4	4.8	24	1000
Endrin	**0.019 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.014	2.2	11	0.06
Endrin Ketone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
Dieldrin	**0.112 J**	ND	ND	ND	ND	ND	**0.005 J**	0.002 J	ND	ND	0.005	0.039	0.2	0.1
SEMIVOLATILE ORGANIC COMPOUNDS														
Acenaphthene	1.2 J	ND	0.438	1.46 J	1.23	ND	ND	ND	ND	ND	20	100	100	98
Acenapthylene	ND	ND	0.31	0.595 J	0.398 J	ND	ND	ND	ND	ND	100	100	100	107
Anthracene	2.25	0.73 J	ND	1.76 J	2.8	ND	0.303 J	0.229 J	ND	ND	100	100	100	1000
Benz(a)anthracene	**7.17**	**1.45 J**	ND	**2.58 J**	**5.7**	ND	**1.08**	0.756 J	0.588	0.28 J	1	1	1	1
Benzo(a)pyrene	**6.37**	0.908 J	ND	**1.68 J**	**4.87**	ND	0.997	0.669 J	0.541	0.24 J	1	1	1	22
Benzo(b)fluoranthene	**6.76**	0.663 J	ND	**1.14 J**	**5.02**	ND	**1.04**	0.656 J	0.627	0.35 J	1	1	1	1.7
Benzo(g,h,i)perylene	4.25	0.354 J	ND	0.908 J	2.98	ND	0.682	0.536 J	0.384	0.22 J	100	100	100	1000
Benzo(k)fluoranthene	**5.41**	0.762 J	ND	**1.02 J**	3.03	ND	0.702	0.482 J	0.399	0.22 J	0.8	1	3.9	1.7
Chrysene	**8.83**	**1.3 J**	ND	**2.88 J**	**5.93**	0.27 J	**1.18**	0.841 J	0.689	0.409 J	1	1	3.9	1
Dibenz(a,h)anthracene	**1.56 J**	ND	ND	ND	**1.06**	ND	0.246 J	ND	ND	ND	0.33	0.33	0.33	1000
Fluoranthene	18.8	2.29 J	ND	4.36 J	13.5	0.478	2.32	1.45 J	1.2	0.498 J	100	100	100	1000
Fluorene	1.06 J	0.283 J	0.23 J	1.14 J	1.18	ND	ND	0.35 J	ND	ND	30	100	100	386
Indeno(1,2,3-cd)pyrene	**4.89**	0.458 J	ND	**0.829 J**	**3.51**	ND	**0.765**	**0.507 J**	0.423	0.21 J	0.5	0.5	0.5	8.2
Naphthalene	0.88 J	ND	2.7	0.701 J	0.44 J	0.38 J	ND	**46 J**	ND	0.212 J	12	100	100	12
Phenanthrene	15.1	1.4 J	0.58	5.11 J	10.6	0.587	1.19	1.4 J	0.56	0.58	100	100	100	1000
Pyrene	16	2 J	ND	7.75 J	11.4	0.427 J	1.99	1.3 J	1.0	0.49	100	100	100	1000
TICs	33.4 J	18.5 J	4 J	47.1 J	26.4 J	24.6 J	3 J	178 J	8.8 J	48 J	NA	NA	NA	NA
VOLATILE ORGANIC COMPOUNDS														
Acetone	ND	ND	ND	**0.25 J**	NA	**0.062**	NA	ND	NA	**0.38 J**	0.05	100	100	0.05
Toluene	ND	ND	ND	0.015	NA	ND	NA	**8.06**	NA	0.219 J	0.7	100	100	0.7
1,1,1-Trichloroethane	0.007	ND	ND	ND	NA	ND	NA	ND	NA	0.101 J	0.68	100	100	0.68
1,1-Dichloroethane	ND	ND	ND	ND	NA	ND	NA	ND	NA	0.192 J	0.27	19	26	0.27
1,1-Dichloroethene	ND	ND	ND	ND	NA	ND	NA	ND	NA	0.007 J	0.33	100	100	0.33
1,2-Dichloroethane	ND	ND	ND	ND	NA	ND	NA	ND	NA	0.014	0.02	2.3	3.1	0.02
Benzene	ND	ND	**0.082 J**	ND	NA	ND	NA	ND	NA	0.007 J	0.06	2.9	4.8	0.06
cis-1,2-Dichloroethene	0.004 J	**152.0**	**0.36**	0.004 J	NA	ND	NA	ND	NA	**0.417 J**	0.25	59	100	0.25
Ethylbenzene	ND	ND	0.18	0.005 J	NA	ND	NA	**168**	NA	0.051 J	1	30	41	1
m,p-Xylene	ND	ND	ND	0.017 J	NA	0.005 J	NA	**595**	NA	0.172 J	0.26	100	100	1.6
Methylene chloride	ND	ND	ND	0.018 J	NA	ND	NA	ND	NA	0.02 J	0.05	51	100	0.05
n-Propylbenzene	ND	ND	ND	ND	NA	ND	NA	**11.5**	NA	0.01 J	3.9	100	100	3.9
sec-Butylbenzene	ND	ND	ND	ND	NA	ND	NA	8.5	NA	0.007 J	11	100	100	11
Tetrachloroethene	ND	ND	ND	ND	NA	ND	NA	ND	NA	0.019 J	1.3	5.5	19	1.3
Trichloroethene	0.206	ND	ND	ND	NA	ND	NA	ND	NA	0.16 J	0.47	10	21	0.47
trans-1,2-Dichloroethene	ND	**2.3 J**	ND	ND	NA	ND	NA	ND	NA	ND	0.19	100	100	0.19
Vinyl chloride	ND	**30.7**	0.2	ND	NA	ND	NA	ND	NA	**0.086 J**	0.02	0.21	0.9	0.02
1,2,4-Trimethylbenzene	ND	ND	ND	0.008 J	NA	ND	NA	**91.4**	NA	0.097 J	3.6	47	52	3.6
1,3,5- Trimethylbenzene	ND	ND	ND	0.006 J	NA	ND	NA	**44.3**	NA	0.041 J	8.4	47	52	8.4
TICs	0.09 J	ND	0.35 J	1.16 J	NA	6.91 J	NA	1790 J	NA	18.1 J	NA	NA	NA	NA

ND - Non-Detect NA - Not Applicable All Data is Validated J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

>/= to Residential/Restricted-Residential SCO and Unrestricted Use SCO All values in ppm

>Unrestricted Use SCO but <Residential/Restricted-Residential SCO. VOCs Only: >Unrestricted Use/Protection of GW SCOs but <Residential/Restricted-Residential SCO

>Unrestricted Use & Residential SCO but <Restricted-Residential SCO

Table 3
31 Tonawanda Street Building
Sub Slab Vapor Ambient Air Analytical Results
EPA Air Method Toxic Organics -15 (TO-15)

	Sample Identification												NYSDOH Minimum Action Levels[a]	
Sample Date	8/21/18	8/21/18	8/21/18	8/21/18	8/21/18	8/21/18	8/21/18	8/21/18	8/21/18	8/21/18	8/21/18	8/21/18	Sub Slab Vapor Concentration	Indoor Air Concentration
TO-15 Contaminants	IA-01 Indoor	SS-01 Sub Slab	IA-02 Indoor	SS-02 Sub Slab	SS-03 Sub Slab	IA-03 Indoor	SS-06 Sub Slab	IA-04 Indoor	SS-04 Sub Slab	SS-05 Sub Slab	IA-05 (1) Indoor	OA-01 Outdoor		
VOLATILE ORGANIC COMPOUNDS[b]														
1,1,1-Trichloroethane	2.8	78 J	9.2	350 J	290 J	5	68 J	34	59	16	1700	ND	100	3
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	8.2	ND	2.9	ND	6	0.2
1,2,4-Trimethylbenzene	1.4	9.9 J	2.4	9.3 J	8.6 J	1.4	2.5 J	1.4	5.5 J	4.7 J	7.3 J	0.69		
1,3,5-Trimethylbenzene	ND	3.4	0.88	3.3 J	3 J	0.59	0.79 J	ND	2.7 J	2.1 J	3.4 J	ND		
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
2,2,4-Trimethylpentane	0.61	0.79	1.4	1.8	3.5 J	1.7	1.4	0.89	0.51	1.7	0.51	ND		
4-Ethyltoluene	ND	2.5 J	ND	2.4 J	2.2 J	ND	ND	ND	1.4 J	1.1 J	1.8 J	ND		
Acetone	19	910	17	1200 J	140 J	12	140	17	170	49	77	20		
Benzene	1.6	4.8 J	2.3	4.6 J	ND	1.7	2 J	0.93	4.6	1.6	0.99	0.54		
Carbon disulfide	ND	17	ND	18 J	31 J	ND	2.7	ND	27	1.3	ND	ND		
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6	0.2
Chloroethane	ND	ND	ND	ND	ND	0.68	0.34	0.7	7.7	ND	0.63	ND		
Chloroform	ND	1.3	ND	1.8 J	1.9 J	ND	ND	ND	2.4	ND	1.4	ND		
Chloromethane	0.89	0.35	0.81	0.54 J	0.62 J	ND	0.6	ND	1.7	ND	2.1	0.66		
cis-1,2-Dichloroethene	ND	ND	ND	0.79 J	ND	ND	0.71	ND	0.75	ND	5.5	ND	6	0.2
Cyclohexane	0.62	280	0.79	390 J	560 J	0.45	65	ND	68	9.6	1.4	ND		
Ethyl acetate	0.43	7.4	ND	5.3 J	11 J	ND	2.5	ND	3.9	1.5	5	ND		
Ethylbenzene	0.91	11 J	2.3	7.9 J	8.2 J	1.7	2.3 J	0.78	1.1 J	1.3 J	0.82 J	ND		
Freon 11	9.6	4.5	4.3	3.5 J	2.4 J	2.3	1.6	1.8	2	2.2	1.7	1.1		
Freon 113	ND	ND	ND	ND	J	ND	ND	ND	ND	ND	ND	ND		
Freon 12	1.9	2	2.1	2.4 J	J	2.3	2	2	ND	1.8	1.9	1.9		
Heptane	1.3	72 J	2	39 J	J	1.8	7.4 J	1.3	23	4.7 J	3.6 J	0.57		
Hexane	5	89	6.6	150 J	510	3.7	19	2.2	41	16	2.5	0.7		
Isopropyl alcohol	19	51 J	6.1	650 J	J	2.7	16 J	3.1	19	13 J	25 J	6.6		
m&p-Xylene	3	22 J	8.4	17 J	J	6.5	5.3 J	2.7	2.7 J	4 J	1.9 J	0.61		
Methyl Ethyl Ketone	2.4	69	2.9	110 J	J	1.9	14	1.4	10	3.1	6.4	1.1		
Methylene chloride	ND	3.5	0.63	2.6 J	J	ND	1.3	0.69	3.4	1.6	4.7	ND	100	3
o-Xylene	1.3	7.6 J	2.6	5.8 J	J	2	1.9 J	1.1	1.1 J	1.4 J	0.91 J	ND		
Tetrachloroethylene	ND	2500 J	ND	2900 J	2100 J	ND	390 J	ND	3.9 J	2.1 J	1 J	ND	100	3
Toluene	57	430 J	38	640 J	790 J	15	63 J	7.9	59 J	24 J	21 J	3.2		
Trichloroethene	49	150 J	9	620 J	650 J	4.4	40 J	20	81	83	230	1.3	6	0.2
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6	0.2

Results and Action levels are presented in micrograms per meters cubed (ug/m^3). All data has been validated

N/A - Not Applicable ND - Non-detect (1) - Sample from Sub Floor Crawlspace

J - Analyte positively identified; the associated numerical value is approximate concentration of the analyte in the sample.

[a]New York State Department of Health (NYSDOH), Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006 and subsequent updates (select matrix coumpounds).

[b]Compounds with detected concentrations

NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, May 2017 Decision Matrices Notes:

NO FURTHER ACTION:

Given that the compound was not detected in the indoor air sample and that the concentration detected in the sub -slab vapor sample is not expected to significantly affect indoor air quality, no additional actions are needed to address human exposures

IDENTIFY SOURCE(S) AND RESAMPLE OR MITIGATE:

The concentration detected in the indoor air sample is likely due to indoor and/or outdoor sources rather than soil vapor int rusion given the concentration detected in the sub-slab vapor sample.
Therefore, steps should be taken to identify potential source(s) and to reduce exposures accordingly (e.g., by keeping containers capped or by storing VOC-containing products in places where people do not spend much time, such as a garage or shed).
Resampling may be recommended to demonstrate the effectiveness of actions taken to reduce exposures.

MONITOR:

Monitoring, including sub-slab vapor, basement air, lowest occupied living space air, and outdoor air sampling, is needed to determine whether concen trations in the indoor air or sub-slab vapor have changed.
Monitoring may also be needed to determine whether existing building conditions (e.g., positive pressure heating, ventilation and air-conditioning systems) are maintaining the desired mitigation endpoint and to determine whether changes are needed.
The type and frequency of monitoring is determined on a site-specific and building-specific basis, taking into account applicable environmental data and building operating conditions.
Monitoring is an interim measure required to evaluate exposures related to soil vapor intrusion until contaminated environmental media are remediated.

MITIGATE:

Mitigation is needed to minimize current or potential exposures associated with soil vapor intrusion. The most common mitigation methods are sealing preferential pathways in conjunction with installing a sub-slab depressurization system, and changing the pressurization of the building in conjunction with monitoring. The type, or combination of types, of mitigation is determined on a building-specific basis, taking into account building construction and operating conditions.

TABLE 4
150 TONAWANDA STREET - RI GW SAMPLE ANALYTICAL RESULTS SUMMARY

Contaminants	Sample Identification Date Sampled: 9/21/18				NYSDEC
	MW-1	MW-2	MW-3	MW-4	TOGS 1.1.1. GA (1)
METALS					
Arsenic	ND	ND	ND	ND	25
Barium	ND	ND	ND	ND	1000
Beryllium	ND	ND	ND	ND	3
Chromium	ND	ND	ND	ND	50
Copper	15 J	14.4 J	18 J	20 J	200
Cyanide	ND	ND	ND	ND	200
Manganese	196	**405**	258	**1400**	300
Nickel	ND	ND	ND	60	100
Total Mercury	ND	ND	ND	ND	0.7
Zinc	ND	ND	72	100	2000
Selenium	ND	ND	ND	ND	10
PCBs					
PCB 1254	ND	ND	0.065 J	ND	0.09
PCB-1260	ND	ND	**0.134 J**	ND	0.09
PESTICIDES					
Aldrin	ND	ND	ND	0.127 J	ND
alpha-BHC	ND	ND	ND	0.111	NA
beta-BHC	ND	ND	ND	ND	NA
Endrin	0.11 J	ND	ND	0.172	ND
Heptachlor	ND	**0.065**	ND	**0.141 J**	0.04
Heptachlor Epoxide	**0.178 J**	ND	ND	**0.11 J**	0.03
trans-Chlordane	0.056 J	ND	ND	ND	NA
SEMIVOLATILE ORGANIC COMPOUNDS					
SVOCs	ND	ND	ND	ND	NA
Volatile Organic Compounds					
Acetone	ND	ND	ND	0.006	50
Carbon disulfide	ND	1.44 J	ND	0.003	NA
TICs	ND	ND	ND	ND	NA
Field Parameters					
Turbidity (NTU)	1.0	6.4	18	19	NA
pH	6.97	6.71	6.84	6.2	NA
Dissolved Oxygen	1.98	0	1.32	0	NA
Temp (degrees C)	19.79	17.08	17.93	15.8	NA
Conductivity	2.11	2.23	3.03	4.15	NA

All values in ppb

N/A - Not Applicable ND - Non-detect All Data is Validated

(1) - TOGs 1.1.1 GA - Technical and Operational Guidance Series (1.1.1) Source of Drinking Water (Groundwater)

Exceeds TOGs Guidance Value

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

TABLE 5
31 TONAWANDA STREET - RI GW SAMPLE ANALYTICAL RESULTS SUMMARY

Contaminants	Sample Identification Date Sampled: 9/24/18					Sampled 2/4/19	NYSDEC
	MW-1	MW-2	MW-3	MW-4	MW-5	SBH-3 (2)	TOGS 1.1.1. GA (1)
METALS							
Arsenic	ND	ND	ND	ND	0.02	NA	25
Barium	0.05 J	ND	0.26	0.11	0.06 J	NA	1000
Beryllium	ND	ND	ND	ND	ND	NA	3
Chromium	ND	5.0 J	ND	ND	ND	NA	50
Copper	ND	20.2	ND	0.01	0.01 J	NA	200
Cyanide	ND	ND	ND	ND	ND	NA	200
Lead	ND	6.2 J	ND	ND	ND	NA	25
Manganese	7.23	**547**	0.62	0.65 J	1.15	NA	300
Nickel	ND	ND	ND	ND	ND	NA	100
Total Mercury	ND	ND	ND	ND	ND	NA	0.7
Zinc	0.05 J	38.9 J	ND	0.97	ND	NA	2000
Selenium	ND	ND	ND	ND	ND	NA	10
PCBs							
PCB 1254	ND	ND	ND	ND	ND	NA	0.09
PCB-1260	**1.81 J**	**1.22 J**	ND	ND	ND	NA	0.09
PESTICIDES							
Aldrin	0.057 J	ND	ND	ND	0.12	NA	ND
alpha-BHC	ND	ND	ND	ND	0.08 J	NA	NA
beta-BHC	ND	ND	ND	ND	ND	NA	NA
Dieldrin	ND	ND	ND	ND	**0.07 J**	NA	0.004
Endrin	ND	ND	ND	ND	0.13 J	NA	ND
Heptachlor	ND	ND	**0.104 J**	ND	**0.1 J**	NA	0.04
Heptachlor Epoxide	ND	ND	ND	ND	**0.16 J**	NA	0.03
trans-Chlordane	ND	ND	ND	ND	0.06 J	NA	NA
SEMIVOLATILE ORGANIC COMPOUNDS							
Bis (2-ethylhexyl) phthalate	ND	ND	**49.2**	ND	ND	NA	5
Volatile Organic Compounds							
Acetone	12.9 J	5.13 J	ND	5.94 J	17.5	ND	50
1,1,1-Trichloroethane	ND	1.21 J	**188000 J**	ND	ND	**51.1**	5
1,1-Dichloroethane	ND	ND	**75700**	1.63 J	3.52	**42**	5
1,1-Dichloroethene	ND	ND	**2510 J**	ND	ND	3.13 J	5
cis-1,2-Dichloroethene	ND	2.1 J	**37500**	**5.26**	ND	**369**	5
1,2,4-Trimethylbenzene	ND	ND	ND	ND	3.03	ND	5
1,3,5-Trimethylbenzene	ND	ND	ND	ND	1.15 J	ND	5
1,4-Dioxane	ND	ND	ND	ND	**49.4**	ND	1
Trichloroethene	ND	ND	ND	4.32	1.69 J	**194**	5
trans-1,2-Dichloroethene						3.5 J	5
Vinyl chloride	ND	ND	**5080**	1.69 J	ND	**147**	2
Carbon disulfide	ND	3.45	ND	ND	ND	ND	NA
TICs	ND	ND	ND	ND	518 J	NA	NA
Field Parameters							
Turbidity (NTU)	69.4	10.2	2.3	13.2	17.3	NA	NA
pH	6.81	6.95	6.28	6.98	6.64	NA	NA
Dissolved Oxygen	0	0	0	0	0	NA	NA
Temp (degrees C)	15.82	14.74	15.93	17.87	16.71	NA	NA
Conductivity	3.65	8.44	1.47	1.12	2.75	NA	NA

All values in ppb
N/A - Not Applicable ND - Non-detect All Data is Validated
(1) - TOGs 1.1.1 GA - Technical and Operational Guidance Series (1.1.1) Source of Drinking Water (Groundwater)
(2) - Groundwater sample from Crawl Space SBH-3 boring
Exceeds TOGs Guidance Value
J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

TABLE 6

31 & 150 TONAWANDA STREET RI LOCATION COORDINATES

Sample Identification	Coordinates-North American Datum 1983	
	Latitude	Longitude
31 Tonawanda Street		
Boreholes		
BH-1	42.929383	-78.896700
BH-2	42.929648	-78.896400
BH-3S	42.929923	-78.896318
BH-4	42.929965	-78.896430
BH-5	42.930092	-78.896391
BH-6	42.90263	-78.896511
Monitoring Wells		
31-MW-1	42.92959	-78.897213
31-MW-2	42.930289	-78.897175
31-MW-3	42.929547	-78.896614
31-MW-4	42.929864	-78.896386
31-MW-5	42.930298	-78.896305
150 Tonawanda Street		
Boreholes		
BH-1	42.933921	-78.897152
BH-2	42.934071	-78.897179
BH-3	42.934444	-78.897249
BH-4	42.934609	-78.897098
BH-5	42.934881	-78.897130
BH-6	42.934936	-78.896852
Monitoring Wells		
MW-1	42.933637	-78.897264
MW-2	42.934554	-78.896965
MW-3	42.934764	-78.897198
MW-4	42.933755	-78.897162

TABLE 7
150 TONAWANDA - PFAS AND 1,4 DIOXANE IN GROUNDWATER ANALYTICAL RESULTS SUMMARY

Sample Number	MW-1	MW-3	MW-4	NYSDEC
Sample Date	9/21/2018	9/21/2018	9/21/2018	Guideline
1,4 Dioxane by 8270D				
1,4 Dioxane	ND	ND	ND	1
Perfluorinated Alkyl Acids by Isotope Dilution EPA 537				
Perfluorobutanoic Acid (PFBA)	0.0079	ND	ND	
Perfluoropentanoic Acid (PFPeA)	ND	ND	ND	
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	ND	
Perfluorohexanoic Acid (PFHxA)	ND	ND	ND	
Perfluoroheptanoic Acid (PFHpA)	ND	ND	ND	
Perfluorohexanesulfonic Acid (PFHxS)	0.00	ND	ND	
Perfluorooctanoic Acid (PFOA)	0.0010	0.0007	0.0020	0.01
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.003	0.0015	0.0020	
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	ND	
Perfluorononanoic Acid (PFNA)	0.0009	0.0002	0.0009	
Perfluorooctanesulfonic Acid (PFOS)	0.0004	ND	ND	0.01
Perfluorodecanoic Acid (PFDA)	ND	ND	ND	
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ND	
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ND	
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ND	
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ND	
Perfluorooctanesulfonamide (FOSA)	ND	ND	ND	
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ND	
Perfluorododecanoic Acid (PFDoA)	ND	ND	ND	
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ND	
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ND	
Totals	0.0140	0.0024	0.0049	0.50

All Values in ppb   All data are validated

Exceeds NYSDEC Guidance Value

N/A - Not Applicable ND - Non-detect

TABLE 8

31 TONAWANDA - PFAS AND 1,4 DIOXANE IN GROUNDWATER ANALYTICAL RESULTS SUMMARY

Sample Number	MW-2	MW-3	MW-4	MW-5	NYSDEC
Sample Date	9/24/2018	9/24/2018	9/24/2018	9/24/2018	Guideline
1,4 Dioxane by 8620					
1,4 Dioxane	ND	ND	ND	49.40	1
1,4 Dioxane by 8270D					
1,4 Dioxane	ND	**5020**	**9.78**	N/A	1
Perfluorinated Alkyl Acids by Isotope Dilution EPA 537					
Perfluorobutanoic Acid (PFBA)	ND	0.013	0.0152	N/A	
Perfluoropentanoic Acid (PFPeA)	ND	0.030	0.0326	N/A	
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	0.003	N/A	
Perfluorohexanoic Acid (PFHxA)	ND	0.015	0.0212	N/A	
Perfluoroheptanoic Acid (PFHpA)	ND	0.008	0.0143	N/A	
Perfluorohexanesulfonic Acid (PFHxS)	ND	0.005	0.009	N/A	
Perfluorooctanoic Acid (PFOA)	0.0014	**0.0148**	**0.0192**	N/A	0.01
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.007	0.0070	0.0062	N/A	
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	0.00135	N/A	
Perfluorononanoic Acid (PFNA)	0.0007	0.0017	0.0050	N/A	
Perfluorooctanesulfonic Acid (PFOS)	0.0003	**0.010**	**0.0313**	N/A	0.01
Perfluorodecanoic Acid (PFDA)	ND	ND	0.00135	N/A	
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ND	N/A	
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ND	N/A	
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ND	N/A	
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ND	N/A	
Perfluorooctanesulfonamide (FOSA)	ND	ND	ND	N/A	
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ND	N/A	
Perfluorododecanoic Acid (PFDoA)	ND	ND	ND	N/A	
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ND	N/A	
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ND	N/A	
Totals	0.0093	0.1037	0.1597	N/A	0.50

All Values in ppb   All data are validated

Exceeds NYSDEC Guidance Value

N/A - Not Applicable ND - Non-detect

TABLE 9

31 & 150 TONAWANDA STREET SITE - GROUNDWATER ELEVATIONS

Well Number	T of C Elevation (ft) (1)	Water Level	Groundwater Elevation
31 Tonawanda		9/24/2018	
MW - 1	580.66	7.8	572.86
MW - 2	581.89	5.2	576.69
MW - 3	578.96	6.3	572.66
MW - 4	580.6	8.1	572.5
MW - 5	583.14	13.3	569.84
150 Tonawanda		9/21/2018	
MW - 1	594.62	6.7	587.92
MW - 2	594.65	7.4	587.25
MW - 3	596.57	9.3	587.27
		11/6/2018	
MW - 4	595.65	5.5	590.15

(1) - Elevations are referenced to Datum NAVD 88

TABLE 10
31 TONAWANDA STREET - CRAWL SPACE SOIL BORING SAMPLE ANALYTICAL RESULTS SUMMARY

Contaminants	Sample Identification					Date Sampled: 2/4/19					PART 375 Soil Cleanup Objectives		
	SBH-1 (2-4')	SBH-1 (8')	SBH-1 (16')	SBH-3 (10 -11')	SBH-4 (8')	SBH-4 (10')	SBH-4 (12')	SBH-5 (4')	SBH-5 (8')	SBH-5 (12')	Unrestricted Use	Residential	Restricted Residential
VOLATILE ORGANIC COMPOUNDS													
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.05	100	100
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.7	100	100
1,1,1-Trichloroethane	ND	0.075	ND	0.29	**37 J**	ND	ND	0.18	**4.23**	**667**	0.68	100	100
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND			0.27	19	26
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	0.079 J	**17.9**	0.33	100	100
1,1-Dichloroethane	ND	ND	ND	**0.075**	ND	ND	ND	**0.035 J**	**1.79**	**246**	0.02	2.3	3.1
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.06	2.9	4.8
cis-1,2-Dichloroethene	ND	ND	0.012	**0.46**	**35.4 J**	**1970**	**1.29**	ND	**1.47**	**221**	0.25	59	100
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	30	41
m,p-Xylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.26	100	100
Methylene chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.05	51	100
n-Propylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.9	100	100
sec-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11	100	100
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3	5.5	19
Trichloroethene	**3.26**	**2.56**	0.009	**3.89**	**1660**	**7340**	**0.72**	**3.65**	**11.5**	**474**	0.47	10	21
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	0.03	ND	**0.19**	**7.12**	0.19	100	100
Vinyl chloride	ND	ND	**0.039**	ND	ND	ND	**0.034**	ND	ND	**4.02 J**	0.02	0.21	0.9
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.6	47	52
1,3,5- Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.4	47	52

ND - Non-Detect NA - Not Applicable All Data is Validated J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

>/= to Residential/Restricted-Residential SCO and Unrestricted Use SCO All values in ppm

>Unrestricted Use SCO but <Residential/Restricted-Residential SCO

>Unrestricted Use & Residential SCO but <Restricted-Residential SCO

PHASE II ESA TABLES

TABLE 1 - 120 (150) TONAWANDA STREET (CSX) - PHASE 2 ESA SOIL SAMPLE ANALTICAL RESULTS SUMMARY								
Sampling Program	**PEI - Phase 2 ESA SOIL TEST PIT SAMPLING PROGRAM**							
Sample Number	**TP1 SS1**	**TP2 S1**	**TP4 SS2**	**TP5 S2**	**TP7 S3**	**TP7 SS3**	**NYSDEC**	**NYSDEC**
Sample Date	**1/4/2016**	**1/4/2016**	**1/4/2016**	**1/4/2016**	**1/4/2016**	**1/4/2016**	**PART 375**	**PART 375**
Sample depth (bgs)	**2-3 Ft**	**2"**	**5-6 Ft**	**2"**	**2"**	**5-6 Ft**	**Restrict Res**	**Commercial**
Compounds	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**(a)**	**(b)**
Metals								
Mercury	0.47	0.48	0.083	0.238	0.553	0.109	1	2.8
Aluminum	7570	9010	7100	6530	9080	5510	NA	NA
Arsenic	**69 (a)(b)**	**18.1 (a)(b)**	**24.9 (a)(b)**	4.7	5.9	**21.1 (a)(b)**	16	16
Barium	132.0	137	76.6	86.7	190	141	400	400
Beryllium	0.60	0.43	0.41	ND	ND	0.51	72	590
Cadmium	2.23	0.99	0.89	0.93	1.16	1.29	4.3	9.3
Chromium	27.7	42.9	15.4	16.2	74.8	27	180	1500
Cyanide	0.4	0.17	0.33	0.38	0.23	0.3	27	27
Calcium	23600	27200	52100	54500	36000	19500	NA	NA
Copper	181	51.3	55.2	47.2	**339 (a)(b)**	94.5	270	270
Lead	347	**500 (a)**	157	210	**639 (a)**	205	400	1000
Manganese	676	367	362	282	501	747	2000	10000
Nickel	42.4	38.4	15.4	20.4	43	22.7	310	310
Selenium	3.6	ND	ND	ND	ND	2.1	180	1500
Silver	ND	ND	ND	ND	ND	ND	180	1500
Zinc	595	307	227	184	450	575	10000	10000
PCBS								
Aroclor 1260	0.18	ND	0.43	0.59	0.84	ND	1	1
Pesticides								
4,4-DDT	0.027	0.062	0.033	0.058	ND	ND	7.9	47.0
4,4-DDE	ND	0.074	ND	0.034	ND	ND	8.9	62.0
Dieldrin	ND	ND	ND	0.059	ND	ND	0.2	1.40
VOCs								
1,2,4-Trimethylbenzene	0.015	NA	ND	NA	NA	ND	52	190
1,3,5-Trimethylbenzene	0.009	NA	ND	NA	NA	ND	52	190
Acetone	0.093	NA	0.012	NA	NA	ND	100	500
SVOCs								
Acenaphthene	4.8	ND	ND	ND	ND	ND	100	500
Acenaphthylene	2.1	ND	3.5	ND	ND	ND	100	500
Anthracene	4.5	Nd	3.3	ND	0.82	1.8	100	500
Benzo(a)anthracene	**5.9 (a)(b)**	0.44	**10 (a)(b)**	**4.1 (a)**	**1.8 (a)**	**2.5 (a)**	1	5.6
Benzo (a) pyrene	**5.1 (a)(b)**	0.59	**9.7 (a)(b)**	**4.1 (a)(b)**	**1.5 (a)(b)**	**2.0 (a)(b)**	1	1
Benzo(b)fluoranthene	**8.1 (a)(b)**	0.73	**15 (a)(b)**	**5.8 (a)(b)**	**2.4 (a)**	**3 (a)**	1	5.6
Benzo (g,h,i) perylene	3.8	ND	4.1	2.4	0.7	0.79	100	500
Benzo (k) fluoranthene	2.9	ND	**5.5 (a)**	2	0.78	1.1	3.9	56
Chrysene	**6.5 (a)**	0.45	**11 (a)**	**3.9 (a)**	1.8	2.4	3.9	56
Fluoranthene	13	0.66	20	8.6	3.6	5	100	500
Fluorene	5.7	ND	ND	ND	ND	0.8	100	500
Indeno (1,2,3-cd) pyrene	**4.6 (a)**	0.44	**5.4 (a)**	**2.5 (a)**	**0.77 (a)**	**0.96 (a)**	0.5	5.6
Naphthalene	14	ND	4.4	ND	ND	0.53	100	500
Phenanthrene	14	ND	8.6	3.5	3	5.2	100	500
Pyrene	11	0.6	16	7.5	3.1	4.1	100	500

ND - Non-Detect NA - Not Available or Not analyzed for

Shaded Value - Exceeds Part 375 SCOs

TABLE 1 - 31 TONAWANDA STREET - PHASE 2 ESA SOIL SAMPLE ANALTICAL RESULTS SUMMARY							
Sampling Program	**PEI - Phase 2 ESA SOIL BORING SAMPLING PROGRAM**						
Sample Number	**BH 5**	**BH 5-3N**	**BH 7**	**BH 8**	**NYSDEC**	**NYSDEC**	**NYSDEC**
Sample Date	**4/11/2014**	**9/9/2014**	**4/11/2014**	**4/11/2014**	**PART 375**	**PART 375**	**PART 375**
Sample depth (bgs)	**9' - 12'**	**11' - 12'**	**9' - 12'**	**5' - 8'**	**Residential**	**Restrict Res**	**Commercial**
Compounds	**ppm**	**ppm**	**ppm**	**ppm**	**(a)**	**(b)**	**(c)**
Metals							
Mercury	**1.2**	NA	0.51	0.04	0.81	1	2.8
Arsenic	12.10	NA	11.5	8.5	16	16	16
Barium	340.0	NA	137	34.4	350	400	400
Beryllium	ND	NA	0.84	ND	14	72	590
Cadmium	2.40	NA	ND	0.94	2.5	4.3	9.3
Chromium	28.5	NA	28.8	**202 (a)(b)**	36	180	1500
Copper	**911 (a)(b)(c)**	NA	**747 (a)(b)(c)**	**9550 (a)(b)(c)**	270	270	270
Lead	**876 (a)(b)**	NA	263	130	400	400	1000
Manganese	200	NA	502	**7780 (a)(b)**	2000	2000	10000
Nickel	20.9	NA	36.3	14.3	140	310	310
Selenium	ND	NA	ND	5.8	36	180	1500
Silver	ND	NA	ND	ND	36	180	1500
Zinc	1410	NA	202	518	2200	10000	10000
PCBS							
PCBS	ND	NA	ND	ND	1	1	1
Pesticides							
4,4-DDT	0,009	NA	ND	ND	1.7	N	47.0
4,4 DDD	0.005	NA	ND	ND	2.6	13	92.0
4,4-DDE	0.01	NA	ND	ND	1.8	8.9	62.0
Endrin Aldehyde	0.021	NA	ND	ND	N/A	N/A	N/A
alpha-BHC	0.009	NA	ND	ND	0.097	0.48	3.4
beta BHC	0.009	NA	ND	ND	0.072	0.36	3
delta BHC	0.021	NA	ND	ND	100	100	500
Endosulfan I	0.005	NA	ND	ND	4.8	24	200
Endosulfan Ii	0.009	NA	ND	ND	4.8	24	200
Endosulfan Sulfate	0.01	NA	ND	ND	4.8	24	200
Endrin	0.007	NA	ND	ND	2.2	11	89.00
Endrin Ketone	0.011	NA	ND	ND	N/A	N/A	N/A
cis-Chlordane	0.014	NA	ND	ND	N/A	N/A	N/A
Dieldrin	0.011	NA	ND	ND	0.039	0.2	1.40
gamma-BHC	0.013	NA	ND	ND	0.28	1.3	9.20
Heptachlor	0.026	NA	ND	ND	0.42	2.1	15.00
Heptachlor-Chlordane	0.009	NA	ND	ND	N/A	N/A	N/A
VOCs							
cis-1,2-Dichloroethene	**880 (a(b)(c)**	0.026	ND	0.023	59	100	500
1,1,2,2-Tetrachloroethane	ND	0.041	ND	ND	NA	NA	NA
1,1,2-Trichloroethane	ND	0.037	ND	ND	NA	NA	NA
1,2,4-Trimethylbenzene	ND	0.048	ND	ND	47	52	190
1,3,5-Trimethylbenzene	ND	0.041	ND	ND	47	52	190
1,4-dioxane	ND	1.08	ND	ND	9.8	13	130
2-Butanone	ND	0.1	ND	ND	NA	NA	NA
Acetone	ND	0.4	ND	ND	100	100	500
Isopropylbenzene	ND	0.014	ND	ND	NA	NA	NA
m,p-Xylene	ND	0.026	ND	ND	100	100	500
Methylcyclohexane	ND	0.022	ND	ND	NA	NA	NA
Naphthalene	ND	0.098	ND	ND	100	100	500
n-Butylbenzene	ND	0.035	ND	ND	NA	NA	NA
o-Xylene	ND	0.03	ND	ND	100	100	500
Trichloroethene	**6960 (a)(b)(c)**	0.17	ND	0.17	10	21	200
SVOCs							
Acenaphthene	6.2	39.2	ND	ND	100	100	500
Acenaphthylene	ND	12.8	ND	ND	100	100	500
Anthracene	ND	60.7	ND	ND	100	100	500
Benzo(a)anthracene	**6.02 (a)(b)(c)**	**48.9 (a)(b)(c)**	ND	ND	1	1	5.6
Benzo (a) pyrene	ND	**47.4 (a)(b)(c)**	ND	ND	1	1	1
Benzo(b)fluoranthene	**5.7 (a)(b)(c)**	**24.2 (a)(b)(c)**	ND	ND	1	1	5.6
Benzo (g,h,i) perylene	ND	19.5	ND	ND	100	100	500
Benzo (k) fluoranthene	ND	**25.3 (a)(b)**	ND	ND	1	3.9	56
Chrysene	**7.74 (a)(b)**	**53.2 (a)(b)**	ND	ND	1	3.9	56
Fluoranthene	11	83.1	ND	0.45	100	100	500
Fluorene	ND	36	ND	ND	100	100	500
Indeno (1,2,3-cd) pyrene	ND	**16.6 (a)(b)(c)**	ND	ND	0.5	0.5	5.6
Phenanthrene	17.1	**142 (a)(b)**	ND	0.34	100	100	500
Pyrene	15	**137 (a)(b)**	ND	0.36	100	100	500

ND - Non-Detect   NA - Not Available or Not analyzed for

Shaded Value - Exceeds Part 375 SCOs

TABLE 2 - 31 TONAWANDA STREET - FLOOR BORING SAMPLES - ANALTICAL RESULTS SUMMARY REV 3-19-15						
Sampling Program	**PEI - PHASE 2 ESA SOIL BORING SAMPLING PROGRAM**					
Sample/Boring Number	**C-1**	**C-3**	**C-4**	**NYSDEC**	**NYSDEC**	**NYSDEC**
Sample Date	**3/5/2015**	**3/5/2015**	**3/5/2015**	**PART 375**	**PART 375**	**PART 375**
Sample depth (bgs)	**8' - 12'**	**6' - 8'**	**6' - 8'**	**Residential**	**Restrict Res**	**Commercial**
Compounds	**ppm**	**ppm**	**ppm**	**(a)**	**(b)**	**(c)**
VOCs						
cis-1,2-Dichloroethene	**72.8 (a)**	1.5	0.6	59	100	500
1,1-Dichloroethane	**31.5 (a)(b)**	0.3	0.9	19	26	240
1,1-Dichloroethene	17.7	ND	ND	100	100	500
1,1,1 -Trichloroethane	**670 (a)(b)(c)**	4.3	8	100	100	500
Tetrachloroethene	**ND**	0.3	ND	5.5	19	150
Trichloroethene	**15.1 (a)**	**1630 (a)(b)(c)**	**244 (a)(b)(c)**	10	21	200

ND - Non-Detect NA - Not Available or Not analyzed for

Shaded Value - Exceeds Part 375 SCOs

REMEDIAL INVESTIGATION FIGURES

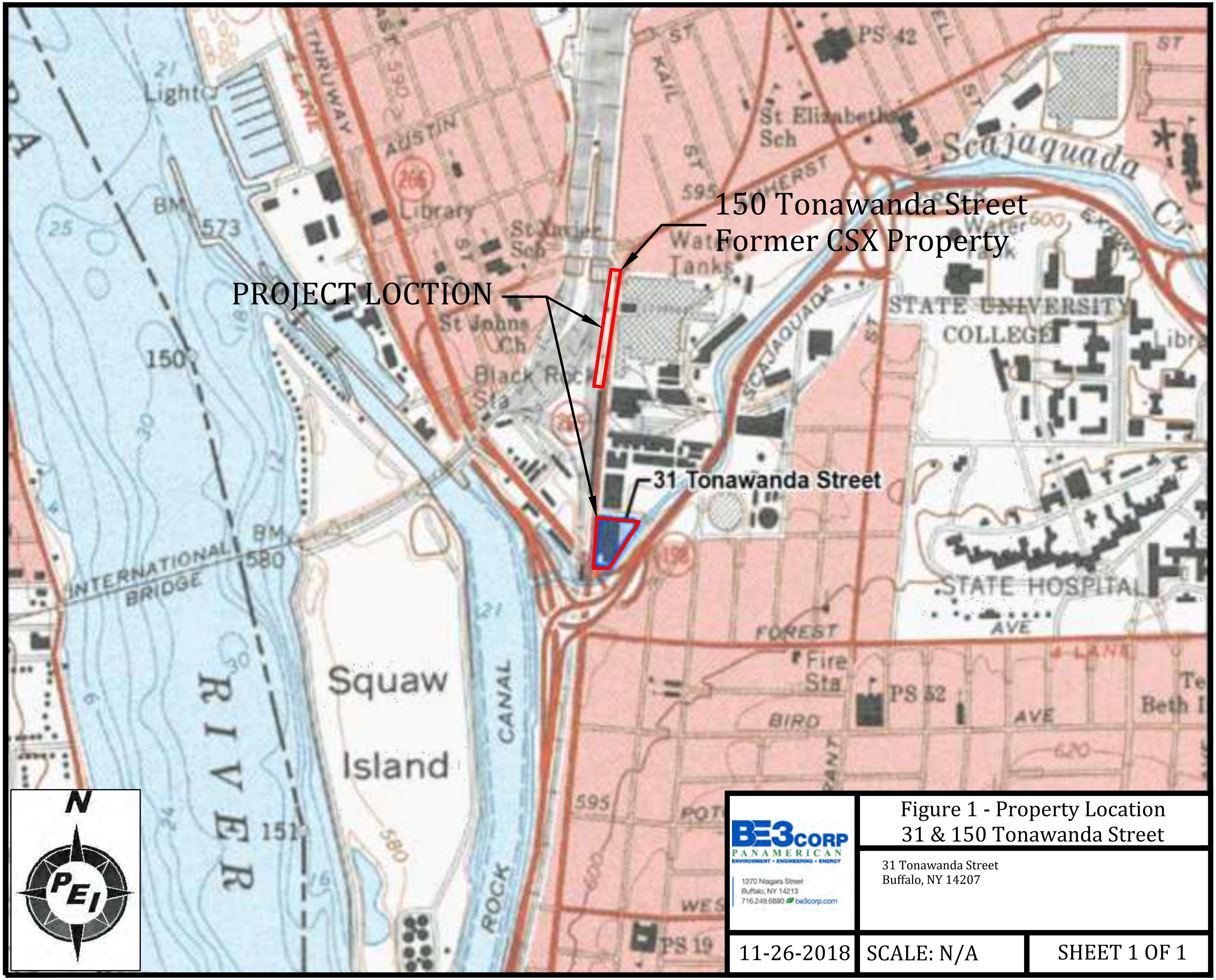
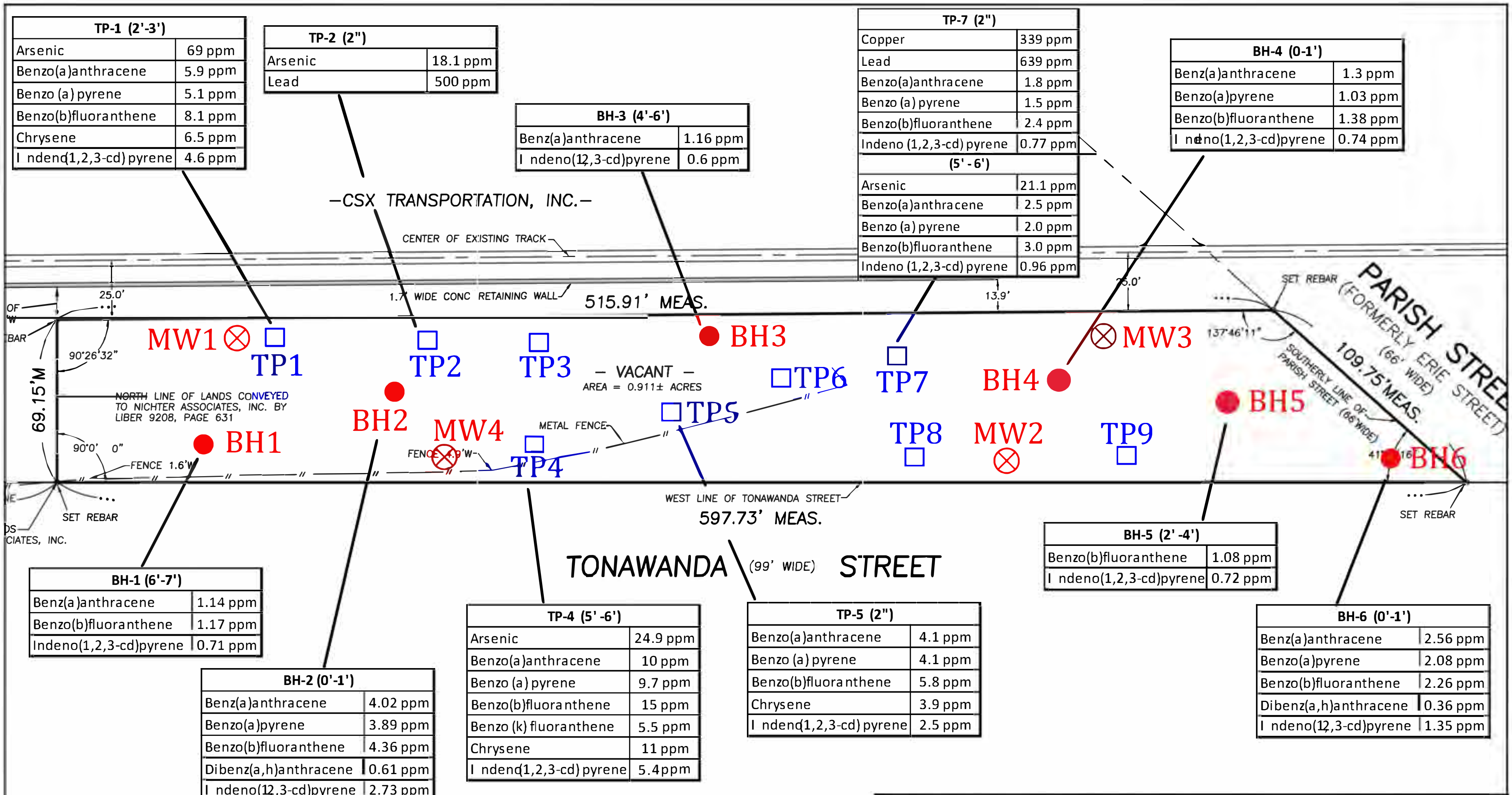


Figure 1 - Property Location
31 & 150 Tonawanda Street

31 Tonawanda Street
Buffalo, NY 14207

11-26-2018	SCALE: N/A	SHEET 1 OF 1



TP-1 (2'-3')	
Arsenic	69 ppm
Benzo(a)anthracene	5.9 ppm
Benzo (a) pyrene	5.1 ppm
Benzo(b)fluoranthene	8.1 ppm
Chrysene	6.5 ppm
Indeno(1,2,3-cd) pyrene	4.6 ppm

TP-2 (2")	
Arsenic	18.1 ppm
Lead	500 ppm

BH-3 (4'-6')	
Benz(a)anthracene	1.16 ppm
Indeno(1,2,3-cd)pyrene	0.6 ppm

TP-7 (2")	
Copper	339 ppm
Lead	639 ppm
Benzo(a)anthracene	1.8 ppm
Benzo (a) pyrene	1.5 ppm
Benzo(b)fluoranthene	2.4 ppm
Indeno (1,2,3-cd) pyrene	0.77 ppm
(5'-6')	
Arsenic	21.1 ppm
Benzo(a)anthracene	2.5 ppm
Benzo (a) pyrene	2.0 ppm
Benzo(b)fluoranthene	3.0 ppm
Indeno (1,2,3-cd) pyrene	0.96 ppm

BH-4 (0-1')	
Benz(a)anthracene	1.3 ppm
Benzo(a)pyrene	1.03 ppm
Benzo(b)fluoranthene	1.38 ppm
Indeno(1,2,3-cd)pyrene	0.74 ppm

BH-1 (6'-7')	
Benz(a)anthracene	1.14 ppm
Benzo(b)fluoranthene	1.17 ppm
Indeno(1,2,3-cd)pyrene	0.71 ppm

BH-2 (0'-1')	
Benz(a)anthracene	4.02 ppm
Benzo(a)pyrene	3.89 ppm
Benzo(b)fluoranthene	4.36 ppm
Dibenz(a,h)anthracene	0.61 ppm
Indeno(1,2,3-cd)pyrene	2.73 ppm

TP-4 (5'-6')	
Arsenic	24.9 ppm
Benzo(a)anthracene	10 ppm
Benzo (a) pyrene	9.7 ppm
Benzo(b)fluoranthene	15 ppm
Benzo (k) fluoranthene	5.5 ppm
Chrysene	11 ppm
Indeno(1,2,3-cd) pyrene	5.4ppm

TP-5 (2")	
Benzo(a)anthracene	4.1 ppm
Benzo (a) pyrene	4.1 ppm
Benzo(b)fluoranthene	5.8 ppm
Chrysene	3.9 ppm
Indeno(1,2,3-cd) pyrene	2.5 ppm

BH-5 (2'-4')	
Benzo(b)fluoranthene	1.08 ppm
Indeno(1,2,3-cd)pyrene	0.72 ppm

BH-6 (0'-1')	
Benz(a)anthracene	2.56 ppm
Benzo(a)pyrene	2.08 ppm
Benzo(b)fluoranthene	2.26 ppm
Dibenz(a,h)anthracene	0.36 ppm
Indeno(1,2,3-cd)pyrene	1.35 ppm

NOTES:
—Compound levels are all presented in ppm
—All compound levels shown exceed Restricted Residential SCO's

BOUNDARY SURVEY
PART OF LOTS 216, 217 & 218 OF THE PARISH TRACT
CITY OF BUFFALO
COUNTY OF ERIE ~ STATE OF NEW YORK
FRANDINA ENGINEERING and LAND SURVEYING, PC
CIVIL ENGINEERS and LAND SURVEYORS
1701 Hertel Avenue Buffalo, New York 14216 www.FRANDINA.com Phone: (716) 883-1299 FAX: (716) 883-1274
DATE: 8/5/2013 SHEET: 1 OF 1 DWN BY: MJC
JOB NO.: 3675 SCALE: 1" = 40' CHK'D BY: RF

LEGEND

□ TP1 - PH2 ESA 1/16 TEST PITS
● BH1 - RI SOIL BORINGS
⊗ MW1 - RI MONITORING WELLS

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Figure 2 - 150 Tonawanda St Soil Analytical Results

150 Tonawanda Street
Buffalo, NY 14207

10-29-2018 | SCALE: N/A

C-3 (6'-8')	
Trichloroethene	1630 ppm

C-4 (6'-8')	
Trichloroethene	244 ppm

C-1 (8'-12')	
1,1-Dichloroethane	31.5 ppm
1,1,1 -Trichloroethane	670 ppm

BH-1 (0-3')	
Benzo(a)pyrene	6.37 ppm
Benzo(k)fluoranthene	5.41 ppm
Benzo(b)fluoranthene	6.76 ppm
Benzo(k)fluoranthene	5.41 ppm
Chrysene	8.83 ppm
Dibenz(a,h)anthracene	1.56 ppm
Indeno(1,2,3-cd)pyrene	4.89 ppm
(13.5' 15')	
Benz(a)anthracene	1.45 ppm
cis-1,2-Dichloroethene	152 ppm
Vinyl chloride	30.7 ppm

BH-5 (9'-12')	
Copper	911 ppm
cis-1,2-Dichloroethene	880 ppm
Benzo(b)fluoranthene	5.7 ppm
Chrysene	7.74 ppm
Trichloroethene	6960 ppm

BH 5-3N (11'-12')	
Benzo(a)anthracene	48.9 ppm
Benzo (a) pyrene	47.4 ppm
Benzo(b)fluoranthene	24.2 ppm
Benzo (k) fluoranthene	25.3 ppm
Chrysene	53.2 ppm
Indeno (1,2,3-cd) pyrene	16.6 ppm
Phenanthrene	142 ppm
Pyrene	137 ppm

BH-3S (12'-13.5')	
Benz(a)anthracene	2.58 ppm
Benzo(a)pyrene	1.68 ppm
Benzo(b)fluoranthene	1.14 ppm
Indeno(1,2,3-cd)pyrene	0.83 ppm

BH-4 (0-1')	
Benz(a)anthracene	5.7 ppm
Benzo(a)pyrene	4.87 ppm
Benzo(b)fluoranthene	5.02 ppm
Chrysene	5.93 ppm
Dibenz(a,h)anthracene	1.06 ppm
Indeno(1,2,3-cd)pyrene	3.51 ppm

BH 7 ((9'-12')	
Copper	747 ppm

BH-8 ((5'-8')	
Chromium	202 ppm
Copper	9550 ppm
Manganese	7780 ppm

BH-5 (0-2')	
Benz(a)anthracene	1.08 ppm
Benzo(b)fluoranthene	1.04 ppm
Indeno(1,2,3-cd)pyrene	0.77 ppm
(4'-6')	
Indeno(1,2,3-cd)pyrene	0.51 ppm
Ethylbenzene	168 ppm
m,p-Xylene	595 ppm
1,2,4-Trimethylbenzene	91.4

BH-6 (4'-6')	
Copper	1480 ppm
Total Mercury	1.34 ppm

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Figure 3:
31 Tonawanda St Soil
Analytical Results

31 Tonawanda Street
Buffalo, NY 14207

11-15-2018 | SCALE: N/A

NOTES:
–Compound levels are all presented in ppm
–All compound levels shown exceed Restricted Residential SCO's

SBH-3 GW	
1,1,1 - Trichloroethene	51.1 ppb
1,1 Dichloroethene	42 ppb
cis-1,2 Dichloroethene	369 ppb
Trichloroethene	194 ppb
Vinylchloride	147 ppb

SBH-4 (8')	
Trichloroethene	1660 ppm
SBH-4 (10')	
cis-1,2 Dichloroethene	1970 ppm
Trichloroethene	7340 ppm

C-3 (6'-8')	
Trichloroethene	1630 ppm

C-4 (6'-8')	
Trichloroethene	224 ppm

C-1 (8'-12')	
1,1 Dichloroethene	31.5 ppm
1,1,1 - Trichloroethene	670 ppm

31-MW-3	
1,1,1 - Trichloroethane	667 ppm
1,1 Dichloroethane	246 ppm
cis-1,2 Dichloroethene	221 ppm
Trichloroethene	474 ppm
Vinylchloride	4.02 ppm

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Figure 3A: 2019 Crawlspace Investigation

31 Tonawanda Street
Buffalo, NY 14207

08-06-2019 | SCALE: N/A | SHEET 1 OF 1

NOTE:
1) SBH-3 GW SAMPLE RESULTS SHOWN ON FIGURE 6
2) ALL SOIL COMPOUND LEVELS SHOWN EXCEED PART 375 RESTRICTED RESIDENTIAL VALUES

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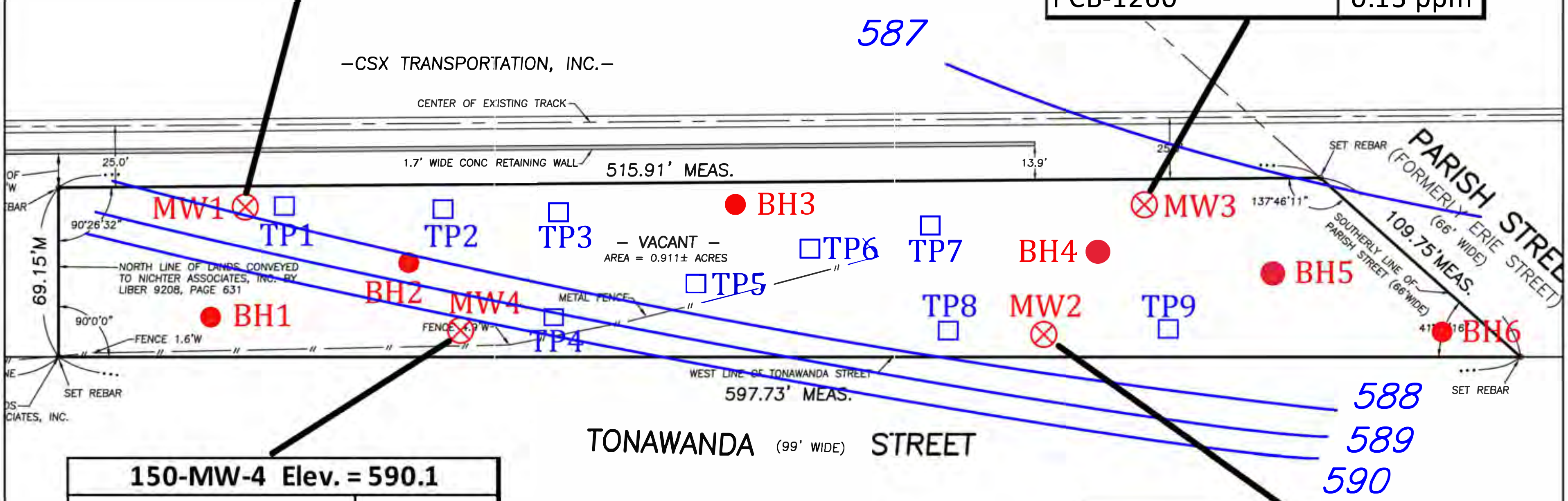
Figure 4
Vapor Intrusion Sample Results

31 Tonawanda Street
Buffalo, NY 14207

11-26-2018 | SCALE: N/A

NOTES:
-Compound levels are all presented in ug/m^3
-All compound levels shown require action based on NYSDOH Guidance for Evaluating Soil Vapor Intrusion Decision Matrices May 2017



150-MW-1 Elev. = 587.9	
Heptachlor Epoxide	0.18 ppm

150-MW-3 Elev. = 587.3	
PCB-1260	0.13 ppm

150-MW-4 Elev. = 590.1	
Manganese	1400 ppm
Heptachlor	0.14 ppm
Heptachlor Epoxide	0.11 ppm

150-MW-2 Elev. = 587.3	
Manganese	405 ppm
Heptachlor	0.07 ppm

NOTES:
—All compound levels shown exceed TOGs GA Guidance Values

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COUNTY OF ERIE ~ STATE OF NEW YORK
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LEGEND
GROUNDWATER CONTOURS
TP1 - PH2 ESA 1/16 TEST PITS
BH1 - RI SOIL BORINGS
MW1 - RI MONITORING WELLS

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Figure 5 - 150 Tonawanda Street Groundwater Results & Contours

150 Tonawanda Street
Buffalo, NY 14207

11-09-2018 | SCALE: N/A

31-MW-1 Elev. = 572.9	
PCB-1260	1.81 ppb

31-MW-2 Elev. = 576.9	
Manganese	547 ppb
PCB-1260	1.22 ppb

SBH-3 GW	
1,1,1-Trichloroethane	51.1 ppb
1,1-Dichloroethane	42 ppb
cis-1,2-Dichloroethene	369 ppb
Trichloroethene	194 ppb
Vinyl chloride	147 ppb

31-MW-3 Elev. = 572.1	
1,1,1-Trichloroethane	188800 ppb
1,1-Dichloroethane	75700 ppb
1,1-Dichloroethene	2510 ppb
cis-1,2-Dichloroethene	37500 ppb
Vinyl chloride	5080 ppb
1,4-Dioxane	5020ppb
PFOA	0.0148ppb
PFOS	0.01 ppb

31-MW-4 Elev. = 572.5	
cis-1,2-Dichloroethene	5.26 ppb
1,4-Dioxane	9.78 ppb
PFOA	0.0192 ppb
PFOS	0.0313 ppb

31-MW-5 Elev. = 569.8	
Dieldrin	0.07 ppb
Heptachlor	0.1 ppb
Heptachlor Epoxide	0.16 ppb
1,4-Dioxane	49.4 ppb

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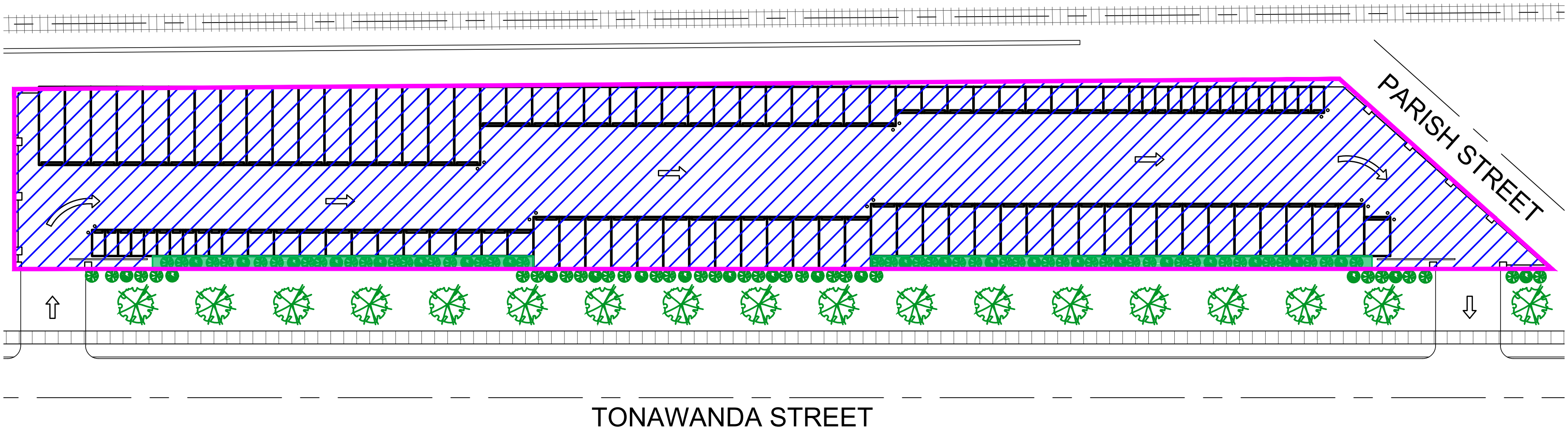
Figure 6: 31 Tonawanda Street Groundwater Results & Contours

31 Tonawanda Street
Buffalo, NY 14207

08-06-2019 | SCALE: N/A | SHEET 1 OF 1



LEGEND

- SITE BOUNDARY
- HARDSCAPE - REMOVE TOP 1' OF SOIL AND REPLACE w/ HARDSCAPE (4" ASPHALT OVER 8" CLEAN STONE)
- LANDSCAPE - REMOVE TOP 2' OF SOIL AND REPLACE w/ 2' CLEAN FILL

BE3CORP BRYDGES ENGINEERING IN ENVIRONMENT & ENERGY	Figure 7 Alternative 1
	Exterior Self Storage 150 Tonawanda Street Buffalo, New York
10-15-2019	SCALE: N/A — SHEET 1 OF 1

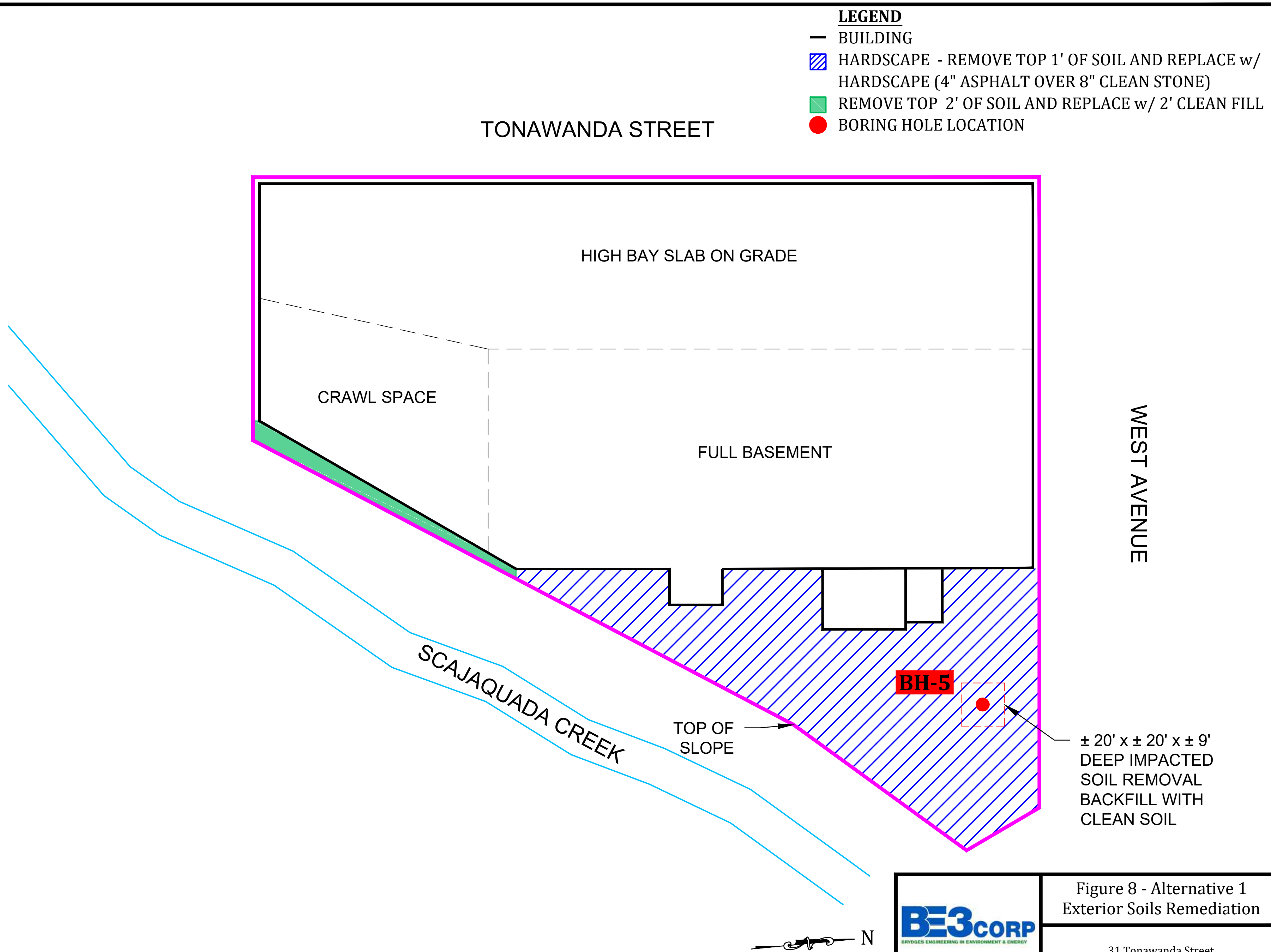


Figure 8 - Alternative 1
Exterior Soils Remediation

31 Tonawanda Street
Buffalo, New York

10-15-2019

SCALE: N/A

SHEET 1 OF 1

APPENDIX A

LOGS
BORING/TEST PIT/MW

150 TONAWANDA

LOGS
BORING/TEST PIT/MW

Geoprobe
Bore Hole Log

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Project: 31 & 150 Tonawanda St	Sheet: 1 of 12
Client: 31 Tonawanda St LLC	Location: 150 Tonawanda St, Buffalo NY
Contractor: Nature's Way	Ground Elevation: N/A Lat: 42.933921 Long: -78.897152
Date Started: 8/15/2018	Operator: Nate Gingrich
Date Completed: 8/15/2018	Geologist/Technician: Alex Brennen
Bore Hole Number: 150: BH-1	Ground Water: N/A

Depth (FT)	Sample NO	Sample TYPE	PID (ppm)	Description
0				0 to 2 feet: Dark sands, fine to coarse gravel
1				
2				2 to 6 feet: Concrete at 2 fbgs, grey sands, trace brick, fine to coarse gravel
3				
4				
5				
				Blue colored slag resembling material at 5.5 fbgs
6	1			6 to 7 feet: Moist, dark silt/clay, fine to coarse gravel, dark stain, no odor
7				7 to 10.5 feet: brown clay, dense, moist
8				
9				
10				
				Refusal at 10.5 fbgs
11				
12				
13				
14				
15				
16				

Comments: Native at 7 fbgs. No PID readings detected. Sample take at 6 to 7 fbgs - fill material. Boring done in large mounding area running north-south along railroad tracks.

Geoprobe
Bore Hole Log

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Project: 31 & 150 Tonawanda St	Sheet: 2 of 12
Client: 31 Tonawanda St LLC	Location: 150 Tonawanda St, Buffalo NY
Contractor: Nature's Way	Ground Elevation: N/A Lat: 42.934071 Long: -78.897179
Date Started: 8/15/2018	Operator: Nate Gingrich
Date Completed: 8/15/2018	Geologist/Technician: Alex Brennen
Bore Hole Number: 150: BH-2	Ground Water: N/A

Depth (FT)	Sample NO	Sample TYPE	PID (ppm)	Description
0				0 to 4 feet: Light brown sands, trace concrete and asphalt, fine to coarse gravel, fill
1				
2				2 to 6 feet: Concrete at 2 fbgs, grey sands, trace brick, fine to coarse gravel
3				
4				4 to 7 feet: Dark sands, black gravel, fill, wet
5				
6				
7				7 to 11 feet: Moist, brown clay, fine gravel, dense
8				
9				
10				
11				Refusal at 11 fbgs
12				
13				
14				
15				
16				

Comments: Native at 7 fbgs. No PID readings detected. Sample take at 8 to 10 fbgs - native material. Surface sample taken at 0 to 1 fbgs. Boring done in large mounding area running north-south along railroad tracks

Geoprobe
Bore Hole Log

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Project: 31 & 150 Tonawanda St	Sheet: 3 of 12
Client: 31 Tonawanda St LLC	Location: 150 Tonawanda St, Buffalo NY
Contractor: Nature's Way	Ground Elevation: N/A Lat: 42.934444 Long: -78.897249
Date Started: 8/15/2018	Operator: Nate Gingrich
Date Completed: 8/15/2018	Geologist/Technician: Alex Brennen
Bore Hole Number: 150: BH-3	Ground Water: N/A

Depth (FT)	Sample NO	Sample TYPE	PID (ppm)	Description
0				0 to 2 feet: Brown sands, loose brick, coarse gravel
1				
2				2 to 2.75 feet: Concrete and possible slag material, urban fill
				2.75 to 6 feet: Brown/black silty sand, fine gravel
3				
4	1			
5				
6				6 to 6.3 feet: Grey sand, coarse gravel, dry
				6.3 to 8 feet: Black coarse sand, fine to coarse sand, fine to coarse gravel, wet
7				
8				8 to 10.7 feet: Brown dense clay
9				
10				
				Refusal at 10.7 fbgs
11				
12				
13				
14				
15				
16				

Comments: Native at 8 fbgs. No PID readings detected. Sample take at 4 to 6 fbgs - fill material.

Geoprobe
Bore Hole Log

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Project: 31 & 150 Tonawanda St	Sheet: 4 of 12
Client: 31 Tonawanda St LLC	Location: 150 Tonawanda St, Buffalo NY
Contractor: Nature's Way	Ground Elevation: N/A Lat: 42.934609 Long: -78.897098
Date Started: 8/15/2018	Operator: Nate Gingrich
Date Completed: 8/15/2018	Geologist/Technician: Alex Brennen
Bore Hole Number: 150: BH-4	Ground Water: N/A

Depth (FT)	Sample NO	Sample TYPE	PID (ppm)	Description
0	1			0 to 2 feet: Black sands, some fine to coarse gravel
1				
2				2 to 2.8 feet: Brown sand/silt, fine to coarse gravel
	2			2.8 to 8 feet: Brown dense clay, some fine gravel
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				

Comments: Native at 2.8 fbgs. No PID readings detected. Surface sample taken at 0 to 1 feet. Sample taken at 2.8 to 4 fbgs - native material. Sample taken off of large mounding area near middle of parcel.

Geoprobe
Bore Hole Log

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Project: 31 & 150 Tonawanda St	Sheet: 5 of 12
Client: 31 Tonawanda St LLC	Location: 150 Tonawanda St, Buffalo NY
Contractor: Nature's Way	Ground Elevation: N/A Lat: 42.934881 Long: -78.897130
Date Started: 8/15/2018	Operator: Nate Gingrich
Date Completed: 8/15/2018	Geologist/Technician: Alex Brennen
Bore Hole Number: 150: BH-5	Ground Water: N/A

Depth (FT)	Sample NO	Sample TYPE	PID (ppm)	Description
0				0 to 1 feet: Black sand, fine to coarse gravel
1				1 to 2 feet: Brown/black silt, trace brick, fine gravel,
				2 to 2.3 feet: Concrete
2	1			2.3 to 4 feet: Moist black sand fine to coarse gravel
3				
4				4 to 8 feet: Brown dense clay, some fine gravel
5				
6				
7				
8				Refusal at 8 fbs
9				
10				
11				
12				
13				
14				
15				
16				

Comments: Native at 4 fbgs. No PID readings detected. Sample taken at 2 to 4 fbgs - fill material.

Geoprobe
Bore Hole Log

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Project: 31 & 150 Tonawanda St	Sheet: 6 of 12
Client: 31 Tonawanda St LLC	Location: 150 Tonawanda St, Buffalo NY
Contractor: Nature's Way	Ground Elevation: N/A Lat: 42.934936 Long: -78.896852
Date Started: 8/15/2018	Operator: Nate Gingrich
Date Completed: 8/15/2018	Geologist/Technician: Alex Brennen
Bore Hole Number: 150: BH-6	Ground Water: N/A

Depth (FT)	Sample NO	Sample TYPE	PID (ppm)	Description
0	1			0 to 1 feet: Dark sands, coarse gravel, brick
1				1 to 2 feet: Concrete/rock, light grey sands
2				2 to 3 feet: Light brown sands, trace fine to coarse gravel
3				3 to 4 feet: Black sands, fine to coarse gravel
4				4 to 5.2 feet: Grey sand, blue colored rock, dry
5				
	2			5.2 to 9 feet: Brown clay, dense, some fine gravel, moist
6				
7				
8				
9				Refusal at 9 fbgs
10				
11				
12				
13				
14				
15				
16				

Comments: Native at 5.2 fbgs. No PID readings detected. Surface sample taken at 0 to 1 fbgs. Sample taken at 5.5 to 8 fbgs - native material. Sample taken in mounding adjacent to Tonawanda street.

DRILLING SUMMARY

Geologist: John Boyd

Contractor: Nature's Way

Operator: Brett

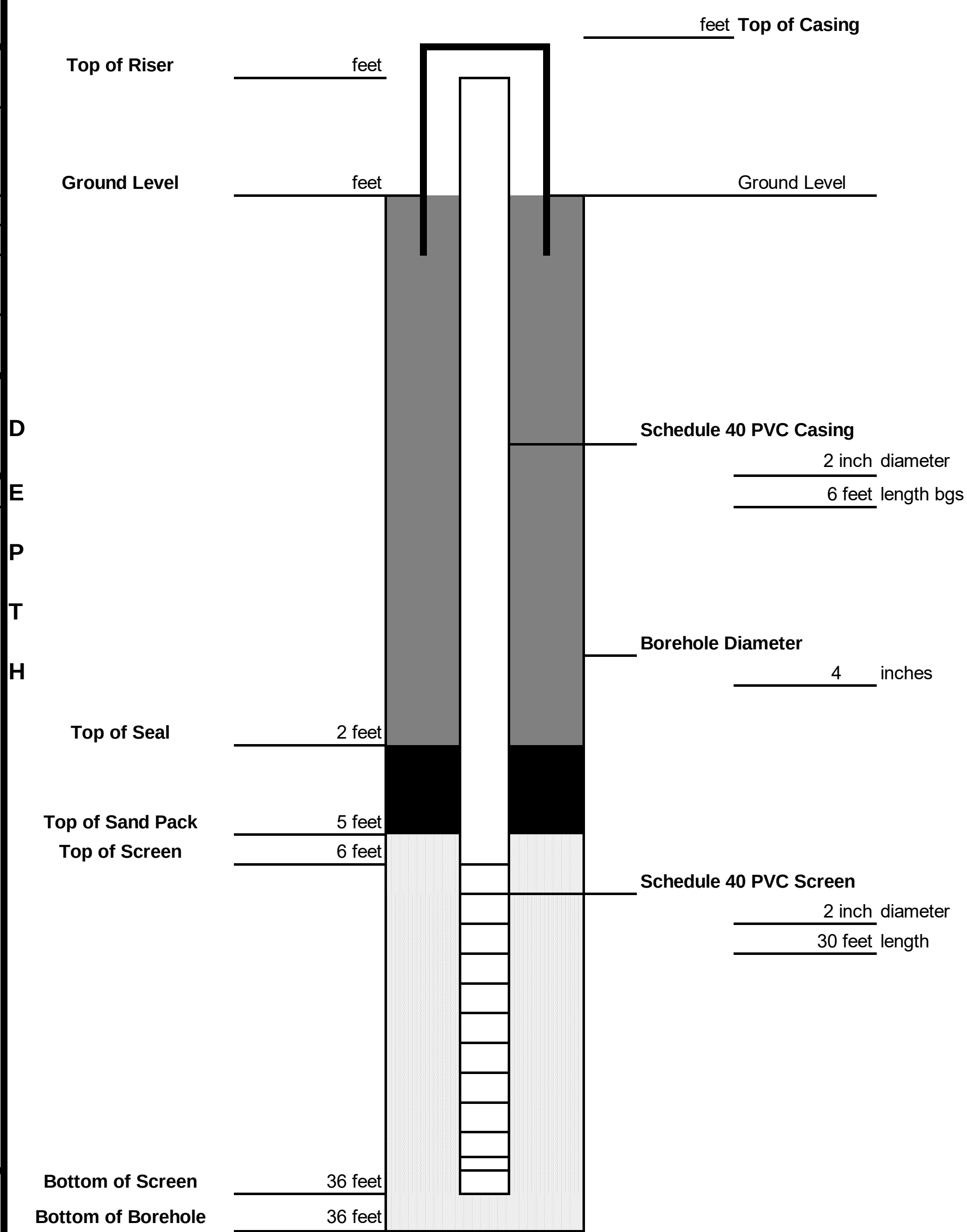
Model: Truck Mounted Rig
Hollow Stem Auger

Date: 8/23/2018

GEOLOGIC LOG

Depth(ft.)	Description
	N/A

WELL DESIGN



CASING MATERIAL

Surface: 4" Steel protective cover (Stick Up)

Monitor: 2" Schedule 40 PVC

SCREEN MATERIAL

Type: 2" Schedule 40 PVC

Slot Size: 0.010"

Setting: 6 to 36 fbgs

FILTER MATERIAL

Type: #0 well sand

Setting: 5 to 36 fbgs

SEAL MATERIAL

Type 1: Bentonite chips

Setting: 2 to 5 fbgs

Type 1: Cement Grout

Setting: 0 to 2 fbgs

COMMENTS:

Very tight clays noted below fill. Drill depth done until clay softened to ensure water generation

LEGEND

Cement Grout

Bentonite Seal

Sand Pack

Client: 31 Tonawanda St, LLC

Location: 150 Tonawanda St, Buffalo, NY

Project No.:

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MONITORING WELL CONSTRUCTION DETAILS

Well Number: MW-1

DRILLING SUMMARY

Geologist: John Boyd

Contractor: Nature's Way

Operator: Brett

Model: Truck Mounted Rig
Hollow Stem Auger

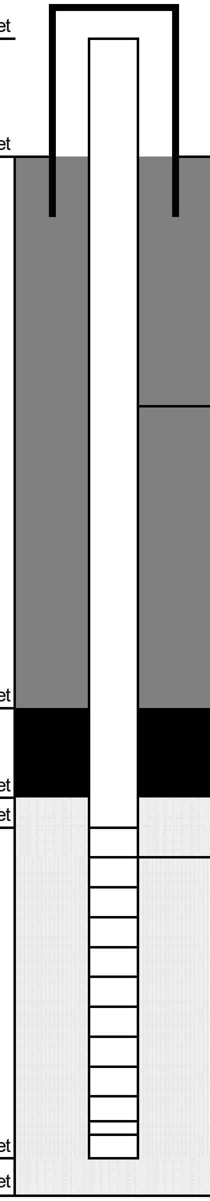
Date: 8/24/2018

GEOLOGIC LOG

Depth(ft.)	Description
	N/A

WELL DESIGN

DEPTH



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: 4" Steel protective cover (Stick Up)	**Type:** 2" Schedule 40 PVC	**Type:** #0 well sand **Setting:** 5 to 36 fbgs
Monitor: 2" Schedule 40 PVC	**Slot Size:** 0.010" **Setting:** 6 to 36 fbgs	**SEAL MATERIAL** **Type 1:** Bentonite chips **Setting:** 2 to 5 fbgs **Type 1:** Cement Grout **Setting:** 0 to 2 fbgs

COMMENTS:
Very tight clays noted below fill. Drill depth done until clay softened to ensure water generation

LEGEND

- Cement Grout
- Bentonite Seal
- Sand Pack

Client: 31 Tonawanda St, LLC	**Location:** 150 Tonawanda St, Buffalo, NY	**Project No.:**
BE3CORP PANAMERICAN ENVIRONMENT • ENGINEERING • ENERGY	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number: MW-2**

Q:/Exchange/Montroy/150 MW-2 Construction Log/Stick-Up (2)-11/21/2018-9:50 AM

DRILLING SUMMARY

Geologist: John Boyd

Contractor: Nature's Way

Operator: Brett

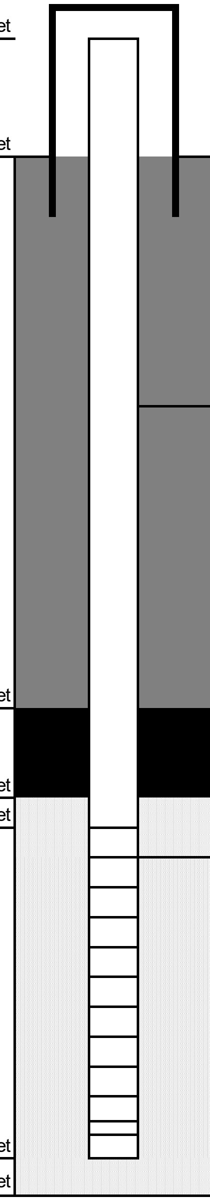
Model: Truck Mounted Rig Hollow Stem Auger

Date: 8/27/2018

GEOLOGIC LOG

Depth(ft.)	Description
	N/A

DEPTH



Top of Riser	feet	feet	Top of Casing
Ground Level	feet	Ground Level	
		Schedule 40 PVC Casing	
		2 inch	diameter
		6 feet	length bgs
		Borehole Diameter	
		4	inches
Top of Seal	2 feet		
Top of Sand Pack	5 feet		
Top of Screen	6 feet	Schedule 40 PVC Screen	
		2 inch	diameter
		30 feet	length
Bottom of Screen	36 feet		
Bottom of Borehole	36 feet		

WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: 4" Steel protective cover (Stick Up)	**Type:** 2" Schedule 40 PVC	**Type:** #0 well sand **Setting:** 5 to 36 fbgs
Monitor: 2" Schedule 40 PVC	**Slot Size:** 0.010" **Setting:** 6 to 36 fbgs	**SEAL MATERIAL** **Type 1:** Bentonite chips **Setting:** 2 to 5 fbgs **Type 1:** Cement Grout **Setting:** 0 to 2 fbgs

COMMENTS:
Very tight clays noted below fill. Drill depth done until clay softened to ensure water generation

LEGEND

Cement Grout

Bentonite Seal

Sand Pack

Client: 31 Tonawanda St, LLC	**Location:** 150 Tonawanda St, Buffalo, NY	**Project No.:**
BE3CORP PANAMERICAN ENVIRONMENT • ENGINEERING • ENERGY	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number: MW-3**

DRILLING SUMMARY

Geologist: John Boyd

Contractor: Nature's Way

Operator: Brett

Model: Truck Mounted Rig, Hollow Stem Auger

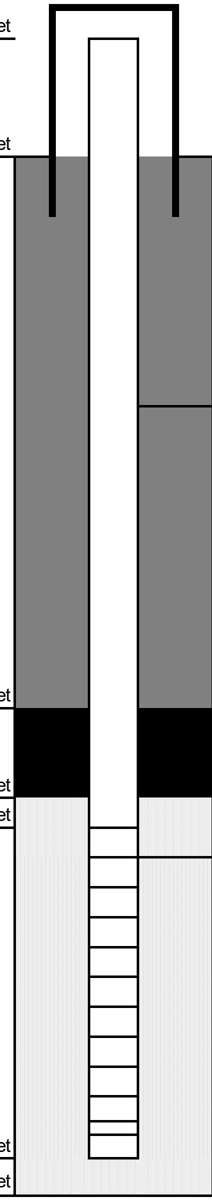
Date: 8/27/2018

GEOLOGIC LOG

Depth(ft.)	Description
	N/A

WELL DESIGN

DEPTH



CASING MATERIAL

Surface: 4" Steel protective cover (Stick Up)

Monitor: 2" Schedule 40 PVC

SCREEN MATERIAL

Type: 2" Schedule 40 PVC

Slot Size: 0.010"

Setting: 6 to 36 fbgs

FILTER MATERIAL

Type: #0 well sand

Setting: 5 to 36 fbgs

SEAL MATERIAL

Type 1: Bentonite chips

Setting: 2 to 5 fbgs

Type 1: Cement Grout

Setting: 0 to 2 fbgs

COMMENTS:

Very tight clays noted below fill. Drill depth done until clay softened to ensure water generation

LEGEND

Cement Grout

Bentonite Seal

Sand Pack

Client: 31 Tonawanda St, LLC

Location: 150 Tonawanda St, Buffalo, NY

Project No.:

MONITORING WELL CONSTRUCTION DETAILS

Well Number: MW-4

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 31 & 150 Tonawanda Street   Site: 31 & 150 Tonawanda St, Buffalo   Well I.D.: MW-1

Date: 09/21   Sampling Personnel: Alex Brennen   Company: BE3 Corp/Panamerican

Purging/ Sampling Device: Peristaltic Pump   Tubing Type: HDPE + Silicon   Pump/Tubing Inlet Location: Middle of Screen

Measuring Point: TOC Mark   Initial Depth to Water: 6.7'   Depth to Well Bottom: 40.1   Well Diameter: 2 in   Screen Length: 30'

Casing Type: PVC   Volume in 1 Well Casing (liters): 20.6   Estimated Purge Volume (liters): 15L

Sample ID: 150-MW-1   Sample Time: 1250   QA/QC:

Sample Parameters: TCL VOC's & TICs, TCL SVOCs, ~~TAL Metals~~, Cyanide, PCBs, Pesticides, PFA's, 1-4 Dioxane
375 Metals

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1200	6.99	18.17	2.17	2.70	4.0	60	250	8.1
1205	6.95	17.96	2.18	2.38	0.9	67	250	9.8
1210	6.96	18.48	2.18	2.31	0.8	67	220 ~~250~~	10.0
1215	6.97	18.70	2.17	2.18	1.0	66	220	10.0
1220	6.98	18.56	2.15	2.04	0.3	66	250	10.0
1225	6.98	18.28	2.15	2.02	0.2	66	300	10.0
1230	6.98	18.49	2.14	2.21	0.7	66	300	10.4
1235	6.99	18.55	2.14	2.37	0.6	66	300	10.9
1240	6.99	18.62	2.14	2.26	0.8	66	300	11.3
1245	6.97	19.79	2.11	1.98	1.0	66	300	11.8
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES—0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft (vol$_{cyl}$ = $\pi r^2 h$)

Remarks:

Pump on @ 1155   Pump off @ 1302

Sample @ 1250

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 31 & 150 Tonawanda Street   Site: 31 & 150 Tonawanda St, Buffalo   Well I.D.: MW-2

Date: 09/21   Sampling Personnel: Alex Brennen   Company: BE3 Corp/Panamerican

Purging/ Sampling Device: Peristalic Pump   Tubing Type: LDPE + Silicon   Pump/Tubing Inlet Location: Middle of Screen

Measuring Point: TOR Mark   Initial Depth to Water: 7.4   Depth to Well Bottom: 39   Well Diameter: 2 in   Screen Length: 30'

Casing Type: PVC   Volume in 1 Well Casing (liters): 19.5L   Estimated Purge Volume (liters): 13L

Sample ID: 150-MW-2   Sample Time: 1555   QA/QC:

Sample Parameters: TCL VOC's & TICs, TCL SVOCs, ~~TAL Metals~~, Cyanide, PCBs, Pesticides, ~~PFAS, 1,4 Dioxane~~
375 Metals

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1510	6.89	18.98	2.25	0.55	6.4	89	300	8.4'
1515	6.77	16.54	2.31	0.11	2.8	103	300	8.6'
1520	6.76	16.59	2.30	0.17	3.7	106	300	9.1'
1525	6.76	16.82	2.27	0.36	5.0	107	300	9.7'
1530	6.77	17.27	2.25	0.56	7.6	107	260	10.2'
1535	6.75	17.32	2.23	0.70	7.6	104	260	10.7'
1540	6.73	17.20	2.23	0.0	7.9	103	260	11.1'
1545	6.73	17.2	2.22	0.0	7.9	101	260	11.4
1550	6.71	17.08	2.23	0.0	7.8	98	260	
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

Pump on @ 1510

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 31 & 150 Tonawanda Street   Site: 31 & 150 Tonawanda St, Buffalo   Well I.D.: MW-3

Date: 09/21/18   Sampling Personnel: Alex Brennen   Company: BE3 Corp/Panamerican

Purging/ Sampling Device: Peristalic Pump   Tubing Type: HDPE + Silicon   Pump/Tubing Inlet Location: Middle of Screen

Measuring Point: TOR Mark   Initial Depth to Water: 9.3   Depth to Well Bottom: ~~39~~ 39.61   Well Diameter: 2 in   Screen Length: 30'

Casing Type: PVC   Volume in 1 Well Casing (liters): 18.70.   Estimated Purge Volume (liters): 12L

Sample ID: 150-MW-3   Sample Time: 1415   QA/QC:

Sample Parameters: TCL VOC's & TICs, TCL SVOCs, TAL Metals, Cyanide, PCBs, Pesticides, PFA's, 1-4 Dioxane

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1335	6.88	16.58	3.03	3.76	23	95	400	10.4'
1348	6.93	17.58	3.01	2.37	15	96	260	12.7'
1345	6.93	17.62	3.02	2.33	12.9	96	250	13.8'
1350	6.93	18.06	3.01	1.89	12.8	94	220	14.1'
1355	6.93	18.33	3.01	1.72	12.8	94	220	14.4'
1400	6.93	18.09	2.99	1.63	12.4	94	220	14.6'
1405	6.93	18.03	3.01	1.40	13.7	93	220	14.9'
1410	6.93	17.94	3.02	1.33	15.0	92	220	15.1'
1415	6.94	17.93	3.03	1.32	18.0	91	220	15.4
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

Pump on @1335

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 31 & 150 Tonawanda Street
Site: 31 & 150 Tonawanda St, Buffalo
Well I.D.: MW-4

Date: 09/21
Sampling Personnel: Alex Brennen
Company: BE3 Corp/Panamerican

Purging/Sampling Device: Peristaltic Pump
Tubing Type: HDPE + Silicon
Pump/Tubing Inlet Location: Middle of Screen

Measuring Point: TOR
Initial Depth to Water: 12.8'
Depth to Well Bottom: 39'
Well Diameter: 2 in
Screen Length: 30'

Casing Type: PVC
Volume in 1 Well Casing (liters): 16.2
Estimated Purge Volume (liters): 15L

Sample ID: 150-MW-4
Sample Time: 1106
QA/QC:

Sample Parameters: TCL VOC's & TICs, TCL SVOCs, ~~TAL Metals~~, Cyanide, PCBs, Pesticides, PFA's, 1-4 Dioxane
Pt 375 Metals

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1005	6.77	14.8	5.22 ~~28~~	0.53	21.9	28	250	13.6
1010	6.83	14.8	5.27	0.65	28.3	51	275	14.1
1015	6.82	14.9	5.30	0	37.8	56	275	14.4
1020	6.81	15.1	5.28	0	37.2	59	275	14.9
1025	6.75	15.4	5.21	0.68	47.7	49	250	15.3
1030	6.62	15.3	5.08	0.30	62.7	27	250	15.5
1035	6.31	15.46	4.81	0.39	73	36	250	15.9
1040	6.05	15.62	4.52	0.41	73	48	250	16.2
1045	5.98	15.6	4.36	0.39	65.5	55	250	16.5
1050	6.06	15.6	4.22	0.08	48	51	250	16.9
1055	6.1	15.8	4.18	0	40	46	250	17.2
1100	6.7	15.8	4.15	0	19	44	250	17.6
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES—0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

Pump on @ 1000
Sample @ 1100

Test Pit Log

Panamerican Environmental, Inc
2391 Clinton Street
Buffalo, NY 14227
(716) 821-1650

Project: CSX Property	Sheet: 1 of 1
Client:	Location: Tonawanda St. - Buffalo, NY
Contractor:	Ground Elevation:
Date Started: Jan. 4, 2016	Operator:
Date Completed: Jan. 4, 2016	Geologist:
Test Pit Number: 1	Ground Water: 6 ft

Depth (FT)	Sample NO	Sample TYPE	Description
1			Concrete, Brick, Debris stained soil
2			
3	01		Black Soil sample
4			
5			
6			Clay - Brown/Tan Water
7			
8			
9			
10			
11			
12			

Comments:

Test Pit Log

Panamerican Environmental, Inc
2391 Clinton Street
Buffalo, NY 14227
(716) 821-1650

Project: CSX Property	Sheet: 1 of 1
Client:	Location:
Contractor:	Ground Elevation:
Date Started: 1/4/16	Operator:
Date Completed: 1/4/16	Geologist:
Test Pit Number: 2	Ground Water: 5 ft — 6 ft

Depth (FT)	Sample NO	Sample TYPE	Description
1			Concrete, Brick, Debris Brown/Tan Soil
2	02		Sample
3			Black Sandy Material
4			
5			Dark Clay Water
6			
7			
8			
9			
10			
11			
12			

Comments:

Test Pit Log

Panamerican Environmental, Inc
2391 Clinton Street
Buffalo, NY 14227
(716) 821-1650

Project: CSX	Sheet: 1 of 1
Client:	Location: Tonawanda St. - Buffalo, NY
Contractor:	Ground Elevation:
Date Started: 1-4-16	Operator:
Date Completed: 1-4-16	Geologist:
Test Pit Number: 3	Ground Water: 5.5 ft.

Depth (FT)	Sample NO	Sample TYPE	Description
1			Concrete, Brick, Debris Brown / Tan Soil
2			*No Sample Taken
3			
4			Dark Clay
5			
6			Water
7			
8			
9			
10			
11			
12			

Comments:

Test Pit Log

Panamerican Environmental, Inc
2391 Clinton Street
Buffalo, NY 14227
(716) 821-1650

Project: CSX	Sheet: 1 of 1
Client:	Location: Tonawanda St. - Buffalo, N.Y.
Contractor:	Ground Elevation:
Date Started: 1/4/16	Operator:
Date Completed: 1/4/16	Geologist:
Test Pit Number: 4	Ground Water: 6 ft.

Depth (FT)	Sample NO	Sample TYPE	Description
1			Concrete, Brick, Debris Brown / Tan soil
2			Urban fill mix
3			
4			Black Soil
5	03		Sample Taken
6			Clay (Water)
7			
8			
9			
10			
11			
12			

Comments:

Test Pit Log

Panamerican Environmental, Inc
2391 Clinton Street
Buffalo, NY 14227
(716) 821-1650

Project: CSX	Sheet: 1 of 1
Client:	Location: Tonawanda St. - Buffalo, NY
Contractor:	Ground Elevation:
Date Started: 1-4-16	Operator:
Date Completed: 1-4-16	Geologist:
Test Pit Number: 5	Ground Water: 6 ft

Depth (FT)	Sample NO	Sample TYPE	Description
1			URBAN Fill : concrete, Brick, Debris
2	04		Brown / Tan Soil
3			
4			
5			Consistent Debris w/ mix of Brown/Tan Soil
6			Water
7			
8			
9			
10			
11			
12			

Comments:

Test Pit Log

Panamerican Environmental, Inc
2391 Clinton Street
Buffalo, NY 14227
(716) 821-1650

Project: CSX	Sheet: 1 of 1
Client:	Location: Tonawanda St. - Buffalo, N.Y.
Contractor:	Ground Elevation:
Date Started: 1/4/16	Operator:
Date Completed: 1/4/16	Geologist:
Test Pit Number: 6	Ground Water: 5-6 FT.

Depth (FT)	Sample NO	Sample TYPE	Description
1			URban fill: Concrete, Brick, Debris
2			Mixture of Brown/Tan soil
3			* NO Sample Taken
4			
5			Clay (Brown/Black stain)
6			Water Seepage
7			
8			
9			
10			
11			
12			

Comments:

Test Pit Log

Panamerican Environmental, Inc
2391 Clinton Street
Buffalo, NY 14227
(716) 821-1650

Project: CSX	Sheet: 1 of 1
Client:	Location: Tonawanda St. - Buffalo, N.Y.
Contractor:	Ground Elevation:
Date Started: 1/4/16	Operator:
Date Completed: 1/4/16	Geologist:
Test Pit Number: 7	Ground Water: 5.5 — 6.0 Ft.

Depth (FT)	Sample NO	Sample TYPE	Description
1			Urban Fill: Concrete, Brick, Debris
2	05		Orange / Black / Dark Soil
3			
			Soil / Clay Mix
4			
			Black Soil (Dark Stain)
5	06		
			Water Clay
6			
7			
8			
9			
10			
11			
12			

Comments:

Test Pit Log

Panamerican Environmental, Inc
2391 Clinton Street
Buffalo, NY 14227
(716) 821-1650

Project: CSX	Sheet: 1 of 1
Client:	Location: Tonawanda St. - Buffalo, N.Y.
Contractor:	Ground Elevation:
Date Started: 1/4/16	Operator:
Date Completed: 1/4/16	Geologist:
Test Pit Number: 8	Ground Water: 4 ft.

Depth (FT)	Sample NO	Sample TYPE	Description
			Grass
1			Dark Rich Soil
2			* No Sample Taken
3			
			Tight Brown Clay
4			Water
5			
			* Pit location: Berm Area, East side Tonawanda St.
6			
7			
8			
9			
10			
11			
12			

Comments:

Test Pit Log

Panamerican Environmental, Inc
2391 Clinton Street
Buffalo, NY 14227
(716) 821-1650

Project: CSX	Sheet: 1 of 1
Client:	Location: Tonawanda St. - Buffalo, N.Y.
Contractor:	Ground Elevation:
Date Started: 1/4/16	Operator:
Date Completed: 1/4/16	Geologist:
Test Pit Number: 9	Ground Water: 4.5 – 5.0 ft.

Depth (FT)	Sample NO	Sample TYPE	Description
			Grass
1			Dark Rich Soil
2			* No Sample Taken
3			
			Tight Brown Clay
4			
			Water
5			
			Pit Location: N. edge of property - Berm
6			
7			
8			
9			
10			
11			
12			

Comments:

31 TONAWANDA

LOGS
BORING/TEST PIT/MW

Geoprobe
Bore Hole Log

1270 Niagara Street
Buffalo, NY 14213
716.249.6880 be3corp.com

Project: 31 & 150 Tonawanda St	Sheet: 7 of 12
Client: 31 Tonawanda St LLC	Location: 31 Tonawanda St, Buffalo NY
Contractor: Nature's Way	Ground Elevation: N/A Lat: 42.929383 Long: -78.896700
Date Started: 8/16/2018	Operator: Nate Gingrich
Date Completed: 8/16/2018	Geologist/Technician: Alex Brennen
Bore Hole Number: 31: BH-1	Ground Water: 8 to 9 fbgs

	Sample		PID	
Depth (FT)	NO	TYPE	(ppm)	Description
0			2.7	0 to 3 feet: Loose black sands, fine to coarse gravel, some brick and concrete
1				
2			2.5	Odor noted at 2 to 3 fbgs
				Some brick and concrete at 3 fbgs
3	1		2.8	3 to 3.9 feet: Brown clay, fine to coarse gravel
				3.9 to 4 feet: Grey/brown sands, odor
4				4 to 7.8 feet: Concrete, grey sands, fall in
5				
6				
7				
				7.8 to 8 feet: Moist silt and fine sand, fine to coarse gravel, trace brick
8				8 to 13.5 feet: Wet sands, fine to coarse gravel, odor and product noted
9				
10			4.5	
11				
11.5			28.2	
12			7.9	
13				
13.5	2		19.2	13.5 to 16 feet: Wet dark brown silt, fine sand, staining noted on outside of core
14				
15			27.8	
16				

Comments: Native not believed to be encountered. Once below 8 fbgs, rods were noted as covered in sheen/product. Decon done after boring. PID readings detected at depths noted above. Samples taken at 0 to 3 fbgs. and 13.5 to 15 fbgs - fill material.

Geoprobe
Bore Hole Log

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1270 Niagara Street
Buffalo, NY 14213
716.249.6880 be3corp.com

Project: 31 & 150 Tonawanda St	Sheet: 8 of 12
Client: 31 Tonawanda St LLC	Location: 31 Tonawanda St, Buffalo NY
Contractor: Nature's Way	Ground Elevation: N/A Lat: 42.929648 Long: -78.896400
Date Started: 8/16/2018	Operator: Nate Gingrich
Date Completed: 8/16/2018	Geologist/Technician: Alex Brennen
Bore Hole Number: 31: BH-2	Ground Water: 8 to 9 fbgs

Depth (FT)	Sample NO	Sample TYPE	PID (ppm)	Description
0				0 to 2 feet: Brown silt, fine sand, fine to coarse gravel, trace brick and concrete
1				
2				2 to 4 feet: Brown clay, some fine gravel, dense
3				
4				4 to 8 feet: Brown/black sands, some silt, fine to coarse gravel, trace brick and concrete
5				
6				
7				
8				8 to 11 feet: Same as above, wet, brick throughout
9				
10				
11				11 to 12 feet: Brown clay/silts, medium dense, wet, trace brick
11.7			2.7	Black staining, and strong odor
12	1		0.4	12 to 16 feet: Same as above, staining and odor
13				
14				
15				
				Minimal stain and odor at 16fbgs
16			1.7	16 to 18 feet: Same as above, odor noted, wet
17				
18			2.5	18 to 19 feet: Fine to coarse sands, fine to coarse grave, strong odor
18.7			16.3	
19	2			19 to 20 feet: Brown clay/silt, fine to coarse gravel, wet, strong odor
19.8			25.8	Brown/Copper sheen and product
20			27.7	Product noted in core

Comments: Native at 18 fbgs. Decon done after boring. PID readings detected at depths noted above. Samples taken at 12 to 13.5 fbgs - fill material and 19 to 20 fbgs - native material.

Geoprobe
Bore Hole Log

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ENVIRONMENT • ENGINEERING • ENERGY
1270 Niagara Street
Buffalo, NY 14213
716.249.6880 be3corp.com

Project: 31 & 150 Tonawanda St	Sheet: 9 of 12
Client: 31 Tonawanda St LLC	Location: 31 Tonawanda St, Buffalo NY
Contractor: Nature's Way	Ground Elevation: N/A Lat: 42.929923 Long: -78.896318
Date Started: 8/16/2018	Operator: Nate Gingrich
Date Completed: 8/16/2018	Geologist/Technician: Alex Brennen
Bore Hole Number: 31: BH-3S	Ground Water: 9 fbgs

	Sample		PID	Description
Depth (FT)	NO	TYPE	(ppm)	
0				0 to 1.7 feet: Asphalt at top, brown sands, silt, dry, fine to coarse gravel
1				trace wood, brick, and concrete,
				1.7 to 4 feet: Dense brown clay, fine to coarse gravel
2				
3				
4				4 to 5 feet: Brown clay, fine to coarse gravel
5				5 to 9 feet: black sands, silt, fine to coarse gravel, moist
6				
7				
8				Very moist at 8 fbs
9				9 to 11 feet: Wet sands, fine to coarse gravel
10				
11				11 to 13.5 feet: Brown clay, wet, dark staining, slight odor
11.7				
12	1		0.2	dark staining on outside of core, stronger odor
13				
13.5				Refusal at 13.5 fbgs
14				
15				
16				

Comments: Native not encountered. Decon done after boring. PID readings detected at depths noted above. Sample taken at 12 to 13.5 fbgs - fill material.

Geoprobe
Bore Hole Log

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Buffalo, NY 14213
716.249.6880 be3corp.com

Project: 31 & 150 Tonawanda St	Sheet: 10 of 12
Client: 31 Tonawanda St LLC	Location: 31 Tonawanda St, Buffalo NY
Contractor: Nature's Way	Ground Elevation: N/A Lat: 42.929965 Long: -78.896430
Date Started: 8/16/2018	Operator: Nate Gingrich
Date Completed: 8/16/2018	Geologist/Technician: Alex Brennen
Bore Hole Number: 31: BH-4	Ground Water: 7.5 to 8 fbgs

Depth (FT)	Sample NO	Sample TYPE	PID (ppm)	Description
0	1			0 to 3.5 feet: Asphalt and subbase at top, Black silt, fine sand, fine to coarse gravel, trace glass, brick, wood
1				
2				
3				
				3.5 to 6 feet: Brown clay, some fine gravel
4				
5				
				Concrete at 5.2 fbgs
6				6 to 7.5 feet: Silt, fine sand, fine to coarse gravel, trace wood, moist
7				
				7.5 to 10.5 feet: Grey silt/clay, fine to coarse gravel, wet
8				
9				
10				
				10.5 to 12 feet: Sands, some loose gravel, trace brick, odor noted
11				
11.5	2		0.3	
12				12 to 16 feet: Soft grey clay/silt, fine to coarse gravel, wet
				Bottom of sample fall out - too wet
13				
14				
15				
16				

Comments: Native not encountered. Decon done after boring. PID readings detected at depths noted above. Sample taken at 11.5 to 12 fbgs - fill material.

Geoprobe
Bore Hole Log

BE3CORP PANAMERICAN ENVIRONMENT • ENGINEERING • ENERGY
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Buffalo, NY 14213
716.249.6880 be3corp.com

Project: 31 & 150 Tonawanda St	Sheet: 11 of 12
Client: 31 Tonawanda St LLC	Location: 31 Tonawanda St, Buffalo NY
Contractor: Nature's Way	Ground Elevation: N/A Lat: 42.930092 Long: -78.896391
Date Started: 8/16/2018	Operator: Nate Gingrich
Date Completed: 8/16/2018	Geologist/Technician: Alex Brennen
Bore Hole Number: 31: BH-5	Ground Water: 9 fbgs

Depth (FT)	Sample NO	Sample TYPE	PID (ppm)	Description
0	1			0 to 1.5 feet: Brown sands, fine to coarse gravel
1				
				1.5 to 6 feet: Brown/black silt/sand, fine grave, trace brick, concrete, and wood
2				
3				
4				
5				
6	2		20.7	6 to 9 feet: Black sands, fine to coarse gravel, strong petro odor, staining
7			116	
7.5			224	
8			29	
9			15	9 to 12 feet: Soft brown silt/sand, fine to coarse gravel, light staining
10				
11				
12			0.3	
13				
14				
15				
16				

Comments: Native not encountered. Decon done after boring. PID readings detected at depths noted above. Sample taken at 0 to 2 fbgs and 6 to 8 fbgs - fill material.

Geoprobe
Bore Hole Log

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ENVIRONMENT • ENGINEERING • ENERGY
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Project: 31 & 150 Tonawanda St	Sheet: 12 of 12
Client: 31 Tonawanda St LLC	Location: 31 Tonawanda St, Buffalo NY
Contractor: Nature's Way	Ground Elevation: N/A Lat: 42.90263 Long: -78.896511
Date Started: 8/16/2018	Operator: Nate Gingrich
Date Completed: 8/16/2018	Geologist/Technician: Alex Brennen
Bore Hole Number: 31: BH-6	Ground Water: 9 fbgs

Depth (FT)	Sample NO	Sample TYPE	PID (ppm)	Description
0	1			0 to 1 feet: Brown dry sands, fine to coarse gravel, trace brick
1				Concrete at 1 fbgs
				1 to 2.5 feet: Grey/brown silt and sand, fine to coarse gravel, trace brick, concrete
2				
				2.5 to 4.2 feet: Dense brown clay, some silt, fine to coarse gravel
3				
4	2		22.1	4.2 to 6 feet: Black sand, fine to coarse gravel, trace wood. Ptero odor
5				
6				Refusal at 6 fbgs
7				
7.5				
8				
9				
10				
11				
12				
13				
14				
15				
16				

Comments: Native not encountered. Decon done after boring. PID readings detected at depths noted above. Sample taken at 0 to 2 fbgs and 4 to 6 fbgs - fill material.

DRILLING SUMMARY

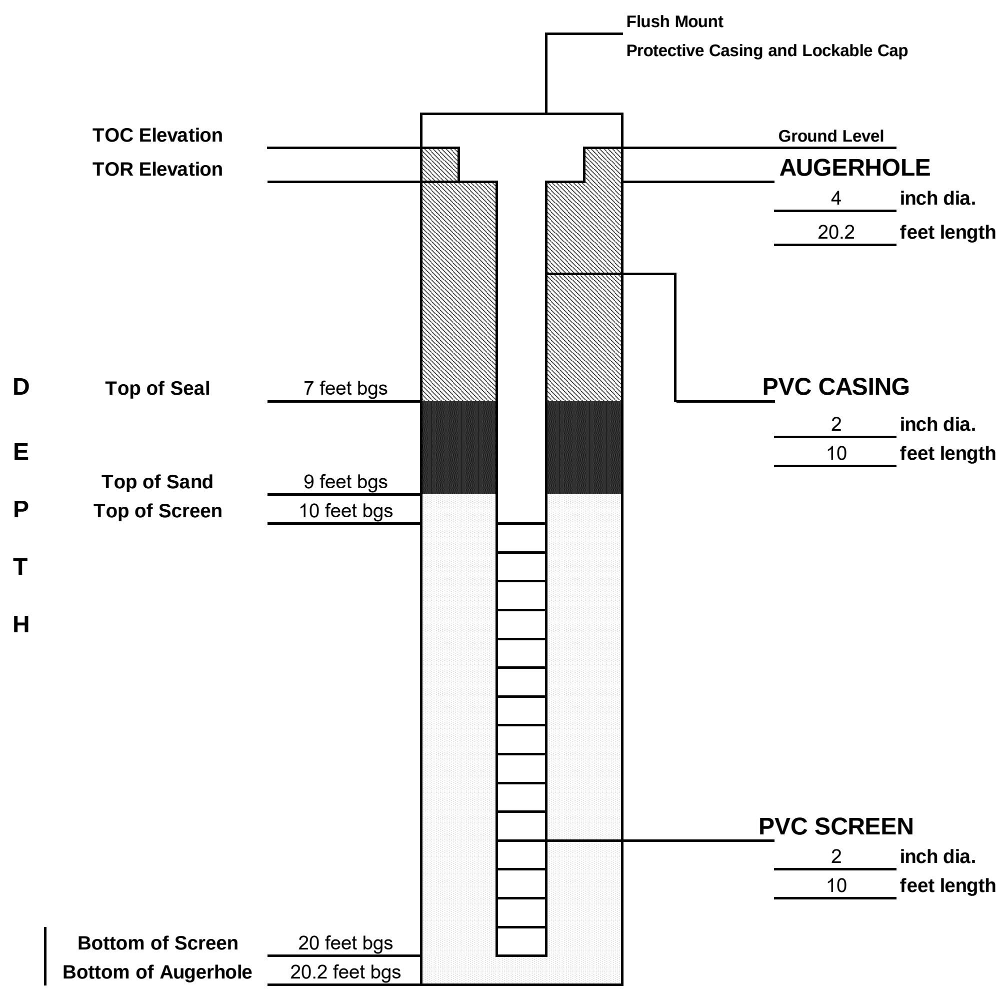
Geologist/Technician: Pete Gorton

Drilling Company: Nature's Way

Driller: Brett

Model: Truck Mounted Rig Hollow Stem Auger

Date: 8/29/2018



GEOLOGIC LOG

Depth(ft.)	Description
	N/A

WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: Steel grade box	**Type:** 2" PVC	**Type:** #0 Sand
	Slot Size: 0.010"	**Setting:** 10 to 9 feet bgs
Monitor: N/A	**Setting:** 20 to 10 feet bgs	

SEAL MATERIAL
Type: Bentonite Chips
Setting: 9 to 7 feet bgs

COMMENTS:

LEGEND

Cement Grout

Bentonite Seal

Silica Sandpack

Client: 31 Tonawanda St, LLC	**Location:** 31 Tonawanda St, Buffalo, NY	**Project No.:**
BE3 CORP PANAMERICAN ENVIRONMENT • ENGINEERING • ENERGY	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number:** 31-MW-1

DRILLING SUMMARY

Geologist/Technician: Pete Gorton

Drilling Company: Nature's Way

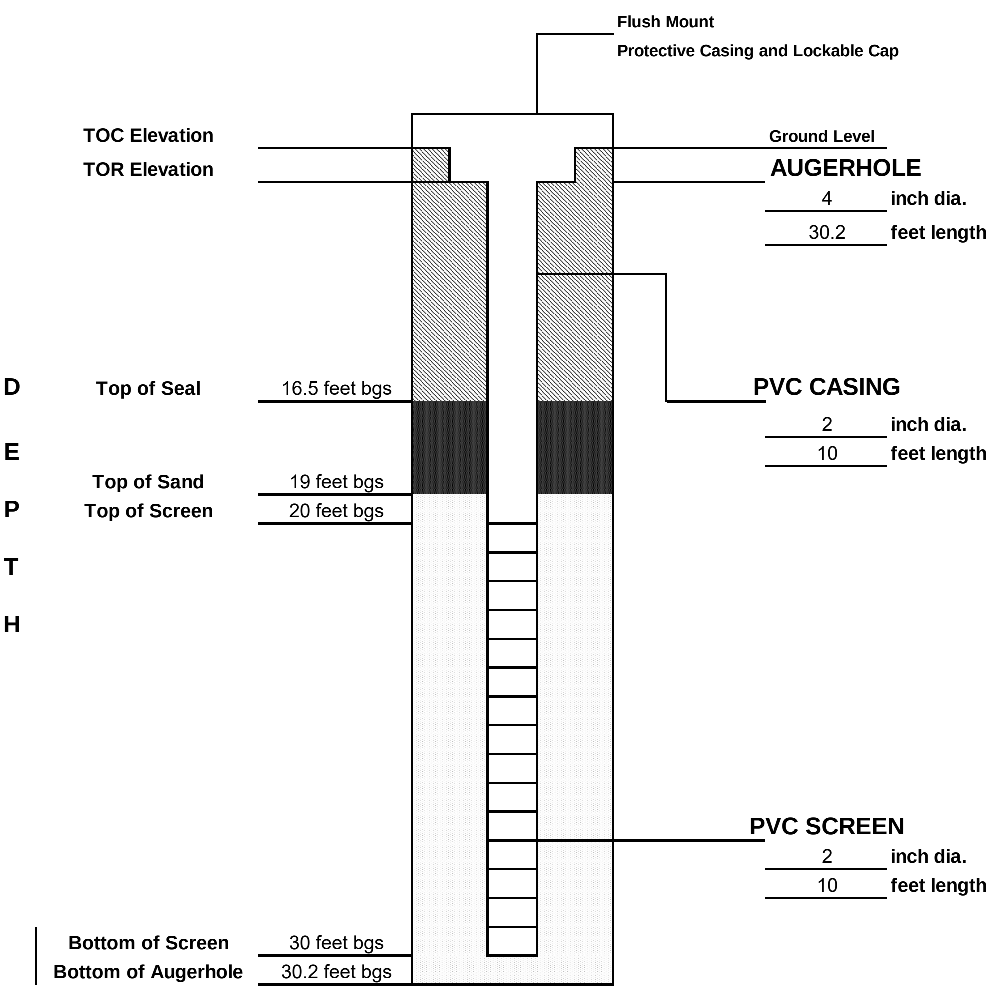
Driller: Brett

Model: Truck Mounted Rig Hollow Stem Auger

Date: 8/29/2018

GEOLOGIC LOG

Depth(ft.)	Description
	N/A

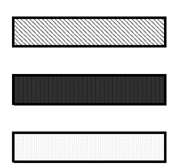


WELL DESIGN

CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Steel grade box	**Type:** 2" PVC	**Type:** #0 Sand
	Slot Size: 0.010"	**Setting:** 19 to 30 feet bgs
Monitor: N/A	**Setting:** 30 to 20 feet bgs	***SEAL MATERIAL***
		Type: Bentonite Chips
		Setting: 19 to 16.5 feet bgs

COMMENTS:

LEGEND



Client: 31 Tonawanda St, LLC	**Location:** 31 Tonawanda St, Buffalo, NY	**Project No.:**
BE3CORP PANAMERICAN ENVIRONMENT • ENGINEERING • ENERGY	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number: 31-MW-2**

Q:/Exchange/Montroy/31-MW-2 Construction Log/Flush Mount-11/21/2018-10:05 AM

DRILLING SUMMARY

Geologist/Technician: Alex Brennen

Drilling Company: Nature's Way

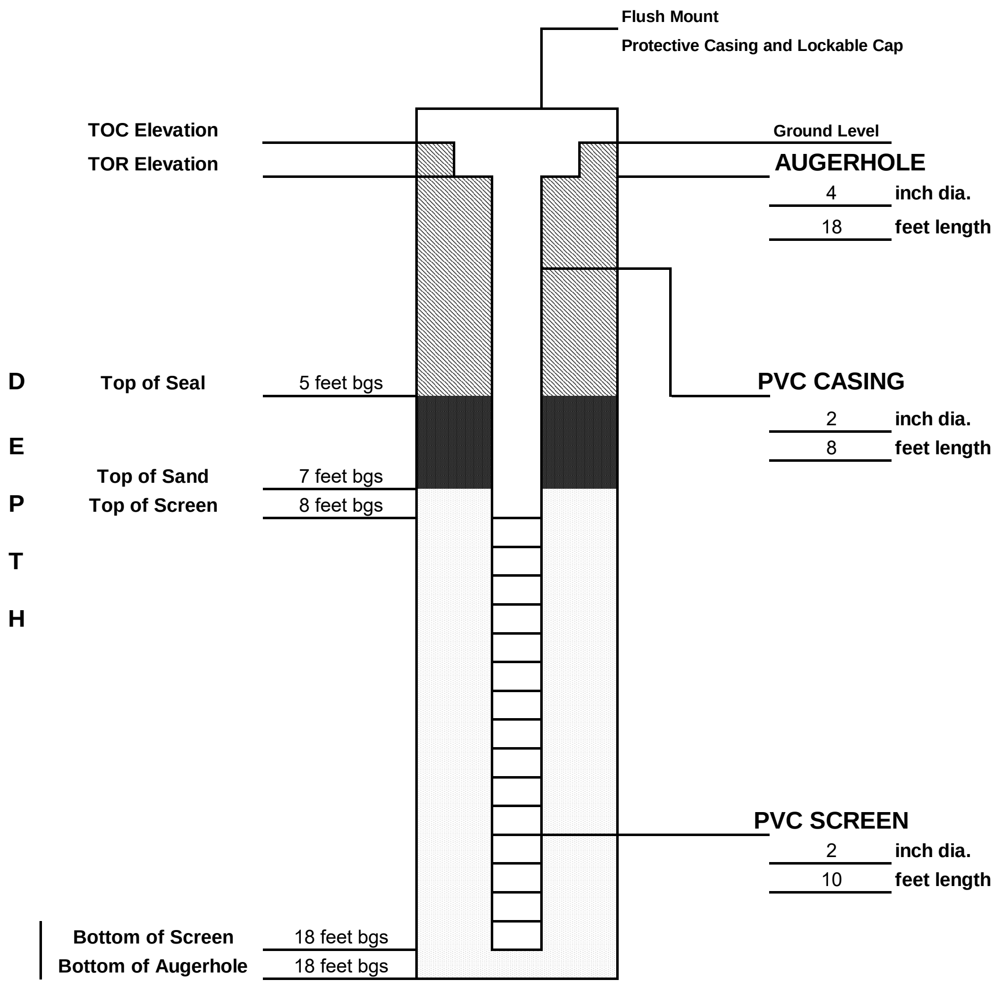
Driller: Brett

Model: Truck Mounted Rig Hollow Stem Auger

Date: 8/27/2018

GEOLOGIC LOG

Depth(ft.)	Description
	N/A



WELL DESIGN

CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Steel grade box	**Type:** 2" PVC	**Type:** #0 Sand **Setting:** 7 to 18 feet bgs
	Slot Size: 0.010"	***SEAL MATERIAL***
Monitor: N/A	**Setting:** 8 to 18 feet bgs	**Type:** Bentonite Chips **Setting:** 7 to 5 feet bgs

COMMENTS:

LEGEND

- Cement Grout
- Bentonite Seal
- Silica Sandpack

Client: 31 Tonawanda St, LLC	**Location:** 31 Tonawanda St, Buffalo, NY	**Project No.:**
BE3 CORP PANAMERICAN ENVIRONMENT • ENGINEERING • ENERGY	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number: 31-MW-3**

DRILLING SUMMARY

Geologist/Technician: Alex Brennen

Drilling Company: Nature's Way

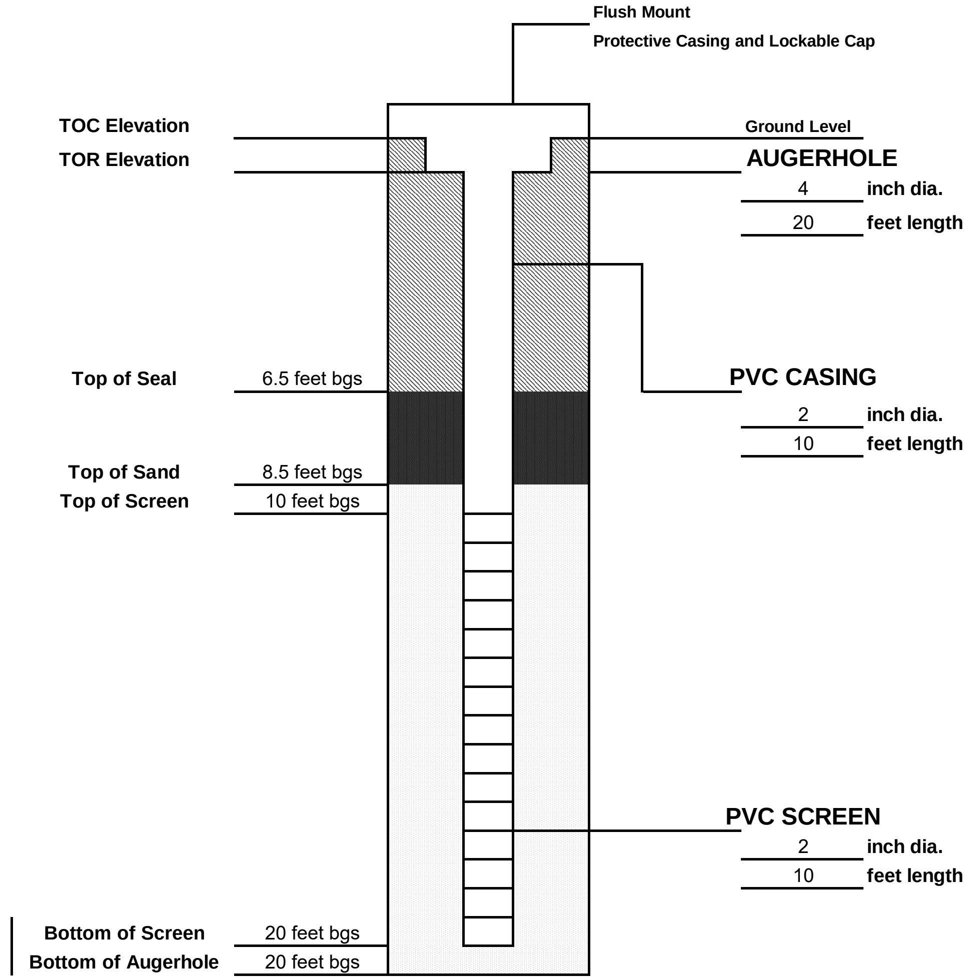
Driller: Brett

Model: Truck Mounted Rig Hollow Stem Auger

Date: 8/28/2018

GEOLOGIC LOG

Depth(ft.)	Description
	N/A



WELL DESIGN

CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Steel grade box	**Type:** 2" PVC	**Type:** #0 Sand **Setting:** 8.5 to 20 feet bgs
	Slot Size: 0.010"	***SEAL MATERIAL***
Monitor: N/A	**Setting:** 10 to 20 feet bgs	**Type:** Bentonite Chips **Setting:** 8.5 to 6.5 feet bgs

COMMENTS:

LEGEND

- Cement Grout
- Bentonite Seal
- Silica Sandpack

Client: 31 Tonawanda St, LLC	**Location:** 31 Tonawanda St, Buffalo, NY	**Project No.:**
BE3CORP PANAMERICAN ENVIRONMENT • ENGINEERING • ENERGY	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number: 31-MW-4**

DRILLING SUMMARY

Geologist/Technician: Pete Gorton

Contractor: Nature's Way

Operator: Brett

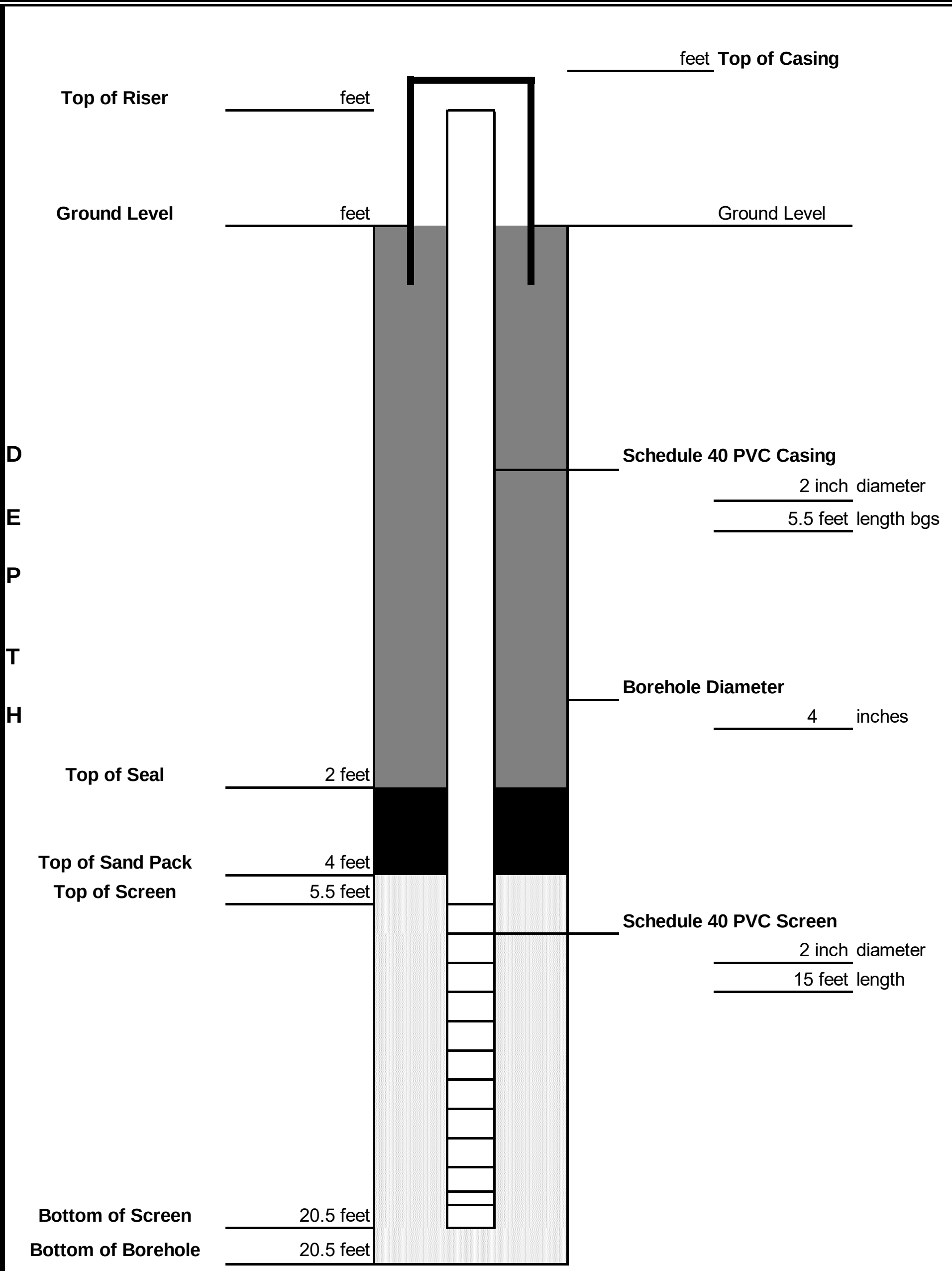
Model: Truck Mounted Rig, Hollow Stem Auger

Date: 8/27/2018

GEOLOGIC LOG

Depth(ft.)	Description
4 to 6	PID Readings of cuttings 2-15 ppm

WELL DESIGN



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: 4" Steel protective cover (Stick Up)	**Type:** 2" Schedule 40 PVC	**Type:** #0 well sand **Setting:** 5 to 36 fbgs
Monitor: 2" Schedule 40 PVC	**Slot Size:** 0.010" **Setting:** 6 to 36 fbgs	**SEAL MATERIAL** **Type 1:** Bentonite chips **Setting:** 2 to 5 fbgs **Type 1:** Cement Grout **Setting:** 0 to 2 fbgs

COMMENTS:
Very tight clays noted below fill. Drill depth done until clay softened to ensure water generation

LEGEND

- Cement Grout
- Bentonite Seal
- Sand Pack

Client: 31 Tonawanda St, LLC

Location: 31 Tonawanda St, Buffalo, NY

Project No.:

BE3CORP PANAMERICAN ENVIRONMENT • ENGINEERING • ENERGY

MONITORING WELL CONSTRUCTION DETAILS

Well Number: 31-MW-5

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 31 & 150 Tonawanda Street | Site: 31 & 150 Tonawanda St, Buffalo | Well I.D.: 31-MW-1

Date: 09/24 | Sampling Personnel: Alex Brennen | Company: BE3 Corp/Panamerican

Purging/Sampling Device: Peristalic Pump | Tubing Type: LDPE + Silicon | Pump/Tubing Inlet Location: Middle of Screen

Measuring Point: TOR Marking | Initial Depth to Water: 7.8 | Depth to Well Bottom: 19.8 | Well Diameter: 2 in | Screen Length: 10'

Casing Type: PVC | Volume in 1 Well Casing (liters): 7.4L | Estimated Purge Volume (liters): 9.0L

Sample ID: 31-MW-1 | Sample Time: 1150 | QA/QC: FB, MS, MSD

Sample Parameters: TCL VOC's & TICs, TCL SVOCs, T~~AL Metals~~, Cyanide, PCBs, Pesticides, ~~PFA's, 1,4 Dioxane~~
P4375 Metals (Dissolved)

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1055	6.45	14.74	3.79	0.34	25	-56	160	8.7
1100	6.52	14.74	3.77	0.0	17.7	-52	160	9.4
1105	6.57	14.89	3.75	0.0	23.1	-52	160	9.7
1110	6.60	14.99	3.71	0.0	35.0	-51	160	10.0
1115	6.65	15.15	3.64	0.0	38.1	-53	160	10.3
1120	6.67	15.33	3.63	0.0	43.3	-54	160	10.3
1125	6.68	15.26	3.64	0.0	43.3	-55	150	10.3
1130	6.69	15.36	3.64	0.0	44.4	-58	150	10.5
1135	6.76	15.49	3.65	0.0	53.7	-61	150	10.7
1140	6.79	15.65	3.65	0.0	55.4	-62	150	10.8
1145	6.81	15.82	3.65	0.0	69.4	-63	150	11.0
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

Pump on @ 1052
1115 Sheen noticed in purge water, slight odor
Dissolved Metals taken due to turbidity increase
Pump off @ 1207

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 31 & 150 Tonawanda Street Site: 31 & 150 Tonawanda St, Buffalo Well I.D.: 31-MW-2

Date: 09/24/18 Sampling Personnel: Alex Brennen Company: BE3 Corp/Panamerican

Purging/ Sampling Device: Peristaltic Pump Tubing Type: HDPE + Silicon Pump/Tubing Inlet Location: Middle of Screen

Measuring Point: TOR Marking Initial Depth to Water: 5.2 Depth to Well Bottom: 30.2' Well Diameter: 2 in Screen Length: 10'

Casing Type: PVC Volume in 1 Well Casing (liters): 15.4 Estimated Purge Volume (liters): 8L

Sample ID: 31-MW-2 Sample Time: 1005 QA/QC: FB, MS, MSD

Sample Parameters: TCL VOC's & TICs, TCL SVOCs, TAL Metals, Cyanide, PCBs, Pesticides, PFA's, 1-4 Dioxane

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
0925	7.12	15.14	8.20	1.68	8.8	-7	260	6.7
0930	6.94	14.93	8.34	0.40	8.4	-17	150	7.1
0935	6.93	14.75	8.42	0.0	9.3	-16	250	10.0'
0940	6.94	14.77	8.43	0.0	10.0	-15	150	11.1
0945	6.94	14.74	8.44	0.0	9.4	-14	150	11.6
0950	6.94	14.76	8.44	0.0	9.8	-12	150	12.1
0955	6.95	14.76	8.45	0.0	9.6	-10	150	12.9
1000	6.95	14.74	8.44	0.0	10.2	-10	150	13.7
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:
Pump on @ 0923
Pump off @ 1035

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 31 & 150 Tonawanda Street Site: 31 & 150 Tonawanda St, Buffalo Well I.D.: 31-MW-3

Date: 09/24/18 Sampling Personnel: Alex Brennen Company: BE3 Corp/Panamerican

Purging/ Sampling Device: Peristalic Pump Tubing Type: HDPE+Silicon Pump/Tubing Inlet Location: Middle of Screen

Measuring Point: TOR Marking Initial Depth to Water: 6.3 Depth to Well Bottom: 18 Well Diameter: 2 in Screen Length: 10'

Casing Type: PVC Volume in 1 Well Casing (liters): 7.22 Estimated Purge Volume (liters): 17L

Sample ID: 31-MW-3 Sample Time: 1320 QA/QC: MS, MSD

Sample Parameters: TCL VOC's & TICs, TCL SVOCs, ~~TAL Metals~~, Cyanide, PCBs, Pesticides, PFA's, 1-4 Dioxane
7+375 Metals

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1240	6.30	19.2	1.34	0.0	22.8	-18	400	6.4
1245	6.21	18.24	1.40	0.0	19.0	-11	400	6.4
1250	6.22	18.18	1.40	0.0	18.2	-11	400	6.4
1255	6.23	16.43	1.46	0.0	2.8	-12	400	6.4
1300	6.23	16.18	1.46	0.0	3.4	-13	400	6.4
1305	6.24	15.98	1.47	0.0	4.9	-13	400	6.4
1310	6.26	16.02	1.47	0.0	2.2	-13	400	6.4
1315	6.28	15.93	1.47	0.0	2.3	-15	400	6.4
Tolerance:	0.1	—	3%	10%	10%	+ or - 10	—	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

Pump on @ 1235
Solvent odor noted in purge water
MS + MSD samples taken
Pump off @ 1405

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 31 & 150 Tonawanda Street Site: 31 & 150 Tonawanda St, Buffalo Well I.D.: 31-MW-4

Date: 09/24/18 Sampling Personnel: Alex Brennen Company: BE3 Corp/Panamerican

Purging/ Sampling Device: Peristaltic Pump Tubing Type: HDPE + Silicon Pump/Tubing Inlet Location: Middle of Screen

Measuring Point: TOR Marking Initial Depth to Water: 8.1 Depth to Well Bottom: 20.1 Well Diameter: 2 in Screen Length: 10'

Casing Type: PVC Volume in 1 Well Casing (liters): 7.4L Estimated Purge Volume (liters): 16L

Sample ID: 31-MW-4 Sample Time: 1515 QA/QC: —

Sample Parameters: TCL VOC's & TICs, TCL SVOCs, ~~TAL Metals~~, Cyanide, PCBs, Pesticides, PFA's, 1-4 Dioxane
Pt375 Metals

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1435	6.54	17.62	1.27	0.0	150	-10	470	8.3
1440	6.72	17.41	1.23	0.0	138	-19	420	8.3
1445	6.86	17.54	1.17	0.0	78.3	-27	420	8.3
1450	6.93	17.63	1.14	0.0	35.7	-32	420	8.3
1455	6.97	17.70	1.13	0.0	18.5	-37	420	8.3
1500	6.99	17.74	1.13	0.0	13.5	-39	420	8.3
1505	7.00	17.80	1.12	0.0	11.3	-41	420	8.3
1510	6.98	17.8	1.12	0.0	8.9	-42	420	8.3
1515	6.98	17.87	1.12	0.0	13.2	-44	420	8.3
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES—0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft (vol$_{cyl}$ = $\pi r^2 h$)

Remarks: Pump on @ 1434

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 31 & 150 Tonawanda Street
Site: 31 & 150 Tonawanda St, Buffalo
Well I.D.: 31-MW-5

Date: 09/24/18
Sampling Personnel: Alex Brennen
Company: BE3 Corp/Panamerican

Purging/Sampling Device: Peristaltic Pump
Tubing Type: LDPE + Silicon
Pump/Tubing Inlet Location: Middle of screen

Measuring Point:
Initial Depth to Water: 13.3
Depth to Well Bottom: 22.6
Well Diameter: 2 in
Screen Length: 15'

Casing Type: PVC
Volume in 1 Well Casing (liters): 5.74L
Estimated Purge Volume (liters): 11L

Sample ID: 31-MW-5
Sample Time: 1635
QA/QC: —

Sample Parameters: TCL VOC's & TICs, TCL SVOCs, ~~TAL Metals~~, Cyanide, PCBs, Pesticides, ~~PFA's~~, 1-~~4-Dioxane~~
P4 375 Metals

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1555	6.61	18.19	2.61	0.15	23.6	-19	320	13.9
1600	6.64	17.70	2.63	0.0	21.6	-23	320	14.4
1605	6.66	17.24	2.61	0.0	18.9	-25	250 ~~320~~	14.9
1610	6.65	17.20	2.62	0.0	17.8	-27	250	15.2
1615	6.64	17.17	2.64	0.0	14.3	-30	250	15.4
1620	6.64	16.87	2.69	0.0	18.3	-32	250	15.7
1625	6.64	16.74	2.73	0.0	18.1	-35	250	16.0
1630	6.64	16.71	2.75	0.0	17.3	-39	260	16.2
Tolerance:	0.1	—	3%	10%	10%	+ or - 10	—	

Information: WATER VOLUMES—0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft (vol$_{cyl}$ = $\pi r^2 h$)

Remarks:

Pump on @ 1552

Table 1 **April 2014**

31 TONAWANDA STREET SITES PHASE II ESA SOIL DESCRIPTION

BORINGS	BH-1	BH-2	BH-3	BH-4	BH-5	BH-6
Total Depth	15 feet	8 feet	8 feet	8 feet	16 feet	5 feet
General Geology	0-0.5 – cement, sand 0.5-2 ft – dark brown silty clay 2-4 ft – light brown silty clay 4-6 ft – grey-brown silty clay - moist 6-8 ft – light brown silty clay 8-11 ft – dark brown silty, sandy clay 11-13 - black silty clay 12-15 – greenish brown silty clay PID - background	0-0.5 ft –asphalt /black coal 0.5-3 ft –silty sand with gravel fill 3-4 ft – brown-red silty clay 4-6 ft – brown silty clay 6-8 ft- brown silty clay with blackchert/gravel 8-10 ft- brown silty clay – moist-wet 11-12 ft- dark brown silty clay PID - Background	0-0.5 ft –asphalt over cement and gravel 0.5-1 ft –black sandy gravel fill 1-4 ft – brown silty clay moist 4-8 ft- light brown silty clay PID - Background **Sample:** **1 soil sample from 0.5-1 foot interval – did not have analyzed**	0-0.5 ft –asphalt over cement and gravel 0.5-2 ft –light brown-red silty clay 2-4 ft – brown-grey silty clay moist 4-8 ft- brown-red silty clay - stiff PID - Background	0-0.5 – black gravelly, sandy, silt fill 0.5-3 ft – silty clay with brick 3-4 ft – black sandy silt fill with sandstone 4-6 ft – dark sand – possibly foundry sand 6-7 ft – red-brown silty clay 7-8 ft – black gravely silt - wet 8-12 – red-black silty, gravely sand. Odor 12-16 – black silty clay – wet, with sheen and odor PID – 50-400ppm at 8-16 feet 1 soil sample from 9-12 interval	0-0.5 ft –silt fill and stone 0.5-4 ft - brown-red silty clay 4-5 ft –brown-red silty clay 5 foot refusal - cement PID - Background
PID Readings (ppm)	No readings above background	No readings above background	No readings above background	No readings above background	400ppm at 8-12 feet 60ppm at 12-16 feet	No readings above background
Odor	No odor noticed	No odor noticed	No odor noticed	No odor noticed	Strong but indistinguishable odor	No odor noticed

Table 1 continued

31 TONAWANDA STREET SITES PHASE II ESA SOIL DESCRIPTION

BORINGS	BH-7	BH-8	BH-9	BH-10
Total Depth	12 feet	9.5 feet	12 feet	12 feet
General Geology	0-0.5 – silt fill 0.5-5 ft – red-brown silty clay 5-6 ft – black sand possibly foundry sand 6-7 ft – cement 7-9 ft – red (rust)-black sandy gravely silt fill 9-11 – black silty clay 11-12 – black sandy, silty clay – very slight undistinguishable odor PID – background 1 soil sample from 9-12 interval	0-0.5 – asphalt and gravel 0.5-1 ft – sandy silt fill 1-3.5 ft – red-brown clay 3.5-5 ft – dark brown sand 5-7.5 ft – red-black sandy gravely silt fill with slag 7.5-8 – brick, stone 8-9.5 – silty clay – black at 9.5 PID – background 1 soil sample at 5-8 feet	0-3 ft – silty, sandy clay fill 3-3.5 ft – brick 3.5-4 ft – sandy silty fill with wood, stone 4-8 ft – clay intermixed with sand and stone. Brick at 8 feet 8-10 ft – sandy, silty clay with stone; moist 10-12 – silty grey clay; moist PID – background	0-.5 ft – cement floor .5-5 ft – sand, stone, slag fill with some clay 5-6 ft – red-brown clay; tight 6-8 ft – brown-grey silty clay 8-10 ft – red-brown clay 10-12 ft – light grey clay PID – background 1 soil sample at 3-5 feet – did not analyze
PID Readings (ppm)	No readings above background	No readings above background	No readings above background	No readings above background
Odor	very slight undistinguishable odor at 9-12 feet	No odor noticed	No odor noticed	No odor noticed

Table 2 **Sept 2014**

31 TONAWANDA STREET SITES PHASE II FOLLOW-UP

BORINGS	BH-5	BH5-1S	BH5-2S	BH5-3S	BH5-4S
		10 feet south of BH-5	20 feet south of BH-5	30 feet south of BH-5	49 feet south of BH-5
Total Depth	16 feet	16 feet	12 feet	8.2 feet	12 feet
General Geology	0-0.5 – black gravelly, sandy, silt fill 0.5-3 ft – silty clay with brick 3-4 ft – black sandy silt fill with sandstone 4-6 ft – dark sand – possibly foundry sand 6-7 ft – red-brown silty clay 7-8 ft – black gravely silt - wet 8-12 – red-black silty, gravely sand. Odor 12-16 – black silty clay – wet, with sheen and odor PID – 50-400ppm at 8-16 feet 1 soil sample from 9-12 interval	0-0.5 – black gravelly, sandy, silt fill possible foundry sand 0.5-3 ft – silty soil 3-4 ft – black sandy silt possible foundry sand 4-7 ft – sand – possibly foundry sand, brick, stone 7-8 ft – fill - moist 8-12 – black silty, sand. Odor – PID - 300+ ppm 12-16 – black sandy silt – wet, with odor- PID – 160+	0-1 – black gravelly, sandy, silt fill possible foundry sand 1-2 ft – light brown sand 2-4 ft – fill – brick, cement, black sand 4-8 ft – fill – black sand, brick, glass, stone 8-12 – black sandy, clayey silt. Odor – PID - 126+ ppm 12-16 – no recovery – very wet	0-0.5 – black gravelly, sandy, silt fill possible foundry sand 0.5-3 ft – fill – brick, brown silty sand, ash 3-8 ft – fill – black silty sand and brick 8.2 – refusal – wood Moved 2 feet south and refusal again at 8.2 feet – PID 6-7 ppm	0-8 – black sandy, silt fill 8-12 – silty, gravely sand – wet PID – 3-4ppm at 8-12 feet
PID Readings (ppm)	400ppm at 8-12 feet 60ppm at 12-16 feet	300+ ppm at 8-12 feet 160+ ppm at 12-16 feet	126+ ppm at 8-12 feet	6-7 ppm at refusal/wood at 8.2 feet	3-4ppm at 8-12 feet
Odor	Strong but indistinguishable odor	indistinguishable odor	indistinguishable odor	No odor noticed	No odor noticed

Table 2 continued
31 TONAWANDA STREET SITES PHASE II ESA SOIL DESCRIPTION

BORINGS	BH5-1N	BH5-2N	BH5-3N
	15 feet north of BH-5	30 feet north of BH-5	45 feet north of BH-5
Total Depth	9.5 feet	16 feet	12 feet
General Geology	0-1 – black sandy silt fill – possibly foundry sand 1-3 ft – brown silty clay 3-4 ft – black sand and brick 4-7.5 ft – red-black sand and gravel 7.5-8 ft – sandy silt - moist 8-9.5 – sand and gravel – very wet 9.5 refusal Odor and elevated PID	0-1 – black sandy silt fill – possibly foundry sand 1-3.5 ft – brown silty clay 3.5-4 ft – brown sand 4-7.5 ft – red-black sand and gravel 7.5-8 ft – sandy silt - moist 8-12 – silty sand with some clay 12-16 – no recovery PID – 1-3 ppm at 12-16 feet 1 soil sample at 12-16 feet	0-1 – black sand and gravel fill – possibly foundry sand 1-4 ft – brown silty clay 4-7 ft – silty sand fill 7-8 ft – silty clay with brick, moist 8-12 – black sandy silt with clay – odor PID – 0 ppm Coal tar odor at 8-12 feet
PID Readings (ppm)	Elevated – high – ppm not recorded	1-3 ppm at 12-16 feet	No readings above background
Odor	undistinguishable odor at 8-9 feet	slight odor noticed	Coal tar odor

Table 1 **March 2015**
31 TONAWANDA STREET SITE – SUB-SLAB SOIL

BORINGS	BH-5	C-1	C-2	C-3	C-4
	Outside Phase II Soil Boring	Sub-Floor Northeast Corner of Southeast Section of Building	Sub-Floor Adjacent to Outside Door– Southeast Section of Building	Sub-Floor – West Wall of Southeast Section of Building	Sub-Floor North-Middle Section of Southeast Section of Building
Total Depth	16 feet	12 feet	12 feet	16 feet	16 feet
General Geology	0-0.5 – black gravelly, sandy, silt fill 0.5-3 ft – silty clay with brick 3-4 ft – black sandy silt fill with sandstone 4-6 ft – dark sand – possibly foundry sand 6-7 ft – red-brown silty clay 7-8 ft – black gravely silt - wet 8-12 – red-black silty, gravely sand. Odor 12-16 – black silty clay – wet, with sheen and odor PID – 50-400ppm at 8-16 feet 1 soil sample from 9-12 interval	0-4 – black gravelly, sandy, silt fill possible foundry sand with stone, cement, brick, ash 4-8 ft – silty clay soil; odor 8-10 ft – black sandy gravel silt silt, odor 40 ppm on PID 10-12 – black sandy silty clay – wet, with odor- PID –20 ppm 1 soil sample – 8 feet	0-4 – black gravelly, sandy, silt fill possible foundry sand with stone, cement, brick, ash 4-10 ft – silty clay soil red-brown; 10-12 – black sandy silty – wet, with odor- PID –12 ppm	0-6 – black sandy fill possible foundry sand with stone, cement, brick, ash 6-8 ft – black sand and ash fill; 6-11 ppm PID 11-12 – black silty clay– sticky- PID –0 ppm 12-16 – clay - PID –0 ppm 1 soil sample – 6-8 feet	0-4 – black sandy fill possible foundry sand 4-8 ft – black sand and ash fill with brick; 3-7 ppm PID 8-9 ft – black sand fill ; 10 ppm PID 9-12 – brown silty clay– sticky- PID –0 ppm 12-16 – grey clay - PID –0 ppm 1 soil sample – 6-8 feet
PID Readings (ppm)	400ppm at 8-12 feet 60ppm at 12-16 feet	40 ppm at 8-10 feet 20 ppm at 10-12 feet	12 ppm at 10-12 feet	6-11 ppm at 6-8 feet	3-10 ppm at 6-9 feet
Odor	Strong indistinguishable odor	indistinguishable odor starting at 8 feet	indistinguishable odor	No odor noticed	No odor noticed

Geoprobe
Bore Hole Log

1270 Niagara Street
Buffalo, NY 14213
716.249.6880 be3corp.com

Project: 31 Tonawanda Street Supplemental RI	Sheet: 1 of 1
Client: 31 Tonawanda Street LLC	Location: 31 Tonawanda Street Buffalo NY
Contractor: Natures Way	Ground Elevation:
Date Started: 2-4-19	Operator:
Date Completed: 2-4-19	Geologist/Technician: Peter J. Gorton
Bore Hole Number: SBH-1	Ground Water:

Depth (FT)	Sample NO	Sample TYPE	Description
0			Cut through wood floor - 2-4 feet of crawl space below
1			0-1 feet - sandy, gritty, cinders with brick
2			1-1.5 ft - silty clay
3			1.5-3 ft - black sand with cinder
4			3-4 ft - brown-red silty clay
			10ppm PID
5			
6			
7			
			4-7.5 ft - red-brown clay
8			7.5-8 ft black silty sand moist
			1-3 ppm PID
9			
10			
11			
12			8-12 ft - brown silty clay soft at 10 ft
13			
14			12-14 ft - dark brown silty clay - soft, moist
15			
16			14-16ft - dark brown-black silty clay - soft

Comments: Collect soil samples at 2- 4, 8 and 16 feet

Geoprobe
Bore Hole Log

1270 Niagara Street
Buffalo, NY 14213
716.249.6880 be3corp.com

Project: 31 Tonawanda Street Supplemental RI	Sheet: 1 of 1
Client: 31 Tonawanda Street LLC	Location: 31 Tonawanda Street Buffalo NY
Contractor: Natures Way	Ground Elevation:
Date Started: 2-4-19	Operator:
Date Completed: 2-4-19	Geologist/Technician: Peter J. Gorton
Bore Hole Number: SBH-2	Ground Water:

Depth (FT)	Sample NO	Sample TYPE	Description
0			Cut through wood Floor - 2-4 feet of crawl space
1			0-1 feet - slag and cement - refusal
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

Comments: Slag and cement prevents further drilling

Geoprobe
Bore Hole Log

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716.249.6880 be3corp.com

Project: 31 Tonawanda Street Supplemental RI	Sheet: 1 of 1
Client: 31 Tonawanda Street LLC	Location: 31 Tonawanda Street Buffalo NY
Contractor: Natures Way	Ground Elevation:
Date Started: 2-4-19	Operator:
Date Completed: 2-4-19	Geologist/Technician: Peter J. Gorton
Bore Hole Number: SBH-3	Ground Water:

Depth (FT)	Sample NO	Sample TYPE	Description
0			Cut through wooden floor - 2-4 feet of crawl space below
1			
2			
3			
4			0-4 ft - slag, sand, cinder
			10ppm PID
5			
6			4-6 Ft - sand with stone
7			6-7 ft - clay
			7-7.5 fet - coal
8			7.1-8 ft - red-brown clay
9			
10			8-10 ft- brown clay - soft at 10 ft
11			
12			10-12 ft - silty clay with sand and stone - wet
13			
14			
15			
16			12-16 - real lose and wet- no recovery

Comments: installed 1-inch well to 16 feet and collected grab water sample and soil sample collected at 10 -11'

Geoprobe
Bore Hole Log

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Buffalo, NY 14213
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Project: 31 Tonawanda Street Supplemental RI	Sheet: 1 of 1
Client: 31 Tonawanda Street LLC	Location: 31 Tonawanda Street Buffalo NY
Contractor: Natures Way	Ground Elevation:
Date Started: 2-4-19	Operator:
Date Completed: 2-4-19	Geologist/Technician: Peter J. Gorton
Bore Hole Number: SBH-4	Ground Water:

Depth (FT)	Sample NO	Sample TYPE	Description
0			Cut through wood floor - 2-4 feet crawl space below
1			
2			
3			
4			0-4 ft - some cement at 0-1; black cindery sand with brick
			1-10ppm PID
5			
6			4-6 Ft - sand, cinder, ash black and white
7			6-7 ft - clay
8			7-8 ft - sand with stone - damp
9			
10			8-10 ft- sand, cinder - damp
			20-30 ppm on PID
11			
12			10-12 ft - silty clay - soft
13			
14			
15			
16			

Comments: Collected soil sample for analysis at 8 feet, 10 feet and 12 feet

Geoprobe
Bore Hole Log

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Buffalo, NY 14213
716.249.6880 be3corp.com

Project: 31 Tonawanda Street Supplemental RI	Sheet: 1 of 1
Client: 31 Tonawanda Street LLC	Location: 31 Tonawanda Street Buffalo NY
Contractor: Natures Way	Ground Elevation:
Date Started: 2-4-19	Operator:
Date Completed: 2-4-19	Geologist/Technician: Peter J. Gorton
Bore Hole Number: SBH-5	Ground Water:

Depth (FT)	Sample NO	Sample TYPE	Description
0			Cut through metal and then wooden floor - 2-4 feet crawl space below. Fire damage on wood beams noted
1			
2			0-2 ft - sand, cinder, ash
3			
4			2-4 ft - clay, tight
			5-30ppm PID
5			
6			
7			4-7 ft - clay, tight
			5-10 ppm PID
8			7-8 ft - sand, cinder
			5-20 ppm PID
9			
10			
11			
12			8-12 ft - silty sand with some clay and stone - wet - partial recovery
			10-40 ppm PID
13			
14			
15			
16			

Comments: Collected soil sample for analysis at 4 feet, 8 feet and 10-12 feet

Geoprobe
Bore Hole Log

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Buffalo, NY 14213
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Project: 31 Tonawanda Street Supplemental RI	Sheet: 1 of 1
Client: 31 Tonawanda Street LLC	Location: 31 Tonawanda Street Buffalo NY
Contractor: Natures Way	Ground Elevation:
Date Started: 2-4-19	Operator:
Date Completed: 2-4-19	Geologist/Technician: Peter J. Gorton
Bore Hole Number: SBH-6	Ground Water:

Depth (FT)	Sample NO	Sample TYPE	Description
0			refusal - could not break through the cement with the machine that was brought
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

Comments:

Geoprobe
Bore Hole Log

1270 Niagara Street
Buffalo, NY 14213
716.249.6880 be3corp.com

Project: 31 Tonawanda Street Supplemental RI	Sheet: 1 of 1
Client: 31 Tonawanda Street LLC	Location: 31 Tonawanda Street Buffalo NY
Contractor: Natures Way	Ground Elevation:
Date Started: 2-4-19	Operator:
Date Completed: 2-4-19	Geologist/Technician: Peter J. Gorton
Bore Hole Number: SBH-7	Ground Water:

Depth (FT)	Sample NO	Sample TYPE	Description
0			refusal - could not break through the cement with the machine that was brought
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

Comments:

Geoprobe
Bore Hole Log

1270 Niagara Street
Buffalo, NY 14213
716.249.6880 be3corp.com

Project: 31 Tonawanda Street Supplemental RI	Sheet: 1 of 1
Client: 31 Tonawanda Street LLC	Location: 31 Tonawanda Street Buffalo NY
Contractor: Natures Way	Ground Elevation:
Date Started: 2-4-19	Operator:
Date Completed: 2-4-19	Geologist/Technician: Peter J. Gorton
Bore Hole Number: SBH-8	Ground Water:

Depth (FT)	Sample NO	Sample TYPE	Description
0			refusal - cut through the wood floor - could not break through the cement below the floor with the machine that was brought
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

Comments:

APPENDIX B

DATA USABILITY SUMMARY REPORTS (DUSR)

150 TONAWANDA

DATA USABILITY SUMMARY REPORTS (DUSR)

DATA USABILITY SUMMARY REPORT (DUSR)

31 Tonawanda St.
Buffalo, NY
NYSDEC BCP # C915299

SDG: 183739

9 soil samples

Prepared for:

BE3/Panamerican
1270 Niagara Street
Buffalo, NY 14213

September 2018

EDU *Environmental Data Usability* *10028 Deer Park Dr. Dansville, NY 14437 585.991.9156*

SDG 183739

Table 6-1 VOCs

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
BH-1 (6-7) BH-5 (2-4) BH-3 (4-6)	All Analytes	UJ non-detect J detects	Surrogate recs. for BFB and Td8 < QC limit	Results may be biased low
BH-5 (2-4)	1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene DBCP 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Naphthalene n-Butylbenzene	R non-detect J detects	IS#3 area < 25 %	Non-detects are unusable, detects may be biased low
BH-1 (6-7) BH-3 (4-6)	1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene DBCP 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Naphthalene n-Butylbenzene	UJ non-detect J detects	IS#3 area < 50 %	Results may be biased low
BH-1 (6-7) BH-5 (2-4)	Chlorobenzene 1,1,2,2-Tetrachloroethane Ethylbenzene m,p-Xylene o-Xylene Bromoform	UJ non-detect J detects	IS#2 area < 50 %	Results may be biased low

	Isopropylbenzene n-Propylbenzene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene sec-Butylbenzene tert-Butylbenzene p-Isopropyltoluene			

Table 6-2 SVOCs

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
BH-4 (0-1)	All Phenolic Compounds	UJ non-detects J detects	surrogate recoveries for 2FP and Pd5 < QC limit	Results may be biased low
BH-1 (6-7)	Pyrene	J detect	MS/MSD <QC limit	Results may be biased low
All samples	TIC @ RT: 4.76	< 5X blank value TIC-R	Tentatively Identified Compounds were detected in the method blank	TICs were rejected
All samples	Atrazine	UJ non-detects	Three point ICAL	Data should be considered estimated

Table 6-3 Pesticides

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
BH-1 (6-7)	Endosulfan Sulfate Endrin Methoxychlor	J J JN	>25 % D between dual column analysis	Matrix suspected interference

SDG 183739

BH-5 (2-4)	cis-Chlordane Endosulfan Sulfate Endrin Ketone	J CRQL-U CRQL-U	>25 % D between dual column analysis	Matrix suspected interference
BH-3 (4-6)	4,4'-DDD 4,4'-DDE 4,4'-DDT Dieldrin Endosulfan Sulfate Endrin Heptachlor Epoxide Methoxychlor	CRQL-U CRQL-U CRQL-U CRQL-U JN J J JN	>25 % D between dual column analysis	Matrix suspected interference
BH-6 (0-1)	4,4'-DDD 4,4'-DDE Aldrin b-BHC cis-Chlordane Dieldrin Endosulfan Sulfate Endrin Endrin Aldehyde Endrin Ketone Heptachlor Methoxychlor transChlordane	JN JN JN JN CRQL-U JN J JN JN J CRQL-U JN JN	>25 % D between dual column analysis	Matrix suspected interference
BH-2 (0-1)	4,4'-DDE Endosulfan Sulfate Endrin Endrin Ketone Methoxychlor	JN J CRQL-U CRQL-U J	>25 % D between dual column analysis	Matrix suspected interference

BH-4 (0-1)	Endosulfan Sulfate Endrin Ketone Heptachlor Epoxide Methoxychlor	CRQL-U J J JN	>25 % D between dual column analysis	Matrix suspected interference

Table 6-4 PCBs

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
BH-4 (0-1)	All Analytes	UJ non-detect J detects	All surrogate recoveries < QC limit	Results may be biased low
All samples	All	J detects	No 2nd column confirmation	Detects should be considered estimated

Table 6-5 TAL Metals

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
BH-5 (2-4)	Manganese	J detects	RPD > 35 %	Data should be considered estimated
BH-5 (2-4)	Arsenic Cadmium Chromium Copper Lead Nickel Zinc	UJ non-detects J detects	Matrix spike < 75 %	Data should be considered estimated

SDG 183739

Table 6-6 TCN

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
none			none	

DATA USABILITY SUMMARY REPORT (DUSR)

31 and 150 Tonawanda St.
Buffalo, NY
NYSDEC BCP # C915299

SDG: 184392

4 water samples

Prepared for:

BE3/Panamerican
1270 Niagara Street
Buffalo, NY 14213

October 2018

EDU Environmental Data Usability 10028 Deer Park Dr. Dansville, NY 14437 585.991.9156

Table 6-1 VOCs

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
All samples	Dichlorodifluoromethane 2-Hexanone	UJ non-detects J detects	CCV %D > 20 %	Data is estimated

Table 6-2 SVOCs

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
none			none	

Table 6-3 Pesticides

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
150-MW-4	Aldrin b-BHC Heptachlor Heptachlorepoxide	J CRQL-U JN JN	>25 % D between dual column analysis	Matrix suspected interference
150-MW-1	Aldrin Endrin Heptachlor Epoxide	CRQL-U JN J	>25 % D between dual column analysis	Matrix suspected interference

150-MW-3	Heptachlorepoxide	CRQL-U	>25 % D between dual column analysis	Matrix suspected interference

Table 6-4 PCBs

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
150-MW-3	PCB 1254 PCB 1260	J detects	No 2nd column confirmation	Detects should be considered estimated

Table 6-5 Part 375 Metals

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
none			none	

Table 6-6 TCN

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
none			none	

Table 6-7 1,4-Dioxane - 8270-SIM

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
none			none	

Table 6-8 PFAAs – EPA 537 (modified)

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
All samples	NmeFOSAA NEtFOSAA	J detects	LCS rec > QC limit	No data affected
150-MW-1 150-MW-3	PFOA (0.252)	CRQL-U	Compounds detected in method blank	Compound detected in the sample < CRQL, changed to CRQL-U.

31 TONAWANDA

DATA USABILITY SUMMARY REPORTS (DUSR)

DATA USABILITY SUMMARY REPORT (DUSR)

Tonawanda St.
Buffalo, NY
NYSDEC BCP # C915299

SDG: 183775

10 soil samples

Prepared for:

BE3/Panamerican
1270 Niagara Street
Buffalo, NY 14213

September 2018

Table 6-1 VOCs

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
BH-6 (4-6)	All Analytes	UJ non-detect J detects	Td8 and BFB < QC limit	Results may be biased low
BH-3S (12-13.5)	All Analytes	J detects	BFB > QC limit	Results may be biased high
BH-6 (4-6)	1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene DBCP 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Naphthalene n-Butylbenzene	UJ non-detect J detects	IS#3 area < 50 %	Results may be biased low
BH-2 (13.5-15)	1,2-Dichlorobenzene 1,4-Dichlorobenzene Benzene Chloroform Ethylbenzene	UJ non-detect J detects	LCS < QC limit	Results may be biased low
BH-6 (4-6) BH-2 (19-20) BH-2 (13.5-15) BH-3S (12-13.5) BH-5 (4-6) BH-4 (11.5-12)	1,4-Dioxane	R non-detects J detects	CCV RF < 0.005	Non-detect data is unusable

Table 6-2 SVOCs

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
BH-6 (4-6) BH-2 (13.5-15) BH-3S (12-13.5) BH-5 (4-6)	All Analytes	UJ non-detect J detects	All surrogate recoveries < QC limit	Results may be biased low
All samples	TICs @ RT: 4.59	< 5X blank value TIC-R	Tentatively Identified Compounds were detected in the method blank	TICs were rejected
All samples	Atrazine	UJ non-detects	Three point ICAL	Data should be considered estimated

Table 6-3 Pesticides

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
BH-2 (0-3)	All Analytes	none	All surrogate recoveries diluted out	No determination could be made
BH-6 (4-6) BH-3S (12-13.5)	All Analytes	UJ non-detect J detects	All surrogate recoveriess < QC limit	Results may be biased low
BH-6 (4-6)	4,4'-DDT b-BHC Endosulfan Sulfate Endrin Ketone	J CRQL-U JN J	>25 % D between dual column analysis	Matrix suspected interference

SDG 183775

BH-1 (0-3)	4,4'-DDT Dieldrin Endosulfan Sulfate Endrin Heptachlor Epoxide	J JN JN J JN	>25 % D between dual column analysis	Matrix suspected interference
BH-3S (12-13.5)	Methoxychlor	J	>25 % D between dual column analysis	Matrix suspected interference
BH-5 (4-6)	4,4'-DDD cis-Chlordane Dieldrin Endosulfan II Endosulfan Sulfate Endrin Aldehyde	J J CRQL-U J J J	>25 % D between dual column analysis	Matrix suspected interference
BH-4 (0-1)	Methoxychlor	JN	>25 % D between dual column analysis	Matrix suspected interference
BH-5 (0-2)	cis-Chlordane Dieldrin Endosulfan Sulfate Endrin Aldehyde Endrin Ketone Methoxychlor	J JN CRQL-U CRQL-U CRQL-U JN	>25 % D between dual column analysis	Matrix suspected interference
BH-6 (0-2)	4,4'-DDD 4,4'-DDE cis-Chlordane Methoxychlor	J J JN CRQL-U	>25 % D between dual column analysis	Matrix suspected interference

SDG 183775

Table 6-4 PCBs

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
BH-3S (12-13.5)	All Analytes	UJ non-detect J detects	All surrogate recoveries < QC limit	Results may be biased low
All samples	All	J detects	No 2^{nd} column confirmation	Detects should be considered estimated

Table 6-5 Part 375 Metals

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
BH-6 (0-2)	Mercury	J detects	MS < 75 %	Data should be considered estimated

Table 6-6 TCN

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
none			none	

DATA USABILITY
SUMMARY REPORT (DUSR)

31 and 150 Tonawanda St.
Buffalo, NY
NYSDEC BCP # C915299

SDG: 184415

5 water samples

Prepared for:

BE3/Panamerican
1270 Niagara Street
Buffalo, NY 14213

November 2018

EDU Environmental Data Usability 10026 Deer Park Dr. Dansville, NY 14437 585.991.9156

SDG 184415

Table 6-1 VOCs

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
31-MW-2	All analytes	J detects	Surr. Rec 1,2-DCEd4 > QC limit	Detected data is biased high
31-MW-1	All analytes	UJ non-detects J detects	Surr. Rec PFB < QC limit	Data is estimated
31-MW-3	1,1,1-Trichloroethane	J detects	MS/MSD > QC limit	Detected data is biased high
All samples	Dichlorodifluoromethane 2-Hexanone	UJ non-detects J detects	CCV %D > 20 %	Data is estimated
31-MW-3	Bromomethane	UJ non-detects J detects	CCV %D > 20 %	Data is estimated
Trip Blank	TIC Siloxane	R reject	Trip blank contamination	Common lab artifact

Table 6-2 SVOCs

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
All samples	Atrazine	UJ non-detects	4 pt ICAL	Data is estimated – all data non-detect

SDG 184415

Table 6-3 Pesticides

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
31-MW-3	All analytes	UJ non-detects J detects	MS/MSD < QC limit	All data is biased low
31-MW-2	Heptachlor Epoxide	CRQL-U	>25 % D between dual column analysis	Matrix interference suspected
31-MW-1	Aldrin Heptachlor Epoxide	J CRQL-U	>25 % D between dual column analysis	Matrix interference suspected
31-MW-3	d-BHC	J	>25 % D between dual column analysis	Matrix interference suspected
31-MW-5	Aldrin a-BHC Dieldrin Endrin Heptachlor Heptachlor Epoxide	J CRQL-U CRQL-U J J J	>25 % D between dual column analysis	Matrix interference suspected

Table 6-4 PCBs

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
31-MW-2	PCB 1260	J detects	No 2nd column confirmation	Detects should be considered estimated
31-MW-1	PCB 1260	J detects	No 2nd column confirmation	Detects should be considered estimated

Table 6-5 Part 375 Metals

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
none			none	

Table 6-6 TCN

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
none			none	

Table 6-7 1,4-Dioxane - 8270-SIM

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
none			none	

Table 6-8 PFAAs – EPA 537 (modified)

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
none			none	

DATA USABILITY SUMMARY REPORT (DUSR)

31 Tonawanda Street
Buffalo, NY
NYSDEC BCP # C915299

SDG: C1808061

14 air samples

Prepared for:

BE3/Panamerican
1270 Niagara Street
Buffalo, NY 14213

September 2018

EDU Environmental Data Usability 10028 Deer Park Dr. Dansville, NY 14437 585.991.9156

Table 6-1 **TO-15**

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
All samples	Many analytes	none	LCSD-8/27/18 < 70 %	Since other LCS recoveries are within QC limits, no flags were added
All samples	All Analytes		LCS-8/27/18 - OK LCS/LCSD -8/28/18 - OK	No action
SS-04 SS-06 SS-01 SS-05 IA-05	Toluene Methyl Isobutyl Ketone Dibromochloromethane Methyl Butyl Ketone 1,2-Dibromoethane Tetrachloroethene Chlorobenzene Ethylbenzene m & p-Xylene Styrene Bromoform o-Xylene 1,1,2,2-Tetrachloroethane 4-Ethyltoluene 1,2,4-Trimethylbenzene 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Benzyl Chloride 1,3,5-Trimethylbenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene	J detects	IS#3 area > 140 %	Detected results are estimated

SS-01 SS-06	1,1,1-Trchloroethane Cyclohexane Carbon Tetrachloride Benzene 1,4-Dioxane 2,2,4-Trimethylpentane Heptane Trichloroethene 1,2-Dichloropropane Bromodichloromethane cis-1,3-Dichloropropene trans-1,3-Dichloropropene 1,1,2-Trichloroethane	J detects	IS#2 area > 140 %	Detected results are estimated
FD-01 SS-02 SS-03	All Anallytes	J detects	IS#1, 2, and 3 area > 140 %	Detected results are estimated
All samples	Isopropyl Alcohol	JN detects	Relative Intensity of characteristic ions not +/- 30 %	Compounds are tentatively identified and results are estimated
OA-01 IA-05	Heptane	JN detects	Relative Intensity of characteristic ions not +/- 30 %	Compound is tentatively identified and results are estimated

DATA USABILITY SUMMARY REPORT (DUSR)

31 Tonawanda St.
Buffalo, NY
NYSDEC BCP # C915299

SDG: 190462

10 soil samples and 1 water sample

Prepared for:

BE3/Panamerican
1270 Niagara Street
Buffalo, NY 14213

February 2019

EDU Environmental Data Usability 10028 Deer Park Dr. Dansville, NY 14437 585.991.9156

SDG: 190462

Table 6-1 VOCs

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
none		none		

APPENDIX C

RI PHOTOGRAPHS

BE3/PANAMERICAN Photolog
150 Tonawanda St. Soil Borings

Date: 8/15/18

1. BH-1 soil boring. Looking east.

2. BH-1 soil core sample location

3. BH-1 soil core. 0 -12' top to bottom, left to right.

4. BH-2 boring location, looking east.

BE3/PANAMERICAN Photolog
150 Tonawanda St. Soil Borings

Date: 08/15/18

5. BH-3 soil boring location, looking east.

6. BH-3 soil core, 0 – 11’ top to bottom, right to left.

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7. BH-4 soil boring location, looking east.

8. BH-4 soil core, 0 – 8’ top to bottom, right to left.

BE3/PANAMERICAN Photolog
150 Tonawanda St Soil Borings

Date: 08/15/18

9. BH-5 boring location, looking east.

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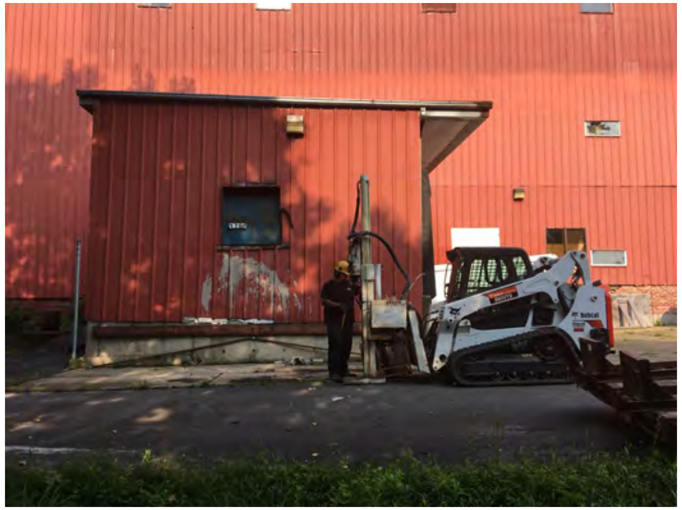
10. BH-5 soil core. 0 – 8’; top to bottom, right to left.

11. BH-6 boring location, looking east.

12. BH-6 Soil core. 0 – 9’ top to bottom, left to right.

BE3/PANAMERICAN Photolog
31 Tonawanda St Soil Borings

Date: 8/16/18



13. BH-4 boring location, looking west.

14. BH-4 soil core. 0 – 12’ top to bottom, left to right.

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15. BH-3 boring location looking east.

16. BH-3 soil core. 0 – 6’ top to bottom, left to right.

BE3/PANAMERICAN Photolog
31 Tonawanda St Soil Borings

Date: 08/16/18

17. BH-2 boring location, looking south.

18. BH-2 soil core. 0 – 16’ top to bottom, left to right.

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19. BH-1 boring location, looking northeast.

20. BH-1 soil core. 0 – 8’, top to bottom, left to right.

BE3/PANAMERICAN Photolog
31 Tonawanda St Soil Borings

Date: 08/16/18

21. Product found on probe rods after BH-1 boring.

22. BH-5 boring location, looking west.

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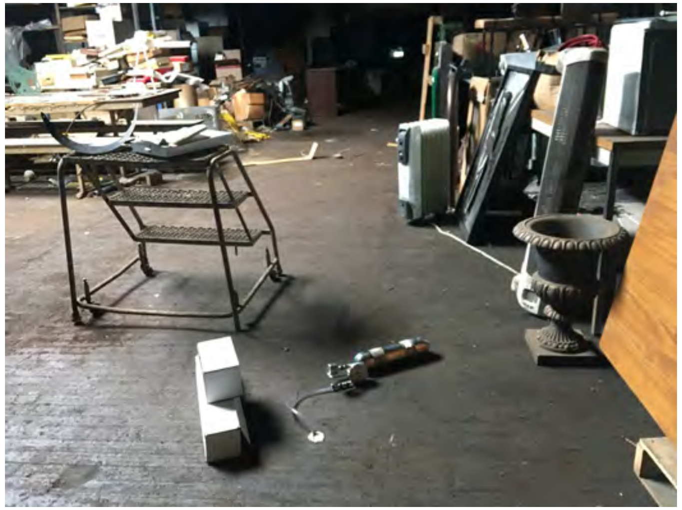
23. BH-5 soil core. 0 -16’ top to bottom, left to right.

24. BH-6 soil cores. 0 – 6’ top to bottom, left to right.

BE3/PANAMERICAN Photolog
Soil Vapor Intrusion Sampling

Date: 08/21/18



25. IA-05 sample location through floor taken from crawl space.

26. SS-02 sample location, middle of high bay slab on grade.

27. SS-01 sample location, northern end of high bay, slab on grade.

28. IA-02 sample location, northern end of high bay.

BE3/PANAMERICAN Photolog
Soil Vapor Intrusion Sampling

Date: 08/21/18

29. SS-03 sample location, northern end of high bay.

30. SS-04 sample location, northern end of basement.

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31. IA-04 sample location, northern end of basement.

32. SS-05 sample location, middle of basement.

BE3/PANAMERICAN Photolog
Soil Vapor Intrusion Sampling

Date: 08/22/18

33. IA-03 sample location southern end of basement.

34. SS-06 southern end of basement.

BE3/PANAMERICAN Photolog
31 Tonawanda St. Well Installation

Date: 08/01/18

37. 31-MW-3 Well install location, adjacent creek, southeast edge of property.

38. 31-MW-4 well installation adjacent creek on east side of property.

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39. 31-MW-4 well installation. No. 0 sand used for filter pack.

BE3/PANAMERICAN Photolog

Date: 2/4/19

1. Borehole SBH-1 location; from west end facing east

2. View of location of SBH-1 from east facing west

3. Location of SBH-1 from east facing southwest

4. Borehole SBH-1 soil cores

BE3/PANAMERICAN Photolog

Date: 2/4/19

5. Location of SBH-2 facing southeast – in southeast corner of building

6. Location of SBH-2 facing east

7. Location of SBH-3 from west facing east; location is along wall in southeastern portion of the building

8. View of cutting metal for SBH-5

BE3/PANAMERICAN Photolog

Date: 2/4/19

9. Soil cores from SBH-3

10. Location of SBH-4 facing northwest

11. Borehole SBH-4 facing west

12. Soil cores from SBH-4

BE3/PANAMERICAN Photolog

Date: 2/4/19

13. Location of SBH-5 facing east

14. Location of SBH-5 facing south

15. Soil cores from SBH-5

16. Location of Borehole SBH-6 facing north

BE3/PANAMERICAN Photolog

Date: 2/4/19

17. Location of SBH-6 facing north

18. Location of SBH-7 facing north

19. Location of SBH-7 facing northeast

20. Location of Borehole SBH-8 facing southeast

BE3/PANAMERICAN Photolog

Date: 2/4/19

21. Location of SBH-8 facing east


22. Well installed in SBH-3

APPENDIX D

DER-10 APPENDIX 3C
FISH & WILDLIFE DECISION KEY

31 Tonawanda ST. Site

Appendix 3C **Fish and Wildlife Resources Impact Analysis Decision Key**		If YES Go to:	If NO Go to:
1	Is the site or area of concern a discharge or spill event?	13	2
2.	Is the site or area of concern a point source of contamination to the groundwater which will be prevented from discharging to surface water? Soil contamination is not widespread, or if widespread, is confined under buildings and paved areas.	13	3
3.	Is the site and all adjacent property a developed area with buildings, paved surfaces and little or no vegetation?	4	9
4.	Does the site contain habitat of an endangered, threatened or special concern species?	Section 3.10.1	5
5.	Has the contamination gone off-site?	6	14
6.	Is there any discharge or erosion of contamination to surface water or the potential for discharge or erosion of contamination?	7	14
7	Are the site contaminants PCBs, pesticides or other persistent, bioaccumulable substances?	Section 3.10.1	8
8.	Does contamination exist at concentrations that could exceed ecological impact SCGs or be toxic to aquatic life if discharged to surface water?	Section 3.10.1	14
9.	Does the site or any adjacent or downgradient property contain any of the following resources? i. Any endangered, threatened or special concern species or rare plants or their habitat ii. Any DEC designated significant habitats or rare NYS Ecological Communities iii. Tidal or freshwater wetlands iv. Stream, creek or river v. Pond, lake, lagoon vi. Drainage ditch or channel vii. Other surface water feature viii. Other marine or freshwater habitat ix. Forest x. Grassland or grassy field xi. Parkland or woodland xii. Shrubby area xiii. Urban wildlife habitat xiv. Other terrestrial habitat	11	10
10.	Is the lack of resources due to the contamination?	3.10.1	14
11.	Is the contamination a localized source which has not migrated and will not migrate from the source to impact any on-site or off-site resources?	14	12
12.	Does the site have widespread surface soil contamination that is not confined under and around buildings or paved areas?	Section 3.10.1	12
13.	Does the contamination at the site or area of concern have the potential to migrate to, erode into or otherwise impact any on-site or off-site habitat of endangered, threatened or special concern species or other fish and wildlife resource? (See #9 for list of potential resources. Contact DEC for information regarding endangered species.)	Section 3.10.1	14
14.	No Fish and Wildlife Resources Impact Analysis needed.		

APPENDIX E

DAILY FIELD REPORTS

BE3CORP PANAMERICAN ENVIRONMENT • ENGINEERING • ENERGY

BCP DAILY FIELD REPORT

BE3/Panamerican
1270 Niagara Street
Buffalo, New York

Date: 8/15/18

Site Name: 31 & 150 Tonawanda St

Location: 150 Tonawanda St
Buffalo, NY 14207

Borings done across the entire site.

Contractor/Subcontractors: Nature's Way

Weather Conditions: Sunny, 80 deg F, SE wind 3-7 mph, Precipitation 10%, Humidity 80%

Description of Work Performed:

0820 - Alex Brennen on site
0940 - Nate Gingrich (Nature's Way) on site, property not staked. Paced location for BH-1.
1020 - Began BH-1 boring on large mounding adjacent railroad tracks.
1130 - Moved to BH-2 further north, middle of large mounding.
1230 - Moved to BH-3 further north, on large mounding. Depth to native in large mounding area approximately 7-8 fbgs
1335 - Moved to BH-4 off of large mounding in low area towards northern end of property. Native at 3 fbgs
1420 - Moved to BH-5 northwestern end of property, similar elevation as BH-4. Native at 4 fbgs.
1500 - Moved to BH-6 northeastern end of property on mounded area towards Tonawanda St. Native at 5.2 fbgs.

Problems/Observations Noted:

None.

Health & Safety Monitoring:

None.

Contractor Work Force: Nature's Way: 1 driller

Contractor Equipment:

1 skid steer mounted geoprobe

Attachments:

See boring logs for further details on borings.

INSPECTOR'S NAME:

Alex Brennen

BE3CORP PANAMERICAN ENVIRONMENT • ENGINEERING • ENERGY

BCP DAILY FIELD REPORT

BE3/Panamerican
1270 Niagara Street
Buffalo, New York

Date: 8/16/18

Site Name: 31 & 150 Tonawanda St

Location: 31 Tonawanda St
Buffalo, NY 14207

Borings done across the entire eastern portion of site.

Contractor/Subcontractors: Nature's Way

Weather Conditions: Sunny, 82 deg F, SW wind 5 mph, Precipitation 10%, Humidity 80%

Description of Work Performed:

0825 - Alex Brennen and Nate Gingrich (Nature's Way) on site
0900 - set up at BH-4 location. Odors noted around 11.7 fbgs. Sample taken.
0950 - Moved to BH-3S location. Slight odors noted at ~ 12 fbgs. Stronger odor at 13.5 fbgs, PID measured 0.2 ppm @13.5 fbgs.
1100 - Moved to BH-2 location. Staining and odor noted at around 12 fbgs. PID measured 2.7 ppm. Strong odor and sheen at 19-20 fbgs. PID measured 27.7 ppm @ 20 fbgs. Sample taken. Native believed to be at 18 fbgs.
1205 - Moved to BH-1 location. Odors and PID hits starting at surface. Sample taken. Odor and product noted at 11-12 fbgs. Product on geoprobe rods. 27.8 ppm @ 15 fbgs. Sample taken.
1320 - Moved to BH-5 near supposed former gas tank. Strong petro odor noted at 6 - 8 fbgs. 224 ppm measured at 7.5 fbgs. Sample taken.
1415 - Moved downgradient of BH-5 to BH-6. Petro odor and staing at 4 to 6 fbgs. 22.1 ppm @ 5.5 fbgs. Sample taken. Refusal at 6 fbgs.

Problems/Observations Noted:

Decon completed on boring equipment between and after all borings done.

Health & Safety Monitoring:

None.

Contractor Work Force: Nature's Way: 1 driller

Contractor Equipment:

1 skid steer mounted geoprobe

Attachments:

See boring logs for further details on borings.

INSPECTOR'S NAME:

Alex Brennen

BE3CORP PANAMERICAN ENVIRONMENT • ENGINEERING • ENERGY

BCP DAILY FIELD REPORT

BE3/Panamerican
1270 Niagara Street
Buffalo, New York

Date: 8/21/18

Site Name: 31 & 150 Tonawanda St

Location: 31 Tonawanda St
Buffalo, NY 14207

Soil vapor sampling done within buildin.

Contractor/Subcontractors: None.

Weather Conditions: Sunny, 80 deg F, SW wind 5-10 mph, Precipitation 50%, Humidity 80%

Description of Work Performed:

0735 - Alex Brennen and John Boyd on site to perform vapor intrusion sampling.
0800 - Power source located for drilling in high bay area, generator used.
1100 - Finished subslab drilling and set up, turned off generator.
1200 - Prepped for cannister connections. Crawl space not accessible where IA-05 was to be placed. Drilled hole in wooden floor and fed tubing into crawlspace to sample ambient air in crawl space.
1245 - John Boyd left site. All samples connected to refulator for 8-hour sampling window.
1345 - General product inventory taken. Potential sources throughout high bay area - used as garage.
1530 - Alex Brennen left site.
1940 - Alex Brennen on site to collect samples
2045 - Alex Brennen left site with all samples.

Problems/Observations Noted:

None.

Health & Safety Monitoring:

None.

Contractor Work Force: N/A
Contractor Equipment:

Attachments:

See boring logs for further details on borings.

INSPECTOR'S NAME:

Alex Brennen

BE3CORP PANAMERICAN ENVIRONMENT • ENGINEERING • ENERGY

BCP DAILY FIELD REPORT

BE3/Panamerican
1270 Niagara Street
Buffalo, New York

Date: 8/23/18 to 8/25/18

Site Name: 31 & 150 Tonawanda St

Location: 150 Tonawanda St
Buffalo, NY 14207

Well installation done across property

Contractor/Subcontractors: Nature's Way

Weather Conditions: Sunny, 80 deg F, SW wind 5-10 mph, Precipitation 50%, Humidity 80%

Description of Work Performed:

John Boyd & Nature's Way on site to drill and install wells at 150 Tonawanda St. MW-3 drilled with hollow stem auger and split spoon sampled to determine well depth and screen length. Split spoon samples show native material as tight, dense; brown, brown/grey clays. Split spoons were sampled every 2' on MW-3. Clay moist and soft at 32-36' fbgs. Wells were all set to a depth of approximately 36 fbgs. 2" PVC stick up wells with 0.1" slot screen used. Approximately 30' of screen installed in all wells at 150 Tonawanda St. Sand pack brought to at least 1' above screen with 3' hydrated bentonite above sand. Installation of last well at 150 Tonawanda St moved into following week of the 8/27.

Problems/Observations Noted:

None.

Health & Safety Monitoring:

None.

Contractor Work Force: 1 driller, 1 driller's helper

Contractor Equipment: 1 truck mounted drill rig with hollow stem auger and split spoon.

Attachments:

See well construction logs individual well details.

INSPECTOR'S NAME:

Alex Brennen

BCP DAILY FIELD REPORT

BE3/Panamerican
1270 Niagara Street
Buffalo, New York

Date: 8/27/18

Site Name: 31 & 150 Tonawanda St

Location: 150 Tonawanda St
Buffalo, NY 14207

Well installation on 31 Tonawanda St

Contractor/Subcontractors: Nature's Way

Weather Conditions: Sunny, 80 deg F

Description of Work Performed:

Pete Gorton & Nature's Way on site to complete wells at 150Tonawanda Street and to drill and install wells at 31 Tonawanda St. Initially started drilling wells 31-MW-1 through 3 using a geoprobe well. It was decided that the geoprobe would not work to install quality wells. MW-1 and MW-2 was moved outside and MW-3 further north to accommodate using a conventional drill rig for installation. Installed wells 3&5

Problems/Observations Noted:

None.

Health & Safety Monitoring:

None.

Contractor Work Force: 1 driller, 1 driller's helper

Contractor Equipment: 1 truck mounted drill rig with hollow stem auger and split spoon.

Attachments:

See well construction logs individual well details.

INSPECTOR'S NAME:

Peter Gorton

BE3CORP PANAMERICAN
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BCP DAILY FIELD REPORT

BE3/Panamerican
1270 Niagara Street
Buffalo, New York

Date: 8/28/18

Site Name: 31 & 150 Tonawanda St

Location: 31 Tonawanda St
Buffalo, NY 14207

Well installation on 31 Tonawanda St

Contractor/Subcontractors: Nature's Way

Weather Conditions: Sunny, 80 deg F

Description of Work Performed:
Pete Gorton & Nature's Way on site to drill and install wells at 31 Tonawanda St. Wells 3&4

Problems/Observations Noted:

None.

Health & Safety Monitoring:
None.

Contractor Work Force: 1 driller, 1 driller's helper
Contractor Equipment: 1 truck mounted drill rig with hollow stem auger and split spoon.

Attachments:
See well construction logs individual well details.

INSPECTOR'S NAME:
Peter Gorton

BCP DAILY FIELD REPORT

BE3/Panamerican
1270 Niagara Street
Buffalo, New York

Date: 8/28/18

Site Name: 31 & 150 Tonawanda St

Location: 31 Tonawanda St
Buffalo, NY 14207

Well installation on 31 Tonawanda St

Contractor/Subcontractors: Nature's Way

Weather Conditions: Sunny, 80 deg F

Description of Work Performed:

Pete Gorton & Nature's Way on site to drill and install wells at 31 Tonawanda St. Wells 3&4

Problems/Observations Noted:

None.

Health & Safety Monitoring:

None.

Contractor Work Force: 1 driller, 1 driller's helper

Contractor Equipment: 1 truck mounted drill rig with hollow stem auger and split spoon.

Attachments:

See well construction logs individual well details.

INSPECTOR'S NAME:

Peter Gorton

BCP DAILY FIELD REPORT

BE3/Panamerican
1270 Niagara Street
Buffalo, New York

Date: 8/29/18

Site Name: 31 & 150 Tonawanda St

Location: 31 Tonawanda St
Buffalo, NY 14207

Well installation on 31 Tonawanda St

Contractor/Subcontractors: Nature's Way

Weather Conditions: Sunny, 80 deg F

Description of Work Performed:
Pete Gorton & Nature's Way on site to drill and install wells at 31 Tonawanda St. Wells 1 and 2

Problems/Observations Noted:

None.

Health & Safety Monitoring:
None.

Contractor Work Force: 1 driller, 1 driller's helper
Contractor Equipment: 1 truck mounted drill rig with hollow stem auger and split spoon.

Attachments:
See well construction logs individual well details.

INSPECTOR'S NAME:
Peter Gorton

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BCP DAILY FIELD REPORT

BE3/Panamerican
1270 Niagara Street
Buffalo, New York

Date: 9/11/18

Site Name: 31 & 150 Tonawanda St

Location: 150 Tonawanda St
Buffalo, NY 14207

Monitoring well measurements across property.

Contractor/Subcontractors: None

Weather Conditions: Sunny, 80 deg F, SW wind 5-10 mph, Precipitation 0%, Humidity 65%

Description of Work Performed:

9/11/18:
1630: Alex Brennen onsite at 150 Tonawanda St. to take depth to water measurements and GPS coordinates locations of wells. All well measurements taken from marking on top of riser.
MW-1: DTW = 7.4' Well Bottom = 40.1'
MW-2: DTW = 7.6' Well Bottom = 38.7'
MW-3: DTW = 9.4' Well Bottom = 39.8'
MW-4: DTW = 25.4' Well Bottom = 39.2'
1730: Alex Brennen leaves site.

Problems/Observations Noted:

None.

Health & Safety Monitoring:
None.

Contractor Work Force: None.
Contractor Equipment:

Attachments:

See Table for Well GPS Coordinates

INSPECTOR'S NAME:

Alex Brennen

BCP DAILY FIELD REPORT

BE3/Panamerican
1270 Niagara Street
Buffalo, New York

Date: 9/17/18

Site Name: 31 & 150 Tonawanda St

Location: 31 Tonawanda St
Buffalo, NY 14207

Monitoring well measurements across property.

Contractor/Subcontractors: None

Weather Conditions: Sunny, 80 deg F, SW wind 5-10 mph, Precipitation 0%, Humidity 65%

Description of Work Performed:

9/17/18:
1100: Alex Brennen onsite at 31 Tonawanda St. to take depth to water measurements and GPS coordinates locations of wells. All well measurements taken from marking on top of riser.
31-MW-1: Flush Mount, DTW = 7.4' Well Bottom = 20.0'
31-MW-2: Flush Mount, DTW = 5.4' Well Bottom = 30.3'
31-MW-3: Flush Mount, DTW = 6.1' Well Bottom = 18.3'
31-MW-4: Flush Mount, DTW = 8.4 Well Bottom = 20.0'
31-MW-5: Stick up DTW = 15.6' Well Bottom = 22.5'
1315: Alex Brennen leaves site.

Problems/Observations Noted:

None.

Health & Safety Monitoring:
None.

Contractor Work Force: None.
Contractor Equipment:

Attachments:

See Table for Well GPS Coordinates

INSPECTOR'S NAME:

Alex Brennen

PANAMERICAN
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1270 Niagara Street

Buffalo, New York 14213

DAILY FIELD REPORT

Date:	Monday, February 4, 2019
Site Name:	31 Tonawnada Street
Location:	31 Tonawanda Street, Buffalo, NY
Contractor/Subcontrators:	Natures Way - Geoprobe
Weather Conditions:	35 deg F, Clear and Sunny Wind: 5mph SE

Description of Work Performed: Supplemental RI Subsurface Assessment inside Crawl Space Area
ADVANCED 8 Subsurface borings as follows: SBH-1 to 16 ft; SBH-2 Refusal; SBH-3 to 16 ft, installed well at 16ft;SBH-4 to 12 ft; SBH-5 to 12 feet.SBH-6 - Refusal concrete; SBH-7 - refusal; SBH-8 - refusal cement. Collected 10 soil samples and 1 groundwater samples as follows: 3 samples at From SBH-1 (2-4Ft, 12 and 16); SBH-3 (11-12ft); SBH-4 (8,10,and 12ft); SBH-5 (4, 8 and 12 Ft) and one groundwater sample from SBH-3. See boring logs and analytical data.

(Use attached sheet for additional work description)

Problems/Observations Noted:
Refusal in certain locations impacted complete assessment.

Health and Safety Monitoring:
PID. SBH-1 (10ppm at 1.5-3ft, 1-3 ppm at 8 ft); SBH-4 (1-11ppm at 4ft; 20-30ppm at 8-10ft; 5-10ppm at 10-12ft); SBH-5 (2-30ppm at 2-4 ft, 5-10ppm at 4-7 ft, 5-20ppm at 7-8 ft; 10-40ppm at 8-12ft)

Contractor Work Force:	2 operators
Contractor Equipment:	Geoprobe
Attachments:	Photolog, Location Figure, boring logs
Inspector's Name:	Peter Gorton

APPENDIX F

ASBESTOS/LEAD BASED PAINT/PCB ASSESSMENT REPORT

Hazardous Materials Inspection Report

Asbestos, Lead-Based Paint, PCB Light Ballast, PCB Caulk, Mercury Switch and Waste Materials

Project Location:

31 Tonawanda Street
Buffalo, New York 14207

Project ID: 18-1004DB-A

Conditions as of: October 5th, 2018

Prepared for:

BE3 Corp. / Pan American Environmental
1270 Niagara Street
Buffalo, New York 14213

Prepared by:

AMD ENVIRONMENTAL

AMD Environmental Consultants, Inc.
712 Main Street. Suite L1
Buffalo, NY 14202
OFFICE (716) 833-0043 | FAX (716) 241-8689
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AMD Environmental Consultants, Inc.
712 Main Street. Suite L1
Buffalo, NY 14202
Office 716 833-0043 Fax 716 241-8689
www.amdenvironmental.com

October 17, 2018

BE3 Corp. / Pan American Environmental
1270 Niagara Street
Buffalo, New York 14213

Re: Hazardous Materials Inspection Report
31 Tonawanda Street
Buffalo, New York 14207
AMD Project ID: 18-1004DB-A

To whom it may concern:

I am pleased to present this summary of hazardous materials survey services at the above referenced address.

AMD Environmental conducted a Hazardous Materials Inspection at the above referenced address on October 4th and October 5th, 2018. Asbestos, Lead-Based Paint, PCB Light Ballasts, Mercury Switches and Waste Materials were sampled and or inventoried for this report. For more detail please refer to the summary's provided for each material category which can be found via the table of contents on the following page.

New York State asbestos regulations (12 NYCRR 56-5) require that asbestos surveys are conducted in order to determine whether or not the building or structure, or portion(s) thereof to be demolished, renovated, remodeled, contains ACM, PACM or asbestos materials. These regulations also require that a copy of the pre-renovation survey be forwarded to the local New York State Department of Labor (NYSDOL) Asbestos Control Bureau immediately upon completion of the survey (NYSDOL contact info. at end of report). **If requested in writing, a copy of the survey will be submitted on your behalf to the NYSDOL, otherwise a copy must be submitted by the owner.**

AMD Environmental Consultants, Inc. surveys are intended to determine, to a reasonable extent, the presence, location, quantity, and condition of accessible asbestos containing materials (surfacing, thermal systems insulation, and miscellaneous materials). The information contained herein is representative of conditions found onsite during the date/time this survey was conducted. Environmental conditions, renovation, vandalism, etc. may alter conditions from the date/time that this survey was conducted, potentially creating new hazards.

Please do not hesitate to contact me if I may provide any additional information.

Sincerely,

Anthony DeMiglio
President

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Table of Contents

1.0 Asbestos Inspection

1.1 Introduction

AMD Environmental Consultants, Inc (AMD) was retained by BE3 Corp. / Pan American Environmental to inspect the building located at 31 Tonawanda Street in Buffalo, New York for the presence of materials suspected of containing asbestos (ACBM).

AMD was assigned to:

- Locate suspect asbestos containing materials,
- Sample these materials to determine asbestos content, and
- Identify the locations and estimated quantities of the confirmed asbestos containing materials.

The information following this introduction details the amount of asbestos present in this facility and the location of the ACBM (asbestos containing building materials). Although the report is a comprehensive analysis of the asbestos inspection work performed, it would be helpful to review all applicable federal, state and local rules, laws and regulations regarding the handling and treatment of asbestos containing building materials (ACBM).

The following is a list of suggested reading and information sources relating to asbestos:

- New York State Department of Labor Industrial Code Rule 56
- National Emission Standard for Hazardous Air Pollutants (NESHAPS)
- Occupational Safety and Health Administration
  (OSHA 1926.1101, 1910.134, 1910.1020, 1910.1200, 1910.145, 1910.95, 1926.58)
- Environmental Protection Agency rule CFR 763.46 Asbestos Hazard Emergency Response Act

1.2 Executive Summary

The scope of services included the identification of suspect asbestos containing building materials in areas of planned renovations; sampling and analysis of the suspect materials; and identifying the locations, estimated quantities, and condition of the confirmed asbestos containing materials. Sampling and analysis of the suspect materials under Polarized Light Microscopy (PLM) ,and where necessary, under Transmission Electron Microscopy (TEM), revealed the following materials as asbestos containing building materials (ACBM):

ASBESTOS CONTAINING MATERIALS SUMMARY
31 Tonawanda Street, Buffalo, NY

HAN	Material Description	SID (Space Identification Number)	Estimated Quantity SF*	Friability/ Condition
400	Flange Gaskets	B001, 1000, 1002, 1003, 3000 – See Note 1 & Note 2	50 sq. ft.	NF/I
600	Interior Window Glazing	1000, 1002, 1003 - See Note 5	150 sq. ft.	NF/D
601	Elevator Brake Shoes	1000, 1002– See Note 1	50 sq. ft.	NF/D
602	Wiring	1000, 1002– See Note 1 & Note 3	See Note 4	NF/D
603	Transite Pipe	1002– See Note 1	10 linear feet	NF/I
604	Transite Siding –Stacked on a Pallet	1002– See Note 1	500 sq. ft.	NF/I
606	Corrugated Transite Panels	3000, 3001– See Note 1	1,650 sq. ft.	NF/I

*Quantities are approximate, and are only associated with areas of planned renovation. Additional asbestos containing materials may be located outside areas of planned renovation that were not surveyed, assessed or quantified during this inspection.

Notes to Asbestos Containing Materials Summary:

KEY TERMS AND DEFINITIONS:

HAN=Homogenous Area Number; number assigned to categorize materials of like composition, texture and appearance

SID=Space Identification Number: Sample Locations

Friability/Condition:

F=Friable: a material that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure, or is capable of being released into the air by hand pressure.

NF=Non Friable: a material that when dry cannot be crumbled, pulverized, or reduced to hand pressure, and is not capable of being released into the air by hand pressure

I=Intact: Asbestos material that has not crumbled, been pulverized, or otherwise been damaged or disturbed, and the material's matrix has not noticeably deteriorated.

D=Damaged: Asbestos material that has deteriorated or sustained physical injury demonstrated by separation of the ACM into layers, separation of the ACM from the substrate, flaking, blistering, crumbling, water damage, scrapes, gouges, or other signs of physical injury.

SD=Significantly Damaged: Damaged asbestos where the damage is extensive and severe.

ACM=Asbestos Containing Material: material analyzed and confirmed by laboratory to contain above 1% of asbestos

PACM= Presumed Asbestos Containing Material: this material was assumed to contain asbestos to either save the client on lab fees or because the material was adhered to another asbestos containing material (or adjacent to other materials needing abatement) and must be managed as such.

Notes to Asbestos Containing Materials Summary (Continued):

Note 1: Materials were assumed to contain asbestos based on AMD Environmental's experience on similar projects with materials of the same likeness that have been found to contain asbestos.

Note 2: The flange gaskets were not tested due to the fact that the drains and associated piping is still in use. The material was assumed to contain asbestos based on AMD Environmental's experience on similar projects with materials of the same likeness that have been found to contain asbestos.

Note 3: The wiring was not able to be tested on the date of the inspection due to the building still having live power. Materials were assumed to contain asbestos based on AMD Environmental's experience on similar projects with materials of the same likeness that have been found to contain asbestos.

Note 4: It was not possible to quantify the wiring at the time of inspection since the power to the building was still live.

Note 5: Exterior window caulk and glazing compound was not sampled at the time of the inspection since all the accessible windows were covered in plywood. The material was assumed to contain asbestos based on AMD Environmental's experience on similar projects with materials of the same likeness that have been found to contain asbestos.

Note 6: There was no access to the rear of the building at the time of inspection; making it unfeasible to get an accurate count of windows and doors and any other suspect materials on the exterior of the building.

Note 7: The inspectors were unable to locate the crawlspace entrance at the time of inspection. Once the building is vacant and cleaned out, the crawlspace entrance can be located and the crawlspace inspected for possible asbestos containing materials.

The inspection for suspect asbestos containing building materials was conducted for readily accessible building spaces as outlined by the client. Building personnel were notified of the need to enter locked spaces and pipe chases where accessible. The inspection consisted of an inventory of building materials. At minimum, materials which make up flooring, walls, ceilings and thermal system insulation were reviewed. Upon completion of the building inspection, representative samples of each material were sampled and sent to a certified lab for analysis.

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1.3 Purpose

The purpose of the asbestos inspection was to identify and quantify the types of asbestos containing building materials (ACBM) in the areas of planned for renovations. Samples of the suspect materials were collected for analysis by an independent laboratory, and the condition of each material noted in relation to its potential to be disturbed. The potential for fiber release was also considered. The report is generated for the exclusive use of BE3 Corp. / Pan American Environmental and its representatives or agents, and is not designed to serve as a specification for abatement. Before requesting bids for abatement of materials identified in this report, the owner is strongly encouraged to contract with a consultant to provide this valuable service. A specification assures that all contractors are bidding on the same methodology and following the specific requirements for the work to be performed. The inspection was conducted by NYS DOL Certified Asbestos Inspectors John Doucette and David Batt from October 4th through 5th, 2018 and revealed the following suspect asbestos containing building materials:

HOMOGENOUS MATERIALS & SAMPLE RESULTS
31 Tonawanda Street, Buffalo, NY

HAN	Suspect Asbestos Containing Material Description	SID (Space Identification Number)	Sample No.	ACM (Y/N)	Estimated Quantity SF*	Friability/ Condition
101	Drywall	B001, 1001, 1003, 2001	101-1, 101-2	No	N/A	F/I
101A	Joint Compound	B001, 1001, 1003, 2001	101A-1, 101A-2	No	N/A	F/I
102A	Ceramic Tile Grout	1001	102A-1, 102A-2	No	N/A	NF/I
102B	Ceramic Tile Mastic	1001	102B-1, 102B-2	No	N/A	NF/I
200	2' x 4' Ceiling Tile	B001, 1001	200-1, 200-2	No	N/A	F/I
201	Ceiling Panels	3000	201-1, 201-2	No	N/A	F/I
300	Residual Floor Tile Mastic	1000	300-1, 300-2	No	N/A	NF/I
301A	Quarry Tile Grout	1001	301A-1, 301A-2	No	N/A	NF/I
301B	Quarry Tile Mortar	1001	301B-1, 301B-2	No	N/A	NF/I
302	12" x 12" Floor Tile – Red	1002	302-1, 302-2	No	N/A	NF/D
303	Cove Base Mastic	1002	303-1, 303-2	No	N/A	NF/I
304	Jute Back Linoleum	2001	304-1, 304-2	No	N/A	NF/I
305	12" x 12" Floor Tile – Peel & Stick	3000	305-1, 305-2	No	N/A	NF/I
400	**Flange Gaskets**	**B001, 1000, 1002, 1003, 3000**	**Sample Not Submitted – See Note 1 & Note 2**	**Yes**	**50 sq. ft.**	**F/I**
600	**Interior Window Glazing**	**1000, 1002, 1003**	**600-1, 600-2, See Note 5**	**Yes**	**150 sq. ft.**	**F/D**
601	**Elevator Brake Shoes**	**1000, 1002**	**Sample Not Submitted – See Note 1**	**Yes**	**50 sq. ft.**	**F/D**
602	**Wiring Assumed**	**1000, 1002**	**Sample Not Submitted – See Note 1 & Note 3**	**Yes**	**See Note 4**	**F/D**
603	**Transite Pipe**	**1002**	**Sample Not Submitted – See Note 1**	**Yes**	**10 linear feet**	**NF/I**

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HOMOGENOUS MATERIALS & SAMPLE RESULTS (Continued)

31 Tonawanda Street, Buffalo, NY

HAN	Suspect Asbestos Containing Material Description	SID (Space Identification Number)	Sample No.	ACM (Y/N)	Estimated Quantity SF*	Friability/ Condition
604	**Transite Siding –Stacked on a Pallet**	**1002**	**Sample Not Submitted – See Note 1**	**Yes**	**500 sq. ft.**	**NF/I**
605	Vapor Barrier behind drywall	2001	605-1, 605-2	No	N/A	NF/I
606	**Corrugated Transite Panels**	**3000, 3001**	**Sample Not Submitted – See Note 1**	**Yes**	**1,650 sq. ft.**	**NF/I**
607	Fiberglass Panel Caulk	Exterior	607-1, 607-2	No	N/A	NF/I
608	Door Caulk	Exterior	608-1, 608-2	No	N/A	NF/I

*Quantities are approximate, and are only associated with areas of planned renovation. Additional asbestos containing materials may be located outside areas of planned renovation that were not surveyed, assessed or quantified during this inspection.

The above listed table provides a list of the materials that were sampled and tested for asbestos by Polarized Light Microscopy (PLM) and or Transmission Electron Microscopy (TEM), as applicable. Any sample determined to be a non-friable organically bound material (NOB), and which was found to be negative by Polarized Light Microscopy (PLM) analysis, was then analyzed by Transmission Electron Microscopy (TEM) analysis at American Science Team New York Inc. (AmeriSci) in New York, New York. AmeriSci is an ELAP Certified laboratory (ID: 11480) and conducts analysis according to EPA Method 198.1, 198.4 and 198.6. See Section 2.0 for the laboratory's analytical results.

Notes to Homogenous Materials Table:

Note 1: Materials were assumed to contain asbestos based on AMD Environmental's experience on similar projects with materials of the same likeness that have been found to contain asbestos.

Note 2: The flange gaskets were not tested due to the fact that the drains and associated piping is still in use. The material was assumed to contain asbestos based on AMD Environmental's experience on similar projects with materials of the same likeness that have been found to contain asbestos.

Note 3: The wiring was not able to be tested on the date of the inspection due to the building still having live power. Materials were assumed to contain asbestos based on AMD Environmental's experience on similar projects with materials of the same likeness that have been found to contain asbestos.

Note 4: It was not possible to quantify the wiring at the time of inspection since the power to the building was still live.

Note 5: Exterior window caulk and glazing compound was not sampled at the time of the inspection since all the accessible windows were covered in plywood. The material was assumed to contain asbestos based on AMD Environmental's experience on similar projects with materials of the same likeness that have been found to contain asbestos.

Note 6: There was no access to the rear of the building at the time of inspection; making it unfeasible to get an accurate count of windows and doors and any other suspect materials on the exterior of the building.

Note 7: The inspectors were unable to locate the crawlspace entrance at the time of inspection. Once the building is vacant and cleaned out, the crawlspace entrance can be located and the crawlspace inspected for possible asbestos containing materials.

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1.5 Methodology

All work performed by AMD Environmental Consultants, Inc. was conducted in accordance with applicable regulations, including New York State Department of Labor standards 12NYCRR Part 56, National Emission Standards for Hazardous Air Pollutants (NESHAPS), and Occupational Safety and Health Administration regulations 29CFR1910.1101 and 29CFR1910.134. All AMD personnel assigned to conduct inspections have completed the Environmental Protection Agency (EPA) required training and New York State Department of Labor Division of Safety and Health certification program.

Each suspect asbestos containing building material (ACBM) was assigned a homogenous area number (HAN). Homogeneous areas consist of materials of like composition, texture and appearance.

Based on the homogeneous areas, samples of suspect materials were collected. Techniques used for sample collection were designed to minimize damage to suspected areas, reduce any potential for fiber release, and ensure the safety of the inspector and building occupants. Samples were collected by AMD personnel using the following procedures:

1. The surface to be sampled was sprayed with amended water (detergent and water) as necessary
2. A plastic sample bag was held to the surface sampled
3. The sample was collected using tools appropriate to the friability of the material sampled
4. Sample bags were labeled with a unique sample identification number
5. Samples were recorded on a Chain of Custody form, and submitted under strict chain-of-custody procedures to American Science Team New York Inc. (AmeriSci) in New York, New York. AmeriSci is an ELAP and NYSDOH approved, certified laboratory for PLM and TEM analysis (ELAP ID: 11480).

Samples were first analyzed using PLM, Polarized Light Microscopy in accordance with US Environmental Protection Agency Interim Method, 40CFRPt763, Supt F, App A(7-1-87). For the sample results not considered definitive, additional analysis was performed under Transmission Electron Microscopy (TEM) in accordance with NYSDOH ELAP Item 198.4, for Non-friable Organically Bound Bulk Material (NOB). The results of these analyses confirmed whether or not a suspect materials actually contained asbestos. All materials sampled are summarized in Section 1.3 of this report; the presumed asbestos containing materials and materials containing asbestos above 1.0% are listed in Section 1.2.

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2.0 Lead-Based Paint Inspection

2.1 Introduction

AMD Environmental Consultants, Inc (AMD) was retained by BE3 Corp / Pan American Environmental to conduct representative lead based paint testing throughout the building located at 31Tonawanda Street in Buffalo, NY for the presence of surfaces containing lead-based paint.

AMD was assigned to:

- Locate suspect surfaces
- Measuring lead concentrations on suspect surface, using an X-ray florescence spectrum analyzer, and

Although this report is a representative analysis of the lead-based paint in this structure, the following information, as well as a reading of the sources listed at the end of this section, will help ensure compliance to applicable rules, laws and regulations regarding lead based paint.

TITLE X:

On October 28, 1995, the Housing and Community Development Act of 1992 was signed into law. Title X, as this bill is commonly referred to, is comprehensive and significant in addressing lead poisoning and prevention. Under the Toxic Substances Control Act (TSCA), as amended by Title X, EPA is developing regulations governing lead-based paint hazard evaluation and abatement in private and public housing, public and commercial buildings, and commercial structures.

Although it is recommended that property owners, lenders, insurers, etc. become familiar with the full content of Title X and the EPA regulations, an understanding of the following terms will assist in the interpretation of the results of this survey:

1. The term “lead-based paint” as used in Title X is defined as paint on surfaces with lead in excess of 1.0 mg/cm^2 (milligrams per centimeter squared) as measured by X-ray fluorescence (XRF) detector or 0.5 percent by weight.

2. The term “lead based paint hazard” is defined as any condition that causes exposure to lead sufficient to cause adverse human effects.

3. “Deteriorated LBP” is any interior or exterior LBP that is peeling, chipping, chalking, or cracking, or located on a surface or fixture that is damaged or deteriorated.

4. LBP on any “friction surface” is defined as any interior or exterior surface subject to damage by repeated impacts, such as painted floors and friction surfaces on windows.

5. LBP on any “impact surface” is defined as any interior or exterior surface subject to damage by repeated impacts, such as parts of door frames.

6. LBP on any “accessible surface” is defined as any interior or exterior surface accessible for a young child to mouth or chew, such as a window sill.

7. "Lead-contaminated dust" is defined as a surface dust in residential dwellings that contains an area or mass concentration of lead in excess of the standard to be established by EPA.

OSHA

On May 4, 1993, OSHA promulgated the Lead Exposure in Construction Rule (29 CFR Part 1926.62). This regulation applies to all construction activities involving potential lead exposures. This regulation defines construction work as "…work for construction, alteration and/or repair including painting and decorating" and further states "…the standard for the construction industry applies to all occupational exposure to lead in all construction work in which lead, in any amount, is present in an occupationally related context … where the source of the lead is employment related…"

The employer must ensure that no worker is exposed to concentrations of lead in excess of the permissible exposure limit (PEL) for lead, which is an eight hour time weighted average (TWA) exposure of 50 mg/m3 (micrograms per cubic meter). This means that the pre-project site must be inspected to determine if a lead hazard exists. If determined to exist, the employer must either perform an "Exposure Assessment" as defined in 29 CFR Part 1926.62 paragraph (d), or implement employee protective measures as prescribed in paragraph (d)(2)(v) including appropriate respiratory protection, personal protective clothing, change areas, hand washing facilities, biological monitoring, and training.

HUD

The statutory requirements and foundations for HUD Guidelines can be found in Section 302 of the Lead-Based Paint Poisoning Prevention Act (LBPPPA).

Certain aspects of the HUD Guidelines are typically applied to public and commercial buildings. The most common adopted techniques used to identify LBP are X-ray Fluorescence Spectrum Analyzer (XRF) and Atomic Absorption Spectroscopy (AAS). HUD defines LBP as having an XRF reading greater than 1.0 mg of lead per centimeter squared, or a paint chip analyzed by AAS having greater than 0.5 percent lead by weight.

The above information coupled with this report will help assure compliance to applicable laws and regulations and protect the occupants and contractors from exposure while in the building.

2.2 Methodology

All work performed by AMD Environmental Consultants, Inc. was conducted in accordance with applicable regulations. All AMD personnel assigned to conduct inspections have completed the Environmental Protection Agency (EPA) required training. Please see appendices for certifications and licenses and risk assessors' signatures.

AMD Environmental Consultants, Inc. used a Heuresis Pb200i XRF Spectrum Analyzer to test suspect painted surfaces. Progression through the structure followed a clockwise direction around the floor plan. Each component tested is identified by its particular side of the building, labeled walls "A, B, C, or D". Side A of any room is always the same side as the front exterior entrance (or address side of the building). Side B is the side to the left of side A, and so on.

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Representative surfaces/components were tested in a manner designed to adequately represent the different components, substrates, types of paint, construction and paint history at various locations throughout the building, including areas exhibiting peeling, chipping and flaking paint.

2.3 Lead-Based Paint Inspection Summary

AMD's on-site lead risk assessor conducted the representative lead-based paint inspection on October 4th and 5th, 2018. Painted components throughout the interiority of both property located at 31 Tonawanda Street in Buffalo, NY were identified and tested based on component groups and paint history. Surfaces tested included (interior walls, ceilings, doors, structural members, window components and exterior components.

The XRF analysis indicated that the following painted surfaces have a lead content at greater than 1.0 mg/cm^2 and are therefore classified as lead-based paint, based on Title X. For any renovations undertaken that require demolition of these painted surfaces, contractors should be advised of the presence of lead, and required to comply with the previously mentioned OSHA regulations for construction worker safety.

Component groups that were identified to contain lead-based paint are:

31 Tonawanda Street

- **Painted brick wall in SID 1000**
- **Support Columns throughout the building**
- **Ceramic Tile walls in bathroom of SID 1000**
- **All metal fire doors throughout the building**
- **A-Side window sashes on the interior A-side wall in SID 1000**
- **Metal painted stair components**

Please see the table in Section 2.4 for the complete XRF analysis of individual components and substrates.

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2.4 XRF Spectrum Analyzer Report

31 Tonawanda Street

Reading #	Side	Room	Component	Substrate	Color	XRF Reading	Condition	Result
1			Calibration			1.1		
2			Calibration			1.1		
3			Calibration			1.1		
4			Calibration			0.1		
5			Calibration			0		
6			Calibration			0.1		
7	**A**	**1000**	**Wall**	**Brick**	**White**	**1.4**	**POOR**	**Positive**
8	**A**	**1000**	**Win. Sash**	**Metal**	**White**	**1.5**	**POOR**	**Positive**
9	B	1000	Wall	Brick	White	0.2	POOR	Negative
10	B	1000	Column	Metal	White	0.3	POOR	Negative
11	**B**	**1000**	**Column**	**Metal**	**White**	**4.9**	**POOR**	**Positive**
12	B	1000	Column	Metal	White	0.2	POOR	Negative
13	**B**	**1000**	**Column**	**Metal**	**White**	**3.9**	**POOR**	**Positive**
14	B	1000	Wall	Cinder block	White	0.2	POOR	Negative
15	**C**	**1000**	**Wall**	**Brick**	**White**	**1.1**	**POOR**	**Positive**
16	C	1000	Door	Metal	Blue	0.2	POOR	Negative
17	C	1000	Door	Metal	White	0.3	POOR	Negative
18	D	1000	Door	Metal	Grey	0.2	POOR	Negative
19	D	1000	Door Casing	Metal	Grey	0.2	POOR	Negative
20	C	1000	Stair Riser	Metal	Grey	0.3	POOR	Negative
21	C	1000	Stair Stringer	Metal	Grey	0.5	POOR	Negative
22	C	1000	Railing	Metal	Black	0.1	POOR	Negative
23	D	1000	Wall	Cinder block	Grey	0.3	POOR	Negative
24	C	1000	Wall	Brick	White	0.2	POOR	Negative
25	D	1000	Column	Metal	Grey	0	POOR	Negative
26	D	1000	Column	Metal	Grey	0.2	POOR	Negative
27	D	1000	Column	Metal	Grey	0.3	POOR	Negative
28	D	1000	Wall	Brick	Grey	0.2	POOR	Negative
29	**D**	**1000 Bathroom**	**Wall**	**Ceramic Tile**	**Yellow**	**1.2**	**POOR**	**Positive**

XRF Table (continued)

Reading #	Side	Room	Component	Substrate	Color	XRF Reading	Condition	Result
30	C	1000 Bathroom	Partition	Metal	Yellow	0	POOR	Negative
31	B	1000 Bathroom	Sink	Porcelain	White	-0.4	Poor	Negative
32	B	1000 Bathroom	Door	Metal	Grey	0.2	POOR	Negative
33	B	1000 Bathroom	Door Casing	Metal	Grey	0	POOR	Negative
34	**D**	**1000**	**Door**	**Metal**	**Grey**	**12.2**	**POOR**	**Positive**
35	D	1000	Win. Sash	Metal	Beige	0.6	POOR	Negative
36	A	1000	Door	Metal	Grey	0.2	POOR	Negative
37	A	1000	Door Casing	Metal	Grey	0.3	POOR	Negative
38	A	1000	Wall	Brick	White	0.6	POOR	Negative
39	A	1001	Wall	Brick	Grey	0.3	POOR	Negative
40	A	1001	Win. Sash	Metal	Grey	0.3	POOR	Negative
41	B	1001	Wall	Brick	Grey	0	POOR	Negative
42	B	1001	Wall	Cinder block	Grey	0.1	POOR	Negative
43	**B**	**1001**	**Column**	**Metal**	**Yellow**	**2.2**	**POOR**	**Positive**
44	C	1001	Wall	Brick	White	0.1	POOR	Negative
45	**C**	**1001**	**Column**	**Metal**	**White**	**2.2**	**POOR**	**Positive**
46	C	1001	Wall	Brick	White	0	POOR	Negative
47	D	1001	Wall	Brick	White	0.1	POOR	Negative
48	D	1001	Door Casing	Metal	White	0.2	POOR	Negative
49	A	1001	Wall	Metal	White	0	POOR	Negative
50	B	1001	Stair Stringer	Metal	Black	0.8	POOR	Negative
51	B	1001	Stair Thread	Metal	Black	0.1	POOR	Negative
52	B	1001	Railing	Metal	Yellow	0.2	POOR	Negative
53	**A**	**1001 Stairwell**	**Railing**	**Metal**	**Black**	**2.6**	**POOR**	**Positive**
54	**A**	**1001 Stairwell**	**Stair Thread**	**Metal**	**Grey**	**1.5**	**POOR**	**Positive**
55	A	1001 Stairwell	Stair Stringer	Metal	Grey	0.5	POOR	Negative
56	A	1001 Stairwell	Stair Riser	Metal	Grey	0.3	POOR	Negative

XRF Table (continued)

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Reading #	Side	Room	Component	Substrate	Color	XRF Reading	Condition	Result
57	A	1001 Stairwell	Wall	Brick	White	0.5	POOR	Negative
58	A	1001 Stairwell	Beam	Metal	Grey	0.1	POOR	Negative
59	**A**	**1001 Stairwell**	**Column**	**Metal**	**Red**	**4.7**	**POOR**	**Positive**
60	B	1002	Wall	Brick	White	0.2	POOR	Negative
61	C	1002	Trim	Metal	Yellow	0.1	POOR	Negative
62	C	1002	Wall	Brick	White	0.1	POOR	Negative
63	A	1002	Door	Metal	White	0.1	POOR	Negative
64	A	1002	Door Casing	Metal	White	0	POOR	Negative
65	C	1002	Railing	Metal	Yellow	0.2	POOR	Negative
66	C	1002	Stair Stringer	Metal	Yellow	0.1	POOR	Negative
67	A	1003	Wall	Cinder block	White	0	POOR	Negative
68	A	1003	Door	Metal	Green	0	POOR	Negative
69	B	1003	Wall	Brick	White	0.2	POOR	Negative
70	**B**	**1003**	**Column**	**Metal**	**Yellow**	**7.9**	**POOR**	**Positive**
71			Calibration			1.1		
72			Calibration			1.1		
73			Calibration			1.1		
74			Calibration			0		
75			Calibration			0		
76			Calibration			0.1		
77			Calibration			1		
78			Calibration			1		
79			Calibration			1		
80			Calibration			0.2		
81			Calibration			0.2		
82			Calibration			0.1		
83	A	Basement	Wall	Concrete	White	0.3	POOR	Negative
84	A	Basement	Pipe	Metal	Red	0.1	POOR	Negative
85	A	Basement	Column	Metal	Yellow	0.9	POOR	Negative
86	A	Basement	Column	Metal	Yellow	0.3	POOR	Negative
87	A	Basement	Column	Metal	Yellow	0.3	POOR	Negative

XRF Table (continued)

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Buffalo, NY 14202
Office 716 833-0043 Fax 716 241-8689
www.amdenvironmental.com

Reading #	Side	Room	Component	Substrate	Color	XRF Reading	Condition	Result
88	B	Basement	Stair Stringer	Metal	Grey	0.2	POOR	Negative
89	B	Basement	Railing	Metal	Grey	0	POOR	Negative
90	B	Basement	Stair Thread	Metal	Grey	0	POOR	Negative
91	B	Basement	Beam	Metal	Grey	0.1	POOR	Negative
92	B	Basement	Wall	Concrete	White	0.1	POOR	Negative
93	C	Basement	Wall	Concrete	White	0.3	POOR	Negative
94	C	Basement	Win. Sash	Metal	White	0	POOR	Negative
95	**C**	**Basement**	**Door**	**Metal**	**White**	**7.9**	**POOR**	**Positive**
96	**D**	**Basement**	**Door**	**Metal**	**White**	**9.8**	**POOR**	**Positive**
97	D	Basement	Door	Metal	Red	0.2	POOR	Negative
98	C	Basement	Wall	Brick	White	0.3	POOR	Negative
99	C	Basement	Column	Metal	Yellow	0.2	POOR	Negative
100	C	Basement	Column	Metal	Yellow	0.2	POOR	Negative
101	D	Basement	Wall	Concrete	White	0.2	POOR	Negative
102			Calibration			1.1		
103			Calibration			1.1		
104			Calibration			1		
105			Calibration			0.1		
106			Calibration			0.1		
107			Calibration			0.1		
108			Calibration			1		
109			Calibration			1		
110			Calibration			1		
111			Calibration			0.2		
112			Calibration			0.1		
113			Calibration			0.1		
114	A	2000	Wall	Brick	White	0.1	POOR	Negative
115	A	2000	Column	Metal	White	0.9	POOR	Negative
116	A	2000	Column	Metal	White	0.9	POOR	Negative
117	A	2000	Column	Metal	White	0.5	POOR	Negative
118	A	2000	Door	Metal	Grey	0.1	POOR	Negative
119	A	2000	Door Casing	Metal	Yellow	0.3	POOR	Negative
120	A	2000	Column	Metal	Yellow	0.4	POOR	Negative
121	**A**	**2000**	**Column**	**Metal**	**Black**	**2.8**	**POOR**	**Positive**
122	A	2000	Door	Metal	Grey	0.1	POOR	Negative

XRF Table (continued)

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Reading #	Side	Room	Component	Substrate	Color	XRF Reading	Condition	Result
123	A	2000	Door Casing	Metal	Yellow	0.5	POOR	Negative
124	B	2000	Wall	Cinder block	White	0	POOR	Negative
125	B	2000	Column	Metal	White	0.2	POOR	Negative
126	C	2000	Column	Metal	White	0.5	POOR	Negative
127	C	2000	Wall	Brick	White	0.8	POOR	Negative
128	**C**	**2000**	**Column**	**Metal**	**White**	**1**	**POOR**	**Positive**
129	C	2000	Column	Metal	White	0.8	POOR	Negative
130	**D**	**2000**	**Door**	**Metal**	**White**	**10.3**	**POOR**	**Positive**
131	A	2001	Wall	Wood	White	0.3	POOR	Negative
132	A	2001	Ceiling	Wood	White	0.3	POOR	Negative
133	B	2001	Win. Casing	Wood	White	0.5	POOR	Negative
134	B	2001	Wall	Drywall	White	-0.1	POOR	Negative
135	C	2001	Door	Metal	Grey	0	POOR	Negative
136	A	3000	Wall	Brick	White	0.2	POOR	Negative
137	A	3000	Column	Metal	Yellow	0.8	POOR	Negative
138	A	3000	Door	Metal	Grey	0.1	POOR	Negative
139	A	3000	Door Casing	Metal	Yellow	0.7	POOR	Negative
140	B	3000	Wall	Cinder block	White	0.1	POOR	Negative
141	B	3000	Door	Metal	Grey	0.1	POOR	Negative
142	B	3000	Door Casing	Metal	Grey	0.3	POOR	Negative
143	**D**	**3000**	**Door**	**Metal**	**White**	**11.8**	**POOR**	**Positive**
144	C	3000	Door	Metal	Green	0.5	POOR	Negative
145			Calibration			1.1		
146			Calibration			1.1		
147			Calibration			1		
148			Calibration			0.1		
149			Calibration			0.1		
150			Calibration			0		

3.0 PCB's in Light Ballasts

AMD Environmental was retained by BE3 Corp / Pan American Environmental to inspect the buildings located at 31 Tonawanda Street in Buffalo, New York for the presence of light ballasts containing Polychlorinated Biphenyls (PCBs) that may be impacted by future renovations.

Visual inspection of the areas revealed the following:

- **There are approximately 478 PCB containing light ballasts in 31 Tonawanda Street.**

All ballasts should be considered PCB containing unless "NO PCB" is clearly marked on the ballast.

4.0 Mercury Thermostats

AMD Environmental was retained by BE3 Corp. / Pan American Environmental to inspect the buildings located at 31 Tonawanda Street in Buffalo, New York for the presence of mercury thermostats that may be impacted by future renovations.

Visual inspection of the areas revealed the following:

- No Mercury Thermostats were observed in either building

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5.0 Miscellaneous Hazardous Waste / Environmental Issues

The inspection identified numerous other miscellaneous hazardous waste/environmental issues (e.g. paints, lubricants, and other chemical containers) that were inventoried. Reuse of these materials and supplies are part of routine operations. If disposal measures for these items are to be required they should be evaluated on a case-by-case basis by the contractor as individual containers are identified during the removal phase.

Materials Identified	Location:	Description	Quantity	Comments
32"-36" Round Fluorescent Bulbs	**31 Tonawanda Street**	**In 2'x4' Rectangle Fixtures**	**1,198 total**	*Dispose properly*

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6.0 MATERIALS HANDLING RECOMMENDATIONS

6.1 Fluorescent Lights

Disposal/recycling of fluorescent/HID bulbs is conducted by various vendors. Currently, fluorescent lamps are regulated by the July 6, 1999, amendment to the United States Environmental Protection Agency (EPA) for the Typically inclusion of hazardous waste lamps in the federal Universal Waste Rule (UWR) of 40 CFR Part 273., disposal/recycling involve the packing of fluorescent lamps to avoid breakage as they may contain small amounts of mercury. The cost of disposal can vary considerably depending upon whether disposal or recycling is selected.

6.2 Mercury Containing Thermostats, Thermometers and Switches

These materials are considered Universal Waste they should be drummed and properly disposed of. A certificate of destruction or re-use can be provided by the disposal company.

6.3 Ozone Depleting Substances

A licensed HVAC contractor should decommission any refrigeration or HVAC equipment prior to disposal of these items. It was assumed that the existing HVAC system was to be re-used. T

6.4 PCB/DEHP Light Ballasts & Transformers

While the disposal/recycling for PCB/DEHP ballasts is dependent on the condition of the ballast, the EPA encourages commercial and industrial firms that use and dispose of large quantities of PCB ballasts to establish a collection and disposal program that would result in waste capacitors going to chemical or hazardous waste landfills or high-temperature incinerators. Disposal costs will depend on whether the PCB/DEHP ballasts are transported for high temperature incineration, hazardous waste landfill disposal, or recycling.

6.5 Tanks, Pumps, Compressors, Elevators and Boilers

The interior tanks (i.e., Oil, AST, compressor tanks) can be emptied, dismantled, removed, and disposed of.

6.6 Miscellaneous Hazardous Waste/Environmental Issues

Numerous miscellaneous materials are typical in all buildings. Many of these materials are common materials that are used in the everyday operations of the industrial food manufacturing. These materials include paints, cleaning supplies, and various products and equipment that can be used. The costs are associated with the proper disposal of these materials if they are not being re-used.

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7.0 Polychlorinated Biphenyls (PCB) Caulk Sampling Summary

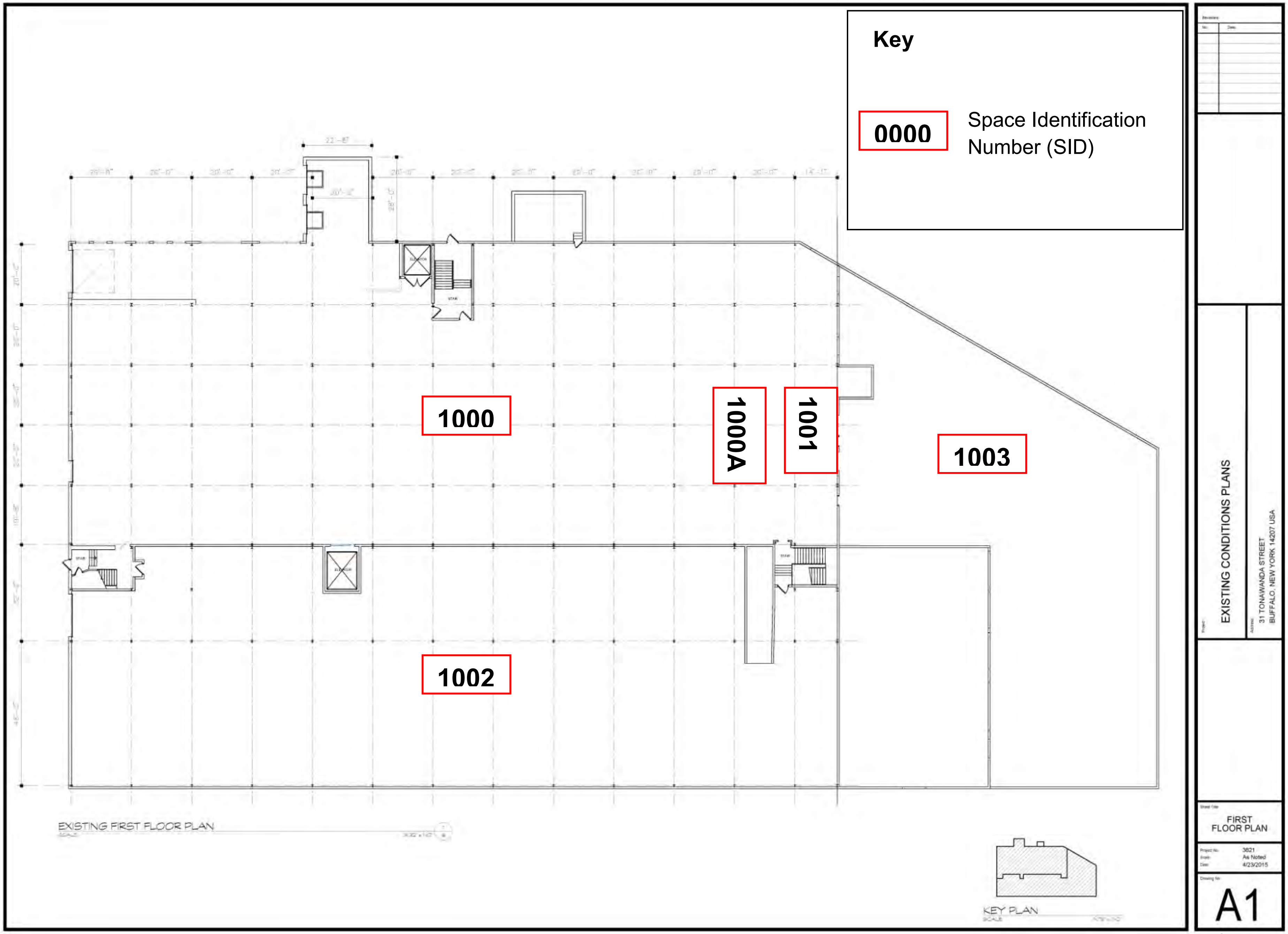
Sample Number	Type	Location	Results (µg/kg)	Results reported In ppm	Hazardous Waste (Y/N)
607P-1	Fiberglass Panel Caulk	Exterior	< 332	<0.332	No
608P-1	Exterior Door Caulk	Exterior	<395	<0.395	No

During the PCB sampling conducted on October 5th, 2018. Two (2) caulk samples were collected for analysis. The Laboratory analysis performed on samples revealed the following:

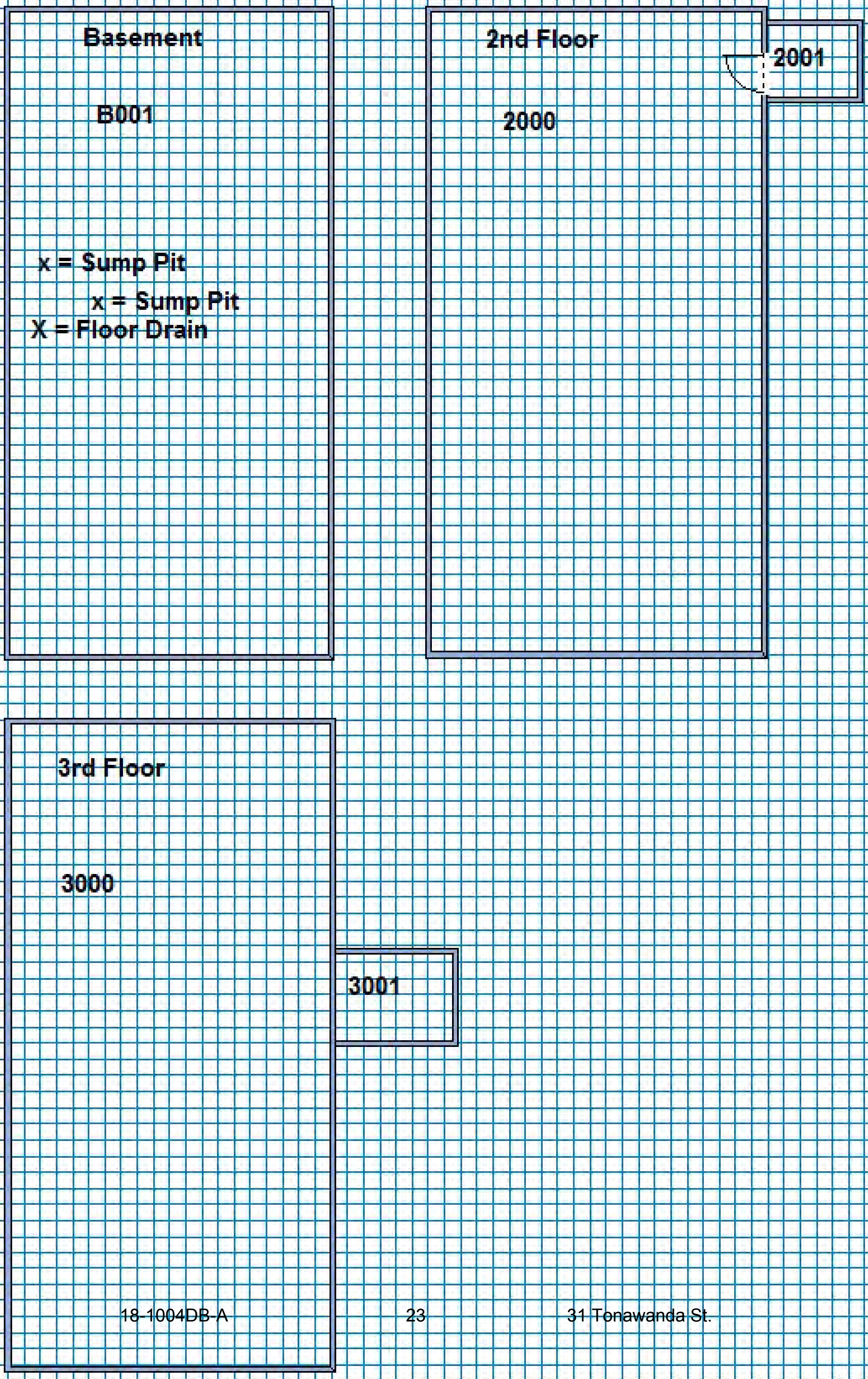
- **The material sampled on the date of inspection was found to be below the 50 ppm threshold for PCB's by laboratory analysis.**

8.0 Site Maps

31 Tonawanda Street 1st Floor Site Map



AMD Environmental
18-1004DB-A
31 Tonanawanda Street
Buffalo, NY
Drawings not to scale



Transite Siding Stacked on a Pallet

Transite Pipe

Exterior View of Building

View of Building Interior

Appendix A: Asbestos Sample Analyses & Sample Chains of Custody

AmeriSci New York
117 EAST 30TH ST.
NEW YORK, NY 10016
TEL: (212) 679-8600 • FAX: (212) 679-3114

PLM Bulk Asbestos Report

AMD Environmental Consultants, Inc.
Attn: John Wolf
712 Main Street
Suite L1
Buffalo, NY 14202

Date Received	10/08/18	**AmeriSci Job #**	218101836
Date Examined	10/09/18	**P.O. #**	
ELAP #	11480	**Page**	1 **of** 7

RE: 181004DB-A; 31 Tonawanda St., Buffalo, NY

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
101-1	218101836-01	***No***	NAD [1] (by NYS ELAP 198.1) by Valeriu Voicu on 10/09/18

Location: 1001 - Drywall

Analyst Description: Grey, Homogeneous, Fibrous, Bulk Material
Asbestos Types:
Other Material: Cellulose 3 %, Fibrous glass 2 %, Non-fibrous 95 %

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
101-2	218101836-02	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 10/09/18

Location: 1001 - Drywall

Analyst Description: Grey, Heterogeneous, Fibrous, Bulk Material
Asbestos Types:
Other Material: Cellulose 2 %, Fibrous glass 2 %, Non-fibrous 96 %

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
101A-1	218101836-03	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 10/09/18

Location: 1003 - Joint Compound

Analyst Description: White, Homogeneous, Non-Fibrous, Bulk Material
Asbestos Types:
Other Material: Cellulose Trace, Non-fibrous 100 %

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
101A-2	218101836-04	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 10/09/18

Location: 1003 - Joint Compound

Analyst Description: Grey, Homogeneous, Non-Fibrous, Bulk Material
Asbestos Types:
Other Material: Cellulose Trace, Non-fibrous 100 %

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
102A-1	218101836-05	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 10/09/18

Location: 1001 - Ceramic Wall Tile Grout

Analyst Description: White, Homogeneous, Non-Fibrous, Bulk Material
Asbestos Types:
Other Material: Cellulose Trace, Non-fibrous 100 %

See Reporting notes on last page

PLM Bulk Asbestos Report

181004DB-A; 31 Tonawanda St., Buffalo, NY

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
102A-2	218101836-06	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 10/09/18

Location: 1001 - Ceramic Wall Tile Grout
Analyst Description: White, Homogeneous, Non-Fibrous, Bulk Material
Asbestos Types:
Other Material: Cellulose Trace, Non-fibrous 100 %

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
102B-1	218101836-07	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18

Location: 1001 - Ceramic Wall Tile Mastic
Analyst Description: Yellow, Homogeneous, Non-Fibrous, Bulk Material
Asbestos Types:
Other Material: Non-fibrous 5.6 %

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
102B-2	218101836-08	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18

Location: 1001 - Ceramic Wall Tile Mastic
Analyst Description: Yellow, Homogeneous, Non-Fibrous, Bulk Material
Asbestos Types:
Other Material: Non-fibrous 6.4 %

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
200-1	218101836-09	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18

Location: 1001 - 2 x 4 Ceiling Tile
Analyst Description: White/Grey, Homogeneous, Non-Fibrous, Bulk Material
Asbestos Types:
Other Material: Fibrous glass Trace, Non-fibrous 55.5 %

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
200-2	218101836-10	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18

Location: 1001 - 2 x 4 Ceiling Tile
Analyst Description: White/Grey, Homogeneous, Non-Fibrous, Bulk Material
Asbestos Types:
Other Material: Fibrous glass Trace, Non-fibrous 54.2 %

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
201-1	218101836-11	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 10/09/18

Location: 3000 - Ceiling Panels
Analyst Description: Brown/Grey, Heterogeneous, Fibrous, Bulk Material
Asbestos Types:
Other Material: Cellulose 20 %, Non-fibrous 80 %

PLM Bulk Asbestos Report

181004DB-A; 31 Tonawanda St., Buffalo, NY

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
201-2	218101836-12	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 10/09/18

Location: 3000 - Ceiling Panels

Analyst Description: Brown/Grey, Heterogeneous, Fibrous, Bulk Material
Asbestos Types:
Other Material: Cellulose 15 %, Non-fibrous 85 %

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
300-1	218101836-13	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18

Location: 1000 - Residual Floor Tile Mastic

Analyst Description: Brown, Homogeneous, Non-Fibrous, Bulk Material
Asbestos Types:
Other Material: Non-fibrous 6.2 %

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
300-2	218101836-14	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18

Location: 1000 - Residual Floor Tile Mastic

Analyst Description: Brown, Homogeneous, Non-Fibrous, Bulk Material
Asbestos Types:
Other Material: Non-fibrous 7.8 %

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
301A-1	218101836-15	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 10/09/18

Location: 1001 - Quarry Tile Grout

Analyst Description: Grey, Homogeneous, Non-Fibrous, Cementitious, Bulk Material
Asbestos Types:
Other Material: Cellulose Trace, Non-fibrous 100 %

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
301A-2	218101836-16	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 10/09/18

Location: 1001 - Quarry Tile Grout

Analyst Description: Grey, Homogeneous, Non-Fibrous, Cementitious, Bulk Material
Asbestos Types:
Other Material: Cellulose Trace, Non-fibrous 100 %

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
301B-1	218101836-17	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 10/09/18

Location: 1001 - Quarry Tile Mortar

Analyst Description: Grey, Homogeneous, Non-Fibrous, Cementitious, Bulk Material
Asbestos Types:
Other Material: Cellulose Trace, Non-fibrous 100 %

PLM Bulk Asbestos Report

181004DB-A; 31 Tonawanda St., Buffalo, NY

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
301B-2	218101836-18	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 10/09/18

Location: 1001 - Quarry Tile Mortar

Analyst Description: Grey, Homogeneous, Non-Fibrous, Cementitious, Bulk Material
Asbestos Types:
Other Material: Cellulose Trace, Non-fibrous 100 %

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
302-1	218101836-19	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18

Location: 1002 - Mezzanine Level - 12 x 12 Floor Tile (Red)

Analyst Description: Red, Homogeneous, Non-Fibrous, Bulk Material
Asbestos Types:
Other Material: Non-fibrous 15.4 %

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
302-2	218101836-20	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18

Location: 1002 - Mezzanine Level - 12 x 12 Floor Tile (Red)

Analyst Description: Red, Homogeneous, Non-Fibrous, Bulk Material
Asbestos Types:
Other Material: Cellulose Trace, Non-fibrous 5.2 %

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
303-1	218101836-21	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18

Location: 1002 - Mezzanine Level - Cove Base Mastic

Analyst Description: Dark Brown, Homogeneous, Non-Fibrous, Bulk Material
Asbestos Types:
Other Material: Non-fibrous 32.1 %

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
303-2	218101836-22	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18

Location: 1002 - Mezzanine Level - Cove Base Mastic

Analyst Description: Dark Brown, Homogeneous, Non-Fibrous, Bulk Material
Asbestos Types:
Other Material: Non-fibrous 29.9 %

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
304-1	218101836-23	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18

Location: 2001 - Jute Flooring

Analyst Description: Dark Brown, Homogeneous, Non-Fibrous, Bulk Material
Asbestos Types:
Other Material: Non-fibrous 8.9 %

PLM Bulk Asbestos Report

181004DB-A; 31 Tonawanda St., Buffalo, NY

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
304-2	218101836-24	***No***	NAD
Location: 2001 - Jute Flooring			(by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18
Analyst Description: Dark Brown, Homogeneous, Non-Fibrous, Bulk Material			
Asbestos Types:			
Other Material: Non-fibrous 6.3 %			
305-1	218101836-25	***No***	NAD
Location: 3000 - 12 x 12 Peel-And-Stick Floor Tile			(by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18
Analyst Description: Tan/Brown, Homogeneous, Non-Fibrous, Bulk Material			
Asbestos Types:			
Other Material: Non-fibrous 7.3 %			
305-2	218101836-26	***No***	NAD
Location: 3000 - 12 x 12 Peel-And-Stick Floor Tile			(by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18
Analyst Description: Tan/Brown, Homogeneous, Non-Fibrous, Bulk Material			
Asbestos Types:			
Other Material: Non-fibrous 7 %			
306-1	218101836-27	***No***	NAD
Location: 1003 - Vapor Barrier Under Hardwood			(by NYS ELAP 198.1) by Valeriu Voicu on 10/09/18
Analyst Description: Brown, Homogeneous, Fibrous, Bulk Material			
Asbestos Types:			
Other Material: Cellulose 90 %, Non-fibrous 10 %			
306-2	218101836-28	***No***	NAD
Location: 1003 - Vapor Barrier Under Hardwood			(by NYS ELAP 198.1) by Valeriu Voicu on 10/09/18
Analyst Description: Brown, Homogeneous, Fibrous, Bulk Material			
Asbestos Types:			
Other Material: Cellulose 93 %, Non-fibrous 7 %			
600-1	218101836-29	***No***	NAD
Location: 1000 - Interior Window Glazing			(by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18
Analyst Description: Grey, Homogeneous, Non-Fibrous, Bulk Material			
Asbestos Types:			
Other Material: Non-fibrous 2.4 %			

PLM Bulk Asbestos Report

181004DB-A; 31 Tonawanda St., Buffalo, NY

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
600-2	218101836-30	***Yes***	7.5 % (by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18
Location: 1000 - Interior Window Glazing			
Analyst Description: Silver/Black, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** Chrysotile 7.5 % **Other Material:** Non-fibrous 15 %			
605-1	218101836-31	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18
Location: 2001 - Vapor Barrier Behind Drywall			
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 1.3 %			
605-2	218101836-32	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18
Location: 2001 - Vapor Barrier Behind Drywall			
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 1.7 %			
607-1	218101836-33	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18
Location: Exterior - Caulk @ Fiberglass Panels			
Analyst Description: Brown/Red, Heterogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Fibrous Talc Trace, Non-fibrous 8.6 %			
607-2	218101836-34	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18
Location: Exterior - Caulk @ Fiberglass Panels			
Analyst Description: Brown/Red, Heterogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 7.2 %			
608-1	218101836-35	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18
Location: Exterior - Door Caulk			
Analyst Description: Clear, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 20 %			

PLM Bulk Asbestos Report

181004DB-A; 31 Tonawanda St., Buffalo, NY

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
608-2	218101836-36	***No***	NAD
Location: Exterior - Door Caulk			(by NYS ELAP 198.6) by Valeriu Voicu on 10/09/18

Analyst Description: Clear, Homogeneous, Non-Fibrous, Bulk Material
Asbestos Types:
Other Material: Non-fibrous 22.4 %

Reporting Notes:

(1) This job was - Analyzed using Olympus BH-2 Pol Scope S/N 229915

Analyzed by: Valeriu Voicu ____AVO____

*NAD/NSD =no asbestos detected; NA =not analyzed; NA/PS=not analyzed/positive stop, (SOF-V) = Sprayed On Fireproofing containing Vermiculite; (SM-V) = Surfacing Material containing Vermiculite; PLM Bulk Asbestos Analysis by Appd E to Subpt E, 40 CFR 763 (NVLAP 200546-0), ELAP PLM Method 198.1 for NY friable samples, which includes the identification and quantitation of vermiculite or 198.6 for NOB samples or EPA 400 pt ct by Appd E to Subpt E, 40 CFR 763 (NY ELAP Lab 11480); Note:PLM is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. NAD or Trace results by PLM are inconclusive, TEM is currently the only method that can be used to determine if this material can be considered or treated as non asbestos-containing in NY State (also see EPA Advisory for floor tile, FR 59,146,38970,8/1/94) National Institute of Standards and Technology Accreditation requirements mandate that this report must not be reproduced except in full without the approval of the lab.This PLM report relates ONLY to the items tested. AIHA-LAP, LLC Lab ID 102843, RI Cert AAL-094, CT Cert PH-0186, Mass Cert AA000054.

Reviewed By:______________________ ___________END OF REPORT__________

AmeriSci Job #: **218101836**

Client Name: AMD Environmental Consultants, Inc.

18-1004DB-A

Table I
Summary of Bulk Asbestos Analysis Results
181004DB-A; 31 Tonawanda St., Buffalo, NY

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
01	101-1		----	----	----	----	NAD	NA
Location: 1001 - Drywall								
02	101-2		----	----	----	----	NAD	NA
Location: 1001 - Drywall								
03	101A-1		----	----	----	----	NAD	NA
Location: 1003 - Joint Compound								
04	101A-2		----	----	----	----	NAD	NA
Location: 1003 - Joint Compound								
05	102A-1		----	----	----	----	NAD	NA
Location: 1001 - Ceramic Wall Tile Grout								
06	102A-2		----	----	----	----	NAD	NA
Location: 1001 - Ceramic Wall Tile Grout								
07	102B-1		0.249	26.5	67.9	5.6	NAD	NAD
Location: 1001 - Ceramic Wall Tile Mastic								
08	102B-2		0.235	26.8	66.8	6.4	NAD	NAD
Location: 1001 - Ceramic Wall Tile Mastic								
09	200-1		0.173	23.7	20.8	55.5	NAD	NAD
Location: 1001 - 2 x 4 Ceiling Tile								
10	200-2		0.192	22.4	23.4	54.2	NAD	NAD
Location: 1001 - 2 x 4 Ceiling Tile								
11	201-1		----	----	----	----	NAD	NA
Location: 3000 - Ceiling Panels								
12	201-2		----	----	----	----	NAD	NA
Location: 3000 - Ceiling Panels								
13	300-1		0.274	78.1	15.7	6.2	NAD	NAD
Location: 1000 - Residual Floor Tile Mastic								
14	300-2		0.116	71.6	20.7	7.8	NAD	NAD
Location: 1000 - Residual Floor Tile Mastic								
15	301A-1		----	----	----	----	NAD	NA
Location: 1001 - Quarry Tile Grout								
16	301A-2		----	----	----	----	NAD	NA
Location: 1001 - Quarry Tile Grout								

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31 Tonawanda St.

See Reporting notes on last page

AmeriSci Job #: **218101836**

Client Name: AMD Environmental Consultants, Inc.

18-1004DB-A

Table I
Summary of Bulk Asbestos Analysis Results
181004DB-A; 31 Tonawanda St., Buffalo, NY

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
17	301B-1		----	----	----	----	NAD	NA
Location:	1001 - Quarry Tile Mortar							
18	301B-2		----	----	----	----	NAD	NA
Location:	1001 - Quarry Tile Mortar							
19	302-1		0.286	19.2	65.4	15.4	NAD	NAD
Location:	1002 - Mezzanine Level - 12 x 12 Floor Tile (Red)							
20	302-2		0.520	65.8	29.0	5.2	NAD	NAD
Location:	1002 - Mezzanine Level - 12 x 12 Floor Tile (Red)							
21	303-1		0.162	56.8	11.1	32.1	NAD	NAD
Location:	1002 - Mezzanine Level - Cove Base Mastic							
22	303-2		0.137	57.7	12.4	29.9	NAD	NAD
Location:	1002 - Mezzanine Level - Cove Base Mastic							
23	304-1		0.247	59.5	31.6	8.9	NAD	NAD
Location:	2001 - Jute Flooring							
24	304-2		0.223	58.3	35.4	6.3	NAD	NAD
Location:	2001 - Jute Flooring							
25	305-1		0.192	17.7	75.0	7.3	NAD	NAD
Location:	3000 - 12 x 12 Peel-And-Stick Floor Tile							
26	305-2		0.213	18.8	74.2	7.0	NAD	NAD
Location:	3000 - 12 x 12 Peel-And-Stick Floor Tile							
27	306-1		----	----	----	----	NAD	NA
Location:	1003 - Vapor Barrier Under Hardwood							
28	306-2		----	----	----	----	NAD	NA
Location:	1003 - Vapor Barrier Under Hardwood							
29	600-1		0.167	42.5	55.1	2.4	NAD	NA
Location:	1000 - Interior Window Glazing							
30	600-2		0.173	67.1	10.4	15.0	Chrysotile 7.5	NA
Location:	1000 - Interior Window Glazing							
31	605-1		0.240	95.4	3.3	1.3	NAD	NAD
Location:	2001 - Vapor Barrier Behind Drywall							
32	605-2		0.293	95.6	2.7	1.7	NAD	NAD
Location:	2001 - Vapor Barrier Behind Drywall							

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31 Tonawanda St.

See Reporting notes on last page

Client Name: AMD Environmental Consultants, Inc.

Table I
Summary of Bulk Asbestos Analysis Results
181004DB-A; 31 Tonawanda St., Buffalo, NY

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
33	607-1		0.174	42.0	49.4	8.6	NAD	NAD
Location:	Exterior - Caulk @ Fiberglass Panels							
34	607-2		0.307	32.2	60.6	7.2	NAD	NAD
Location:	Exterior - Caulk @ Fiberglass Panels							
35	608-1		0.185	69.2	10.8	20.0	NAD	NAD
Location:	Exterior - Door Caulk							
36	608-2		0.174	66.7	10.9	22.4	NAD	NAD
Location:	Exterior - Door Caulk							

Analyzed by: Aleksandr Barengolts________________________________; Date Analyzed 10/11/2018

**Quantitative Analysis (Semi/Full); Bulk Asbestos Analysis - PLM by Appd E to Subpt E, 40 CFR 763 or ELAP 198.1 for New York friable samples or ELAP 198.6 for New York NOB samples; TEM (Semi/Full) by EPA 600/R-93/116 (or ELAP 198.4; for New York samples; NAD = no asbestos detected during a quantitative analysis; NA = not analyzed; Trace = <1%; (SOF-V) = Sprayed On Fireproofing containing Vermiculite; (SM-V) = Surfacing Material containing Vermiculite; Quantitation for beginning weights of <0.1 grams should be considered as qualitative only; Qualitative Analysis: Asbestos analysis results of "Present" or "NVA = No Visible Asbestos" represents results for Qualitative PLM or TEM Analysis only (no accreditation coverage available from any regulatory agency for qualitative analyses): NVLAP (PLM) 200546-0, NYSDOH ELAP Lab 11480, AIHA-LAP, LLC (PLM) Lab ID 102843.

Warning Note: PLM limitation, only TEM will resolve fibers <0.25 micrometers in diameter. TEM bulk analysis is representative of the fine grained matrix material and may not be representative of non-uniformly dispersed debris for which PLM evaluation is recommended (i.e. soils and other heterogenous materials).

Reviewed By:________________________________

#218101836

Relinquished By: [signature] Date/Time: 10-5-18

Received By: [signature] Date/Time: 10/8/18 1101

Relinquished By: Date/Time:

Received By: Date/Time:

18-1004DB-A

AMERISCI

WWW.AMERISCI.COM

BULK CHAIN OF CUSTODY

AMERISCI NEW YORK
117 EAST 30TH STREET
NEW YORK, NY 10016
TOLL FREE: (800) 705-5227
PHONE: (212) 679-8600
FAX: (212) 679-9392

AmeriSci #:

Company: AMD Environmental

Street Address: 712 Main Street, Suite L 1

City: Buffalo State: NY Zip: 14202

Phone: 716-833-0043 Cell:

Fax Results? Y ☐ Fax #:

Email Results? Y ☑ Email: to all parties listed below

Results to: jwolf@amdenv.com, anthony@amdenv.com,

Project:

Proj Mgr: Proj #: 18-1004DB-A

Proj Address: 31 Tonawanda St, Buff Proj State: NY

Analysis: ☐ PLM; ☐ Positive Stop; ☐ TEM; ☑ NY ELAP PLM/TEM w/ NOB Prep.

ASTM Dust ☐ (Microvac) ☐ (Wipe); ☐ Qualitative; ☐ Other (describe in comments)

Turnaround Time: 5 Day Material Type: ☑ Bulk ☐ Dust ☐ Water

Sampled By: Doucette Date Sampled: 10-4-18

Special Instructions or Comments:

admin@amdenv.com, dbatt@amdenv.com, john.doucette@amdenv.com

Lab ID	Field ID	Location	Sample Description (dust area)	Homogenous Area
39	101-1,2	1001	Drywall	
	101A-1,2	1003	Joint Compound	
	102A-1,2	1001	Ceramic Wall Tile Grout	
	102B-1,2	1001	Ceramic Wall Tile Mastic	
	200-1,2	1001	2x4 Ceiling Tile	
	201-1,2	3000	Ceiling Panels	
	300-1,2	1000	Residual Floor Tile Mastic	
	301A-1,2	1001	Quarry Tile grout	
	301B-1,2	1001	Quarry Tile Mortar	
	302-1,2	1002 - Mezzanine Level	12x12 Floor Tile - Red	
	303-1,2	1002 - Mezzanine Level	Cove Base Mastic	
31 Tonawanda St	304-1,2	2001	Jute Flooring	
	305-1,2	3000	12x12 Peel-N-Stick Floor Tile	
	306-1,2	1003	Vapor Barrier under Hdwd	
	600-1,2	1000	Interior Window Glazing	
	605-1,2	2001	Vap. Barrier behind drywall	
	607-1,2	Exterior	Caulk @ Fiberglass Panels	

#21810 1836

BULK CHAIN OF CUSTODY

AMERISCI NEW YORK
117 EAST 30TH STREET
NEW YORK, NY 10016
TOLL FREE: (800) 705-5227
PHONE: (212) 679-8600
FAX: (212) 679-9392

AMERISCI
WWW.AMERISCI.COM

18-100DB-A

Relinquished By:	[signature]	Date/Time:	10-5-18
Received By:	KByrne	Date/Time:	10/8/18 1101
Relinquished By:		Date/Time:	
Received By:		Date/Time:	

Company: AMD Environmental
Street Address: 712 Main Street, Suite L 1
City: Buffalo State: NY Zip: 14202
Phone: 716-833-0043 Cell:
Fax Results? Y ☐ Fax #:
Email Results? Y ☑ Email: to all parties listed below
Results to: jwolf@amdenv.com, anthony@amdenv.com,

AmeriSci #:
Project:
Proj Mgr: Proj #: 18100 4DB-A
Proj Address: 31 Tonawanda St, Buff. Proj State: NY
Analysis: ☐ PLM; ☐ Positive Stop; ☐ TEM; ☒ NY ELAP PLM/TEM w/ NOB Prep.
ASTM Dust ☐ (Microvac) ☐ (Wipe); ☐ Qualitative; ☐ Other (describe in comments)
Turnaround Time: 5 Day Material Type: ☒ Bulk ☐ Dust ☐ Water
Sampled By: Doucette Date Sampled: 10-4-18

Special Instructions or Comments:
admin@amdenv.com, dbatt@amdenv.com, john.doucette@amdenv.com

Lab ID	Field ID	Location	Sample Description (dust area)	Homogenous Area
40	608-1,2	Exterior	Door - Caulk	

31 Tonawanda St.

Appendix B: PCB Caulk Sample Analyses & Sample Chains of Custody

Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: AMD Environmental Consultants (4689)
Address: 712 Main St
Suite L1
Buffalo, NY 14202

Attn:

Project:
Location: 31 Tonawanda St Buffalo NY
Number: 181004DB-A

Order #: 282979

Matrix Bulk
Received 10/09/18
Reported 10/12/18

PO Number:

Sample ID / Parameter	Cust. Sample ID	Location / Method	Result	RL*	Units	Analysis Date	Analyst
282979-001	607P-1	31 Tonawanda St					
Semi-volatile Organic Compounds							
Aroclor - 1016		SW846 8082A	**<322**	322	µg/Kg	10/11/18	BRW
Aroclor - 1221		SW846 8082A	**<322**	322	µg/Kg	10/11/18	BRW
Aroclor - 1232		SW846 8082A	**<322**	322	µg/Kg	10/11/18	BRW
Aroclor - 1242		SW846 8082A	**<322**	322	µg/Kg	10/11/18	BRW
Aroclor - 1248		SW846 8082A	**<322**	322	µg/Kg	10/11/18	BRW
Aroclor - 1254		SW846 8082A	**<322**	322	µg/Kg	10/11/18	BRW
Aroclor - 1260		SW846 8082A	**<322**	322	µg/Kg	10/11/18	BRW
Aroclor - 1262		SW846 8082A	**<322**	322	µg/Kg	10/11/18	BRW
Aroclor - 1268		SW846 8082A	**<322**	322	µg/Kg	10/11/18	BRW
PCB - Surrogate Recoveries							
DCB		MI					
TCMX		MI					
282979-002	608P-1	31 Tonawanda St					
Semi-volatile Organic Compounds							
Aroclor - 1016		SW846 8082A	**<395**	395	µg/Kg	10/11/18	BRW
Aroclor - 1221		SW846 8082A	**<395**	395	µg/Kg	10/11/18	BRW
Aroclor - 1232		SW846 8082A	**<395**	395	µg/Kg	10/11/18	BRW
Aroclor - 1242		SW846 8082A	**<395**	395	µg/Kg	10/11/18	BRW
Aroclor - 1248		SW846 8082A	**<395**	395	µg/Kg	10/11/18	BRW
Aroclor - 1254		SW846 8082A	**<395**	395	µg/Kg	10/11/18	BRW
Aroclor - 1260		SW846 8082A	**<395**	395	µg/Kg	10/11/18	BRW
Aroclor - 1262		SW846 8082A	**<395**	395	µg/Kg	10/11/18	BRW
Aroclor - 1268		SW846 8082A	**<395**	395	µg/Kg	10/11/18	BRW
MS failure due to matrix interference.							
PCB - Surrogate Recoveries							
DCB		MI					
TCMX		MI					

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results reported relate only to the samples submitted.

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: AMD Environmental Consultants (4689)
Address: 712 Main St
Suite L1
Buffalo, NY 14202

Attn:

Project:
Location: 31 Tonawanda St Buffalo NY
Number: 181004DB-A

Order #: 282979

Matrix Bulk
Received 10/09/18
Reported 10/12/18

PO Number:

Sample ID / Parameter	Cust. Sample ID	Location / Method	Result	RL*	Units	Analysis Date	Analyst
282979-10/12/18 04:57 PM							

Reviewed By: **Irma Faszewski**
QAQC Director

State Certifications

Method	Parameter	New York	Virginia
SW846 8082A	Aroclor - 1016	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1221	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1232	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1242	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1248	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1254	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1260	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1262	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1268	ELAP Certified	VELAP Certified

State	Certificate Number
New York	ELAP 57776
Virginia	VELAP 9908

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results reported relate only to the samples submitted.

SCHNEIDER LABORATORIES GLOBAL, INC.
2512 West Cary Street, Richmond, Virginia 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475
www.slabinc.com e-mail: info@slabinc.com

282979 R 2
V:\282\282979
fghraizi 10/9/2018 9:37:43 AM
UPS 1Z2E2899905 4430358

Submitting Co.	AMD Environmental	Lab WO#		Phone	
712 Main St		Acct #		Fax \ Email	
Buffalo, NY 14202		**State of Collection		**Cert. Required	☐ Yes ☐ No

Project Name:	
Project Location:	31 Tonawanda St, Buffalo, NY
Project Number:	181004 DB-A
Purchase Order #	
TAT Requested (Business Day)	☐ 1 ☐ 2 ☐ 3 ☐ 4 ✓ 5 ☐ 10

Special Instructions [include requests for special reporting or data packages]

Please analyze both samples
For PCB's 8082

Lab Use: Chlorine (Cl), Temp *, pH
Matrix: Drinking Water, Waste Water, Ground Water, Soil / Sludge, Wipe, Oil or Air, Bulk

Analysis Request: BTEX ☐ MTBE ☐ Naphthalene ☐; Purgeable Aromatics 8021 ☐; Petrol Hydrocarbons GC 8015M Diesel ☐ 8015M Gas ☐; TPH 418.1 ☐; Corrosivity ☐ Reactivity ☐ Flashpoint, Closed Cup ☐; Volatile Organics 624 ☐ 8260 ☐; Semivolatile Organics 625 ☐ 8270 ☐; PAHs 610 ☐ 8270 ☐ 8310 By HPLC ☐; TCLP Semi-Vols ☐ BNAs ☐ Pest ☐ Herb ☐ VOAs ☐ Full ☐; Pesticides 608 ☐ 8081 ☐ Herbicides 8151 ☐ PCB's 8082 ☒; Other

Sample #	**Date Sampled	**Time Sampled	# Containers	Chlorine (Cl)	Temp *	pH	Drinking Water	Waste Water	Ground Water	Soil / Sludge	Wipe	Oil or Air	Bulk	BTEX / MTBE / Naphthalene	Purgeable Aromatics 8021	Petrol Hydrocarbons GC	TPH 418.1	Corrosivity / Reactivity / Flashpoint	Volatile Organics	Semivolatile Organics	PAHs	TCLP	Pesticides / Herbicides / PCB's 8082	Other	Other
607P-1													✓										+		
608P-1													✓										+		

All soil and aqueous samples must be sent in adequate quantity for duplicate analysis to be performed per EPA requirements. Failure to perform a sample duplicate analysis, due to a lack of sample quantity, will lead to a disclaimer on the report.

Sampled by	Relinquished to lab by	Sample Disposal
NAME John Doucette	NAME John Doucette	If samples over req. weight (Refer to Fee Schedule)
SIGNATURE [signature]	SIGNATURE [signature]	☐ Return to Sender (Shipping fees) ☐ Disposal by lab ($50 fee)
DATE/TIME 10-4-18	DATE/TIME 10-5-18	Shipping Methods: ☐ FX ☐ UPS ☐ USM ☐ HD ☐ DB WB:

Preserved ☐ Yes ☐ No ☐ Ambient temp ☐ Ice ☐R ☐S ☐X ☐ Receive a physical copy of report.

* Temperature taken with IR Gun A. **Required. Chain-of-Custody documentation continued internally within lab. Terms and conditions page 2.

Appendix C: Firm Certification and Personnel License(s)

New York State – Department of Labor
Division of Safety and Health
License and Certificate Unit
State Campus, Building 12
Albany, NY 12240

ASBESTOS HANDLING LICENSE

AMD Environmental Consultants, Inc.
Suite L1
712 Main Street

Buffalo, NY 14202

FILE NUMBER: 10-56177
LICENSE NUMBER: 56177
LICENSE CLASS: RESTRICTED
DATE OF ISSUE: 11/02/2017
EXPIRATION DATE: 11/30/2018

Duly Authorized Representative – Anthony DeMiglio:

This license has been issued in accordance with applicable provisions of Article 30 of the Labor Law of New York State and of the New York State Codes, Rules and Regulations (12 NYCRR Part 56). It is subject to suspension or revocation for a (1) serious violation of state, federal or local laws with regard to the conduct of an asbestos project, or (2) demonstrated lack of responsibility in the conduct of any job involving asbestos or asbestos material.

This license is valid only for the contractor named above and this license or a photocopy must be prominently displayed at the asbestos project worksite. This license verifies that all persons employed by the licensee on an asbestos project in New York State have been issued an Asbestos Certificate, appropriate for the type of work they perform, by the New York State Department of Labor.

Eileen M. Franko, Director
For the Commissioner of Labor

SH 432 (8/12)

AMD Environmental Consultants, Inc.
712 Main St. Suite L1
Buffalo, NY 14202
Office: 716-833-0043 Fax: 716-241-8689
www.amdenvironmental.com

United States Environmental Protection Agency

This is to certify that

AMD Environmental Consultants, Inc.

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

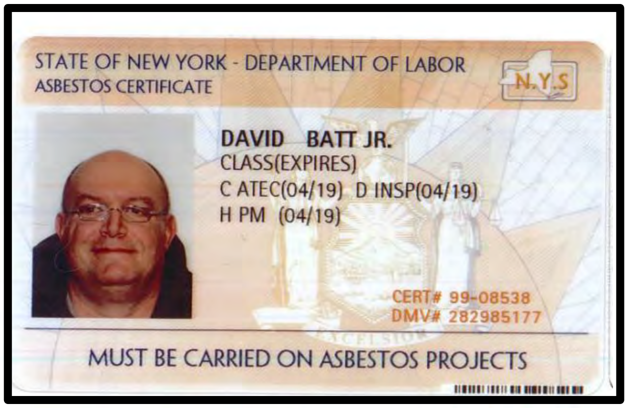
This certification is valid from the date of issuance and expires December 25, 2019

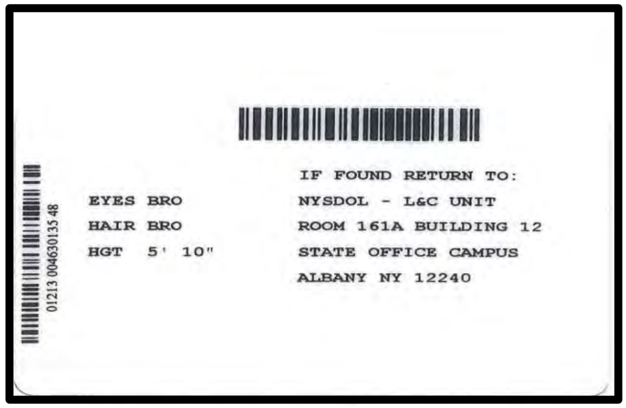
LBP-83285-1
Certification #

December 15, 2016
Issued On

Michelle Price

Michelle Price, Chief
Lead, Heavy Metals, and Inorganics Branch


STATE OF NEW YORK - DEPARTMENT OF LABOR
ASBESTOS CERTIFICATE
N.Y.S
DAVID BATT JR.
CLASS(EXPIRES)
C ATEC(04/19) D INSP(04/19)
H PM (04/19)
CERT# 99-08538
DMV# 282985177
MUST BE CARRIED ON ASBESTOS PROJECTS


01213 004630135 48
EYES BRO
HAIR BRO
HGT 5' 10"
IF FOUND RETURN TO:
NYSDOL - L&C UNIT
ROOM 161A BUILDING 12
STATE OFFICE CAMPUS
ALBANY NY 12240

United States Environmental Protection Agency

This is to certify that

David Charles Batt Jr.,

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Risk Assessor

In the Jurisdiction of:

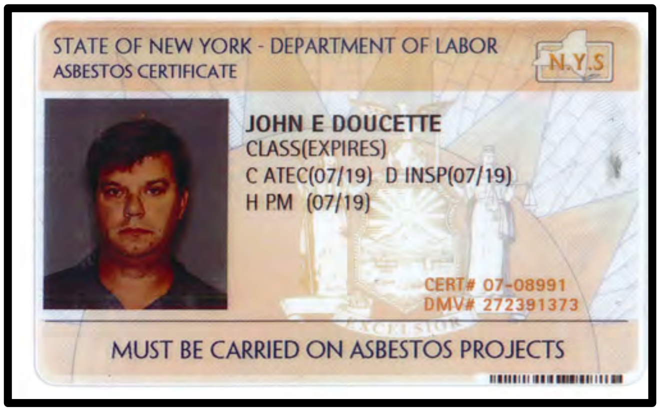
All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

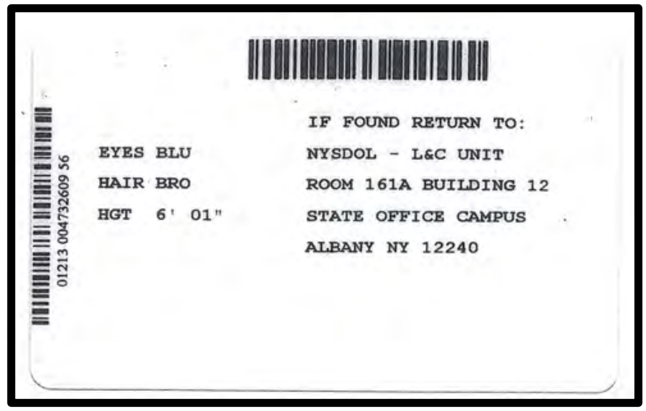
This certification is valid from the date of issuance and expires May 14, 2019

LBP-R-1388-1
Certification #

March 11, 2016
Issued On

John Gorman, Chief
Pesticides & Toxic Substances Branch


STATE OF NEW YORK - DEPARTMENT OF LABOR
ASBESTOS CERTIFICATE
N.Y.S
JOHN E DOUCETTE
CLASS(EXPIRES)
C ATEC(07/19) D INSP(07/19)
H PM (07/19)
CERT# 07-08991
DMV# 272391373
MUST BE CARRIED ON ASBESTOS PROJECTS


01213 004732609 56
EYES BLU
HAIR BRO
HGT 6' 01"
IF FOUND RETURN TO:
NYSDOL - L&C UNIT
ROOM 161A BUILDING 12
STATE OFFICE CAMPUS
ALBANY NY 12240

Appendix D: Laboratory Certification(s)

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2019
Issued April 01, 2018

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. PAUL J. MUCHA
AMERICA SCIENCE TEAM NEW YORK, INC
117 EAST 30TH ST
NEW YORK, NY 10016

NY Lab Id No: 11480

is hereby APPROVED as an Environmental Laboratory for the category
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved subcategories and/or analytes are listed below:

Miscellaneous

Asbestos in Friable Material	Item 198.1 of Manual
	EPA 600/M4/82/020
Asbestos in Non-Friable Material-PLM	Item 198.6 of Manual (NOB by PLM)
Asbestos in Non-Friable Material-TEM	Item 198.4 of Manual

Serial No.: 57809

Property of the New York State Department of Health. Certificates are valid only at the address shown, must be conspicuously posted, and are printed on secure paper. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 485-5570 to verify the laboratory's accreditation status.

Page 1 of 1

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2018
Issued April 01, 2017

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

NY Lab Id No: 11413

MR. FAYEZ ABOUZAKI
SCHNEIDER LABORATORIES GLOBAL, INC
2512 WEST CARY STREET
RICHMOND, VA 23220-5117

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Characteristic Testing

TCLP	EPA 1311

Metals I

Barium, Total	EPA 6010C
Cadmium, Total	EPA 6010C
Chromium, Total	EPA 6010C
Lead, Total	EPA 6010C
	EPA 7000B
Nickel, Total	EPA 6010C
Silver, Total	EPA 6010C

Metals II

Antimony, Total	EPA 6010C
Arsenic, Total	EPA 6010C
Chromium VI	EPA 7196A
Mercury, Total	EPA 7471B
Selenium, Total	EPA 6010C

Polychlorinated Biphenyls

PCB-1016	EPA 8082A
PCB-1221	EPA 8082A
PCB-1232	EPA 8082A
PCB-1242	EPA 8082A
PCB-1248	EPA 8082A
PCB-1254	EPA 8082A
PCB-1260	EPA 8082A
PCB-1262	EPA 8082A

Polychlorinated Biphenyls

PCB-1268	EPA 8082A

Sample Preparation Methods

EPA 3010A
EPA 3050B
EPA 3550C
EPA 3031

Serial No.: 56000

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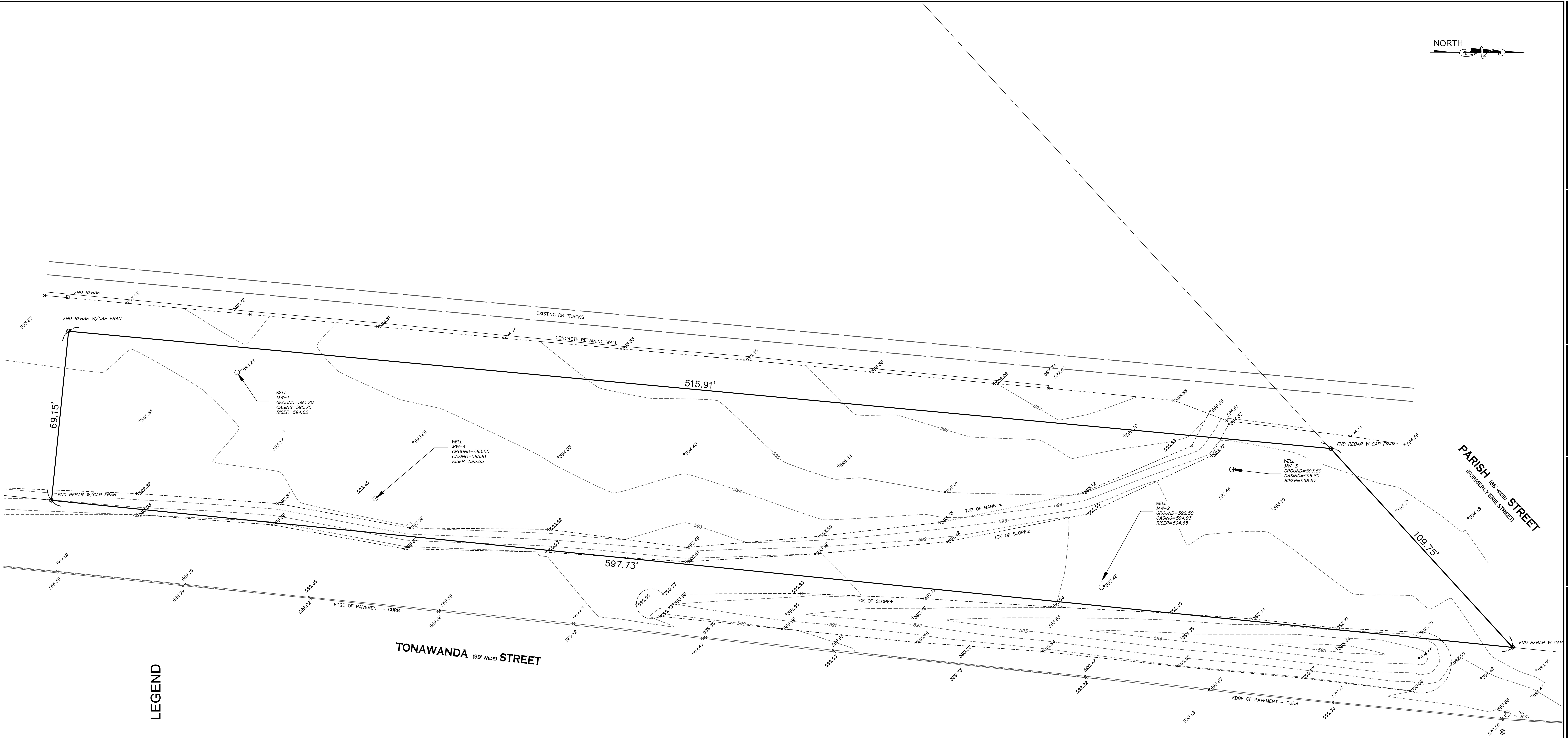
APPENDIX G

SITE BOUNDARY/TOPOGRAPHIC SURVEY MAPS



LEGEND

- ANTENNA/DISH
- BENCHMARK
- BOLLARD
- CATCH BASIN
- CLEANOUT
- COMMUNICATIONS BOX
- COMMUNICATIONS MANHOLE
- COMMUNICATIONS MARKER
- COMMUNICATIONS VAULT
- CONIFEROUS SHRUB
- CONIFEROUS TREE
- CUT
- DECIDUOUS SHRUB
- DECIDUOUS TREE
- DRILL/AUGER HOLE
- ELECTRIC MANHOLE
- ELECTRIC METER
- END SECTION
- FILLER CAPS
- FLAG POLE
- FLOOD LIGHT
- GAS LINE MARKER
- GAS MANHOLE
- GAS METER
- GAS SERVICE VALVE
- GAS VALVE
- GUY WIRE
- HANDICAP PARKING
- HYDRANT
- PROPERTY MONUMENT (AS DESCRIBED)
- LIGHT POLE
- MAILBOX
- MONUMENT AS DESCRIBED
- OIL LINE MARKER
- PHONE BOOTH
- PIPE OUTLET
- POST
- POWER VAULT
- RAILROAD CONTROL BOX
- SANITARY SEWER MANHOLE
- SCUPPER
- SIGN (SINGLE POLE)
- SIGN (DOUBLE POLE)
- SIGN (TRIPLE POLE)
- SIGNAL POLE
- SIGNAL POLE (WITH TRAFFIC UTILITY BOX)
- STORM SEWER MANHOLE
- TRAFFIC CONTROL BOX
- TRAFFIC PULLBOX
- UNKNOWN MANHOLE
- UTILITY BOX
- UTILITY POLE
- UTILITY POLE WITH LIGHT
- WATER MANHOLE
- WATER METER
- WATER SERVICE VALVE
- WATER VALVE
- WELL
- YARD DRAIN

- BERM
- CENTERLINE OF ROAD
- CENTERLINE OF DITCH
- FENCE (CHAINLINK)
- FENCE (WOOD)
- GAS MAIN
- GUIDE RAIL (BOX BEAM)
- GUIDE RAIL (W BEAM)
- OVERHEAD WIRES
- LOT LINE
- PARCEL LINE
- RIGHT OF WAY LINE
- SANITARY SEWER LINE
- STORM SEWER LINE
- TREE LINE
- UNDERGROUND CONDUIT
- UNDERGROUND ELECTRIC
- WATER MAIN

MEMBER OF:
NEW YORK STATE ASSOCIATION OF PROFESSIONAL LAND SURVEYORS

MEMBER OF:
NIAGARA FRONTIER LAND SURVEYORS ASSOCIATION INC.

NO BOUNDARY SURVEY WAS PERFORMED. PROPERTY LINES SKETCHED FROM SURVEY BY FRANDINA ENGINEERING AND LAND SURVEYING, PC, DATED 08/05/2013

THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN UP-TO-DATE ABSTRACT OF TITLE AND IS SUBJECT TO ANY STATE OF FACTS THAT MAY BE REVEALED BY AN EXAMINATION OF SUCH.

0 20 30 40 60 80

SCALE: 1"=20'
GRAPHIC SCALE IN FEET

DRAWING REVISIONS

ITEM	DATE	DESCRIPTION

DESIGNED BY:
DRAWN BY: AJK/DJR
CHECKED BY: DJR
DATE: OCTOBER 31, 2018

WM SCHUTT ASSOCIATES
37 CENTRAL AVE.
LANCASTER, NY 14086-2143
PH. 716-683-5961
FAX 716-683-0169
WWW.WMSCHUTT.COM

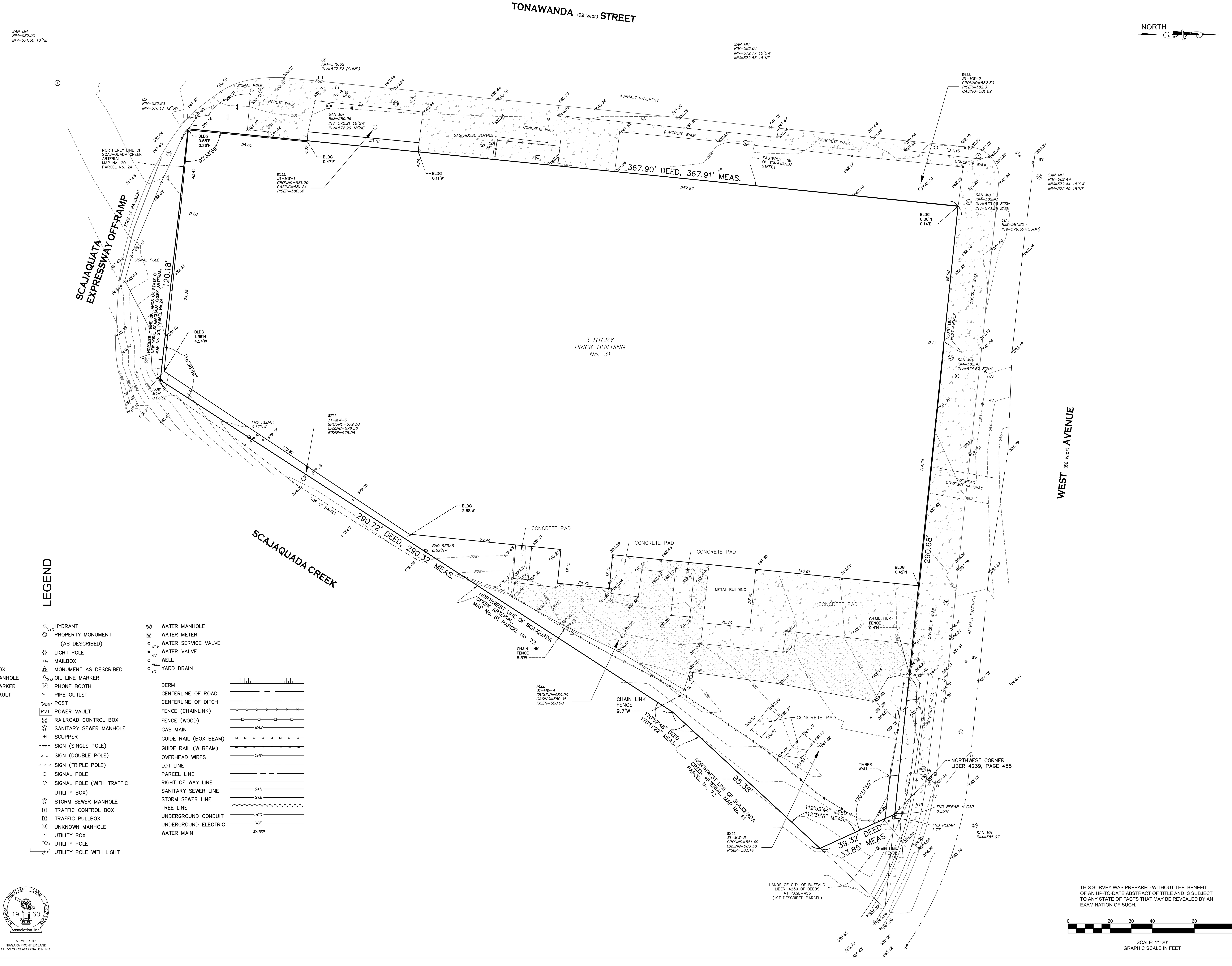
CITY OF BUFFALO
COUNTY OF ERIE, STATE OF NEW YORK
PART OF LOT(S) 216, 217 & 218, TOWNSHIP 11, RANGE 8
PARISH TRACT

150 TONAWANDA STREET
TOPOGRAPHIC SURVEY

TS-1

DRAWING SCALE: 1"=20'

SURVEY FILE: D/18164-01
WSA PROJECT NO. 18164



LEGEND

ANTENNA/DISH	HYDRANT	WATER MANHOLE
BENCHMARK	PROPERTY MONUMENT (AS DESCRIBED)	WATER METER
BOLLARD	LIGHT POLE	WATER SERVICE VALVE
CATCH BASIN	MAILBOX	WATER VALVE
CLEANOUT	MONUMENT AS DESCRIBED	WELL
COMMUNICATIONS BOX	OIL LINE MARKER	YARD DRAIN
COMMUNICATIONS MANHOLE	PHONE BOOTH	
COMMUNICATIONS MARKER	PIPE OUTLET	BERM
COMMUNICATIONS VAULT	POST	CENTERLINE OF ROAD
CONIFEROUS SHRUB	POWER VAULT	CENTERLINE OF DITCH
CONIFEROUS TREE	RAILROAD CONTROL BOX	FENCE (CHAINLINK)
CUT	SANITARY SEWER MANHOLE	FENCE (WOOD)
DECIDUOUS SHRUB	SCUPPER	GAS MAIN
DECIDUOUS TREE	SIGN (SINGLE POLE)	GUARD RAIL (BOX BEAM)
DRILL/AUGER HOLE	SIGN (DOUBLE POLE)	GUIDE RAIL (W BEAM)
ELECTRIC MANHOLE	SIGN (TRIPLE POLE)	OVERHEAD WIRES
ELECTRIC METER	SIGNAL POLE	LOT LINE
END SECTION	SIGNAL POLE (WITH TRAFFIC UTILITY BOX)	PARCEL LINE
FILLER CAPS	STORM SEWER MANHOLE	RIGHT OF WAY LINE
FLAG POLE	TRAFFIC CONTROL BOX	SANITARY SEWER LINE
FLOOD LIGHT	TRAFFIC PULLBOX	STORM SEWER LINE
GAS LINE MARKER	UNKNOWN MANHOLE	TREE LINE
GAS MANHOLE	UTILITY BOX	UNDERGROUND CONDUIT
GAS METER	UTILITY POLE	UNDERGROUND ELECTRIC
GAS SERVICE VALVE	UTILITY POLE WITH LIGHT	WATER MAIN
GAS VALVE		
GUY WIRE		
HANDICAP PARKING		

MEMBER OF: NEW YORK STATE ASSOCIATION OF PROFESSIONAL LAND SURVEYORS

MEMBER OF: NIAGARA FRONTIER LAND SURVEYORS ASSOCIATION INC.

THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN UP-TO-DATE ABSTRACT OF TITLE AND IS SUBJECT TO ANY STATE OF FACTS THAT MAY BE REVEALED BY AN EXAMINATION OF SUCH.

0 20 30 40 60 80

SCALE: 1"=20'
GRAPHIC SCALE IN FEET

DRAWING REVISIONS

ITEM	DATE	DESCRIPTION

DESIGNED BY:
DRAWN BY: AJK/DJR
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DATE: OCTOBER 31, 2018

WM SCHUTT ASSOCIATES
37 CENTRAL AVE.
LANCASTER, NY 14086-2143
PH. 716-683-5961
FAX 716-683-0169
WWW.WMSCHUTT.COM

CITY OF BUFFALO
COUNTY OF ERIE, STATE OF NEW YORK
PART OF LOT 270, TOWNSHIP 11, RANGE 6
HOLLAND LAND COMPANY'S SURVEY

31 TONAWANDA STREET
BOUNDARY & TOPOGRAPHIC SURVEY

BT-1

DRAWING SCALE: 1"=20'

SURVEY FILE: D/18164-01
WSA PROJECT NO. 18164

APPENDIX H

NYSDOH VAPOR INTRUSION MATRICES

Soil Vapor / Indoor Air Matrix A

May 2017

Analytes Assigned:
Trichloroethene (TCE), *cis*-1,2-Dichloroethene (*c*12-DCE), 1,1-Dichloroethene (11-DCE), Carbon Tetrachloride

	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m^3)		
SUB-SLAB VAPOR CONCENTRATION of COMPOUND (mcg/m^3)	< 0.2	0.2 to < 1	1 and above
< 6	1. No further action	2. No Further Action	3. IDENTIFY SOURCE(S) and RESAMPLE or MITIGATE
6 to < 60	4. No further action	5. MONITOR	6. MITIGATE
60 and above	7. MITIGATE	8. MITIGATE	9. MITIGATE

No further action: No additional actions are recommended to address human exposures.

Identify Source(s) and Resample or Mitigate: We recommend that reasonable and practical actions be taken to identify the source(s) affecting the indoor air quality and that actions be implemented to reduce indoor air concentrations to within background ranges. For example, if an indoor or outdoor air source is identified, we recommend the appropriate party implement actions to reduce the levels. In the event that indoor or outdoor sources are not readily identified or confirmed, resampling (which might include additional sub-slab vapor and indoor air sampling locations) is recommended to demonstrate that SVI mitigation actions are not needed. Based on the information available, mitigation might also be recommended when soil vapor intrusion cannot be ruled out.

Monitor: We recommend monitoring (sampling on a recurring basis), including but not necessarily limited to sub-slab vapor, basement air and outdoor air sampling, to determine whether concentrations in the indoor air or sub-slab vapor have changed and/or to evaluate temporal influences. Monitoring might also be recommended to determine whether existing building conditions (e.g., positive pressure heating, ventilation and air-conditioning systems) are maintaining the desired mitigation endpoint and to determine whether changes are needed. The type and frequency of monitoring is determined based on site-, building- and analyte-specific information, taking into account applicable environmental data and building operating conditions. Monitoring is an interim measure required to evaluate exposures related to soil vapor intrusion until contaminated environmental media are remediated.

Mitigate: We recommend mitigation to minimize current or potential exposures associated with soil vapor intrusion. The most common mitigation methods are sealing preferential pathways in conjunction with installing a sub-slab depressurization system and changing the pressurization of the building in conjunction with monitoring. The type, or combination of types, of mitigation is determined on a building-specific basis, taking into account building construction and operating conditions. Mitigation is considered a temporary measure implemented to address exposures related to soil vapor intrusion until contaminated environmental media are remediated.

These general recommendations are made with consideration being given to the additional notes on page 2.

ADDITIONAL NOTES FOR MATRIX A

This matrix summarizes actions recommended to address current and potential exposures related to soil vapor intrusion. To use the matrix appropriately as a tool in the decision-making process, the following should be noted:

[1] The matrix is generic. As such, it may be appropriate to modify a recommended action to accommodate analyte-specific, building-specific conditions (e.g., dirt floor in basement, crawl spaces, thick slabs, current occupancy, etc.), and/or factors provided in Section 3.2 of the guidance (e.g., current land use, environmental conditions, etc.). For example, collection of additional samples may be recommended when the matrix indicates "no further action" for a particular building, but the results of adjacent buildings (especially sub-slab vapor results) indicate a need to take actions to address exposures related to soil vapor intrusion. Mitigation might be recommended when the results of multiple contaminants indicate monitoring is recommended. Proactive actions may be proposed at any time. For example, the party implementing the actions may decide to install sub-slab depressurization systems on buildings where the matrix indicates "no further action" or "monitoring." Such an action might be undertaken for reasons other than public health (e.g., seeking community acceptance, reducing costs, etc.). However, actions implemented *in lieu* of sampling will typically be expected to be captured in the final engineering report and site management plan, and might not rule out the need for post-implementation sampling (e.g., to document effectiveness or to support terminating the action).

[2] Actions provided in the matrix are specific to addressing human exposures. Implementation of these actions does not preclude investigating possible sources of soil vapor contamination, nor does it preclude remediating contaminated soil vapor or the source of soil vapor contamination.

[3] Appropriate care should be taken during all aspects of sample collection to ensure that high quality data are obtained. Since the data are being used in the decision-making process, the laboratory analyzing the environmental samples must have current Environmental Laboratory Approval Program (ELAP) certification for the appropriate analyte and environmental matrix combinations. Furthermore, samples should be analyzed by methods that can achieve a minimum reporting limit of 0.20 microgram per cubic meter for indoor and outdoor air samples. For sub-slab vapor samples and dirt floor soil vapor samples, a minimum reporting limit of 1 microgram per cubic meter is recommended.

[4] Sub-slab vapor and indoor air samples are typically collected when the likelihood of soil vapor intrusion is considered to be the greatest (i.e., worst-case conditions). If samples are collected at other times (typically, samples collected outside of the heating season), then resampling during worst-case conditions might be appropriate to verify that actions taken to address exposures related to soil vapor intrusion are protective of human health.

[5] When current exposures are attributed to sources other than soil vapor intrusion, the agencies should be given documentation (e.g., applicable environmental data, completed indoor air sampling questionnaire, digital photographs, etc.) to support a proposed action other than that provided in the matrix box and to support agency assessment and follow-up.

[6] The party responsible for implementing the recommended actions will differ depending upon several factors, including but not limited to the following: the identified source of the volatile chemicals, the environmental remediation program, and analyte-specific, site-specific and building-specific factors.

Soil Vapor / Indoor Air Matrix B

May 2017

Analytes Assigned:
Tetrachloroethene (PCE), 1,1,1-Trichloroethane (111-TCA), Methylene Chloride

SUB-SLAB VAPOR CONCENTRATION of COMPOUND (mcg/m³)	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m³) < 3	3 to < 10	10 and above
< 100	1. No further action	2. No Further Action	3. IDENTIFY SOURCE(S) and RESAMPLE or MITIGATE
100 to < 1,000	4. No further action	5. MONITOR	6. MITIGATE
1,000 and above	7. MITIGATE	8. MITIGATE	9. MITIGATE

No further action: No additional actions are recommended to address human exposures.

Identify Source(s) and Resample or Mitigate: We recommend that reasonable and practical actions be taken to identify the source(s) affecting the indoor air quality and that actions be implemented to reduce indoor air concentrations to within background ranges. For example, if an indoor or outdoor air source is identified, we recommend the appropriate party implement actions to reduce the levels. In the event that indoor or outdoor sources are not readily identified or confirmed, resampling (which might include additional sub-slab vapor and indoor air sampling locations) is recommended to demonstrate that SVI mitigation actions are not needed. Based on the information available, mitigation might also be recommended when soil vapor intrusion cannot be ruled out.

Monitor: We recommend monitoring (sampling on a recurring basis), including but not necessarily limited to sub-slab vapor, basement air and outdoor air sampling, to determine whether concentrations in the indoor air or sub-slab vapor have changed and/or to evaluate temporal influences. Monitoring might also be recommended to determine whether existing building conditions (e.g., positive pressure heating, ventilation and air-conditioning systems) are maintaining the desired mitigation endpoint and to determine whether changes are needed. The type and frequency of monitoring is determined based on site-, building- and analyte-specific information, taking into account applicable environmental data and building operating conditions. Monitoring is an interim measure required to evaluate exposures related to soil vapor intrusion until contaminated environmental media are remediated.

Mitigate: We recommend mitigation to minimize current or potential exposures associated with soil vapor intrusion. The most common mitigation methods are sealing preferential pathways in conjunction with installing a sub-slab depressurization system and changing the pressurization of the building in conjunction with monitoring. The type, or combination of types, of mitigation is determined on a building-specific basis, taking into account building construction and operating conditions. Mitigation is considered a temporary measure implemented to address exposures related to soil vapor intrusion until contaminated environmental media are remediated.

These general recommendations are made with consideration being given to the additional notes on page 2.

ADDITIONAL NOTES FOR MATRIX B

This matrix summarizes actions recommended to address current and potential exposures related to soil vapor intrusion. To use the matrix appropriately as a tool in the decision-making process, the following should be noted:

[1] The matrix is generic. As such, it may be appropriate to modify a recommended action to accommodate analyte-specific, building-specific conditions (e.g., dirt floor in basement, crawl spaces, thick slabs, current occupancy, etc.), and/or factors provided in Section 3.2 of the guidance (e.g., current land use, environmental conditions, etc.). For example, collection of additional samples may be recommended when the matrix indicates "no further action" for a particular building, but the results of adjacent buildings (especially sub-slab vapor results) indicate a need to take actions to address exposures related to soil vapor intrusion. Mitigation might be recommended when the results of multiple contaminants indicate monitoring is recommended. Proactive actions may be proposed at any time. For example, the party implementing the actions may decide to install sub-slab depressurization systems on buildings where the matrix indicates "no further action" or "monitoring." Such an action might be undertaken for reasons other than public health (e.g., seeking community acceptance, reducing costs, etc.). However, actions implemented *in lieu* of sampling will typically be expected to be captured in the final engineering report and site management plan, and might not rule out the need for post-implementation sampling (e.g., to document effectiveness or to support terminating the action).

[2] Actions provided in the matrix are specific to addressing human exposures. Implementation of these actions does not preclude investigating possible sources of soil vapor contamination, nor does it preclude remediating contaminated soil vapor or the source of soil vapor contamination.

[3] Appropriate care should be taken during all aspects of sample collection to ensure that high quality data are obtained. Since the data are being used in the decision-making process, the laboratory analyzing the environmental samples must have current Environmental Laboratory Approval Program (ELAP) certification for the appropriate analyte and environmental matrix combinations. Furthermore, samples should be analyzed by methods that can achieve a minimum reporting limit of 1 microgram per cubic meter for indoor and outdoor air samples. For sub-slab vapor samples and dirt floor soil vapor samples, a minimum reporting limit of 1 microgram per cubic meter is recommended.

[4] Sub-slab vapor and indoor air samples are typically collected when the likelihood of soil vapor intrusion is considered to be the greatest (i.e., worst-case conditions). If samples are collected at other times (typically, samples collected outside of the heating season), then resampling during worst-case conditions might be appropriate to verify that actions taken to address exposures related to soil vapor intrusion are protective of human health.

[5] When current exposures are attributed to sources other than soil vapor intrusion, the agencies should be given documentation (e.g., applicable environmental data, completed indoor air sampling questionnaire, digital photographs, etc.) to support a proposed action other than that provided in the matrix box and to support agency assessment and follow-up.

[6] The party responsible for implementing the recommended actions will differ depending upon several factors, including but not limited to the following: the identified source of the volatile chemicals, the environmental remediation program, and analyte-specific, site-specific and building-specific factors.

Soil Vapor/Indoor Air Matrix C

May 2017

Analytes Assigned:
Vinyl Chloride

	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m^3)	
SUB-SLAB VAPOR CONCENTRATION of COMPOUND (mcg/m^3)	< 0.2	0.2 and above
< 6	1. No further action	2. IDENTIFY SOURCE(S) and RESAMPLE or MITIGATE
6 to < 60	3. MONITOR	4. MITIGATE
60 and above	5. MITIGATE	6. MITIGATE

No further action: No additional actions are recommended to address human exposures.

Identify Source(s) and Resample or Mitigate: We recommend that reasonable and practical actions be taken to identify the source(s) affecting the indoor air quality and that actions be implemented to reduce indoor air concentrations to within background ranges. For example, if an indoor or outdoor air source is identified, we recommend the appropriate party implement actions to reduce the levels. In the event that indoor or outdoor sources are not readily identified or confirmed, resampling (which might include additional sub-slab vapor and indoor air sampling locations) is recommended to demonstrate that SVI mitigation actions are not needed. Based on the information available, mitigation might also be recommended when soil vapor intrusion cannot be ruled out.

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Mitigate: We recommend mitigation to minimize current or potential exposures associated with soil vapor intrusion. The most common mitigation methods are sealing preferential pathways in conjunction with installing a sub-slab depressurization system and changing the pressurization of the building in conjunction with monitoring. The type, or combination of types, of mitigation is determined on a building-specific basis, taking into account building construction and operating conditions. Mitigation is considered a temporary measure implemented to address exposures related to soil vapor intrusion until contaminated environmental media are remediated.

These general recommendations are made with consideration being given to the additional notes on page 2.

ADDITIONAL NOTES FOR MATRIX C

This matrix summarizes actions recommended to address current and potential exposures related to soil vapor intrusion. To use the matrix appropriately as a tool in the decision-making process, the following should be noted:

[1] The matrix is generic. As such, it may be appropriate to modify a recommended action to accommodate analyte-specific, building-specific conditions (e.g., dirt floor in basement, crawl spaces, thick slabs, current occupancy, etc.), and/or factors provided in Section 3.2 of the guidance (e.g., current land use, environmental conditions, etc.). For example, collection of additional samples may be recommended when the matrix indicates "no further action" for a particular building, but the results of adjacent buildings (especially sub-slab vapor results) indicate a need to take actions to address exposures related to soil vapor intrusion. Mitigation might be recommended when the results of multiple contaminants indicate monitoring is recommended. Proactive actions may be proposed at any time. For example, the party implementing the actions may decide to install sub-slab depressurization systems on buildings where the matrix indicates "no further action" or "monitoring." Such an action might be undertaken for reasons other than public health (e.g., seeking community acceptance, reducing costs, etc.). However, actions implemented *in lieu* of sampling will typically be expected to be captured in the final engineering report and site management plan, and might not rule out the need for post-implementation sampling (e.g., to document effectiveness or to support terminating the action).

[2] Actions provided in the matrix are specific to addressing human exposures. Implementation of these actions does not preclude investigating possible sources of soil vapor contamination, nor does it preclude remediating contaminated soil vapor or the source of soil vapor contamination.

[3] Appropriate care should be taken during all aspects of sample collection to ensure that high quality data are obtained. Since the data are being used in the decision-making process, the laboratory analyzing the environmental samples must have current Environmental Laboratory Approval Program (ELAP) certification for the appropriate analyte and environmental matrix combinations. Furthermore, samples should be analyzed by methods that can achieve a minimum reporting limit of 0.20 microgram per cubic meter for indoor and outdoor air samples. For sub-slab vapor samples and dirt floor soil vapor samples, a minimum reporting limit of 1 microgram per cubic meter is recommended.

[4] Sub-slab vapor and indoor air samples are typically collected when the likelihood of soil vapor intrusion is considered to be the greatest (i.e., worst-case conditions). If samples are collected at other times (typically, samples collected outside of the heating season), then resampling during worst-case conditions might be appropriate to verify that actions taken to address exposures related to soil vapor intrusion are protective of human health.

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[6] The party responsible for implementing the recommended actions will differ depending upon several factors, including but not limited to the following: the identified source of the volatile chemicals, the environmental remediation program, and analyte-specific, site-specific and building-specific factors.

APPENDIX I

REMEDIAL ALTERNATIVES COST ESTIMATES

REMEDIAL ALTERNATIVE COST ESTIMATES

Assumptions:
1) - Conversion factor of cubic yards of soil/stone to tons is 1.5

ALTERNATIVE 1 - REMEDIATE TO TRACK 4 - RESTRICTED RESIDENTIAL			
Item	**Unit Cost**	**Quantity**	**Total**
150 Tonawanda Property			
Mobilization/Demobilization (LS)	$5,000.00	1	$5,000.00
Re-grade and level site (LS)	$5,000.00	1	$5,000.00
Excavate/off-site disposal impacted soil/fill (tons)	$45.00	500	$22,500.00
Delinieation fabric (SY)	$1.35	1100	$1,485.00
Provision and Placement of clean backfill-Stone (tons)	$25.00	1500	$37,500.00
Asphalt Paving (SF)	$4.00	39700	$158,800.00
Confirmation/waste sampling (LS)	$2,000.00	1	$2,000.00
Sub-Total			$232,285.00
31 Tonawanda Property			
Mobilization/Demobilization	$5,000.00	1	$5,000.00
Excavate/dispose-East open areas-top 1' & petroleum area (tons)	$50.00	570	$28,500.00
Open Area - 8" Stone placement (tons)	$25.00	245	$6,125.00
Open Area - 4" asphalt placement (SF)	$4.00	9800	$39,200.00
Delinieation fabric (SY)	$1.35	440	$594.00
Placement of clean backfill- (tons)	$20.00	300	$6,000.00
Vapor Mitigation System (LS)	$150,000.00	1	$150,000.00
Groundwater Treatment (LS)	$300,000.00	1	$300,000.00
Imported fill sampling (LS)	$7,000.00	1	$7,000.00
Confirmation/waste sampling (LS)	$10,000.00	1	$10,000.00
Sub-Total			$552,419.00
Total Remediation 150/31Tonawanda			$784,704.00
Engineering Oversight (3 months) (LS)	$75,000.00	1	$75,000.00
Subtotal			$859,704.00
Contingency (10%)			$85,970.40
Estimated Capital CostTotal			**$945,674.40**
Annual Inspection/Monitoring/Maintenance (per Yr.)	**$8,000.00**	1.0	**$8,000.00**
Present Worth Annual Inspection, Monitoring and Reporting			
Number of Years - 30			**30**
Interest Rate - 5%			**5%**
Present Worth (PW)			**$120,000.00**
Total Present Worth: Capital Cost + Annual Costs/PW			**$1,073,674.40**

ALTERNATIVE 2 - PARTIAL EXCAVATION AND GROUNDWATER WITH ENGINEERING CONTROLS			
Item	**Unit Cost**	**Quantity**	**Total**
150 Tonawanda Property			
Mobilization/Demobilization (LS)	$5,000.00	1	$5,000.00

Excavate/off-site disposal impacted soil/fill to Unrestricted levels (tons)	$45.00	13200	$594,000.00
Backfill clean fill (5 feet deep)	$17.00	11000	$187,000.00
Provision and Placement of clean backfill-Stone - 8" (tons)	$25.00	1500	$37,500.00
Asphalt Paving (SF)	$4.00	39700	$158,800.00
Confirmation/waste sampling (ea)	$700.00	120	<u>$84,000.00</u>
Sub-Total			$1,066,300.00
<u>31 Tonawanda Property</u>			
Mobilization/Demobilization (LS)	$5,000.00	1	$5,000.00
Excavate/dispose-East open area -9' deep (tons)	$45.00	5000	$225,000.00
Open Area 8" Stone placement (tons)	$25.00	245	$6,125.00
Open Area 4" asphalt placement (SF)	$4.00	9800	$39,200.00
Vapor Mitigation System (LS)	$100,000.00	1	$100,000.00
Groundwater Treatment (LS)	$300,000.00	1	$300,000.00
Confirmation/waste sampling (ea)	$700.00	40	<u>$28,000.00</u>
Sub-Total			$703,325.00
Total Remediation 150/31Tonawanda			$1,769,625.00
Engineering Oversight (4 months) (LS)	$100,000.00	1	<u>$100,000.00</u>
Sub-Total			<u>$1,869,625.00</u>
Contingency (10%)			<u>$186,962.50</u>
Estimated Total			$2,056,587.50
Total Capital Cost			**$2,056,587.50**

ALTERNATIVE 3 - UNRESTRICTED USE			
Item	**Unit Cost**	**Quantity**	**Total**
<u>150 Tonawanda Property</u>			
Mobilization/Demobilization (LS)	$5,000.00	1	$5,000.00
Excavate/off-site disposal impacted soil/fill to Unrestricted levels (tons)	$45.00	13200	$594,000.00
Backfill clean fill (5 feet deep)	$17.00	11000	$187,000.00
Provision and Placement of clean backfill-Stone - 8" (tons)	$25.00	1500	$37,500.00
Asphalt Paving (SF)	$4.00	39700	$158,800.00
Confirmation/waste sampling (ea)	$700.00	120	<u>$84,000.00</u>
Sub-Total			$1,066,300.00
<u>31 Tonawanda Property</u>			
Mobilization/Demobilization (LS)	$5,000.00	1	$5,000.00
Excavate/dispose-East open area -9' deep (tons)	$45.00	5000	$225,000.00
Open Area 8" Stone placement (tons)	$25.00	245	$6,125.00
Open Area 4" asphalt placement (SF)	$4.00	9800	$39,200.00
Excavate/dispose Crawl Space soil to GW (5') (tons)	$50.00	1200	$60,000.00
Placement of clean backfill-Stone/fill crawl space/outside fence (tons)	$20.00	6200	$124,000.00
Vapor Mitigation System (LS)	$100,000.00	1	$100,000.00
Groundwater Treatment (LS)	$300,000.00	1	$300,000.00
Confirmation/waste sampling (ea)	$700.00	40	<u>$28,000.00</u>
Sub-Total			$887,325.00
Total Remediation 150/31Tonawanda			$1,953,625.00
Engineering Oversight (4 months) (LS)	$100,000.00	1	<u>$100,000.00</u>
Sub-Total			<u>$2,053,625.00</u>
Contingency (10%)			<u>$205,362.50</u>
Estimated Total			$2,258,987.50
Total Capital Cost			**$2,258,987.50**

APPENDIX J

ANALYTICAL RESULTS & DUSRS (CD)

APPENDIX K

PROPOSED SUB-SLAB DEPRESSURIZATION SYSTEM (SSDS)

Sub-Slab Depressurization System Design and Work Plan

Site:

31 Tonawanda Street
Buffalo, NY 14207

Prepared For: Jack Ruh

Completed By: Envirosafe Inspections & Consulting
PO Box 671
Honeoye, NY 14471

Table of Contents

1.0 Introduction

Envirosafe Inspections & Consulting has performed a complete visual inspection, researched existing plans, and performed sub slab vacuum diagnostics at buildings; 12A, 12, 5, 10, 11, 11A, 6 and 4 of the Hawkeye Facility located at 1447 St Paul Street Rochester, NY 14621. Based on all the data obtained various Sub-Slab Depressurization Systems (SSDS) have been deigned to prevent suspect air contaminants from entering the buildings via soil vapor intrusion.

2.0 Objective

The overall objective of the installation of the sub slab depressurization systems is to obtain a negative sub slab vacuum pressure of - 0.004" of water column under the concrete slab of the first floor or basement level. This will extract suspect vapors and discharge the vapors to the exterior of the buildings, preventing the vapors from migrating into the buildings. A Sub Slab Depressurization System can be utilized for extraction of radon and other volatile organic vapors. The systems are similar in construction and all consist of the same objective in obtaining a negative vacuum pressure under the concrete slab. The installation of the Sub Slab Depressurization Systems will conform to the most recent standards of the Radon Mitigation Standards ASTM E2121, the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York dated October 2006, and the ASTM D3034 Standard Specification for Type PSM Poly (Vinyl Chloride) PVC Pipe and Fittings.

3.0 Sub-Slab Depressurization Design

3.1 SSDS Diagnostics

Suctions points were installed by coring through the concrete floor with a 7" concrete core drill. Various "test points" 0.5" holes were installed at various locations from each suction point. Various fans were utilized measuring air flow (CFM) and Static Pressure. Using a digital micromanometer at each test point, readings were documented. The information collected was utilized to design the proposed SSD Systems including suction point location, quantity of suction points, pipe size, fan size, etc. It should be noted that the design is subject to changes during actual installation based on building layout and objective to maintain adequate negative vacuum.

3.2 Suction Points

Suction points will be installed by coring through the concrete floor and removing at least 1 cubic ft of soil from beneath the suction point. Washed #2 round stone will replace the excavated soil.

3.3 Trenching

In efforts to increase the sub slab pressure field, and based on the future use of the property not needing the floor drain system, it is proposed to convert the floor drain system into a trench style SSD System. Removal of the concrete drain trough, installation of 4" Perforated PVC Piping encapsulated with washed #2 round stone, capped with 6ml Poly Plastic and installation of new concrete is proposed. Refer to Trench Diagram.

3.4 Piping

Each suction point will consist of a vertical riser of 4" or 6" PVC Pipe that will connect various suction points together forming a manifold system using 4" or 6" PVC pipe. Each manifold system will exit either through the side wall and vent above the roof line or will be installed internally and exit the building through the roof. The inline fan will be installed near the top of the riser pipe below the roof or above the roof for the internal risers. All piping will be installed and anchored in accordance to standards. Refer to the layout of the proposed systems locations.

3.5 Inline Fans

Inline fans will be installed on the exterior of the buildings below the roof top and discharge at least 12" above the roof or 30' above ground level on buildings with non-operational windows. Discharge points will be at least 2' above operations windows, openings, etc., that are within ten feet of the discharge pipe. Fans will be wired with switches at fan locations and wired into the nearest electric panels on a dedicated circuit. Alarms will be installed on the vacuum side of the fans and be wired into a separate dedicated circuit.

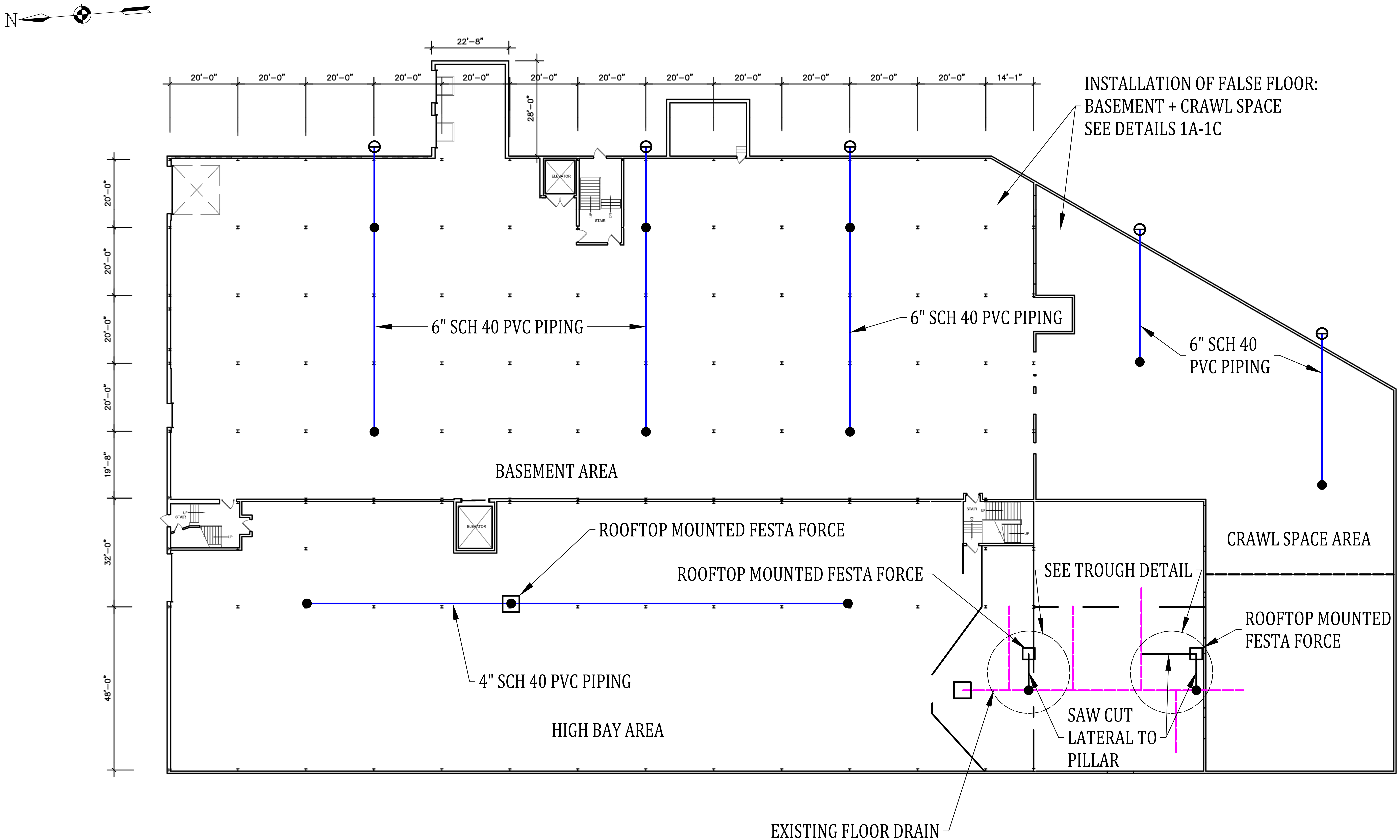
3.6 Sub Slab Pressure Testing after System Installations

After all systems are installed a pilot test study will be completed to verify negative vacuum under all concrete slabs of at least -0.004" of wc.

3.7 Health and Safety Work Plan

It is required that a private Environmental Consultant provide an onsite representative to perform background readings for VOCs.

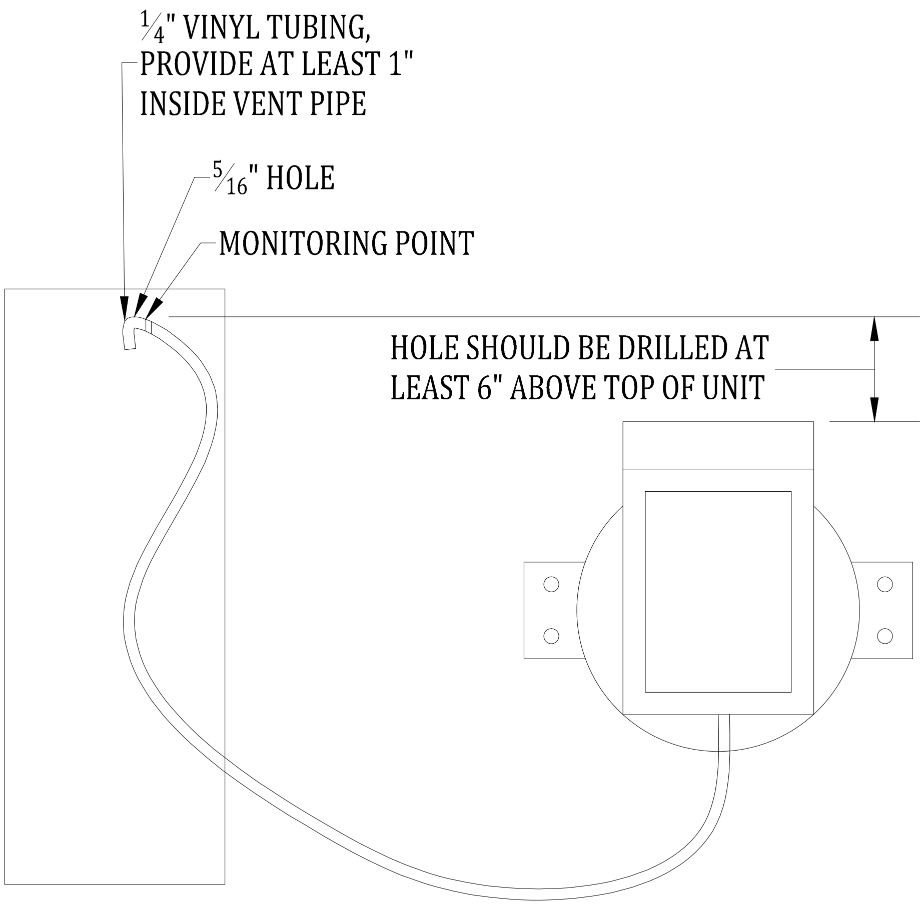
Dust control and work plan safety meetings will be held by the contractor prior to the start of work each day. An onsite supervisor will be designated as the safety officer. All workers will be directed to perform work in a safe manner and notify site safety officer of any potential hazards.



LEGEND:
⊖ FESTA FURY
☐ FESTA FORCE
● EXTRACTION POINT

BE3CORP PANAMERICAN ENVIRONMENT • ENGINEERING • ENERGY 1270 Niagara Street Buffalo, NY 14213 716.249.6880 be3corp.com	FIGURE 1 - SSDS OVERALL SYSTEM DESIGN DETAIL 31 TONAWANDA STREET BUFFALO, NY 14207	
08-06-2019	SCALE: 1" = 10'	SHEET 1 OF 1

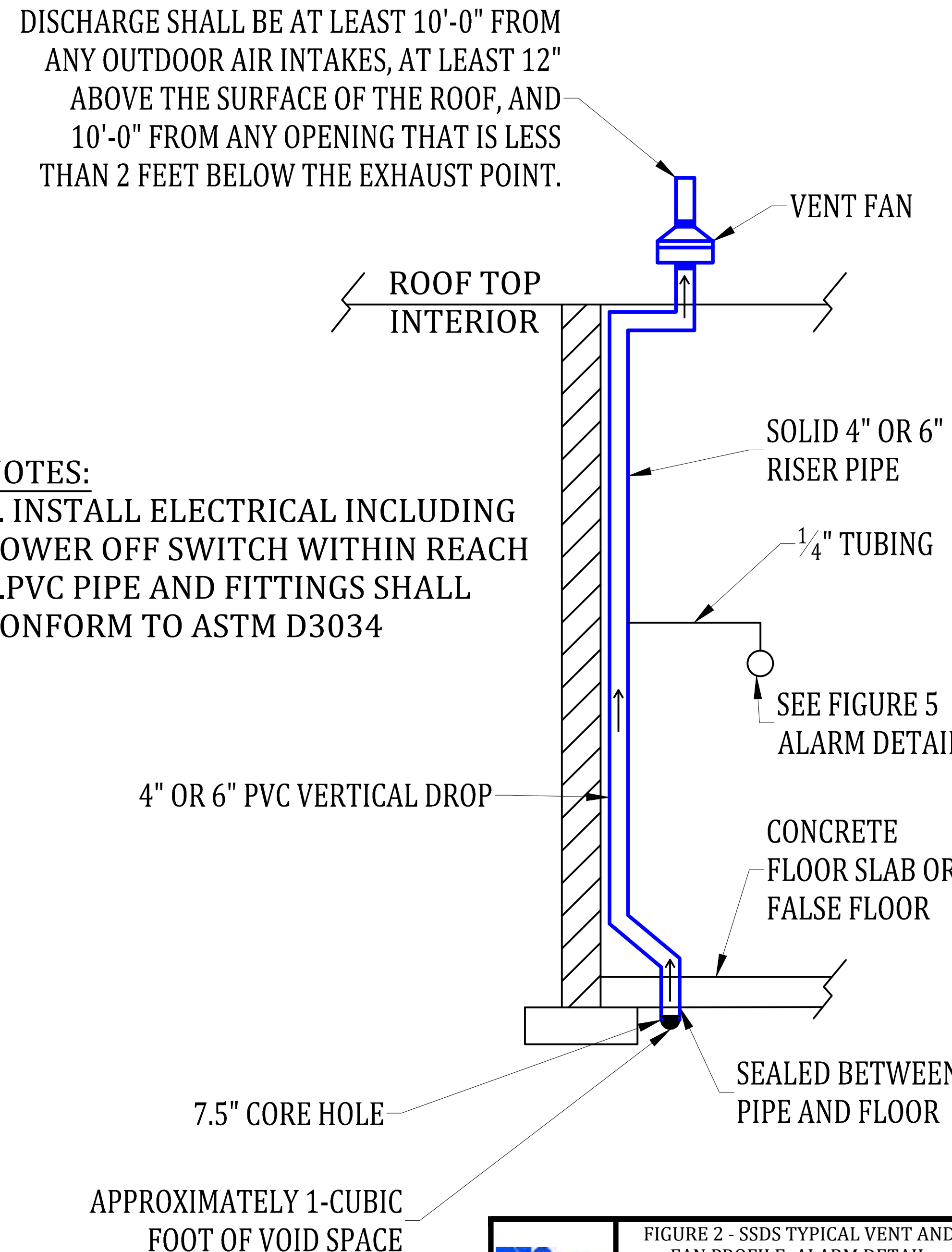
ALARM DETAIL



NOTES:

1. PRESSURE SET POINT: -0.25 INCHES WC.
2. PROVIDE ALARM COMPANY LABEL AND CONTACT INFORMATION
3. LOCATE DEVICE WHERE IT CAN BE SEEN AND HEARD
4. CONNECT DEVICE TO A SEPARATE CIRCUIT FROM FAN SO THAT IT WILL ACTIVATE IF POWER TO THE FAN IS INTERRUPTED
5. ALARM WILL SOUND WHEN PRESSURE WITHIN THE VENT PIPE DROPS BELOW THE SET POINT

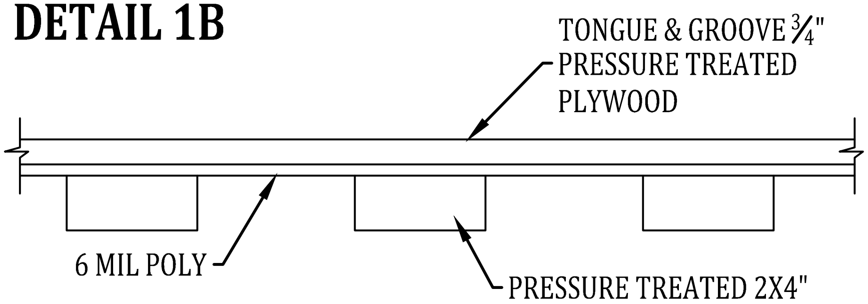
TYPICAL VENT



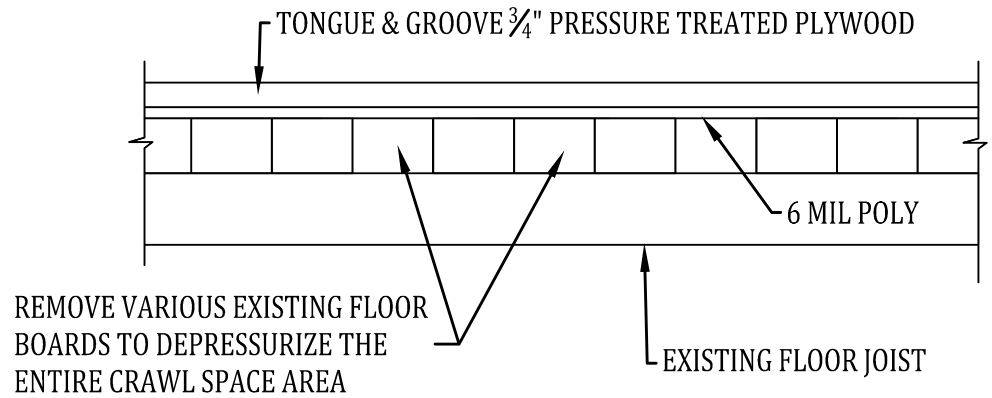
NOTES:
1. INSTALL ELECTRICAL INCLUDING POWER OFF SWITCH WITHIN REACH
2. PVC PIPE AND FITTINGS SHALL CONFORM TO ASTM D3034

BE3 CORP PAN AMERICAN	FIGURE 2 - SSDS TYPICAL VENT AND FAN PROFILE; ALARM DETAIL
	31 TONAWANDA STREET BUFFALO, NY 14207
08-06-2019	SCALE: NTS — SHEET 1 OF 1

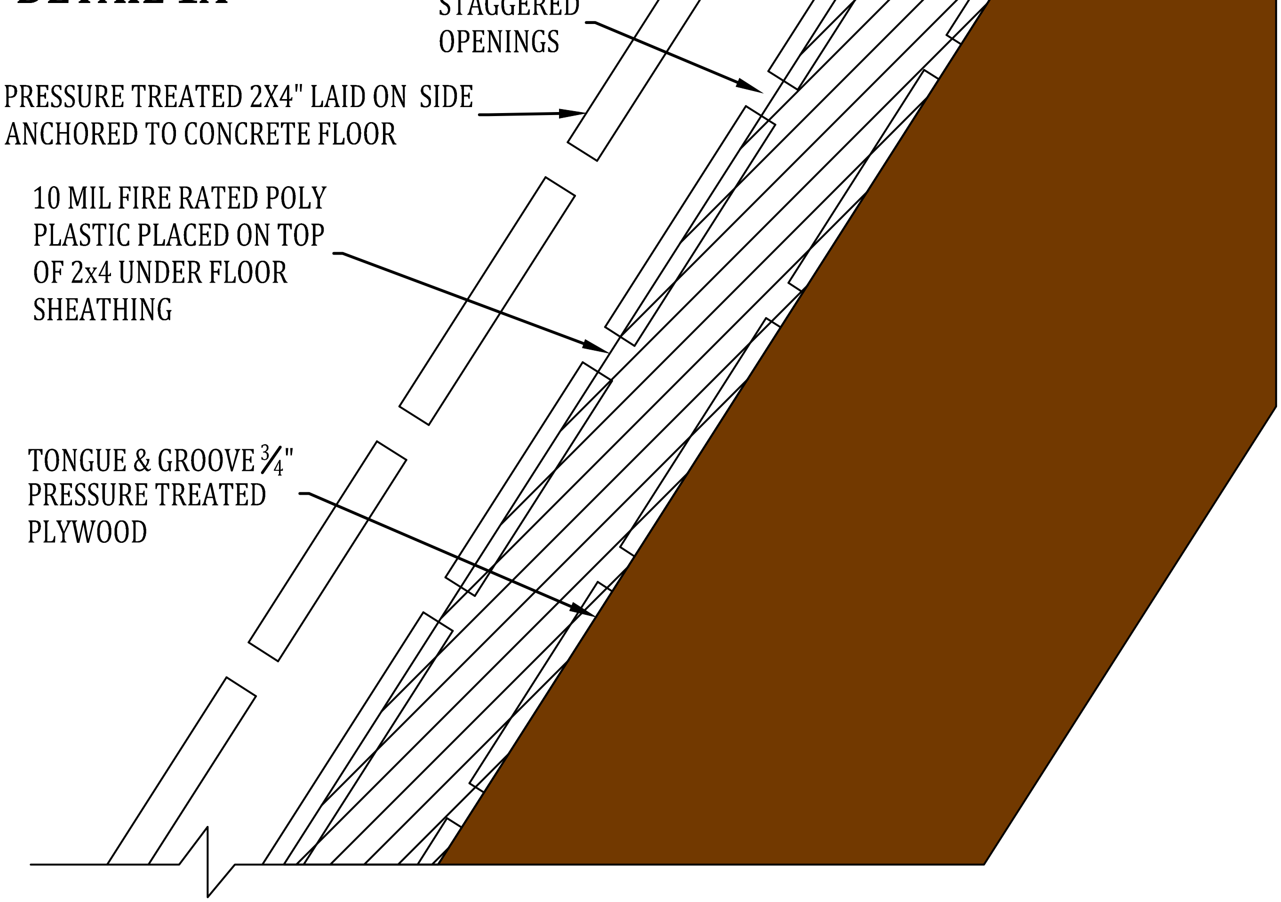
FALSE FLOOR CROSS SECTION - BASEMENT
DETAIL 1B



FALSE FLOOR CROSS SECTION - CRAWL SPACE
DETAIL 1C (NOTE: ONLY IN CRAWL SPACE)

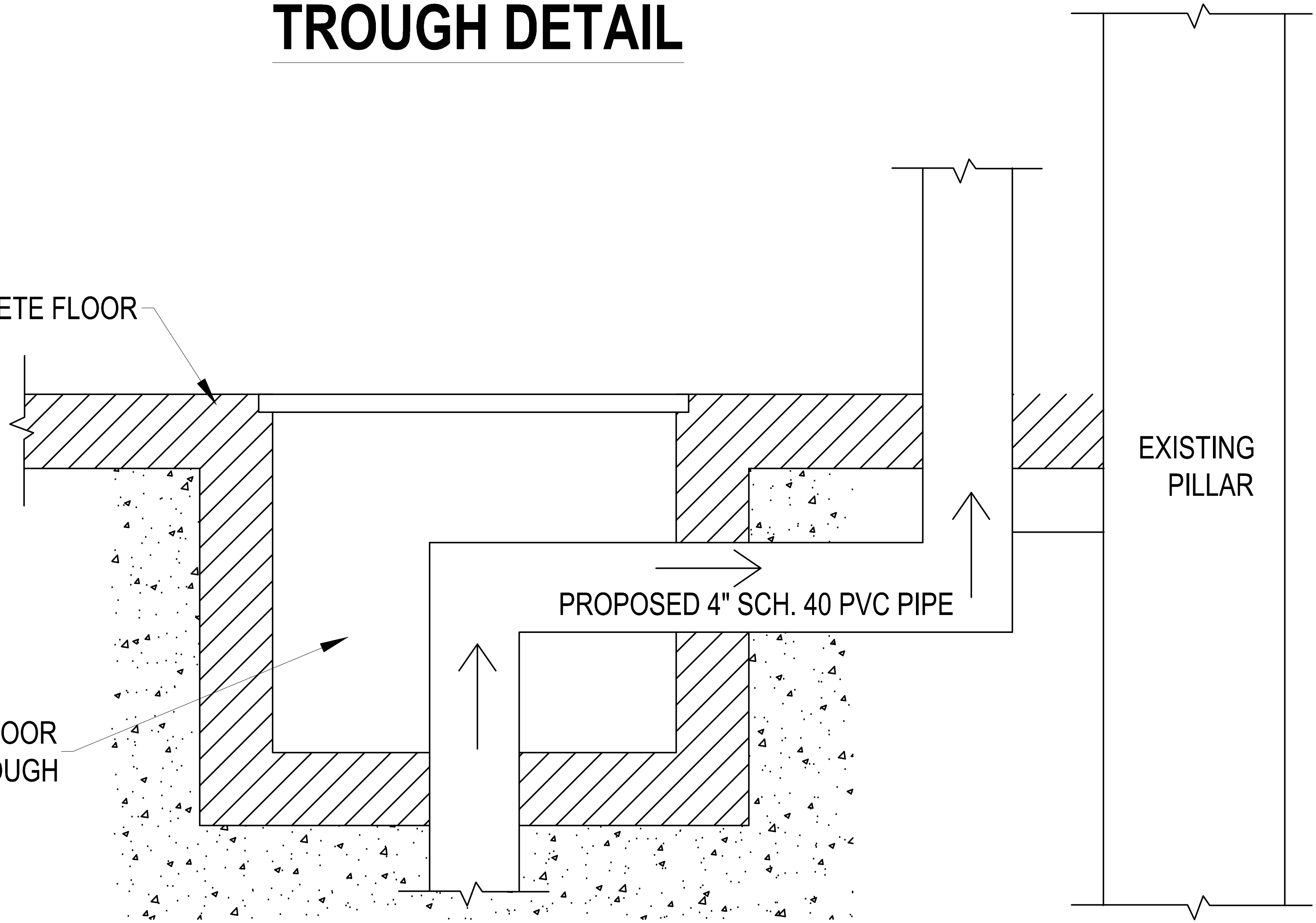


FALSE FLOOR DESIGN
DETAIL 1A



BE3 CORP PANAMERICAN	FIGURE 3 - SSDS FALSE FLOOR BASEMENT AND CRAWLSPACE DETAIL	
	31 TONAWANDA STREET BUFFALO, NY 14207	
08-06-2019	SCALE: NTS	SHEET 1 OF 1

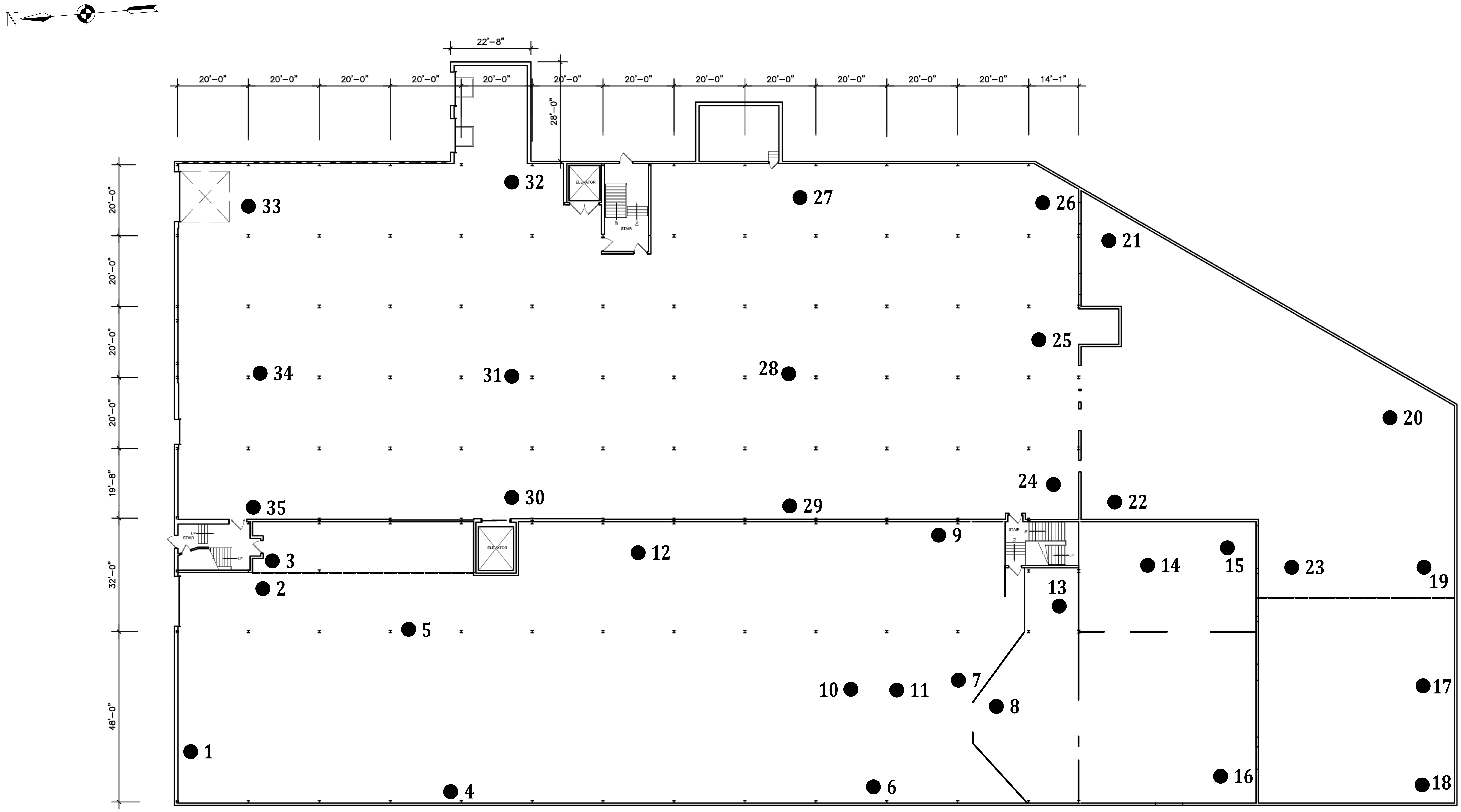
TROUGH DETAIL



NOTE:

SAW CUT CONCRETE FLOOR FROM TROUGH TO PILLAR TO INSTALL 4" SCH. 40 PIPE LATERAL FROM TROUGH TO RISER PIPE. JACKHAMMER A MINIMUM OF 8' IN LENGTH OF THE BASE OF THE TROUGH WHERE EXTRACTION POINT IS LOCATED. REMOVE AT LEAST 1' IN DEPTH OF SOIL AND REPLACE WITH WASHED #2 STONE. THEN CAP WITH 4" OF NEW CONCRETE

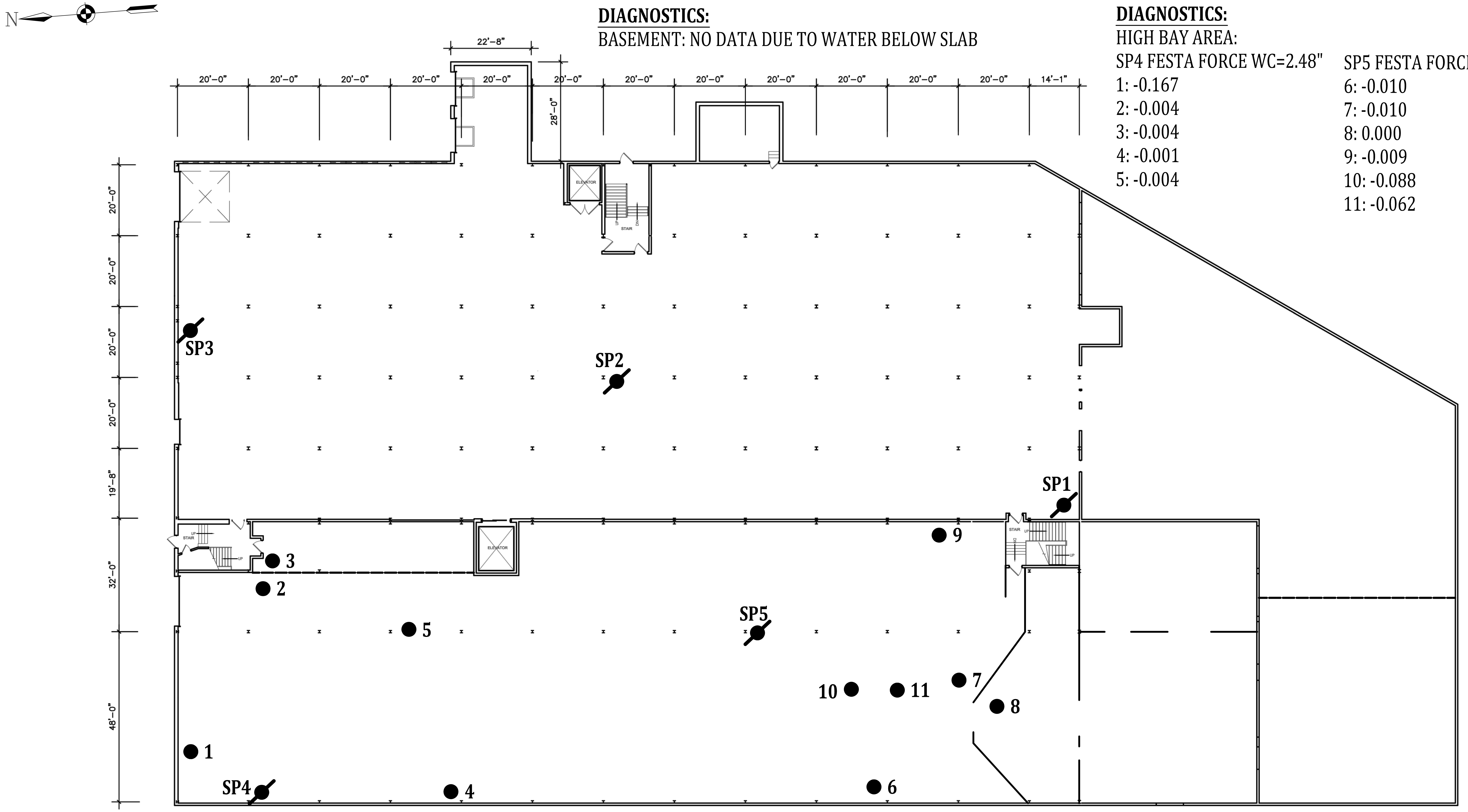
BE3 CORP PANAMERICAN	FIGURE 4 - SSDS TROUGH DETAIL
	31 TONAWANDA STREET BUFFALO, NY 14207
08-06-2019	SCALE: NTS / SHEET 1 OF 1



LEGEND:

● TEST POINT

BE3CORP PANAMERICAN ENVIRONMENT • ENGINEERING • ENERGY 1270 Niagara Street Buffalo, NY 14213 716.249.6880 be3corp.com	FIGURE 5 - SSDS PROPOSED VACUUM TEST POINTS 31 TONAWANDA STREET BUFFALO, NY 14207
08-06-2019	SCALE: 1" = 10' — SHEET 1 OF 1



DIAGNOSTICS:

BASEMENT: NO DATA DUE TO WATER BELOW SLAB

DIAGNOSTICS:

HIGH BAY AREA:

SP4 FESTA FORCE WC=2.48"	SP5 FESTA FORCE WC=2.52"
1: -0.167	6: -0.010
2: -0.004	7: -0.010
3: -0.004	8: 0.000
4: -0.001	9: -0.009
5: -0.004	10: -0.088
	11: -0.062

LEGEND:

SUCTION POINT

TEST POINT

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Buffalo, NY 14213
716.249.6880 be3corp.com

FIGURE 6 - SSDS PRE DESIGN SUB SLAB DIAGNOSTICS

31 TONAWANDA STREET
BUFFALO, NY 14207

08-06-2019	SCALE: 1" = 10'	SHEET 1 OF 1

APPENDIX L

PROPOSED GROUNDWATER TREATMENT SYSTEM

REDOX TECH, LLC

"Providing Innovative In Situ Soil and Groundwater Treatment"

April 30, 2019

Via Email
Peter J. Gorton, MPH, CHCM
BE3 Corp.
1270 Niagara Street
Buffalo, NY 14213
pgorton@be3corp.com

RE: ABC+ Injection Plan – Revision No. 1
31 Tonawanda Street, Buffalo, NY

Dear Mr. Gorton:

Redox Tech is pleased to provide you with the following revised proposal to inject Anaerobic BioChem and zero valent iron (ABC+) to remediate chlorinated alkene impacted soil and groundwater at your site in Buffalo, NY. The following is the company background, product background, Full Scale injection design, Pilot Scale injection design and associated costs:

Company Information:

Redox Tech, LLC. (RT) is an environmental remediation firm that specializes in *in situ* remediation of soil and groundwater. Redox Tech provides state-of-the-art services in delivery and formulation for *in situ* remediation. Founded in 1995 by Dr. John Haselow, Redox Tech provides remediation service from conceptual design, bench-scale testing, and pilot-scale testing through full-scale remediation. Redox Tech specializes in *in situ* chemical oxidation (ISCO), chemical reduction, both aerobic and anaerobic bioremediation, and metals stabilization. Redox Tech is one of the leading in situ remediation contractors in the eastern United States. We provide a wide suite of chemical and biological in situ remediation services, and therefore are not biased in our approach.

Redox Tech is one of few *in situ* remediation contractors that are fully equipped with direct push drill rigs, injection, and blending capabilities. Redox Tech has over 30 employees including 2 PhD engineers. Dr. Haselow, who is the owner and founder of Redox Tech, published the first paper on total oxidant demand for design of in situ chemical oxidation.

ABC+ Background:

The addition of ZVI to the ABC mixture provides a number of advantages for enhanced reductive dechlorination (ERD). The ZVI will provide an immediate reduction. The ABC® will provide short-term and long-term nutrients to support anaerobic bacteria growth, which also assists in creating a reducing environment. ABC® contains soluble lactic acid and a phosphate buffer that maintains the pH in a range that is best suited for microbial growth and provides an important micronutrient for bioremediation. In addition, the corrosion of iron metal yields ferrous iron and hydrogen, both of which are possible reducing agents. The hydrogen gas produced is also an excellent energy source for a wide variety of anaerobic bacteria. Redox Tech is the only company licensed to offer the combination of lactates plus zvi. More information on ABC® and ZVI can be found on our website (www.redox-tech.com). ABC+ typically remains active for several months to years in the subsurface.

Option No.1 Full Scale Injection Plan:

Reactive Barrier: Injection of ABC+ will be performed through 1.5 inch injection rods that are penetrated into the subsurface with a track mounted Geoprobe®. It is anticipated that a total of twenty nine (29) injection points, spaced approximately 5 feet apart, will be needed for the treatment area. The subsurface will receive a total of 11,000 pounds of ABC+ (50% zero valent iron) to treat the contamination before it migrates to the creek. Mixed at approximately 16 wt% solution, this will result in 6,960 gallons of solution. Each injection point will receive 240 gallons, divided up between depth intervals 8, 10, 12, 14, 16, 18, 20, and 22 feet below the ground surface activity.

Interior Injection Points: Injection of ABC+ will be performed through 1.5 inch injection rods that are penetrated into the subsurface with a 540 Geoprobe®. It is anticipated that a total of nineteen (19) injection points (spaced 15 to 20 feet apart) will be needed for the treatment area. The subsurface will receive a total of 27,000 pounds of ABC+ (50% zero valent iron) to treat the contamination in the source area. Mixed at approximately 20 wt% solution, this will result in 12,920 gallons of solution. Each injection point will receive 680 gallons, divided up between depth intervals 8, 11, 14, 17, and 20 feet below the concrete slab.

General Treatment Areas: