WESTERN NEW YORK WORKFORCE TRAINING CENTER

ERIE COUNTY

BUFFALO, NEW YORK

SITE MANAGEMENT PLAN

NYSDEC Site Number: C915310

Prepared for:

683 Northland, LLC

95 Perry Street, Suite 404

Buffalo, New York 14203

Prepared by:

LiRo Engineers, Inc.

690 Delaware Ave

Buffalo, New York 14209

716-882-5476

Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

DECEMBER 2018

CERTIFICATION STATEMENT

I Martin Wesolowski certify that I am currently a NYS registered professional engineer as in defined in 6NYCRR Part 375 and that this Site Management Plan 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).

_____ P.E.

12/20/2018 DATE

TABLE OF CONTENTS

WESTERN NEW YORK WORKFORCE TRAINING CENTER

ERIE COUNTY

BUFFALO, NEW YORK

SITE MANAGEMENT PLAN

List of Tables

List of Figures (Following Tables at End of Text)

TABLE OF CONTENTS (Continued)

List of Appendices

LIST OF ACRONYMS

ASP	Analytical Services Protocol
AST	Aboveground storage tank
AWQSGVs	Ambient Water Quality Standards and Guidance Values
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
CAMP	Community Air Monitoring Plan
C/D	Construction and Demolition
CFR	Code of Federal Regulation
COC	Certificate of Completion
CP	Commissioner Policy
DER	Division of Environmental Remediation
DUSR	Data Usability Summary Report
EC	Engineering Control
ECDOH	Erie County Department of Health
ECL	Environmental Conservation Law
EWP	Excavation Work Plan
ftbg	feet below grade
HASP	Health and Safety Plan
IC	Institutional Control
IRM	Interim Remedial Measure
LBP	Lead-based paint
LiRo	LiRo Engineers, Inc.
mg/kg	milligram / kilogram
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
NYCRR	New York Codes, Rules and Regulations
O&M	Operation and Maintenance
OSHA	Occupational Safety and Health Administration
PAH	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyl
PID	Photoionization Detector
ppm	parts per million
PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RPM	rotations per minute
RSO	Remedial System Optimization
SCG	Standards, Criteria and Guidelines

SCO	Soil Cleanup Objective
sf	square foot
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SSD	Sub-slab Depressurization
SVI	Soil Vapor Intrusion
TAL	Target Analyte List
TCL	Target Compound List
UDO	Unified Development Ordinance
USDOL	United States Department of Labor
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound

ES EXECUTIVE SUMMARY

The following provides a brief summary of the controls implemented for the Site, as well as the inspections, monitoring, maintenance, and reporting activities required by this Site Management Plan (SMP):

Site Identification:	C915310 Western New York Workforce Training Center, 683 Northland Avenue, Buffalo, New York	
Institutional Controls:	1. The property may be used for commercial and/or industrial use.	
	2. Environmental Easement.	
	3. Groundwater use at the site is prohibited without necessary treatment per ECDOH/ NYSDOH	
	4. All Engineering Controls (ECs) must be inspected at a frequency and in a manner defined in the SMP.	
Engineering Controls:	1. Cover system.	
	2. Sub-Slab Depressurization System.	
Inspections:		**Frequency**
1. Cover inspection		Annually
Monitoring:		
1. New Observation Wells OW-1, OW-2, OW-3, OW-4, OW-5 and Existing Monitoring Wells MW-1, LW-03, LW-04, LW-05 and LW-06		Quarterly
2. New Observation Wells OW-1, OW-2, OW-3, OW-4, OW-5 and Existing Monitoring Wells LW-03 and MW-1		Initial Sampling in 2019. Additional sampling frequency to be determined.
3. SSD System – Fan Operation/Riser Pressure		Daily
4. SSD System – Sub-slab Pressure Monitoring Points		At startup, then annually

Site Identification:	C915310 Western New York Workforce Training Center, 683 Northland Avenue, Buffalo, New York
Maintenance:	
1. SSD System Maintenance	As Needed
2. Cover System Maintenance	As Needed
Reporting:	
1. Groundwater Observation Well Data	Quarterly
2. Periodic Review Report (PRR)	Annually

Further descriptions of the above requirements are provided in detail in the latter sections of this SMP.

1.0 INTRODUCTION

1.1 General

This SMP is a required element of the remedial program for the Western New York Workforce Training Center located in Buffalo, New York (hereinafter referred to as the "Site"). See Figure 1. The Site is currently in the New York State (NYS) Brownfield Cleanup Program (BCP) Site No. C915310, which is administered by New York State Department of Environmental Conservation (NYSDEC).

683 Northland, LLC entered into a Brownfield Cleanup Agreement (BCA) on February 6, 2017 with the NYSDEC to remediate the Site. A figure showing the Site location and boundaries of this Site is provided in Figure 2. The boundaries of the Site are more fully described in the metes and bounds Site description that is part of the Environmental Easement provided in Appendix D.

After completion of the remedial work, some contamination was left at this Site, which is hereafter referred to as "remaining contamination". Institutional and Engineering Controls (ICs and ECs) have been incorporated into the Site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Erie County Clerk, requires compliance with this SMP and all ECs and ICs placed on the Site.

This SMP was prepared to manage remaining contamination at the Site until the Environmental Easement is extinguished in accordance with Environmental Conservation Law (ECL) Article 71, Title 36. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

It is important to note that:

- This SMP details the Site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the Environmental Easement, which is grounds for revocation of the Certificate of Completion (COC);
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6 New York Codes, Rules and Regulations (NYCRR) Part 375 and the BCA Site #C915310-12-16 for the site, and thereby subject to applicable penalties.

All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State. A list of contacts for persons involved with the Site is provided in Appendix A of this SMP.

This SMP was prepared by LiRo Engineers, Inc. (LiRo), on behalf of 683 Northland, LLC, in accordance with the requirements of the NYSDEC's Division of Environmental Remediation (DER)-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 2010, and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the ICs and/or ECs that are required by the Environmental Easement for the Site.

1.2 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements; upgrades to or shut-down of a remedial system; post-remedial removal of contaminated sediment or soil; or, other significant change to the Site conditions. In accordance with the Environmental Easement for the Site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.3 Notifications

Notifications will be submitted by the property owner to the NYSDEC, as needed, in accordance with NYSDEC's DER – 10 for the following reasons.

- 60-day advance notice of any proposed changes in Site use that are required under the terms of the BCA, 6NYCRR Part 375 and/or Environmental Conservation Law.
- 7-day advance notice of any field activity associated with the remedial program.
- 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan.
- Notice within 48-hours of any damage or defect to the foundation, structures, or EC that reduces or has the potential to reduce the effectiveness of an EC, and likewise, any action to be taken to mitigate the damage or defect.
- Verbal notice by noon of the following day of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the Site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action submitted to the NYSDEC within 45 days describing and documenting actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the Site or the responsibility for implementing this SMP will include the following notifications.

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser/Remedial Party has been provided with a copy of the BCA, and all approved work plans and reports, including this SMP.

- Within 15 days after the transfer of all or part of the Site, the new owner's name, contact representative, and contact information will be confirmed in writing to the NYSDEC.

Table A includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of Site-related contact information is provided in Appendix A.

Table A: Notifications*

Name	Contact Information
Benjamin McPherson, PE	716-851-7220 benjamin.mcpherson@dec.ny.gov
Chad Staniszewski, PE	716-851-7220 chad.staniszewski@dec.ny.gov
Kelly Lewandowski, PE	518-402-9553 kelly.lewandowski@dec.ny.gov

* Note: Notifications are subject to change and will be updated as necessary.

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location And Description

The Site is located in Buffalo, Erie County, New York and is identified as Section 21, Block 5, and Lots 1.1 and 1.22 on the Erie County Tax Map (see Figure 2). The Site is an approximately 8.548-acre area and is bounded by Northland Avenue to the north, A CSX rail line to the south, a commercial property to the east, and an industrial property to the west (see Figure 2 – Site Layout Map). The boundaries of the Site are more fully described in Appendix D – Environmental Easement/Notice/Deed Restriction. The owner(s) of the Site parcels at the time of issuance of this SMP is/are:

683 Northland, LLC

2.2 Physical Setting

2.2.1 Land Use

The Site consists of the following: a four-story office area on the north side along Northland Avenue; a series of connecting training/manufacturing spaces; a detached one-story shed; and, parking areas. The Site is zoned industrial and is currently being prepared to be utilized for job training and manufacturing. Site occupants include the Western New York Training Center with Buffalo Manufacturing Works.

The properties adjoining the Site and in the neighborhood surrounding the Site primarily include commercial, industrial, and residential properties. The properties immediately south of the Site include the CSX rail line; the properties immediately north of the Site include parking areas then residential properties; the properties immediately east of the Site include commercial properties; and, the properties immediately west of the Site include industrial properties.

2.2.2 Geology

The general stratigraphy at the Site consists of fill, underlain by a silty clay layer, over bedrock. The fill encountered at the Site generally consists of silt, sand, and gravel with a mixture of crushed stone, yellow and red brick, coal, glass, slag, ash, metal fragments, and wood; and, ranged in thickness from approximately 2 inches to 10.3 feet. In general, the fill layer beneath the building and in the northern portion of the Site was relatively thin (4 feet or less). The fill thickness increases significantly and the silty clay layer thickness decreases in the southern and southwestern portion of the Site.

The native soils underlying the fill generally consist of brown/tan silty clay which is underlain by bedrock. The silty clay layer thickness was typically in the range of 1 to 5 feet. Bedrock consists of light to dark gray cherty limestone that was moderately fractured or broken at the top of the formation.

A geologic cross section is shown as Figure 3A and a bedrock surface contour map is shown as Figure 3B. Site-specific boring logs are provided in Appendix E.

2.2.3 Hydrogeology

Groundwater is typically first encountered at the Site within the bedrock. The average depth to groundwater is approximately 10 feet below grade (ftbg) across the Site based on water level measurements collected in April and November 2017. In April 2017, the groundwater flow direction was generally to the southwest at a gradient of 0.0045 foot per foot. In November 2017, the groundwater flow direction was generally to the southeast at a gradient of 0.0167 foot per foot. Studies at other properties in the Site area suggest that area-wide groundwater flow is generally toward the southwest. Hydraulic conductivity in the bedrock is expected to be highly variable depending on the density and interconnectedness of water-bearing bedrock fracture zones.

Groundwater contour maps are shown on Figures 4A and 4B. Groundwater elevation data is provided in Table 1. Soil boring and groundwater monitoring well construction logs are provided in Appendix E.

2.3 Investigation And Remedial History

The 683 Northland Avenue property is an approximately 8.548-acre parcel of land zoned for manufacturing. Buildings constructed between 1911 and 1983 comprise approximately 235,000 square feet (sf) or 5.4 acres (62%) of the Site. The buildings were subsequently used for storage through 2015. The northern portion of the complex (aka Phase I construction area) currently houses the Western New York Workforce Training Center which opened in 2018 and Phase II construction is ongoing in the southern portion of the facility. The Site was originally developed by and used by the former Niagara Machine and Tool Co.. The building complex is comprised of a four-story office area on the north side along Northland Avenue, a series of ten connecting manufacturing spaces, and a detached one-story shed located on the west side of the facility. The building is currently being redeveloped for mixed commercial/industrial uses including the Western New York Workforce Training Center which currently occupies the northern portion of the complex (identified as Phase I construction). Phase II construction, which is primarily in the southern portion of the building complex, is in progress at this time.

The building complex was developed from numerous building expansions between 1911 through 1983. Niagara Machine and Tool, the original occupant, primarily manufactured tools and machines for working with sheet metal, specializing in presses, punches, and rotary sheets at the Site. Operations at the plant included welding, steel fabricating, forging, and machining.

The following narrative provides a remedial history timeline and a brief summary of the available project records to document key investigative and remedial milestones for the Site. Full titles for each of the reports referenced below are provided in Section 8.0 - References.

Fisher Associates (Fisher) performed a Phase I Environmental Site Assessment (Fischer, January 2015) for the Site, a Phase II Site Assessment (Fischer, September 2015), and a Supplemental Site Assessment (Fisher, January 2016). The Fisher investigations

identified: oil-impacted wooden block floors; subsurface soil contaminated with polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and metals; presence of aboveground and underground storage tanks (ASTs/USTs); pits and sumps containing oil, water, and contaminated residual solids; lead-based paint (LBP); asbestos; and, mold. LiRo conducted further testing of the flooring and identified elevated levels of PCBs in the wooden blocks and underlying concrete within the former building manufacturing area.

Based on the findings of the Fisher investigations and pre-design testing, 683 Northland, LLC (formerly known as NorDel II, LLC) entered into a BCA and LiRo completed reports for the following investigations and Interim Remedial Measures.

- Remedial Investigation Report, Alternatives Analysis and Remedial Action Work Plan, March 2018.
- Construction Completion Report for IRM-1, June 2018.
- Construction Completion Report for IRM-2, June 2018.

The Remedial Investigation (RI) identified an area of highly contaminated soil outside of the building in the southwestern portion of the Site. Based on RI (and subsequent IRM excavation) observations, this area had been filled with oily waste containing metallic debris as well as brick, concrete, and other man-made materials that likely was attributable to the former Site operations. Metals (including arsenic, barium, copper, lead, and manganese), PAHs, and PCBs were detected in numerous soil samples from this area at concentrations which exceeded commercial soil cleanup objectives (SCOs). In general, soil volatile organic compounds (VOCs) were detected at concentrations that did not exceed commercial SCOs with the exception of xylenes in one sample. The total PCB concentrations at the locations with PCB exceedances ranged from 1.2 milligram / kilogram (mg/kg) to 210 mg/kg. The RI also identified metals and PAHs at concentrations in excess of commercial SCOs in surface soil (in unpaved areas on the western side of the site), in fill soils beneath the building, and in several other areas at the site.

Groundwater sampling results reported four metals that were found in exceedance of Ambient Water Quality Standards and Guidance Values (AWQSGVs) including iron, magnesium, manganese, and sodium. There were no organic compounds detected in groundwater at concentrations in excess of AWQSGVs.

Sub-slab soil vapor analytical results indicate that concentrations of VOCs were present in each of the sub-slab soil vapor samples collected. Trichloroethylene was reported at concentrations greater than 60 micrograms per cubic meter ($\mu g/m^3$) (a threshold indicating "mitigation" in the New York State Department of Health [NYSDOH] decision matrix) at three closely spaced locations within the four-story office/administration area (SV-02, SV-03 and SS-03) and at a single location SS-07 in the manufacturing space proximal to the four-story office/administration area.

IRM-1 was initiated to address contamination within the building and included: removal of contaminated solid and liquid residuals from the many pits and sumps that were present in the building; removal and off-site disposal of contaminated wooden block flooring; removal and off-site disposal of PCB-contaminated concrete flooring in the northern portion of the former manufacturing area; cleaning and inspection of the pits and sumps; and, removal of hydraulic oil tanks within the building. The work also included extensive asbestos abatement and cleaning of contaminated building materials.

The focus of IRM-2 was the mitigation of contaminated soils at the Site to the extent required to install new utilities. The mitigation activities included the excavation, characterization, transportation, and off-site disposal at facilities permitted to accept the soils excavated during the installation of utilities and the construction of a stormwater detention system. Mitigation of contaminated soils during IRM-2 was limited to the soils excavated during construction activities.

During IRM-2, LiRo collected additional documentation samples from the sidewalls and bottoms of the excavations. IRM-2 sampling reported concentrations of

PAHs, PCBs and metals in excess of commercial SCOs at multiple locations at depths greater than 1 ftbg.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as listed in the Decision Document dated July 3, 2018 are as follows:

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:

- Prevent the discharge of contaminants to surface water.

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.

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.

2.5 Remaining Contamination

2.5.1 Soil

Site remedial actions to address soil contamination were completed during IRM-2 and during implementation of the final Site remedy. After completion of the soil excavation, residual contaminants are present in soil below the Site cover system at concentrations which exceed Unrestricted Use and Commercial Use SCOs. The residual contaminants, which include PAHs, PCBs, and metals, are present at depths ranging from immediately below the Site cover and demarcation layer to the top of rock or native soil (i.e., up to approximately 11 feet).

Figure 5 indicates the locations where Unrestricted Use and Commercial Use SCOs are exceeded. Tables 2A-2D summarize the results of all soil samples collected that exceed the Unrestricted Use SCOs and the Commercial Use SCOs at the Site after completion of remedial action.

2.5.2 Groundwater

Analytical data for groundwater samples identified the presence of metals at concentrations exceeding the NYSDEC AWQSGVs for class GA groundwater; however, the metals in exceedance (iron, magnesium, manganese, and sodium) do not appear to be related to Site impacts and are more likely representative of a background condition. During excavation of the detention basin, groundwater mixed with oil was observed upwelling into the southwestern corner of the excavation. Oily groundwater seepage was also identified in the vicinity of the former heating oil tanks and a former transformer house attached to the building. The detention basin seepage area was pumped out and sealed prior to backfilling. The Site Monitoring Plan will include the installation of shallow bedrock observation wells which will be monitored to determine if further remedial action is required to prevent off-site migration of oil impacted groundwater.

Table 3 and Figure 6 summarize the results of all groundwater samples that exceed the Standards, Criteria and Guidelines (SCGs) after completion of the remedial action as

well as locations where oil seepage was identified. Table 4 presents a summary of oil characterization from samples that were collected from seepage where a sufficient quantity of oil could be collected.

2.5.3 Surface Water

Surface water is not present at or in proximity to the Site. Storm water runoff is conveyed first to the detention basin structure and then through the City of Buffalo combined sewer system which discharges through the Bird Island waste water treatment plant to the Niagara River (regardless of high or low flow conditions).

2.5.4 Soil Vapor

The Site remedy included installation of a Sub-Slab Depressurization (SSD) system beneath the four-story administration building and the northern manufacturing area. There is no apparent VOC source in Site soil or groundwater. Trichloroethylene was reported at concentrations greater than 60 $\mu g/m^3$ (a threshold indicating "mitigation" in the NYSDOH decision matrix) at three closely spaced sub-slab sample locations below the four-story office/administration area (SV-02, SV-03, and SS-03) and at a single sub-slab sample location SS-07 below the manufacturing space adjacent to the four-story office/administration area. Subsequent to the RI sampling, portions of the pre-existing floor slabs were removed. A complete soil vapor intrusion assessment will be implemented under the Site Monitoring Plan described in Section 4.0 of the SMP.

Table 5 and Figure 7 summarize the results of all samples of soil vapor that exceeded the SCGs during the RI.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

Since remaining contamination exists at the Site, ICs and ECs are required to protect human health and the environment. This IC/EC Plan describes the procedures for the implementation and management of all IC/ECs at the Site. The IC/EC Plan is one component of the SMP and is subject to revision by the NYSDEC.

This plan provides:

- A description of all IC/ECs on the Site;
- The basic implementation and intended role of each IC/EC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the controls to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of IC/ECs, such as the implementation of the Excavation Work Plan (EWP) (as provided in Appendix B) for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site; and,
- Any other provisions necessary to identify or establish methods for implementing the IC/ECs required by the Site remedy, as determined by the NYSDEC.

3.2 Institutional Controls

A series of ICs is required by the Decision Document to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination; and, (3) limit the use and development of the Site to commercial and/or industrial use. Adherence to these ICs on the Site is required by the Environmental Easement and will be implemented under this SMP. ICs identified in the Environmental

Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement. The IC boundaries are shown on Figure 8. These ICs are:

- The property may be used for commercial and/or industrial use;
- All ECs must be operated and maintained as specified in this SMP;
- All ECs must be inspected at a frequency and in a manner defined in the SMP;
- The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Erie County Department of Health (ECDOH) to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;
- Groundwater and other environmental or public health monitoring must be performed as defined in this SMP;
- Data and information pertinent to Site management must be reported at the frequency and in a manner as defined in this SMP;
- All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP;
- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP;
- Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this SMP;
- Access to the Site must be provided to agents, employees, or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement;
- The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted on Figure 8, and any potential impacts that are identified must be monitored or mitigated; and,
- Vegetable gardens and farming on the Site are prohibited.

3.3 Engineering Controls

3.3.1 Cover

Exposure to remaining contamination at the Site is prevented by a cover system placed over the Site. This is a composite cover system that is comprised of a minimum of 12 inches of clean soil, as defined by the requirements for commercial use in Part 375-6.7(d), over any landscaped/unpaved areas, or concrete/asphalt cover over remaining portions of the Site. Figure 8 presents the location of the cover system and applicable demarcation layers. The EWP provided in Appendix B outlines the procedures required to be implemented in the event the cover system is breached, penetrated, or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection of this cover are provided in the Monitoring and Sampling Plan included in Section 4.0 of this SMP. Any work conducted pursuant to the EWP (Appendix B) must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) provided in Appendix H and the Community Air Monitoring Plan (CAMP) provided in the HASP (Appendix H, Section 9.0).

3.3.2 Sub-Slab Depressurization System

A SSD system has been installed in the Phase I construction area of the Site building to mitigate the potential for soil vapor intrusion. Procedures for operating and maintaining the SSD system are documented in the Operation and Maintenance (O&M) Plan (Section 5.0 of this SMP). As built drawings, signed and sealed by a professional engineer, are included in Appendix J – Operation and Maintenance Manual. Figure 8 shows the location of the ECs for the Site.

3.3.3 Criteria For Completion Of Remediation/Termination Of Remedial Systems

Generally, remedial processes are considered completed when monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10.

3.3.3.1 - Cover

The composite cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in accordance with this SMP in perpetuity.

3.3.3.2 - Sub-Slab Depressurization (SSD) System

The active SSD system will not be discontinued unless prior written approval is granted by the NYSDEC and the NYSDOH. In the event that monitoring data indicates that the SSD system may no longer be required, a proposal to discontinue the SSD system will be submitted by the remedial party to the NYSDEC and NYSDOH.

3.3.3.3 - Observation Wells For Product Migration Monitoring

Groundwater monitoring activities to assess potential migration of oil will continue, as determined by the NYSDEC, until such time that product has not been observed over an extended period. In the event that monitoring data indicates that monitoring may no longer be required, a proposal to discontinue the monitoring will be submitted by the remedial party. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If product is routinely detected in the observation wells, additional source removal, treatment, and/or control measures will be evaluated. If necessary, a supplemental work plan will be prepared for NYSDEC approval prior to implementation of additional remedial action.

4.0 MONITORING AND SAMPLING PLAN

4.1 General

This Monitoring and Sampling Plan describes the measures for evaluating the overall performance and effectiveness of the remedy. This Monitoring and Sampling Plan may only be revised with the approval of the NYSDEC. Details regarding the sampling procedures, data quality usability objectives, analytical methods, etc. for all samples collected as part of site management for the Site are included in the Quality Assurance Project Plan provided in Appendix G.

This Monitoring and Sampling Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (e.g., groundwater, indoor air, soil vapor, soils);
- Assessing compliance with applicable NYSDEC SCGs, particularly groundwater standards and Part 375 SCOs for soil; and,
- Evaluating Site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment.

To adequately address these issues, this Monitoring and Sampling Plan provides information on:

- Sampling locations, protocol, and frequency;
- Information on all designed monitoring systems;
- Analytical sampling program requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and,
- Annual inspection and periodic certification.

Reporting requirements are provided in Section 7.0 of this SMP.

4.2 Site – Wide Inspection

Site-wide inspections will be performed at a minimum of once per year. Modification to the frequency or duration of the inspections will require approval from the NYSDEC. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or monitoring devices. During these inspections, an inspection form will be completed as provided in Appendix I – Site Management Forms. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including Site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General Site conditions at the time of the inspection;
- The Site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection; and,
- Confirm that Site records are up to date.

Inspections of all remedial components installed at the Site will be conducted. A comprehensive Site-wide inspection will be conducted and documented according to the SMP schedule, regardless of the frequency of the Periodic Review Report (PRR). The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria; and,
- If Site records are complete and up to date.

Reporting requirements are outlined in Section 7.0 of this plan.

Inspections will also be performed in the event of an emergency. If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs that reduces or has the potential to reduce the effectiveness of ECs in place at the Site, verbal notice to the

NYSDEC must be given by noon of the following day. In addition, an inspection of the Site will be conducted within five days of the event to verify the effectiveness of the IC/ECs implemented at the Site by a qualified environmental professional, as determined by the NYSDEC. Written confirmation must be provided to the NYSDEC within seven days of the event that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

4.3 Remedial System Monitoring And Sampling

4.3.1 Remedial System Monitoring

Monitoring of the SSD system will be performed on a routine basis, as identified in Table B Remedial System Monitoring Requirements and Schedule (see below). Modification to the frequency or sampling requirements will require approval from the NYSDEC. A visual inspection of the complete system will be conducted during each monitoring event. Unscheduled inspections and/or sampling may take place when a suspected failure of the SSD system has been reported or an emergency occurs that is deemed likely to affect the operation of the system. SSD system components to be monitored include, but are not limited to, the components included in Table B below.

Table B – Remedial System Monitoring Requirements and Schedule

Remedial System Component	Monitoring Parameter	Operating Range	Monitoring Schedule
Overall System Function	System Operating Pressure	Negative Pressure Observed in Riser Pipe Digital Pressure Gauge	Daily through BMS
SSD Fans	Visual inspection	Factory setting ~9,000 RPM.	Annually
General system piping	Visual Inspection	NA	Annually
Concrete floor condition	Visual Inspection	Cracks/Other Penetrations	Annually
System Function	Sub-slab Pressure	Negative pressure at -0.004 inches water or more	Annually during heating season

The system will be equipped with an alarm that notifies the site engineering unit in the event of a fan shut down through a Building Management System. A complete list of components to be inspected is provided in the Inspection Checklist, provided in Appendix I - Site Management Forms. If any equipment readings are not within their specified operation range, any equipment is observed to be malfunctioning, or the system is not performing within specifications; maintenance and repair, as per the O&M Plan, is required immediately.

4.3.2 Remedial System Sampling

Groundwater samples shall be collected from the groundwater observation wells after installation and development to establish current conditions. The results of the current condition sampling will be reviewed to propose a future sampling frequency. Sampling locations, required analytical parameters, and schedule are provided in Table C – Remedial System Sampling Requirements and Schedule below. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

Table C – Remedial System Sampling Requirements and Schedule

Sampling Location	Analytical Parameters				Schedule
	VOCs (EPA Method 624)	PAHs (EPA Method 8270)	PCBs (EPA Method 8082)	TAL Metals (EPA Method 6010C/7470A)	
New Observation Wells OW-1, OW-2, OW-3, OW-4, OW-5, and existing Monitoring Wells LW-3 and MW-1	X	X	X	X	Sample after installation to establish current conditions. Submit plan for additional sampling based on results.

Detailed sample collection and analytical procedures and protocols are provided in Appendix F – Field Sampling Plan and Appendix G – Quality Assurance Project Plan.

4.4 Post-Remediation Media Monitoring And Sampling

Groundwater observation wells will be monitored for the presence of oil and gaged for groundwater elevation on a routine basis using an electronic oil-water interface probe. Monitoring locations, required equipment and schedule are provided in Table D below. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

Table D – Post Remediation Monitoring Requirements and Schedule

Sampling Location	Method	
	Electronic oil-water interface probe	Schedule
New Observation Wells OW-1, OW-2, OW-3, OW-4, OW-5 and Existing Monitoring Wells LW-03, LW-04, LW-05, LW-06 and MW-1	X	Quarterly

Detailed monitoring procedures and protocols are provided in Appendix F – Field Sampling Plan and Appendix G – Quality Assurance Project Plan.

4.4.1 Groundwater Monitoring

Groundwater monitoring will be performed quarterly to assess the performance of the remedy. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

The network of observation wells will be installed in areas where oil-water seepage was observed during Site work and in the down gradient portion of the Site to monitor for off-site migration of oil in groundwater. The network of on-site and off-site wells will be designed based on the following criteria:

- Observations from IRM and Remedial Excavation Work; and,
- Down gradient locations.

As part of the groundwater monitoring, four on-site observation wells (one at the location of transformer pad area oil seep, one at the UST area oil seep, one in the storm sewer bedding down gradient of the detention basin seep, and one down gradient of LW-06) and one off-site well (near the down gradient site boundary) will be installed, sampled, and monitored to evaluate groundwater quality and potential off-site migration of contamination. In addition to the five new wells, existing wells MW-1, LW-03, LW-04, LW-05 and LW-06 will be included in the monitoring program. The locations of remaining RI wells and proposed observation wells are shown on Figure 6. A work plan for the new wells detailing the proposed construction details and development procedures will be submitted to the NYSDEC within 45 days following approval of this SMP.

Monitoring well construction logs for existing wells are included in Appendix E of this document. Well construction details for the proposed observation wells will be appended to the SMP upon well completion.

If biofouling or silt accumulation occurs in the on-site and/or off-site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced, if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair or decommissioning of any monitoring well for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent PRR. Well decommissioning without replacement will be done only with the prior approval of the NYSDEC. Well abandonment will be performed in accordance with NYSDEC's guidance entitled "CP-43: Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be replaced in kind in the nearest available location, unless otherwise approved by the NYSDEC.

The monitoring frequency may only be modified with the approval of the NYSDEC. This SMP will be modified to reflect changes in sampling plans approved by the NYSDEC.

Deliverables for the groundwater monitoring program are specified in Section 7.0 – Reporting Requirements.

4.4.2 Soil Vapor Intrusion (SVI) Sampling

Soil vapor intrusion sampling will be performed in the Phase I construction area during the 2018-2019 heating season (i.e., November through March) and again during the 2019-2020 heating season to assess the performance of the remedy. A soil vapor intrusion sampling work plan will be submitted to NYSDEC prior to the 2018-2019 sampling. The need for additional periodic sampling will be determined in agreement with NYSDEC and NYSDOH. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

The network of four on-site sub-slab pressure monitoring locations (VMP-1, VMP-2, VMP-3 and VMP-4 within the Phase I construction area (Figure 8) has been designed based on the RI Sub-slab vapor testing results. Additional monitoring points will be installed within the Phase I construction area and in the Phase II construction area (upon completion of the construction work). The sub-slab pressure monitoring points may also be used to collect sub-slab vapor samples.

The Phase I construction area soil vapor intrusion sampling work plan will be submitted by February 1, 2019. The work plan will identify additional pressure monitoring point locations and will present a plan for conducting pressure monitoring and vapor/air sampling during the 2018-2019 heating season.

The location of Phase II construction area monitoring points will be determined in agreement with NYSDEC and NYSDOH. Sampling of the Phase II construction area

monitoring points will not be conducted until the building is closed to the outside atmosphere and the heating system has been activated. A Phase II construction area soil vapor intrusion sampling work plan will be prepared after construction is completed.

The sampling frequency may only be modified with the approval of the NYSDEC. This SMP will be modified to reflect changes in sampling plans approved by the NYSDEC.

Deliverables for the soil vapor intrusion sampling program are specified in Section 7.0 – Reporting Requirements.

4.4.3 Monitoring And Sampling Protocol

All sampling activities will be recorded in a field book and associated sampling log as provided in Appendix I - Site Management Forms. Other observations (e.g., groundwater monitoring well integrity, etc.) will be noted on the sampling log. The sampling log will serve as the inspection form for the monitoring network. Additional detail regarding monitoring and sampling protocols are provided in the site-specific Field Sampling Plan provided as Appendix F of this document.

5.0 OPERATION AND MAINTENANCE PLAN

5.1 General

This O&M Plan provides a brief description of the measures necessary to operate, monitor, and maintain the mechanical components of the remedy selected for the Site. This O&M Plan:

- Includes the procedures necessary to allow individuals unfamiliar with the Site to operate and maintain the SSD systems; and,
- Will be updated periodically to reflect changes in Site conditions or the manner in which the SSD systems are operated and maintained.

Further detail regarding the O&M of the SSD system is provided in Appendix J - Operation and Maintenance Manual. A copy of this Operation and Maintenance Manual, along with the complete SMP, is to be maintained at the Site. This O&M Plan is not to be used as a stand-alone document, but as a component document of this SMP.

5.2 SSD System Performance Criteria

The SSD system performance criteria are specified in Table B (Section 4.3.1).

5.3 Operation And Maintenance Of SSD System

The following sections provide a description of the O&M of the SSD system. Cut-sheets and as-built drawings for the SSD system installed within the Phase I portion of the building are provided in Appendix J - Operation and Maintenance Manual.

5.3.1 System Start-Up And Testing

Following installation of the SSD system piping below the Site buildings during Phase I site construction and installation of the SSD fan in July 2018, the performance of the Phase I area SSD system was evaluated through implementation of start-up testing and monitoring. System start-up and monitoring was conducted to verify the system is operating properly and consisted of the following:

- Verification of fan function; and,
- Vacuum monitoring point measurements.

There is SSD piping beneath the four-story administration building and the northern manufacturing area as shown on Figure 8. Three permanent vacuum monitoring points (VMP-1, VMP-2 and VMP-3) were installed in the Administration Building and one permanent vacuum monitoring point (VMP-4) was installed in the northern manufacturing area (Figure 8). Additional monitoring points will be proposed in a soil vapor sampling work plan that will be submitted in support of the 2018-2019 sampling.

Vacuum measurements were collected from each of these monitoring points. The vacuum measurements were collected using an Omniguard V differential micro-manometer capable of reading differential pressures with a resolution of 0.001 inches of water. The micro-manometer was zeroed prior to each reading, and each measurement is a 20 second average pressure recorded at least 30 seconds after the micro-manometer was connected to the monitoring point. Adequate depressurization is defined as a pressure equal to or less than - 0.004 inches of water. Table 6 presents a summary of the vacuum measurements collected during the Phase I SSD system startup.

The system pressure testing described above will be conducted upon startup of any additional Phase II construction area SSD system and annually at each operating SSD system in conjunction with the annual site inspection. If, in the course of the SSD systems lifetimes, a system goes down or significant changes are made to the systems and a system must be restarted, the system testing will be conducted.

5.3.2 Routine System Operation And Maintenance

The installed SSD fan is manufactured by OBAR Systems, Inc., Model GBR89. The system requires no routine maintenance. The unit was installed at the manufacturer's speed setting (approximately 9,000 revolutions per minute [RPM]) or nearly the maximum flow rate. Information on wiring and adjusting the fan speed is provided in Appendix J.

5.3.3 Non-Routine Operation And Maintenance

In the event of SSD system fan failure, the fan will be repaired or replaced in kind. If piping is damaged, it will be replaced or repaired.

Table B provides a summary and schedule of routine monitoring. Maintenance will be conducted on an as-needed basis in the event of a fan or system failure.

5.3.4 System Monitoring Devices And Alarms

The SSD system fan will be outfitted with a warning device to indicate that the system is not operating properly. The fan operation warning device (i.e., alarm) will be wired to building management system (BMS). In the event of a fan failure or shut down, the BMS will notify the building engineering/maintenance staff. In addition, a digital pressure gauge will be installed in the system riser at the fourth floor of the building. The pressure gauge will also be wired to transmit the pressure readings to the BMS. The BMS will be set to issue an alarm if vacuum in the riser drops below 50 percent of the normal vacuum. In the event that warning device is activated or negative pressure is lost, applicable maintenance and repairs will be conducted, as specified in the O&M Plan, and the SSD system will be restarted. Operational problems will be noted in the PRR to be prepared for that reporting period.

6.0 PERIODIC ASSESSMENTS/EVALUATIONS

6.1 Climate Change Vulnerability Assessment

Increases in both the severity and frequency of storms/weather events, an increase in sea level elevations along with accompanying flooding impacts, shifting precipitation patterns and wide temperature fluctuation, resulting from global climactic change and instability, have the potential to significantly impact the performance, effectiveness and protectiveness of a given site and associated remedial systems. Vulnerability assessments provide information so that the Site and associated remedial systems are prepared for the impacts of the increasing frequency and intensity of severe storms/weather events and associated flooding.

This section provides a summary of vulnerability assessments that will be conducted for the Site during periodic assessments, and briefly summarizes the vulnerability of the Site and/or ECs to severe storms/weather events and associated flooding.

Site ECs are limited to SSD and Site cover systems. The SSD system is not subject to influence from climate change. The cover system consists primarily of pavement and will be maintained and inspected annually. Limited landscape areas will be planted and have been graded to minimize any potential run-off. The building designer included storm water management systems which meet or exceed City of Buffalo standards that were developed based on the peak discharge rate of the post-development 25-year rainfall event. If power loss results in a temporary shut-down of the SSD system, the system will be re-started. Based on the following conditions, there are no apparent vulnerabilities at the Site.

- Flood Plain: The site is not located within the 100-year flood plain, and is well graded with an engineered stormwater management system.
- Site Drainage and Storm Water Management: The Site drainage/storm water management system was designed to regulate the peak discharge rate of the post-development 25-year rainfall event to be less than the 2-year pre-development peak

discharge rate in accordance with the City of Buffalo Unified Development Ordinance (UDO) Article 7.3.3. It is not anticipated that any significant on-site flooding will occur during severe rain events.

- Erosion: The site is primarily paved. Any areas not under the building or pavement are landscape areas that are vegetated and graded to prevent erosion.
- High Wind: There are no large trees in the area and the Site is not susceptible to damage from the wind itself or falling objects during periods of high wind.
- Electricity: The SSD system will run on the area power-grid. As such, there is limited susceptibility to power loss and/or dips/surges in voltage during severe weather events, including lightning strikes. The SSD system includes a vapor barrier, and any temporary power loss should not compromise the integrity of the controls to manage vapor intrusion.
- Spill/Contaminant Release: There is no remedial system or outdoor hazardous materials storage facilities that could be susceptible to a spill or other contaminant release due to storm-related damage caused by flooding, erosion, high winds, and loss of power.

6.2 Green Remediation Evaluation

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including Site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. This section of the SMP provides a summary of any green remediation evaluations to be completed for the Site during Site management, and as reported in the PRR.

None of the EC's involve waste generation and the only EC requiring energy on a long-term basis is the SSD system.

- Waste Generation: None of the EC's involve waste generation.

- Energy usage: The only EC requiring energy on a long-term basis is the SSD system. The SSD system will be operated in accordance with the manufacturers recommendations.
- Emissions: Transportation to and from the Site for inspections and/or sampling will be coordinated to minimize fuel usage.
- Water usage: The Site's water supply (sourced though the City of Buffalo supply) will be utilized for any water needs.
- Land and/or ecosystems: The Site cover plan includes planting areas. Because the Site was primarily paved historically, restoration is not applicable.

6.2.1 Timing Of Green Remediation Evaluations

For major remedial system components, green remediation evaluations and corresponding modifications will be undertaken as part of a formal Remedial System Optimization (RSO), or at any time that the Project Manager feels appropriate (e.g., during significant maintenance events or in conjunction with storm recovery activities).

Modifications resulting from green remediation evaluations will be routinely implemented and scheduled to occur during planned/routine O&M activities. Reporting of these modifications will be presented in the PRR.

6.2.2 Building Operations

Structures including buildings and sheds will be operated and maintained to provide for the most efficient operation of the remedy, while minimizing energy, waste generation, and water consumption.

6.2.3 Frequency Of System Checks, Sampling And Other Periodic Activities

Transportation to and from the Site and use of consumables in relation to visiting the Site in order to conduct inspections and/or collect samples and shipping samples to a laboratory for analyses have direct and/or inherent energy costs. The schedule and/or means of these periodic activities have been prepared so that these tasks can be

accomplished in a manner that does not impact remedy protectiveness but reduces expenditure of energy or resources.

6.3 Remedial System Optimization

A RSO study will be conducted any time that the NYSDEC or the remedial party requests in writing that an in-depth evaluation of the remedy is needed. An RSO may be appropriate if any of the following occur:

- The remedial actions have not met or are not expected to meet RAOs in the time frame estimated in the Decision Document;
- The management and operation of the remedial system is exceeding the estimated costs;
- The remedial system is not performing as expected or as designed;
- Previously unidentified source material may be suspected;
- Plume shift has potentially occurred;
- Site conditions change due to development, change of use, change in groundwater use, etc.;
- There is an anticipated transfer of the Site management to another remedial party or agency; and,
- A new and applicable remedial technology becomes available.

An RSO will provide a critique of a Site's conceptual model, give a summary of past performance, document current cleanup practices, summarize progress made toward the Site's cleanup goals, gather additional performance or media specific data and information and provide recommendations for improvements to enhance the ability of the present system to reach RAOs or to provide a basis for changing the remedial strategy.

7.0 REPORTING REQUIREMENTS

7.1 Site Management Reports

All site management inspection, maintenance and monitoring events will be recorded on the appropriate Site management forms provided in Appendix I. These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including media sampling data and system maintenance reports, generated for the Site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of Table E and summarized in the PRR.

Table E: Schedule of Interim Monitoring/Inspection Reports

Task/Report	Reporting Frequency*
Groundwater Monitoring Report	Quarterly
Phase I Construction Area Vapor Intrusion Sampling Work Plan	One-time by February 1, 2019
Phase II Construction Area Vapor Intrusion Sampling Work Plan	One-time after Phase II construction is completed (anticipated prior to 2019-2020 heating season)
Observation Well Installation Work Plan	One-time by February 8, 2019
PRR	Annually, or as otherwise determined by the Department

* The frequency of events will be conducted as specified until otherwise approved by the NYSDEC.

All interim monitoring/inspections reports will include, at a minimum:

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;

- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc.);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and,
- A determination as to whether contaminant conditions have changed since the last reporting event.

Routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting maintenance activities;
- Description of maintenance activities performed;
- Any modifications to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and,
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc. (attached to the checklist/form).

Non-routine maintenance event reporting forms will include, at a minimum:

- Date of event;

- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Description of non-routine activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and,
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

Data will be reported in digital format as determined by the NYSDEC. Currently, data is to be supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link:
http://www.dec.ny.gov/chemical/62440.html.

7.2 Periodic Review Report

A PRR will be submitted to the NYSDEC beginning sixteen (16) months after the COC is issued. After submittal of the initial PRR, the next PRR shall be submitted annually to the NYSDEC or at another frequency as may be required by the NYSDEC. In the event that the Site is subdivided into separate parcels with different ownership, a single PRR will be prepared that addresses the Site described in Appendix D - Environmental Easement/Notice/Deed Restriction. The report will be prepared in accordance with NYSDEC's DER-10 and submitted within 30 days of the end of each certification period. Media sampling results will also be incorporated into the PRR. The report will include:

- Identification, assessment, and certification of all ECs/ICs required by the remedy for the Site;
- Results of the required annual Site inspections and severe condition inspections, if applicable;
- All applicable Site management forms and other records generated for the Site during the reporting period in the NYSDEC-approved electronic format, if not previously submitted;

- A summary of any discharge monitoring data and/or information generated during the reporting period, with comments and conclusions;
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor, etc.), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted in digital format as determined by the NYSDEC. Currently, data is supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link: http://www.dec.ny.gov/chemical/62440.html; and,
- A site evaluation, which includes the following:
  - The compliance of the remedy with the requirements of the Site-specific Decision Document;
  - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
  - Any new conclusions or observations regarding Site contamination based on inspections or data generated by the Monitoring and Sampling Plan for the media being monitored;
  - Recommendations regarding any necessary changes to the remedy and/or Monitoring and Sampling Plan;
  - Trends in contaminant levels in the affected media will be evaluated to determine if the remedy continues to be effective in achieving remedial goals as specified by the Decision Document; and,
  - The overall performance and effectiveness of the remedy.

7.2.1 Certification Of Institutional And Engineering Controls

Following the last inspection of the reporting period, a Professional Engineer licensed to practice in New York State will prepare, and include in the PRR, the following certification as per the requirements of NYSDEC DER-10:

"*For each institutional or engineering control identified for the site, I certify that all of the following statements are true:*

- *The inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;*
- *The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;*
- *Nothing has occurred that would impair the ability of the control to protect the public health and environment;*
- *Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;*
- *Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;*
- *If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;*
- *Use of the site is compliant with the environmental easement;*
- *The engineering control systems are performing as designed and are effective;*
- *To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program and generally accepted engineering practices; and*
- *The information presented in this report is accurate and complete.*

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner/Remedial Party or Owner's/Remedial Party's Designated Site Representative]

- *No new information has come to my attention, including groundwater monitoring data from wells located at the site boundary, if any, to indicate that the assumptions made in the qualitative exposure assessment of off-site contamination are no longer valid; and*
- *The assumptions made in the qualitative exposure assessment remain valid."*

The signed certification will be included in the PRR.

The PRR will be submitted, in electronic format, to the NYSDEC Central Office, Regional Office in which the Site is located, and the NYSDOH Bureau of Environmental Exposure Investigation. The PRR may need to be submitted in hard-copy format, as requested by the NYSDEC project manager.

7.3 Corrective Measures Work Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an IC or EC, a Corrective Measures Work Plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Work Plan until it has been approved by the NYSDEC.

7.4 Remedial Site Optimization Report

In the event that an RSO is to be performed (see Section 6.3, upon completion of an RSO), an RSO report must be submitted to the Department for approval. If an RSO is required, a general outline for the RSO report will be submitted to the NYSDEC in advance

of the report preparation. The RSO report will document the research/investigation and data gathering that was conducted, evaluate the results and facts obtained, present a revised conceptual Site model and present recommendations. RSO recommendations are to be implemented upon approval from the NYSDEC. Additional work plans, design documents, HASPs etc., may still be required to implement the recommendations, based upon the actions that need to be taken. A final engineering report and update to the SMP may also be required.

The RSO report will be submitted, in electronic format, to the NYSDEC Central Office, Regional Office in which the Site is located, Site Control, and the NYSDOH Bureau of Environmental Exposure Investigation.

8.0 REFERENCES

LiRo Engineers, Inc. Remedial Investigation Report, Alternatives Analysis and Remedial Action Work Plan, March 2018

LiRo Engineers Inc. Construction Completion Report for IRM-1, June 2018

LiRo Engineers Inc. Construction Completion Report for IRM-2, June 2018

LiRo Engineers Inc. Final Engineering Report, December 2018

NYSDEC Decision Document, July 3, 2018

6NYCRR Part 375, Environmental Remediation Programs. December 14, 2006.

NYSDEC DER-10 – "Technical Guidance for Site Investigation and Remediation".

NYSDEC, 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. June 1998 (April 2000 addendum).

TABLE 1

Groundwater Elevation Measurements
Western New York Workforce Training Center
NYSDEC Site Number C915310

Well ID	Top of Casing Elevation (ft. AMSL)	April 6, 2017		November 14, 2007	
		Depth to Water Surface	Groundwater Elevation (ft. AMSL)	Depth to Water Surface	Groundwater Elevation (ft. AMSL)
LW-01	643.45	10.29	633.16	11.23	632.22
LW-02	643.07	9	634.07	NM	NA
LW-03	644.29	10.21	634.08	10.37	633.92
LW-04	644.47	9.14	635.33	10.58	633.89
LW-05	644.28	9.93	634.35	11.71	632.57
LW-06	644.4	11.37	633.03	16.16	628.24

Notes:
ft. AMSL - feet above mean sea level.
ft. BTOC - feet below top of casing.
NM - Not measured.
NA - Not available.

TABLE 2A

Remaining Soil Sample Exceedances - Polycyclic Aromatic Hydrocarbons (PAHs)
Western New York Workforce Training Center
NYSDEC Site No. C915310

Parameters	*Units*	*6 NYCRR Part 375*		Location ID, Sample ID, Sample Date, and Sample Depth						
				LB-19	**LB-19**	**LB-26**	**LB-27**	**LB-27**	**LB-28**	**LW-04**
		Unrestricted SCO	*Commercial SCO*	**LB-19-COMP1-0-5.4**	**LB-19-COMP2-5.4-7**	**LB-26-COMP1-0-4**	**LB-27-COMP1-0-4**	**LB-27-COMP2-4-10.3**	**LB-28-COMP1-0-4**	**LW-04-COMP1-0-4.10**
				2/13/2017	**2/13/2017**	**2/9/2017**	**2/9/2017**	**2/9/2017**	**2/9/2017**	**2/15/2017**
				0 to 5.4'	**0 to 5.4' *(Duplicate)***	**0 to 4'**	**0 to 4'**	**4 to 10.3'**	**0 to 4'**	**0 to 4.1'**
TCL SVOCs										
Acenaphthene	µg/kg	20,000	500,000	330	230	ND	550	590 D	5,000	4,100 D
Acenaphthylene	µg/kg	100,000	500,000	ND	ND	ND	ND	ND	350	ND
Anthracene	µg/kg	100,000	500,000	640	480	220	730	950 D	8,700 D	4,800 D
Benzo(A)Anthracene	µg/kg	1,000	5,600	**2,300**	**1,900**	700	**2,200**	**1,600 D**	**30,000 D**	**13,000 D**
Benzo(A)Pyrene	µg/kg	1,000	1,000	**1,600**	**1,400**	690	**1,800**	**1,100 D**	**26,000 D**	**12,000 D**
Benzo(B)Fluoranthene	µg/kg	1,000	5,600	**1,900**	**1,900**	960	**2,400**	**1,400 D**	**33,000 D**	**17,000 D**
Benzo(G,H,I)Perylene	µg/kg	100,000	500,000	940	640	750	1,800	ND	12,000 D	8,000 D
Benzo(K)Fluoranthene	µg/kg	800	56,000	760	670	330	**820**	530 D	**13,000 D**	**6,400 D**
Bis(2-Ethylhexyl) Phthalate	µg/kg	NS	NS	ND	ND	ND	ND	ND	ND	ND
Carbazole	µg/kg	NS	NS	220	250	ND	440	ND	5,300 D	5,600 D
Chrysene	µg/kg	1,000	56,000	**2,500**	**2,000**	760	**2,100**	**1,400 D**	**29,000 D**	**15,000 D**
Dibenz(A,H)Anthracene	µg/kg	330	560	260	220	ND	**430**	ND	**3,900 D**	**1,800 D**
Dibenzofuran	µg/kg	14,000	350,000	ND	ND	ND	1,200	1,300 D	2,100	3,100 D
Di-N-Butyl Phthalate	µg/kg	NS	NS	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	µg/kg	100,000	500,000	4,200	3,900	1,500	4,800 D	3,000 D	55,000 D	46,000 D
Fluorene	µg/kg	30,000	500,000	290	230	ND	700	860 D	3,600	4,800 D
Indeno(1,2,3-C,D)Pyrene	µg/kg	500	5,600	**940**	**710**	**670**	**1,800**	490 D	**15,000 D**	**8,400 D**
1-Methylnaphthalene	µg/kg	NS	NS	ND	ND	400	1,900	2,100 D	630	ND
2-Methylnaphthalene	µg/kg	NS	NS	ND	ND	510	2,600	3,000 D	750	ND
Naphthalene	µg/kg	12,000	500,000	ND	ND	410	1,900	2,200 D	1,700	ND
Phenanthrene	µg/kg	100,000	500,000	3,800	2,700	1,200	4,700 D	4,400 D	38,000 D	45,000 D
Pyrene	µg/kg	100,000	500,000	4,900	3,400	1,500	4,300 D	2,500 D	51,000 D	36,000 D

Notes:
µg/kg - Micrograms per Kilogram
SCO - Soil Cleanup Objective
ND - Not Detected
NS - No Standard
JL - Estimated Low
D - Diluted
J - Estimated Concentration
Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Boxed Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2A

Remaining Soil Sample Exceedances - Polycyclic Aromatic Hydrocarbons (PAHs)
Western New York Workforce Training Center
NYSDEC Site No. C915310

Parameters	*Units*	*6 NYCRR Part 375*		Location ID, Sample ID, Sample Date, and Sample Depth			
				LB-30	LB-30	LB-38	LB-38
		Unrestricted SCO	*Commercial SCO*	LB-30-COMP 1	LB-30-COMP 2	LB-38-COMP 1	LB-38-COMP 2
				6/7/2017	6/7/2017	6/7/2017	6/7/2017
				0 to 4'	4 to 10.2'	0 to 4'	4 to 8.7'
TCL SVOCs							
Acenaphthene	µg/kg	20,000	500,000	680	**55,000**	212	272
Acenaphthylene	µg/kg	100,000	500,000	54.5 J	ND	102	55.8 J
Anthracene	µg/kg	100,000	500,000	1,690	ND	603	572
Benzo(A)Anthracene	µg/kg	1,000	5,600	**3,520**	**65,900**	**2,140**	**1,420**
Benzo(A)Pyrene	µg/kg	1,000	1,000	**4,110**	**66,000**	**2,730**	**1,710**
Benzo(B)Fluoranthene	µg/kg	1,000	5,600	**3,750**	**56,200**	**3,600**	**1,770**
Benzo(G,H,I)Perylene	µg/kg	100,000	500,000	1,170	27,700	1,260	655
Benzo(K)Fluoranthene	µg/kg	800	56,000	**2,410**	**62,200**	**2,450**	**1,750**
Bis(2-Ethylhexyl) Phthalate	µg/kg	NS	NS	204	ND	ND	148
Carbazole	µg/kg	NS	NS	1,540	67,400	675	504
Chrysene	µg/kg	1,000	56,000	**3,900**	**71,200**	**2,480**	**1,570**
Dibenz(A,H)Anthracene	µg/kg	330	560	**746**	**13,300**	**709**	281
Dibenzofuran	µg/kg	14,000	350,000	322	**23,900**	105	142
Di-N-Butyl Phthalate	µg/kg	NS	NS	126	ND	ND	68.6 J
Fluoranthene	µg/kg	100,000	500,000	8,910	24,200	4,720	3,340
Fluorene	µg/kg	30,000	500,000	785	**50,500**	237	312
Indeno(1,2,3-C,D)Pyrene	µg/kg	500	5,600	**1,240**	**27,900**	**1,280**	**650**
1-Methylnaphthalene	µg/kg	NS	NS	ND	ND	ND	ND
2-Methylnaphthalene	µg/kg	NS	NS	75.1 J	5,190	ND	107
Naphthalene	µg/kg	12,000	500,000	114	6,580	78.9 J	174
Phenanthrene	µg/kg	100,000	500,000	6,710	**283,000**	2,390	2,290
Pyrene	µg/kg	100,000	500,000	6,260	**170,000**	4,720	2,360

Notes:
µg/kg - Micrograms per Kilogram
SCO - Soil Cleanup Objective
ND - Not Detected
NS - No Standard
JL - Estimated Low
D - Diluted
J - Estimated Concentration
Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Boxed Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2A

Remaining Soil Sample Exceedances - Polycyclic Aromatic Hydrocarbons (PAHs)
Western New York Workforce Training Center
NYSDEC Site No. C915310

Parameters				SAMPLE ID	DBWW1A (2-4')	DBWW-2 (0-4')	DBWW-3 (0-4')	DB-OF-N-S (WW 0-4')	DB-OF-N-S (EW 0-4')	DB-OF-E-W (NW 0-4')	8" SAN-6-EW (2-4')
				SAMPLE NUMBER	3	7	12	25	27	31	45
				DATE COLLECTED	11/27/2017	12/7/2017	12/14/2017	1/11/2018	1/11/2018	1/12/2018	1/26/2018
				DEPTH OF SAMLE IN FT BGS	2-4'	0-4'	0-4'	0-4'	0-4'	0-4'	2-4'
PAHs	Units	6 NYCRR Part 375 Unrestricted SCO	6 NYCRR Part 375 Unrestricted SCO		**PCB Management Area**	**PCB Management Area**	**PCB Management Area**	**PCB Management Area**	**PCB Management Area**	**PCB Management Area**	**PCB Management Area**
Phenol	ug/kg	**330**	500,000		130 J	180 J	ND	200 J	220 J	190 J	ND
2-Methylphenol	ug/kg	**330**	500,000		ND	ND	ND	ND	ND	ND	ND
3+4-Methylphenols	ug/kg	**330**	500,000		ND	ND	ND	ND	ND	ND	ND
Naphthalene	ug/kg	**12,000**	500,000		210 J	270 J	980	300 J	920	ND	10100
Acenaphthylene	ug/kg	**100,000**	500,000		ND	ND	93.8 J	120 J	ND	ND	ND
Acenaphthene	ug/kg	**20,000**	500,000		210 J	360 J	1000	550	1400	100 J	2000 J
Dibenzofuran	ug/kg	**7,000**	350,000		130 J	270 J	790	300 J	860	93.4 J	ND
Fluorene	ug/kg	**30,000**	500,000		200 J	430	1300	610	1500	130 J	2900 J
Hexachlorobenzene	ug/kg	**330**	6,000		ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ug/kg	**800**	6,700		ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ug/kg	**100,000**	500,000		1400	2400	7600 D	5000 D	9200 D	770	13800
Anthracene	ug/kg	**100,000**	500,000		370 J	690	1300	1200	2400	210 J	3400 J
Fluoranthene	ug/kg	**100,000**	500,000		1400	2400	8400 D	6600 D	9600 D	1100	18300
Pyrene	ug/kg	**100,000**	500,000		1100	3500 D	7100 D	6900 D	9600 D	1500	17800
Benzo(a)anthracene	ug/kg	**1,000**	5,600		790	**1700**	**3100 JD**	**4000 D**	**4900**	740	**12300**
Chrysene	ug/kg	**1,000**	56,000		750	**1600**	**2400**	**3900 D**	**4000**	700	**10500**
Benzo(b)fluoranthene	ug/kg	**1,000**	5,600		**1000**	**1900**	**2700**	**5800 D**	**4600**	960	**15900**
Benzo(k)fluoranthene	ug/kg	**800**	56,000		330 J	590	**1100**	**1800**	**1400**	320 J	**6200 J**
Benzo(a)pyrene	ug/kg	**1,000**	1,000		750	**1400**	**2200**	**4000 D**	**3400**	700	**12200**
Indeno(1,2,3-cd)pyrene	ug/kg	**500**	5,600		310 J	**1500**	**1700 JD**	**2400 D**	**3300**	**630**	**7300 J**
Dibenzo(a,h)anthracene	ug/kg	**330**	560		110 J	**380 J**	**620**	**900**	**870**	190 J	**2200 J**
Benzo(g,h,i)perylene	ug/kg	**100,000**	500,000		380 J	1600	2900	3400 D	3400	810	8000 J

Notes:
ug/kg - Micrograms Per Kilogram (ppb)
SCO - Soil Cleanup Objective
ND - Not Detected
NS - No Standard
JH - Estimated High
J - Estimated Concentration
D - Diluted
* - Indicates The Duplicate Analysis Is Not Within Control Limits
B - Analyte Found In The Associated Blank
Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Shaded Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2A

Remaining Soil Sample Exceedances - Polycyclic Aromatic Hydrocarbons (PAHs)
Western New York Workforce Training Center
NYSDEC Site No. C915310

Parameters				SAMPLE ID	8" SAN-6-EW (12-14')	TP-04 (CB#3 Line Bottom @ 4')	Main ST Line-3-EW @ 4.5'	CB#3-Line-NW @ 3'	CB#3-Line-SW @ 3'	CB#6-Line-WW @ 4.5'	ES-6"-SA-1-EW @ 2'
				SAMPLE NUMBER	55 (Dup of 46)	58	78	95	96	101	106
				DATE COLLECTED	1/26/2018	1/29/2018	2/1/2018	2/9/2018	2/9/2018	2/12/2018	3/7/2018
				DEPTH OF SAMLE IN FT BGS	4-8'	4'	4.5'	3'	3'	4.5'	2'
PAHs	Units	6 NYCRR Part 375 Unrestricted SCO	6 NYCRR Part 375 Unrestricted SCO		**PCB Management Area**	**PCB Management Area**	**Other Areas**	**PCB Management Area**	**PCB Management Area**	**Other Areas**	**Other Areas**
Phenol	ug/kg	**330**	500,000		ND	ND	**350 J**	**350 J**	ND	ND	**350 J**
2-Methylphenol	ug/kg	**330**	500,000		ND	ND	ND	ND	ND	ND	ND
3+4-Methylphenols	ug/kg	**330**	500,000		ND	ND	ND	ND	ND	ND	ND
Naphthalene	ug/kg	**12,000**	500,000		8300	620 J	ND	590	ND	ND	ND
Acenaphthylene	ug/kg	**100,000**	500,000		ND	ND	ND	110 J	ND	ND	ND
Acenaphthene	ug/kg	**20,000**	500,000		1900 J	2200	ND	2100	ND	100 J	ND
Dibenzofuran	ug/kg	**7,000**	350,000		ND	1700	ND	1500	ND	100 J	ND
Fluorene	ug/kg	**30,000**	500,000		2800 J	2900	ND	2600	ND	150 J	ND
Hexachlorobenzene	ug/kg	**330**	6,000		ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ug/kg	**800**	6,700		ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ug/kg	**100,000**	500,000		13600	12500	100 J	20300 D	600 J	1700	ND
Anthracene	ug/kg	**100,000**	500,000		3400 J	3500	ND	6300 D	ND	420 J	ND
Fluoranthene	ug/kg	**100,000**	500,000		18300	12000	150 J	21400 D	1000	2100	ND
Pyrene	ug/kg	**100,000**	500,000		17300	13600 D	120 J	18700 D	1300	2100	ND
Benzo(a)anthracene	ug/kg	**1,000**	5,600		**11300**	**7800**	87.7 J	**12400 D**	770 J	**1200**	ND
Chrysene	ug/kg	**1,000**	56,000		**10700**	**6900**	91.9 J	**10100 D**	820	**1200**	ND
Benzo(b)fluoranthene	ug/kg	**1,000**	5,600		**15100**	**8500**	140 J	**12800 D**	**1100**	**1500**	ND
Benzo(k)fluoranthene	ug/kg	**800**	56,000		**5200 J**	**2500**	ND	**2700**	440 J	400 J	ND
Benzo(a)pyrene	ug/kg	**1,000**	1,000		**11100**	**6500**	89.1 J	**9300 D**	840	**1100**	ND
Indeno(1,2,3-cd)pyrene	ug/kg	**500**	5,600		**7000 J**	**5500**	ND	**5800 D**	**910**	**790**	ND
Dibenzo(a,h)anthracene	ug/kg	**330**	560		**2000 J**	**1400 J**	ND	**1700**	240 J	200 J	ND
Benzo(g,h,i)perylene	ug/kg	**100,000**	500,000		7300 J	6200	ND	6100 D	1100	760	ND

Notes:
ug/kg - Micrograms Per Kilogram (ppb)
SCO - Soil Cleanup Objective
ND - Not Detected
NS - No Standard
JH - Estimated High
J - Estimated Concentration
D - Diluted
* - Indicates The Duplicate Analysis Is Not Within Control Limits
B - Analyte Found In The Associated Blank
Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Shaded Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2A

Remaining Soil Sample Exceedances - Polycyclic Aromatic Hydrocarbons (PAHs)
Western New York Workforce Training Center
NYSDEC Site No. C915310

Parameters		SAMPLE ID		6"-WM-DIP-7-WW (1-5')	6"-WM-DIP-8-WW (1-5')
		SAMPLE NUMBER		130	132
		DATE COLLECTED		3/20/2018	3/20/2018
		DEPTH OF SAMLE IN FT BGS		1-5'	1-5'
PAHs	Units	6 NYCRR Part 375 Unrestricted SCO	6 NYCRR Part 375 Unrestricted SCO	**PCB Management Area**	**PCB Management Area**
Phenol	ug/kg	**330**	500,000	ND	ND
2-Methylphenol	ug/kg	**330**	500,000	ND	ND
3+4-Methylphenols	ug/kg	**330**	500,000	ND	ND
Naphthalene	ug/kg	**12,000**	500,000	580	430
Acenaphthylene	ug/kg	**100,000**	500,000	ND	ND
Acenaphthene	ug/kg	**20,000**	500,000	760	520
Dibenzofuran	ug/kg	**7,000**	350,000	550	350 J
Fluorene	ug/kg	**30,000**	500,000	1100	550
Hexachlorobenzene	ug/kg	**330**	6,000	ND	ND
Pentachlorophenol	ug/kg	**800**	6,700	ND	ND
Phenanthrene	ug/kg	**100,000**	500,000	5900 D	2800
Anthracene	ug/kg	**100,000**	500,000	1700	1100
Fluoranthene	ug/kg	**100,000**	500,000	5300 D	3100
Pyrene	ug/kg	**100,000**	500,000	6000 D	3800 D
Benzo(a)anthracene	ug/kg	**1,000**	5,600	**2800**	**2000**
Chrysene	ug/kg	**1,000**	56,000	**2500**	**1700**
Benzo(b)fluoranthene	ug/kg	**1,000**	5,600	**2400**	**1900**
Benzo(k)fluoranthene	ug/kg	**800**	56,000	**1200**	**960**
Benzo(a)pyrene	ug/kg	**1,000**	1,000	**2000**	**1700**
Indeno(1,2,3-cd)pyrene	ug/kg	**500**	5,600	**1000**	**1000**
Dibenzo(a,h)anthracene	ug/kg	**330**	560	240 J	260 J
Benzo(g,h,i)perylene	ug/kg	**100,000**	500,000	1000	1200

Notes:
ug/kg - Micrograms Per Kilogram (ppb)
SCO - Soil Cleanup Objective
ND - Not Detected
NS - No Standard
JH - Estimated High
J - Estimated Concentration
D - Diluted
* - Indicates The Duplicate Analysis Is Not Within Control Limits
B - Analyte Found In The Associated Blank
Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Shaded Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2A

Remaining Soil Sample Exceedances - Polycyclic Aromatic Hydrocarbons (PAHs)
Western New York Workforce Training Center
NYSDEC Site No. C915310

PAH	Part 375-6.8(a) Unrestricted Use (Track 1) Soil Cleanup Objectives (SCOs)	Part 375-6.8(b) Restricted Use (Track 2) Commercial Soil Cleanup Objectives (SCOs)	Site-Specific Soil Cleanup Objectives (SCOs)	Location ID, Sample ID, Date Collected, and Type						
				RA-003	RA-009	RA-015	RA-022	RA-025	RA-029	RA-038
				RA-081018-SW-003	RA-081018-FL-009	RA-081018-ESW-015	RA-081318-SSW-45-022	RA-081418-ESW-15NSC-025	RA-081518-NSW-45-029	RA-081618-NSW-15-038
				8/10/2018	8/10/2018	8/10/2018	8/13/2018	8/14/2018	8/15/2018	8/16/2018
				Sidewall	Floor	Sidewall	Sidewall	Sidewall	Sidewall	Sidewall
Phenol	330	500,000	NS	ND	ND	ND	ND	110 J	ND	ND
Naphthalene	12,000	500,000	NS	ND	ND	4,300	ND	ND	3,600	150 J
Acenaphthylene	100,000	500,000	NS	ND	ND	ND	ND	ND	520 J	ND
Acenaphthene	20,000	500,000	NS	490 JH	ND	4,100	280 J	90 J	4,900	81.4 J
Dibenzofuran	7,000	350,000	NS	ND	ND	3,500 J	170 J	ND	3,700	97.3 J
Fluorene	30,000	500,000	NS	500 JH	ND	4,400	230 J	99.6 J	4,700	88.2 J
Phenanthrene	100,000	500,000	NS	1,600 JH	ND	45,600 D	2,300	920	41,000 D	920
Anthracene	100,000	500,000	NS	450 JH	ND	9,500	620 J	240 J	10,300 D	190 J
Fluoranthene	100,000	500,000	NS	2500 JH	ND	49,800 D	3,000	1,500	35,700 D	1,200
Pyrene	100,000	500,000	NS	3,100	ND	39,400 D	2,600	1,400	28,400 D	1,200
Benzo(a)anthracene	1,000	5,600	NS	**1,600 J**	ND	**22,800**	1,600	790	**16,100 D**	770
Chrysene	1,000	56,000	NS	**2,000**	ND	**21,800**	1,800	810	**14,600 D**	920
Benzo(b)fluoranthene	1,000	5,600	NS	**1,600 J**	ND	**28,700**	2,000	**1,100**	**18,100 D**	**1,100**
Benzo(k)fluoranthene	800	56,000	NS	670 J	ND	**7,500**	630 J	320 J	**4,000**	320 J
Benzo(a)pyrene	1,000	1,000	NS	**1,300 J**	ND	**18,800**	**1,300**	720	**12,900 D**	730
Indeno(1,2,3-cd)pyrene	500	5,600	NS	410 J	ND	**8,800**	**570 J**	330 J	**5,400**	430
Dibenzo(a,h)anthracene	330	560	NS	ND	ND	**3,400 J**	220 J	130 J	**1,900**	150 J
Benzo(g,h,i)perylene	100,000	500,000	NS	700 J	ND	12,000	700 J	470	6,500 JD	560
Total PAHs	NS	NS	500,000	16,920	ND	284,400	18,020	9,030	212,320	8,907

Notes:
All concentration are reported in parts per billion (ppb)
ND - Compound not detected above method detection limit
J - Estimated value
D - Diluted

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Boxed Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2A

Remaining Soil Sample Exceedances - Polycyclic Aromatic Hydrocarbons (PAHs)
Western New York Workforce Training Center
NYSDEC Site No. C915310

PAH	Part 375-6.8(a) Unrestricted Use (Track 1) Soil Cleanup Objectives (SCOs)	Part 375-6.8(b) Restricted Use (Track 2) Commercial Soil Cleanup Objectives (SCOs)	Site-Specific Soil Cleanup Objectives (SCOs)	Location ID, Sample ID, Date Collected, and Type		
				RA-049	RA-052	RA-053
				RA-081718-WSW-20-049	RA-081718-SSW-145-052	RA-081718-WSW-20-053
				8/17/2018	8/17/2018	8/17/2018
				Sidewall	Sidewall	Sidewall
Phenol	330	500,000	NS	ND	ND	ND
Naphthalene	12,000	500,000	NS	ND	ND	ND
Acenaphthylene	100,000	500,000	NS	ND	ND	ND
Acenaphthene	20,000	500,000	NS	120 J	ND	120 J
Dibenzofuran	7,000	350,000	NS	ND	ND	ND
Fluorene	30,000	500,000	NS	150 J	ND	100 J
Phenanthrene	100,000	500,000	NS	1,600	2,300	890 J
Anthracene	100,000	500,000	NS	530	410 J	210 J
Fluoranthene	100,000	500,000	NS	3,000	2,700	1200 J
Pyrene	100,000	500,000	NS	2,800	2,500	1400 J
Benzo(a)anthracene	1,000	5,600	NS	**1,700**	**1,300 J**	740 J
Chrysene	1,000	56,000	NS	**1,500**	**1,300 J**	750
Benzo(b)fluoranthene	1,000	5,600	NS	**2,000**	**1,700 J**	880 J
Benzo(k)fluoranthene	800	56,000	NS	640	610 J	360 J
Benzo(a)pyrene	1,000	1,000	NS	**1,400**	**1,200 J**	720 J
Indeno(1,2,3-cd)pyrene	500	5,600	NS	**690**	**720 J**	**670**
Dibenzo(a,h)anthracene	330	560	NS	260 J	ND	140 J
Benzo(g,h,i)perylene	100,000	500,000	NS	930	760 J	590
Total PAHs	NS	NS	500,000	17,320	15,500	8,770

Notes:
All concentration are reported in parts per billion (ppb)
ND - Compound not detected above method detection limit
J - Estimated value
D - Diluted

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Boxed Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2B

Remaining Soil Sample Exceedances - Polychlorinated Biphenyls (PCBs)
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters	*Units*	*6 NYCRR Part 375*		Location ID, Sample ID, Sample Date, and Sample Depth						
				LB-15	**LB-15**	**LB-16**	**LB-17**	**LB-24**	**LB-26**	**LB-26**
		Unrestricted SCO	*Commercial SCO*	**LB-15-COMP1-0-4**	**LB-15-COMP2-4-8.5**	**LB-16-COMP1-0-2**	**LB-17-COMP1-1-3**	**LB-24-COMP1-1-3**	**LB-26-COMP1-0-4**	**LB-26-COMP2-4-7.8**
				2/9/2017	**2/9/2017**	**2/13/2017**	**2/13/2017**	**2/13/2017**	**2/9/2017**	**2/9/2017**
				0 to 4'	**4 to 8.5'**	**0 to 2'**	**1 to 3'**	**1 to 3'**	**0 to 4'**	**4 to 7.8'**
PCB Analytes										
Aroclor-1242	µg/kg	NS	NS	1,200 D	250 D	ND	ND	ND	ND	ND
Aroclor-1248	µg/kg	NS	NS	ND	ND	ND	ND	ND	670 D	ND
Aroclor-1254	µg/kg	NS	NS	ND	1,200 D	1,000 D	410 D	540 D	3,200 D	6,000 D
Aroclor-1260	µg/kg	NS	NS	ND	ND	240 D	ND	ND	520 D	ND
Total PCBs	µg/kg	100	1,000	**1,200**	**1,450**	**1,240**	**410**	**540**	**4,390**	**6,000**

Notes:
µg/kg - Micrograms per Kilogram
SCO - Soil Cleanup Objective
ND - Not Detected
NS - No Standard
J - Estimated Concentration
P - > 25% Difference For Detected Concentrations Between The Two GC Columns
D - Diluted
Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Boxed Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2B

Remaining Soil Sample Exceedances - Polychlorinated Biphenyls (PCBs)
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters	*Units*	*6 NYCRR Part 375*		Location ID, Sample ID, Sample Date, and Sample Depth						
				LB-27	**LB-27**	**LB-28**	**LB-28**	**LW-03**	**LB-30**	**LB-35**
		Unrestricted SCO	*Commercial SCO*	**LB-27-COMP1-0-4**	**LB-27-COMP2-4-10.3**	**LB-28-COMP1-0-4**	**LB-28-COMP2-4-11**	**LW-03-COMP1-4-8**	**LB-30-COMP 1**	**LB-35-COMP 1**
				2/9/2017	**2/9/2017**	**2/9/2017**	**2/9/2017**	**2/20/2017**	**6/7/2017**	**6/7/2017**
				0 to 4'	**4 to 10.3'**	**0 to 4'**	**4 to 11'**	**4 to 8' *(MS/MSD)***	**0 to 4' *(MS/MSD)***	**0 to 4'**
PCB Analytes										
Aroclor-1242	µg/kg	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	µg/kg	NS	NS	ND	ND	ND	ND	130 D	ND	ND
Aroclor-1254	µg/kg	NS	NS	7,700 D	7,500 D	7,500 D	1,300 D	500 D	2,350	783
Aroclor-1260	µg/kg	NS	NS	ND	ND	ND	ND	120 D	ND	ND
Total PCBs	µg/kg	100	1,000	**7,700**	**7,500**	**7,500**	**1,300**	**750**	**2,350**	**783**

Notes:
µg/kg - Micrograms per Kilogram
SCO - Soil Cleanup Objective
ND - Not Detected
NS - No Standard
J - Estimated Concentration
P - > 25% Difference For Detected Concentrations Between The Two GC Columns
D - Diluted
Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Boxed Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2B

Remaining Soil Sample Exceedances - Polychlorinated Biphenyls (PCBs)
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters	*Units*	*6 NYCRR Part 375*		Location ID, Sample ID, Sample Date, and Sample Depth			
				LB-35	**LB-37**	**LB-38**	**LB-38**
				LB-35-COMP 2	**LB-37-COMP 2**	**LB-29-COMP 1**	**LB-29-COMP 2**
		Unrestricted SCO	*Commercial SCO*	**6/7/2017**	**6/7/2017**	**6/7/2017**	**6/7/2017**
				0 to 4' *(Duplicate)*	**4 to 11.3'**	**0 to 4'**	**4 to 8.7'**
PCB Analytes							
Aroclor-1242	µg/kg	NS	NS	ND	ND	ND	ND
Aroclor-1248	µg/kg	NS	NS	ND	ND	ND	ND
Aroclor-1254	µg/kg	NS	NS	702	185	600	147
Aroclor-1260	µg/kg	NS	NS	ND	ND	ND	ND
Total PCBs	µg/kg	100	1,000	**702**	**185**	**600**	**147**

Notes:
µg/kg - Micrograms per Kilogram
SCO - Soil Cleanup Objective
ND - Not Detected
NS - No Standard
J - Estimated Concentration
P - > 25% Difference For Detected Concentrations Between The Two GC Columns
D - Diluted
Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Boxed Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2B

Remaining Soil Sample Exceedances - Polychlorinated Biphenyls (PCBs)
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters			SAMPLE ID	DBWW1A (2-4')	DBEW1A-2-4	DBWW-2 (0-4')	DBWW-2 (4-6')	DBEW-2 (0-4')	DBWW-3 (0-4')	DBWW-3 (4-10')
			SAMPLE NUMBER	3	5	7	8	10	12	13 (14 MS/MSD)
			DATE COLLECTED	11/27/2017	11/27/2017	12/7/2017	12/7/2017	12/7/2017	12/14/2017	12/14/2017
			DEPTH OF SAMLE IN FT BGS	2-4'	2-4'	0-4'	4-6'	0-4'	0-4'	4-10'
PCBs	Units	6 NYCRR Part 375 Unrestricted SCO	6 NYCRR Part 375 Commercial SCO	**PCB Management Area**	**PCB Management Area**	**PCB Management Area**	**PCB Management Area**	**PCB Management Area**	**PCB Management Area**	**PCB Management Area**
Aroclor-1016	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1221	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1232	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	µg/kg	**NS**	NS	**280**	**260 P**	**3300 D**	**180**	**1600 D**	**2200 D**	**230 P**
Aroclor-1262	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1268	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1260	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Total PCBs	µg/kg	**100**	1,000	**280**	**260**	**3,300**	**180**	**1,600**	**2,200**	**230**

Notes:
µg/kg - Micrograms Per Kilogram (ppb)
SCO - Soil Cleanup Objective
ND - Not Detected
NS - No Standard
JH - Estimated High
J - Estimated Concentration
D - Diluted
* - Indicates The Duplicate Analysis Is Not Within Control Limits
B - Analyte Found In The Associated Blank
Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Shaded Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2B

Remaining Soil Sample Exceedances - Polychlorinated Biphenyls (PCBs)
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters				SAMPLE ID	TP-01 (12" Storm Btwn MH4A & DB) Bottom	DB-OF-N-S (WW 0-4')	DB-OF-N-S (WW 4-8')	DB-OF-N-S (EW 0-4')	DB-OF-N-S (EW 4-8')	DB-OF-E-W (SW 0-4')	DB-OF-E-W (SW 4-8)
				SAMPLE NUMBER	22	25	26	27	28	29	30
				DATE COLLECTED	1/10/2018	1/11/2018	1/11/2018	1/11/2018	1/11/2018	1/12/2018	1/12/2018
				DEPTH OF SAMLE IN FT BGS	8'	0-4'	4-8'	0-4'	4-8'	0-4'	4-8'
PCBs	Units	6 NYCRR Part 375 Unrestricted SCO	6 NYCRR Part 375 Commercial SCO		**PCB Management Area**	**PCB Management Area**	**PCB Management Area**	**PCB Management Area**	**PCB Management Area**	**PCB Management Area**	**PCB Management Area**
Aroclor-1016	µg/kg	**NS**	NS		ND	ND	ND	ND	ND	ND	ND
Aroclor-1221	µg/kg	**NS**	NS		ND	ND	ND	ND	ND	ND	ND
Aroclor-1232	µg/kg	**NS**	NS		ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	µg/kg	**NS**	NS		ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	µg/kg	**NS**	NS		ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	µg/kg	**NS**	NS		**100**	**1300 D**	**190**	**7200 D**	**320**	**1200 D**	**470 D**
Aroclor-1262	µg/kg	**NS**	NS		ND	ND	ND	ND	ND	ND	ND
Aroclor-1268	µg/kg	**NS**	NS		ND	ND	ND	ND	ND	ND	ND
Aroclor-1260	µg/kg	**NS**	NS		ND	ND	ND	ND	ND	ND	ND
Total PCBs	µg/kg	**100**	1,000		**100**	**1,300**	**190**	**7,200**	**320**	**1,200**	**470**

Notes:
µg/kg - Micrograms Per Kilogram (ppb)
SCO - Soil Cleanup Objective
ND - Not Detected
NS - No Standard
JH - Estimated High
J - Estimated Concentration
D - Diluted
* - Indicates The Duplicate Analysis Is Not Within Control Limits
B - Analyte Found In The Associated Blank
Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Shaded Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2B

Remaining Soil Sample Exceedances - Polychlorinated Biphenyls (PCBs)
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters				SAMPLE ID	DB-OF-E-W (NW 0-4')	DB-OF-E-W (NW 4-8')	8" SAN-1-EW (1-4')	8" SAN-2-WW (5-6')	8" SAN-5-EW (0-4')	8" SAN-6-EW (2-4')	8" SAN-6-EW (12-14')
				SAMPLE NUMBER	31	32	34	36	42 (44 MS/MSD)	45	55 (Dup of 46)
				DATE COLLECTED	1/12/2018	1/12/2018	1/18/2018	1/22/2018	1/25/2018	1/26/2018	1/26/2018
				DEPTH OF SAMLE IN FT BGS	0-4'	4-8'	1-4'	5-6'	0-4'	2-4'	4-8'
PCBs	Units	6 NYCRR Part 375 Unrestricted SCO	6 NYCRR Part 375 Commercial SCO		**PCB Management Area**	**PCB Management Area**	**Other Areas**	**Other Areas**	**PCB Management Area**	**PCB Management Area**	**PCB Management Area**
Aroclor-1016	µg/kg	**NS**	NS		ND	ND	ND	ND	ND	ND	ND
Aroclor-1221	µg/kg	**NS**	NS		ND	ND	ND	ND	ND	ND	ND
Aroclor-1232	µg/kg	**NS**	NS		ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	µg/kg	**NS**	NS		ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	µg/kg	**NS**	NS		ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	µg/kg	**NS**	NS		**2300 D**	**840 D**	**210**	**960 D**	**820 D**	**330**	**320**
Aroclor-1262	µg/kg	**NS**	NS		ND	ND	ND	ND	ND	ND	ND
Aroclor-1268	µg/kg	**NS**	NS		ND	ND	ND	ND	ND	ND	ND
Aroclor-1260	µg/kg	**NS**	NS		ND	ND	ND	ND	ND	ND	ND
Total PCBs	µg/kg	**100**	1,000		**2,300**	**840**	**210**	**960**	**820**	**330**	**320**

Notes:
µg/kg - Micrograms Per Kilogram (ppb)
SCO - Soil Cleanup Objective
ND - Not Detected
NS - No Standard
JH - Estimated High
J - Estimated Concentration
D - Diluted
* - Indicates The Duplicate Analysis Is Not Within Control Limits
B - Analyte Found In The Associated Blank
Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Shaded Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2B

Remaining Soil Sample Exceedances - Polychlorinated Biphenyls (PCBs)
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters		SAMPLE ID		TP-04 (CB#3 Line Bottom @ 4')	TP-03 (6" Waterline Bottom @ 10')	Main ST Line-1-WW @ 4'	Main ST Line-3-EW @ 4.5'	12" ST Lateral Line-2-SW @ 5'	4" & 15" Trench-2-NW (2-4')	4" & 15" Trench-2-SW (2-4')
		SAMPLE NUMBER		58	68 (Dup of 57)	73	78	82	85 (86 MS/MSD)	87
		DATE COLLECTED		1/29/2018	1/29/2018	2/1/2018	2/1/2018	2/5/2018	2/6/2018	2/6/2018
		DEPTH OF SAMLE IN FT BGS		4'	6'	4'	4.5'	5'	2-4'	2-4'
PCBs	Units	6 NYCRR Part 375 Unrestricted SCO	6 NYCRR Part 375 Commercial SCO	**PCB Management Area**	**PCB Management Area**	**Other Areas**	**Other Areas**	**Other Areas**	**PCB Management Area**	**PCB Management Area**
Aroclor-1016	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1221	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1232	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	µg/kg	**NS**	NS	**220**	**160**	**170**	**550 D**	**720 D**	**120**	**420**
Aroclor-1262	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1268	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1260	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Total PCBs	µg/kg	**100**	1,000	**220**	**160**	**170**	**550**	**720**	**120**	**420**

Notes:
µg/kg - Micrograms Per Kilogram (ppb)
SCO - Soil Cleanup Objective
ND - Not Detected
NS - No Standard
JH - Estimated High
J - Estimated Concentration
D - Diluted
* - Indicates The Duplicate Analysis Is Not Within Control Limits
B - Analyte Found In The Associated Blank
Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Shaded Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2B

Remaining Soil Sample Exceedances - Polychlorinated Biphenyls (PCBs)
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters			SAMPLE ID	CB#3-Line-NW @ 3'	CB#3-Line-SW @ 3'	6"-WM-DIP-5-WW @ 3'	6"-WM-DIP-6-EW (2.5-5')	6"-WM-DIP-6-WW (2.5-5')	6"-WM-DIP-7-EW (1-5')	6"-WM-DIP-7-WW (1-5')
			SAMPLE NUMBER	95	96	125	126 (127 MS/MSD)	128	129	130
			DATE COLLECTED	2/9/2018	2/9/2018	3/19/2018	3/20/2018	3/20/2018	3/20/2018	3/20/2018
			DEPTH OF SAMLE IN FT BGS	3'	3'	3'	2.5-5'	2.5-5'	1-5'	1-5'
PCBs	Units	6 NYCRR Part 375 Unrestricted SCO	6 NYCRR Part 375 Commercial SCO	**PCB Management Area**	**PCB Management Area**	**PCB Management Area**	**PCB Management Area**	**PCB Management Area**	**PCB Management Area**	**PCB Management Area**
Aroclor-1016	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1221	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1232	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	µg/kg	**NS**	NS	**1300 D**	**560 D**	**200**	**200**	**500 D**	**600 D**	**600 D**
Aroclor-1262	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1268	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1260	µg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Total PCBs	µg/kg	**100**	1,000	**1,300**	**560**	**200**	**200**	**500**	**600**	**600**

Notes:
µg/kg - Micrograms Per Kilogram (ppb)
SCO - Soil Cleanup Objective
ND - Not Detected
NS - No Standard
JH - Estimated High
J - Estimated Concentration
D - Diluted
* - Indicates The Duplicate Analysis Is Not Within Control Limits
B - Analyte Found In The Associated Blank
Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Shaded Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2B

Remaining Soil Sample Exceedances - Polychlorinated Biphenyls (PCBs)
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters				SAMPLE ID	6"-WM-DIP-8-EW (1-5')	6"-WM-DIP-8-WW (1-5')
				SAMPLE NUMBER	131	132
				DATE COLLECTED	3/20/2018	3/20/2018
				DEPTH OF SAMLE IN FT BGS	1-5'	1-5'
PCBs	Units	6 NYCRR Part 375 Unrestricted SCO	6 NYCRR Part 375 Commercial SCO		**PCB Management Area**	**PCB Management Area**
Aroclor-1016	µg/kg	**NS**	NS		ND	ND
Aroclor-1221	µg/kg	**NS**	NS		ND	ND
Aroclor-1232	µg/kg	**NS**	NS		ND	ND
Aroclor-1242	µg/kg	**NS**	NS		ND	ND
Aroclor-1248	µg/kg	**NS**	NS		ND	ND
Aroclor-1254	µg/kg	**NS**	NS		**690 D**	**770 D**
Aroclor-1262	µg/kg	**NS**	NS		ND	ND
Aroclor-1268	µg/kg	**NS**	NS		ND	ND
Aroclor-1260	µg/kg	**NS**	NS		ND	ND
Total PCBs	µg/kg	**100**	1,000		**690**	**770**

Notes:
µg/kg - Micrograms Per Kilogram (ppb)
SCO - Soil Cleanup Objective
ND - Not Detected
NS - No Standard
JH - Estimated High
J - Estimated Concentration
D - Diluted
* - Indicates The Duplicate Analysis Is Not Within Control Limits
B - Analyte Found In The Associated Blank
Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Shaded Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2B

Remaining Soil Sample Exceedances - Polychlorinated Biphenyls (PCBs)
Western New York Workforce Training Center
NYSDEC Site Number C915310

PCB	Part 375-6.8(a) Unrestricted Use (Track 1) Soil Cleanup Objectives	Part 375-6.8(b) Restricted Use (Track 2) Commercial Soil Cleanup Objectives (SCOs)	Site-Specific Soil Cleanup Objectives (SCOs)	Location ID, Sample ID, Date Collected, and Type						
				RA-002	RA-003	RA-004	RA-005	RA-010	RA-015	RA-022
				RA-080918-SW-002	RA-081018-SW-003	RA-081018-FL-004	RA-081018-FL-005	RA-081018-FL-010	RA-081018-ESW-015	RA-081318-SSW-45-022
				8/9/2018	8/10/2018	8/10/2018	8/10/2018	8/10/2018	8/10/2018	8/13/2018
				Sidewall	Sidewall	Floor	Floor	Floor	Sidewall	Sidewall
Aroclor-1016	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1221	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1232	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	NS	NS	NS	220 J	460 J	200 J	230 J	160 J	170 J	3,500 J
Aroclor-1262	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1268	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1260	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Total PCBs	100	1,000	10,000	**220**	**460**	**200**	**230**	**160**	**170**	**3,500**

Notes:
All concentration are reported in parts per billion (ppb)
NS - No standard
ND - Compound not detected at method detection limit
J- Estimated value
D - Diluted
P - Indicates >25% difference for detected concentrations between the two GC columns

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Boxed Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2B

Remaining Soil Sample Exceedances - Polychlorinated Biphenyls (PCBs)
Western New York Workforce Training Center
NYSDEC Site Number C915310

PCB	Part 375-6.8(a) Unrestricted Use (Track 1) Soil Cleanup Objectives	Part 375-6.8(b) Restricted Use (Track 2) Commercial Soil Cleanup Objectives (SCOs)	Site-Specific Soil Cleanup Objectives (SCOs)	Location ID, Sample ID, Date Collected, and Type						
				RA-023	RA-024	RA-029	RA-030	RA-031	RA-035	RA-037
				RA-081418-FL-023	RA-081418-FL-024	RA-081518-NSW-45-029	RA-081518-FL-030	RA-081518-FL-031	RA-081618-FL-035	RA-081618-ESW-15-037
				8/14/2018	8/14/2018	8/15/2018	8/15/2018	8/15/2018	8/16/2018	8/16/2018
				Floor	Floor	Sidewall	Floor	Floor	Floor	Sidewall
Aroclor-1016	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1221	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1232	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	NS	NS	NS	110 J	70.4 J	2,300 J	920 J	120 J	200 J	3,100 J
Aroclor-1262	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1268	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1260	NS	NS	NS	ND	160	ND	ND	58.9	83.9	ND
Total PCBs	100	1,000	10,000	**110**	**230.4**	**2,300**	**920**	**178.9**	**283.9**	**3,100**

Notes:
All concentration are reported in parts per billion (ppb)
NS - No standard
ND - Compound not detected at method detection limit
J- Estimated value
D - Diluted
P - Indicates >25% difference for detected concentrations between the two GC columns

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Boxed Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2B

Remaining Soil Sample Exceedances - Polychlorinated Biphenyls (PCBs)
Western New York Workforce Training Center
NYSDEC Site Number C915310

PCB	Part 375-6.8(a) Unrestricted Use (Track 1) Soil Cleanup Objectives	Part 375-6.8(b) Restricted Use (Track 2) Commercial Soil Cleanup Objectives (SCOs)	Site-Specific Soil Cleanup Objectives (SCOs)	Location ID, Sample ID, Date Collected, and Type						
				RA-038	RA-041	RA-044	RA-045	RA-048	RA-049	RA-050
				RA-081618-NSW-15-038	RA-081618-FL-041	RA-081618-FL-044	RA-081718-FL-045	RA-081718-SSW-75-048	RA-081718-WSW-20-049	RA-081718-SSW-115-050
				8/16/2018	8/16/2018	8/16/2018	8/17/2018	8/17/2018	8/17/2018	8/17/2018
				Sidewall	Floor	Floor	Floor	Sidewall	Sidewall	Sidewall
Aroclor-1016	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1221	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1232	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	NS	NS	NS	ND	240 J	ND	50.2 J	530 J	540 J	990 J
Aroclor-1248	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	NS	NS	NS	7,000 J	130 J	200 J	51.3 J	420 J	210 J	1,600 J
Aroclor-1262	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1268	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1260	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Total PCBs	100	1,000	10,000	**7,000**	**370**	**200**	**101.5**	**950**	**750**	**2,590**

Notes:
All concentration are reported in parts per billion (ppb)
NS - No standard
ND - Compound not detected at method detection limit
J- Estimated value
D - Diluted
P - Indicates >25% difference for detected concentrations between the two GC columns

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Boxed Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2B

Remaining Soil Sample Exceedances - Polychlorinated Biphenyls (PCBs)
Western New York Workforce Training Center
NYSDEC Site Number C915310

PCB	Part 375-6.8(a) Unrestricted Use (Track 1) Soil Cleanup Objectives	Part 375-6.8(b) Restricted Use (Track 2) Commercial Soil Cleanup Objectives (SCOs)	Site-Specific Soil Cleanup Objectives (SCOs)	Location ID, Sample ID, Date Collected, and Type						
				RA-051	RA-052	RA-053	RA-055	RA-056	RA-057	RA-058
				RA-081718-SSW-125-051	RA-081718-SSW-145-052	RA-081718-WSW-20-053	RA-091918-NORTHEX-NW-055	RA-091918-NORTHEX-FL-056	RA-091918-NORTHEX-EW-057	RA-091918-SOUTHEX-SW-058
				8/17/2018	8/17/2018	8/17/2018	9/19/2018	9/19/2018	9/19/2018	9/19/2018
				Dup -050	Sidewall	Sidewall	Sidewall	Floor	Sidewall	Sidewall
Aroclor-1016	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1221	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1232	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	NS	NS	NS	370	300	580 DP	ND	ND	ND	ND
Aroclor-1248	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	NS	NS	NS	830 D	1,100 D	1,000 D	3,200 J	4,100 J	230 J	180 J
Aroclor-1262	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1268	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Aroclor-1260	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND
Total PCBs	100	1,000	10,000	**1,200**	**1,400**	**1,580**	**3,200**	**4,100**	**230**	**180**

Notes:
All concentration are reported in parts per billion (ppb)
NS - No standard
ND - Compound not detected at method detection limit
J- Estimated value
D - Diluted
P - Indicates >25% difference for detected concentrations between the two GC columns

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Boxed Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2B

Remaining Soil Sample Exceedances - Polychlorinated Biphenyls (PCBs)
Western New York Workforce Training Center
NYSDEC Site Number C915310

PCB	Part 375-6.8(a) Unrestricted Use (Track 1) Soil Cleanup Objectives (SCOs)	Part 375-6.8(b) Restricted Use (Track 2) Commercial Soil Cleanup Objectives (SCOs)	Site-Specific Soil Cleanup Objectives (SCOs)	Location ID, Sample ID, Date Collected, and Type			
				RA-060	RA-061	RA-062	RA-064
				RA-091918-SOUTHEX-NW-E-060	RA-091918-SOUTHEX-NW-LOW-061	RA-091918-NORTHEX-WW-062	RA-092518-USTEXC-NW-R-064
				9/19/2018	9/19/2018	9/19/2018	9/25/2018
				Sidewall	Sidewall	Dup -061	Sidewall
Aroclor-1016	NS	NS	NS	ND	ND	ND	ND
Aroclor-1221	NS	NS	NS	ND	ND	ND	ND
Aroclor-1232	NS	NS	NS	ND	ND	ND	ND
Aroclor-1242	NS	NS	NS	ND	ND	ND	ND
Aroclor-1248	NS	NS	NS	ND	ND	ND	ND
Aroclor-1254	NS	NS	NS	730 J	5,100 J	3,000 J	200 J
Aroclor-1262	NS	NS	NS	ND	ND	ND	ND
Aroclor-1268	NS	NS	NS	ND	ND	ND	ND
Aroclor-1260	NS	NS	NS	ND	ND	ND	ND
Total PCBs	100	1,000	10,000	**730**	**5,100**	**3,000**	**200**

Notes:
All concentration are reported in parts per billion (ppb)
NS - No standard
ND - Compound not detected at method detection limit
J- Estimated value
D - Diluted
P - Indicates >25% difference for detected concentrations between the two GC columns

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Boxed Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2C

Remaining Soil Sample Exceedances - RCRA Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters	*Units*	*6 NYCRR Part 375*		Location ID, Sample ID, Sample Date, and Sample Depth					
				LB-21	**LB-22**	**LB-23**	**LB-26**	**LB-26**	**LB-27**
		Unrestricted SCO	*Commercial SCO*	**LB-21-COMP1-0-4**	**LB-22-COMP1-0-4**	**LB-23-COMP1-0-4**	**LB-26-COMP1-0-4**	**LB-26-COMP2-4-7.8**	**LB-27-COMP1-0-4**
				2/13/2017	**2/13/2017**	**2/13/2017**	**2/9/2017**	**2/9/2017**	**2/9/2017**
				0 to 4'	**0 to 4'**	**0 to 4'**	**0 to 4'**	**4 to 7.8'**	**0 to 4'**
Metals Analytes									
Arsenic	mg/kg	13	16	**30 J**	**14 J**	12 J	ND	ND	3.4 J
Barium	mg/kg	350	400	140 J	110	98	140	150	**1,800**
Cadmium	mg/kg	2.5	9.3	ND	0.29	ND	1.5 JH	1.2 JH	**6.6 JH**
Chromium, Total	mg/kg	30	1,500	**33**	26	17	**190**	**110**	**650**
Lead	mg/kg	63	1,000	**770 J**	**880**	**110**	**190 JH**	**82 JH**	**680 JH**
Mercury	mg/kg	0.18	2.8	0.066 JH	0.11 JH	0.058 JH	0.15	0.075	0.17
Selenium	mg/kg	3.9	1,500	**4 J**	**4.5 J**	ND	ND	3 JH	3.9 JH
Silver	mg/kg	2	1,500	ND	**2.8**	ND	ND	ND	1.9

Notes:
mg/kg - Milligrams Per Kilogram
SCO - Soil Cleanup Objective
ND - Not Detected
NS - No Standard
J - Estimated Concentration
JH - Estimated High
D - Diluted
Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Boxed Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2C

Remaining Soil Sample Exceedances - RCRA Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters	*Units*	*6 NYCRR Part 375*		Location ID, Sample ID, Sample Date, and Sample Depth		
				LB-27	**LB-28**	**LW-05**
		Unrestricted SCO	*Commercial SCO*	**LB-27-COMP2-4-10.3**	**LB-28-COMP1-0-4**	**LW-05-COMP1-0-6**
				2/9/2017	**2/9/2017**	**2/20/2017**
				4 to 10.3'	**0 to 4'**	**0 to 6'**
Metals Analytes						
Arsenic	mg/kg	13	16	4.2 J	7.8 J	4.4
Barium	mg/kg	350	400	**660**	**400**	130
Cadmium	mg/kg	2.5	9.3	2.2 JH	**5.4**	1.7
Chromium, Total	mg/kg	30	1,500	**260**	**680**	**39**
Lead	mg/kg	63	1,000	**280 JH**	**280 JH**	**700**
Mercury	mg/kg	0.18	2.8	**0.2**	**0.23**	**0.45**
Selenium	mg/kg	3.9	1,500	**4.3 JH**	ND	**5.5 J**
Silver	mg/kg	2	1,500	0.65	**12**	ND

Notes:
mg/kg - Milligrams Per Kilogram
SCO - Soil Cleanup Objective
ND - Not Detected
NS - No Standard
J - Estimated Concentration
JH - Estimated High
D - Diluted
Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria
Boxed Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2D

Remaining Soil Sample Exceedances - TAL Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters	*Units*	*6 NYCRR Part 375*		Location ID, Sample ID, Sample Date, and Sample Depth						
				LB-15	**LB-15**	**LB-16**	**LB-17**	**LB-19**	**LB-19**	**LB-28**
		Unrestricted SCO	*Commercial SCO*	**LB-15-COMP1-0-4**	**LB-15-COMP2-4-8.5**	**LB-16-COMP1-0-2**	**LB-17-COMP1-1-3**	**LB-19-COMP1-0-5.4**	**LB-19-COMP2-5.4-7**	**LB-28-COMP2-4-11**
				2/9/2017	**2/9/2017**	**2/13/2017**	**2/13/2017**	**2/13/2017**	**2/13/2017**	**2/9/2017**
				0 to 4'	**4 to 8.5'**	**0 to 2'**	**1 to 3'**	**0 to 5.4'**	**0 to 5.4' *(Duplicate)***	**4 to 11'**
Metals Analytes										
Aluminum	mg/kg	NS	NS	6,500	13,000	13,000	12,000	14,000	13,000	11,000
Antimony	mg/kg	NS	NS	56 JH	19 JH	5.9 JH	5.8 JH	31 JH	28 JH	32 JH
Arsenic	mg/kg	13	16	ND	10 J	6 J	7.7 J	**14 J**	13 J	**18 J**
Barium	mg/kg	350	400	240	210	78	95	110	120	**480**
Beryllium	mg/kg	7.2	590	2.3	1.2	0.91	0.86	1.2	0.89	0.85
Cadmium	mg/kg	2.5	9.3	**3.1**	0.44	ND	ND	ND	ND	0.52
Calcium	mg/kg	NS	NS	150000 D, J	83000 D, J	82000 D	19,000	20,000	27,000	20000 J
Chromium	mg/kg	30	1,500	**1300 J**	**430 J**	17	17	18	22	**330 J**
Cobalt	mg/kg	NS	NS	5.2 J	11 J	8.1	19	14	14	23 J
Copper	mg/kg	50	270	**110 J**	**62 J**	16	20	50	45	**230 J**
Iron	mg/kg	NS	NS	110000 D	51000 D	23000 D	33000 D	50000 D	53000 D	91000 D
Lead	mg/kg	63	1,000	**340 J**	**92 J**	16	**83**	**240**	**160**	**360 J**
Magnesium	mg/kg	NS	NS	48000 D	22000 D	20000 D, JH	6700 D, JH	7900 D, JH	11000 D, JH	7300 D
Manganese	mg/kg	1,600	10,000	**29000 D**	**5,300**	520	600	820	730	1,400
Mercury	mg/kg	0.18	2.8	0.071	0.042	ND	0.037	0.062	0.049	0.081
Nickel	mg/kg	30	310	23	**94**	17	18	18	25	**250**
Potassium	mg/kg	NS	NS	470	1,900	1,400	1,300	1,100	1,300	1,300
Selenium	mg/kg	3.9	1,500	ND	**4.6 J**	**4.7 J**	ND	ND	ND	ND
Silver	mg/kg	2	1,500	ND	1.4 J	ND	ND	ND	0.7 J	1.9 J
Sodium	mg/kg	NS	NS	450	250	330	260	270	200	140
Thallium	mg/kg	NS	NS	ND	ND	ND	ND	ND	ND	ND
Vanadium	mg/kg	NS	NS	440 J	100 J	21	24	23	23	42 J
Zinc	mg/kg	109	10,000	**890 J**	**240 J**	61	61	100	**130**	**360 J**
Cyanide	mg/kg	27	27	0.84	3.2	1	ND	ND	ND	ND

Notes:

mg/kg - Milligrams Per Kilogram

SCO - Soil Cleanup Objective

ND - Not Detected

NS - No Standard

JH - Estimated High

J - Estimated Concentration

D - Diluted

B - Analyte Found In The Associated Blank

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria

Boxed Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2D

Remaining Soil Sample Exceedances - TAL Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters	*Units*	*6 NYCRR Part 375*		Location ID, Sample ID, Sample Date, and Sample Depth						
				LW-03	**LW-04**	**LB-30**	**LB-30**	**LB-32**	**LB-33**	**LB-34**
		Unrestricted SCO	*Commercial SCO*	**LW-03-COMP1-4-8**	**LW-04-COMP1-0-4.10**	**LB-30-COMP 1**	**LB-30-COMP 2**	**LB-32-COMP 1**	**LB-33-COMP 1**	**LB-34-COMP 1**
				2/20/2017	**2/15/2017**	**6/7/2017**	**6/7/2017**	**6/7/2017**	**6/7/2017**	**6/7/2017**
				4 to 8' ***(MS/MSD)***	**0 to 4.1'**	**0 to 4'**	**4 to 10.2'**	**0 to 4'**	**0 to 4'**	**0 to 4'**
Metals Analytes										
Aluminum	mg/kg	NS	NS	5,000	5000 JH	3320	6020	16300	9010	11200
Antimony	mg/kg	NS	NS	3.5	ND	4.58	5.18	ND	1.8	1.42
Arsenic	mg/kg	13	16	9.9	4.3	2.06	**25.1**	2.4	4.44	2.64
Barium	mg/kg	350	400	88	190	**1790**	**507**	110	75	68.2
Beryllium	mg/kg	7.2	590	0.49	0.62 JH	ND	0.308	0.906	0.407	0.516
Cadmium	mg/kg	2.5	9.3	1.2	0.72 JH	**2.67**	1.32	ND	ND	ND
Calcium	mg/kg	NS	NS	30,000	130,000	7410	16300	2700	8630	7660
Chromium	mg/kg	30	1,500	**120**	20	**434**	**155**	20.4	14.4	14.4
Cobalt	mg/kg	NS	NS	4	3.4 J	28.7	17.3	14.4	6.76	8.09
Copper	mg/kg	50	270	43	19	**479**	**287**	15.2	**107**	37.5
Iron	mg/kg	NS	NS	5,800	11,000	ND	ND	25900	ND	23100
Lead	mg/kg	63	1,000	**93**	**80 JH**	**179**	**140**	16.8	**85.8**	38.6
Magnesium	mg/kg	NS	NS	6,600	10000 JH	1040	3850	4550	2830	3380
Manganese	mg/kg	1,600	10,000	**2,800**	380	ND	**9510**	926	552	412
Mercury	mg/kg	0.18	2.8	0.098	0.03	0.0709	0.131	0.0927	0.0996	0.0785
Nickel	mg/kg	30	310	16	13	**178**	**147**	24.1	16	15
Potassium	mg/kg	NS	NS	600	830	803 B	1050 B	1580 B	713 B	982 B
Selenium	mg/kg	3.9	1,500	3.7 J	**10 JH**	**60.6**	**40.3**	**4.74**	**7.66**	**4.63**
Silver	mg/kg	2	1,500	ND	ND	ND	ND	ND	ND	ND
Sodium	mg/kg	NS	NS	160	170	1020	204	48	95.8	19.2
Thallium	mg/kg	NS	NS	ND	ND	109	36.3	ND	ND	ND
Vanadium	mg/kg	NS	NS	61	13 J	28.1	20.1	28.5	20.6	20.8
Zinc	mg/kg	109	10,000	**140**	**120**	**588**	**191**	59.2	**191**	68
Cyanide	mg/kg	27	27	ND	1.6	ND	0.882	ND	ND	ND

Notes:

mg/kg - Milligrams Per Kilogram

SCO - Soil Cleanup Objective

ND - Not Detected

NS - No Standard

JH - Estimated High

J - Estimated Concentration

D - Diluted

B - Analyte Found In The Associated Blank

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria

Boxed Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2D

Remaining Soil Sample Exceedances - TAL Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters	*Units*	*6 NYCRR Part 375*		Location ID, Sample ID, Date, and Depth	
				LB-38	**LB-38**
		Unrestricted SCO	*Commercial SCO*	**LB-38-COMP 1**	**LB-38-COMP 2**
				6/7/2017	**6/7/2017**
				0 to 4'	**4 to 8.7'**
Metals Analytes					
Aluminum	mg/kg	NS	NS	6.58	11300
Antimony	mg/kg	NS	NS	0.0104	8.39
Arsenic	mg/kg	13	16	4.61	5.18
Barium	mg/kg	350	400	**379**	**828**
Beryllium	mg/kg	7.2	590	ND	0.319
Cadmium	mg/kg	2.5	9.3	0.893	1.67
Calcium	mg/kg	NS	NS	50500	43900
Chromium	mg/kg	30	1,500	**281**	**261**
Cobalt	mg/kg	NS	NS	21.4	22
Copper	mg/kg	50	270	**291**	**619**
Iron	mg/kg	NS	NS	ND	ND
Lead	mg/kg	63	1,000	**421**	**338**
Magnesium	mg/kg	NS	NS	6520	9000
Manganese	mg/kg	1,600	10,000	ND	ND
Mercury	mg/kg	0.18	2.8	**0.215**	0.11
Nickel	mg/kg	30	310	**221**	**236**
Potassium	mg/kg	NS	NS	1550 B	2920 B
Selenium	mg/kg	3.9	1,500	**28.8**	**26.7**
Silver	mg/kg	2	1,500	ND	0.798
Sodium	mg/kg	NS	NS	360	296
Thallium	mg/kg	NS	NS	19.3	20.5
Vanadium	mg/kg	NS	NS	215	73.9
Zinc	mg/kg	109	10,000	**218**	**311**
Cyanide	mg/kg	27	27	0.996	ND

Notes:

mg/kg - Milligrams Per Kilogram

SCO - Soil Cleanup Objective

ND - Not Detected

NS - No Standard

JH - Estimated High

J - Estimated Concentration

D - Diluted

B - Analyte Found In The Associated Blank

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria

Boxed Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2D

Remaining Soil Sample Exceedances - TAL Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters			SAMPLE ID	DBNW1A (2-4')	DBWW1A (2-4')	DBEW1A-2-4	DBEW1B-4-9	DBWW-2 (0-4')	DBWW-2 (4-6')	DBWW-2 (6-10')
			SAMPLE NUMBER	1	3	5	6	7	8	9
			DATE COLLECTED	11/27/2017	11/27/2017	11/27/2017	11/27/2017	12/7/2017	12/7/2017	12/7/2017
			DEPTH OF SAMLE IN FT BGS	2-4'	2-4'	2-4'	4-9'	0-4'	4-6'	6-10'
Metals Analytes	Units	6 NYCRR Part 375 Unrestricted SCO	6 NYCRR Part 375 Commercial SCO	PCB Management Area	PCB Management Area	PCB Management Area	PCB Management Area	PCB Management Area	PCB Management Area	PCB Management Area
Aluminum	mg/kg	**NS**	NS	5710	6600	5840	14500	13400	10100	13100
Antimony	mg/kg	**NS**	NS	0.594 J	1.49 J	3	ND	1.52 J	8.38	ND
Arsenic	mg/kg	**13**	16	6.1	**13.3**	**13.7**	5.55	**16**	12.9	4.41
Barium	mg/kg	**350**	400	49.9	100	77.3	95.7	**429**	**653**	92.2
Beryllium	mg/kg	**7.2**	590	0.222 J	1	0.134 J	0.498	0.668	0.414	0.525
Cadmium	mg/kg	**2.5**	9.3	0.444	0.242 J	0.504	0.34	2.36	0.931	ND
Calcium	mg/kg	**NS**	NS	35500	14700	11400	38300	76400	32700	27600
Chromium	mg/kg	**30**	1,500	**31.9**	17.2	16.2	16.3	**148**	**50.1**	14.5
Cobalt	mg/kg	**NS**	NS	4.17	4.65	9.53	13.2	15	12.8	11.6
Copper	mg/kg	**50**	270	18.9	**115**	**55.4**	17	**143**	**166**	18.7
Iron	mg/kg	**NS**	NS	15900	40200	65,700 D	25500	22,200 D	64,000 D	24700
Lead	mg/kg	**63**	1,000	**112**	**188**	**628**	18.6	**192**	**777**	22.6
Magnesium	mg/kg	**NS**	NS	9650	1640	3220	13500	14,900	13900	14400
Manganese	mg/kg	**1,600**	10,000	719	249	687	479	272 D	583	411
Mercury	mg/kg	**0.18**	2.8	0.082	0.017	0.027	0.021	**0.191**	**1.09 D**	0.031
Nickel	mg/kg	**30**	310	20.5	24.7	28.1	**32.6**	**70**	**91**	26.5
Potassium	mg/kg	**NS**	NS	549	458	573	1750	1720	1410	1440
Selenium	mg/kg	**3.9**	1,500	1.32	**12.5**	**20.2**	**4.17**	**14.7**	**11.7**	3.53
Silver	mg/kg	**2**	1,500	ND	ND	ND	ND	**8.91**	**5.22**	**2.08**
Sodium	mg/kg	**NS**	NS	81.6 J	139	141	111	515	155	133
Thallium	mg/kg	**NS**	NS	0.848 J	2.57	2.73	0.991 J	11	2.22 J	0.958 J
Vanadium	mg/kg	**NS**	NS	16.2	12.8	16.1	21.4	41.2	22.2	20.8
Zinc	mg/kg	**109**	10,000	**232**	**139**	**126**	84.4	**179**	**287**	78.9
Cyanide	mg/kg	**27**	27	NA	NA	NA	NA	NA	NA	NA

Notes:

mg/kg - Milligrams Per Kilogram

SCO - Soil Cleanup Objective

ND - Not Detected

NS - No Standard

JH - Estimated High

J - Estimated Concentration

D - Diluted

N - Spiked Sample Recovery Not Within Control Limits

* - Indicates The Duplicate Analysis Is Not Within Control Limits

B - Analyte Found In The Associated Blank

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria

Shaded Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2D

Remaining Soil Sample Exceedances - TAL Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters		SAMPLE ID		DBEW-2 (0-4')	DBEW-2 (4-10')	DBWW-3 (0-4')	DBWW-3 (4-10')	DBWW-4 (5-8')	TP-01 (12" Storm Btwn MH4A & DB) Bottom	DB-OF-N-S (WW 0-4')
		SAMPLE NUMBER		10	11	12	13 (14 MS/MSD)	19	22	25
		DATE COLLECTED		12/7/2017	12/7/2017			1/9/2018	1/10/2018	1/11/2018
		DEPTH OF SAMLE IN FT BGS		0-4'	4-10'	0-4'	4-10'	5-8'	8'	0-4'
Metals Analytes	Units	6 NYCRR Part 375 Unrestricted SCO	6 NYCRR Part 375 Commercial SCO	PCB Management Area	PCB Management Area	PCB Management Area	PCB Management Area	PCB Management Area	PCB Management Area	PCB Management Area
Aluminum	mg/kg	**NS**	NS	5240	11600	12000	9220	9,620	14900	11100
Antimony	mg/kg	**NS**	NS	2.62	ND	1.57 J	2.68 J	2.18 J	ND	6.6
Arsenic	mg/kg	**13**	16	8.82	11.8	10.4	**14.2**	**6.74**	4.62	**27.5**
Barium	mg/kg	**350**	400	270	87.2	208	219	278	110	**571**
Beryllium	mg/kg	**7.2**	590	0.239 J	0.399	0.627	ND	0.267 J	0.549	ND
Cadmium	mg/kg	**2.5**	9.3	0.54	ND	**2.61**	**5.04**	**1.28**	0.317 J	**11.3**
Calcium	mg/kg	**NS**	NS	55100	14900	40500	21700	39,500	15700	33800
Chromium	mg/kg	**30**	1,500	**70.4**	12.9	**69.8**	**301**	**66.9**	19.3	**209**
Cobalt	mg/kg	**NS**	NS	7.64	13.1	13.2	22.2	12.9	11.5	32.4
Copper	mg/kg	**50**	270	**91**	35	**89.5**	**151**	31.9	10.5	**489**
Iron	mg/kg	**NS**	NS	51,000 D	26600	60,600 D	79,800 D	38,600	27000	135,000 D
Lead	mg/kg	**63**	1,000	**289**	45.3	**165**	**226**	**406**	**90.3**	**578**
Magnesium	mg/kg	**NS**	NS	4800	6540	5940	10,000	16,700	7950	7140
Manganese	mg/kg	**1,600**	10,000	519	415	1050	905	**1130**	915	**12,500 D**
Mercury	mg/kg	**0.18**	2.8	**0.215**	0.03	0.173	0.09	0.123	0.092	0.114
Nickel	mg/kg	**30**	310	**70.3**	24.8	**65.9**	**599**	**106**	28.6	**198**
Potassium	mg/kg	**NS**	NS	721	1400	1200	982	1380	1410	2300
Selenium	mg/kg	**3.9**	1,500	**4.65**	**6.21**	**7.11**	**16.9**	**6.35**	**5.67**	**14.4**
Silver	mg/kg	**2**	1,500	**3.62**	**2.46**	ND	ND	**3.26**	**2.19**	ND
Sodium	mg/kg	**NS**	NS	91.4 J	56.3 J	235	135	170	104 J	302
Thallium	mg/kg	**NS**	NS	1.68 J	1.03 J	ND	ND	1.36 J	0.692 J	2.98
Vanadium	mg/kg	**NS**	NS	18.9	18.3	21.1	33.4	18.9	22.9	51.3
Zinc	mg/kg	**109**	10,000	**209**	83.3	**161**	**251**	**323**	93.4	**404**
Cyanide	mg/kg	**27**	27	NA	NA	NA	NA	NA	NA	NA

Notes:

mg/kg - Milligrams Per Kilogram

SCO - Soil Cleanup Objective

ND - Not Detected

NS - No Standard

JH - Estimated High

J - Estimated Concentration

D - Diluted

N - Spiked Sample Recovery Not Within Control Limits

* - Indicates The Duplicate Analysis Is Not Within Control Limits

B - Analyte Found In The Associated Blank

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria

Shaded Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2D

Remaining Soil Sample Exceedances - TAL Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters		SAMPLE ID		DB-OF-N-S (WW 4-8')	DB-OF-N-S (EW 0-4')	DB-OF-N-S (EW 4-8')	DB-OF-E-W (SW 0-4')	DB-OF-E-W (SW 4-8)	DB-OF-E-W (NW 0-4')	DB-OF-E-W (NW 4-8')
		SAMPLE NUMBER		26	27	28	29	30	31	32
		DATE COLLECTED		1/11/2018	1/11/2018	1/11/2018	1/12/2018	1/12/2018	1/12/2018	1/12/2018
		DEPTH OF SAMLE IN FT BGS		4-8'	0-4'	4-8'	0-4'	4-8'	0-4'	4-8'
Metals Analytes	Units	6 NYCRR Part 375 Unrestricted SCO	6 NYCRR Part 375 Commercial SCO	PCB Management Area	PCB Management Area	PCB Management Area	PCB Management Area	PCB Management Area	PCB Management Area	PCB Management Area
Aluminum	mg/kg	**NS**	NS	14300	9960	11000	9020	8290	8410	7250
Antimony	mg/kg	**NS**	NS	ND	2.38 J	2.95	2.15 J	9.13	1.7 J	22.3
Arsenic	mg/kg	**13**	16	8.24	**19.3**	**13.5**	**17.6**	**29.2**	**20.6**	**28.5**
Barium	mg/kg	**350**	400	135	**353**	**437**	**402**	**536**	279	**850**
Beryllium	mg/kg	**7.2**	590	0.62	0.202 J	0.561	0.429	0.138 J	0.307 J	0.159 J
Cadmium	mg/kg	**2.5**	9.3	0.954	**7.64**	2.18	**3.78**	**12**	**5.52**	**23.2**
Calcium	mg/kg	**NS**	NS	4420	35400	36700	25000	32000	41200	25600
Chromium	mg/kg	**30**	1,500	28.6	**200**	**79**	**326**	**902**	**201**	**403**
Cobalt	mg/kg	**NS**	NS	12.6	34.5	15.8	18.9	36.5	23.5	38.8
Copper	mg/kg	**50**	270	35.2	**458**	**103**	**224**	**226**	**189**	**621**
Iron	mg/kg	**NS**	NS	24800	93,300 D	42000	69,500 D	140,000 D	86,400 D	172,000 D
Lead	mg/kg	**63**	1,000	**142**	**463**	**290**	**350**	**861**	**324**	**3780**
Magnesium	mg/kg	**NS**	NS	3420	9320	11500	7050	11200	7040	8690
Manganese	mg/kg	**1,600**	10,000	853	**3060**	**2100**	**1810**	1060	1490	1180
Mercury	mg/kg	**0.18**	2.8	0.124	0.062	0.052	0.167	0.028	**0.209**	0.108
Nickel	mg/kg	**30**	310	25	**175**	**58.9**	**145**	**1100**	**162**	**945**
Potassium	mg/kg	**NS**	NS	990	1270	1500	972	1230	927	982
Selenium	mg/kg	**3.9**	1,500	3.58	**9.69**	2.95	**6.89**	**14.8**	**7.57**	**13.8**
Silver	mg/kg	**2**	1,500	ND	0.843	ND	ND	ND	ND	ND
Sodium	mg/kg	**NS**	NS	116	163	126	107 J	324	121	227
Thallium	mg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Vanadium	mg/kg	**NS**	NS	29.6	94.9	21.7	81.9	42.2	76	40
Zinc	mg/kg	**109**	10,000	148	**333**	**293**	**381**	**616**	**277**	**1290**
Cyanide	mg/kg	**27**	27	NA	NA	NA	NA	NA	NA	NA

Notes:

mg/kg - Milligrams Per Kilogram

SCO - Soil Cleanup Objective

ND - Not Detected

NS - No Standard

JH - Estimated High

J - Estimated Concentration

D - Diluted

N - Spiked Sample Recovery Not Within Control Limits

* - Indicates The Duplicate Analysis Is Not Within Control Limits

B - Analyte Found In The Associated Blank

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria

Shaded Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2D

Remaining Soil Sample Exceedances - TAL Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters			SAMPLE ID	8" SAN-1-WW (1-4')	8" SAN-2-EW (5-6')	8" SAN-2-WW (5-6')	8" SAN-5-EW (0-4')	8" SAN-5-EW (4-8')	8" SAN-6-EW (2-4')	8" SAN-6-EW (4-8')
			SAMPLE NUMBER	33	35	36	42 (44 MS/MSD)	43	45	46
			DATE COLLECTED	1/18/2018	1/22/2018	1/22/2018	1/25/2018	1/25/2018	1/26/2018	1/26/2018
			DEPTH OF SAMLE IN FT BGS	1-4'	5-6'	5-6'	0-4'	4-8'	2-4'	4-8'
Metals Analytes	Units	6 NYCRR Part 375 Unrestricted SCO	6 NYCRR Part 375 Commercial SCO	Other Areas	Other Areas	Other Areas	PCB Management Area	PCB Management Area	PCB Management Area	PCB Management Area
Aluminum	mg/kg	**NS**	NS	10200	10200	11900	5600	11900	11400	18100
Antimony	mg/kg	**NS**	NS	1.35 J	2.19 J	1.6 J	3.97	ND	8.38	0.599 J
Arsenic	mg/kg	**13**	16	**14**	10.1	9.11	12.4	4.26	**21**	5.95
Barium	mg/kg	**350**	400	96.2	74.8	82.6	111	80.5	224	96.6
Beryllium	mg/kg	**7.2**	590	0.407	0.459	0.513	0.214 J	0.398	0.835	0.641
Cadmium	mg/kg	**2.5**	9.3	**2.86**	2.09	1.77	**2.6**	0.751	**4.64**	0.659
Calcium	mg/kg	**NS**	NS	11200	8170	3420	43200	17100	41000	3550
Chromium	mg/kg	**30**	1,500	**48.2**	19.1	26.1	**70.8**	14	25.8	18.7
Cobalt	mg/kg	**NS**	NS	14	10.2	13.3	7.74	9.9	12.1	14.3
Copper	mg/kg	**50**	270	**61**	13.6	14.6	**110**	12.6	**147**	15.8
Iron	mg/kg	**NS**	NS	75,300 D	59,100 D	55,700 D	54,300 D	24900	83,300 D	32100
Lead	mg/kg	**63**	1,000	**233**	**203**	**118**	**207**	26.3	**955**	27.9
Magnesium	mg/kg	**NS**	NS	3410	4660	2970	9580	8610	4700	5160
Manganese	mg/kg	**1,600**	10,000	615	346	459	**2620**	329	597	480
Mercury	mg/kg	**0.18**	2.8	0.156	**0.439**	0.069	0.086	0.019	0.151	0.076
Nickel	mg/kg	**30**	310	**45.2**	26.7	**31.3**	**47.5**	25.3	**35.2**	**32.4**
Potassium	mg/kg	**NS**	NS	847	915	921	703	1190	871	1370
Selenium	mg/kg	**3.9**	1,500	**11.8**	**7.68**	**7.49**	**16.9**	**8.17**	**28.5**	**11.9**
Silver	mg/kg	**2**	1,500	ND	ND	ND	ND	ND	ND	ND
Sodium	mg/kg	**NS**	NS	59.6	66 J	65.2 J	206	84.3	271	83.8 J
Thallium	mg/kg	**NS**	NS	ND	ND	ND	0.794 J	ND	ND	ND
Vanadium	mg/kg	**NS**	NS	32.1	20.1	23.4	35.3	18.5	14.2	25.9
Zinc	mg/kg	**109**	10,000	**182**	**152**	**137**	**166**	87.6	**220**	86.2
Cyanide	mg/kg	**27**	27	NA	NA	NA	NA	NA	NA	NA

Notes:

mg/kg - Milligrams Per Kilogram

SCO - Soil Cleanup Objective

ND - Not Detected

NS - No Standard

JH - Estimated High

J - Estimated Concentration

D - Diluted

N - Spiked Sample Recovery Not Within Control Limits

* - Indicates The Duplicate Analysis Is Not Within Control Limits

B - Analyte Found In The Associated Blank

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria

Shaded Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2D

Remaining Soil Sample Exceedances - TAL Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters		SAMPLE ID		8" SAN-6-EW (12-14')	TP-03 (6" Waterline Bottom @ 6')	TP-04 (CB#3 Line Bottom @ 4')	TP-07 (12" ST Lateral Line E of MH#2 @ 6')	TP-08 (4" & 15" Trench E of ST MH#3 @ 6')	TP-09 (8" ST-E of CB#4 @ 3.6')	TP-03 (6" Waterline Bottom @ 10')
		SAMPLE NUMBER		55 (Dup of 46)	57	58	61	62	63	68 (Dup of 57)
		DATE COLLECTED		1/26/2018	1/29/2018	1/29/2018	1/29/2018	1/29/2018	1/29/2018	1/29/2018
		DEPTH OF SAMLE IN FT BGS		4-8'	6'	4'	6'	6'	3.6'	6'
Metals Analytes	Units	6 NYCRR Part 375 Unrestricted SCO	6 NYCRR Part 375 Commercial SCO	PCB Management Area	PCB Management Area	PCB Management Area	Other Areas	PCB Management Area	Other Areas	PCB Management Area
Aluminum	mg/kg	**NS**	NS	10400	12800	8060	14200	13200	14900	10300
Antimony	mg/kg	**NS**	NS	166	ND	6.14 N	ND	ND	ND	ND
Arsenic	mg/kg	**13**	16	**15.5**	5.96 N	**108 N**	6.28 N	5.87 N	7.2 N	4.67
Barium	mg/kg	**350**	400	223	101	**2450**	118	84.9	107	83.6
Beryllium	mg/kg	**7.2**	590	1.25	0.451 N	ND	0.499 N	0.465 N	0.526 N	0.361
Cadmium	mg/kg	**2.5**	9.3	1.92	0.349	**19.4**	0.284 J	0.288 J	ND	0.677
Calcium	mg/kg	**NS**	NS	47600	40700	15700	12900	39900	3630	36100
Chromium	mg/kg	**30**	1,500	24.7	16.2 N	**309 N**	15.8 N	14.9 N	18.3 N	12.6
Cobalt	mg/kg	**NS**	NS	6.57	11.3	32.3	13.3	12.4	16.7	9.2
Copper	mg/kg	**50**	270	**156**	15 N	**353 N**	14.3 N	16.3 N	17.1 N	11.7
Iron	mg/kg	**NS**	NS	36300	26500	213,000 D	28400	26300	34200	21400
Lead	mg/kg	**63**	1,000	**1770**	41	**449**	25.7	22	27.8	35.8
Magnesium	mg/kg	**NS**	NS	3050	14900	3880	9450	15500	5670	13600
Manganese	mg/kg	**1,600**	10,000	405	354	**94,400 D**	704	502	600	346
Mercury	mg/kg	**0.18**	2.8	**0.186**	0.033	0.023	0.02	0.024	0.027	0.026
Nickel	mg/kg	**30**	310	**30**	27.7	**172**	**31.6**	28.4	**38**	20.9
Potassium	mg/kg	**NS**	NS	731	1550 N	2,360 N	1,790 N	1,520 N	1,440 N	1200
Selenium	mg/kg	**3.9**	1,500	**9.34**	**6.04 N**	**93 N**	**10.1 N**	**6.13 N**	13.7 N	**4.26**
Silver	mg/kg	**2**	1,500	ND	ND	**4.19 DN**	ND	ND	ND	ND
Sodium	mg/kg	**NS**	NS	258	163	2530	88.9 J	121	106	133
Thallium	mg/kg	**NS**	NS	ND	1.22 J	89.8	1.18 J	1.22 J	1.5 J	ND
Vanadium	mg/kg	**NS**	NS	10.7	21.4 N	51 N	20.3 N	20.8 N	23.3 N	17.5
Zinc	mg/kg	**109**	10,000	**250**	89.2	105	81	83.7	94.6	78.9
Cyanide	mg/kg	**27**	27	NA	NA	NA	NA	NA	NA	NA

Notes:

mg/kg - Milligrams Per Kilogram

SCO - Soil Cleanup Objective

ND - Not Detected

NS - No Standard

JH - Estimated High

J - Estimated Concentration

D - Diluted

N - Spiked Sample Recovery Not Within Control Limits

* - Indicates The Duplicate Analysis Is Not Within Control Limits

B - Analyte Found In The Associated Blank

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria

Shaded Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2D

Remaining Soil Sample Exceedances - TAL Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters		SAMPLE ID		SA-ST-Lateral-Line (NW Corner 683)-1-NW @ 3.5'	SA-ST-Lateral-Line (NW Corner 683)-1-SW @ 3.5'	SA-ST-Lateral-Line (NW Corner 683)-2-NW @ 4'	SA-ST-Lateral-Line (NW Corner 683)-2-SW @ 4'	Main ST Line-1-WW @ 4'	Main ST Line-1-EW @ 4'	Main ST Line-2-WW @ 4'
		SAMPLE NUMBER		69	70	71	72	73	74	75
		DATE COLLECTED		1/30/2018	1/30/2018	1/30/2018	1/30/2018	2/1/2018	2/1/2018	2/1/2018
		DEPTH OF SAMLE IN FT BGS		3.5'	3.5'	4'	4'	4'	4'	4'
Metals Analytes	Units	6 NYCRR Part 375 Unrestricted SCO	6 NYCRR Part 375 Commercial SCO	Other Areas	Other Areas	Other Areas	Other Areas	Other Areas	Other Areas	Other Areas
Aluminum	mg/kg	**NS**	NS	12000	14000	14300	13100	20300	18100	18300
Antimony	mg/kg	**NS**	NS	ND	ND	0.711 J	0.782 J	ND	ND	ND
Arsenic	mg/kg	**13**	16	5.15	5.44	6.42	5.83	5.36	4.87	3.67
Barium	mg/kg	**350**	400	84	101	110	88.9	131	123	142
Beryllium	mg/kg	**7.2**	590	0.442	0.55	0.486	0.459	1.08	0.949	0.834
Cadmium	mg/kg	**2.5**	9.3	0.964	0.606	0.82	0.862	0.519	0.311 J	0.18 J
Calcium	mg/kg	**NS**	NS	42800	7680	18300	38200	7460	3690	6900
Chromium	mg/kg	**30**	1,500	12.6	14.3	15.3	14.2	18.1 N	13.6 N	15.3 N
Cobalt	mg/kg	**NS**	NS	10.7	12.4	13.5	12.4	15.6	15	12.8
Copper	mg/kg	**50**	270	13.9	10.8	15.9	14	26.2	13.3	13
Iron	mg/kg	**NS**	NS	25300	31000	30100	27400	34100	31200	27100
Lead	mg/kg	**63**	1,000	28.5	28.1	36.8	21.9	55.4	21.9	21.1
Magnesium	mg/kg	**NS**	NS	16800	4730	9440	13500	5180	4640	6020
Manganese	mg/kg	**1,600**	10,000	683	381	482	462	498	549	362
Mercury	mg/kg	**0.18**	2.8	0.127	0.053	0.026	0.021	0.042	0.044	0.035
Nickel	mg/kg	**30**	310	24.3	29.2	**31.9**	29.3	**34.3**	**34.5**	**31.4**
Potassium	mg/kg	**NS**	NS	1050	981	1570	1260	1570	1410	1550
Selenium	mg/kg	**3.9**	1,500	**4.72**	**11.6**	**9.68**	**6.59**	ND	ND	ND
Silver	mg/kg	**2**	1,500	ND	0.441 JN	ND	ND	**3.07**	**2.9**	**2.47**
Sodium	mg/kg	**NS**	NS	103	65.5 J	79.8 J	99.6 J	57.2 J	54.6 J	74.1 J
Thallium	mg/kg	**NS**	NS	ND	ND	ND	ND	1.23 J	0.77 J	0.81 J
Vanadium	mg/kg	**NS**	NS	19	20.2	21.8	20.1	23.9	21.1	21.6
Zinc	mg/kg	**109**	10,000	94.5	86.2	85.2	74.2	**121**	106	107
Cyanide	mg/kg	**27**	27	NA	NA	NA	NA	NA	NA	NA

Notes:

mg/kg - Milligrams Per Kilogram

SCO - Soil Cleanup Objective

ND - Not Detected

NS - No Standard

JH - Estimated High

J - Estimated Concentration

D - Diluted

N - Spiked Sample Recovery Not Within Control Limits

* - Indicates The Duplicate Analysis Is Not Within Control Limits

B - Analyte Found In The Associated Blank

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria

Shaded Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2D

Remaining Soil Sample Exceedances - TAL Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters		SAMPLE ID		Main ST Line-2-EW @ 4'	Main ST Line-3-WW @ 4.5'	Main ST Line-3-EW @ 4.5'	12" ST Lateral Line-1-NW @ 5'	12" ST Lateral Line-1-SW @ 5'	12" ST Lateral Line-2-SW @ 5'	4" & 15" Trench-1-NW @ 5'
		SAMPLE NUMBER		76	77	78	79	80	82	83
		DATE COLLECTED		2/1/2018	2/1/2018	2/1/2018	2/5/2018	2/5/2018	2/5/2018	2/5/2018
		DEPTH OF SAMLE IN FT BGS		4'	4.5'	4.5'	5'	5'	5'	5'
Metals Analytes	Units	6 NYCRR Part 375 Unrestricted SCO	6 NYCRR Part 375 Commercial SCO	Other Areas	Other Areas	Other Areas	Other Areas	Other Areas	Other Areas	Other Areas
Aluminum	mg/kg	**NS**	NS	14400	12900	10600	14200	14700	17500	14000
Antimony	mg/kg	**NS**	NS	ND	ND	ND	ND	ND	ND	ND
Arsenic	mg/kg	**13**	16	4.76	5.73	6.97	5.21	5.43	6.54	5.4
Barium	mg/kg	**350**	400	106	83	93.6	103	92.9	83.4	110
Beryllium	mg/kg	**7.2**	590	0.695	0.643	0.561	0.721	0.693	0.746	0.754
Cadmium	mg/kg	**2.5**	9.3	0.517	0.655	0.42	0.215 J	0.319 J	0.436	0.737
Calcium	mg/kg	**NS**	NS	19300	44400	20500	4340	17100	7500	2220
Chromium	mg/kg	**30**	1,500	12 N	11.3 N	23.8 N	12.5 N	12.5 N	17.3 N	12.5 N
Cobalt	mg/kg	**NS**	NS	12.7	11	8.65	13.6	13.5	11.8	16.6
Copper	mg/kg	**50**	270	14.7	14.1	31.4	14.8	16.1	**129**	14.8
Iron	mg/kg	**NS**	NS	27100	22100	24300	29300	27700	31600	31100
Lead	mg/kg	**63**	1,000	20.1	24.8	**119**	25.6	19.2	**84.3**	15.4
Magnesium	mg/kg	**NS**	NS	11400	17000	8830	5640	13600	5130	4090
Manganese	mg/kg	**1,600**	10,000	510	452	552	357	873	412	385
Mercury	mg/kg	**0.18**	2.8	0.029	0.022	0.052	0.022	0.027	0.091	0.032
Nickel	mg/kg	**30**	310	**33.7**	24.1	25.3	**32.5**	**32.1**	27.3	**40.8**
Potassium	mg/kg	**NS**	NS	1340	1340	862	1440	1610	1130	1110
Selenium	mg/kg	**3.9**	1,500	ND	ND	ND	ND	ND	ND	ND
Silver	mg/kg	**2**	1,500	**2.53**	**2.34**	**2.22**	**2.69**	**2.59**	**2.82**	**2.95**
Sodium	mg/kg	**NS**	NS	87 J	99 J	84.7 J	72 J	104 J	81.1 J	66.6 J
Thallium	mg/kg	**NS**	NS	0.628 J	0.656 J	0.878 J	0.869 J	0.688 J	1.19 J	0.727 J
Vanadium	mg/kg	**NS**	NS	18.4	17.6	17.1	18.7	19.2	24.4	18.1
Zinc	mg/kg	**109**	10,000	98.4	90.2	**116**	100	90.3	**179**	85.1
Cyanide	mg/kg	**27**	27	NA	NA	NA	NA	NA	NA	NA

Notes:

mg/kg - Milligrams Per Kilogram

SCO - Soil Cleanup Objective

ND - Not Detected

NS - No Standard

JH - Estimated High

J - Estimated Concentration

D - Diluted

N - Spiked Sample Recovery Not Within Control Limits

* - Indicates The Duplicate Analysis Is Not Within Control Limits

B - Analyte Found In The Associated Blank

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria

Shaded Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2D

Remaining Soil Sample Exceedances - TAL Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters		SAMPLE ID		4" & 15" Trench-2-NW (2-4')	4" & 15" Trench-2-SW (2-4')	4" & 15" Trench-2-NW (4-6')	4" & 15" Trench-2-SW (4-6')	CB#3-Line-NW @ 3'	CB#3-Line-SW @ 3'	CB#4-Line-NW @ 2.5'
		SAMPLE NUMBER		85 (86 MS/MSD)	87	88	89	95	96	97
		DATE COLLECTED		2/6/2018	2/6/2018	2/6/2018	2/6/2018	2/9/2018	2/9/2018	2/9/2018
		DEPTH OF SAMLE IN FT BGS		2-4'	2-4'	4-6'	4-6'	3'	3'	2.5'
Metals Analytes	Units	6 NYCRR Part 375 Unrestricted SCO	6 NYCRR Part 375 Commercial SCO	PCB Management Area	PCB Management Area	PCB Management Area	PCB Management Area	PCB Management Area	PCB Management Area	Other Areas
Aluminum	mg/kg	**NS**	NS	7480	5780	17600	19800	10800	12600	15400
Antimony	mg/kg	**NS**	NS	6.08	12.3	ND	ND	4.62	5.64	ND
Arsenic	mg/kg	**13**	16	**15.8**	**15.7**	5.72	6.03	**56.3**	**181**	6.82
Barium	mg/kg	**350**	400	323	**466**	114	90	**1610**	**3160**	158
Beryllium	mg/kg	**7.2**	590	1.12	0.841	0.828	0.788	0.267 J	ND	0.802
Cadmium	mg/kg	**2.5**	9.3	2.17	**2.52**	0.341	0.22 J	**12.4**	**6.22**	0.255 J
Calcium	mg/kg	**NS**	NS	31700	21900	2840	1670	32900	26400	3130
Chromium	mg/kg	**30**	1,500	**30.3 N**	**51.3 N**	15.7 N	17.4 N	**235**	**325**	14.6
Cobalt	mg/kg	**NS**	NS	9.19	8.22	14.8	12.8	30.5	25	14
Copper	mg/kg	**50**	270	**137**	**246**	16.4	12.4	**306**	**375**	16
Iron	mg/kg	**NS**	NS	53,300 D	72,600 D	30900	30400	165,000 D	111,000 D	33000
Lead	mg/kg	**63**	1,000	**1560**	**1590**	23.9	16.3	**388**	**590**	17.1
Magnesium	mg/kg	**NS**	NS	2280	2280	4810	4500	8340	5070	5260
Manganese	mg/kg	**1,600**	10,000	490	560	413	372	**65,900 D**	**64,900 D**	485
Mercury	mg/kg	**0.18**	2.8	**0.227**	0.162	0.032	0.037	0.083	0.079	0.024
Nickel	mg/kg	**30**	310	**42.2**	**42.2**	**32.9**	26	**141**	**102**	**33.7**
Potassium	mg/kg	**NS**	NS	875	555	1670	1330	2760	2410	1330
Selenium	mg/kg	**3.9**	1,500	ND	ND	ND	ND	ND	**8.93**	ND
Silver	mg/kg	**2**	1,500	**5.23**	**6.79**	**2.83**	**2.67**	**24.4**	**25.5**	**2.97**
Sodium	mg/kg	**NS**	NS	180	153	84.6 J	117	2720	1270	62 J
Thallium	mg/kg	**NS**	NS	1.78 J	2.36	1.04 J	1.21 J	47.2	65.8	0.94 J
Vanadium	mg/kg	**NS**	NS	15.4	18.2	23.3	26.5	38.3	60.3	23.5
Zinc	mg/kg	**109**	10,000	**338**	**324**	82.3	71.4	**452**	**464**	82.9
Cyanide	mg/kg	**27**	27	NA	NA	NA	NA	NA	NA	NA

Notes:

mg/kg - Milligrams Per Kilogram

SCO - Soil Cleanup Objective

ND - Not Detected

NS - No Standard

JH - Estimated High

J - Estimated Concentration

D - Diluted

N - Spiked Sample Recovery Not Within Control Limits

* - Indicates The Duplicate Analysis Is Not Within Control Limits

B - Analyte Found In The Associated Blank

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria

Shaded Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2D

Remaining Soil Sample Exceedances - TAL Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters		SAMPLE ID		CB#4-Line-SW @ 2.5'	CB#5-Line-NW @ 3'	CB#5-Line-SW @ 3'	CB#6-Line-WW @ 4.5'	Oil-Sep-Exc-SW @ 2.5'	ES-6"-SA-1-WW @ 2'	ES-6"-SA-2-WW @ 3'
		SAMPLE NUMBER		98	99	100	101	104	105	107
		DATE COLLECTED		2/9/2018	2/12/2018	2/12/2018	2/12/2018	2/21/2018	3/7/2018	3/12/2018
		DEPTH OF SAMLE IN FT BGS		2.5'	3'	3'	4.5'	2.5	2'	3'
Metals Analytes	Units	6 NYCRR Part 375 Unrestricted SCO	6 NYCRR Part 375 Commercial SCO	Other Areas	Other Areas	Other Areas	Other Areas	Other Areas	Other Areas	Other Areas
Aluminum	mg/kg	**NS**	NS	16500	14100	13300	11500	14800	14800	16800
Antimony	mg/kg	**NS**	NS	ND	0.575 J	ND	ND	ND	ND	0.637 J
Arsenic	mg/kg	**13**	16	5.87	6.54	6.8	7.13	5.69	5.29	6.31
Barium	mg/kg	**350**	400	119	101	99	75.2	118	99.6	107
Beryllium	mg/kg	**7.2**	590	0.871	0.809	0.787	0.769	0.805	0.82	1.13
Cadmium	mg/kg	**2.5**	9.3	0.256 J	0.127 J	0.195 J	**3.08**	1.57	ND	0.118 J
Calcium	mg/kg	**NS**	NS	5610	2630	2210	2920	2830	2320	2460
Chromium	mg/kg	**30**	1,500	16.6	14.1	12.4	8.8	12.8	12.6	14.5
Cobalt	mg/kg	**NS**	NS	16.1	15.9	12.9	13.4	14.5	14.7	18.8
Copper	mg/kg	**50**	270	18.1	14.7	10.9	11.9	15.9	9.4	11.3
Iron	mg/kg	**NS**	NS	34400	35300	38000	42600	32000	30400	34600
Lead	mg/kg	**63**	1,000	13.6	20.1	19.8	**68.3**	19.6	15.9	16.7
Magnesium	mg/kg	**NS**	NS	7240	4480	3960	1880	4580	3910	4620
Manganese	mg/kg	**1,600**	10,000	441	411	204	604	326	391	749
Mercury	mg/kg	**0.18**	2.8	0.018	0.031	0.03	**0.209**	0.034	0.05	0.043
Nickel	mg/kg	**30**	310	**37.8**	**38**	**37.5**	**46**	**34.2**	**30.2**	**37.3**
Potassium	mg/kg	**NS**	NS	1420	1130	903	741	1220	896	1300
Selenium	mg/kg	**3.9**	1,500	ND	ND	ND	**6.03**	2.67	ND	ND
Silver	mg/kg	**2**	1,500	**3.03**	**3.18**	**3.56**	**3.1**	1.35	ND	ND
Sodium	mg/kg	**NS**	NS	59	199	181	30.3 J	56.6 J	90.6 J	180
Thallium	mg/kg	**NS**	NS	1.01 J	0.994 J	1.39 J	ND	ND	0.853 J	0.972 J
Vanadium	mg/kg	**NS**	NS	24.4	20.8	20.2	17	21.6	20.8	23.6
Zinc	mg/kg	**109**	10,000	85.5	90.8	92.3	**140**	91.4	77.8	96
Cyanide	mg/kg	**27**	27	NA	NA	NA	NA	NA	NA	NA

Notes:

mg/kg - Milligrams Per Kilogram

SCO - Soil Cleanup Objective

ND - Not Detected

NS - No Standard

JH - Estimated High

J - Estimated Concentration

D - Diluted

N - Spiked Sample Recovery Not Within Control Limits

* - Indicates The Duplicate Analysis Is Not Within Control Limits

B - Analyte Found In The Associated Blank

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria

Shaded Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2D

Remaining Soil Sample Exceedances - TAL Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters		SAMPLE ID		ES-6"-SA-2-EW @ 3'	West Garage-4"- SA-Lateral-SW @ 3'	6"-WM-DIP-2-EW @ 4.5'	6"-WM-DIP-2-WW @ 4.5'	6"-WM-DIP-3-EW @ 3.5'	6"-WM-DIP-3-WW @ 3.5'	6"-WM-DIP-4-EW @ 3.5'
		SAMPLE NUMBER		108	114	118	119	120	121	122
		DATE COLLECTED		3/12/2018	3/14/2018	3/19/2018	3/19/2018	3/19/2018	3/19/2018	3/19/2018
		DEPTH OF SAMLE IN FT BGS		3'	3'	4.5'	4.5'	3.5'	3.5'	3.5'
Metals Analytes	Units	6 NYCRR Part 375 Unrestricted SCO	6 NYCRR Part 375 Commercial SCO	Other Areas	Other Areas	Other Areas	Other Areas	Other Areas	Other Areas	Other Areas
Aluminum	mg/kg	**NS**	NS	14300	10600	14300	15500	14300	14400	17300
Antimony	mg/kg	**NS**	NS	ND	0.873 J	ND	ND	ND	ND	ND
Arsenic	mg/kg	**13**	16	7.56	6.77	5.12	5.41	6.75	6.94	7.05
Barium	mg/kg	**350**	400	110	79.5	104	107	90.9	93.1	124
Beryllium	mg/kg	**7.2**	590	0.783	0.605	0.765	0.785	0.751	0.763	0.973
Cadmium	mg/kg	**2.5**	9.3	0.126 J	0.389	ND	ND	0.186 J	0.162 J	ND
Calcium	mg/kg	**NS**	NS	2790	27000	3540	3430	34900	31800	2210
Chromium	mg/kg	**30**	1,500	13.4	12.2	13.9	14.5	14.9	14.5	16.5
Cobalt	mg/kg	**NS**	NS	16.5	10.7	15	15.7	13.9	12.8	21.1
Copper	mg/kg	**50**	270	12	28.7	14.4	14.3	15.4	15.3	11.9
Iron	mg/kg	**NS**	NS	36600	28400	32600	33400	31800	32200	39400
Lead	mg/kg	**63**	1,000	25.4	**115**	24.5	24.2	16.1	16.2	20
Magnesium	mg/kg	**NS**	NS	4470	10000	4900	4580	12200	13000	4660
Manganese	mg/kg	**1,600**	10,000	369	392	514	480	402	356	489
Mercury	mg/kg	**0.18**	2.8	0.049	0.051	0.028	0.031	0.021	0.026	0.043
Nickel	mg/kg	**30**	310	**40**	25.5	**33.8**	**34.7**	**34.7**	**33.5**	**41.7**
Potassium	mg/kg	**NS**	NS	1150	1210	1230	1310	1580	1520	1270
Selenium	mg/kg	**3.9**	1,500	0.269 J	ND	1.29	1.54	1.14	0.905 J	1.95
Silver	mg/kg	**2**	1,500	0.188 JN	ND	ND	ND	ND	ND	ND
Sodium	mg/kg	**NS**	NS	81.8 J	107	76.4 J	91.7 J	142	163	69.2 J
Thallium	mg/kg	**NS**	NS	1.19 J	0.921 J	0.999 J	1 J	0.813 J	0.807 J	1.1 J
Vanadium	mg/kg	**NS**	NS	21.7	18.9	23.5	24.6	24.2	25.2	27.1
Zinc	mg/kg	**109**	10,000	98.4	**343**	101	100	79.4	85.6	89.9
Cyanide	mg/kg	**27**	27	NA	NA	NA	NA	NA	NA	NA

Notes:

mg/kg - Milligrams Per Kilogram

SCO - Soil Cleanup Objective

ND - Not Detected

NS - No Standard

JH - Estimated High

J - Estimated Concentration

D - Diluted

N - Spiked Sample Recovery Not Within Control Limits

* - Indicates The Duplicate Analysis Is Not Within Control Limits

B - Analyte Found In The Associated Blank

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria

Shaded Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2D

Remaining Soil Sample Exceedances - TAL Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters		SAMPLE ID		6"-WM-DIP-4-WW @ 3.5'	6"-WM-DIP-5-EW @ 3'	6"-WM-DIP-5-WW @ 3'	6"-WM-DIP-6-EW (2.5-5')	6"-WM-DIP-6-WW (2.5-5')	6"-WM-DIP-7-EW (1-5')	6"-WM-DIP-7-WW (1-5')
		SAMPLE NUMBER		123	124	125	126 (127 MS/MSD)	128	129	130
		DATE COLLECTED		3/19/2018	3/19/2018	3/19/2018	3/20/2018	3/20/2018	3/20/2018	3/20/2018
		DEPTH OF SAMLE IN FT BGS		3.5'	3'	3'	2.5-5'	2.5-5'	1-5'	1-5'
Metals Analytes	Units	6 NYCRR Part 375 Unrestricted SCO	6 NYCRR Part 375 Commercial SCO	Other Areas	PCB Management Area	PCB Management Area	PCB Management Area	PCB Management Area	PCB Management Area	PCB Management Area
Aluminum	mg/kg	**NS**	NS	16100	16200	8290	10200	8710	9710	11400
Antimony	mg/kg	**NS**	NS	ND	1 J	1.18 J	1.73 J	0.849 J	51.9	7.67
Arsenic	mg/kg	**13**	16	6.63	11.1	**26.2**	**14**	6.17	11.7	**21.3**
Barium	mg/kg	**350**	400	122	95.3	92.4	130	81.1	247	174
Beryllium	mg/kg	**7.2**	590	0.85	0.81	0.724	1.32	0.934	0.42	0.74
Cadmium	mg/kg	**2.5**	9.3	0.106 J	ND	1.07	1.09	0.42	1.03	0.515
Calcium	mg/kg	**NS**	NS	4060	3780	77500	68000	94700	43700	33400
Chromium	mg/kg	**30**	1,500	15.9	16.7	23.4	**47.4**	16.2	**77.1**	**79.8**
Cobalt	mg/kg	**NS**	NS	17.6	14.3	6.71	8.29	4.08	16.1	14.2
Copper	mg/kg	**50**	270	14.6	18.3	40.2	**67.3**	24.2	**77.1**	**53.7**
Iron	mg/kg	**NS**	NS	37400	32700	22700	52,300 D	15300	52,600 D	67200
Lead	mg/kg	**63**	1,000	20.8	**87.1**	**114**	**180**	**83.8**	**896**	**273**
Magnesium	mg/kg	**NS**	NS	5290	3490	4930	9100	15000	6890	10700
Manganese	mg/kg	**1,600**	10,000	497	1130	632	907	673	**12,300 D**	**1700**
Mercury	mg/kg	**0.18**	2.8	0.032	0.11	0.132	0.023	0.064	0.094	0.14
Nickel	mg/kg	**30**	310	**44.6**	22	**31.3**	**78.5**	20.3	**46.7**	**83**
Potassium	mg/kg	**NS**	NS	1450	1070	667	1110	976	1240	1680
Selenium	mg/kg	**3.9**	1,500	1.68	1.72	1.22	2.53	1.06	**4.67**	1.92
Silver	mg/kg	**2**	1,500	ND	ND	ND	ND	ND	ND	ND
Sodium	mg/kg	**NS**	NS	52.8 J	48 J	122	224	230	1260	138
Thallium	mg/kg	**NS**	NS	1.02 J	0.908 J	0.871 J	1.44 J	0.492 J	7.15	2.25
Vanadium	mg/kg	**NS**	NS	25.4	33.1	16.6	17.2	10.7	37	25
Zinc	mg/kg	**109**	10,000	91.5	**115**	**140**	**173**	86.7	**173**	**160**
Cyanide	mg/kg	**27**	27	NA	NA	NA	NA	NA	NA	NA

Notes:

mg/kg - Milligrams Per Kilogram

SCO - Soil Cleanup Objective

ND - Not Detected

NS - No Standard

JH - Estimated High

J - Estimated Concentration

D - Diluted

N - Spiked Sample Recovery Not Within Control Limits

* - Indicates The Duplicate Analysis Is Not Within Control Limits

B - Analyte Found In The Associated Blank

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria

Shaded Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2D

Remaining Soil Sample Exceedances - TAL Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters		SAMPLE ID		6"-WM-DIP-8-EW (1-5')	6"-WM-DIP-8-WW (1-5')	ES-8" Water Lateral-2-NW @ 3'	ES-8" Water Lateral-2-SW @ 3'	ES-4"-DWS-1-SW @ 4.5'	ES-4"-DWS-1-NW @ 4.5'	ES-4"-DWS-2-SW @ 5'
		SAMPLE NUMBER		131	132	136	137	138	139 (140 MS/MSD)	142
		DATE COLLECTED		3/20/2018	3/20/2018	3/22/2018	3/22/2018	3/27/2018	3/27/2018	3/28/2018
		DEPTH OF SAMLE IN FT BGS		1-5'	1-5'	3'	3'	4.5'	4.5'	5'
Metals Analytes	Units	6 NYCRR Part 375 Unrestricted SCO	6 NYCRR Part 375 Commercial SCO	PCB Management Area	PCB Management Area	Other Areas	Other Areas	Other Areas	Other Areas	Other Areas
Aluminum	mg/kg	**NS**	NS	9370	11900	16500	14700	10800	12200	13700
Antimony	mg/kg	**NS**	NS	3.96	13.1	ND	ND	ND	ND	ND
Arsenic	mg/kg	**13**	16	**13**	**16**	5.39	5.63	5.91	6.12	5.52
Barium	mg/kg	**350**	400	292	234	133	113	90.3	90.8	97.9
Beryllium	mg/kg	**7.2**	590	0.615	0.7	0.796	0.738	0.599	0.646	0.704
Cadmium	mg/kg	**2.5**	9.3	1.35	1.7	0.195 J	0.147 J	0.393	0.292 J	ND
Calcium	mg/kg	**NS**	NS	35600	38100	10100	13900	43500	35300	7890
Chromium	mg/kg	**30**	1,500	**191**	**137**	14.8	14.5	11.6	12.7	14.4
Cobalt	mg/kg	**NS**	NS	20.3	21.8	13.6	12.6	10.7	12.1	12.8
Copper	mg/kg	**50**	270	**156**	**154**	14.9	12.7	14.9	15.4	11.3
Iron	mg/kg	**NS**	NS	60,300 D	75,700 D	32800	29700	24000	27000	32600
Lead	mg/kg	**63**	1,000	**339**	**261**	21.8	20.2	**70.1**	**99**	17.7
Magnesium	mg/kg	**NS**	NS	11600	11200	6700	10200	15700	14600	7710
Manganese	mg/kg	**1,600**	10,000	1530	**9,450 D**	436	335	400	396	365
Mercury	mg/kg	**0.18**	2.8	**0.33**	**0.248**	0.033	0.026	0.273	**0.245**	0.073
Nickel	mg/kg	**30**	310	**138**	**97.3**	**35.6**	**33.3**	24.3	28.8	**31.2**
Potassium	mg/kg	**NS**	NS	1290	1810	1520	1390	1610	1760	1340
Selenium	mg/kg	**3.9**	1,500	1.5	**4.06**	1.53	1.22	0.71 J	1.12	1.67
Silver	mg/kg	**2**	1,500	ND	ND	ND	ND	ND	ND	ND
Sodium	mg/kg	**NS**	NS	143	486	66.5 J	87.2 J	111	103	70 J
Thallium	mg/kg	**NS**	NS	1.94 J	6.05	0.944 J	0.848 J	0.667 J	0.768 J	1.04 J
Vanadium	mg/kg	**NS**	NS	31.2	30.9	23.8	22.3	19.8	21.4	23.5
Zinc	mg/kg	**109**	10,000	**280**	**265**	97.7	83.1	**252**	**261**	94.6
Cyanide	mg/kg	**27**	27	NA	NA	NA	NA	NA	NA	NA

Notes:

mg/kg - Milligrams Per Kilogram

SCO - Soil Cleanup Objective

ND - Not Detected

NS - No Standard

JH - Estimated High

J - Estimated Concentration

D - Diluted

N - Spiked Sample Recovery Not Within Control Limits

* - Indicates The Duplicate Analysis Is Not Within Control Limits

B - Analyte Found In The Associated Blank

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria

Shaded Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2D

Remaining Soil Sample Exceedances - TAL Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Metal	Units	Part 375-6.8(a) Unrestricted Use (Track 1) Soil Cleanup Objectives (SCOs)	Part 375-6.8(b) Restricted Use (Track 2) Commercial Soil Cleanup Objectives (SCOs)	Sample ID, Location ID, Date, and Type			
				CB-7-8-6-ST-WW-1@3	CB-7-8-6-ST-EW-1@3	CB-7-8-6-ST-BOTTOM-1@3	CB-7-8-6-ST-EW-3@2.5
				144	**145**	**148**	**150**
				6/27/2018	**6/27/2018**	**6/27/2018**	**6/27/2018**
				Sidewall	**Sidewall**	**Floor**	**Sidewall**
Aluminum	mg/kg	NS	NS	15,600	13,600	12,100	12,900
Antimony	mg/kg	NS	NS	ND	ND	0.901 J	1.35 J
Arsenic	mg/kg	13	16	6.06	6.11	9.17	8.24
Barium	mg/kg	350	400	118	111	108	73.2
Beryllium	mg/kg	7	590	0.929	0.784	0.723	0.777
Cadmium	mg/kg	2.5	9.3	0.357	0.52	0.655	0.441
Calcium	mg/kg	NS	NS	3,560	3,490	15,100	2,370
Chromium	mg/kg	30	1,500	18.2	17.1	14.7	17
Cobalt	mg/kg	NS	NS	15.8	13.2	10.4	12.6
Copper	mg/kg	50	270	14.8	15.1	24	29.5
Iron	mg/kg	NS	NS	30,500	29,600	22,800	37,200
Lead	mg/kg	63	1,000	23.1	22.9	**65.5**	55.5
Magnesium	mg/kg	NS	NS	4,420	4,620	6,990	2,950
Manganese	mg/kg	1,600	10,000	518	422	931	320
Mercury	mg/kg	0.18	2.8	0.035	0.041	0.068	0.044
Nickel	mg/kg	30	310	**33**	**34.9**	18.6	20.4
Potassium	mg/kg	NS	NS	1,640	1,410	1,100	874
Selenium	mg/kg	3.9	1,500	1.48	1.37	1.04 J	0.871 J
Silver	mg/kg	2	1,500	0.633	0.753	ND	ND
Sodium	mg/kg	NS	NS	41.7 J	40.1 J	25.4 J	24.2 J
Thallium	mg/kg	NS	NS	ND	ND	ND	ND
Vanadium	mg/kg	NS	NS	24.8	22.5	22.9	25.4
Zinc	mg/kg	109	10,000	88.2	85.5	187	**161**

Notes:

NS - No standard

ND - Compound not detected at method detection limit

J - Estimated value

D - Dilution

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria

TABLE 2D

Remaining Soil Sample Exceedances - TAL Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Metal	Units	Part 375-6.8(a) Unrestricted Use (Track 1) Soil Cleanup Objectives (SCOs)	Part 375-6.8(b) Restricted Use (Track 2) Commercial Soil Cleanup Objectives (SCOs)	Location ID, Sample ID, Date Collected, and Type						
				RA-002	RA-003	RA-015	RA-017	RA-019	RA-020	RA-021
				RA-080918-SW-002	RA-081018-SW-003	RA-081018-ESW-015	RA-081318-FL-017	RA-081318-FL-019	RA-081318-FL-020	RA-081318-SSW-15-021
				8/9/2018	8/10/2018	8/10/2018	8/13/2018	8/13/2018	8/13/2018	8/13/2018
				Sidewall	Sidewall	Sidewall	Floor	Floor	Dup -019	Sidewall
Aluminum	mg/L	NS	NS	5690 JH	2530 JH	8320 JH	12,500	13,200	10,500	6,370
Antimony	mg/L	NS	NS	ND	1.57 J	0.58 J	ND	ND	ND	ND
Arsenic	mg/L	13	16	6.85 JH	7.2 JH	**16.4 JH**	4.64	6.6	5.52	12.9
Barium	mg/L	350	400	90.5 JH	53.9 JH	271 JH	77.4	131	95.3	121
Beryllium	mg/L	7	590	0.893 JH	0.715 JH	1.23 JH	0.64	0.818	0.622	0.23 J
Cadmium	mg/L	2.5	9.3	0.419 JH	0.389 JH	**6.12 JH**	0.705 JH	2.24 JH	1.35 JH	**3.12 JH**
Calcium	mg/L	NS	NS	17,700	1,910	40,700	5,920	5,990	32,400	98,300
Chromium	mg/L	30	1,500	9.06 JH	13.4 JH	**94.1 JH**	14.5	17.1	13.8	**253**
Cobalt	mg/L	NS	NS	4.83	3.4	115	10.7 JH	14.6 JH	10.5 JH	4 JH
Copper	mg/L	50	270	44.1 JH	21.3 JH	40.6 JH	15.2 JH	16.6 JH	13.6 JH	35.8 JH
Iron	mg/L	NS	NS	16,700	27,900	19,800	21,600	29,700	23,200	39000 JH
Lead	mg/L	63	1,000	**72.8 JH**	**67.3 JH**	**489 JH**	**74.6**	52.3	44.9	**147**
Magnesium	mg/L	NS	NS	3030 JH	242 JH	14300 JH	4,290	6,370	12,200	15,400
Manganese	mg/L	1,600	10,000	378 JH	46.9 JH	466 JH	662 JH	244 JH	686 JH	**12,000 JH**
Mercury	mg/L	0.18	2.8	0.119	0.042	0.114	**0.288**	0.145	0.043	0.057
Nickel	mg/L	30	310	12.5 JH	14.3 JH	**36.8 JH**	18.1 JH	**34.4 JH**	25.7 JH	21.1 JH
Potassium	mg/L	NS	NS	387	225	631	1,030	1,640	1,440	1,100
Selenium	mg/L	3.9	1,500	1.06 JH	0.401 JH	3.62 JH	0.707 JH	0.906 JH	1.08 JH	**4.66 JH**
Silver	mg/L	2	1,500	ND	ND	**13.1 JH**	0.368 J	0.838	0.656	1.65
Sodium	mg/L	NS	NS	135	63.5 J	221	68.9 J	51.2 J	79.5 J	1,090
Thallium	mg/L	NS	NS	ND	ND	ND	ND	ND	ND	5.82
Vanadium	mg/L	NS	NS	9.66 JH	13.2 JH	36.5 JH	23 JH	23.6 JH	18.4 JH	208 JH
Zinc	mg/L	109	10,000	**175 JH**	21.2 JH	**376 JH**	87.1 JH	**134 JH**	**124 JH**	**253 JH**

Notes:

All concentrations reported as parts per million (ppm)

NS - No standard

ND - Compound not detected at method detection limit

J - Estimated value

D - Dilution

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria

Boxed Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2D

Remaining Soil Sample Exceedances - TAL Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Metal	Units	Part 375-6.8(a) Unrestricted Use (Track 1) Soil Cleanup Objectives (SCOs)	Part 375-6.8(b) Restricted Use (Track 2) Commercial Soil Cleanup Objectives (SCOs)	Location ID, Sample ID, Date Collected, and Type						
				RA-022	RA-025	RA-028	RA-029	RA-030	RA-037	RA-038
				RA-081318-SSW-45-022	RA-081418-ESW-15NSC 025	RA-081418-FL-028	RA-081518-NSW-45-029	RA-081518-FL-030	RA-081618-ESW-15-037	RA-081618-NSW-15-038
				8/13/2018	8/14/2018	8/14/2018	8/15/2018	8/15/2018	8/16/2018	8/16/2018
				Sidewall	Sidewall	Floor	Sidewall	Floor	Sidewall	Sidewall
Aluminum	mg/L	NS	NS	8,590	8,890	6,880	10,800	8,160	4,390	9,340
Antimony	mg/L	NS	NS	0.906 J	ND	ND	ND	2.38 J	16.6	20.9
Arsenic	mg/L	13	16	**13.6**	3.54	3.71	3.83	**47.7**	**20.6**	**15.2**
Barium	mg/L	350	400	173	38.7	46.7	72.1	139	209	275
Beryllium	mg/L	7	590	0.702	0.551	0.353	0.546	0.803	1.32	1.14
Cadmium	mg/L	2.5	9.3	**10.1 JH**	0.668 JH	0.549 JH	1.18 JH	**4.1 JH**	**17.8 JH**	**5.11 JH**
Calcium	mg/L	NS	NS	77,300	593	3,550	32,300	18,600	14,800	46,600
Chromium	mg/L	30	1,500	**592**	**61.7**	11.3	12	**33.3**	**410**	**168**
Cobalt	mg/L	NS	NS	8.2 JH	7.03	5.41	7.86	18	24 JH	13.2 JH
Copper	mg/L	50	270	**88.1 JH**	12.4 JH	15.8 JH	10.4 JH	**101 JH**	**293 JH**	**111 JH**
Iron	mg/L	NS	NS	84,600 JH	14900 JH	12800 JH	17500 J	36,600 JH	164,000 D	67,300 D
Lead	mg/L	63	1,000	**375**	22.9	48.2	22.4	**145**	**1,120**	**751**
Magnesium	mg/L	NS	NS	22,700	2,840	2,370	18,700	4,680	2,300	8,970
Manganese	mg/L	1,600	10,000	**15,000 JH**	279 JH	247 JH	315 JH	841 JH	1360 JH	**1950 JH**
Mercury	mg/L	0.18	2.8	0.067	0.083	**0.248**	**0.532**	0.127	0.136	0.113
Nickel	mg/L	30	310	**66.2 JH**	25.5 JH	13.2 JH	20.3 JH	**51.6 JH**	**215 JH**	**106 JH**
Potassium	mg/L	NS	NS	639	880 JH	613 JH	1420 JH	1100 JH	408	995
Selenium	mg/L	3.9	1,500	**5.75 JH**	0.383 J	0.434 J	ND	1.86 J	ND	1.5
Silver	mg/L	2	1,500	**3.07**	0.495 J	0.434 J	0.495 J	1.55	ND	1.6
Sodium	mg/L	NS	NS	350	71.2 JH	196 JH	94.3 JH	136 JH	190	218
Thallium	mg/L	NS	NS	8.99	ND	ND	ND	ND	ND	ND
Vanadium	mg/L	NS	NS	193 JH	18.6	17.7	15.5	20.5	44.3 JH	25.8 JH
Zinc	mg/L	109	10,000	**525 JH**	**125**	54	56.5	**333**	**301 JH**	**272 JH**

Notes:

All concentrations reported as parts per million (ppm)

NS - No standard

ND - Compound not detected at method detection limit

J - Estimated value

D - Dilution

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria

Boxed Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2D

Remaining Soil Sample Exceedances - TAL Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Metal	Units	Part 375-6.8(a) Unrestricted Use (Track 1) Soil Cleanup Objectives (SCOs)	Part 375-6.8(b) Restricted Use (Track 2) Commercial Soil Cleanup Objectives (SCOs)	Location ID, Sample ID, Date Collected, and Type						
				RA-040	RA-042	RA-048	RA-049	RA-050	RA-051	RA-052
				RA-081618-FL-040	RA-081618-FL-042	RA-081718-SSW-75-048	RA-081718-WSW-20-049	RA-081718-SSW-115-050	RA-081718-SSW-125-051	RA-081718-SSW-145-052
				8/16/2018	8/16/2018	8/17/2018	8/17/2018	8/17/2018	8/17/2018	8/17/2018
				Floor	Floor	Sidewall	Sidewall	Sidewall	Dup -050	Sidewall
Aluminum	mg/L	NS	NS	12,500	16,100	6,720	6,130	5,880	6,390	6,320
Antimony	mg/L	NS	NS	ND	ND	ND	1.26 J	2.48 J	3.24	0.997 J
Arsenic	mg/L	13	16	5.04	5.13	8.23 JH	**14.5 JH**	**13.7 JH**	9.88 JH	7.22 JH
Barium	mg/L	350	400	117	123	152	176	158	188	131
Beryllium	mg/L	7	590	0.744	0.777	0.615	0.624	0.569	0.636	0.444
Cadmium	mg/L	2.5	9.3	1.47 JH	0.963 JH	**4.19 JH**	**5.12 JH**	**3.11 JH**	2.03 JH	**8.42 JH**
Calcium	mg/L	NS	NS	2,360	11,100	84,300	81,500	28,000	38,700	110,000
Chromium	mg/L	30	1,500	16	18.2	**375 JH**	**240 JH**	**64.1 JH**	**74.6 JH**	**613 JH**
Cobalt	mg/L	NS	NS	14 JH	12.3 JH	7.45 JH	6.63 JH	12.8 JH	11.1 JH	7.03 JH
Copper	mg/L	50	270	8.13 JH	12.3 JH	**65.4 JH**	**94.6 JH**	**137 JH**	**77.8 JH**	**82.4 JH**
Iron	mg/L	NS	NS	30,900	27,000	58,800 D	61,800 D	62,600 D	37,600	85,800 D
Lead	mg/L	63	1,000	27.7	**92.1**	**259 J**	**276 J**	**857 J**	**449 J**	**317 J**
Magnesium	mg/L	NS	NS	4,170	7,030	17000 JH	13300 JH	4670 JH	4410 JH	20800 JH
Manganese	mg/L	1,600	10,000	259 JH	391 JH	**11,500 JH**	**3040 JH**	1590 JH	**1870 JH**	**17,500 JH**
Mercury	mg/L	0.18	2.8	0.038	**0.187**	0.071	0.12	**0.285**	0.109	0.063
Nickel	mg/L	30	310	**36.6 JH**	22.5 JH	**34.5 JH**	**44.7 JH**	**56.5 JH**	**53.1 JH**	**143 JH**
Potassium	mg/L	NS	NS	1,220	1,760	807	498	674	664	416
Selenium	mg/L	3.9	1,500	1.6 JH	0.284 JH	**3.96 JH**	2.93 JH	1.67 JH	1.87 JH	**5.36 JH**
Silver	mg/L	2	1,500	1.49	0.483 J	0.831	0.157 J	ND	0.572	1.4
Sodium	mg/L	NS	NS	41.8 J	111	326	273	150	135	224
Thallium	mg/L	NS	NS	ND	ND	3.86	2.26	1.23 J	0.682 J	9.8
Vanadium	mg/L	NS	NS	19.6 JH	28.9 JH	166 JH	101 JH	28.3 JH	30.3 JH	363 JH
Zinc	mg/L	109	10,000	109 JH	**111 JH**	**374 JH**	**380 JH**	**183 JH**	**209 JH**	**343 JH**

Notes:

All concentrations reported as parts per million (ppm)

NS - No standard

ND - Compound not detected at method detection limit

J - Estimated value

D - Dilution

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria

Boxed Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 2D

Remaining Soil Sample Exceedances - TAL Metals
Western New York Workforce Training Center
NYSDEC Site Number C915310

Metal	Units	Part 375-6.8(a) Unrestricted Use (Track 1) Soil Cleanup Objectives (SCOs)	Part 375-6.8(b) Restricted Use (Track 2) Commercial Soil Cleanup Objectives	Location ID, Sample ID, Date Collected, and Type			
				RA-053	RA-054	RA-055	RA-062
				RA-081718-WSW-20-053	RA-082918-ESW-NSC-054	RA-091918-NORTHEX-NW-055	RA-091918-NORTHEX-WW-062
				8/17/2018	8/29/2018	9/19/2018	9/19/2018
				Sidewall	Sidewall	Sidewall	Dup -061
Aluminum	mg/L	NS	NS	4,490	10,200	2,060	2,170
Antimony	mg/L	NS	NS	3.87	0.993 JH	120 JH	60 JH
Arsenic	mg/L	13	16	**14.4 J**	11.6 JH	**29.1 JH**	**26.5 JH**
Barium	mg/L	350	400	211	252 JH	52.8	51.2
Beryllium	mg/L	7	590	0.483	0.738	2.05	1.79
Cadmium	mg/L	2.5	9.3	**4.71 JH**	2.37 JH	**15.1 JH**	**12.9 JH**
Calcium	mg/L	NS	NS	82700 J	56300 JH	6,250	5,050
Chromium	mg/L	30	1,500	**166 J**	**163 JH**	23.4 N	28.4 N
Cobalt	mg/L	NS	NS	17 JH	13.1 JH	15.3	14.9
Copper	mg/L	50	270	**117 J**	**89.9 JH**	**324 J**	**272 J**
Iron	mg/L	NS	NS	65,700 D	57,100 D	135,000 D	124,000D
Lead	mg/L	63	1,000	**258 J**	**150**	**1900 J**	**2430 J**
Magnesium	mg/L	NS	NS	10500 JH	17,300	858	554
Manganese	mg/L	1,600	10,000	1160 J	**3210 JH**	659 JH	543 JH
Mercury	mg/L	0.18	2.8	0.18	0.046	0.093	0.063
Nickel	mg/L	30	310	**188 JH**	**81 JH**	**61.3 J**	**68.7 J**
Potassium	mg/L	NS	NS	523	1,520	234	240 JH
Selenium	mg/L	3.9	1,500	1.23 JH	1.25 JH	ND	ND
Silver	mg/L	2	1,500	ND	1.52 JH	ND	ND
Sodium	mg/L	NS	NS	109	374	38.7 J*	98.2 JH
Thallium	mg/L	NS	NS	1.88 J	ND	ND	ND
Vanadium	mg/L	NS	NS	61.9 J	28.7 JH	24.2 JH	18.8 JH
Zinc	mg/L	109	10,000	**292 JH**	**212 JH**	**252 JH**	**249 JH**

Notes:

All concentrations reported as parts per million (ppm)

NS - No standard

ND - Compound not detected at method detection limit

J - Estimated value

D - Dilution

Bold Font - Exceeds 6 NYCRR Part 375 Unrestricted SCO Criteria

Boxed Cell - Exceeds 6 NYCRR Part 375 Commercial SCO Criteria

TABLE 3

Remaining Groundwater Sample Exceedances
Western New York Workforce Training Center
NYSDEC Site No. C915310

Metals	*Units*	*NYS TOGS 1.1.1 Ambient Water Quality Standards/Guidance Values*	**Location ID, Sample ID, and Sample Date**						
			LW-01	**LW-01**	**LW-02**	**LW-03**	**LW-03**	**LW-04**	**LW-04**
			LW-01	**LW-01**	**LW-02**	**LW-03**	**LW-03**	**LW-04**	**LW-04**
			4/5/2017	**11/14/2017**	**4/5/2017**	**4/5/2017**	**11/14/2017**	**4/5/2017**	**11/15/2017**
Aluminum	mg/L	NC	ND	0.00696 J	ND	ND	ND	ND	ND
Arsenic	mg/L	0.025	ND	ND	ND	0.01	ND	ND	ND
Barium	mg/L	1	ND	0.0484 J	0.079	ND	0.0402 J	ND	0.0221 J
Calcium	mg/L	NC	88	86	79	91	116	76	65
Chromium	mg/L	0.05	ND	ND	ND	ND	ND	ND	0.00226 J
Copper	mg/L	0.2	ND	ND	ND	ND	ND	ND	ND
Iron	mg/L	0.3	**0.58**	**0.518**	**1.9**	**0.57**	**2**	ND	0.0704
Lead	mg/L	0.025	ND	ND	ND	ND	ND	ND	ND
Magnesium	mg/L	35	27	22	14	27	24	12	9
Manganese	mg/L	0.3	**0.33**	0.249	**0.77**	0.24	**0.626**	ND	0.00512 J
Mercury	mg/L	0.0007	ND	ND	ND	ND	ND	ND	ND
Nickel	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND
Potassium	mg/L	NC	2.8	2	8.2	2.8	3	3.2	3
Sodium	mg/L	20	**35**	**33**	19	**31**	**24**	**96**	**65**
Vanadium	mg/L	NC	ND	ND	ND	ND	ND	ND	ND
Zinc	mg/L	2	ND	0.00737 J	ND	ND	0.00787 J	ND	ND
Cyanide	mg/L	0.2	ND	ND	ND	ND	ND	0.015	ND

Notes:

mg/L - Milligrams Per Liter

NC - No Criteria

ND - Not Detected

Bold Font and Boxed Cell - Exceeds Criteria

TABLE 3

Remaining Groundwater Sample Exceedances
Western New York Workforce Training Center
NYSDEC Site No. C915310

Metals	***Units***	***NYS TOGS 1.1.1 Ambient Water Quality Standards/Guidance Values***	**Location ID, Sample ID, and Sample Date**			
			LW-05	**LW-05**	**LW-06**	**LW-06**
			LW-05	**LW-05**	**LW-06**	**LW-06**
			4/5/2017	**11/15/2017**	**4/5/2017**	**11/14/2017**
Aluminum	mg/L	NC	ND	ND	0.061	ND
Arsenic	mg/L	0.025	0.011	ND	0.013	ND
Barium	mg/L	1	ND	0.013	0.062	0.076
Calcium	mg/L	NC	100	303	120	122
Chromium	mg/L	0.05	ND	0.00196 J	ND	0.00372 J
Copper	mg/L	0.2	ND	0.00286 J	ND	ND
Iron	mg/L	0.3	**9.4**	**2**	**1**	**1**
Lead	mg/L	0.025	ND	ND	ND	ND
Magnesium	mg/L	35	12	**65**	**48**	**46**
Manganese	mg/L	0.3	**0.85**	**1**	0.22	0.255
Mercury	mg/L	0.0007	ND	ND	ND	ND
Nickel	mg/L	0.1	ND	0.0148 J	ND	0.00704 J
Potassium	mg/L	NC	3.3	9	2.7	2
Sodium	mg/L	20	17	**80**	**46**	**44**
Vanadium	mg/L	NC	ND	ND	0.012	ND
Zinc	mg/L	2	ND	0.00888 J	ND	0.0079 J
Cyanide	mg/L	0.2	ND	0.000025	ND	ND

Notes:

mg/L - Milligrams Per Liter

NC - No Criteria

ND - Not Detected

Bold Font and Boxed Cell - Exceeds Criteria

TABLE 4

Summary of Oil Characterization
Western New York Workforce Training Center
NYSDEC Site No. C915310

Parameter	*Unit*	**Sample Location, Sample ID, and Date Collected**		
		Detention Basin - Southwest Corner	Transformer House Excavation	UST Excavation
		DB-SWC-OIL	RA-SOUTH-TRANS-PIT	UST-PIT-OIL
		12/20/2017	9/19/2018	9/19/2018
PCBs				
Aroclor-1016	µg/kg	ND	ND	NS
Aroclor-1221	µg/kg	ND	ND	NS
Aroclor-1232	µg/kg	ND	ND	NS
Aroclor-1242	µg/kg	ND	ND	NS
Aroclor-1248	µg/kg	ND	ND	NS
Aroclor-1254	µg/kg	15,000	41,000 DP	NS
Aroclor-1262	µg/kg	ND	ND	NS
Aroclor-1268	µg/kg	ND	ND	NS
Aroclor-1260	µg/kg	ND	ND	NS
Fingerprint				
Oil Type	Type	Hydraulic	No Calibrated Standards Detected	No Calibrated Standards Detected

Notes:
µg/kg - micrograms per kilogram
ND - Not detected
NS - Not sampled
D - Diluted
P - Indicates >25% difference for detected concentrations between the two GC columns

TABLE 5

RI Soil Vapor Sample Exceedances
Western New York Workforce Training Center
NYSDEC Site Number C915310

Parameters	*Units*	Matrix Sub-slab Vapor Concentration Range	NYSDOH AGV	Location ID, Sample ID, Sample Date, and Type						
				SS-01	SS-02	SS-03	SS-06	SS-07	SV-02	SV-03
				SS-1	SS-2	SS-3	SS-6	SS-7	SV-02	SV-03
				4/18/2017	4/14/2017	4/18/2017	4/18/2017	4/18/2017	11/4/2017	11/4/2017
				Sub-Slab	Sub-Slab	Sub-Slab	Soil Vapor	Sub-Slab	Sub-Slab	Sub-Slab
Volatile Organic Analytes										
Tetrachloroethylene[2]	ug/m^3	100 to 1,000	100	5.9	29	3.6	**440**	10	1.49	1.56
1,1,1-Trichloroethane[2]	ug/m^3	100 to 1,000	NC	11	2 J	2.2	79	64	4.42	2.95
Trichloroethylene[1]	ug/m^3	6 to 60	5	**14**	**6.7**	**260**	4	**64**	**146 D**	**101 D**

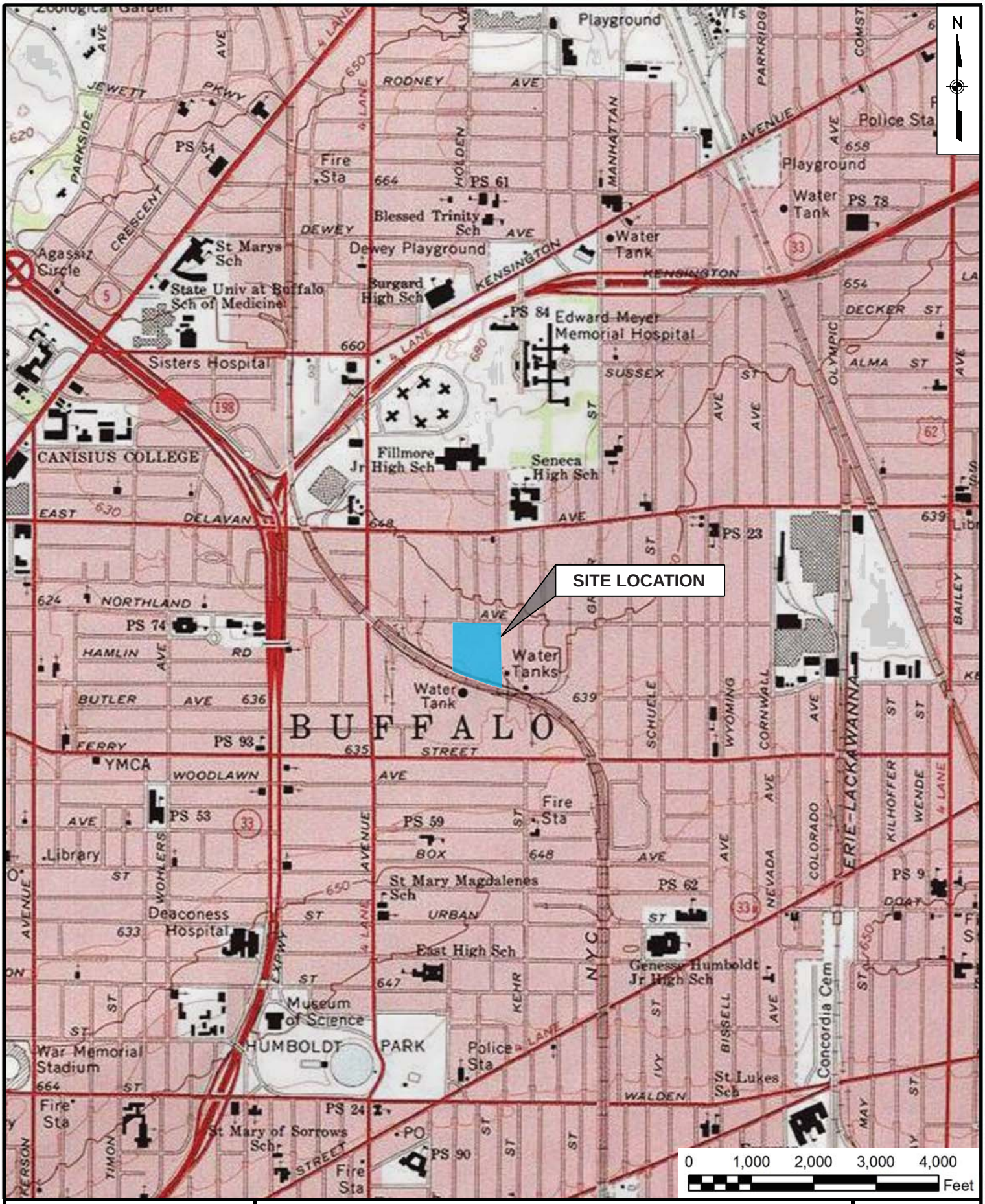
Notes:
ug/m3 - Micrograms per cubic meter
NC - No Criteria
ND - Non Detect
B - Analyte found in the associated blank
J = Estimated concentration
D = Diluted
1 = NYSDOH Vapor Intrusion Guidance Document Decision Matrix A applies to these compounds
2 = NYSDOH Vapor Intrusion Guidance Document Decision Matrix B applies to these compounds
Bold = Value exceeds NYSDOH AGV
Bold = Value indicates "mitigation" based on Decision Matrix
- Soil Vapor/Indoor Air Matrix A
- Soil Vapor/Indoor Air Matix B

TABLE 6

Summary of SSDS Startup Testing
Western New York Workforce Training Center
NYSDEC Site Number C915310

VMP-1			VMP-2			VMP-3			VMP-4		
Date	***Time***	***Pressure***	***Date***	***Time***	***Pressure***	***Date***	***Time***	***Pressure***	***Date***	***Time***	***Pressure***
7/12/2018	9:16	-0.002(1)	7/12/2018	9:19	0.000(1)	7/12/2018	9:22	0.000(1)	7/12/2018	9:25	0.000(1)
7/12/2018	9:34	-0.069	7/12/2018	9:37	-0.043	7/12/2018	9:40	-0.003	7/12/2018	9:42	-0.031
7/12/2018	9:58	-0.100	7/12/2018	10:00	-0.054	7/12/2018	10:03	-0.003	7/12/2018	10:06	-0.035
7/12/2018	10:34	-0.102	7/12/2018	10:36	-0.055	7/12/2018	10:38	-0.003	7/12/2018	10:41	-0.036
7/12/2018	11:04	-0.103	7/12/2018	11:06	-0.055	7/12/2018	11:09	-0.004	7/12/2018	11:11	-0.037
7/12/2018	11:29	-0.103	7/12/2018	11:30	-0.055	7/12/2018	11:33	-0.004	7/12/2018	11:37	-0.038
7/12/2018	13:30	-0.106	7/12/2018	13:33	-0.057	7/12/2018	13:35	-0.004	7/12/2018	13:38	-0.039
7/12/2018	14:32	-0.106	7/12/2018	14:35	-0.057	7/12/2018	14:36	-0.004	7/12/2018	14:40	-0.040
7/12/2018	15:24	-0.107	7/12/2018	15:26	-0.058	7/12/2018	15:29	-0.005	7/12/2018	15:33	-0.040
7/13/2018	9:15	-0.102	7/13/2018	9:18	-0.055	7/13/2018	9:21	-0.005	7/13/2018	9:23	-0.039
7/13/2018	14:44	-0.105	7/13/2018	14:49	-0.059	7/13/2018	14:50	-0.004	7/13/2018	14:54	-0.040
7/16/2018	10:25	-0.112	7/16/2018	10:26	-0.062	7/16/2018	10:29	-0.004	7/16/2018	10:32	-0.045
7/17/2018	10:16	-0.110	7/17/2018	10:19	-0.061	7/17/2018	10:24	-0.004	7/17/2018	10:27	-0.043

Notes:
All pressure readings measured with an OmniGuard V and reported in inches of water column.
(1) - Background measurement prior to SSDS startup on July 12, 2018 at 9:27 a.m.



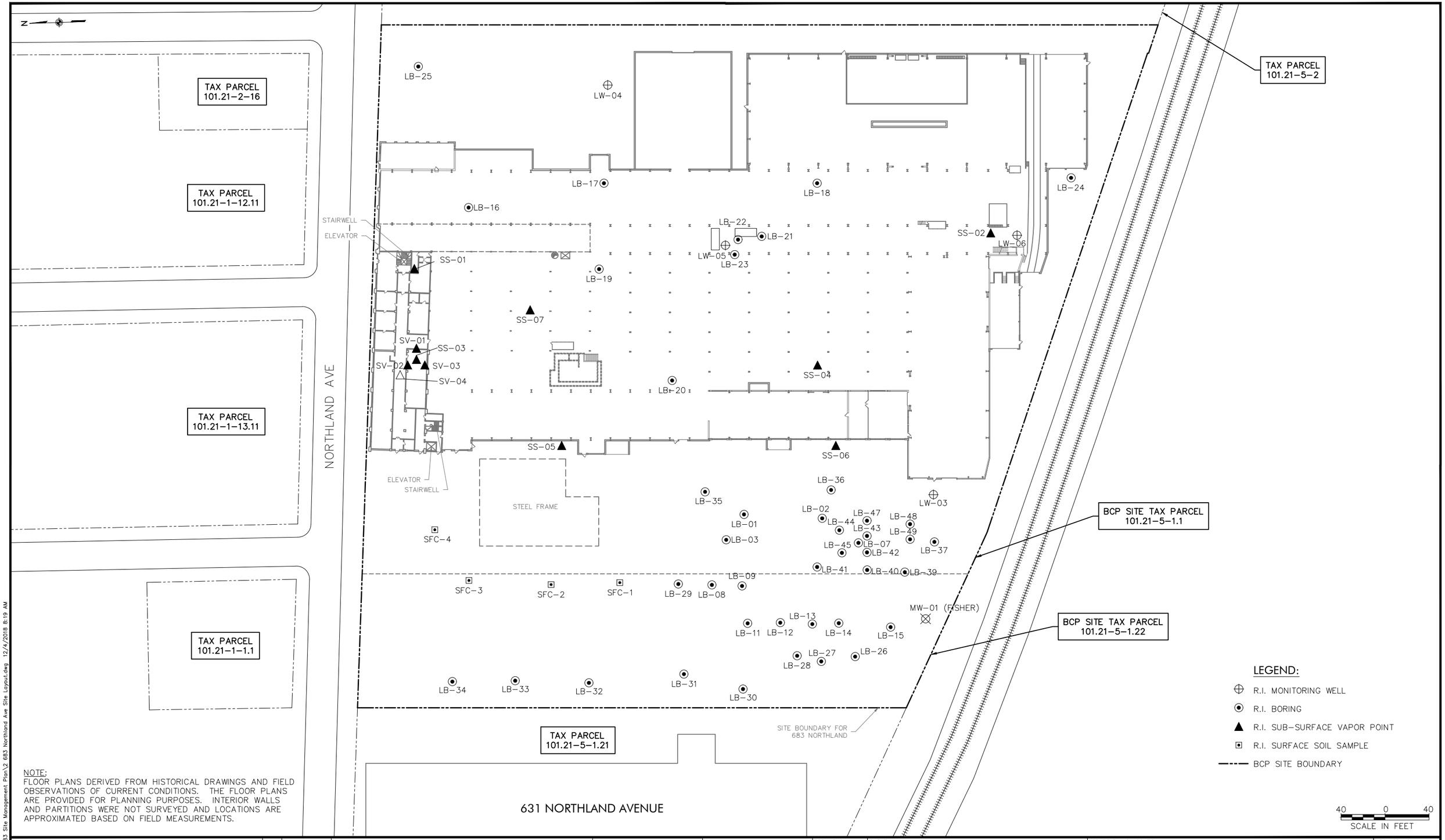
LiRo-Engineers, Inc.
690 Delaware Ave.
Buffalo, New York

683 NORTHLAND AVENUE
TOPOGRAPHIC SITE LOCATION MAP

FIGURE NO.

1

J:\15-029-1054 BUDC\CAD\683 Site Management Plan\1 NORTHLAND TOPO MAP.AI



NOTE:
FLOOR PLANS DERIVED FROM HISTORICAL DRAWINGS AND FIELD OBSERVATIONS OF CURRENT CONDITIONS. THE FLOOR PLANS ARE PROVIDED FOR PLANNING PURPOSES. INTERIOR WALLS AND PARTITIONS WERE NOT SURVEYED AND LOCATIONS ARE APPROXIMATED BASED ON FIELD MEASUREMENTS.

LEGEND:

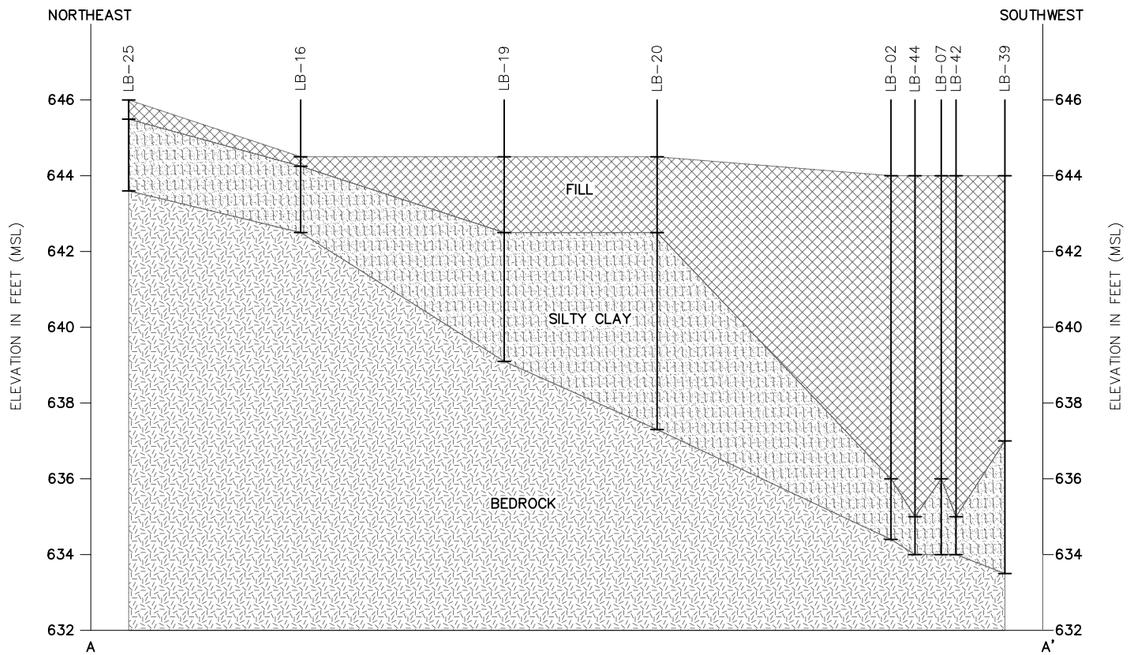
- R.I. MONITORING WELL
- R.I. BORING
- R.I. SUB-SURFACE VAPOR POINT
- R.I. SURFACE SOIL SAMPLE
- BCP SITE BOUNDARY

40 0 40
SCALE IN FEET

NO.	DATE	DESCRIPTION
		REVISIONS

LiRo Engineers, Inc.
690 Delaware Avenue
Buffalo, New York

PROJ. ENG.:	
DESIGNED BY:	
CHECKED BY:	
DRAWN BY:	A.M.K.
CLIENT:	683 NORTHLAND, LLC
DATE:	DECEMBER 2018
SCALE:	AS SHOWN
JOB TITLE AND LOCATION:	WESTERN NEW YORK WORKFORCE TRAINING CENTER SITE MANAGEMENT PLAN
DRAWING TITLE:	SITE LAYOUT
LIRO JOB NO.:	15-029-1054
SHEET	OF
FIGURE NO.	2



LEGEND

60 0 60
HORIZONTAL SCALE IN FEET

2 0 2
VERTICAL SCALE IN FEET

FILL

SILTY CLAY

BEDROCK

WARNING

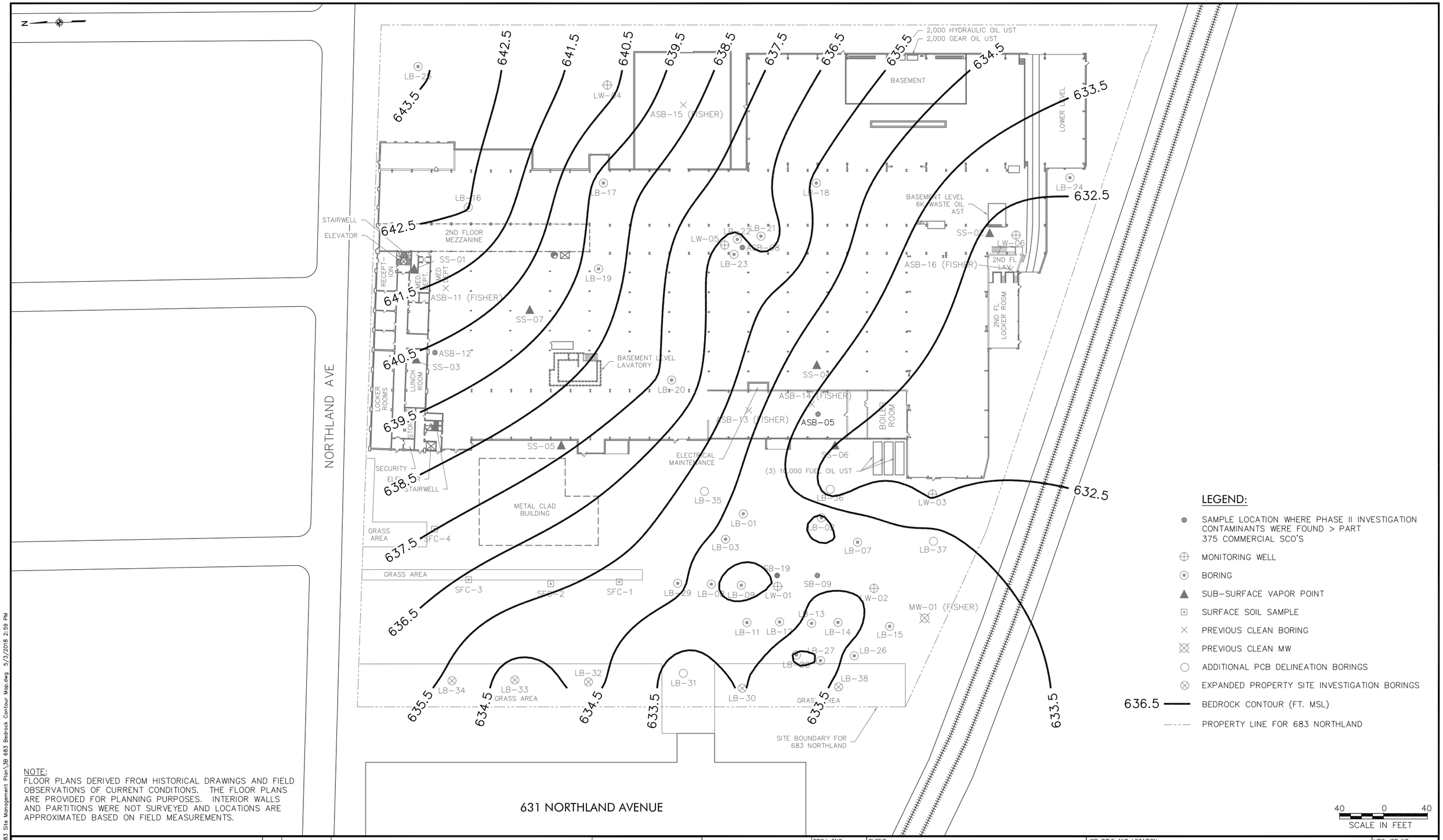
IT IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, OTHER THAN THOSE WHOSE SEAL APPEARS ON THIS DRAWING, TO ALTER IN ANY WAY AN ITEM ON THIS DRAWING. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

NO.	DATE	DESCRIPTION
		REVISIONS

LiRo Engineers, Inc.
690 Delaware Avenue
Buffalo, New York

PROJ. ENG.:	
DESIGNED BY:	
CHECKED BY:	
DRAWN BY:	A.M.K.
CLIENT:	683 NORTHLAND, LLC
DATE:	DECEMBER 2018
SCALE:	AS SHOWN
JOB TITLE AND LOCATION:	WESTERN NEW YORK WORKFORCE TRAINING CENTER SITE MANAGEMENT PLAN
DRAWING TITLE:	GEOLOGIC CROSS-SECTION
LIRO JOB NO.:	15-029-1054
SHEET	OF
FIGURE NO.	3A

J:\15-029-1054 BUDC\CAD\683 Site Management Plan\3 Geo Cross Section.dwg 12/4/2018 8:19 AM



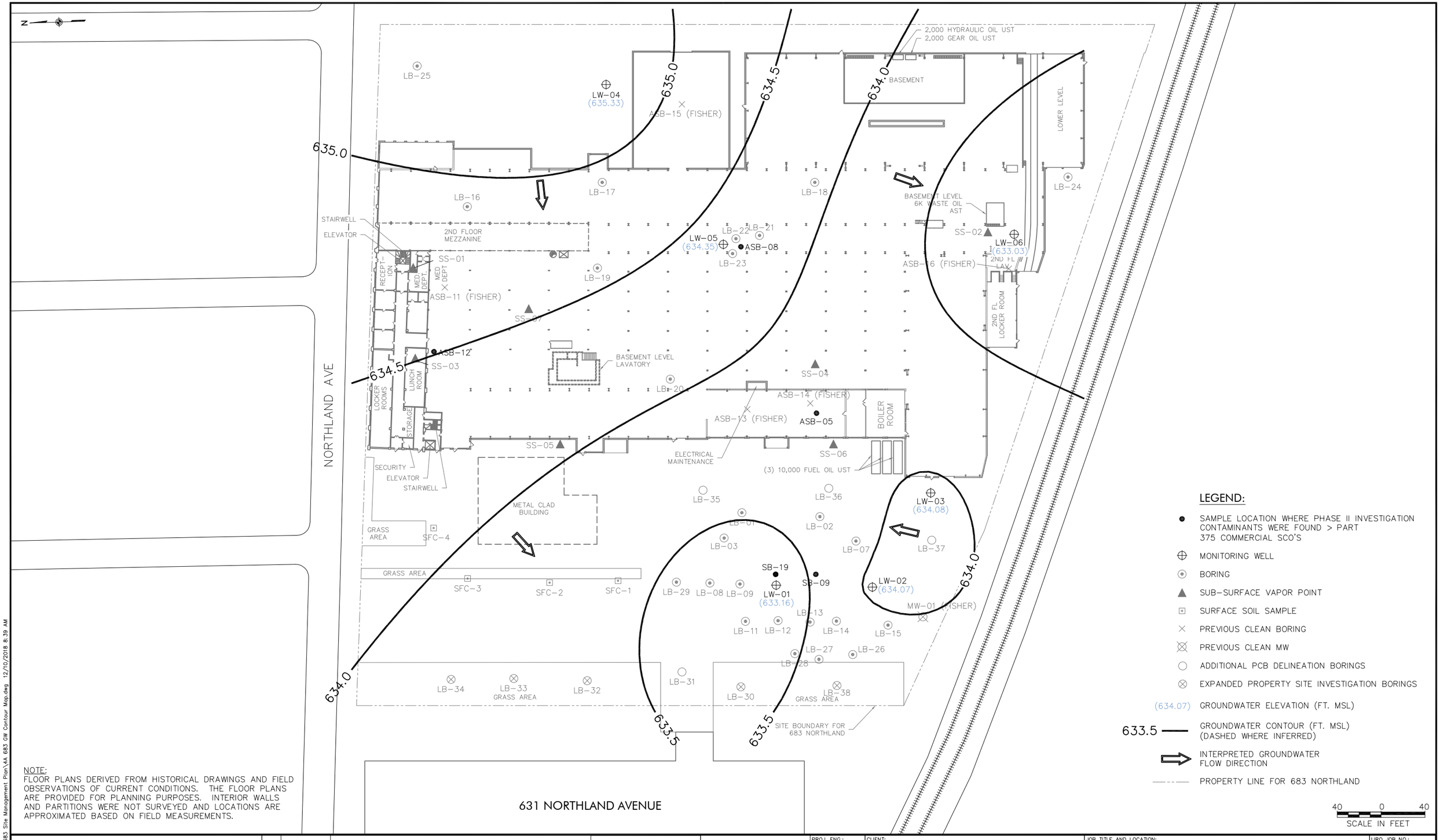
NOTE:
FLOOR PLANS DERIVED FROM HISTORICAL DRAWINGS AND FIELD OBSERVATIONS OF CURRENT CONDITIONS. THE FLOOR PLANS ARE PROVIDED FOR PLANNING PURPOSES. INTERIOR WALLS AND PARTITIONS WERE NOT SURVEYED AND LOCATIONS ARE APPROXIMATED BASED ON FIELD MEASUREMENTS.

NO.	DATE	DESCRIPTION
		REVISIONS

LiRo Engineers, Inc.
690 Delaware Avenue
Buffalo, New York

PROJ. ENG.:	
DESIGNED BY:	
CHECKED BY:	
DRAWN BY:	A.M.K.
CLIENT:	683 NORTHLAND, LLC
DATE:	DECEMBER 2018
SCALE:	AS SHOWN
JOB TITLE AND LOCATION:	WESTERN NEW YORK WORKFORCE TRAINING CENTER SITE MANAGEMENT PLAN
LIRO JOB NO.:	15-029-1054
SHEET	OF
DRAWING TITLE:	BEDROCK SURFACE CONTOUR MAP
FIGURE NO.	3B

J:\15-029-1054 BUDC\CAD\683 Site Management Plan\3B 683 Bedrock Contour Map.dwg 5/3/2018 2:59 PM



NOTE:
FLOOR PLANS DERIVED FROM HISTORICAL DRAWINGS AND FIELD OBSERVATIONS OF CURRENT CONDITIONS. THE FLOOR PLANS ARE PROVIDED FOR PLANNING PURPOSES. INTERIOR WALLS AND PARTITIONS WERE NOT SURVEYED AND LOCATIONS ARE APPROXIMATED BASED ON FIELD MEASUREMENTS.

LEGEND:

- SAMPLE LOCATION WHERE PHASE II INVESTIGATION CONTAMINANTS WERE FOUND > PART 375 COMMERCIAL SCO'S
- MONITORING WELL
- BORING
- SUB-SURFACE VAPOR POINT
- SURFACE SOIL SAMPLE
- PREVIOUS CLEAN BORING
- PREVIOUS CLEAN MW
- ADDITIONAL PCB DELINEATION BORINGS
- EXPANDED PROPERTY SITE INVESTIGATION BORINGS
- (634.07) GROUNDWATER ELEVATION (FT. MSL)
- 633.5 GROUNDWATER CONTOUR (FT. MSL) (DASHED WHERE INFERRED)
- INTERPRETED GROUNDWATER FLOW DIRECTION
- PROPERTY LINE FOR 683 NORTHLAND

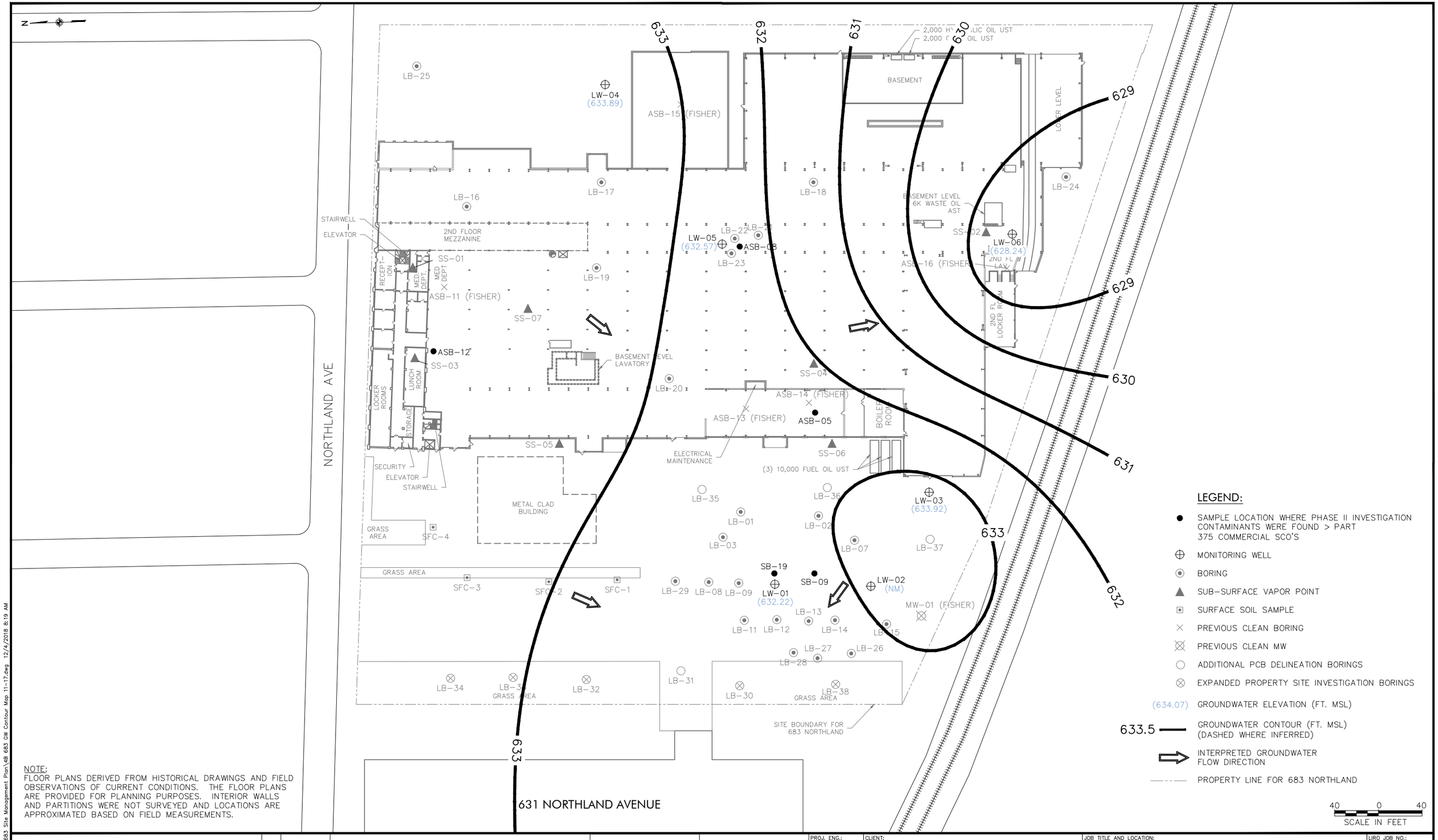
40 0 40
SCALE IN FEET

NO.	DATE	DESCRIPTION
REVISIONS		

LiRo Engineers, Inc.
690 Delaware Avenue
Buffalo, New York

PROJ. ENG.:	
DESIGNED BY:	
CHECKED BY:	
DRAWN BY:	A.M.K.
CLIENT:	683 NORTHLAND, LLC
DATE:	DECEMBER 2018
SCALE:	AS SHOWN
JOB TITLE AND LOCATION:	WESTERN NEW YORK WORKFORCE TRAINING CENTER SITE MANAGEMENT PLAN
DRAWING TITLE:	GROUNDWATER CONTOUR MAP APRIL 5, 2017
LIRO JOB NO.:	15-029-1054
SHEET	OF
FIGURE NO.	4A

J:\15-029-1054 BUDC\CAD\683 Site Management Plan\4A 683 GW Contour Map.dwg 12/10/2018 8:39 AM



NOTE:
FLOOR PLANS DERIVED FROM HISTORICAL DRAWINGS AND FIELD OBSERVATIONS OF CURRENT CONDITIONS. THE FLOOR PLANS ARE PROVIDED FOR PLANNING PURPOSES. INTERIOR WALLS AND PARTITIONS WERE NOT SURVEYED AND LOCATIONS ARE APPROXIMATED BASED ON FIELD MEASUREMENTS.

LEGEND:

- SAMPLE LOCATION WHERE PHASE II INVESTIGATION CONTAMINANTS WERE FOUND > PART 375 COMMERCIAL SCO'S
- MONITORING WELL
- BORING
- SUB-SURFACE VAPOR POINT
- SURFACE SOIL SAMPLE
- PREVIOUS CLEAN BORING
- PREVIOUS CLEAN MW
- ADDITIONAL PCB DELINEATION BORINGS
- EXPANDED PROPERTY SITE INVESTIGATION BORINGS
- (634.07) GROUNDWATER ELEVATION (FT. MSL)
- 633.5 GROUNDWATER CONTOUR (FT. MSL) (DASHED WHERE INFERRED)
- INTERPRETED GROUNDWATER FLOW DIRECTION
- PROPERTY LINE FOR 683 NORTHLAND

40 0 40
SCALE IN FEET

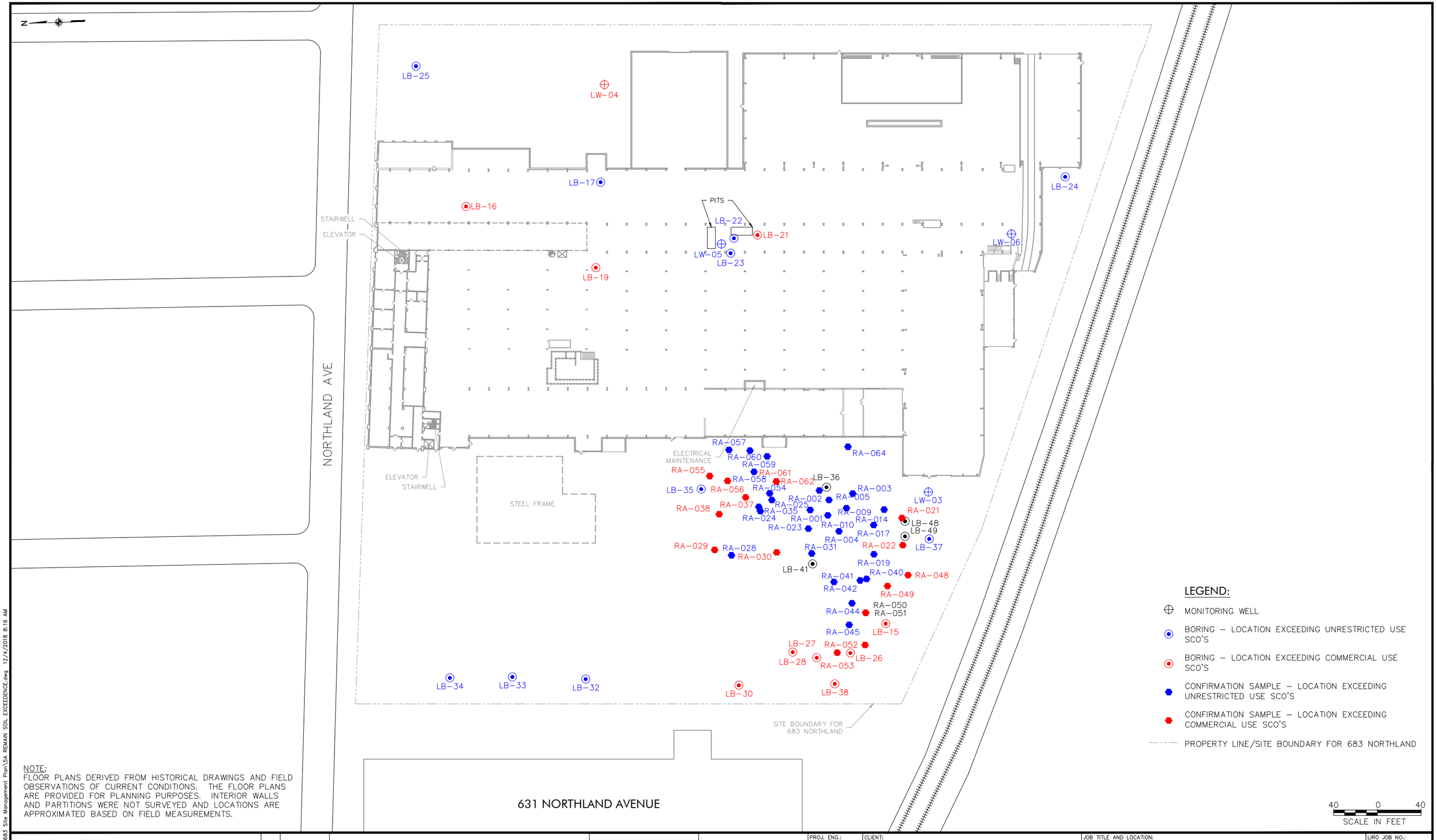
NO.	DATE	DESCRIPTION

REVISIONS

LiRo Engineers, Inc.
690 Delaware Avenue
Buffalo, New York

PROJ. ENG.:	
DESIGNED BY:	
CHECKED BY:	
DRAWN BY:	A.M.K.
CLIENT:	683 NORTHLAND, LLC
DATE:	DECEMBER 2018
SCALE:	AS SHOWN
JOB TITLE AND LOCATION:	WESTERN NEW YORK WORKFORCE TRAINING CENTER SITE MANAGEMENT PLAN
DRAWING TITLE:	GROUNDWATER CONTOUR MAP NOVEMBER 14, 2017
LIRO JOB NO.:	15-029-1054
SHEET	OF
FIGURE NO.	4B

J:\15-029-1054 BUDC\CAD\683 Site Management Plan\4B 683 GW Contour Map 11-17.dwg 12/4/2018 8:19 AM



NOTE:
FLOOR PLANS DERIVED FROM HISTORICAL DRAWINGS AND FIELD OBSERVATIONS OF CURRENT CONDITIONS. THE FLOOR PLANS ARE PROVIDED FOR PLANNING PURPOSES. INTERIOR WALLS AND PARTITIONS WERE NOT SURVEYED AND LOCATIONS ARE APPROXIMATED BASED ON FIELD MEASUREMENTS.

LEGEND:

- MONITORING WELL
- BORING – LOCATION EXCEEDING UNRESTRICTED USE SCO'S
- BORING – LOCATION EXCEEDING COMMERCIAL USE SCO'S
- CONFIRMATION SAMPLE – LOCATION EXCEEDING UNRESTRICTED USE SCO'S
- CONFIRMATION SAMPLE – LOCATION EXCEEDING COMMERCIAL USE SCO'S
- PROPERTY LINE/SITE BOUNDARY FOR 683 NORTHLAND

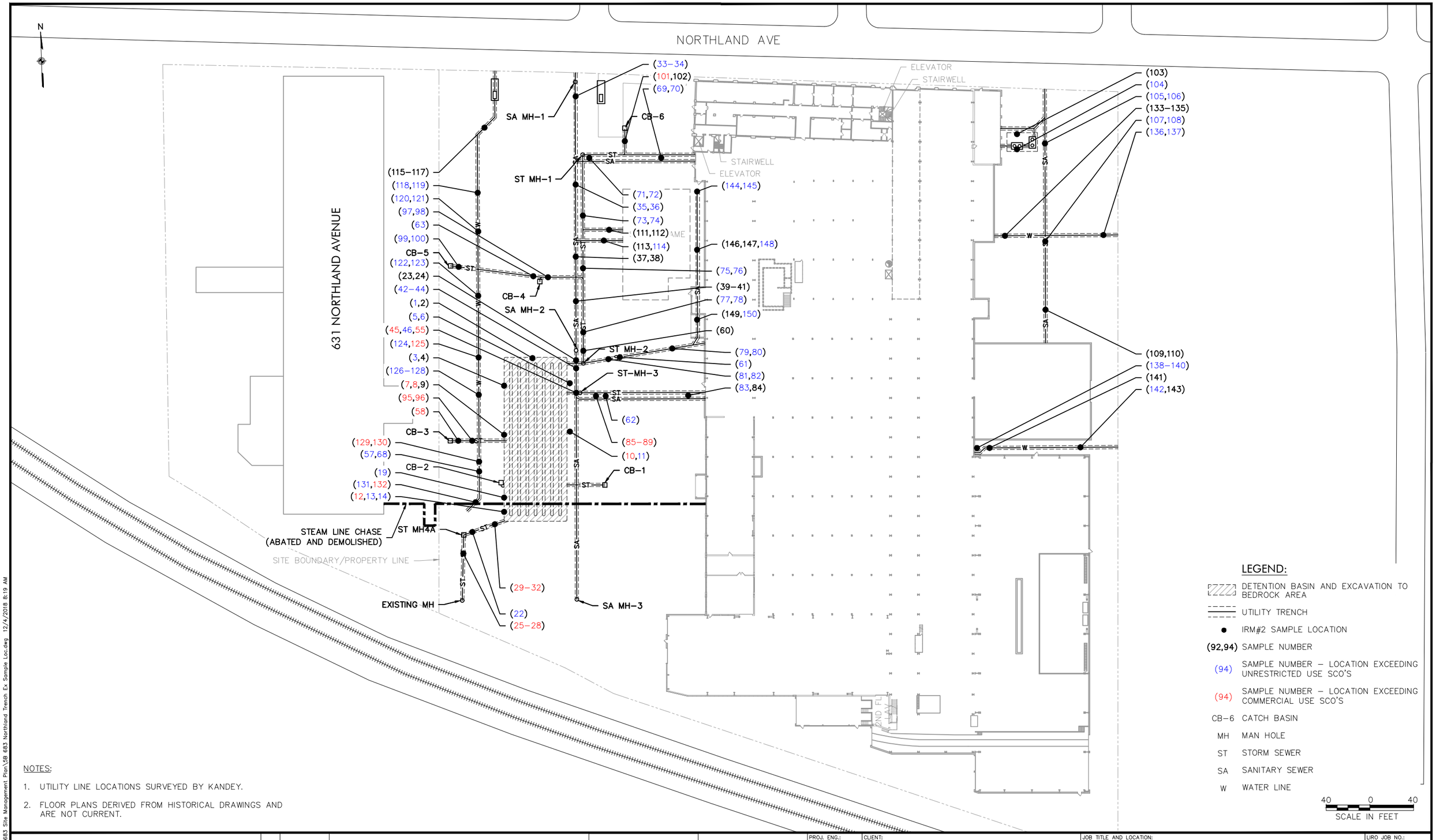
40 0 40
SCALE IN FEET

NO.	DATE	DESCRIPTION
		REVISIONS

LiRo Engineers, Inc.
690 Delaware Avenue
Buffalo, New York

PROJ. ENG.:	
DESIGNED BY:	
CHECKED BY:	
DRAWN BY:	A.M.K.
CLIENT:	683 NORTHLAND, LLC
DATE:	DECEMBER 2018
SCALE:	AS SHOWN
JOB TITLE AND LOCATION:	WESTERN NEW YORK WORKFORCE TRAINING CENTER SITE MANAGEMENT PLAN
LIRO JOB NO.:	15-029-1054
SHEET	OF
DRAWING TITLE:	REMAINING SOIL CONTAMINATION EXCEEDANCES - R.I. AND DOCUMENTATION SAMPLE LOCATIONS
FIGURE NO.	5A

J:\15-029-1054 BUDC\CAD\683 Site Management Plan\5A REMAIN SOIL EXCEEDENCE.dwg 12/4/2018 8:19 AM



NOTES:

1. UTILITY LINE LOCATIONS SURVEYED BY KANDEY.
2. FLOOR PLANS DERIVED FROM HISTORICAL DRAWINGS AND ARE NOT CURRENT.

LEGEND:

- DETENTION BASIN AND EXCAVATION TO BEDROCK AREA
- UTILITY TRENCH
- IRM#2 SAMPLE LOCATION
- **(92,94)** SAMPLE NUMBER
- (94) SAMPLE NUMBER – LOCATION EXCEEDING UNRESTRICTED USE SCO'S
- (94) SAMPLE NUMBER – LOCATION EXCEEDING COMMERCIAL USE SCO'S
- CB-6 CATCH BASIN
- MH MAN HOLE
- ST STORM SEWER
- SA SANITARY SEWER
- W WATER LINE

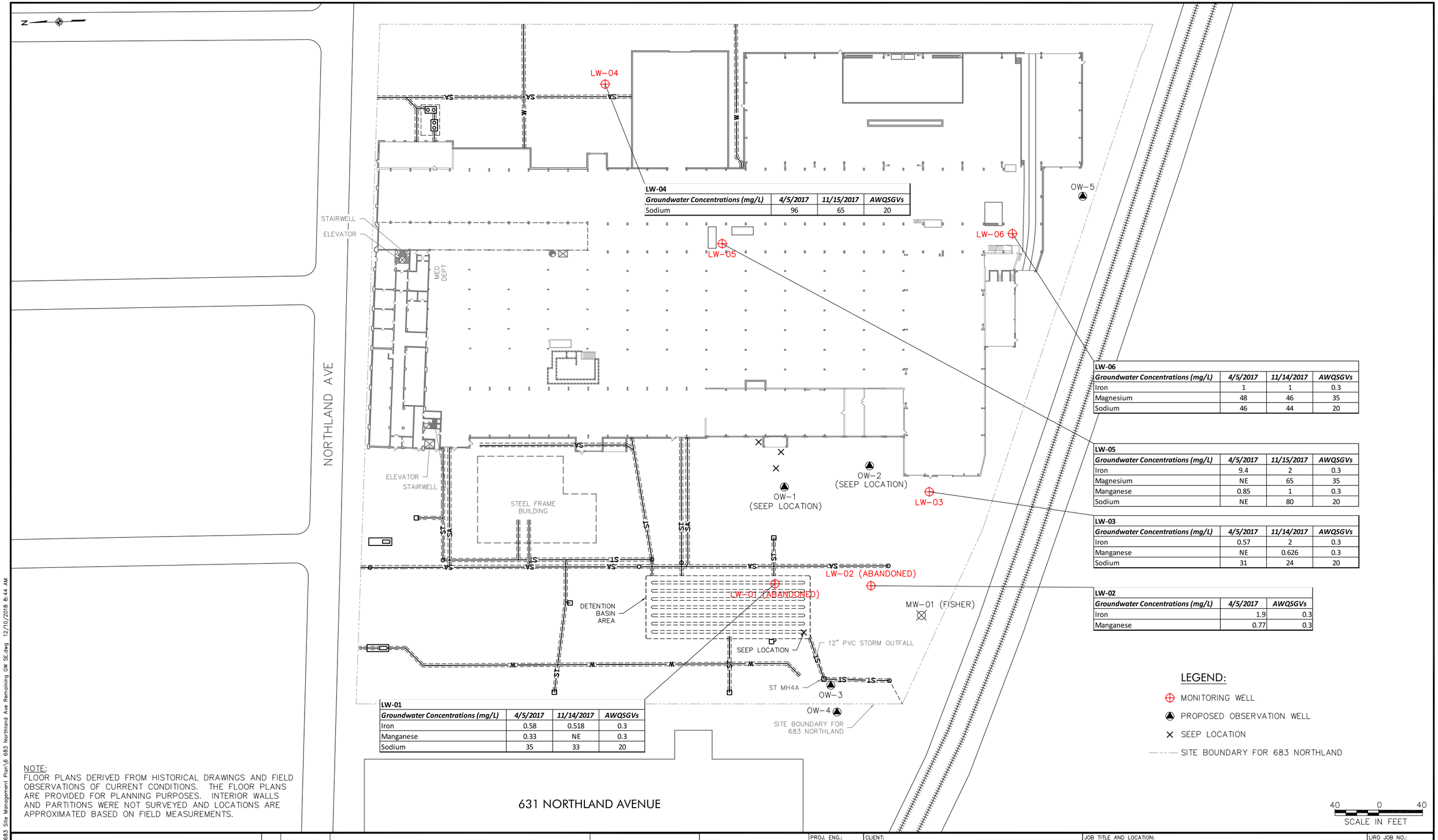
40 0 40
SCALE IN FEET

NO.	DATE	DESCRIPTION
REVISIONS		

Liro Engineers, Inc.
690 Delaware Avenue
Buffalo, New York

PROJ. ENG.:	CLIENT: 683 NORTHLAND LLC	JOB TITLE AND LOCATION: WESTERN NEW YORK WORKFORCE TRAINING CENTER SITE MANAGEMENT PLAN	LIRO JOB NO.: 15-029-1054
DESIGNED BY:			SHEET OF
CHECKED BY:		DRAWING TITLE: REMAINING SOIL CONTAMINATION EXCEEDANCES/EXISTING SITE UTILITIES - IRM#2 SAMPLE LOCATIONS	FIGURE NO. 5B
DRAWN BY: A.M.K.	DATE: DECEMBER 2018	SCALE: AS SHOWN	

J:\15-029-1054 BUDC\CAD\683 Site Management Plan\SB 683 Northland Trench Ex Sample Loc.dwg 12/4/2018 8:19 AM



LW-04			
Groundwater Concentrations (mg/L)	*4/5/2017*	*11/15/2017*	*AWQSGVs*
Sodium	96	65	20

LW-06			
Groundwater Concentrations (mg/L)	*4/5/2017*	*11/14/2017*	*AWQSGVs*
Iron	1	1	0.3
Magnesium	48	46	35
Sodium	46	44	20

LW-05			
Groundwater Concentrations (mg/L)	*4/5/2017*	*11/15/2017*	*AWQSGVs*
Iron	9.4	2	0.3
Magnesium	NE	65	35
Manganese	0.85	1	0.3
Sodium	NE	80	20

LW-03			
Groundwater Concentrations (mg/L)	*4/5/2017*	*11/14/2017*	*AWQSGVs*
Iron	0.57	2	0.3
Manganese	NE	0.626	0.3
Sodium	31	24	20

LW-02		
Groundwater Concentrations (mg/L)	*4/5/2017*	*AWQSGVs*
Iron	1.9	0.3
Manganese	0.77	0.3

LW-01			
Groundwater Concentrations (mg/L)	*4/5/2017*	*11/14/2017*	*AWQSGVs*
Iron	0.58	0.518	0.3
Manganese	0.33	NE	0.3
Sodium	35	33	20

LEGEND:

- MONITORING WELL
- PROPOSED OBSERVATION WELL
- SEEP LOCATION
- SITE BOUNDARY FOR 683 NORTHLAND

40 0 40
SCALE IN FEET

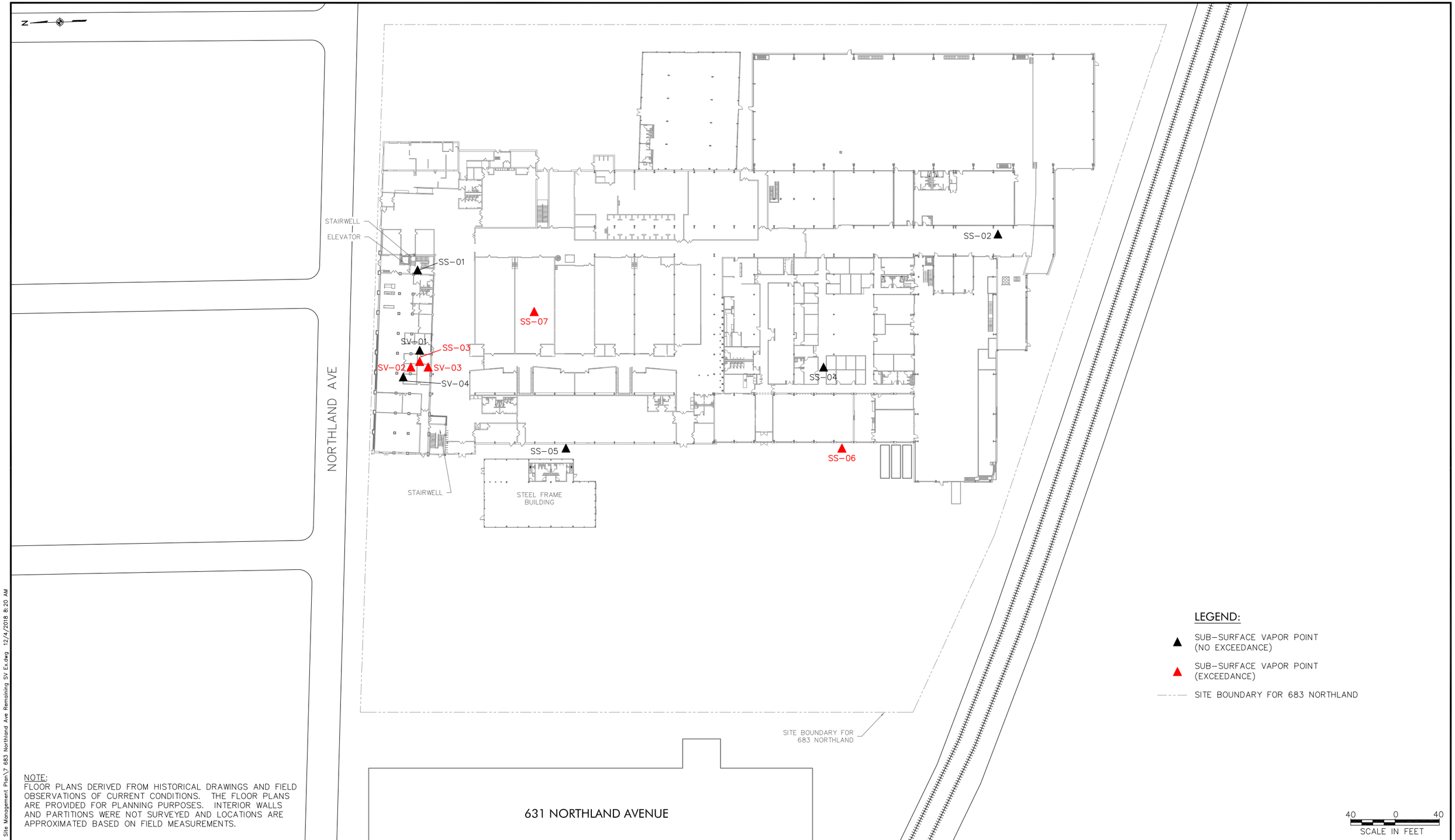
NOTE:
FLOOR PLANS DERIVED FROM HISTORICAL DRAWINGS AND FIELD OBSERVATIONS OF CURRENT CONDITIONS. THE FLOOR PLANS ARE PROVIDED FOR PLANNING PURPOSES. INTERIOR WALLS AND PARTITIONS WERE NOT SURVEYED AND LOCATIONS ARE APPROXIMATED BASED ON FIELD MEASUREMENTS.

NO.	DATE	DESCRIPTION
		REVISIONS

LiRo Engineers, Inc.
690 Delaware Avenue
Buffalo, New York

PROJ. ENG.:	CLIENT: 683 NORTHLAND, LLC	JOB TITLE AND LOCATION: WESTERN NEW YORK WORKFORCE TRAINING CENTER SITE MANAGEMENT PLAN	LIRO JOB NO.: 15–029–1054
DESIGNED BY:			SHEET OF
CHECKED BY:		DRAWING TITLE: REMAINING GROUNDWATER SAMPLE EXCEEDANCES	FIGURE NO. 6
DRAWN BY: A.M.K.	DATE: DECEMBER 2018	SCALE: AS SHOWN	

J:\15–029–1054 BUDC\CAD\683 Site Management Plan\6 683 Northland Ave Remaining GW SE.dwg 12/10/2018 8:44 AM

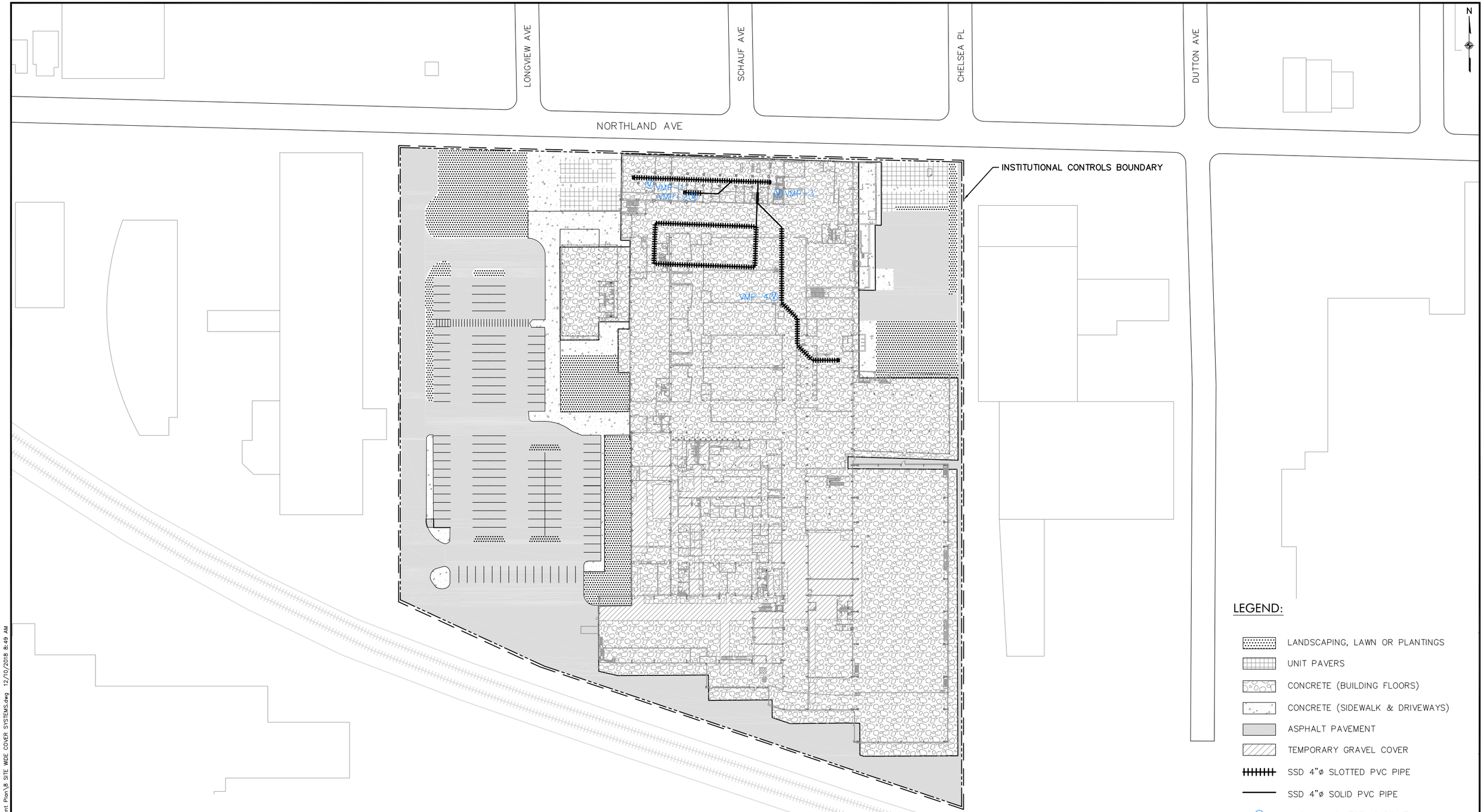


NOTE:
FLOOR PLANS DERIVED FROM HISTORICAL DRAWINGS AND FIELD OBSERVATIONS OF CURRENT CONDITIONS. THE FLOOR PLANS ARE PROVIDED FOR PLANNING PURPOSES. INTERIOR WALLS AND PARTITIONS WERE NOT SURVEYED AND LOCATIONS ARE APPROXIMATED BASED ON FIELD MEASUREMENTS.

NO.	DATE	DESCRIPTION
REVISIONS		

Liro Engineers, Inc.
690 Delaware Avenue
Buffalo, New York

PROJ. ENG.:	
DESIGNED BY:	
CHECKED BY:	
DRAWN BY:	A.M.K.
CLIENT:	683 NORTHLAND, LLC
DATE:	DECEMBER 2018
SCALE:	AS SHOWN
JOB TITLE AND LOCATION:	WESTERN NEW YORK WORKFORCE TRAINING CENTER SITE MANAGEMENT PLAN
LIRO JOB NO.:	15-029-1054
SHEET	OF
DRAWING TITLE:	RI SOIL VAPOR EXCEEDANCES/ AREAS OF CONCERN
FIGURE NO.	7



J:\15-029-1054 BUDC\CAD\683 Site Management Plan\8 SITE WIDE COVER SYSTEMS.dwg 12/10/2018 8:49 AM

WARNING

IT IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, OTHER THAN THOSE WHOSE SEAL APPEARS ON THIS DRAWING, TO ALTER IN ANY WAY AN ITEM ON THIS DRAWING. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

NO.	DATE	DESCRIPTION

REVISIONS

LiRo Engineers, Inc.
690 Delaware Avenue
Buffalo, New York

PROJ. ENG.:	
DESIGNED BY:	
CHECKED BY:	
DRAWN BY:	A.M.K.
CLIENT:	683 NORTHLAND, LLC
DATE:	DECEMBER 2018
SCALE:	AS SHOWN

JOB TITLE AND LOCATION:
WESTERN NEW YORK WORKFORCE TRAINING CENTER
SITE MANAGEMENT PLAN

LIRO JOB NO.: 15-029-1054
SHEET OF

DRAWING TITLE:
INSTITUTIONAL CONTROLS BOUNDARY AND ENGINEERING CONTROL LOCATIONS

FIGURE NO.: 8

APPENDIX A – LIST OF SITE CONTACTS

Name	Phone/Email Address
Site Owner: 683 Northland, LLC Peter Cammarata	716-856-6525 pcammarata@buffalourbandevelopment.com
Remedial Party - Same as Owner	
Qualified Environmental Professional Stephen Frank, PG	716-882-5476 franks@liro.com
NYSDEC DER Project Manager Benjamin McPherson, PE	716-851-7220 benjamin.mcpherson@dec.ny.gov
NYSDEC Regional HW Engineer Chad Staniszewski, PE	716-851-7220 chad.staniszewski@dec.ny.gov
NYSDEC Site Control Kelly Lewandowski, PE	518-402-9553 kelly.lewandowski@dec.ny.gov
Remedial Party Attorney Craig A. Slater, ESQ	716-845-6760 CSlater@CSlaterlaw.com

APPENDIX B – EXCAVATION WORK PLAN

B-1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the Site owner or their representative will notify the NYSDEC. Table B-1 includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of Site-related contact information is provided in Appendix A of the SMP.

Table B-1: Notifications*

NYSDEC Representative	Phone/email address
Benjamin McPherson, PE	716-851-7220 Benjamin.McPherson@dec.ny.gov
Kelly Lewandowski, PE	518-402-9553 kelly.lewandowski@dec.ny.gov

* Note: Notifications are subject to change and will be updated as necessary.

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for Site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control;
- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this EWP;

- A statement that the work will be performed in compliance with this EWP and 29 Code of Federal Regulation (CFR) 1910.120;
- A copy of the contractor's HASP, in electronic format, if it differs from the HASP provided in Appendix H of this SMP;
- Identification of disposal facilities for potential waste streams; and,
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

B-2 SOIL SCREENING METHODS

Visual, olfactory, and instrument-based (e.g. photoionization detector [PID]) soil screening will be performed by a qualified environmental professional during all excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed when invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the COC.

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal and material that requires testing to determine if the material can be reused on-site as soil beneath a cover or if the material can be used as cover soil. Further discussion of off-site disposal of materials and on-site reuse is provided in Sections B-4 through B-7 of this Appendix.

B-3 SOIL STAGING METHODS

Soil stockpiles will be underlain with a 20-mil high density polyethylene (HDPE) watertight liner and be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook, be maintained at the Site, and be available for inspection by the NYSDEC.

B-4 MATERIALS EXCAVATION AND LOAD-OUT

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and remedial party (if applicable) and its contractors are responsible for safe execution of all invasive and other work performed under this Plan.

The qualified environmental professional will investigate the presence of utilities and easements on the Site. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the Site.

Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and New York State Department of Transportation (NYSDOT) requirements (and all other applicable transportation requirements).

A truck wash will be operated on-site, as appropriate. The qualified environmental professional will be responsible for ensuring that all outbound trucks are washed at the truck wash before leaving the Site until the activities performed under this section are complete. Truck wash waters will be collected and disposed of off-site in an appropriate manner.

Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-site soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the Site are clean of dirt and other

materials derived from the Site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

B-5 MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6NYCRR Part 364. Haulers will be appropriately licensed and trucks will be properly placarded.

Material transported by trucks exiting the Site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

Truck transport routes are as follows: Northland Avenue west to N. Fillmore Avenue then north to East Delavan Avenue then west to NYS 33 (Kensington Expressway). All trucks loaded with Site materials will exit the vicinity of the Site using only these approved truck routes. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and, (f) overall safety in transport.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project Site.

Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials during Site remediation and development.

Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.

B-6 MATERIALS DISPOSAL OFF-SITE

All material excavated and removed from the Site will be treated as contaminated and regulated material and will be transported and disposed of in accordance with all local, State (including 6NYCRR Part 360), and Federal regulations. If disposal of material from this Site is proposed for unregulated off-site disposal (i.e., clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this Site will not occur without formal NYSDEC approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate (i.e., hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, construction and demolition (C/D) recycling facility, etc.). Actual disposal quantities and associated documentation will be reported to the NYSDEC in the PRR. This documentation will include waste profiles, test results, facility acceptance letters, manifests, bills of lading, and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet Unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

B -7 MATERIALS REUSE ON-SITE

The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-site. Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for reuse on-site will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines. The determination of soil which can be reused below the cover will be based on the Site-specific SCOs, the limits for which are:

• PCB concentrations - 10 parts per million (ppm);

• PAH concentrations - 500 ppm;

• Grossly contaminated soil as defined in 6NYCRR Part 375-1.2(u); or,

• Soils that creates a nuisance condition as defined in Commissioner Policy CP-51 Section G.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site will not be reused on-site.

B-8 FLUIDS MANAGEMENT

All liquids to be removed from the Site, including but not limited to, excavation dewatering, decontamination waters, and groundwater monitoring well purge and development waters, will be handled, transported, and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge, and development fluids will not be recharged back to the land surface or subsurface of the Site, and will be managed off-site, unless prior approval is obtained from the NYSDEC.

Discharge of water generated during large-scale construction activities to surface waters (i.e., a local pond, stream, or river) will be performed under a State Pollutant Discharge Elimination System (SPDES) permit.

B-9 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities, the cover system will be restored in a manner that complies with the Decision Document. The existing cover system is comprised of a minimum of 12 inches of clean soil or 6 inches of asphalt pavement, concrete covered sidewalks, or concrete building floors. The demarcation layer, consisting of geotextile material, will be replaced to provide a visual reference to the top of the remaining contamination zone, the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this SMP. If restoration of the cover will not take place immediately and no invasive activities are to occur for an extended period of time (i.e., 5 days or longer), a temporary cover consisting of geotextile material and 12 inches of clean gravel will be placed over the affected area. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the upper surface of the remaining contamination. A figure showing the modified surface will be included in the subsequent PRR and in an updated SMP.

B-10 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the Site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the Site. A Request to Import/Reuse Fill or Soil form, which can be found at http://www.dec.ny.gov/regulations/67386.html, will be prepared and submitted to the NYSDEC project manager allowing a minimum of five business days for review.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the Site.

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Based on an evaluation of the land use, protection of groundwater, and protection of ecological resources criteria, the resulting soil quality standards are listed in Table B-2 Soils that meet ‘exempt’ fill requirements under 6NYCRR Part 360, but do

not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by NYSDEC. Solid waste will not be imported onto the Site.

Trucks entering the Site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and will be covered to prevent dust releases.

B-11 STORMWATER POLLUTION PREVENTION

For large excavations, silt fencing and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook maintained at the Site and be available for inspection by the NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be inspected to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

B-12 EXCAVATION CONTINGENCY PLAN

If USTs or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment, and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes (Target Analyte List [TAL] metals, Target Compound List [TCL] volatiles and semi-volatiles, TCL pesticides, and PCBs), unless the Site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive Site work will be promptly communicated by phone to NYSDEC's project manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the PRR.

B-13 COMMUNITY AIR MONITORING PLAN

The Site CAMP is provided in Attachment B-1. A figure showing the location of air sampling stations based on generally prevailing wind conditions will be prepared based on the location and size of the excavation work. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations. A fixed monitoring station will be located at the northern Site perimeter regardless of wind direction.

Exceedances of action levels listed in the CAMP will be reported to the NYSDEC and NYSDOH project managers.

B-14 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors both on-site and off-site. Specific odor control methods to be used if needed on a routine basis will include odor suppressant foam. If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the remedial party's Remediation Engineer, and any measures that are implemented will be discussed in the PRR.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and, (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

B-15 DUST CONTROL PLAN

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable

of spraying water directly onto off-road areas including excavations and stockpiles; and,

- On-site truck routes will be limited in total area to minimize the area required for water truck sprinkling.

Table B-2

Criteria for Imported Soils
Western New York Workforce Training Center
683 Northland Ave., Buffalo, NY

Parameter	Soil Criteria[1]
Volatiles Organic Compounds (mg/kg)	
1,1,1-Trichloroethane	0.68
1,1-Dichloroethane	0.27
1,1-Dichloroethene	0.33
1,2-Dichlorobenzene	1.1
1,2-Dichloroethane	0.02
1,2-Dichloroethene(cis)	0.25
1,2-Dichlorothene(trans)	0.19
1,3-Dichlorobenzene	2.4
1,4-Dichlorobenzene	1.8
1,4-Dioxane	0.1
Acetone	0.05
Benzene	0.06
Butylbenzene	12
Carbon tetrachloride	0.76
Chlorobenzene	1.1
Chloroform	0.37
Ethylbenzene	1
Hexachlorobenzene	3.2
Methyl ethyl ketone	0.12
Methyl tert-buty ether	0.93
Methylene chloride	0.05
Propylbenzene-n	3.9
Sec-Butylbenzene	11
Tert-Butylbenzene	5.9
Tetrachloroethene	1.3
Toluene	0.7
Trichloroethene	0.47
Trimethylbenzene-1,2,4	3.6
Trimethylbenzene-1,3,5	8.4
Vinyl chloride	0.02
Xlyene (mixed)	1.6
Semi-Volatile Organic Compounds (mg/kg)	
Acenaphthene	98
Acenaphthylene	107
Anthracene	500
Benzo(a)anthracene	1
Benzo(a)pyrene	1
Benzo(b)fluoranthene	1.7
Benzo(g,h,i)perylene	500
Benzo(k)fluoranthene	1.7
Chrysene	1

Table B-2

Criteria for Imported Soils
Western New York Workforce Training Center
683 Northland Ave., Buffalo, NY

Semi-Volatile Organic Compounds (mg/kg) - continued	
Fluoranthene	500
Fluorene	386
Indeno(1,2,3-cd)pyrene	5.6
m-Cresol(s)	0.33
Naphthalene	12
o-Cresol(s)	0.33
p-Cresol(s)	0.33
Pentachlorophenol	0.8
Phenanthrene	500
Phenol	0.33
Pyrene	500
Metals (mg/kg)	
Arsenic	16
Barium	400
Beryllium	47
Cadmium	7.5
Chromium, Hexavalent [2]	19
Chromium, Trivalent[2]	1,500
Copper	270
Cyanide	27
Lead	450
Manganese	2,000
Mercury (Total)	0.73
Nickel	130
Selenium	4
Silver	8.3
Zinc	2,480
PCBs/Pesticides (mg/kg)	
2,4,5-TP Acid (Silvex)	3.8
4,4'-DDE	17
4,4'-DDT	47
4,4'-DDD	14
Aldrin	0.19
Alpha-BHC	0.002
Beta-BHC	0.009
Chlordane (alpha)	2.9
Delta-BHC	0.25
Dibenzofuran	210
Dieldrin	0.1
Endosulfan I	102
Endosulfan II	102
Endosulfan sulfate	200

Table B-2

Criteria for Imported Soils
Western New York Workforce Training Center
683 Northland Ave., Buffalo, NY

PCBs/Pesticides (mg/kg) - continued	
Endrin	0.06
Heptachlor	0.38
Lindane	0.1
Polychlorinated biphenyls	1

Notes:

[1] Soil criteria are lesser of concentrations protective of groundwater or commercial health-based soil cleanup objectives (SCO) per 6 NYCRR 375-6.8(b).

[2] The SCO for Hexavalent or Trivalent Chromium is considered to be met if the analysis for the total species of this contaminant is below the specific SCO for Hexavalent Chromium.

mg/kg = milligram / kilogram

EWP Attachment B-1

COMMUNITY AIR MONITORING PLAN
for the

Western New York Workforce Training Center

683 Northland Avenue

Buffalo, New York

Prepared for:

NorDel II, LLC

Prepared by:

LiRo Engineers, Inc.
690 Delaware Avenue
Buffalo, NY 14209

Table of Contents

List of Appendices

1.0 OBJECTIVE

The objective of environmental/ambient air monitoring during this project is to monitor air quality during future ground intrusive activities to be conducted at the 683 Northland Avenue Site in Buffalo, Erie County, New York (the "Site"). The air quality will be monitored during ground intrusive construction activities in order to provide a measure of protection for the community from potential airborne contaminant releases as a result of remedial investigation work activities. Air monitoring for Volatile Organic Compounds (VOCs) and particulates (particulate matter less than 10 microns in size) (PM-10) will be conducted upwind of work areas (exclusion zone) to establish background conditions and downwind of the exclusion zone to monitor possible contaminant migration. Environmental air monitoring and observations of visible emissions during investigation activities will be performed according to the methods contained in this plan.

2.0 METHODOLOGY

2.1 Daily Monitoring Guidelines

Air monitoring will be performed continuously at the Site for the duration of the work whenever Site activity involves ground intrusive activity, which as outlined in the New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan (attached as Appendix A), is defined to include, but not limited to soil/waste excavation and handling, trenching or test pits and the installation of soil borings or monitoring wells. For the EWP at the Site, intrusive activity shall include any activity below the Site cover with the potential to emit VOCs or PM-10.

Prior to each day's work, LiRo's supervising geologist will enter the exclusion zone(s) to identify areas of high emission potential, i.e., areas of drilling, well construction, soil vapor probe installation, etc., and to collect temperature and wind direction readings. Once wind direction and areas of high emission potential have been established, the supervising geologist will set up the upwind and downwind monitoring equipment. At this point, collection of real-time readings for VOCs and particulates will be initiated at both the upwind and downwind

monitoring locations. Depending on the planned daily site work, up to two downwind monitoring stations will be utilized. Site work may commence after air monitoring has been initiated.

Once excavation work begins, the supervising geologist will evaluate the work areas for visible particulates in the air and suppression measures being applied by the excavation contractor. This is in addition to the mechanical and regular data logging of VOC and particulate levels. Based on the air monitoring results, the supervising geologist may order a stoppage of the work or require modified work practices to reduce emissions.

Periodically throughout the day the location of excavation work or the general wind direction may change. When this occurs a new exclusion zone evaluation must be conducted. This would include an evaluation of wind direction in order to establish upwind and downwind directions, and continuous monitoring of VOCs and particulates in upwind and downwind locations.

2.2 Air Sampling Methodology and Equipment

Air monitoring for VOCs and particulates will be performed at upwind and downwind locations. One upwind and up to two downwind dust monitoring stations will be employed, as necessary, to provide sufficient coverage of intrusive activities that have the potential to emit volatile organics or dust. Each monitoring station will comprise real-time air monitoring instruments. The specific air monitoring equipment is summarized in the Table below. The equipment, which will be field calibrated (or zeroed in the case of dust meters) prior to each days use, will be capable of calculating 15-minute running average or less concentrations for comparison to appropriate action levels.

Table 1 – Air Monitoring Equipment

Analyte	Sampling Method	Duration	Comments
VOCs	MiniRAE 3000	Upwind daily and downwind of exclusion zone continuously during work hours	Real Time Analysis
Particulates (PM-10)	TSI DustTRAK Aerosal Monitor	Continuously, upwind and downwind of exclusion zone during work hours	Real Time Analysis

As shown in Table 1, the air monitoring equipment will include a MiniRAE 3000 (PID) (or equivalent) for VOCs and TSI DustTRAK Aerosol Monitor (or equivalent) for particulates.

3.0 AIR MONITORING DATA EVALUATION

3.1 Air Quality Action Levels and Responses

Action levels for VOC concentrations will be based on the NYSDOH Generic Community Air Monitoring Plan. The initial threshold for VOC action is 5 parts per million (ppm). The ambient air concentration of total VOCs at the downwind perimeter of the exclusion zone exceeds 5 ppm above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total VOCs level readily decrease below 5 ppm over background, work activities can resume with continued monitoring.

If total VOC levels at the downwind perimeter of the work area of exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions implemented to abate emissions, and monitoring continued. After this, work activities can resume provided that the total VOC concentration downwind of the exclusion zone is below 5 ppm over background for the 15-minute average. It the VOC level is above 25 ppm at the downwind monitoring location, activities will be shut down.

Particulate (PM-10) concentrations will also be compared to Action Levels and responded to, as outlined in the NYSDOH Generic Community Air Monitoring Plan. The initial threshold for

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

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

All 15-minute averages will be datalogged at one-minute intervals and maintained for review by New York State Department of Environmental Conservation (NYSDEC) and NYSDOH personnel.

3.2 Notification

The NYSDEC will be promptly notified prior to any modification of the CAMP and of any corrective actions required for CAMP compliance, and VOC and particulate monitoring.

APPENDIX C - Responsibilities of Owner and Remedial Party
(Not Used)

APPENDIX D – ENVIRONMENTAL EASEMENT

MICHAEL P. KEARNS, ERIE COUNTY CLERK
REF:

DATE:12/5/2018
TIME:11:42:44 AM
RECEIPT: 18215460 - DUPLICATE -

PARALEGAL SERVICES OF BUFFALO
ACCOUNT #: 9273

DUPLICATE RECEIPT

ITEM - 01 785
RECD: 12/5/2018 11:53:29 AM
FILE: 2018242529 BK/PG D 11338/1788
Deed Sequence: TT2018009834
683 NORTHLAND LLC 91.00
Recording Fees 10.00
TP584

Subtotal 101.00

TOTAL DUE	$101.00
PAID TOTAL	$101.00
PAID ESCROW	$101.00

REC BY: Mary Grace
COUNTY RECORDER

County: Erie Site No: C915310 Brownfield Cleanup Agreement Index : C915310-12-16 as amended September 11, 2018

ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36 OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW

THIS INDENTURE made this 18th day of October, 2018, between Owner(s) 683 Northland LLC, having an office at 95 Perry Street, Suite 404, Buffalo, New York 14203, County of Erie, State of New York (the "Grantor"), and The People of the State of New York (the "Grantee"), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the address of 683 Northland Avenue in the City of Buffalo, County of Erie and State of New York, known and designated on the tax map of the County Clerk of Erie as tax map parcel numbers: Section 101.21 Block 5 Lots 1.1 and 1.22, being the same as that property conveyed to Grantor by deed dated December 15, 2016 and recorded in the Erie County Clerk's Office in Liber and Page 11306/8155, and by deed dated August 2, 2017 and recorded in the Erie County Clerk's Office in Liber and Page 11317/8107, respectively. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 8.548 +/- acres, and is hereinafter more fully described in the Land Title Survey dated May 24, 2018 and last revised September 13, 2018 prepared by Michael Joseph Pohl, L.L.S. of Foit Albert Associates, which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the

(7) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for Residential or Restricted Residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to:

Site Number: C915310
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

683 Northland LLC:

By: Peter M. Cammarata

Print Name: Peter M. Cammarata

Title: President Date: 10/10/18

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF Erie)

On the 10 day of October, in the year 2018, before me, the undersigned, personally appeared Peter Cammarata personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Dawn M. Boudreau
Notary Public - State of New York

DAWN M. BOUDREAU
NOTARY PUBLIC, STATE OF NEW YORK
QUALIFIED IN ERIE COUNTY
My Commission Expires May 27, 2019

SCHEDULE "A" PROPERTY DESCRIPTION

ALL THAT TRACT OR PARCEL OF LAND situate in the City of Buffalo, County of Erie and State of New York, being part of Lot No.11 & 12, Township 11, Range 8 of the Holland Land Company's Survey, being further described as follows:

BEGINNING at a point in the southerly line of Northland Avenue, 66.00 feet in width, said point being 983.37 feet easterly of the east line of Fillmore Avenue, 66.00 feet in width;

thence continuing easterly along the southerly line of Northland Avenue, 507.38 feet;

thence southerly at an interior angle of 91° 54' a distance of 702.00 feet to the southeast corner of lands conveyed by Deed recorded in Liber 9056 of Deeds at page 410;

thence northwesterly a distance of 26.07 feet to the northwest corner of lands conveyed by Deed recorded in Liber 9056 of Deeds at page 513;

thence northerly along the former west line of Chelsea Street a distance of 1.00 feet;

thence northwesterly along the northeasterly line of lands conveyed by Deed recorded in Liber 1096 of Deeds at page 97, a distance of 459.33 feet to an angle point;

thence continuing northwesterly at an interior angle of 174° 09' 12" a distance of 167.51 feet;

thence northerly at an interior angle of 114° 17' 39" a distance of 499.95 feet to the said south line of Northland Avenue;

thence easterly along the said south line of Northland Avenue, a distance of 105.52 feet to the point or place of beginning. Containing 372,353 square feet or 8.548 acres of land, more or less.

APPENDIX E – SOIL BORING AND MONITORING WELL CONSTRUCTION LOGS

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-15**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**683 Northland Ave.**
GROUND ELEVATION:	**N/A**
DATE STARTED:	**February 9, 2017**
DATE FINISHED:	**February 9, 2017**
DRILLER:	**SJB/Empire Geo Serv. Inc.**
GEOLOGIST:	**Kris Charney**
REVIEWED BY:	

PROJECT NAME: 683 Northland Ave.
CLIENT: Buffalo Urban Development Corp.
BORING CONTRACTOR: SJB/Empire Geo Serv. Inc.
GROUNDWATER: Not Encountered

DATE	TIME	LEVEL	TYPE	TYPE	CAS.	SAMPLER	TUBE
				DIA.		6620DT	
						2"	
				WT.			
				FALL			

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS
1						grey	hard	0-3" Concrete	FILL	0.0 ppm
					80%	brown-black	loose	3"-3.5' gravelly SAND, some silt, slag, coal, brick		0.0 ppm
						black	loose	3.5-4' silty SAND, some gravel		0.0 ppm
5						black	somewhat loose	4-5.6' gravelly SAND, wet, wood at 5.6'		0.0 ppm
					45%					
						black to tan	firm	5.6-8' silty CLAY with some gravel	CL	0.0 ppm
					5%	tan	very firm	8-8.5' silty CLAY		0.0 ppm
10								Bedrock Refusal @ 8.5' bgs.		
15										
20										
25										
30										
35										

COMMENTS: Samples obtained: LB-15-COMP1-0-4', LB-15-COMP2-4-8.5', LB-15-VOC1-3.5-4', and LB-15-VOC2-5-5.5'

PROJECT NO.: 15-029-1054
BORING NO.: LB-15

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-16**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**683 Northland Ave.**
GROUND ELEVATION:	**N/A**
DATE STARTED:	**February 13, 2017**
DATE FINISHED:	**February 13, 2017**
DRILLER:	**SJB/Empire Geo Serv. Inc.**
GEOLOGIST:	**Kris Charney**
REVIEWED BY:	

PROJECT NAME: 683 Northland Ave.
CLIENT: Buffalo Urban Development Corp.
BORING CONTRACTOR: SJB/Empire Geo Serv. Inc.
GROUNDWATER: Not Encountered

	CAS.	SAMPLER	TUBE
TYPE		6620DT	
DIA.		2"	
WT.			
FALL			

DATE	TIME	LEVEL	TYPE

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS
1					100%	grey-tan	loose to firm	0-3" gravelly SAND; 3"-2' silty CLAY with some gravel	CL	16.9 ppm
										24.4 ppm
								Bedrock Refusal @ 2' bgs.		
5										
10										
15										
20										
25										
30										
35										

COMMENTS: Samples obtained: LB-16-COMP1-0-2'

PROJECT NO.: 15-029-1054
BORING NO.: LB-16

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-17**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**683 Northland Ave.**
GROUND ELEVATION:	**N/A**
DATE STARTED:	**February 13, 2017**
DATE FINISHED:	**February 13, 2017**
DRILLER:	**SJB/Empire Geo Serv. Inc.**
GEOLOGIST:	**Kris Charney**
REVIEWED BY:	

PROJECT NAME: 683 Northland Ave.
CLIENT: Buffalo Urban Development Corp.
BORING CONTRACTOR: SJB/Empire Geo Serv. Inc.
GROUNDWATER: Not Encountered

	CAS.	SAMPLER	TUBE
TYPE		6620DT	
DIA.		2"	
WT.			
FALL			

DATE	TIME	LEVEL	TYPE

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"	REC% RQD%	COLOR	CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	USCS	REMARKS
1					85%	black	loose	0-1' sandy GRAVEL, wet, coal, brick,	FILL	0 ppm
						black-tan	somewhat firm	1-2' clayey SILT with gravel, coal, brick		0 ppm
						tan	firm	2-4' silty CLAY	CL	0 ppm
										0 ppm
5					65%	tan	firm	4-5.4' silty CLAY		0 ppm
										0 ppm
								Bedrock Refusal @ 5.4' bgs.		
10										
15										
20										
25										
30										
35										

COMMENTS: Samples obtained: LB-17-COMP1-1-3'

PROJECT NO.: 15-029-1054
BORING NO.: LB-17

LiRo Engineers, Inc.

TEST BORING LOG

PROJECT NAME: 683 Northland Ave.
CLIENT: Buffalo Urban Development Corp.
BORING CONTRACTOR: SJB/Empire Geo Serv. Inc.
GROUNDWATER: Not Encountered

	CAS.	SAMPLER	TUBE
TYPE		6620DT	
DIA.		2"	
WT.			
FALL			

DATE	TIME	LEVEL	TYPE

BORING NO:	**LB-18**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**683 Northland Ave.**
GROUND ELEVATION:	**N/A**
DATE STARTED:	**February 10, 2017**
DATE FINISHED:	**February 10, 2017**
DRILLER:	**SJB/Empire Geo Serv. Inc.**
GEOLOGIST:	**Kris Charney**
REVIEWED BY:	

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"	REC% RQD%	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS
1					50%	grey	hard	0-8" concrete	FILL	144 ppm
						brown	somewhat firm	8-4' medium SAND		44.9 ppm
										0 ppm
										0 ppm
5					70%	brown-black	somewhat firm	4-5' sandy GRAVEL, crushed concrete, brick		9.0 ppm
						tan-brown	firm	5-8' silty CLAY	CL	0 ppm
										0 ppm
										0 ppm
					35%	tan	firm	8-9.2' silty CLAY		0 ppm
10										0 ppm
								Bedrock Refusal @ 9.2' bgs.		
15										
20										
25										
30										
35										

COMMENTS: Samples obtained: LB-18-COMP1-0-4', LB-18-VOC1-0-2'

PROJECT NO.: 15-029-1054
BORING NO.: LB-18

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-19**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**683 Northland Ave.**
GROUND ELEVATION:	**N/A**
DATE STARTED:	**February 13, 2017**
DATE FINISHED:	**February 13, 2017**
DRILLER:	**SJB/Empire Geo Serv. Inc.**
GEOLOGIST:	**Kris Charney**
REVIEWED BY:	

PROJECT NAME: 683 Northland Ave.
CLIENT: Buffalo Urban Development Corp.
BORING CONTRACTOR: SJB/Empire Geo Serv. Inc.
GROUNDWATER: Not Encountered

	CAS.	SAMPLER	TUBE
TYPE		6620DT	
DIA.		2"	
WT.			
FALL			

DATE	TIME	LEVEL	TYPE

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"	REC% RQD%	COLOR	CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	USCS	REMARKS
1					75%	black	somewhat loose	0-2' gravelly SILT with sand, coal, brick,	FILL	1.2 ppm
										2.4 ppm
						tan	somewhat firm	2-4' silty CLAY, wet	CL	8.0 ppm
										0 ppm
5					65%	tan	firm	4-5.4' silty CLAY, slight petroleum odor		9.1 ppm
										7.2 ppm
								Bedrock Refusal @ 5.4' bgs.		
10										
15										
20										
25										
30										
35										

COMMENTS: Samples obtained: LB-19-COMP1-0-4', LB-19-COMP2-5.4-7' (Duplicate)

PROJECT NO.: 15-029-1054
BORING NO.: LB-19

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-20**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**683 Northland Ave.**
GROUND ELEVATION:	**N/A**
DATE STARTED:	**February 13, 2017**
DATE FINISHED:	**February 13, 2017**
DRILLER:	**SJB/Empire Geo Serv. Inc.**
GEOLOGIST:	**Kris Charney**
REVIEWED BY:	

PROJECT NAME: 683 Northland Ave.
CLIENT: Buffalo Urban Development Corp.
BORING CONTRACTOR: SJB/Empire Geo Serv. Inc.
GROUNDWATER: Not Encountered

	CAS.	SAMPLER	TUBE
TYPE		6620DT	
DIA.		2"	
WT.			
FALL			

DATE	TIME	LEVEL	TYPE

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS
1						brown	somewhat firm	0-2' sandy SILT with gravel and cobbles	FILL	98.8 ppm
					50%					20.4 ppm
						tan	firm	2-4' silty CLAY		11.4 ppm
										0 ppm
5									CL	0 ppm
					90%	tan	firm	4-7.2' silty CLAY		0 ppm
										0 ppm
								Bedrock Refusal @ 7.2' bgs.		
10										
15										
20										
25										
30										
35										

COMMENTS: Samples obtained: LB-20-COMP1-0-4'

PROJECT NO.: 15-029-1054
BORING NO.: LB-20

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-21**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**683 Northland Ave.**
GROUND ELEVATION:	**N/A**
DATE STARTED:	**February 13, 2017**
DATE FINISHED:	**February 13, 2017**
DRILLER:	**SJB/Empire Geo Serv. Inc.**
GEOLOGIST:	**Kris Charney**
REVIEWED BY:	

PROJECT NAME: 683 Northland Ave.
CLIENT: Buffalo Urban Development Corp.
BORING CONTRACTOR: SJB/Empire Geo Serv. Inc.
GROUNDWATER: Not Encountered

	CAS.	SAMPLER	TUBE
TYPE		6620DT	
DIA.		2"	
WT.			
FALL			

DATE	TIME	LEVEL	TYPE

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS
1					40%	brown-black	somewhat firm	0-4' sandy GRAVEL, slag, coal, white ash or fine sand lenses	FILL	2.2 ppm
										1.1 ppm
										0 ppm
										0 ppm
5					55%	brown-black	somewhat firm	4-5.5' sandy GRAVEL, slag, coal, white ash or fine sand lenses		0.7 ppm
										0 ppm
						tan	firm	5.5-7.4' silty CLAY with gravel	CL	0 ppm
								Bedrock Refusal @ 7.4' bgs.		
10										
15										
20										
25										
30										
35										

COMMENTS: Samples obtained: LB-21-COMP1-0-4'

PROJECT NO.: 15-029-1054
BORING NO.: LB-21

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-22**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**683 Northland Ave.**
GROUND ELEVATION:	**N/A**
DATE STARTED:	**February 13, 2017**
DATE FINISHED:	**February 13, 2017**
DRILLER:	**SJB/Empire Geo Serv. Inc.**
GEOLOGIST:	**Kris Charney**
REVIEWED BY:	

PROJECT NAME: 683 Northland Ave.
CLIENT: Buffalo Urban Development Corp.
BORING CONTRACTOR: SJB/Empire Geo Serv. Inc.
GROUNDWATER: Not Encountered

	CAS.	SAMPLER	TUBE
TYPE		6620DT	
DIA.		2"	
WT.			
FALL			

DATE	TIME	LEVEL	TYPE

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS
1					50%	black	somewhat loose	0-3' sandy GRAVEL, slag, coal	FILL	0 ppm
										0 ppm
										0 ppm
						tan	fim	3-4' silty CLAY		0 ppm
5					65%	tan	firm	4-8' silty CLAY with gravel	CL	20.4 ppm
										15.8 ppm
										12.1 ppm
										0 ppm
								Bedrock Refusal @ 8.2' bgs.		
10										
15										
20										
25										
30										
35										

COMMENTS: Samples obtained: LB-22-COMP1-0-4', LB-22-VOC1-4-6'

PROJECT NO.: 15-029-1054
BORING NO.: LB-22

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-23**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**683 Northland Ave.**
GROUND ELEVATION:	**N/A**
DATE STARTED:	**February 13, 2017**
DATE FINISHED:	**February 13, 2017**
DRILLER:	**SJB/Empire Geo Serv. Inc.**
GEOLOGIST:	**Kris Charney**
REVIEWED BY:	

PROJECT NAME: 683 Northland Ave.
CLIENT: Buffalo Urban Development Corp.
BORING CONTRACTOR: SJB/Empire Geo Serv. Inc.
GROUNDWATER: Not Encountered

	CAS.	SAMPLER	TUBE
TYPE		6620DT	
DIA.		2"	
WT.			
FALL			

DATE	TIME	LEVEL	TYPE

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS
1						black	somewhat loose	0-1.5' sandy GRAVEL, slag,	FILL	3.1 ppm
					50%					33.8 ppm
						tan	firm	1.5-4' silty CLAY with gravel	CL	0 ppm
										0 ppm
5										0 ppm
					100%	tan	firm	4-8' silty CLAY with gravel		0 ppm
										0 ppm
										0 ppm
					100%	tan	very firm	8-8.7' silty CLAY with gravel		0 ppm
10								Bedrock Refusal @ 8.7' bgs.		
15										
20										
25										
30										
35										

COMMENTS: Samples obtained: LB-23-COMP1-0-4'

PROJECT NO.: 15-029-1054
BORING NO.: LB-23

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-24**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**683 Northland Ave.**
GROUND ELEVATION:	**N/A**
DATE STARTED:	**February 13, 2017**
DATE FINISHED:	**February 13, 2017**
DRILLER:	**SJB/Empire Geo Serv. Inc.**
GEOLOGIST:	**Kris Charney**
REVIEWED BY:	

PROJECT NAME: 683 Northland Ave.
CLIENT: Buffalo Urban Development Corp.
BORING CONTRACTOR: SJB/Empire Geo Serv. Inc.
GROUNDWATER: Not Encountered

	CAS.	SAMPLER	TUBE
TYPE		HSA	
DIA.		6 1/4"	2" sampler
WT.			
FALL			

DATE	TIME	LEVEL	TYPE

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS
1						black	somewhat loose	0-3' sandy GRAVEL, slag, coal, asphalt, crushed concrete, fine sand lenses	FILL	0 ppm
					75%					0 ppm
										0 ppm
						black-tan	fim	3-4' silty CLAY	CL	0 ppm
5										0 ppm
					95%	tan	firm	4-8' silty CLAY		0 ppm
										0 ppm
										0 ppm
								Bedrock Refusal @ 8.2' bgs.		
10										
15										
20										
25										
30										
35										

COMMENTS: Samples obtained: LB-24-COMP1-1-3'

PROJECT NO.: 15-029-1054
BORING NO.: LB-24

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-25**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**683 Northland Ave.**
GROUND ELEVATION:	**N/A**
DATE STARTED:	**February 15, 2017**
DATE FINISHED:	**February 15, 2017**
DRILLER:	**SJB/Empire Geo Serv. Inc.**
GEOLOGIST:	**Kris Charney**
REVIEWED BY:	

PROJECT NAME: 683 Northland Ave.
CLIENT: Buffalo Urban Development Corp.
BORING CONTRACTOR: SJB/Empire Geo Serv. Inc.
GROUNDWATER: Not Encountered

	CAS.	SAMPLER	TUBE
TYPE		HSA	
DIA.		6 1/4"	2" sampler
WT.			
FALL			

DATE	TIME	LEVEL	TYPE

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"	REC% RQD%	COLOR	CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	USCS	REMARKS
1					100%	black-grey	loose	0-6" asphalt, crushed stone	FILL	0 ppm
						brown	firm	silty CLAY	CL	0 ppm
								Bedrock Refusal @ 2.4' bgs.		
5										
10										
15										
20										
25										
30										
35										

COMMENTS: Samples obtained: LB-25-COMP1-0-2.4'

PROJECT NO.: 15-029-1054
BORING NO.: LB-25

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-26**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**683 Northland Ave.**
GROUND ELEVATION:	**N/A**
DATE STARTED:	**February 9, 2017**
DATE FINISHED:	**February 9, 2017**
DRILLER:	**SJB/Empire Geo Serv. Inc.**
GEOLOGIST:	**Kris Charney**
REVIEWED BY:	

PROJECT NAME: 683 Northland Ave.
CLIENT: Buffalo Urban Development Corp.
BORING CONTRACTOR: SJB/Empire Geo Serv. Inc.
GROUNDWATER: Not Encountered

	CAS.	SAMPLER	TUBE
TYPE		6620DT	
DIA.		2"	
WT.			
FALL			

DATE	TIME	LEVEL	TYPE

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS
1						brown	somewhat loose	0-4" grass/sandy LOAM		0 ppm
					80%	tan-black	loose	4"-4' silty SAND with sandy gravel, brick, concrete moist at 3'		4.1 ppm
										2.4 ppm
									FILL	1.6 ppm
5										6.8 ppm
					70%	brown	somewhat loose	4-7' silty SAND, crushed concrete, slag, coal, large red brick piece, petroleum odor		68.4 ppm
										16.8 ppm
						tan	firm	7-7.8' silty CLAY	CL	34.3 ppm
								Bedrock Refusal @ 7.8' bgs.		
10										
15										
20										
25										
30										
35										

COMMENTS: Samples obtained: LB-26-COMP1-0-4', LB-26-COMP2-4-7.8', LB-26-VOC1-1.3-1.8', LB-26-VOC2-4.5-5'

PROJECT NO.: 15-029-1054
BORING NO.: LB-26

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-27**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**683 Northland Ave.**
GROUND ELEVATION:	**N/A**
DATE STARTED:	**February 9, 2017**
DATE FINISHED:	**February 9, 2017**
DRILLER:	**SJB/Empire Geo Serv. Inc.**
GEOLOGIST:	**Kris Charney**
REVIEWED BY:	

PROJECT NAME: 683 Northland Ave.
CLIENT: Buffalo Urban Development Corp.
BORING CONTRACTOR: SJB/Empire Geo Serv. Inc.
GROUNDWATER: Not Encountered

	CAS.	SAMPLER	TUBE
TYPE		6620DT	
DIA.		2"	
WT.			
FALL			

DATE	TIME	LEVEL	TYPE

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS
1					75%	brown-black	somewhat loose	0-4' silty SAND, some gravel, slag, coal, wood, concrete	FILL	0.5 ppm
										9.3 ppm
										1.0 ppm
										0.9 ppm
5					95%	black	somewhat loose	4-8' gravelly SAND with silt, wood, concrete, slag		12.2 ppm
										33.5 ppm
										0 ppm
										0 ppm
10					55%	black	firm	8-10.3' gravelly SAND with silt, wet, sheen		27.7 ppm
										0 ppm
										0 ppm
								Bedrock Refusal @ 10.3' bgs.		
15										
20										
25										
30										
35										

COMMENTS: Samples obtained: LB-27-COMP1-0-4', LB-27-COMP2-4-10.3', LB-27-VOC1-5.5-6'

PROJECT NO.: 15-029-1054
BORING NO.: LB-27

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-28**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**683 Northland Ave.**
GROUND ELEVATION:	**N/A**
DATE STARTED:	**February 9, 2017**
DATE FINISHED:	**February 9, 2017**
DRILLER:	**SJB/Empire Geo Serv. Inc.**
GEOLOGIST:	**Kris Charney**
REVIEWED BY:	

PROJECT NAME: 683 Northland Ave.
CLIENT: Buffalo Urban Development Corp.
BORING CONTRACTOR: SJB/Empire Geo Serv. Inc.
GROUNDWATER: Not Encountered

	CAS.	SAMPLER	TUBE
TYPE		6620DT	
DIA.		2"	
WT.			
FALL			

DATE	TIME	LEVEL	TYPE

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS
1					65%	brown-tan	somewhat loose	0-2' silty SAND, coal, concrete, fine sand lense around 2'	FILL	0 ppm
										0 ppm
						tan-brown	somewhat firm	2-4' clayey SILT, glass, coal, red brick fragments		0 ppm
										0 ppm
5					70%	reddish brown	somewhat firm	4-5.2' clayey SILT, coal, slag		0 ppm
						tan	firm	5.2-8' silty CLAY	CL	2.1 ppm
										0 ppm
										0 ppm
					55%	tan	firm	8-9.5' silty CLAY		0 ppm
10						tan-grey	somewhat loose	9.5-10 silty SAND	SM	0 ppm
						grey	loose	10-11' GRAVEL, black oily sheen	GP	0 ppm
								Bedrock Refusal @ 11' bgs.		
15										
20										
25										
30										
35										

COMMENTS: Samples obtained: LB-28-COMP1-0-4', LB-28-COMP2-4-11', LB-28-VOC1-10.5-11'

PROJECT NO.: 15-029-1054
BORING NO.: LB-28

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-30**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**As per plan**
GROUND ELEVATION:	**643.74**
DATE STARTED:	**June 7, 2017**
DATE FINISHED:	**June 7, 2017**
DRILLER:	**Randy Steiner**
GEOLOGIST:	**Jon Williams**
REVIEWED BY:	

PROJECT: RI Western New York Workforce Training Center

CLIENT: BUDC

BORING CONTRACTOR: SJB Services, Inc.

GROUNDWATER: NA

					CAS.	SAMPLER	TUBE
DATE	**TIME**	**LEVEL**	**TYPE**	**TYPE**		4' long Macros	
			NA	**DIA.**	1"		
				WT.	NA		
				FALL	NA		

DEPTH FEET	STRATA	SAMPLE "S" NO.	SAMPLE "N" NO.	BLOWS PER 6"	REC% RQD%	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS
1					38%	Dark Brown	M. Dense	Mixed Fill, fine to med. Sand, some silt, little gravel and slag, moist	FILL	PID = 0.1 ppm
5					38%	Dark Brown	M. Dense	Same as above		PID = 0 ppm
10					100%	Red Brown	Stiff	Native Clay with some silt, moist	CL	PID = 0 ppm
15								End of boring at 10.2 ftbg		
20										
25										
30										
35										

COMMENTS:

Sample LB-30-COMP1 (0 - 4') collected for SVOCs, PCBs, Pesticides, and TAL Metals

Sample LB-30-COMP2 (4 - 10.2') collected for SVOCs, PCBs, Pesticides, and TAL Metals

Soil classified according to the Unified Soil Classification System (USCS)

PROJECT NO.: 15-029-1054

BORING NO.: LB-30

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-31**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**As per plan**
GROUND ELEVATION:	**643.97**
DATE STARTED:	**June 7, 2017**
DATE FINISHED:	**June 7, 2017**
DRILLER:	**Randy Steiner**
GEOLOGIST:	**Jon Williams**
REVIEWED BY:	

PROJECT: RI **Western New York Workforce Training Center**

CLIENT: **BUDC**

BORING CONTRACTOR: **SJB Services, Inc.**

GROUNDWATER: NA

			CAS.	**SAMPLER**	**TUBE**
DATE	**TIME**	**LEVEL**	**TYPE**	4' long Macros	
		NA	**DIA.** 1"		
			WT. NA		
			FALL NA		

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS
1					63%	Dark Brown	Loose	Mixed Fill, med. Sand and Gravel, somered brick fragments, dry	FILL	PID = 0.0 ppm PID = 0.9 ppm
5					92%	Blue Gray				PID = 0 ppm
10					100%	Red Brown	Stiff	Native Clay with some silt, moist	CL	PID = 0 ppm PID = 0 ppm PID = 0 ppm
								End of boring at 11.0 ftbg		
15										
20										
25										
30										
35										

COMMENTS:

Sample LB-31-COMP1 MS/MSD (0 - 4') collected for PCBs, Pesticides, and TAL Metals

Sample LB-31-COMP2 (4 - 11') collected for PCBs

Soil classified according to the Unified Soil Classification System (USCS)

PROJECT NO.: 15-029-1054

BORING NO.: LB-31

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-32**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**As per plan**
GROUND ELEVATION:	**640.57**
DATE STARTED:	**June 7, 2017**
DATE FINISHED:	**June 7, 2017**
DRILLER:	**Randy Steiner**
GEOLOGIST:	**Jon Williams**
REVIEWED BY:	

PROJECT: RI **Western New York Workforce Training Center**

CLIENT: **BUDC**

BORING CONTRACTOR: **SJB Services, Inc.**

GROUNDWATER: NA

			CAS.	**SAMPLER**	**TUBE**
DATE	**TIME**	**LEVEL**	**TYPE**	4' long Macros	
		NA	**DIA.** 1"		
			WT. NA		
			FALL NA		

DEPTH FEET	STRATA	SAMPLE "S" NO.	SAMPLE "N" NO.	BLOWS PER 6"	REC% / RQD%	DESCRIPTION COLOR	DESCRIPTION CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	USCS	REMARKS
1						Dark Brown	Loose	Fill, med. Sand, some gravel and slag	FILL	PID = 0 ppm
					96%	Red Brown	Stiff	Native Clay with some silt, dry to moist	CL	PID = 0 ppm
5					100%					PID = 0 ppm
								End of boring at 5.8 ftbg		
10										
15										
20										
25										
30										
35										

COMMENTS:

Sample LB-32-COMP1 (0 - 4') collected for SVOCs, PCBs, Pesticides, and TAL Metals

Sample LB-32-COMP2 (4 - 5.8') collected for SVOCs, PCBs, Pesticides, and TAL Metals

Soil classified according to the Unified Soil Classification System (USCS)

PROJECT NO.: 15-029-1054

BORING NO.: LB-32

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-33**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**As per plan**
GROUND ELEVATION:	**640.69**
DATE STARTED:	**June 7, 2017**
DATE FINISHED:	**June 7, 2017**
DRILLER:	**Randy Steiner**
GEOLOGIST:	**Jon Williams**
REVIEWED BY:	

PROJECT: RI Western New York Workforce Training Center

CLIENT: BUDC

BORING CONTRACTOR: SJB Services, Inc.

GROUNDWATER: NA

			CAS.	SAMPLER	TUBE
DATE	**TIME**	**LEVEL**	**TYPE**	**TYPE**		4' long Macros	
			NA	**DIA.**	1"		
				WT.	NA		
				FALL	NA		

DEPTH FEET	STRATA	SAMPLE "S" NO.	SAMPLE "N" NO.	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	DESCRIPTION CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	USCS	REMARKS
1					96%	Dark Brown	Loose	Fill, med. Sand, some gravel and slag	FILL	PID = 0.1 ppm
										PID = 4.6 ppm
5					96%	Red Brown	Stiff	Native Silt with some clay, dry to moist	ML	PID = 0 ppm
										PID = 0 ppm
								End of boring at 6.7 ftbg		
10										
15										
20										
25										
30										
35										

COMMENTS:

Sample LB-33-COMP1 (0 - 4') collected for SVOCs, PCBs, Pesticides, and TAL Metals

Sample LB-33-COMP2 (4 - 6.7') collected for SVOCs, PCBs, Pesticides, and TAL Metals

Soil classified according to the Unified Soil Classification System (USCS)

PROJECT NO.: 15-029-1054

BORING NO.: LB-33

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-34**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**As per plan**
GROUND ELEVATION:	**641.5**
DATE STARTED:	**June 7, 2017**
DATE FINISHED:	**June 7, 2017**
DRILLER:	**Randy Steiner**
GEOLOGIST:	**Jon Williams**
REVIEWED BY:	

PROJECT: RI Western New York Workforce Training Center

CLIENT: BUDC

BORING CONTRACTOR: SJB Services, Inc.

GROUNDWATER: NA

					CAS.	SAMPLER	TUBE
DATE	**TIME**	**LEVEL**	**TYPE**	**TYPE**		4' long Macros	
			NA	**DIA.**	1"		
				WT.	NA		
				FALL	NA		

DEPTH FEET	STRATA	SAMPLE "S" NO.	SAMPLE "N" NO.	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	DESCRIPTION CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	USCS	REMARKS
1					92%	Dark Brown	Loose	Mixed Fill, fine to med. Sand, little gravel and slag, dry	FILL	PID = 0.1 ppm
5					99%	Red Brown	Stiff	Native Silt with some clay, dry	ML	PID = 0 ppm
10								End of boring at 6.2 ftbg		
15										
20										
25										
30										
35										

COMMENTS:

Sample LB-34-COMP1 (0 - 4') collected for SVOCs, PCBs, Pesticides, and TAL Metals

Sample LB-34-COMP2 (4 - 6.2') collected for SVOCs, PCBs, Pesticides, and TAL Metals

Soil classified according to the Unified Soil Classification System (USCS)

PROJECT NO.: 15-029-1054

BORING NO.: LB-34

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-35**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**As per plan**
GROUND ELEVATION:	**643.97**
DATE STARTED:	**June 7, 2017**
DATE FINISHED:	**June 7, 2017**
DRILLER:	**Randy Steiner**
GEOLOGIST:	**Jon Williams**
REVIEWED BY:	

PROJECT: RI **Western New York Workforce Training Center**

CLIENT: **BUDC**

BORING CONTRACTOR: **SJB Services, Inc.**

GROUNDWATER: NA

DATE	TIME	LEVEL	TYPE		CAS.	SAMPLER	TUBE
			NA	**DIA.**	1"	4' long Macros	
				WT.	NA		
				FALL	NA		

DEPTH FEET	STRATA	SAMPLE "S" NO.	SAMPLE "N" NO.	BLOWS PER 6"	REC% RQD%	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS
1					38%	Gray and Black	M. Dense	Mixed Fill, fine to med. Sand, some silt, little gravel and slag, moist	FILL	PID = 1.4 ppm PID = 1.7 ppm PID = 0.3 ppm PID = 0 ppm
5					38%	Gray and Red Brown	Stiff	Native Clay with some silt, moist	CL	PID = 0 ppm PID = 0 ppm
					100%	Gray		Native Silt with some clay, little f. sand	ML	PID = 0 ppm
10								End of boring at 9.0 ftbg		
15										
20										
25										
30										
35										

COMMENTS:

Samples LB-35-COMP1 (0 - 4') and LB-35-COMP2 (0 - 4') [Duplicate] collected for PCBs

Sample LB-35-COMP3 (4 - 9') collected for PCBs

Soil classified according to the Unified Soil Classification System (USCS)

PROJECT NO.: 15-029-1054

BORING NO.: LB-35

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-37**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**As per plan**
GROUND ELEVATION:	**644.12**
DATE STARTED:	**June 7, 2017**
DATE FINISHED:	**June 7, 2017**
DRILLER:	**Randy Steiner**
GEOLOGIST:	**Jon Williams**
REVIEWED BY:	

PROJECT: RI **Western New York Workforce Training Center**

CLIENT: **BUDC**

BORING CONTRACTOR: **SJB Services, Inc.**

GROUNDWATER: NA

	CAS.	**SAMPLER**	**TUBE**
TYPE		4' long Macros	
DIA.	1"		
WT.	NA		
FALL	NA		

DATE	**TIME**	**LEVEL**	**TYPE**
			NA

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS
1					76%	Black	Loose	Mixed Fill, fine to med. Sand, some gravel and slag, dry	FILL	PID = 1.8 ppm
										PID = 5.4 ppm
5					94%					PID = 0 ppm
										PID = 0 ppm
10					91%	Red Brown	Stiff	Native Clay with some silt, moist	CL	PID = 0 ppm
						Gray	Dense	Native Gravel, some f.-m. sand and silt	GP	PID = 1.5 ppm
								End of boring at 10.2 ftbg		
15										
20										
25										
30										
35										

COMMENTS:

Sample LB-37-COMP1 (0 - 4') collected for PCBs

Sample LB-37-COMP2 (4 - 11.3') collected for PCBs

Soil classified according to the Unified Soil Classification System (USCS)

PROJECT NO.: 15-029-1054

BORING NO.: LB-37

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-38**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**As per plan**
GROUND ELEVATION:	**642.54**
DATE STARTED:	**June 7, 2017**
DATE FINISHED:	**June 7, 2017**
DRILLER:	**Randy Steiner**
GEOLOGIST:	**Jon Williams**
REVIEWED BY:	

PROJECT: RI Western New York Workforce Training Center
CLIENT: BUDC
BORING CONTRACTOR: SJB Services, Inc.
GROUNDWATER: NA

	CAS.	SAMPLER	TUBE
TYPE		4' long Macros	
DIA.	1"		
WT.	NA		
FALL	NA		

DATE	TIME	LEVEL	TYPE
			NA

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"	REC% RQD%	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS
1					54%	Dark Brown	M. Dense	Mixed Fill, fine to med. Sand, some silt, little gravel and wood fragments, moist	FILL	PID = 0.9 ppm PID = 1.1 ppm
5					31%	Dark Brown	M. Dense	Same as above with some red brick fragments		PID = 1.4 ppm
					100%	Brown	Stiff	Native Clay with some silt, moist	CL	PID = 0.1 ppm
10								End of boring at 8.7 ftbg		
15										
20										
25										
30										
35										

COMMENTS:
Sample LB-29-COMP1 (0 - 4') collected for SVOCs, PCBs, Pesticides, and TAL metals
Sample LB-29-COMP2 (4 - 8.7') collected for SVOCs, PCBs, Pesticides, and TAL metals
Soil classified according to the Unified Soil Classification System (USCS)

PROJECT NO.: 15-029-1054
BORING NO.: LB-38

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-48**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**683 Northland Ave.**
GROUND ELEVATION:	**N/A**
DATE STARTED:	**August 15, 2017**
DATE FINISHED:	**August 15, 2017**
DRILLER:	**SJB/Empire Geo Serv. Inc.**
GEOLOGIST:	**Kris Charney**
REVIEWED BY:	

PROJECT NAME: 683 Northland Ave.
CLIENT: Buffalo Urban Development Corp.
BORING CONTRACTOR: SJB/Empire Geo Serv. Inc.
GROUNDWATER: Not Encountered

	CAS.	SAMPLER	TUBE
TYPE		6620DT	
DIA.		2"	
WT.			
FALL			

DATE	TIME	LEVEL	TYPE

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS
1					75%	black-brown, tan/brownish red	somewhat loose to firm	0-7.5' crushed concrete, crushed stone, sandy GRAVEL, slag, red brick, ash, coal, (oily from 3.5-7.5'); 7.5-8' silty CLAY	FILL	3.4 ppm
										0.0 ppm
										1.1 ppm
										3.0 ppm
5					100%					4.0 ppm
										2.8 ppm
										0.4 ppm
										0.0 ppm
					100%	tan/brownish red	firm	8-10' silty CLAY; 10-10.8' sandy SILT with clay	CL	0.0 ppm
10										0.0 ppm
										0.0 ppm
								Bedrock Refusal @ 10.8' bgs.		
15										
20										
25										
30										
35										

COMMENTS: Samples obtained: LB-48-0-4', LB-48-4-10.8'
Petrol odor

PROJECT NO.: 15-029-1054
BORING NO.: LB-48

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LB-49**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**683 Northland Ave.**
GROUND ELEVATION:	**N/A**
DATE STARTED:	**August 15, 2017**
DATE FINISHED:	**August 15, 2017**
DRILLER:	**SJB/Empire Geo Serv. Inc.**
GEOLOGIST:	**Kris Charney**
REVIEWED BY:	

PROJECT NAME: 683 Northland Ave.
CLIENT: Buffalo Urban Development Corp.
BORING CONTRACTOR: SJB/Empire Geo Serv. Inc.
GROUNDWATER: Not Encountered

	CAS.	SAMPLER	TUBE
TYPE		6620DT	
DIA.		2"	
WT.			
FALL			

DATE	TIME	LEVEL	TYPE

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS
1										6.3 ppm
					75%					1.1 ppm
										12.7 ppm
						black-brown	somewhat loose	0-7' crushed concrete, crushed stone, sandy SILT with gravel, coal and red brick fragments (wet from 4-7', wood at 7')	FILL	22.2 ppm
5										4.3 ppm
					90%					10.2 ppm
										11.7 ppm
										8.1 ppm
						tan/brownish red	firm	7-10.5' silty CLAY	CL	0.0 ppm
10					80%					0.0 ppm
										0.0 ppm
								Bedrock Refusal @ 10.5' bgs.		
15										
20										
25										
30										
35										

COMMENTS: Samples obtained: LB-49-0-4', LB-49-4-10.5'
Petrol odor

PROJECT NO.: 15-029-1054
BORING NO.: LB-49

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LW-03**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**683 Northland Ave.**
GROUND ELEVATION:	**644.9 ft. AMSL**
DATE STARTED:	**February 20, 2017**
DATE FINISHED:	**February 20, 2017**
DRILLER:	**SJB/Empire Geo Serv. Inc.**
GEOLOGIST:	**Kris Charney**
REVIEWED BY:	

PROJECT NAME: 683 Northland Ave.
CLIENT: Buffalo Urban Development Corp.
BORING CONTRACTOR: SJB/Empire Geo Serv. Inc.
GROUNDWATER: Not Encountered

	CAS.	SAMPLER	TUBE
TYPE		HSA	
DIA.		6 1/4"	2" sampler
WT.			
FALL			

DATE	TIME	LEVEL	TYPE

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"		REC% RQD%	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS
1				N/A	N/A	20%	grey-black	hard, firm	0-8" concrete; 8"-2' sandy GRAVEL, brick, coal	FILL	3.0 ppm
				36	35						
				50/4	N/A	5%	black	firm	2-4' sandy GRAVEL, brick, slag, coal		1.5 ppm
				N/A	N/A						
5				24	31	75%	grey-black	firm	4-5' crushed concrete, red brick; 5-6' sandy SILT, brick, coal, petroleum odor		11.3 ppm
				15	13						
				9	6	90%	black-tan	somewhat loose to firm	6-7.5' sandy SILT, brick, coal, wet; 7.5-8' silty CLAY, petroleum odor		16.7 ppm
				5	6					CL	
				6	4	65%	tan	firm	8-10' silty CLAY		0 ppm
10				6	9						
				5	6	65%	tan	firm	10-12' silty CLAY		0 ppm
				8	12						
				12	50/0	25%	tan	firm	12-12.5' silty CLAY		0 ppm
									Spoon refusal @ 12.5' bgs, auger refusal @ 12.5'. Roller bit to 13.5'.		
15											
20											
25											
30											
35											

COMMENTS: Samples obtained: LW-03-COMP1-4-8'

PROJECT NO.: 15-029-1054
BORING NO.: LW-03

DRILLING SUMMARY

Geologist:
Kris Charney

Drilling Company:
SJB/Empire Geo Services, Inc.

Driller:
N/A

Rig Make/Model:
N/A

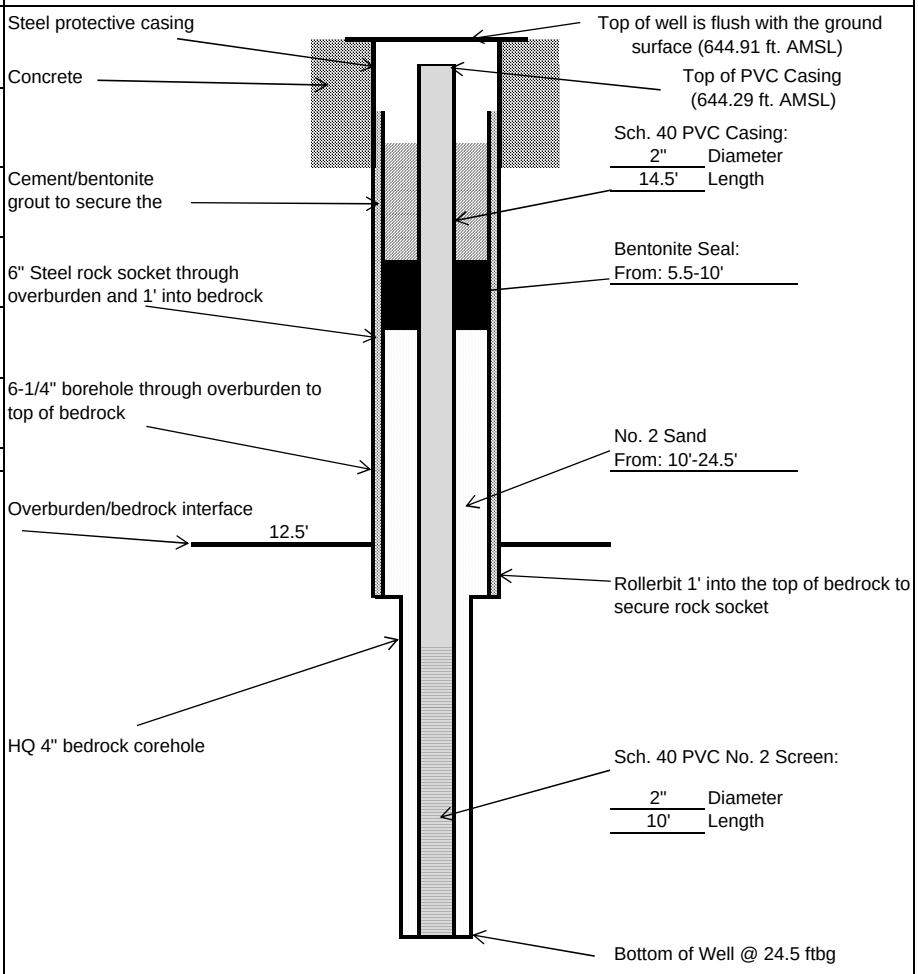
Date:
2/20-3/17/2017

GEOLOGIC LOG

Depth (ft.)	Description
0-7.5'	FILL
7.5-12.5'	silty CLAY
12.5-24.5'	Onondaga Formation Limestone bedrock

WELL DESIGN

MONITORING WELL CONSTRUCTION LOG



NOT TO SCALE

CASING MATERIAL		*FILL MATERIAL*
Surface: Concrete		10.0 - 24.5 ftbg No. 2 Sand
Monitor: Schedule 40 PVC		*SEAL MATERIAL* Type: Bentonite Setting: 5.5'- 10' ftbg Type: Concrete Pad Setting: GRADE

COMMENTS:

Petroleum observed floating on water surface (DTW 10.9') prior to well casing being installed.

ftbg = feet below grade surface ft AMSL = feet above mean sea level

LEGEND:

- #2 Sand
- Bentonite
- Cement/Bentonite Grout
- Concrete

CLIENT:	**LOCATION:**	Project No.
Buffalo Urban Development Corporation	683 Northland Avenue	15-029-1054
LiRo Engineers, Inc.	**Monitoring Well Construction Details**	*Well Number:* **LW-03**

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LW-04**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**683 Northland Ave.**
GROUND ELEVATION:	**644.8 ft. AMSL**
DATE STARTED:	**February 15, 2017**
DATE FINISHED:	**February 15, 2017**
DRILLER:	**SJB/Empire Geo Serv. Inc.**
GEOLOGIST:	**Kris Charney**
REVIEWED BY:	

PROJECT NAME: 683 Northland Ave.
CLIENT: Buffalo Urban Development Corp.
BORING CONTRACTOR: SJB/Empire Geo Serv. Inc.
GROUNDWATER: Not Encountered

	CAS.	SAMPLER	TUBE
TYPE		HSA	
DIA.		6 1/4"	2" sampler
WT.			
FALL			

DATE	TIME	LEVEL	TYPE

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"		REC% RQD%	COLOR	CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	USCS	REMARKS
1				8	6	20%	black, grey, brown	somewhat loose	0-1' asphalt, gravel; 1-2' silty CLAY, some sand, brick, conrete	FILL	0 ppm
				4	4						0 ppm
				5	6	0%	N/A	N/A	N/A	N/A	0 ppm
				10	12						0 ppm
5				15	50/4	30%	tan	firm	4-4.10' silty CLAY	CL	0 ppm
									Spoon refusal @ 4.10' bgs, auger refusal @ 5'. Roller bit to 6'.		0 ppm
10											
15											
20											
25											
30											
35											

COMMENTS: Samples obtained: LW-04-COMP1-0-4.10'

PROJECT NO.: 15-029-1054
BORING NO.: LW-04

DRILLING SUMMARY

Geologist:
Kris Charney

Drilling Company:
SJB/Empire Geo Services, Inc.

Driller:
N/A

Rig Make/Model:
N/A

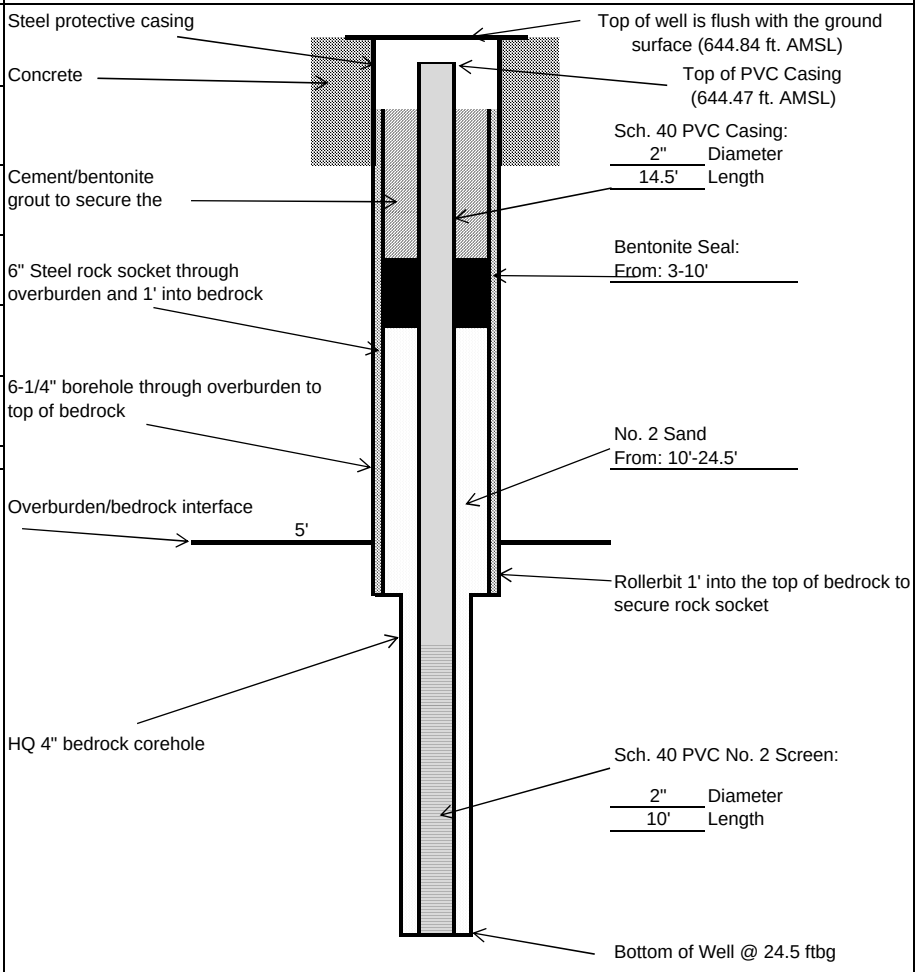
Date:
2/15-3/17/2017

GEOLOGIC LOG

Depth (ft.)	Description
0-2'	FILL
4-4.10'	silty CLAY
4.10-24.5'	Onondaga Formation Limestone bedrock

WELL DESIGN

MONITORING WELL CONSTRUCTION LOG



NOT TO SCALE

CASING MATERIAL

Surface: Concrete

Monitor: Schedule 40 PVC

FILL MATERIAL

10.0 - 24.5 ftbg No. 2 Sand

SEAL MATERIAL

Type: Bentonite Setting: 3'- 10' ftbg

Type: Concrete Pad Setting: GRADE

COMMENTS:

ftbg = feet below grade amsl = feet above mean sea level

LEGEND:

- #2 Sand
- Bentonite
- Cement/Bentonite Grout
- Concrete

CLIENT:
Buffalo Urban Development Corporation

LOCATION:
683 Northland Avenue

Project No.
15-029-1054

LiRo Engineers, Inc.

Monitoring Well Construction Details

Well Number:
LW-04

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LW-05**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**683 Northland Ave.**
GROUND ELEVATION:	**644.5 ft. AMSL**
DATE STARTED:	**February 20, 2017**
DATE FINISHED:	**February 20, 2017**
DRILLER:	**SJB/Empire Geo Serv. Inc.**
GEOLOGIST:	**Kris Charney**
REVIEWED BY:	

PROJECT NAME: 683 Northland Ave.
CLIENT: Buffalo Urban Development Corp.
BORING CONTRACTOR: SJB/Empire Geo Serv. Inc.
GROUNDWATER: Not Encountered

	CAS.	SAMPLER	TUBE
TYPE		HSA	
DIA.		6 1/4"	2" sampler
WT.			
FALL			

DATE	TIME	LEVEL	TYPE

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS
1				N/A 8	5%	grey	hard, loose	0-6" concrete; 6"-2' gravelly SAND, crused stone,	FILL	4.7 ppm
				6 4						
				3 2	10%	grey, brown	somewhat loose	2-3' gravelly SAND, brick; 3-4' sandy SILT with clay, coal, ash or fine sand, slag		3.5 ppm
				2 2						
5				2 2	20%	brown, tan	somewhat loose, firm	4-5' sandy SILT with clay, slag, coal; 5-6' silty CLAY		3.9 ppm
				4 3						
				4 5	0%	N/A	N/A	N/A	CL	N/A
				8 8						
				50/0				Spoon refusal @ 8' bgs, auger refusal @ 8.2'. Roller bit to 9'.		
10										
15										
20										
25										
30										
35										

COMMENTS: Samples obtained: LW-05-COMP1-0-6'

PROJECT NO.: 15-029-1054
BORING NO.: LW-05

DRILLING SUMMARY

Geologist:
Kris Charney

Drilling Company:
SJB/Empire Geo Services, Inc.

Driller:
N/A

Rig Make/Model:
N/A

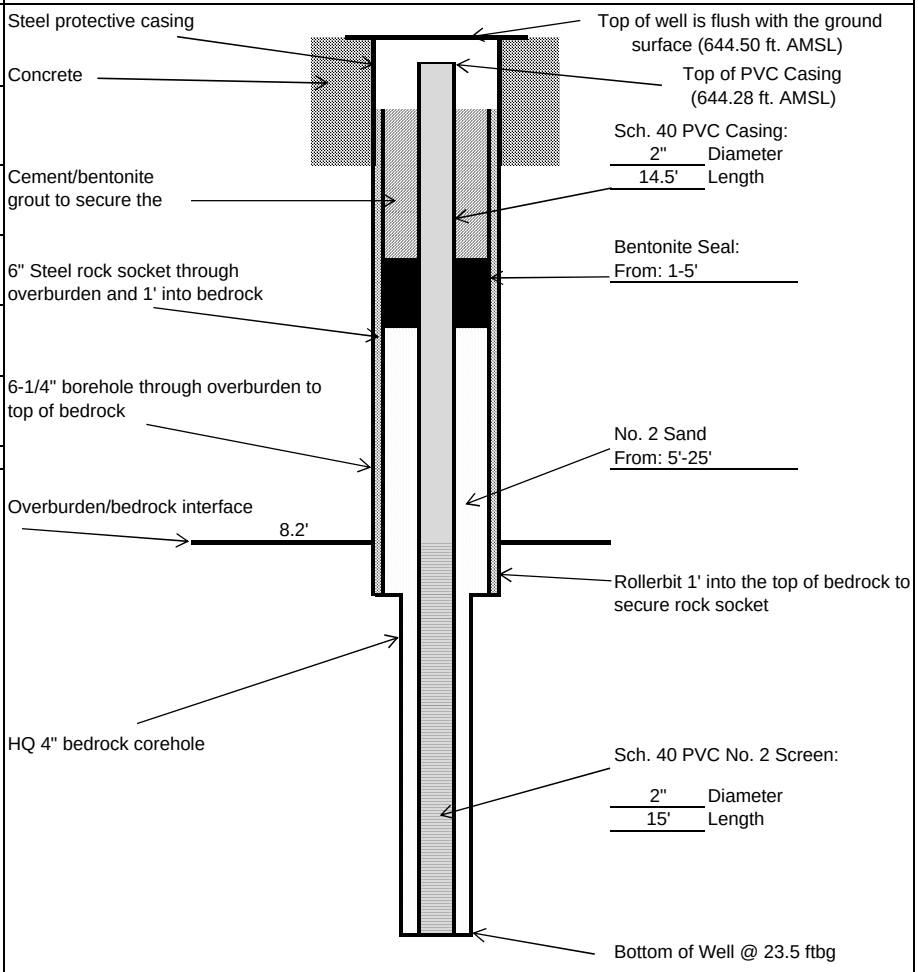
Date:
2/20-3/17/2017

GEOLOGIC LOG

Depth (ft.)	Description
0-5'	FILL
5-8.2'	silty CLAY
8.2-23.5'	Onondaga Formation Limestone bedrock

WELL DESIGN

MONITORING WELL CONSTRUCTION LOG



NOT TO SCALE

CASING MATERIAL		*FILL MATERIAL*
Surface: Concrete		1.5 - 23.5 ftbg No. 2 Sand
Monitor: Schedule 40 PVC		*SEAL MATERIAL* Type: Bentonite Setting: 1'- 5' ftbg Type: Concrete Pad Setting: GRADE

COMMENTS:

Petroleum observed floating on water surface (DTW 10.9') prior to well casing being installed.

ftbg = feet below grade surface ft AMSL = feet above mean sea level

LEGEND:

- #2 Sand
- Bentonite
- Cement/Bentonite Grout
- Concrete

CLIENT:	**LOCATION:**	Project No.
Buffalo Urban Development Corporation	683 Northland Avenue	15-029-1054
LiRo Engineers, Inc.	**Monitoring Well Construction Details**	*Well Number:* **LW-05**

LiRo Engineers, Inc.

TEST BORING LOG

BORING NO:	**LW-06**
SHEET:	**1 of 1**
JOB NO.:	**15-029-1054**
LOCATION:	**683 Northland Ave.**
GROUND ELEVATION:	**644.6 ft. AMSL**
DATE STARTED:	**February 21, 2017**
DATE FINISHED:	**February 21, 2017**
DRILLER:	**SJB/Empire Geo Serv. Inc.**
GEOLOGIST:	**Kris Charney**
REVIEWED BY:	

PROJECT NAME: 683 Northland Ave.
CLIENT: Buffalo Urban Development Corp.
BORING CONTRACTOR: SJB/Empire Geo Serv. Inc.
GROUNDWATER: Not Encountered

	CAS.	SAMPLER	TUBE
TYPE		HSA	
DIA.		6 1/4"	2" sampler
WT.			
FALL			

DATE	TIME	LEVEL	TYPE

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" NO.	BLOWS PER 6"	REC% RQD%	COLOR	CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	USCS	REMARKS
1				N/A 13	25%	grey-black	firm	0-2' medium SAND with gravel and a little silt, glass	FILL	5.0 ppm
				14 16						
				27 30	35%	grey-black	firm	2-4' medium SAND with gravel and a little silt, glass		16.2 ppm
				20 21						
5				8 12	35%	grey-black	firm	4-6' medium SAND with gravel and a little silt, glass		14.0 ppm
				11 12						
				12 7	40%	grey-black	firm	6-8' medium SAND with gravel and a little silt/clay, glass		0 ppm
				6 6						
				8 9	45%	tan	firm	8-10' silty CLAY	CL	14.6 ppm
10				10 12						
				6 10	40%	tan	firm	10-12' silty CLAY		0 ppm
				13 13						
				17 50/1	25%	tan	firm	12-12.6' silty CLAY		0 ppm
								Spoon refusal @ 12.6' bgs, auger refusal @ 12.6'. Roller bit to 13.4'.		
15										
20										
25										
30										
35										

COMMENTS: Samples obtained: LW-06-COMP1-0-4', LW-06-VOC1-2-4'

PROJECT NO.: 15-029-1054
BORING NO.: LW-06

DRILLING SUMMARY

Geologist:
Kris Charney

Drilling Company:
SJB/Empire Geo Services, Inc.

Driller:
N/A

Rig Make/Model:
N/A

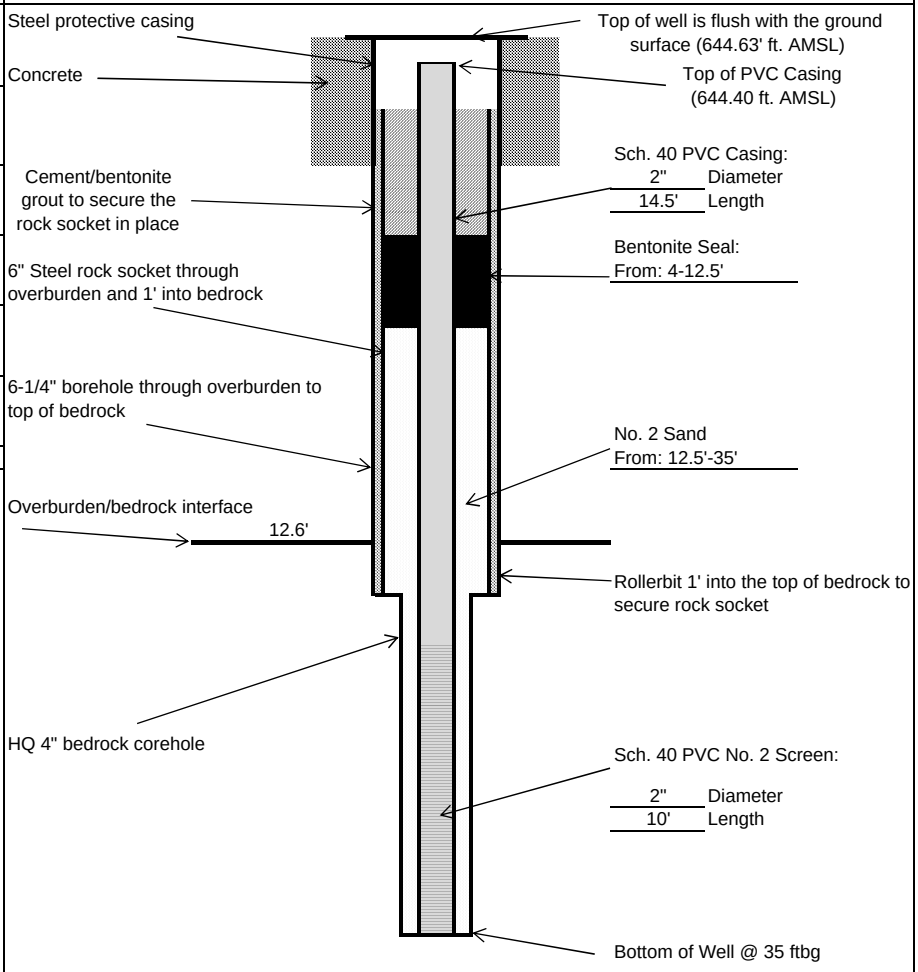
Date:
2/21-3/17/2016

GEOLOGIC LOG

Depth (ft.)	Description
0-8'	FILL
8-12.6'	silty CLAY
12.6-35'	Onondaga Formation Limestone bedrock

WELL DESIGN

MONITORING WELL CONSTRUCTION LOG



NOT TO SCALE

CASING MATERIAL		*FILL MATERIAL*
Surface: Concrete		12.5 - 35 ftbg No. 2 Sand
		SEAL MATERIAL
Monitor: Schedule 40 PVC		Type: Bentonite Setting: 4'- 12.5' ftbg
		Type: Concrete Pad Setting: GRADE

COMMENTS:

ftbg = feet below grade surface ft AMSL = feet above mean sea level

LEGEND:
- #2 Sand
- Bentonite
- Cement/Bentonite Grout
- Concrete

CLIENT:	**LOCATION:**	Project No.
Buffalo Urban Development Corporation	683 Northland Avenue	15-029-1054
LiRo Engineers, Inc.	**Monitoring Well Construction Details**	*Well Number:* **LW-06**

APPENDIX F – FIELD SAMPLING PLAN

FIELD SAMPLING PLAN

For the

Western New York Workforce Training Center
683 Northland Avenue
Buffalo, New York

PREPARED FOR:
NorDel II, LLC

PREPARED BY:

LIRO ENGINEERS, INC.
690 DELAWARE AVENUE
BUFFALO, NEW YORK 11356

Table of Contents

1.0 SOP INTRODUCTION

This section contains standard methods and procedures that will be used for the Site Management Plan activities for the Western New York Workforce Training Center Site located at 683 Northland Avenue in the City of Buffalo, New York. Field sampling procedures described in these sections are consistent with the requirements and procedures described in the New York State Department of Environmental Conservation (NYSDEC) and United States Environmental Protection Agency (USEPA) field investigation guidance documents. This SOP follows NYSDEC Brownfield Cleanup Program (BCP) requirements and the DER-10 Guidance Document.

2.0 DRILLING

2.1 General

Drilling activities will be performed by qualified well drillers, under the supervision of a qualified and experienced geologist(s). Prior to any intrusive work, underground structures such as storage tanks and the like, utilities, such as gas, electric, oil pipelines, telephone, and sewer and water lines will be identified and the locations of boreholes and monitoring wells will be adjusted, as necessary. The clearance procedure will utilize the resources of the New York "Call Center" as well as the information previously provided to LiRo. During ground intrusive activities such as drilling, the community air monitoring program (CAMP) will be in place.

The drilling rig will be set up and operated in accordance with standard earthwork practice, and in a manner that will allow for safe and efficient operation of the equipment. Overhead power lines, buried utilities, or underground storage tanks will be avoided. Intrusive operations at each soil boring and monitoring well location will include monitoring for potential organic and explosive vapors to protect the workers.

2.2 Geoprobe Sampling

The Geoprobe sampling system employs direct-push technology, which involves a truck-mounted hydraulic probe that is used to advance interconnected small-diameter steel pipe to the required sampling depth. Samples of soil vapor, soil, and groundwater may be collected using the Geoprobe

system. Sample locations situated in paved areas will require the creation of a pilot hole prior to probe use. The Geoprobe soil sampling procedures are as follows:

1. Advance a pilot hole through any surface paving materials.
2. Push the Geoprobe Macro-Core Sampler at 4-foot intervals to prescribed depth or refusal.
3. Retract sampler from the probe hole.
4. Split inner plastic sleeve of the sample, screen sample with photoionization detector (PID) and record readings.
5. Transfer the soil sample from the inner plastic sleeve of the sampler to appropriate sample containers (if samples are required) and label.
6. Examine and describe soil in accordance with Section 6.2. Note and record soil type and any obvious signs of contamination (discoloration, sheen, and odor).

Environmental samples will be collected directly from the Geoprobe sampler with a pre-cleaned or dedicated polyethylene or stainless steel sample trowel and placed in laboratory-provided bottles.

2.3 Hollow-Stem Augering

Drilling performed for monitoring well installation will use a conventional drill rig with hollow stem augers (HSA) and 2-inch or 3-inch split spoon samplers. Field descriptions, observations and air monitoring results will be recorded in a field log book as described in Section 8.5 and on Field Activity Form Geologic Boring Log. The hollow-stem augers will be advanced using a mobile rotary drilling rig as follows:

1. Advance the boring by rotating and advancing the augers to the desired depth below ground surface using ASTM practice D1452. The borings must be advanced incrementally to permit recovery of soil samples for geologic profiling at specified intervals. Samples will be collected using a split-spoon sampler or other appropriate sampling device. Collect drill cuttings for disposal. Do not allow cuttings to form a large pile around the augers.
2. Remove center plug from augers and collect sample.

3. Withdraw sampling device.
4. Lower center plug into augers and advance auger to next sampling depth. The auger will be advanced to a depth in such a manner that minimum disturbance is caused to the ground below the depth designated for sample collection.

The borehole will be advanced, with appropriate soil sampling equipment, until the proper termination depth is reached, as specified in the RIWP. The only exception to this will be if "refusal" occurs during split-spoon sampling. Refusal may occur if the borehole encounters bedrock, rubble, or a boulder. If refusal occurs while sampling, the obstruction will first be attempted to be cleared by rotating the HSA bit through the obstruction. If the HSA cannot penetrate the obstruction, the borehole will be offset and re-drilled.

2.4 Split-spoon Sampling

Split-spoon samples will be collected using ASTM Method D1586-84 (replaced D1586-67), "Standard Method for Penetration Test and Split-Barrel Sampling Procedures" described below.

1. Once the boring is advanced to the desired sampling depth using hollow-stem augering procedures, attach split-spoon sampler to the drill rods and lower into borehole. Do not allow sampler to drop onto the soil to be sampled.
2. Position the hammer and anvil above and attach to the drill rods.
3. Rest the weight of the sampler, drill rods, and hammer on the bottom of the boring and apply a seating blow. If excess cuttings are encountered (not expected since center plug is to be used), remove sampler from the borehole and spin augers until the excess cuttings are removed.
4. Mark the drill rods in four successive 6-inch increments so that the advance of the sampler under the impact of the hammer may easily be observed for each 6-inch increment.
5. Drive the sampler with blows from a 140-pound hammer raised 30 inches and allowed to strike the anvil. Count the number of blows applied in each 6-inch increment until one of the following occurs:
    - A total of 50 blows have been applied during any one of the four 6-inch increments.

        - A total of 100 blows have been applied.
    - There is no observed advancement of the sampler during the application of 10 successive blows. If any of the above three circumstances occur, "refusal" will be declared for this depth and recorded as such.
        - The sampler is advanced the complete length (18 or 24 inches).

6. Record the number of blows required for each 6-inch penetration or fraction thereof. The first 6 inches is considered the seating drive. The sum of the second and third 6 inches of penetration is considered the "Standard Penetration Resistance" or the "N" value. If the sampler is driven less than 18 inches, the number of blows per completed 6 inches will be recorded on the boring log. If the sampler penetrates the full length under the static weight of the drill rods, this information will be recorded on the boring log.
7. Bring the spoon to the surface and open. Record the percent recovery or the length of soil sample recovered. Describe the soil samples recovered as composition, color, stratification, condition and other pertinent information, as outlined in Section 6.2.
8. Obtain an aliquot of sample for chemical analysis from the prescribed intervals of the boring if required.
9. The remainder of the sample may then be disposed of in the borehole, unless a sample is required for laboratory testing of soil properties, such as grain size distribution or Atterberg limits. If a sample is to be submitted for physical testing, place the remainder of the sample into a soil sample jar without distorting the original stratification. Seal container to minimize evaporation and affix label identifying site, boring number, sample depth, the number of blows per six inches, and the testing to be done on the sample.

The ASTM procedure may be modified during the field investigation by driving the sampler the entire length of the split-spoon (24 inches), and/or using a 3-inch diameter sampler (mainly if sample recovery in coarser materials is poor).

2.5 Rock Drilling

Rock drilling will be used if bedrock wells are required. Rock drilling may be performed using a 3-7/8-inch roller type bit or by using a coring device resulting in a 4-inch rock hole. Rock drilling

will be conducted in a manner that prevents any downward migration of contaminants into the bedrock strata. Record field descriptions, observations and air monitoring results in a field log book as described in Section 8.5 and on Field Activity Form Geologic Boring Log. Drilling will be performed following the procedures outlined below.

1. Advance boring using hollow stem augers to refusal.
2. Determine the need for casing off overburden. In contaminated areas, prepare a rock socket and grout permanent 4-inch casing into the rock socket.
3. Prepare for rock drilling by setting up a water circulation system.
4. Assemble and lower the rock bit and drill pipe into the augers or casing.
5. Perform drilling until the desired length of the rock hole is completed.
6. If coring is required, use 5-foot core runs and record rock observations as described in Section 6.3.

2.6 Monitoring Well Installation

Monitoring wells will be installed at locations identified in Work Plans which will be submitted to NYSDEC before starting work. It is anticipated that observation wells will be installed into the uppermost bedrock surface (except for the well in the detention basin outlet sewer line bedding. In general, monitoring wells will be constructed and developed in accordance with the following procedures, however, location specific modifications will be made for observation wells installed at the bedrock interface to monitor for the presence of oil. Prior to installing observation wells, location-specific procedures will be submitted in writing to NYSDEC for approval.

2.7 Overburden Monitoring Wells

1. Advance subsurface boring to the desired depth by means of hollow-stem auger or direct push drilling.
2. Remove center plug from augers and verify borehole depth using weighted measuring tape.
3. Add washed and graded medium sand as needed to base of borehole.
4. Insert 20-slot PVC well screen and riser pipe into borehole through the hollow-stem augers.

Cap the riser to prevent well construction materials from entering the well.

5. Add a number 2 graded sand to the screen section of the well while slowly removing augers. Sand pack should extend from 1 to 2 feet above the screen section within the borehole. Measure with a weighted tape.
6. Slowly add bentonite pellet seal to borehole as augers are slowly removed. The bentonite seal should extend at least 2 feet above the top of the sand pack section. Measure with tape.
7. If bentonite seal is placed above the groundwater level within the borehole, add water to the borehole to hydrate the bentonite pellets. Allow pellets to hydrate at least 2 hours.
8. Mix cement/bentonite grout with the general mixture ratios as follows:
   Grout Slurry Composition (% Weight)

1.5 to 3.0%	Bentonite (quick gel)
40 to 60%	Cement (Portland Type I)
40 to 60%	Water

9. Add grout to borehole through tremie pipe or hose from the top of the bentonite seal to the ground surface.
10. Remove remaining augers from borehole.
11. Top off grout in borehole. Grout should extend to approximately 2 feet below ground surface.
12. Cut well riser pipe to about 2 feet above ground surface for stick-up type wells. Flush-mount well risers should be cut off just below surface grade.
13. Backfill remaining two feet of borehole with concrete.
14. Install protective casing over well riser pipe and set into concrete backfill.
15. Lock protective casing cap.
16. Document well construction on Field Activity Form Monitoring Well Construction Detail.

2.8 Bedrock Well Construction

1. Advance 6-1/4 inch I.D. hollow-stem augers to the top of bedrock and continue augering approximately 6-inches to create a rock socket through the bedrock weathered zone.
2. Pressure grout 4-inch steel casing into rock socket.
3. Remove hollow-stem augers and grout annular space between casing and borehole wall. Let grout cure a minimum of 24 hours before continuing with the boring.
4. Insert nominal 4-inch corer into 4"steel casing and core 15 feet into bedrock or to intersection of sufficient fractures in bedrock to allow adequate water flow.
5. Verify borehole depth using weighted measuring tape.
6. Add washed and graded medium sand as needed to base of borehole.
7. Insert 20-slot PVC well screen and riser pipe into borehole through 4" steel casing. Cap the riser to prevent well construction materials from entering the well.
8. Add a number 2 graded sand to the screen section of the well. Sand pack should extend from 1 to 2 feet above the screen section within the borehole. Measure with a weighted tape.
9. Slowly add bentonite pellet seal to borehole. The bentonite seal should extend at least 2 feet above the top of the sand pack section. Measure with weighted tape.
10. If bentonite seal is placed above the groundwater level within the borehole, add water to the borehole to hydrate the bentonite pellets. Allow pellets to hydrate at least 2 hours.
11. Mix cement/bentonite grout with the general mixture ratios as follows:
    <u>Grout Slurry Composition (% Weight)</u>

1.5 to 3.0%	Bentonite (quick gel)
40 to 60%	Cement (Portland Type I)
40 to 60%	Water

12. Add grout to borehole through tremie pipe or hose from the top of the bentonite seal to approximately 2 feet below ground surface.
13. Cut well riser pipe to about 2 feet above ground surface for stick-up type wells. Flush-

mount well risers should be cut off just below surface grade.

14. Backfill remaining two feet of borehole with concrete.
15. Install protective casing over well riser pipe and set into concrete backfill.
16. Lock protective cap.
17. Document well construction details on Field Activity Form Monitoring Well Construction.

3.0 VISUAL IDENTIFICATION/GEOLOGICAL DESCRIPTION

3.1 Field Equipment Requirements

The geologist will prepare geologic descriptions of the in-place subsurface soils, residue, and native materials, and collect representative samples from the prescribed intervals for chemical analysis. Prior to the start of drilling, care will be taken that, as a minimum, the following documents, equipment and supplies are available and in good working order:

- Copies of Work Plan
- List of appropriate contacts, with phone numbers
- Field logbook and paper
- Site topographic map
- Waterproof marking pens (for sample boxes and containers)
- Sample jars and chemical analysis vials and bottles
- Health and Safety equipment, per HASP
- Field monitoring instruments, per HASP
- Other specialized equipment per site-specific work activities.

3.2 Soil Classification

Soils will be classified using the Unified Soil Classification System (USCS) as described in ASTM Method D2488-84, "Practice for Description and Identification of Soil visual-Manual Procedure", and ASTM D2487-85, "Test Method for Classification of Soils for Engineering Purposes". According to the USCS system, soils are divided into three major groups: coarse-grained, fine-grained, and highly organic (peaty). The boundary between coarse-grained and fine-grained soils is the 200-mesh sieve (0.074 mm). In the field the distinction is based on whether the individual particles can be seen with the unaided eye. If more than 50% of the soil by weight is judged to consist of grains that can be distinguished separately, the soil is described to be coarse-grained. The coarse-grained soils are divided into gravelly (G) or sandy (S) soils, depending on whether more or less than 50% of the visible grains are larger than the No.4 sieve (3/16 inch). They are each divided further into four subgroups:

W: Well graded; fairly clean (<5% finer than 0.074 mm)

P: Poorly graded (gap-graded); fairly clean (<5% finer than 0.074 mm)

C: Dirty (>12% finer than 0.074 mm); plastic (clayey) fines

M: Dirty (>12% finer than 0.074 mm); non-plastic or silty fines

The soils are represented by symbols such as GW or SP. Borderline materials are represented by a double symbol, such as GW-GP.

The fine-grained soils are divided into three groups: inorganic silts (M), inorganic clays (C), and organic silts and clays (O). The soils are further subdivided into those having liquid limits lower than 50% (ML, CL, OL), or higher (MH, CH, OH).

The distinction between inorganic clays and silts, or organic silts and clays, is made on the basis of plasticity. Organic soils, O, are distinguished from inorganic soils by their characteristic odor and dark color.

In the field, the fine-grained soils may be differentiated by their dry strength, their reaction to the shaking test, or their toughness near the plastic limit. Borderline materials are represented by a double symbol, such as CL-ML. Like all procedures based on grain size or remolded properties of soil, the classification cannot fully represent the engineering response of the in-situ soil mass. Soil properties required to define the USCS designation and provide a geologic description are the primary features considered in field identification. These properties and other observed characteristics normally identified in a soil description are defined in this section and include:

a. Color (using Munsell color chart)

b. Moisture condition

c. Grain size

(1) Estimated maximum grain size

(2) Estimated percent by weight of fines (material passing No. 200 sieve)

d. Gradation (well graded, poorly graded)

e. Grain shape (angular, subangular, and rounded)

f. Plasticity

g. Predominant soil type

h. Secondary components of soil

i. Classification symbol

j. Other features such as:

- Organic, chemical, or metallic content
- Compactness
- Consistency Cohesiveness near plastic limit
- Dry strength
- Source: residual, or transported (aeolian, waterborne, glacial deposit, etc.).

3.3 Rock Description

It is not anticipated that bedrock will be encountered during monitoring well installation. However; if bedrock is encountered, the following procedures will be followed.

Rock core descriptions should include, at a minimum, rock type, color, relative hardness, brokenness, core recovery, and rock quality designation (RQD). In addition, pertinent drilling observations such as coring rate, loss of drilling water, and presence of voids should be recorded in the field logbook and boring logs.

In describing the rock core, naturally occurring breaks or discontinuities should be described in detail. The discontinuity description should include spacing and orientation (dip) of fractures as well as distinction between bedding plane, joint or foliation features and evidence of water-bearing zones (solution features or stained fracture surfaces) within the rock core.

4.0 SURVEY OF SAMPLE LOCATIONS

Soil boring, monitoring well, and soil vapor and air sampling locations will be surveyed for horizontal and vertical coordinates by a licensed New York State surveyor and referenced to the existing site survey. Basement boring locations or interior room locations that are inaccessible to survey equipment will be located by tape measuring from at least two adjacent building exterior wall corners.

5.0 SAMPLE COLLECTION PROCEDURES FOR CHEMICAL ANALYSIS

5.1 Soils

Soil samples will be collected for chemical analysis as described in the Site Investigation Plan. This section discusses the procedures for collecting an aliquot of sample for chemical analysis at the intervals specified in the work plan. All chemical analysis for soils must be performed by a New York State Department of Health certified laboratory.

The detailed procedure for soil sample collection is outlined below:

1. Screen soil with PID. Record any physical characteristics (e.g., obvious contamination, or discoloration) in the field logbook.
2. Using a pre-cleaned trowel or spoon, collect a sample for volatile organic analysis from soil showing the highest PID reading or other evidence of contamination
3. If additional chemical analysis is required (i.e., semi-volatile organics, metals, PCBs), use a pre-cleaned trowel or spoon to place three aliquots of soil in a decontaminated mixing bowl and thoroughly mix soil using cone & quarter method until a consistent physical appearance is achieved.
4. Transfer sample to laboratory-cleaned (I-Chem Series 300 or equivalent) sample containers.
5. Record field sampling information in the field logbook as outlined in Section 6.
6. Label each sample container with the appropriate sample identification data and place sample in a cooler for shipment to the laboratory.
7. Initiate chain-of-custody procedures.

5.2 Groundwater

Groundwater samples will be collected for chemical analysis as described in the Site Investigation Plan. This section discusses the procedures for collecting a sample of groundwater for chemical analysis from a monitoring well. To collect representative groundwater samples, groundwater wells must be adequately developed and purged prior to sampling. Development and purging field

information will be recorded on Field Activity Forms Well Development Log and Well Purge Log. Purging will require the removal of three to five volumes of standing water in rapidly recharging wells and at least one volume from wells with slow recharge rates. Shallow wells in which the screen intersects the water table should require a minimum amount of purging since the groundwater would flow through the screen and not be entrapped in the casing. Deeper wells should be purged more thoroughly since they may be located in confined aquifers and water may rise up into the casing. A thorough purging would require the removal of several volumes of this trapped water to ensure that representative groundwater is brought into the casing for sampling. Sampling should commence as soon as adequate recharge has occurred.

All chemical analysis for groundwater must be performed by a New York State Department of Health certified laboratory. Groundwater samples will be labeled and shipped following procedures outlined in Section 8.3 and 8.4 and analyzed according the program outlined in Section 2.2 of the Site Investigation Plan.

5.3 Well Purging Procedures

1. The well cover will be unlocked and carefully removed to avoid having any foreign material enter the well. The interior of the riser pipe will be monitored for organic vapors using a PID. If a reading of greater than 5 ppm is recorded, the well will be vented until levels are below 5 ppm before purging starts.
2. Using an electronic water level detector, the water level below top of casing will be measured. Knowing the total depth of well, it will be possible to determine the volume of water in the well. The end of the probe will be soap and water washed and de-ionized water-rinsed between wells.
3. On wells with water levels that remain 25 feet or less below the top of casing, a suction-lift pump will be used to remove three to five times the well volume, measured into a calibrated pail. (A well volume will be defined as the volume of water standing inside the casing measured prior to evacuation.) Dedicated new polyethylene discharge and intake tubing (3/8” inner-diameter (I.D.) low-density polyethylene) will be used for each well.

During this evacuation of the well, the intake opening of the pump tubing will be positioned just below the surface of the well water. If the water level drops, then the tubing will be lowered as needed to maintain flow. Pumping from the top of the water column will ensure proper flushing of the well. Pumping will continue until required volumes are removed.

If the well purges to dryness and recharges rapidly (within 15 minutes), water will continue to be removed as it recharges until the required volumes are removed. If the well purges to dryness and is slow to recharge (greater than 15 minutes), evacuation will be terminated.

4. If the water level of a well is initially below 25 feet, or draws down to this level because of a slow recharge rate, then a 1-1/2 inch bailer, 5 to 10 feet in length, will be used to evacuate the well. The line for this bailer will be dedicated new ¼-inch nylon. It will be discarded after use. Prior to use in the field, the dedicated purging bailer will be cleaned per Section 8.6 procedures.
5. Purging will continue until three volumes of water have been removed. Well volume will be calculated as detailed on the Well Purge Log. Measurements for pH, turbidity, and conductivity will be recorded during purging. The stability of these measurements with time will be used to guide the decision to discontinue purging.
6. All well purge water will be discharged to the ground surface unless there is evidence of contamination (historical data indicates limited groundwater contamination) or as directed by the NYSDEC representative in which case it will be containerized for off-site disposal.
7. Well field data are to be recorded in the field notebook and Field Activity Forms Well Development Log and Well Purge Log.

5.4 Groundwater Sampling Procedures

1. Groundwater samples will be collected on the same day as well purging at any time after the well has recovered sufficiently to sample, or within 24 hours after evacuation, if the well recharges slowly. If a well does not contain or yield sufficient volume for all required laboratory analytical testing (including quality control), then a decision will be made to prioritize analyses. If a well takes longer than 24 hours to recharge, then a decision will be

made after consultation with the NYSDEC representative whether or not the groundwater sample will be considered valid.

2. After well purging is completed and the well has recharged sufficiently per the previous item, a sample will be collected into appropriate containers using a dedicated HDPE bailer. The bailer will have a 5-foot monofilament polypropylene or stainless steel "leader" which will be attached to a clean, dedicated ¼-inch nylon line. The bailer will be lowered below the surface of the water so as to allow the water to touch only the "leader" and not the nylon rope.
3. All sample bottles will be labeled in the field using a waterproof permanent marker. Procedures outlined for Sample Labeling (Section 8.3) and Sample Shipping (Section 8.4) will be followed.
4. Samples will be collected into verifiably clean sample bottles (containing required preservatives) and placed on ice in coolers prior to shipment to the analytical laboratory. Chain of custody will be initiated by completing Field Activity Form Chain of Custody. The analytical laboratory will certify that the sample bottles are analyte-free.
5. A separate sample of approximately 200 ml will be collected into a 60-ounce plastic bottle to measure pH, conductivity, turbidity, and temperature of the well in the field.
6. Well sampling data are to be recorded in the field notebook and on Field Activity Form Well Purge Log.

5.5 Indoor and Ambient Air Sampling Procedures

Indoor and ambient air samples will be collected in accordance with the Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (New York State Department of Health [NYSDOH] October 2006). Sampling will occur for the duration of greater than two hours. Samples will be collected in appropriate sized Summa canisters that have been certified clean by the laboratory and samples will be analyzed by using United States Environmental Protection Agency (USEPA) Method TO-15. Flow rate for both purging and sampling will not exceed 0.2 L/min.

5.6 Sub-slab Vapor Sampling Procedures

Sub-slab vapor samples will be collected in accordance with the Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH October 2006). The sub-slab probes will be constructed using inert tubing extended no more than 2 inches into the sub-slab material. porous, inert backfill material (e.g., glass beads, washed #1 crushed stone, etc.) will be added to cover about 1 inch of the probe tip for permanent installations. The implant will be sealed to the surface with non-VOC-containing and nonshrinking products for temporary installations (e.g., permagum grout, melted beeswax, putty, etc.) or cement for permanent installations.

Sampling will occur for the duration of greater than two hours. Samples will be collected in appropriate sized Summa canisters that have been certified clean by the laboratory and samples will be analyzed by using United States Environmental Protection Agency (USEPA) Method TO-15. Flow rate for both purging and sampling will not exceed 0.2 L/min. 24-hours following soil vapor probe installation, one to three implant volumes shall be purged prior to the collection of any soil-gas samples.

5.7 Sample Labeling

In order to prevent misidentification and to aid in the handling of environmental samples collected during the field investigation, the following procedures will be followed:

1. Affixed to each sample will be a non-removable (when wet) label. The sample bottle will be wrapped with 2-inch cellophane tape. Apply label and wrap with tape to cover label.
2. The following information will be written with permanent marker:
    - Site name
    - Sample identification
    - Project number
    - Date/time
    - Sampler’s initials
    - Sample preservation
    - Analysis required.

3. Each sample of each matrix will be assigned a unique identification alpha-numeric code utilizing the following abbreviations:
    - MW = monitoring well
    - S = shallow
    - D = deep
    - GW = groundwater sample
    - LW = leachate sample
    - TB = trip blank
    - RB = rinse blank
    - MS = matrix spike
    - MSD = matrix spike duplicate.

5.8 Sample Shipping

Proper documentation of sample collection and the methods used to control these documents are referred to as chain-of-custody procedures. Chain-of-custody procedures are essential for presentation of sample analytical chemistry results as evidence in litigation or at administrative hearings held by regulatory agencies. Chain-of-custody procedures also serve to minimize loss or misidentification of samples and to ensure that unauthorized persons do not tamper with collected samples.

1. The chain-of-custody should be completed with relevant information and placed inside the sample cooler.
2. Cushion the bottom, sides and top of the cooler with bubble pack material.
3. Place bottles in cooler in such a way that they do not touch using bubble pack.
4. Pack coolers with ice in ziplock plastic bags.
5. Secure the cooler lid.
6. Place lab address on top of cooler and ship samples via overnight carrier the same day that they are collected to the laboratory.

5.9 Field Log Book

Field activities including drilling and sampling will be documented daily in bound logbooks with pre-numbered pages. These books are to accompany the samplers to each sample location. Maintenance and legibility of the field logbooks is the responsibility of each sampler. Logbook entries will be made in indelible ink. All changes to field notes will be initialed in ink. Information to be recorded during environmental sampling activities shall include such items as:

- name of site and type of sample
- purpose of sampling (i.e., monitoring, sample collection)
- sample number, volume, and description
- procedure performed during sampling
- sampling location, including sketch with measurements to physical features
- date and time of each sampling event
- sampler name(s)
- field instrument calibration information
- field measurements such as PID and methane readings
- weather conditions
- sample distribution and shipping.

Information to be recorded during drilling activities shall include such items as:

- names of field investigators and drilling personnel
- start and completion times of each drilling event
- measurements and quantities of materials used during drilling
- depth and identification number of soil samples collected for chemical analysis
- monitoring well completion data
- water level measurements and grout levels (borehole sealing information)
- record of site visitors
- PID measurements.

5.10 General Documentation Requirements

The results of all field activities will be documented in the field log book and appropriate field activity forms. The field activity forms anticipated for this project include: Geologic Boring Log, Monitoring Well Construction Detail, Well Development Log, Well Purging Log, and Chain of Custody Form.

5.11 Equipment Decontamination and Investigation-Derived Soil and Water

Reusable equipment used to collect samples, such as macro-core tubes and stainless steel mixing bowls will be hand cleaned using a sequence of: an alconox/water wash, tap water rinse and de-ionized water rinse between each use. Dedicated (i.e., disposable) sampling equipment is for one-time use and will not require decontamination. All IDW will be managed in accordance with DER-10.

Auger cuttings, development water, purge water and equipment decontamination water will be containerized, characterized and disposed of at an off-site facility. Used personal protective equipment will be placed in contractor grade trash bags for off-site disposal.

APPENDIX G – QUALITY ASSURANCE PROJECT PLAN

QUALITY ASSURANCE PROJECT PLAN
FOR THE

Western New York Workforce Training Center
683 Northland Avenue
Buffalo, New York

PREPARED FOR:

NorDel II, LLC

PREPARED BY:

LIRO ENGINEERS, INC.
690 DELAWARE AVENUE
BUFFALO, NEW YORK 11356

December 2016

Table of Contents

List of Tables

1.0 QAPP INTRODUCTION

This QAPP provides an overview of quality assurance/quality control (QA/QC) programs which will be adhered to during the Remedial Investigation activities described in the Remedial Investigation Work Plan (RIWP). This QAPP gives specific methods and QA/QC procedures for chemical testing of environmental samples obtained from the site, which will ensure the quality and ultimate defensibility of data produced during the Remedial Investigation.

This QAPP was prepared using elements from the following guidance documents below:

1. Sampling Guidelines and Protocols, New York State Department of Environmental Conservation, September 1992;
2. Guidance for the Data Quality Objective Process, EPA QA/G-4(EPA/600/R-96/055), dated August 2000;
3. Test Methods for Evaluating Solid Waste – Physical/Chemical Methods, SW-846, Third Edition, November 1986; Final Update IIIA, March 1999;
4. EPA Region II Contract Lab Program Organics Data Review and Preliminary Review, Standard Operating Procedures #HW-6, Revision 12, and;
5. Evaluation of Metals Data for the Contract Laboratory Program, Standard Operating Procedure #HW-2, Revision 11;

1.1 Data Quality Objectives (DQO)

The USEPA DQO Guidance document specifies that sampling programs be designed in order to meet the requirements of the investigation and achieve the DQOs. Part of this process is to determine what data is being collected and how it will be used in assessing Site conditions. For the purposes of this project, two types of data will be produced. Definitive data will be collected from samples that are submitted to an approved laboratory for analysis. Screening data will be produced using field measurement instruments in order to refine the sampling program so as to provide a complete set of definitive data.

These objectives will be attained by strict adherence to the RIWP, the Field Sampling Plan, and the QAPP as well as by utilizing trained and experienced personnel to perform all tasks required to collect the data. Specific QA/QC objectives of the various program elements are discussed in the following sections.

Laboratory QA procedures regarding personnel, management structure, analytical equipment, and data management are contained in the laboratory's Quality Assurance Plan (LQAP). A copy of the LQAP will be provided under separate cover if requested.

1.2 QA/QC for Environmental Samples

The project QA/QC goals will be attained for the collection of environmental samples by strict compliance with the sampling methods and procedures outlined in the RIWP. Only trained personnel, after consultation with the Project Manager as listed in the RIWP, will carry out these sampling procedures. QA/QC will also be assured by the use of appropriate containers and preservation methods. In addition, the holding times and sample preservation listed in Tables 6 and 7 will be followed to ensure integrity of all environmental samples. All samples will be held under proper chains of custody and be controlled by appropriate labels/paperwork as outlined in this QAPP. The laboratory will be required to analyze the samples in accordance with the methods, laboratory precision and recovery limits specified in Tables 1 through 4, and provide data deliverables in compliance with NYSDEC Analytical Services Protocol (ASP).

1.3 Analytical Methods

To achieve the QA/QC goals, the chemical analysis indicated in Tables 1 and 3 will be performed in accordance with the referenced USEPA test methods which are cited in NYSDEC ASP. The investigation requires very strict QA/QC procedures which will be followed on all samples for the parameters listed below.

- Target Compound List (TCL) Volatile Organics
- TCL Semi Volatile Organics
- TCL Pesticides/PCBs

- Target Analyte List (TAL) Metals and RCRA Metals

Tables 6 and 7 also summarize the sample bottle and holding time requirements for the site investigation. The environmental samples will not be diluted to remove chemical interferences. Dilutions are permitted only to bring TCL/TAL analytes within instrument calibration range. If analytical cleanups are necessary, then the laboratory must make best efforts to remove interferences through the cleanup techniques described in EPA Publication SW-846 or the EPA "Contract Laboratory Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration" in effect as of the date of sample analysis. QA/QC goals are also achieved by the use of the required number of field and laboratory quality control samples as indicated on Table 8. The definitions of each QC sample type are found in this QAPP.

Prior to any modifications from the listed test methodologies, the Laboratory Director will contact the RI Project Chemist to review the modification(s).

1.4 QA/QC Objectives for Chemical Measurement

In general, data quality indicators include precision, accuracy, representativeness, completeness, and comparability (PARCC). Each indicator may be defined as follows:

1. Precision is the agreement or reproducibility among individual measurements of the same property, usually made under the same conditions;
2. Accuracy is the degree of agreement of a measurement with the true or accepted value;
3. Representativeness is the degree to which a measurement accurately and precisely represents a characteristic of a population, parameter, or variations at a sampling point, a process condition, or an environmental condition;
4. Completeness is a measure of the amount of valid data obtained from a measurement system compared with the amount that was expected to be obtained under correct normal conditions; and,
5. Comparability is an expression of the confidence with which one data set can be compared with another data set in regard to the same property.

QA objectives vary according to the specific objectives of each analysis. The *accuracy and precision* of data will be functions of the sample origin, analytical procedures and the specific sample matrices. QC practices used to evaluate these data quality indicators include use of accepted analytical procedures, adherence to sample preservation and hold time, and analysis of QC samples such as blanks, replicates, spikes, calibration standards and reference standards.

For each analytical parameter, quantitative objectives for precision, accuracy and sensitivity (reporting limits) were established in accordance with the specific analytical method employed, published historical data, laboratory method validation studies, and laboratory experience with similar samples. Tables 1 through 4 summarize the accuracy and precision for groundwater and soil samples, and Table 5 identifies the sensitivity goals for the TCL/TAL. Notably, these reporting limits are the minimum reporting limits appropriate for undiluted samples. The actual reporting limits for individual samples and analyses may be elevated due to contaminant concentrations in excess of the method calibration range, sample matrix cleanup procedures, and percent moisture adjustment for soil samples.

Representativeness is a qualitative characteristic which primarily addresses proper design of a sampling program in terms of number and location of samples and sample collection techniques. The rationale for the number and location of samples for this project is discussed in the RIWP and the sampling procedures are described in Section 8.0 of this Work Plan. The representativeness of the analytical data is also a function of the procedures used to process the samples. Standard USEPA or USEPA-accepted analytical procedures will be followed as identified in Section 9.3 and the LQAP.

Completeness is a quantitative characteristic which is defined as the percentage of valid data obtained from a measurement system (sampling and analysis), as compared to that which was planned. Completeness can be less than 100 percent due to low sample recovery, inaccessibility to sample locations, sample loss during shipment, or disqualification of sample results which are outside of specific quality control criteria due to laboratory error or matrix-specific interference. Completeness is documented through field and laboratory reports which allow the data user to

assess the quality and usability of the results. The completeness goal for laboratory measurements will be 90 percent, and the overall project completeness goal (field and laboratory) will be 85 percent.

Comparability is a qualitative characteristic which allows for comparison of analytical results with those obtained by other laboratories. This may be accomplished through the use of standard accepted methodologies, traceability of standards to National Bureau of Standards (NBS) or USEPA sources, use of appropriate levels of quality control, reporting results in consistent, standard units of measure and participation in inter-laboratory studies designed to evaluate laboratory performance.

Samples collected during the project will be analyzed for the parameters outlined in Tables 1 and 3. The PARCC criteria in Tables 1 through 4 may not always be achievable. The NYSDEC ASP data validation guidelines provide direction for the determination of data usability. Qualified data can often provide useful information, although the degree of certainty associated with the results may not be as planned. Professional judgment will be used to determine data usability with respect to project goals.

2.0 CHEMICAL DATA REDUCTION

NYSDEC ASP will be employed for documentation and reporting of all data. The deliverables package will conform to the latest NYSDEC ASP. Additional deliverables may also be required for data validation.

Laboratory data reduction procedures are identified in the QAPP. In general, identification of all analytes must be accomplished with an authentic standard of the analyte, traceable to National Institute of Standards (NIST) or EPA sources. When authentic standards are not available, identification is tentative (as is the case with volatile and semi-volatile Tentatively Identified Compounds). Other criteria that must be utilized when determining the presence or absence of target compounds are mass spectra comparisons, retention time windows and response factors relative to those of the authentic standard. Data reduction is to be performed by individuals experienced with a particular analysis.

All field records will be compiled and retained in LiRo's project files. Analytical data packages will contain all information necessary for data validation, if data validation should be required. At a minimum, the following information is needed as appropriate to the analytical methodology:

- Case narrative;
- Chain of Custody (COC) records;
- QC summaries (i.e.: blanks, spikes, duplicates, serial dilutions);
- Analytical data report;
- Calibration information (including instrument performance checks);
- Chromatograms;
- Quantitation reports;
- Spectra;
- Analytical sequence logs; and,
- Sample preparation logs.

The laboratory will keep sample evidence files containing the following items:

- COC records;

- Sample log-in information (if applicable);
- Copies of laboratory records and notebook pages;
- Copies of laboratory bench data sheets;
- Instrument raw data, both hardcopy and electronic;
- Chromatograms;
- Pertinent correspondence memoranda; and,
- Final report file.

LiRo will retain relevant and appropriate project information in project files. The information contained in these files includes, but is not limited to, the following items:

- COC records;
- Field notes and information;
- Correspondence and telephone memoranda;
- Meeting notes;
- Laboratory information;
- Data validation information;
- Reference information;
- Audit information; and,
- Copies of reports.

2.1 Data Validation

Validation will be performed by a third party data validator. The data will be audited and validated for compliance with the ASP requirements. Data deliverables will be reviewed for completeness, sample preservation and holding time compliance, calibration and method blank contamination, instrument calibrations, analytical spike recoveries and compound identification. If discrepancies or deviations are found in the data package, the laboratory will be contacted to clarify specific issues.

Data validation techniques include screening and accepting, rejecting or qualifying data on the basis of specific quality control criteria for sample preservation and holding time compliance,

instrument calibration, method blank results, analytical spike results, surrogates, and laboratory and field duplicates. Data validation is a process whereby erroneous data may be identified prior to entering the project record. Validation of field measurements will be performed by field personnel in consultation with technical supervisors. Field personnel will validate the field data through review of calibration and duplicate data readings. The data will be reviewed to determine if there are any anomalous readings. Anomalies will be resolved immediately by means such as re-calibration or re-acquisition of the measurement.

For all analytical samples associated with this project, the laboratory will produce NYDEC data packages that will contain all information needed for formal validation of the data. Data validation will be performed in accordance with the USEPA Region II Standard Operating Procedures (SOPs) HW-6, Revision 12 (TCL Organics data) and HW-2, Revision 11 (TAL Inorganics data). These procedures are specific with regard to evaluation of holding time, surrogate and spike recoveries, precision of duplicate measurements, calibration and instrument performance, blank contamination, compound identification, and compound quantification. Data will be qualified as necessary in accordance with the SOPs and any qualification will be explained in a data validation narrative.

Once the validation process is completed, the data usability will be determined. A data usability summary report (DUSR) will be appended to the Site Investigation Report. The data usability report will identify data deficiencies, analytical protocol deviations and quality control problems. The report will include recommendations for data usability and any required resampling or reanalysis.

2.2 Quality Control Samples

Various QA/QC samples will be analyzed to assess the quality of the data resulting from the field sampling and analytical programs. The following identifies the QA/QC samples to be analyzed, at a minimum as well as the frequency of analysis.

2.2.1 Laboratory Quality Control Samples

A. Method Blanks: Method blank is defined as laboratory-demonstrated analyte-free water that

is carried through the entire analytical procedure. Method and field/rinsate are not expected to contain any target analytes with concentrations greater than the reported detection limit with the possible exception of common laboratory contaminants (i.e., methylene chloride, acetone, 2-butanone, and phthalate esters). Method blanks are analyzed at a frequency defined by the ASP document.

B. Matrix Spike Samples: An aliquot of a matrix (water or soil) is spiked with known concentrations of specific compounds as stipulated in the ASP document. The matrix spike and matrix spike duplicate are subjected to the entire analytical procedure in order to indicate both accuracy and precision of the method for the matrix by measuring the percent recovery and Relative Percent Difference (RPD) of the two spiked samples. MS/MSD data are assessed based upon the percent recovery of spiked analytes using the following equation:

$$\% R = \frac{(SSR - SR)}{SA} \times 100\%$$

where, SSR = Spiked sample result for analyte x;
SR = Sample result for analyte x; and,
SA = Spike added of analyte x.

The relative percent difference between the MS/MSD results is calculated using the RPD equation presented above. Each matrix spike set includes a matrix spike blank sample. MS/MSDs are analyzed at a frequency stated in Table 8.

C. Laboratory Control Samples: Laboratory control spike samples (LCS) provide information about the accuracy of the analytical system, independent of matrix. LCS are laboratory-generated sample spikes with target analytes at concentrations appropriate to the analyses. LCS will be analyzed as part of every analytical batch.

2.2.2 Field Quality Control Samples

A. Trip Blanks - The primary purpose of the trip blank is to detect additional sources of contamination that might potentially influence contaminant values reported in actual

samples both quantitatively and qualitatively. Possible sources of contamination may be laboratory reagent water, sample containers, and sample handling procedures in the field and at the laboratory. Trip blanks will be defined as two 40 ml Volatile Organics Analysis (VOA) vials filled with laboratory-demonstrated analyte-free water. This water must originate from one common source within the laboratory and must be the same water used by the laboratory performing the analysis. Trip blanks should be handled and transported in the same manner as the samples acquired that day, except that trip blanks are not opened in the field. Instead, they travel with the sample containers. Trip blanks must return to the laboratory with the same set of containers they accompanied to the field, and are analyzed for VOAs only.

B. Rinse Blanks - The purpose of a rinse blank is to provide a check on possible sources of contamination resulting from exposure to the ambient air or from improperly cleaned sampling equipment. The rinse blank is opened in the field and the laboratory water is passed through the cleaned sampling equipment and placed in the empty containers. This water must originate from one common source within the laboratory and must be the same water used by the laboratory performing the analysis. The rinse blank should be collected, transported, and analyzed in the same manner as the samples acquired that day. Rinse blanks must be packaged with their associated matrix and will be collected for each matrix as specified in Table 8.

C. Field Duplicates – Field duplicates are samples collected simultaneously for the same analyte or set of analytes at one location, after which they are treated as separate samples. If the sampling matrix is homogeneous, field duplicates provide a means of assessing the precision of collection methods. Field duplicates are collected by sampling the same location twice, but the field duplicate is assigned a unique sample identification number. Field duplicate results are assessed based upon relative percent difference (RPD) between values, using the following equation:

i. $$RPD = \frac{(D1 - D2)}{(D1 + D2)/2} \times 100\%$$

where, D1 = Primary sample result; and,

D2 = Duplicate sample result.

D. Split Samples - Split samples are used for performance audits or inter-laboratory comparability of data. At this time, no split sample collection is planned. If split samples are required to be collected, then the following will apply: A split sample will be defined as two separate samples taken from a single aliquot which has been thoroughly mixed or homogenized prior to the formation of the two separate samples.

3.0 ENVIRONMENTAL SAMPLE CUSTODY AND SHIPPING PROCEDURES

The ultimate accuracy of any data generation begins with a sampling and measurement procedure that is well conceived and carefully implemented. The details of the sampling protocols are provided in this section, which presents the procedures with which samples will be acquired or measurements made during the execution of the project. The laboratory methods referenced in this plan are consistent with the NYSDEC ASP.

3.1 Sample Custody and Responsibilities

Procedures contained in the chain-of-custody guidelines outlined in NEIC Policies and Procedures, prepared by the National Enforcement Investigations Center of the USEPA office of Enforcement will be utilized. Specific procedures to be used are described below.

3.1.1 Custody Definitions

Chain-of-Custody Officer - The Chain-of-Custody Officer will be responsible for oversight of chain-of-custody activities. The lead geologist or lead sampler will usually implement these activities.

A sample is "Under Custody" if:

1. It is in the possession of the Chain-of-Custody Officer; or
2. It is in the view of the Chain-of-Custody Officer, after being in his possession; or
3. It was in his possession and he locked it up; or
4. It is in a designated secure area.

3.1.2 Responsibilities

The Chain-of-Custody Officer is responsible for monitoring all chain-of-custody activities and for collecting legally admissible copies of chain-of-custody documentation for the permanent project file. He shall be responsible for:

1. An initial review of sample labels and/or tags, closure tapes, and chain-of-custody record

and split-sample forms provided by the laboratory. The Chain-of-Custody Officer will document this review in the field logbook.

2. Training of all field sampling personnel in the methodologies for carrying out chain-of-custody procedures and the proper use of all chain-of-custody forms and record documents.
3. Monitoring implementation of chain-of-custody procedures.

The chain-of-custody is initiated in the laboratory when the sample containers and vials are prepared, packed, and shipped to the site. When the sample containers are received they will be checked for any breach of chain-of-custody seals or evidence of tampering.

All samples shall be adequately marked for identification from the time of collection and packaging through shipping and storage. Marking shall be on a sample label attached to the sample container. Sample identification shall include, as a minimum:

- Project name and/or code;
- Sample identification number;
- Analysis requested;
- Chemical preservatives added to the sample container;
- Sample date and time; and,
- Initials of the individual performing the sampling (samples for chemical analysis).

At the time of sampling, the field sampling personnel will record sample information on a chain-off-custody form. Chain-of-custody form entries will be made in indelible ink.
After sampling containers are filled, the field sampling personnel will place the filled containers in coolers preserved with ice and maintain custody of all samples until they are transferred to the field office for processing. After samples are processed, they will be prepared for shipping to Chemtech in Mountainside, New Jersey. Samples will be shipped within 48 hours of sample collection.

3.2 Split-Sample Records

Whenever samples are split, a split-sample receipt will be prepared. The receipt will describe the samples being split, including the quantity (mass or volume) of each sample portion. Both the laboratory (and field sampling personnel, should samples be split in the field) and the recipient of the split samples will retain copies of the receipt. The chain-of-custody forms will be used to document split-sample receipts and will accompany both portions of the sample.

4.0 SAMPLE LABELING AND SHIPPING

Each label will include such information as the following:

- site name
- sample identification
- project number
- date/time
- samplers' initials
- sample preservation (if any) designation
- analysis required

Each sample will be assigned a unique alpha-numeric identification code. An example of this code and a description of its components are presented below:

4.1 Sample Identification Codes

List of Abbreviations

Sample Location Identifications

TP = Test Pit
MW = Groundwater monitoring well
SB = Soil Boring
XX = Depth of Soil Boring
LE = Leachate

Other Label Information

GW = Groundwater
TB = Trip blank
RB =Field Rinse Blank

FD = Field Duplicate (Will have the same name as the primary sample, with an FD added to the end of the ID)
MS = Matrix Spike
MSD = Matrix Spike Duplicate

The samples collected will be categorized as environmental samples, per EPA/Department of Transportation (DOT) regulations and regulations specified in 49 CFR, Parts 171 through 179. The environmental samples will consist of potentially contaminated groundwater and soils. It is anticipated that the environmental samples that will be collected are likely to have low concentrations of contaminants and shall be handled as such for shipping purposes. Highly contaminated soil or groundwater (contaminated with high levels of organic) will be shipped as environmental samples using the procedures discussed below.

Environmental samples shall be shipped using the following steps:

1. Fill out the chain-of-custody record with relevant information.
2. Place the white original in a ziplock bag to travel with the samples. Tape the bag inside the sample cooler.
3. Cushion the bottom, sides and top of the cooler with bubble pack material.
4. Place bottles in cooler in such a way that they do not touch using bubble pack.
5. Pack coolers with ice in ziplock plastic bags.
6. Secure the cooler lid.
7. Place accompanying documentation (analytical request forms, etc.) in plastic bags and tape with masking or clear plastic tape to inside lid of cooler. Tape cooler drain shut.
8. Wrap cooler around complete circumference with strapping tape at two locations. Secure lid by taping. Do not cover current shipping or marking labels.
9. Affix custody seals on front right of cooler. Cover seals with wide, clear tape
10. Place lab address on top of cooler and ship samples via overnight carrier the same day that they are collected to the laboratory

5.0 FIELD QUALITY CONTROL/QUALITY ASSURANCE

5.1 Calibration of Field Equipment

Field equipment will be calibrated according to the manufacturer's recommended methods, as applicable. The following equipment will be calibrated daily:

- photoionization detector

Other field equipment will be calibrated prior to use and at such intervals as recommended by the manufacturer.

5.2 Preventative Maintenance of Field Equipment

Field equipment will be maintained and serviced according to the manufacturer's recommendations. Equipment will be cleaned on a regular basis and/or decontaminated according to manufacturer's recommendations and the Equipment Decontamination Plan detailed in Section 2.5 of the RIWP. A copy of the manufacturers' equipment operating manual for each piece of equipment will be kept at the on-site support vehicle.

6.0 CORRECTIVE ACTIONS

Corrective action is the process of identifying, recommending, approving, and implementing measures to counter unacceptable procedures or out-of-QC performance which can affect data quality. Corrective action can occur during field activities, laboratory analyses, data validation, and data assessment. All corrective actions proposed and implemented will be documented in the regular QA reports to management. Only after approval by the Project Manager or designee will corrective action be implemented.

For noncompliance problems, a formal corrective action program will be determined and implemented at the time the problem is identified. The person who identifies the problem is responsible for notifying the RI Project Chemist, who in turn will notify the Project Manager.

Any nonconformance with the established QC procedures in the QAPP will be identified and corrected in accordance with this QAPP. The RI Project chemist, or designee, will issue a nonconformance report for each nonconformance condition.

5.3 Field Corrective Action

Corrective action in the field may be needed when the sample network is changed (i.e., more/fewer samples, sampling locations other than those specified in the QAPP, etc.), sampling procedures and/or field analytical procedures require modification due to unexpected conditions, problems are identified during the data review and validation, etc. In general the Project Manager or project Geologist may identify the need for corrective action. The Project Manager, in consultation with NYSDEC, will recommend a corrective action. It will be the responsibility of the Project Manager to ensure the corrective action has been properly implemented. A copy of the corrective action documentation will be provided to the Project Chemist on the same day the corrective measure is implemented. This will enable the Project Chemist to include the corrective action in the project status report.

5.4 Laboratory Corrective Action

Corrective action in the laboratory may occur prior to, during, and after initial analysis. A number of conditions (such as broken sample containers, multiple phases, low/high pH readings, potentially high sample concentrations) may be identified during sample log-in or just prior to analysis. Following consultation with lab analysts and section leaders, it may be necessary for the RI Project Chemist to approve the implementation of corrective action. Depending on the condition encountered, the RI Project Chemist may consult the RI QA Officer for input. Conditions during or after analysis that may automatically trigger corrective action or optional procedures include dilution of samples, additional sample extract cleanup, automatic reinjection/reanalysis when certain QC criteria are not met, etc. A summary of method-specific corrective actions is available in the LQAP. All laboratory corrective actions will be documented and also identified in the case narrative of the data packages.

5.5 Corrective Action during Data Review / Validation and Assessment

The need for corrective action may be required during either the data validation or data assessment. Potential types of corrective action may include re-sampling by the field team or re-extraction/re-analysis of samples by the laboratory. These actions are dependent upon the ability to mobilize the field team, the existence of a sufficient amount of sample necessary for reanalysis (including whether or not the remaining sample satisfies holding time requirements), whether the data to be collected is necessary to meet the required QA objectives, etc. If the RI Data Validator identifies a corrective action situation, it is the Project Manager who will be responsible for approving the implementation of corrective action, including re-sampling, during data assessment. The Project Manager will document all corrective actions of this type.

5.6 Major Corrective Actions

Any corrective action that requires re-sampling or changes to the QAPP will be defined as a major corrective action. Major corrective actions include, but are not limited to, measures that change the number of samples collected, alter previously selected sampling locations, or impact the project QC objectives. The Project Manager will be responsible for contacting the NorDel II, LLC (client) and

NYSDEC to discuss all major corrective actions. The client and NYSDEC should approve major corrective actions before implementation by the Project Manager and field team.

7.0 DATA USABILITY SUMMARY REPORT (DUSR)

After the fieldwork is complete and the final analyses are completed, reviewed and validated, a Data Usability Summary Report (DUSR) will be prepared. The report will summarize the quality assurance, indicating any corrective actions taken and the overall results of QAPP compliance. The third party RI data validator will prepare this final summary in accordance with DER-10 requirements. The report will be utilized during the decision making-process and will be incorporated as part of the final report

TABLES

TABLE 1
PARCC DATA FOR AQUEOUS SAMPLES
WESTERN NEW YORK WORKFORCE TRAINING CENTER QAPP

MEASUREMENT PARAMETER	METHOD REFERENCE	LABORATORY PRECISION	FIELD & LABORATORY PRECISION	ACCURACY	COMPLETENESS (a)
TCL Volatile Organics	SW846 8260C	see Table 2	±50%	see Table 2	85%
TCL Semi-Volatile Organics	SW846 8270D	see Table 2	±50%	see Table 2	85%
TCL Pesticides/PCBs	SW846 8081C/8082A	see Table 2	±50%	see Table 2	85%
TAL Metals	SW846 6010C	see Table 2	±50%	see Table 2	85%
TAL Cyanide	EPA 335.4	see Table 2	±50%	see Table 2	85%
TAL Mercury	SW846 7470A	see Table 2	±50%	see Table 2	85%

NOTES:

(a) While the goal for completeness of laboratory measurements is 90%, the goal for total completeness (sampling and analytical) is 85%.

1. TCL = CLP Target Compound List; TAL = CLP Target Analyte List. See Table 5.
2. Precision expressed as either percent relative standard deviation (%RSD) or relative percent difference (%RPD).
3. Accuracy expressed as percent recovery of matrix spike or laboratory control sample.
4. Precision and accuracy for TCL/TAL parameters provided in Table 2.

TABLE 2
LABORATORY PRECISION AND ACCURACY CRITERIA FOR AQUEOUS TCL/TAL SAMPLES
WESTERN NEW YORK WORKFORCE TRAINING CENTER QAPP

VOLATILE ORGANICS:	QC LIMITS	
Target Spike Compound	**% Recovery**	**% RPD**
1,1-Dichloroethene	69%-140%	0%-20%
Trichloroethene	68%-150%	0%-14%
Benzene	78%-129%	0%-11%
Toluene	76%-125%	0%-13%
Chlorobenzene	80%-132%	0%-13%
Surrogate Compound		
Toluene-d8	81%-120%	Not Applicable
Bromofluorobenzene	76%-119%	Not Applicable
Dibromofluoromethane	85%-115%	Not Applicable
1,2-Dichloroethane-d4	72%-119%	Not Applicable
SEMI-VOLATILE ORGANICS:	**QC LIMITS**	
Target Spike Compound	**% Recovery**	**% RPD**
Phenol	18%-37%	0%-50%
2-Chlorophenol	45%-87%	0%-50%
N-Nitroso-di-n-propylamine	48%-96%	0%-50%
4-Chloro-3-methylphenol	39%-101%	0%-50%
Acenaphthene	56%-104%	0%-50%
4-Nitrophenol	20%-115%	0%-50%
2,4-Dinitrotoluene	57%-103%	0%-50%
Pentachlorophenol	20%-125%	0%-50%
Pyrene	50%-110%	0%-50%
Surrogate Compound		
Nitrobenzene-d5	35%-114%	Not Applicable
2-Fluorobiphenyl	43%-116%	Not Applicable
Terphenyl-d14	33%-141%	Not Applicable
Phenol-d6	10%-94%	Not Applicable
2-Fluorophenol	21%-110%	Not Applicable
2,4,6-Tribromophenol	10%-123%	Not Applicable
2-Chlorophenol-d4 (advisory)	33%-110%	Not Applicable
1,2-Dichlorobenzene-d4 (advisory)	16%-110%	Not Applicable
PESTICIDES:	**QC LIMITS**	
Target Spike Compound	**% Recovery**	**% RPD**
gamma-BHC	68%-136%	0%-15%
Heptachlor	77%-131%	0%-20%
Aldrin	71%-129%	0%-22%
Dieldrin	78%-134%	0%-18%
Endrin	70%-118%	0%-21%
4,4'-DDT	69%-139%	0%-27%
Surrogate Compound		
Tetrachloro-m-xylene	30%-150%	Not Applicable
Decachlorobiphenyl	30%-150%	Not Applicable
POLYCHLORINATED BIPHENYLS:	**QC LIMITS**	
Target Spike Compound	**% Recovery**	**% RPD**
Aroclor 1016	61%-148%	0%-20%
Aroclor 1260	60%-134%	0%-20%
Surrogate Compound		
Tetrachloro-m-xylene	40%-135%	Not Applicable
Decachlorobiphenyl	42%-133%	Not Applicable
TARGET ANALYTE LIST:	**QC LIMITS**	
Target Spike Compound	**% Recovery**	**% RPD**
Metals	75%-125%	±20%
Cyanide	75%-125%	±20%

NOTES:

1. VOC, SVOC, PCB and Pesticide accuracy and precision criteria based upon Chemtech established limits.
2. TAL accuracy and precison criteria based upon CLP SOW ILM04.0.
3. Precision criteria for metals is ±CRDL (reporting limit) for results less than 5xCRDL.

TABLE 3
PARCC DATA FOR SOIL SAMPLES
WESTERN NEW YORK WORKFORCE TRAINING CENTER QAPP

MEASUREMENT PARAMETER	METHOD REFERENCE	LABORATORY PRECISION	FIELD & LABORATORY PRECISION	ACCURACY	COMPLETENESS (a)
TCL Volatile Organics	SW846 8260C	see Table 4	±100%	see Table 4	85%
TCL Semi-Volatile Organics	SW846 8270D	see Table 4	±100%	see Table 4	85%
TCL Pesticides/PCBs	SW846 8081B/8082A	see Table 4	±100%	see Table 4	85%
TAL Metals	SW846 6010C	see Table 4	±100%	see Table 4	85%
TAL Cyanide	SW846 9012B	see Table 4	±100%	see Table 4	85%
TAL Mercury	SW846 7471B	see Table 4	±100%	see Table 4	85%
RCRA Metals	SW846 1311	see Table 4	±100%	see Table 4	85%
TCLP Metals	SW846 1311	see Table 4	±100%	see Table 4	85%
SPLP Metals	SW846 1312	see Table 4	±100%	see Table 4	85%

NOTES:

(a) While the goal for completeness of laboratory measurements is 90%, the goal for total completeness (sampling and analytical) is 85%.

1. TCL = CLP Target Compound List; TAL = CLP Target Analyte List. See Table 5.
2. Precision expressed as either percent relative standard deviation (%RSD) or relative percent difference (%RPD).
3. Accuracy expressed as percent recovery of matrix spike or laboratory control sample.
4. Precision and accuracy for TCL/TAL parameters provided in Table 4.

TABLE 4
LABORATORY PRECISION AND ACCURACY CRITERIA FOR SOIL TCL/TAL SAMPLES
WESTERN NEW YORK WORKFORCE TRAINING CENTER QAPP

VOLATILE ORGANICS:	**QC LIMITS**	
Target Spike Compound	**% Recovery**	**% RPD**
1,1-Dichloroethene	82%-154%	0%-20%
Trichloroethene	81%-128%	0%-24%
Benzene	83%-135%	0%-21%
Toluene	78%-140%	0%-21%
Chlorobenzene	80%-141%	0%-21%
Surrogate Compound		
Toluene-d8	75%-125%	Not Applicable
Bromofluorobenzene	75%-125%	Not Applicable
Dibromofluoromethane	75%-125%	Not Applicable
1,2-Dichloroethane-d4	75%-125%	Not Applicable
SEMI-VOLATILE ORGANICS:	**QC LIMITS**	
Target Spike Compound	**% Recovery**	**% RPD**
Phenol	20%-150%	0%-50%
2-Chlorophenol	52%-107%	0%-50%
N-Nitroso-di-n-propylamine	20%-150%	0%-50%
4-Chloro-3-methylphenol	60%-100%	0%-50%
Acenaphthene	65%-100%	0%-50%
4-Nitrophenol	45%-95%	0%-50%
2,4-Dinitrotoluene	56%-104%	0%-50%
Pentachlorophenol	20%-150%	0%-50%
Pyrene	20%-150%	0%-50%
Surrogate Compound		
Nitrobenzene-d5	23%-120%	Not Applicable
2-Fluorobiphenyl	30%-115%	Not Applicable
Terphenyl-d14	18%-137%	Not Applicable
Phenol-d6	24%-113%	Not Applicable
2-Fluorophenol	25%-121%	Not Applicable
2,4,6-Tribromophenol	19%-122%	Not Applicable
2-Chlorophenol-d4 (advisory)	20%-130%	Not Applicable
1,2-Dichlorobenzene-d4 (advisory)	20%-130%	Not Applicable
PESTICIDES:	**QC LIMITS**	
Target Spike Compound	**% Recovery**	**% RPD**
gamma-BHC	53%-125%	0%-50%
Heptachlor	56%-129%	0%-31%
Aldrin	50%-123%	0%-43%
Dieldrin	57%-138%	0%-38%
Endrin	54%-129%	0%-45%
4,4'-DDT	53%-184%	0%-50%
Surrogate Compound		
Tetrachloro-m-xylene	30%-150%	Not Applicable
Decachlorobiphenyl	30%-150%	Not Applicable
POLYCHLORINATED BIPHENYLS:	**QC LIMITS**	
Target Spike Compound	**% Recovery**	**% RPD**
Aroclor 1016	55%-128%	0%-20%
Aroclor 1260	58%-140%	0%-20%
Surrogate Compound		
Tetrachloro-m-xylene	69%-124%	Not Applicable
Decachlorobiphenyl	58-125%	Not Applicable
TAL/TCLP/SPLP:	**QC LIMITS**	
Target Spike Compound	**% Recovery**	**% RPD**
Metals	75%-125%	±20%
Cyanide	75%-125%	±20%

NOTES:

1. VOC, SVOC, PCB and Pesticide accuracy and precision criteria based upon Chemtech established limits.
2. TAL accuracy and precison criteria based upon CLP SOW ILM04.0.
3. Precision criteria for metals is ±CRDL (reporting limit) for results less than 5xCRDL.

TABLE 5
TARGET COMPOUNDS/REPORTING LIMITS
WESTERN NEW YORK WORKFORCE TRAINING CENTER QAPP

	CAS	Low Level	Low Level
Volatile Organics	Number	Water (µg/L)	Soil (µg/Kg)
Dichlorodifluoromethane	75-71-8	5.0	5.0
Chloromethane	74-87-3	5.0	5.0
Vinyl Chloride	75-01-4	2.0	5.0
Bromomethane	74-83-9	5.0	5.0
Chloroethane	75-00-3	5.0	5.0
Trichlorofluoromethane	75-69-4	5.0	5.0
1,1-Dichloroethene	75-35-4	5.0	5.0
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	5.0	5.0
Acetone	67-64-1	10.0	10.0
Carbon Disulfide	75-15-0	5.0	5.0
Methyl Acetate	79-20-9	5.0	5.0
Methylene chloride	75-09-2	5.0	5.0
trans -1,2-Dichloroethene	156-60-5	5.0	5.0
Methyl tert-Butyl Ether	1634-04-4	5.0	5.0
1,1-Dichloroethane	75-34-3	5.0	5.0
cis -1,2-Dichloroethene	156-59-2	5.0	5.0
2-Butanone	78-93-3	10.0	10.0
Bromochloromethane	74-97-5	5.0	5.0
Chloroform	67-66-3	5.0	5.0
1,1,1-Trichloroethane	71-55-6	5.0	5.0
Cyclohexane	110-82-7	5.0	5.0
Carbon tetrachloride	56-23-5	5.0	5.0
Benzene	71-43-2	5.0	5.0
1,2-Dichloroethane	107-06-2	1.0	5.0
Trichloroethane	79-01-6	5.0	5.0
Methylcyclohexane	108-87-2	5.0	5.0
1,2-Dichloropropane	78-87-5	5.0	5.0
Bromodichloromethane	75-27-4	5.0	5.0
cis -1,3-Dichloropropene	10061-01-5	1.0	5.0
4-methyl-2-pentanone	108-10-1	10.0	10.0
Toluene	108-88-3	5.0	5.0
Trans-1,3-Dichloropropene	10061-02-6	1.0	5.0
1,1,2-Trichloroethane	79-00-5	5.0	5.0
Tetrachloroethene	127-18-4	5.0	5.0
2-Hexanone	591-78-6	10.0	10.0
Dibromochloromethane	124-48-1	5.0	5.0
1,2-Dibromoethane	106-93-4	1.0	5.0
Chlorobenzene	108-90-7	5.0	5.0
Ethylbenzene	100-41-4	5.0	5.0
Xylenes (Total)	1330-20-7	5.0	5.0
Styrene	100-42-5	5.0	5.0
Bromoform	75-25-2	5.0	5.0
Isopropylbenzene	98-82-8	5.0	5.0
1,1,2,2-Tetrachloroethane	79-34-5	5.0	5.0
1,3-Dichlorobenzene	541-73-1	5.0	5.0
1,4-Dichlorobenzene	106-46-7	5.0	5.0
1,2-Dichlorobenzene	95-50-1	5.0	5.0
1,2-Dibromo-3-chloropropane	96-12-8	5.0	5.0

TABLE 5
TARGET COMPOUNDS/REPORTING LIMITS
WESTERN NEW YORK WORKFORCE TRAINING CENTER QAPP

	CAS	Low Level	Low Level
1,2,4-Trichlorobenzene	120-82-1	5.0	5.0
1,2,3-Trichlorobenzene	87-61-6	5.0	5.0

		Water	Low Level
Semivolatile Organics	CAS Number	(µg/L)	Soil (µg/Kg)
Benzaldehyde	100-52-7	5.0	170.0
Phenol	108-95-2	5.0	170.0
Bis -(2-chlorothyl) ether	111-44-4	5.0	170.0
2-Chlorophenol	95-57-8	5.0	170.0
2-Methylphenol	95-48-7	1.0	170.0
2,2'-Oxybis (1-chloropropane)	108-60-1	5.0	170.0
Acetophenone	98-86-2	5.0	170.0
4-Methylphenol	106-44-5	5.0	170.0
N-Nitroso-di-n-propylamine	621-64-7	5.0	170.0
Hexachloroethane	67-72-1	5.0	170.0
Nitrobenzene	98-95-3	1.0	170.0
Isophorone	78-59-1	5.0	170.0
2-Nitrophenol	88-75-5	1.0	170.0
2,4-Dimethylphenol	105-67-9	1.0	170.0
Bis (2-chloroethoxy) methane	111-91-1	5.0	170.0
2,4-Dichlorophenol	120-83-2	1.0	170.0
Naphthalene	91-20-3	5.0	170.0
4-Chloroaniline	106-47-8	5.0	170.0
Hexachlorobutadiene	87-68-3	5.0	170.0
Caprolactam	105-60-2	5.0	170.0
4-Chloro-3-methylphenol	59-50-7	1.0	170.0
2-Methylnaphthalene	91-57-6	5.0	170.0
Hexachlorocyclopentadiene	77-47-4	5.0	170.0
2,4,6-Trichlorophenol	88-06-2	1.0	170.0
2,4,5-Trichlorophenol	95-95-4	1.0	330.0
1,1'-Biphenyl	92-52-4	5.0	170.0
2-Chloronaphthalene	91-58-7	5.0	170.0
2-Nitroaniline4	88-74-4	10.0	330.0
Dimethylphthalate	131-11-3	5.0	170.0
2,6-Dinitrotoluene	606-20-2	5.0	170.0
Acenaphthylene	208-96-8	5.0	170.0
3-Nitroaniline4	99-09-2	10.0	330.0
Acenaphthene	83-32-9	5.0	170.0
2,4-Dinitrophenol4	51-28-5	1.0	330.0
4-Nitrophenol4	100-02-7	1.0	330.0
Dibenzofuran	132-64-9	5.0	170.0
2,4-Dinitrotoluene	121-14-2	5.0	170.0
Diethylphthalate	84-66-2	5.0	170.0
Fluorene	86-73-7	5.0	170.0
4-Chlorophenyl-phenyl ether	7005-72-3	5.0	170.0
4-Nitroaniline4	100-01-6	10.0	330.0
4,6-Dinitro-2-methylphenol	534-52-1	1.0	330.0
N-Nitrosodiphenylamine	86-30-6	5.0	170.0
1,2,4,5-Tetrachlorobenzene	95-34-3	5.0	170.0
4-Bromophenyl-phenylether	101-55-3	5.0	170.0
Hexachlorobenzene	100-52-7	0.5	170.0
Atrazine	108-95-2	5.0	170.0
Pentachlorophenol	111-44-4	1.0	170.0
Phenanthrene	95-57-8	5.0	170.0

TABLE 5
TARGET COMPOUNDS/REPORTING LIMITS
WESTERN NEW YORK WORKFORCE TRAINING CENTER QAPP

	CAS	Low Level	Low Level
Anthracene	95-48-7	5.0	170.0
Carbazole	108-60-1	5.0	170.0
Di-n-butylphthalate	98-86-2	5.0	170.0
Fluoroanthene	106-44-5	5.0	170.0
Pyrene	621-64-7	5.0	170.0
Butylbenzylphthalate	67-72-1	5.0	170.0
3,3'-Dichlorobenzidine	98-95-3	5.0	170.0
Benzo (a) anthracene	78-59-1	0.5	170.0
Chrysene	88-75-5	0.5	170.0
Bis (2-ethylhexyl) phthalate	105-67-9	5.0	170.0
Di-n-octylphthalate	111-91-1	5.0	170.0
Benzo (b) fluoranthene	120-83-2	0.5	170.0
Benzo (k) fluoranthene	91-20-3	0.5	170.0
Benzo (a) pyrene	106-47-8	0.5	170.0
Indeno (1,2,3-cd) pyrene	87-68-3	0.5	170.0
Benzo (a,h) anthracene	105-60-2	0.5	170.0
Benzo (g,h,i) perylene	59-50-7	5.0	170.0

Pesticides	CAS Number	Water (µg/L)	Solids (µg/Kg)
alpha-BHC	319-84-6	0.050	1.7
beta-BHC	319-85-7	0.050	1.7
delta-BHC	319-86-8	0.050	1.7
gamma-BHC (Lindane)	58-89-9	0.050	1.7
Heptachlor	76-44-8	0.050	1.7
Aldrin	309-00-2	0.050	1.7
Heptachlor epoxide2	1024-57-3	0.050	1.7
Endosulfan I	959-98-8	0.050	1.7
Dieldrin	60-57-1	0.10	3.3
4,4'-DDE	72-55-9	0.10	3.3
Endrin	72-20-8	0.10	3.3
Endosulfan II	33213-65-9	0.10	3.3
4,4'-DDD	72-54-8	0.10	3.3
Endosulfan sulfate	1031-07-8	0.10	3.3
4,4'-DDT	50-29-3	0.10	3.3
Methoxychlor	72-43-5	0.10	3.3
Endrin ketone	53494-70-5	0.10	3.3
Endrin aldehyde	7421-93-4	0.10	3.3

TABLE 5
TARGET COMPOUNDS/REPORTING LIMITS
WESTERN NEW YORK WORKFORCE TRAINING CENTER QAPP

	CAS	Low Level	Low Level
alpha-Chlordane	5103-71-9	0.050	1.7
gamma-Chlordane	5103-74-2	0.050	1.7
Toxaphene	8001-35-2	5.0	34.0

PCBs	CAS Number	Water (µg/L)	Solids (µg/Kg)
Arochlor-1016	12674-11-2	0.5	33
Arochlor-1221	11104-28-2	0.5	33
Arochlor-1232	11141-16-5	0.5	33
Arochlor-1242	53469-21-9	0.5	33
Arochlor-1248	12672-29-6	0.5	33
Arochlor-1254	11097-69-1	0.5	33
Arochlor-1260	11096-82-5	0.5	33
Arochlor-1262	37324-23-5	0.5	33
Arochlor-1268	11100-14-4	0.5	33

Inorganics	CAS Number	Water (µg/L)	Solids (mg/kg)
Aluminum	7429-90-5	200	40
Antimony	7440-36-0	60	12
Arsenic	7440-38-2	15	3
Barium	7440-39-3	200	40
Beryllium	7440-41-7	5	1
Cadmium	7440-43-9	5	1
Calcium	7440-70-2	5000	1000
Chromium	7440-47-3	10	2
Cobalt	7440-48-4	50	10
Copper	7440-50-8	25	5
Iron	7439-89-6	100	20
Lead	7439-92-1	10	2
Magnesium	7439-95-4	5000	1000
Manganese	7439-96-5	15	3
Mercury	7439-97-6	0.2	0.1
Nickel	7440-02-0	40	8
Potassium	7440-09-7	5000	1000
Selenium	7782-49-2	35	7
Silver	7440-22-4	10	2
Sodium	7440-23-5	5000	1000
Thallium	7440-28-0	25	5
Vanadium	7440-62-2	50	10
Zinc	7440-66-6	60	12
Cyanide	57-12-5	10	1

TABLE 6
ANALYTICAL METHODS, SAMPLE CONTAINERS, PRESERVATION AND ANALYTICAL HOLD TIMES FOR AQUEOUS SAMPLES
WESTERN NEW YORK WORKFORCE TRAINING CENTER QAPP

PARAMETER	METHODOLOGY	CONTAINER	MINIMUM SAMPLE	PRESERVATION [1]	HOLD TIME [2]
TCL Volatile Organics	SW846 8260C	3-40 ml G	2 - 40 ml	Cool 4 ^{o}C;HCl,pH<2	14 days [3]
TCL Semi-Volatile Organics	SW846 8270D	2-1000ml G	1000ml	Cool 4^{o} C	7 days [4]
TCL Pesticides/PCBs	SW846 8081B/8082A	2-1000ml G	1000ml	Cool 4^{o} C	7 days [4]
TAL Metals	SW846 6010C	1-500 ml P	250 ml	Cool 4^{o} C; HNO_3, pH<2	180 days [5]
TAL Cyanide	EPA 335.4	1-500ml G	50ml	Cool 4^{o} C; NaOH, pH>12	14 days
TAL Mercury	SW846 7470A	1-250ml P	200ml	Cool 4^{o} C; HNO_3, pH<2	28 days

Notes:

1. Sample preservation is performed by sampler immediately upon sample collection.
2. Hold time based upon day of sample collection not Verified Time of Sample Receipt.
3. If sample cannot be preserved due to foaming, unpreserved sample will be analyzed within 7 days.
4. Hold time is 7 days until start of sample extraction, 40 days following extraction for analysis.
5. Hold Time for metals is 180 days, except for Mercury which is 28 days.

P indicates that a Plastic bottle should be used.
G indicates that a Glass bottle should be used.

TABLE 7
ANALYTICAL METHODS, SAMPLE CONTAINERS, PRESERVATION AND ANALYTICAL HOLD TIMES FOR SOIL SAMPLES
WESTERN NEW YORK WORKFORCE TRAINING QAPP

PARAMETER	METHODOLOGY	CONTAINER	MINIMUM SAMPLE	PRESERVATION (1)	HOLD TIME (2)
TCL Volatile Organics	SW846 8260C	4 EnCore samplers or 2 oz G	15 gm	Cool 4 ^{o}C	14 days (3)
TCL Semi-Volatile Organics	SW846 8270D	4 oz G	30 gm	Cool 4 ^{o}C	14 days (4)
TCL Pesticides/PCBs	SW846 8081B/8082A	4 oz G	30 gm	Cool 4 ^{o}C	14 days (4)
TAL Metals (incl. Mercury)	SW846 6010C/7471B	4 oz G	30 gm	Cool 4 ^{o}C	180 days (5)
TAL Cyanide	SW846 9012B	4 oz G	30 gm	Cool 4 ^{o}C	14 days
RCRA Metals	SW846 1311/6010C	8 oz G	150 gm	Cool 4 oC	180 days (5)
TCLP Metals	SW846 1311/6010C	8 oz G	150 gm	Cool 4 oC	180 days (5)
SPLP Metals	SW846 1312/6010C	8 oz G	150 gm	Cool 4 oC	180 days (5)

Notes:

1. Sample Preservation is performed by sampler immediately upon sample collection except for VOCs which is performed by laboratory upon receipt (see Note 3).
2. Hold time based upon day of sample collection not Verified Time of Sample Receipt.
3. Hold time is 48 hours to lab prep for EnCore samplers and then 14 days to analysis.
4. Hold Time for SVOCs, Pesticides/PCBs is 14 days for extraction and 40 days for analysis.
5. Hold Time for metals is 180 days, except for Mercury which is 28 days.

G indicates that a Glass bottle should be used.

TABLE 8
FIELD AND LABORATORY CONTROL SAMPLES
WESTERN NEW YORK WORKFORCE TRAINING CENTER QAPP

Sample Type	Matrix	Estimated Number of Samples
Soil samples		
Soil Boring	Soil	48
Rinsate Blank - split spoons	Water	1 per 20
Trip Blank	Water	1 per day* (VOCs only)
Matrix Spike	Soil	1 per 20
Matrix Spike Duplicate	Soil	1 per 20
Duplicate	Soil	1 per 20
Surface Soil	Soil	4
Rinsate Blank	Water	1 per 20
Trip Blank	Water	1 per day* (VOCs only)
Matrix Spike	Soil	1 per 20
Matrix Spike Duplicate	Soil	1 per 20
Duplicate	Soil	1 per 20
Groundwater samples		
Groundwater samples	Water	6
Rinsate Blank	Water	1 per 20
Trip Blank	Water	1 per day* (VOCs only)
Matrix Spike	Water	1 per 20
Matrix Spike Duplicate	Water	1 per 20
Duplicate	Water	1 per 20

* One trip blank to be included with each shipment of VOC samples.

APPENDIX H – HEALTH AND SAFETY PLAN

SITE SPECIFIC HEALTH AND SAFETY PLAN
for the

Western New York Workforce Training Center 683 Northland Avenue Buffalo, New York

Prepared for:

NorDel II, LLC

Prepared by:

LiRo Engineers, Inc. 690 Delaware Avenue Buffalo, NY 14209

December, 2016

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

1.0 INTRODUCTION

The purpose of this Health and Safety Plan (HASP) is to set forth in an orderly and logical fashion, appropriate health and safety procedures to be followed by LiRo Engineers, Inc. (LiRo) employees during onsite investigative activities throughout the Western New York Workforce Training Center Site Investigation. The site investigation work at the site will include:

- Surface Soil Investigation
- Subsurface Soil Investigation
- Groundwater Investigation
- Soil/Subslab Vapor Investigation

This document will serve not only to explain the chemical and physical hazards associated with working on the site, but will also outline approved measures for dealing with such hazards.

The procedures presented in this plan comply with the following regulatory or guidance documents:

- New York State Labor Law, Paragraph 906, Part 56 (Code Rule 56).
- USEPA National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR 61, Subpart M.
- OSHA Asbestos Construction Standard, 29 CFR 1926.1101.
- OSHA Occupational Safety and Health Regulations, 29 CFR 1910/1926, U.S. Department of Labor, Occupational Safety and Health Administration, OSHA, March 6, 1990.
- OSHA Occupational Safety and Health Standards for Emergency Action Plan (Means of Egress), 29 CFR 1910.38.
- OSHA Occupational Safety and Health Standards, 29 CFR 1910.120.
- USEPA Order 1440.2, Health and Safety Requirements for Employees Engaged in Field Activities, July 12, 1981.
- NIOSH/OSHA/USEPA, Occupational Safety and Health Guidance manual for Hazardous Waste Site Activities, October 1985.
- Standard Operating Safety Guides, United States Environmental Protection Agency, Office of Emergency and Remedial Response, November 1984.
- LiRo Corporate Health and Safety Manual.

The project Health and Safety Officer (HSO) will be responsible for the development and implementation of project Health and Safety protocols. All personnel involved in onsite activities under this Health and Safety Plan will be required to follow the HASP protocols, as directed by the Site Health and Safety Officer (HSO). In addition, any subcontractor(s) will be required to designate a Site HSO for their personnel and to follow, at a minimum, the requirements of this HASP.

The Site HSO reports directly to the Project HSO. LiRo will designate a qualified backup for the site HSO prior to the initiation of onsite activities. The Site HSO can also be one of the project field engineers or geologists. Field Activity Forms to be used by the site HSO to document Health and Safety Program requirements are provided in Appendix A.

All personnel who will be involved with sampling onsite must have completed the appropriate waste site worker training as required by OSHA 1910.120(e)(2), 1910.120(e)(3), and 1910.120(e)(8), as applicable, and the required medical surveillance as required by OSHA 1910.120(f).

2.0 RESPONSIBILITIES

The following is a summary of the health and safety responsibilities of various project personnel.

2.1 Project Health and Safety Officer

The responsibilities of the Project Health and Safety Officer (HSO) are to develop and coordinate the Site Health and Safety Program and provide necessary direction and supervision to the Site HSO. He will identify the most direct route to the closest hospital. The Project HSO will review and confirm changes in personal protection requirements when site conditions are found to be different than those originally anticipated.

The Project HSO will be involved in all discussions on health and safety matters with the Occupational Safety and Health Administration (OSHA), local health authorities, or other governmental or labor representatives. In addition, this individual will provide the Site HSO with details concerning the task-specific health and safety considerations. The Project HSO reports directly to the project Manager. LiRo will designate a qualified backup for the Project HSO prior to the initiation of onsite activities.

2.2 Site Health and Safety Officer

The responsibilities of the Site HSO are as follows:

- Implement this HASP onsite
- Enforce day-to-day health and safety protocols in effect onsite
- Require that all personnel entering the site understand the provisions of this HASP
- Conduct periodic training sessions in proper use and maintenance of personal protective equipment and safety practices

- Conduct periodic emergency response drills
- Conduct daily health and safety meetings each morning
- Direct and advise onsite LiRo personnel, visitors, and subcontractor(s) HSO(s) on all aspects, especially changes, related to health and safety requirements at the site
- Conduct necessary health and safety monitoring
- Administer air monitoring program
- Monitor site conditions and determine all necessary changes in levels of personal protection and, if warranted, execute work stoppages
- Report changes in site conditions and changes in personal protection equipment requirements to the Project HSO
- Prepare accident/incident reports

The Site HSO reports directly to the Project HSO. LiRo will designate a qualified backup for the Site HSO prior to the initiation of onsite activities.

2.3 Key Personnel

Personnel responsible for implementation of this Health and Safety Plan are:

Name	Title	Address	Contact Numbers
Stephen Frank	Project Coordinator	690 Delaware Avenue Buffalo, NY 14209	Phone: 716-882-5476 Cell: 716-704-1016
Michael Byrnes, CIH	Project Health and Safety Officer	15-09 132nd St. 2nd Floor College Point, NY 11356	Phone: 718-886-7998 Cell: 917-833-3028
Jason Colvin	Site Health and Safety Officer	690 Delaware Avenue Buffalo, NY 14209	Phone: 716-882-5476 Cell: 716-949-9797

3.0 PROJECT BACKGROUND

LiRo Engineers, Inc. (LiRo) is in contract agreement with NorDel II, LLC to complete a Site Investigation (SI) at the Western New York Workforce Training Center Site located at 683 Northland Avenue in the City of Buffalo, Erie County, New York. NorDel II, LLC is requesting acceptance of the Western New York Workforce Training Center Site into the Brownfield Site Cleanup Program (BCP).

In support of the SI, LiRo has developed an investigation of site surface soil, subsurface soil, and groundwater. Anticipated work for the site investigation will include:

- 25 soil borings will be installed in the southwest portion of the Site. Each soil boring will be advanced to the top of bedrock and will be used collect surface and subsurface soil samples.
  6 groundwater monitoring wells will be installed at the site for the collection of groundwater samples and to determine groundwater flow direction.
- In order to characterize soil vapor at the site, 6 soil vapor samples will be collected, 4 beneath the buildings floor slab and gravel sub-base and two locations outside of the building.

Site Background

The Site is located at 683 Northland Avenue in the City of Buffalo, New York (Figure 1) on approximately 7.25 acres of land. The Site elevation along Niagara Street (eastern side of the Site) is approximately 645 feet above sea level, and the Site slopes to the southwest. The site is developed with an approximately 235,000 square foot factory building complex which comprises a four story office area on the north side along Northland Avenue, a series of connecting ten manufacturing spaces, and a detached one story shed located on the west side of the facility.

The Site is located in an urban setting, with residential properties along Northland Avenue north of the site, and commercial/industrial properties along Northland Avenue to the east and west of the site. The site is bordered to the south by the New York Central Railroad.

The Site was formerly operated as a machine and tool works facility from approximately 1910. The Site was originally developed by the Niagara Machine and Tool Company and later by the Clearing Niagara Company. It was most recently used for miscellaneous storage but is now vacant and awaiting re-use.

4.0 TRAINING REQUIREMENTS

All personnel conducting field activities are required to be certified in health and safety practices for hazardous waste operations as specified in the Federal OSHA Regulations (29 CFR 1910.120) (revised March 6, 1990). Paragraph (e) (2) of the above referenced regulations requires that each employee, at the time of job assignment, receive a minimum of 40 hours of initial instruction off the site, and a minimum of three days of supervised field experience.

Paragraph (e) (3) of the above referenced regulations requires that all onsite management and supervisory personnel directly responsible for or who supervise employees engaged in hazardous waste operations, must initially receive eight hours training which must emphasize health and safety practices related to managing hazardous waste work.

Paragraph (e) (8) of the above referenced regulations requires that workers and supervisors must receive eight hours of refresher training annually on the items specified in Paragraph (e) (1) and/or (e) (3).

Additionally, all personnel must receive adequate site-specific training, in the form of an Onsite Health and Safety Briefing given by the Project HSO prior to participating in onsite field work, which will involve a review of this Health and Safety Plan with emphasis on the following:

- Protection of the adjacent community from hazardous vapors/dust which may be released during site activities.
- Attention to health effects and hazards of substances known to be present onsite.
- Hazards and protection against heat/cold.
- The need for vigilance in personal protection, and the importance of attention to proper use, fit and care of personal protective equipment.
- The effectiveness and limitations of personal protective equipment.

- Prescribed decontamination procedures.
- Site control, including work zones, access, and security.
- The proper observance of daily health and safety practices, such as the entry and exit of work zones and site, proper hygiene during lunch, break, etc.
- Recognition in oneself or in others of physical conditions requiring immediate medical attention, and application of simple first aid measures, and
- Emergency procedures to be followed (with rehearsals) in cases of fire, explosion, or sudden release of hazardous gases.

Health and Safety Meetings will be conducted daily by the Site HSO and will cover protective clothing and other equipment to be used that day, potential chemical and physical hazards, emergency procedures, and conditions and activities from the previous day.

5.0 MEDICAL SURVEILLANCE REQUIREMENTS

All LiRo personnel who engage in waste site activities for 30 days or more per year participate in the Medical Surveillance Program. All project personnel involved in onsite activities in the Contamination Reduction/Exclusion Zones at the site will be required to undergo annual medical examinations. This examination must take place not more than one year prior to and one year after the completion of site work and must be conducted by a physician who is board-certified in occupational medicine. The physician will have been made familiar with the job-related duties of each worker examined.

6.0 SITE HAZARD EVALUATION

6.1 Chemical Hazards

Health/safety characteristics and exposure limits of contaminants known or suspected at the site are listed in Table 6-1. The risk of exposure can be by the dermal or respiratory route, depending on the type of compound and intrusive activity being conducted.

6.2 Physical Hazards

Physical hazards include the dangers of tripping and falling on uneven ground, operation of heavy equipment such a drilling rig, vehicular traffic, and utilities either above-ground or buried. The following are physical hazards that may be encountered during investigation activities.

6.2.1 Tripping Hazards - An area of risk associated with onsite investigative activities is presented by uneven ground, debris, or equipment which may be present at the site thereby creating a potential tripping hazard.

6.2.2 Climbing Hazards - During site activities, workers may have to work on drilling equipment by climbing the mast. The drilling contractor will conform with any applicable NIOSH and OSHA requirements for climbing activities. These activities will be overseen by the LiRo Site HSO.

6.2.3 Cuts and Lacerations - Field activities at this site may involve contact with buried debris or various types of machinery. At least one person onsite must be currently certified in first aid and CPR. Personnel trained and certified in first aid should be prepared to take care of cuts and bruises as well as other minor injuries. A first aid kit approved by the American Red Cross will be available during all field activities.

6.2.4 Lifting Hazards - Improper lifting by workers is one of the leading causes of industrial injuries. Field workers may be required to lift heavy objects. Therefore, all members of the field crew should be trained in the proper methods of lifting heavy objects. All workers should be cautious against lifting objects too heavy for one person.

6.2.5 Utility Hazards - Before conducting any intrusive work, LiRo will be responsible for locating and verifying all existing utilities at the location of each boring.

6.2.6 Traffic Hazards – It is anticipated that all site work will be conducted away from any roadway areas. In the event that is not the case, all traffic, vehicular and pedestrian, shall be maintained and protected at all times consistent with local, state, and federal agency regulations regarding such traffic.

The drilling contractor shall carry on his operations without undue interference or delays to traffic. The contractor shall furnish all labor, materials, watchmen, barricades, signs, lights, and anything else necessary to maintain traffic and to protect his work and the public during operations. All lane and shoulder closings shall follow the procedures outlined in the Manual on Uniform Traffic Control Devices, 1986, and the Traffic Control Device Handbook, 1983.

If any significant changes to the above-mentioned hazards become apparent, information in the HASP will be updated and any changes in PPE will be evaluated.

6.3 Heat Stress

The combination of high ambient temperature, high humidity, physical exertion, and personal protective apparel which limits the dissipation of body heat and moisture can cause heat stress. The Site HSO is responsible for monitoring heat stress in the field team personnel.

It should be noted that during hazardous waste site work, the use of chemical protective clothing (CPC) can compromise the evaporative cooling from sweat. Personal cooling devices may be effective in protecting workers wearing CPC. NIOSH recommends physiological measurements of oral temperature or pulse rate with the use of total encapsulating clothing levels (Level A protection).

The following prevention, recognition, and treatment strategies will be implemented to protect personnel from heat stress. Personnel will be trained to recognize the symptoms of heat stress, and to apply the appropriate treatment.

1. Prevention

    a. Provide plenty of liquids. Available in the Support Zone will be a 50% solution of fruit punch or the like in water, or plain water to be taken with salted foods such as pretzels.

b. Work in pairs. No individual will attempt to undertake any activity alone.

c. Provide cooling devices. A spray hose and a source of water will be provided to reduce body temperature, cool protective clothing, and/or act as a quick-drench shower in case of an exposure incident.

d. Adjustment of the work schedule. As is practicable, the most labor-intensive tasks should be carried out during the coolest part of the day.

2. Recognition and Treatment

Any person who observes any of the following forms of heat stress, either in himself or in another worker, will report this information to the Site HSO as soon as possible.

a. Heat Rash (or prickly heat):

Cause: Continuous exposure to hot and humid air, aggravated by chafing clothing.

Symptoms: Eruption of red pimples around sweat ducts accompanied by intense itching and tingling.

Treatment: Remove source of irritation and cool skin with water or wet cloths.

b. Heat Cramps (or heat prostration):

Cause: Profuse perspiration accompanied by inadequate replenishment of body water and electrolytes.

Symptoms: Sudden development of pain and/or muscle spasms in the abdominal region.

Treatment: Remove the worker to the Contamination Reduction Zone. Provide fluids orally. Remove protective clothing. Decrease body temperatures and allow a period of rest in cool location.

c. Heat Exhaustion

Cause: Overexertion in a hot environment and profuse perspiration accompanied by inadequate replenishment of body water and electrolytes. A serious condition.

Symptoms: Muscular weakness, staggering gait, nausea, dizziness, shallow breathing, pale and clammy skin, approximately normal body temperature.

Treatment: Perform the following while simultaneously making arrangements for transport to a medical facility:

Remove the worker to the Contamination Reduction Zone. Remove protective clothing. Lie the worker down on his or her back, in a cool place, and raise the feet 6 to 12 inches. Keep warm, but loosen all clothing. If conscious, provide sips of a salt-water solution, using one teaspoon of salt in 12 ounces of water. Transport the worker to a medical facility.

d. Heat Stroke

Cause: Same as heat exhaustion. An extremely serious condition.

Symptoms: Dry and hot skin, dry mouth, dizziness, nausea, headache, rapid pulse.

Treatment:Cool worker immediately by immersing or spraying with cool water or sponge bare skin after removing protective clothing. Transport to hospital.

6.4 Cold Exposure

Exposure to cold weather, wet conditions and extreme wind-chill factors may result in excessive loss of body heat (hypothermia) and/or frostbite. To guard against cold exposure and to prevent cold injuries, appropriate warm clothing should be worn, warm shelter must be readily available, rest periods should be adjusted as needed, and the physical conditions of onsite field personnel should be closely monitored. Personnel and supervisors working onsite will be made aware of the signs and symptoms of frostbite and hypothermia such as shivering, reduced blood pressure, reduced coordination, drowsiness, impaired judgment, fatigue, pupils dilated but reactive to light, and numbing of the toes and fingers. The potential for wetting of protective clothing should be of concern, since wet clothing (from sweat or splashes) will provide poor insulation against the cold.

7.0 SITE CONTROL

In order to keep unauthorized personnel from entering the work areas during subsurface soil sampling activities without proper protective equipment, and for good control of overall site safety, two work zones will be established for intrusive activities. The two work zones are the Support Zone and the Contamination Reduction Zone/Exclusion Zone. Actual zone width will be determined by optimal size of work area and by local obstructions. A brief description of the site work zones follows.

7.1 Support Zone

The Support Zone at the site will be a mobile unit (automobile) including a cellular telephone for communication. The Support Zone will be located as near as practicable to the active work areas and decontamination areas.

7.2 Contamination Reduction Zone/Exclusion Zone

Due to the environmental setting for this project, the Contamination Reduction Zone (CRZ) and Exclusion Zone (EZ) will be incorporated into one zone at each active soil boring location. This zone will be mobile and the location will be dependent upon where the active work is located. The decontamination of personnel, light equipment, and heavy equipment will be performed as described in Section 11.

7.3 Temporary Storage Facilities

A temporary storage location will be established at the site for the storage of any decontamination water and disposable clothing. The facility will be situated away from vehicular and pedestrian traffic.

7.4 Site Visitation

It is possible that officials from the City of Buffalo and regulating bodies with jurisdiction will visit the site during operations. It is also possible that an OSHA representative will wish to inspect the site. All such officials must meet the same requirements of onsite workers (40 hour OSHA-approved training, site-specific training, and medical surveillance) before going into any active Contamination Reduction Zone/Exclusion Zone. Visitors other than City of Buffalo, NYSDEC or OSHA representatives will be subject to the additional requirements of having to receive written permission from the City of Buffalo to conduct a site visit. Because of the nature of the work, the work zone will be continually supervised. Signs will be used to prevent the entrance of unauthorized visitors.

All visitors must supply their own personal protective equipment.

8.0 PERSONAL PROTECTION

Based on known site contaminant levels, work at the site is planned to begin in Level D personal protective equipment. However, since unexpected levels of hazardous materials may become evident, various levels of protection will be available during most excavating, drilling and sampling activities. Components of all levels of personal protection that will be available are listed in Table 8-1. Planned levels of protection for various activities are given in Table 8-2.

In the event that unexpected levels of organic vapors are encountered, any personnel working at Level D or D+ protection, will don their respirators at once (change to Level C) per the monitoring criteria detailed in Section 9.0. The Site HSO will consult with the Project HSO to decide if and when Level D+ protection may be resumed, or if a higher level of personal protection is required.

Some modification in safety equipment may be implemented in order to balance concerns for full contaminant protection against concerns for the possibility of heat stress resulting from the need to wear more restrictive protective equipment. Such modifications may be implemented only if approved in advance by the Site HSO, following consultation with the Project HSO. Protective equipment which fully complies with the requirements of all required levels of protection will be immediately available at all times on the site.

Level C respiratory protection will normally be provided using NIOSH-approved full-face respirators, with P100 combination filter cartridges approved for removal of organic vapors, particulate, gases, and fumes. The HEPA filter cartridges will be changed at the end of each work day or when breakthrough occurs, whichever comes first. All team members will be fit-tested for respirators. Due to difficulties in achieving a proper seal between face and mask, persons with facial hair will not be allowed to work in areas requiring respiratory protection. LiRo's complete respiratory protection program requirements for the project are included in Appendix C.

For the fullest protection of site personnel, the supervising field engineer/geologist will conduct organic vapor monitoring at closely spaced intervals during soil excavation and drilling activities. Monitoring will be accomplished by real-time monitoring equipment. The primary purpose of this monitoring will be to assess the adequacy of respiratory protection and to make it possible to stop work quickly if hazardous gases are encountered. The air monitoring to be carried out during intrusive activities is summarized in Section 9.

On a daily basis, dust control will be visually monitored by the supervising field engineer/geologist continuously throughout the workday. Water spraying or misting will be used to control dust levels associated with soil excavations and borings. Spraying water shall be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times, and the Contractor shall have sufficient suitable equipment on the job to accomplish this. Should visible dust emissions become evident, the supervising engineer/geologist will inform the Contractor immediately to implement corrective measures and/or to cease operations in order to re-evaluate dust suppression methods.

9.0 AIR MONITORING

Air monitoring will be performed continuously at the Site for the duration of the work whenever Site activity involves ground intrusive activity, which as outlined in the New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan, is defined to include, but not limited to soil/waste excavation and handling, trenching or test pits and the installation of soil borings or monitoring wells. For the EWP at the Site, intrusive activity shall include any activity below the Site cover with the potential to emit VOCs or PM-10.

Prior to each day's work, the environmental monitor will evaluate the work area and wind direction. Once wind direction and areas of high emission potential have been established, the environmental monitor will set up the upwind and downwind monitoring equipment. At this point, collection of real-time readings for VOCs and particulates will be initiated at both the upwind and downwind monitoring locations. Depending on the planned daily site work, up to two downwind monitoring stations will be utilized. Site work may commence after air monitoring has been initiated.

Once excavation work begins, the environmental monitor will evaluate the work areas for visible particulates in the air and suppression measures being applied by the excavation contractor. This is in addition to the mechanical and regular data logging of VOC and particulate levels. Based on the air monitoring results, the supervising geologist may order a stoppage of the work or require modified work practices to reduce emissions.

Periodically throughout the day the location of excavation work or the general wind direction may change. When this occurs a new exclusion zone evaluation must be conducted. This would include an evaluation of wind direction in order to establish upwind and downwind directions, and continuous monitoring of VOCs and particulates in upwind and downwind locations.

Air monitoring for VOCs and particulates will be performed at upwind and downwind locations. One upwind and up to two downwind dust-monitoring stations will be employed, as necessary, to provide sufficient coverage of intrusive activities that have the potential to emit volatile organics or dust. Each monitoring station will comprise real-time air monitoring instruments. The specific air monitoring equipment is summarized in the Table below. The equipment, which will be field calibrated (or zeroed in the case of dust meters) prior to each days use, will be capable of calculating 15-minute running average or less concentrations for comparison to appropriate action levels.

Air Monitoring Equipment

Analyte	Sampling Method	Duration	Comments
VOCs	MiniRAE 3000	Upwind daily and downwind of exclusion zone continuously during work hours	Real Time Analysis
Particulates (PM-10)	TSI DustTRAK Aerosal Monitor	Continuously, upwind and downwind of exclusion zone during work hours	Real Time Analysis

9.1 Action Levels

Action levels for VOC concentrations will be based on the NYSDOH Generic Community Air Monitoring Plan. The initial threshold for VOC action is 5 parts per million (ppm). The ambient air concentration of total VOCs at the downwind perimeter of the exclusion zone exceeds 5 ppm above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total VOCs level readily decrease below 5 ppm over background, work activities can resume with continued monitoring.

If total VOC levels at the downwind perimeter of the work area of exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions implemented to abate emissions, and monitoring continued. After this, work activities can resume provided that the total VOC concentration downwind of the exclusion zone is below 5 ppm over background for the 15-minute average. If the VOC level is above 25 ppm at the downwind monitoring location, activities will be shut down.

Particulate (PM-10) concentrations will also be compared to Action Levels and responded to, as outlined in the NYSDOH Generic Community Air Monitoring Plan. The initial threshold for particulate/dust action is 100 micrograms per cubic meter (ug/m3). If the downwind particulate level is 100 mg/m3 greater than the background (upwind) level for the 15-minute average or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind particulate levels do not exceed 150 ug/m3 above the upwind level and provided that no visible dust is migrating from the work area.

If dust suppression techniques have been employed and downwind particulate levels are greater than 150 ug/m3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind particulate concentration to within 150 mg/m3 of the upwind level and in preventing visible dust migration.

All 15-minute averages will be recorded and maintained for review by New York State Department of Environmental Conservation (NYSDEC) and NYSDOH personnel.

9.2 Work Stoppage Responses

The following responses will be initiated whenever one or more of the action levels necessitating a work stoppage is exceeded:

(1) The Site HSO will be consulted immediately.
(2) All personnel (except as necessary for continued monitoring and contaminant mitigation, if applicable) will be cleared from the work area (e.g. from within the Exclusion Zone).
(3) Monitoring will be continued until intrusive work resumes or the excavation is backfilled.
(4) If applicable, all containment structure will be sealed and negative air filtration units will be maintained in their operational condition. Engineering controls and work practices will be instituted to reduce the airborne concentration of the above stated contaminants.

Any chemical release to air, water, or soil must be reported to the Site HSO at once. Any exposure resulting from protective equipment failure must be immediately reported to the Site HSO and to the Project HSO in writing within 24 hours.

9.3 Calibration of Air Monitoring Instruments

A. Photoionization Detector: The photoionization detector will be calibrated to an isobutylene surrogate daily (prior to field activities) and the results will be recorded in the field log book and transferred to Instrument Reading logs.

10.0 HANDLING OF SAMPLES

The collection and analysis of samples will require caution, not only to ensure safety of site sampling and support personnel, but also to ensure accuracy of results. To minimize hazards to lab personnel, sample volumes will be no larger than necessary, and the outside of all sample containers will be wiped clean prior to shipment.

In order to preserve sample integrity and to prevent contamination escape, packaging of samples shall follow appropriate protocols. All samples will be placed in a sealed shipping container prior to shipment.

11.0 DECONTAMINATION PROCEDURES

11.1 Decontamination of Personnel

Decontamination of personnel will be performed at each Contamination Reduction Zone/Exclusion Zone. This can be accomplished by washing and rinsing outer gloves and outer boots over a completed excavation. Disposable clothing can then be removed and discarded into a trash can with a plastic liner. If personnel are in Level C protection, the above procedures will be followed and the respirator will be removed, sanitized, and placed in a plastic bag.

Decontamination procedures for various levels of personnel protection are provided in Appendix D.

11.2 Decontamination of Equipment

11.2.1 Light Equipment - Decontamination of light equipment (such as tools, containers, monitoring instruments, radios, clipboards, etc.) will be accomplished by wiping equipment off with clean, damp cloths. The cloths can be discarded in the trash can with the disposable clothing.

11.2.2 Heavy Equipment - Decontamination of large sampling equipment (i.e., drill rig) will be carried out as follows. At boring locations showing no evidence of contamination, the excavator drilling equipment will be dry-brushed to remove residual soil prior to proceeding to the next boring location. At locations showing evidence of minor contamination, the drilling equipment will first be dry brushed and then cleaned (over the boring location) using a portable power washer. If heavily contaminated soil (i.e., oily or very odiferous) is observed, the drill equipment will be mobilized to the existing onsite decontamination pad and steam cleaned at that location.

12.0 EMERGENCY PROCEDURES

The most likely incidents for which emergency measures might be required are:

- a sudden release of hazardous gases/vapors during intrusive work
- an explosion or fire occurring during intrusive work, or
- a heavy equipment-related accident, or other accident resulting in personal injury

Emergency procedures established to respond to these incidents are covered under the sections that follow.

12.1 Communications

A cellular telephone will be maintained by the Site HSO (Phone # 716-949-9797).

12.2 Escape Routes

Flagging will be positioned near the excavator to indicate wind direction. In the event of a sudden release of hazardous gases or a fire, all personnel will be required to move upwind or at 90 degrees away from the location of the release or fire. This may require personnel to move from the Exclusion Zone directly into an offsite area without proper decontamination. At the conclusion of the emergency, they should move to the Contamination Reduction Zone for proper decontamination.

12.3 Evacuation Signal

In the event of a sudden release or fire requiring immediate evacuation of the site, three quick blasts will be sounded on an air horn. Sounding the air horn will be the responsibility of the excavator operator or the site HSO. The horn will be kept in a conspicuous place for quick access by personnel at the borehole. The Project Manager, the City of Buffalo, and the Project Health and Safety Officer will be notified by telephone, and later by written report whenever a site evacuation is executed.

12.4 Fire/Explosion

It will be the responsibility of the excavator or drill rig operator to have a fire extinguisher available at the active work location. The operator will have further responsibility of taking fire prevention measures such as the continuous removal from the rig of accumulated oil, grease, or other combustible materials. In the event of an excavator/drill rig fire or other fire that cannot be controlled with available equipment, or in the event of an explosion, the local fire department will be summoned immediately by the Site HSO, who shall apprise them of the situation upon their arrival. The City of Buffalo will also be notified.

12.5 First Aid

First aid for personal injuries will be administered by the Site HSO. If a site worker should require further treatment, he will be transported to the hospital in a vehicle maintained onsite for this purpose, or an ambulance will be summoned. The onsite vehicle will carry written direction to the hospital as well as a map showing the route.

All accidents, however insignificant, will be reported to the Site HSO. Personnel designated to administer first aid will have received a minimum of eight hours training in first aid and CPR, and be certified by the American Red Cross.

12.6 Emergency Assistance

The following list of names, telephone numbers, and location of police, fire, hospital, and other agencies whose services might be required, or from whom information might be needed, will be carried in the onsite vehicle.

Erie County Medical Center, 462 Grider Street, Buffalo, NY, 716-898-3000 Fire Department: 911
Police Department: 911
Poison Control Center: 219 Bryant Street, Buffalo, NY, 716-878-7654
NYSDEC Emergency Hotline: 1-800-457-7362

The route to the hospital (shown on Figure 12-1) is as follows:

Go east on Northland Avenue (0.3 miles).
Turn left (north) onto Grider Street (0.6 miles).
Hospital is on the left immediately after East Delevan Avenue.

If an ambulance should have to be called to the site, the injured person should meet the ambulance outside the CRZ/Exclusion Zone if possible. If a head or spinal injury is suspected and the person is unconscious, medical personnel may have to come into the CRZ/Exclusion Zone. Medical personnel will be given the minimum amount of protective equipment necessary to ensure their safety while providing medical attention. If circumstances permit, proper decontamination procedures will be followed upon leaving the CRZ/Exclusion Zone.

12.7 Reports

Standard OSHA formats will be used for reporting any emergencies that occur on the site.

12.8 Accident Investigations and Reporting

12.8.1 Accident Investigations

All accidents requiring first aid which occur incidental to activities onsite will be investigated. The investigation format will include the following:

- interviews with witnesses, photos, if applicable, and
- necessary actions to alleviate the problem.

12.8.2 Accident Reports

In the event that an accident or some other incident such as a fire or an overexposure to toxic chemicals occurs during the course of the project, the Project HSO will be telephoned within one hour and receive a written notification within 48 hours. The report shall include the following items:

Name, telephone number, and location of the contractor (if not LiRo personnel).
Name and title of person(s) reporting.
Date and time of accident/incident.
Location of accident/incident, (i.e., building number, facility name)
Brief summary of accident/incident giving pertinent details, including type of operation ongoing at the time of the accident.
Cause of accident/incident. Casualties (fatalities, disabling injuries)
Details of any existing chemical hazard or contamination.
Estimated property damage, if applicable.
Nature of damage, effect on contract schedule.
Action taken to insure safety and security.
Other damage or injuries sustained (public or private).

13.0 SAFETY CONCERNS AND MEASURES DURING DRILLING OPERATIONS

Drilling operations pose a potential threat to the safety of site personnel. The following sections describe specific safety measures to be implemented during various phases of intrusive activities.

13.1 Soil Borings

An Active Exclusion Sub-zone is established by the opening of a borehole. Monitoring with real-time instrumentation will be performed at the borehole. Action levels will be considered to have been reached when a continuous, steady reading has been observed.

If at any time during drilling operations, buried utilities, USTs, metal, or concrete are penetrated, intrusive work activities will cease immediately. After assessing the situation, the project geologist/Site HSO will decide whether to continue or discontinue drilling. This decision will be based upon the field conditions.

13.2 Residual Soils

All residual soils generated during intrusive activities during the project will be handled as stated in the site Work Plans.

13.3 Decontamination Water

Based on historical sampling results, water generated from the decontamination of personnel and equipment in the Contamination Reduction Zone will be allowed to percolate into the ground surface. If soil PID screening suggests that highly contaminated soils are present, the decontamination water will be drummed and staged at the site for later transport and disposal at a commercial disposal facility.

13.4 Waste Management and Spill Control Plan

LiRo's Waste Management and Spill Control Plan for investigation activities is provided in Appendix E. This plan addresses the project procedures for waste handling, storage and disposal as well as emergency spill response.

13.5 Community Protection

Water spraying or misting will be used to control fugitive dust levels associated with soil borings. Spraying water shall be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times, and the Contractor shall have sufficient suitable equipment on the job to accomplish this. The application rate will be controlled so as to prevent surface runoff into nearby storm sewer manholes and catch basins.

Site Ambient Air Monitoring

Ambient air monitoring will be conducted on a real time basis using a PID organic vapor meter. Baseline conditions will be measured at proposed soil boring locations prior to the commencement of operations. Readings will be taken at a frequency of one reading every hour taken within the breathing zone of the Exclusion Zone and at point sources of emission. Ambient air monitoring will be used to determine the appropriate level of worker protection.

Instrument readings will be recorded in a field notebook. Battery/charge level for each instrument will be checked at the beginning and end of each working day.

Community Air Monitoring Plan

While there are currently no proposed soil borings in close proximity to private residences, in the event that during the investigation soil borings become necessary in close proximity to private residences, ambient air quality monitoring will be performed. This is in addition to the normal monitoring of the work area for worker health and safety. Real time monitoring for volatile organics will be measured utilizing a PID.

If above background air monitoring results are encountered in the worker breathing zone for VOCs, community air monitoring will be conducted in compliance with the Community Air Monitoring Plan (CAMP) outlined below.

13.5.1 Vapor Monitoring

Organic Vapor Initial Monitoring

Volatile organic compounds will be monitored hourly upwind and downwind at the perimeter of the work area during all ground intrusive activities. If total organic vapor levels at the perimeter downwind location exceed the perimeter upwind location by 5 ppm, the Vapor Emission Response Plan must be implemented.

Vapor Emission Response Plan

If the downwind work area perimeter organic vapor concentration exceeds the upwind work area perimeter concentration by 5 ppm but less than 25 ppm, the following action will be taken:

- Every 30 minutes, monitor the perimeter work area location.

  Every 30 minutes, monitor the organic vapor concentration 200 feet downwind of the perimeter work area or half the distance to the nearest receptor, whichever is less. If this reading exceeds the perimeter work area upwind organic vapor concentration by 5 ppm, all work must halt and monitoring increased to every 15 minutes. If, at any time, this reading exceeds the perimeter work area upwind concentration by 10 ppm, the Major Vapor Emissions Response Plan will be initiated.

- If organic vapor levels 200 feet downwind of the perimeter work area or half the distance to the nearest downwind receptor, whichever is less, exceeds by 5 ppm the work area perimeter upwind concentration persistently, then air quality monitoring must be performed within 20 feet of the nearest downwind receptor (20 foot zone). If the readings in the 20 foot zone exceed the perimeter work area upwind concentration by 5 ppm for more than 30 minutes, then the Major Vapor Emission Response Plan will be implemented.

- Work activities can resume only after downwind 200 foot reading and the 20 foot zone reading are <5 ppm above the perimeter work area upwind concentration. In addition, the downwind perimeter work area concentration must be <25 ppm above the upwind work area perimeter concentration.

Major Vapor Emission Response Plan

If the downwind work area perimeter organic vapor concentration exceeds the upwind work area perimeter concentration by more than 25 ppm, then the Major Vapor Emission Response Plan will be activated. Upon activation, the following activities will be undertaken:

- Halt work
- NorDel II, LLC and NYSDEC will be notified and advised of the situation.
- Local police and fire department contacts will be notified and advised of the situation.
- Frequent air monitoring will be conducted at 30-minute intervals within the 20-foot zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the Safety Officer and work may resume.

13.5.2 Particulate Monitoring

Particulates will be monitored upwind and downwind at points 25 feet from the perimeter of the work area every 30 minutes during the exterior boring activities. If the difference between the measured upwind and downwind concentrations is greater than or equal to 100 ug/m3 all work activities must be stopped and dust suppression methods employed. Work may resume only after the measured upwind/downwind difference has been reduced to less than 100 ug/m3.

TABLES

TABLE 6-1
HAZARD CHARACTERISTICS OF CONTAMINANTS SUSPECTED AT THE WESTERN NEW YORK WORKFORCE TRAINING CENTER SITE

Substance	**Flammability/Reactivity**	**Toxicity/Carcinogenicity**	**Standards***
Volatile Organic Compounds (VOCs)	Normally Class 1B flammable liquids, strong oxidizers	Generally of low toxicity; C-1 through 3 compounds are simple inert asphyxiates; C-4 through 9 compounds may cause respiratory tract irritation and anesthetic effects, they may also produce dermatitis.	Includes a wide variety of compounds, field measuring instruments are normally calibrated to benzene, since it has the lowest OSHA PEL of 1 ppm. OSHA and AFOSH have set a PEL of 400 ppm per 8-hour workday, 40-hour workweek. NIOSH recommends that workplace air levels not exceed 350 mg/m^3 for a 40-hour workweek.
PCBs	Nonflammable. Reacts with strong oxidizers	Toxic by inhalation, skin absorption, ingestion, skin/eye contact. Symptoms include eye irritation and chloracne. Exposure may result in liver damage and reproductive effects. Potential occupational carcinogen.	0.001 mg/m^3 (NIOSH REL-TWA) 0.5 mg/m^3 [skin] (OSHA PEL-TWA)
Polynuclear Aromatic Hydrocarbons (PAHs)	Combustible when exposed to heat or flame	Many PAHs are toxic by inhalation and easily absorbed by the skin. Prolonged exposure may result in tissue injury, dermatitis, and chemical burns. Inhalation of high concentrations can result in bronchial irritation, cough, hoarseness, and pulmonary edema. Acute doses are toxic to may tissues, but thymus and spleen are particularly sensitive.	No standards available for this group of compounds
Asbestos	Not flammable	Cancer hazard in humans. Inhalation of fibers may cause asbestosis, interstitial fibrosis of the lung tissue, respiratory or lung infections, pleural effusion, pleural or peritoneal mesotheliomas, bronchogenic carcinoma, lung cancers, and/or cancers of the gastrointestinal tract and larynx.	0.01 f/cc (OSHA PEL – 8 hr. TWA) 1.0 f/cc (OSHA – 30 minute excursion limit)
Arsenic	Non-combustible in solid form. Slight combustible hazard in powder form	Toxic by ingestion, skin absorption, and inhalation of dust or fumes. Neurological, pulmonary and renal toxin.	0.002 mg/m^3 (NIOSH REL) (15-min.) 0.010 mg/m^3 (OSHA PEL)
Beryllium	Non-combustible in solid form. Slight combustible hazard in powder form	Toxic by ingestion, skin absorption, and inhalation of dust or fumes. Neurological, pulmonary and renal toxin.	<0.0005 mg/m^3 (NIOSH REL) 0.002 mg/m^3 (OSHA PEL-TWA)

Substance	Flammability/Reactivity	Toxicity/Carcinogenicity	Standards*
Cadmium	Not flammable. Emits toxic fumes when heated	Toxic by ingestion and inhalation of dust or fumes. Induces pulmonary edema and dyspnea. Pulmonary and renal toxin. Confirmed human carcinogen.	2.5 ug/m^3 (OSHA ACTION LIMIT 8-hr. TWA) 5.0 ug/m^3 (OSHA PEL-TWA)
Lead	Not flammable. Emits toxic fumes when heated	Toxic by ingestion and inhalation of dust or fumes. Lead poisoning in children is common. Neurological toxin and reproductive hazard	30 ug/m^3 (OSHA ACTION LIMIT 8-hr. TWA) 50 ug/m^3 (OSHA PEL-TWA)
Mercury	Not flammable. Emits toxic fumes when heated	Toxic by ingestion, skin absorption and inhalation of vapors and fumes. Neurological, pulmonary and renal toxin	NIOSH REL 0.1 mg/m^3 (Other) NIOSH REL TWA 0.05 mg/m^3 (Vapor)
Nickel	Combustible in solid form	Toxic by ingestion, skin absorption, and inhalation of dust or fumes. Neurological, pulmonary and renal toxin.	0.015 mg/m^3 (NIOSH REL-TWA) 1.0 mg/m^3 (OSHA PEL-TWA)
Zinc	Combustible in solid form	Toxic by ingestion, skin absorption, and inhalation of dust or fumes. Neurological, pulmonary and renal toxin.	10.0 mg/m^3 (OSHA PEL-TWA)
Pesticides	Combustible solid. Reacts with strong oxidizers, alkalis	Exposure through inhalation, skin absorption, ingestion, skin/eye contact. Symptoms include skin/eye irritation; paresthesia tongue, lips, face; tremor; anxiety, dizziness, confusion, malaise, headache, exhaustion; convulsions; vomiting. Potential occupational carcinogen	0.5 mg/m3 (NIOSH REL-TWA) 1.0 mg/m3 [skin] (OSHA PEL-TWA)

NOTES

* - Standards are 8-Hour Time-Weighted Averages (TWAs) unless otherwise noted.

** - Adopted values are limits which have been proposed for the first time, or for which a change in the "Adopted" listing has been proposed under the notice of intended changes by the American Conference of Governmental Industrial Hygienists.

1) - TLV-C-Ceiling - The exposure that should not be exceeded, even instantaneously.

2) - TLV-STEL - Short term exposure limit - 15 minute TWA exposure which should not be exceeded at any time during a workday.

REFERENCES

"Threshold Limit Values and Biological Exposure Indices for 1990-1991." American Conference of Governmental Industrial Hygienists, Cincinnati, Ohio, 1990.

Department of Labor, Occupational Safety and Health Administration, 29 CFR, Part 1910, Air Contaminants, Final Rate, January 19, 1989.

"Pocket Guide to Chemical Hazards." National Institute for Occupational Safety and Health Administration, Publication No. 90-117, Cincinnati, Ohio, June, 1990.

Hawley, Fessner G. The Condensed Chemical Dictionary, Tenth Edition, New York: Van Nostrand Reinhold, 1981.

Sax, R. Irving. Dangerous Properties of Industrial Materials, Sixth Edition, New York, Van Nostrand Reinhold, 1984.

TABLE 8-1

COMPONENTS OF PERSONAL PROTECTION LEVELS

Level D Protection	Level D+ Protection	Level C Protection
Safety glasses with side shields (or goggles)	Safety glasses with side shields (or goggles)	Hard Hat
Hard Hat	Hard Hat	Chemical resistant or disposable coveralls based on Permeation Tables
Face Shield (optional)	Face Shield (Optional)	Inner gloves of tight-fitting latex or nitrile
Ordinary coveralls	Chemical resistant or disposable coveralls	Outer gloves of neoprene or nitrile
Ordinary work gloves	Outer gloves of neoprene or nitrile	Steel-toe, steel-shank work safety boots (chemical resistant)
Steel-toe, steel-shank work shoes or boots	Steel-toe, steel-shank work shoes or boots with or without disposable outer booties	Outer boots of neoprene or butyl rubber or disposable outer booties
	Half-face air-purifying respirator (immediately available)*	Full-face air-purifying respirator (to be worn)**
		Taping of gloves and boots to disposable coveralls

* Respirator to be fitted with NIOSH/MSHA - approved high-efficiency filter (HEPA) combination respirator cartridges approved for organic vapors, particulates, gases, and fumes.

** Half-face respirator, face shield, and safety glasses with side shields (or goggles) may be substituted with approval of the Site HSO.

TABLE 8-2

PLANNED LEVELS OF PERSONAL PROTECTION FOR EACH ACTIVITY

Field Activity			Level of Protection
A.	Non-Intrusive Activities		
	1.	Boring/Monitoring Well Layout.....	D
	2.	Support Zone Activities.....	D
B.	Intrusive Activities		
	1.	Drilling and Well Installation.....	D
	2.	Surface Soil Sampling.....	D
	3.	Soil/Sub-Slab Vapor Investigation.....	D
	4.	Equipment Decontamination.....	D

* These are the levels of protection at which work will commence during the various activities on the site. Due to onsite conditions, and as directed by the Site Health and Safety Officer, it may become necessary to upgrade or downgrade the level of personal protection.

FIGURES

J:\15-029-1054 BUDC\CAD\683 Northland RIWP\BUDC 683 ROUTE TO HOSPITAL.ai

APPENDIX A
FIELD ACTIVITY FORMS

LiRo Engineers, Inc.
690 Delaware Avenue
Buffalo, NY 14209

INSTRUMENT READING LOG

Project: _____ Job No.: _____

Date: _____ Operator: _____

Instrument: _____ Calibration: _____

Amt. Component. Date

Sampling Technique: _____

Wind Speed/

Temperature Range: _____ Humidity: _____ Direction: _____

Sample Interval: _____

Background Reading: _____

Action Level/Response: _____

Time	Location/Task	Reading (units)	Detection Limit (Scale)

LiRo Engineers, Inc.
690 Delaware Avenue
Buffalo, NY 14209

GENERAL SITE SAFETY RULES FOR CONTRACTORS
RECEIPT

Receipt of "Contractor Site Safety Rules Checklist" is hearby acknowledged. The information contained within has been read and will be adhered to when performing obligations on behalf of LiRo.

Executed this_____day of_____, 19_____

By: _____

(Signature)

_____

(Name Printed)

_____

(Title)

For: _____

(Company Name)

_____

(Company Address)

_____

_____

(Phone Number)

LiRo Engineers, Inc.
690 Delaware Avenue
Buffalo, NY 14209

ONSITE SAFETY BRIEFING

Date: _____ Project: _____

Meeting Conducted By: _____

Name

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

LiRo Engineers, Inc.
690 Delaware Avenue
Buffalo, NY 14209

HAZARDOUS WASTE ACTIVITIES
HEALTH & SAFETY CHECKLIST

Project: _____

Project Manager: _____

Onsite Health & Safety Officer: _____

The Project Manager or onsite Health and Safety Officer will signify the completion of the following items by initializing and dating each item.

	Initial	**Date**
Site health and safety plan prepared and approved by health and safety manager	_____	_____
All employees who will be onsite:		
• Have received initial (24 or 40 hr.) training	_____	_____
• Have received annual 8 hr refresher training	_____	_____
• Have reviewed the site health and safety plan and received pre-job briefing	_____	_____
• Have received respiratory protective equipment training including SCBA if required	_____	_____
• Have received negative pressure respirator fit test	_____	_____
• Have had a medical exam within the past 12 months	_____	_____

This form is to be submitted to the health and safety director prior to onsite work which may involve exposure to hazardous materials.

LiRo Engineers, Inc.
690 Delaware Avenue
Buffalo, NY 14209

CONTRACTOR SITE SAFETY RULES CHECKLIST

The following checklist shall be reviewed and signed by the prime contractor, and his subs, and LiRo's project manager or job site supervisor of designees, prior to the scheduled start of a job. While the job is in progress, where applicable, hazardous operations permits shall be obtained on a daily basis, or more frequently, as appropriate to assure safety.

General

G All vehicles shall observe a maximum speed limit of 10 MPH, unless otherwise posted. There will be no passing of moving vehicles at job sites when narrow roads and short-sight distances exist.

G Hard hat and approved eye protection are required at all times except in designated areas.

G Smoking or eating is permitted only in designated areas.

G Contractor is expected to maintain good housekeeping during the duration of work. Daily trash pick up is required. At the end of the job the Contractor shall leave the job site in at least as good an appearance and condition as it was found.

G Contractor is to provide first-aid kit. Contractor hearby prescribes emergency hospital as indicated below:

Hospital:_____Phone: _____

Address: _____

G Review with site supervisor the emergency evacuation route and telephone location. In case of emergency, notify site supervision immediately and call the appropriate service.

Fire Department: _____

Ambulance: _____

Sheriff: _____

G LiRo work rules also prohibit:

- Possession or consumption of intoxicants or illegal drugs or narcotics
- Violation of Federal and State safety regulation
- Gambling
- Possession of firearms
- Fighting, horseplay, or practical joking
- Sabotage or pilfering
- Running, except in an emergency

G All accident (personal injury or property damage) shall be reported to the LiRo supervisor as soon as emergency conditions no longer exist. The person involved shall make a written accident report prior to leaving the site, unless prevented by emergency conditions, e.g., injury.

CONTRACTOR SITE SAFETY RULES CHECKLIST (Continued)

- G There shall be no personnel on the work site except for authorized contractor/subcontractor employees without LiRo management approval.

- G LiRo representative has discussed with the contractor and his subcontractors, the nature of the potential hazards that may be encountered.

Hazardous Atmospheres and Hazardous Environments

- G Contractor shall provide his own calibrated combustible gas/oxygen analyzer or other instruments for checking areas before confined space, hot work, or other work in hazardous atmospheres or environments. Contractor is responsible for all testing and monitoring required by applicable regulations. No testing by LiRo shall be in lieu of above requirements.

- G Contractor shall provide a standby during confined space work and a fire watch during hot work.

- G Hot work, confined space entry, line opening procedures, scaffolding, use of heavy equipment, excavations and trenching, and other planned hazardous atmospheres and hazardous environment activities shall be reviewed with site supervisor before commencing work.

- G Contractor personnel shall know the location of the nearest fire extinguisher, fire water line, safety shower, and eye bath.

- G Any change of conditions around hot work, confined space, or other hazardous atmospheres or hazardous environment areas which could affect pervious test readings or safety conditions shall invalidate all permits and approvals. Retesting or reevaluation of the area, by a designated person, is required before work can be resumed.

Contractors are expected to brief their employees and enforce these rules. LiRo management may stop or suspend work, at no cost to LiRo, any time the Contractor fails to comply with LiRo Safety Requirements.

_____	_____	_____	_____
Contractor Signature	Date	LiRo Representative Signature	Date

_____	_____
Name Printed	Name Printed

LiRo Engineers, Inc.
690 Delaware Avenue
Buffalo, NY 14209

REPORT OF ACCIDENT INJURY

Project: _____ Date of Occurrence: _____

Location: (be specific) _____

_____

Type of Occurrence: (check all that apply)

G Disabling Injury
G Property Damage
G Chemical Exposure
G Explosion
G Other (explain) _____

G Other Injury
G Equipment Failure
G Fire
G Vehicle Accident

_____

Witnesses to Accident/Injury: (and office)

_____ _____

_____ _____

_____ _____

Injuries:

Name of Injured:_____Office: _____

What was being done at the time of the accident/injury?

_____

_____

_____

_____

Nature of the Accident/Injury: _____

_____

_____

What caused the Accident/Injury? _____

_____

_____

_____

_____

What corrective action will be taken to prevent recurrence? _____

_____

_____

_____

_____

Signatures:

Health and Safety Officer _____ Date: _____

Project Manager _____ Date: _____

Reviewer _____ Date: _____

Comments by Reviewer: _____

_____

_____

_____

_____

_____

_____

_____

LiRo Engineers, Inc.
690 Delaware Avenue
Buffalo, NY 14209

ONSITE SAFETY BRIEFING

Date: _____ Project: _____

Meeting Conducted By: _____

Name

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

LiRo Engineers, Inc.
690 Delaware Avenue
Buffalo, NY 14209

TAILGATE SAFETY MEETING

Date: _____ Customer: _____
Specific Location: _____

Safety Topics Presented:

Protective Clothing/Equipment: _____
_____

Chemical Hazards: _____
_____

Physical Hazards: _____
_____

Emergency Procedures: _____
_____

Hospital/Clinic: _____ Phone: _____
Paramedic Phone: _____

Hospital Address: _____

Special Equipment: _____
_____

Other: _____
_____
_____

Attendees:

Name Printed:	Signature:
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Meeting conducted By:

_____	_____
Name Printed	Signature

APPENDIX B

STANDARD OPERATING SAFETY PROCEDURES

TABLE B-1

PERSONAL SAFETY RULES

- Personnel onsite must use the buddy system when wearing respiratory protective equipment.
- Visual contact must be maintained between crew teams onsite.
- Any practice that increases the probability of hand-to-mouth transfer and ingestion of materials is prohibited in any area designated as contaminated. These practices include as a minimum eating, drinking, chewing gum or tobacco, and smoking.
- Hands and face must be thoroughly washed upon leaving the work area, and before engaging in any other activities, especially eating or drinking.
- Due to interference of facial hair with the mask-to-face seal on air-purifying respirators, personnel working onsite will not be permitted to wear facial hair that interferes with the seal.
- Contact with contaminated surfaces or surfaces suspected of contamination should be avoided. Site personnel should avoid walking through puddles, mud, or other discolored areas, and should not kneel or sit on the ground.
- Field personnel, shall be familiar with the physical characteristics of the site, including:
  - wind direction in relation to the working area
  - accessibility to associates, equipment, and vehicles
  - communications
  - work zones
  - site access
- Medicine and alcohol can exacerbate the effect from exposure to toxic chemicals. Prescribed drugs should not be taken by field personnel where the potential for absorption, inhalation, or ingestion of toxic substances exists unless specifically approved by a qualified physician. Alcoholic beverage and controlled substance intake is strictly forbidden during onsite operations.

TABLE B-2

OPERATIONAL SAFETY RULES

- No visitors shall be allowed onsite without the express permission of NorDel II, LLC.
- Onsite personnel must use the buddy system when wearing respiratory protective equipment. A third person, suitable equipped, is required as a safety backup during initial site entries.
- During day-to-day operations, onsite workers will act as a safety backup to each other. Offsite personnel will provide emergency assistance.
- Wind indicators will be set up so as to be visible from the Exclusion Zone.
- Backhoes/drilling rigs will be kept clean and free of accumulated greases, oils, and other combustible materials.
- No containers or fuels or other flammables will be kept within 100 feet of any excavator or drilling rig.
- Daily briefings will be held to review site hazards, changes in level of personal protection required, special safety precautions for assigned work activities, and emergency response.
- All personnel going onsite must be thoroughly briefed on anticipated hazards, and trained on equipment to be worn, safety procedures emergency procedures, and communications.

APPENDIX C

LiRo Engineers, INC.

RESPIRATORY PROTECTION PROGRAM

RESPIRATORY PROTECTION PROGRAM

TABLE OF CONTENTS

ATTACHMENTS

AS REFERENCED IN LIRO ENGINEERS
RESPIRATORY PROTECTION PROGRAM

EXHIBIT 1 Classification and Description of Respirator

EXHIBIT 2 Capabilities and Limitations for Respirators

EXHIBIT 3 Procedures for Conducting a Qualitative Fit-Test

EXHIBIT 4 Respirator Fit Test and Training Record

EXHIBIT 5 Respirator Inspection Chart

LiRo Engineers, Inc.

RESPIRATORY PROTECTION PROGRAM

1.0 PURPOSE

The standard established uniform guidelines for complying with the requirements of the Occupational Safety and Health Administration (OSHA) for Respiratory Protection, Title 29, Part 1910, Section 134 of the Code of Federal Regulations, and provides organization-wide procedures for the proper selection, use and care of respiratory protective equipment.

2.0 SCOPE

This standard applies to all LiRo projects with potentially airborne exposure.

3.0 POLICY

Every consideration will be given to the use of effective administrative and engineering controls to eliminate or reduce exposure to respiratory hazards to the point where respirators are not required in controlling toxic substances, appropriate respiratory protective equipment will be provided by the company at no charge to the employee.

Respiratory protective devices will be appropriate for the hazardous material(s) involved, and the extent and nature of the work requirements and conditions.

Employees required to use respirators will be properly fitted, appropriately tested, medically screened, and thoroughly trained in their use.

4.0 CODES AND REGULATIONS

General applicability of Codes and Regulations. Except to the extent that more stringent requirements are written directly into this standard, all applicable codes and regulations have the same force and effect as if copied directly into this standard.

FEDERAL REGULATIONS: Those standards governing the development of this program include, but are not limited to, the following:

Asbestos Regulations - Industrial

Title 29, Part 1910 Section 1001 of the Code of Federal Regulations

Asbestos Regulations - Construction

Title 29, Part 1926, Section 58 of the Code of Federal Regulations

Respiratory Protection

Title 29, Part 1910, Section 134 of the Code of Federal regulations

Access to Employee Exposure and Medical Records

Title 29, Part 1910, Section 20 of the Codes of Federal Regulations

NIOSH/MSHA Approvals for Respirators

Title 42 CFR 84, of the Code of Federal Regulations

American National Standards Institute (ANSI)

American National Standard: Practices for respiratory Protection, Z88, 2-1980.

5.0 DESIGNATION OF ADMINISTRATOR

The designated program administrator if the Corp. Safety Officer who has the responsibility for implementation of, and the adherence to, the provisions of this respiratory protection program. The Corp. Safety Officer will designate a person who is responsible for the enforcement of the program at each job site. This will be the site supervisor/foreman or on-site safety representative.

In order to comply with OSHA's "competent person" requirements, the person designated must have two qualifications. He or she must have experience in identifying and controlling exposures, and authority to promptly prevent and correct hazardous conditions.

6.0 PURCHASE OF APPROVED EQUIPMENT

In order to comply with the provisions of OSHA's Standard on Respiratory Protection, 29 CFR 1910.134, all respiratory protective equipment will have been tested by the National Institute of Occupational Safety and Health and will carry a joint NIOSH/MSHA approval number for that specific respirator assembly.

7.1 RESPIRATORY SELECTION

In selecting the correct respirator for a given circumstance the following factors be taken into consideration:

Nature of the Hazard - In order to make subsequent decisions, the nature of the hazard must be identified to ensure that an over exposure does not occur. These include oxygen deficiency, physical properties of the hazard, actual concentrations of the toxic substances, the Permissible Exposure Limits (PEL), and the warning characteristics.

Nature of the Hazardous Operations - For proper respirator selection, it is necessary to know the details of the operations which require employees to use devices. These include operations or process characteristics, and work characteristics which may necessitate alternate respirator selection.

Location of the Hazardous Area - This is important in the selection process so that a backup system may be planned, if necessary. Respirable or emergency operations may be planned.

Time Respiratory Protection is Required - The length of time a respirator will have to be worn by an employee is a factor which must be evaluated. This is most pronounced when using SCBA equipment where, by definition, the air supply is limited. However, time is also a factor during routine use of air purifying respirators when the employee's breathing and comfort become affected by clogged filter cartridges which may need changing.

Employee's Health - Effective usage of a respirator is dependent on an individual's ability to wear a respirator as determined by a physician. Most respiratory devices increase physical stress on the body, especially the heart and lung. Care should be taken to ensure that medical determination has been made that an individual is capable of wearing a respirator for the duration of the work assignment (See Section 11.0 of the Standard).

Work Activity - The type of work activities to be performed while wearing a respirator is vitally important in the respirator selection. The proper respirator will be one which is least disruptive to the task being conducted, yet providing the desired protection.

Respirator Characteristics, Capabilities, and Limitations - The tables in Exhibits 1 and 2 have been reproduced from ANSI Z99.2-1980. They provide a description of various respirator characteristics, capabilities, and limitations.

Protection Factors - The protection afforded by respirators is dependent upon the seal of the face piece to the face. The degree of protection may be ascertained and a relative safety factor as designed. Protection factors are only applicable if all elements of an effective respirator program are in place and being enforced.

7.2 SELECTION

Where respirators are used, the Corporate Safety Officer will select, the appropriate respirator, and will ensure that the employee uses the respirator provided.

7.3 COMFORT

Once the type of respirator has been selected, that is applicable and suitable for the purpose intended, the selection process should give consideration to the fit and comfort of the respirator.

The employee should be given the opportunity to select a respirator which provides the most comfortable fit. Since each respirator represents a different size and shape, a respirator which fits better during selection will provide better protection after fit-testing. For this purpose, the employee should be shown how to access a comfortable device and should eliminate those which are obviously ill-fitting.

An assessment of comfort should include the following points:

Chin properly placed
Positioning of mask on nose
Strap tension
Room to talk
Cheeks filled out
Fit across nose bridge
Room for safety glasses
Distance from nose to bridge
Tendency to slip
Hindrance to movement

8.1 ISSUANCE OF EQUIPMENT

When practical, respirators should be assigned to individual employees for their exclusive use and labeled for identification in such a way as not to affect the performance of the respirator.

8.2 FITTING

After the employee has been shown how to assess a respirator, he/she should be shown how to put on a respirator, how it should be positioned on the face, how to set strap tension and how to determine a proper fit.

Note: The instruction should take the form of a review and should not be considered the employee's formal training.

The employee should hold each face piece up to the face and eliminate those which obviously do not give a comfortable or proper fit. Normally, fitting should start with a half-face mask and if a good fit cannot be found, the employee should then try a full-face mask.

8.3 FAMILIARIZATION

Once the proper fitting respirator has been selected, the employee should don the device, adjusting the face piece and tension straps. He/she should wear the mask for at least five minutes before taking it off and putting it on several times, adjusting the straps each time to become familiar with the respirator and adept at setting the proper tension on the straps.

8.4 FIT-TESTING REQUIREMENTS

OSHA requires that respirators be fitted properly and that they be tested for their face piece to face seal. There are currently two methods acceptable for conducting these tests. Qualitative and Quantitative Fit Testing. The Qualitative method is a fast, easily conducted test that can be performed almost anywhere, while the Quantitative method requires the use of bulky test chambers and very expensive electronic equipment. The Quantitative method applies only to negative pressure non-powered air-purifying respirators.

Due to numerous field locations in which fit-testing must be accomplished the Qualitative fit test shall be utilized throughout the LiRo Group's organization.

Qualitative fit testing is based on the wearer's subjective response to the test agent of chemical of which the two most popular tests are: the odorous vapor test, and the taste test. (See Exhibit 3 procedures). The following represents a brief summary of how to conduct each of these tests.

8.4.1 ODOROUS VAPOR TEST

The odorous vapor test relies on the respirator wearer's ability to detect odorous materials, usually isoamyl acetate saturated material around the outside of the respirator. If the wearer is unable to smell the chemical, then a satisfactory fit is assumed to be achieved.

When an air purifying respirator is tested by this method, it should be equipped with an inorganic vapor cartridge which removes the test vapor from the air.

Note: This test is solely dependent upon the employees honest response there is no involuntary reaction. For that reason, it is the preferred test method.

8.4.2 TASTE TEST

The taste test relies upon the wearer's ability to detect a chemical substance, usually sodium saccharin, by tasting it inside the respirator. The test performed by placing an enclosure over the respirator wearer's head and shoulders, and spraying the test agent into the enclosure with a nebulizer. If the wearer is unable to taste the chemical, then a satisfactory

fit is assumed to be achieved.

Note: This test is totally dependent on the wearer's honest indication of taste. There is no involuntary response and therefore is not preferred as the method of testing. When conducting this type of test, the person being tested must not be allowed to eat, drink, chew gum, tobacco, or smoke.

8.5 FIELD TEST

There are two tests that are used in the field to check the seal of the respirator. These are known as the positive and negative pressure sealing tests. Each of these two tests must be performed every time a respirator is put on, and prior to entering a contaminated area.

Note: Although both the positive and negative pressure tests are considered essential to a good respiratory protection program and should always be used prior to entering an area of exposure, they are recognized solely as a field test and cannot be substituted for the qualitative fit test.

8.5.1 POSITIVE PRESSURE TEST

1. This test only applies to those respirators which have an exhalation valve which can be blocked. The exhalation valve may have to be removed for the test.

2. Close or "block off" the exhalation valve.

3. Exhale gently into face pieces.

4. If a slight pressure is built up, with no apparent outward leakage around face pieces to face, seal is assumed to be satisfactory.

8.5.2 NEGATIVE PRESSURE TEST

1. Close the inlet opening or hose of the respirator face pieces with the hand(s), tape or the other means.

2. Inhale gently so that the face pieces collapse slightly and hold the breath for ten seconds.

3. If the face pieces remains slightly collapsed and no inward leakage occurs, then the face pieces to seal is assumed satisfactory.

8.6 RECORD KEEPING OF TEST RESULTS

A summary of the test results for each employee on whom a qualitative fit test was conducted will be documented on the Respirator Test Summary (See Exhibit 4). This record will then become a part of the employee's medical record and will be retained for the same time period as the medical records.

9.1 TRAINING

Respirators will not be issued to individuals (including company officials, subcontractors, or visitors) who have not received appropriate training and medical clearance.

9.2 TRAINING PROGRAM

The extent and frequency of employee *training depends primarily on the nature and extent of the hazard*. As a minimum, all employees and supervisory personnel will be trained in basic respirator practices. It must be remembered that respirators are effective only when they are acceptable to the employee and worn properly by him/her. Because proper use depends especially upon the wearer's motivation, it is important that the need for the respirator be explained fully.

The basic respirator training program must include:

A discussion of the nature of airborne contaminants against which the employee must be protected and why engineering controls have not been effective in controlling exposure to the point where respirators are not required.

A discussion of why the respirator, which has been selected for this job, is the proper device for this particular purpose.

Instruction on the respirator's limitations, emphasizing such things as oxygen deficiency, toxic contaminants which are immediately dangerous to life or health, and the need for change filter cartridges when indicated to do so by testing, or when breathing resistance increases to an uncomfortable level.

Instructions on how to inspect the respirator and ensure that it is in proper working condition.

Instructions on how to put on a respirator, how it should be positioned on the face, how to set strap tension and how to wear the respirator comfortably.

Instructions on the method of fit-testing used and the proper way to conduct positive and negative pressure test each

time the respirator is put on. During this instruction, the wearer must be made to understand that the respirator cannot be used when conditions prevent a satisfactory face piece to face seal. If this condition cannot be corrected, the employee cannot be allowed into the area requiring the use of a respirator.

Instructions in the proper care and maintenance of the respirator.

A discussion on the value of medical surveillance and air sample monitoring.

Field training to recognize and cope with any type of emergency while using the respirator.

9.3 RESPIRATOR TRAINING RECORD

Upon completion of the basic respirator training program, the employee will be required to read and sign the Respirator Training Record (See Exhibit 4) attesting to the fact that they have received the basic training program and fell confident in their ability to use the respirator properly.

The signed and dated Respiratory Training Record will then become part of the employee's medical records and will be retained for the same period of time as those records.

10.1 CARE AND MAINTENANCE

Personnel involved in respirator maintenance must be thoroughly trained. Substitution of parts from different brands or type of respirators invalidate approval of the device. Repairs and adjustments should never be made beyond the manufacturer's recommendations.

10.2 CLEANING THE RESPIRATOR

Respirators must be cleaned and disinfected after each day's use when they are assigned to one individual or after each use if they are assigned to more than one person following procedures are recommended for cleaning and disinfecting the respirator:

If required, remove and discard filters or cartridges.

Wash face piece and breathing tube in detergent and warm water (120< F) or cleaner/disinfectant solution. Use a soft brush to facilitate removal of dirt. Cleaner/disinfectant solutions are available from respirator manufacturers or it can be made using a solution of water and household chemicals such as two tablespoons of chlorine bleach to one gallon of water or one teaspoon or tincture of iodine solution is sufficient for

disinfecting.

Rinse completely in clean warm water.

Air dry in clean air.

Clean out other parts, as recommended by the manufacturer.

Inspect the valves, head straps, and other parts - replace with new parts of defective.

Place face piece in a plastic bag or container for storage in an assigned area.

Insert new filters or cartridges prior to use, making sure the seals are tight.

10.3 STORING THE RESPIRATOR

When they are not being used, respirators should be individually sealed in plastic bags and stored at convenient locations in order to protect them against dust, sunlight, extreme temperatures, excessive moisture, or damaging chemicals. They should be stored in such a way that the face piece and exhalation valve are not being distorted.

10.4 INSPECTING THE RESPIRATORS

All respirators should be inspected before and after use, and at least monthly by a competent person to assure that they are in satisfactory working condition. A general inspection check list should include:

Tightness of connections
Conditions of face piece straps, connecting tubes, and cartridge

Condition of exhalation and inhalation valves: If the side of the exhalation valve gaps even slightly, it must be replaced with a new valve.

Pliability and flexibility of rubber parts: Deteriorated rubber parts must be replaced, unused rubber parts should be worked, stretched and manipulated, with a massaging action.

Proper function of regulations and warning devices

Respiratory protection is no better than the condition of the respirator in use, even though it is worn conscientiously.

Frequently, random inspections must be conducted by a qualified individual to assure that the respirators are properly selected, fitted, used, cleaned, and maintained.

Note: For a detailed respirator check list, refer to the Respirator Inspection Chart in Exhibit 5.

10.5 CARE AND MAINTENANCE RECORDS

A written record should be maintained of the Care and Maintenance program within each individual company. Information contained on this record should include inspection reports, replacement parts used, dates of repair, cleaning and type of disinfectant used and the names of persons doing the work. The respirator should be identified by manufacturer, model, and approval number. Records should be retained for a period of five years.

11.1 MEDICAL REQUIREMENTS

Employees of the LiRo Group will not be assigned to tasks requiring the use of a respirator unless it has been determined that they are physically able to perform work, and use the respirator.

11.2 MEDICAL EXAMINATIONS

Employees who are working at or above Action Level of a toxic substance for thirty (30) days or more per year, or who are using a negative pressure respirator, will be required to undergo a medical evaluation of the following frequency:

Prior to assignment of a respirator for those employees who will be issued a negative pressure respirator.

At least annually thereafter.

Each procedure of the medical examination and evaluation will be performed by or under the supervision of a licensed physician and will include, as a minimum, a chest x-ray both posterior and anterior, a medical and work history and special emphasis directed to the pulmonary, cardiovascular, and gastrointestinal systems to determine the presence of any possible respiratory diseases. A pulmonary function test which will include both the maximum amount of air that can be expired from the lungs after full inhalation (FVC) and maximum amount of air forcibly expired in one second after exhalation (FEV10).

The only exception to this requirement, for an initial medical examination, is if the employee or company can provide adequate records/documentation to show that he/she has been examined in accordance with the provision of this program within the past one (1) year period.

11.3 MEDICAL FORMS

Medical surveillance will be conducted as described in the HASP. In addition to standardized questionnaires, the physician must also be furnished with a copy of the latest OSHA standards governing the type of exposure the employee will be involved in. A description of the employee's duties as they relate to the exposure, the anticipated exposure level, a description of the respiratory protection equipment to be used, and any available information from the previous medical examinations of the employee must also be furnished to the physician.

At the conclusion of the examination, the physician will submit a written opinion which will contain the results of the examination, conditions discovered by the physician that will prohibit the employee from using a respirator, and any recommendations from the physician regarding the employee's limitations. It will also contain a statement from the physician that he/she has informed the employee of the results of the examination.

A copy of the physician's opinion must be furnished to the employee by the company within thirty (30) days of its receipt by the company.

11.4 MAINTENANCE RECORDS

All records pertaining to the employee's medical examination must be retained for a period of thirty (30) years.

12.0 WORK AREA SURVEILLANCE

Although not specifically discussed in the Respiratory Protection Standard 29 CFR 1910.134, the standards require "appropriate surveillance". This should include identification of the containment, nature of the hazards, concentration at the breathing zone and, if appropriate, biological monitoring. The industrial hygienist who is conducting the air sampling should carefully document any apparent efficiencies in surveillance necessary to the respirator program.

13.0 PROGRAM EVALUATION

The program administration should periodically assess the effectiveness of the respiratory protection program during all phases of operation in which respiration are being used. Frequent walk-through inspections during these activities should be conducted to monitor and document supervisor and worker compliance with the requirements of the program. In addition to specific evaluations of the respirator cleaning, inspection, maintenance, desired results of these operations are consistently achieved.

14.1 VIOLATION AND DISCIPLINARY ACTION

Due to the LiRo Group's heavy involvement in various industrial facilities, respirator protection is a crucial part of the company's overall safety program. As such, mandatory compliance with all aspects of this program, by those employees required to use a respirator, is a condition of continuing employment.

14.2 DISCIPLINARY ACTION

When it has come to the attention of a supervisor that an employee has deliberately removed his/her respirator or broken the face piece seal while in the contaminated area, the employee will be immediately suspended from work and instructed to leave the job site pending a final disposition.

Random spot checks will be conducted to determine the effectiveness of the employee's fit test. Should the check, which will be a positive or negative pressure test conducted under the direction of a supervisor, indicated that the employee's respirator does not have satisfactory seal, the employee will be advised accordingly and instructed to leave the contaminated area. A written citation will be issued to the employee the first time he/she fails a random check. Two such citations on the same job will be sufficient cause for dismissal.

15.0 REPORTING RESPIRATOR PROBLEMS

Occasionally, the company may find a defect in the design or performance of a respirator. The best course to follow is to report these findings to the administrator of the company's respiratory protection program, which in turn, should report to LiRo's Safety Officer.

The respirator carries with it the approval of the National Institute of Occupational Safety and Health (NIOSH), the Corporate Safety Officer will report the findings to the respirator's manufacturer and to NIOSH.

This will be done by notifying the manufacturer of the defect in a report format and forwarding a copy of the report to NIOSH. The report will include the following:

The name, address, and telephone number of LiRo Engineers, Inc.

The name of the respirator's manufacturer

Model number of the respirator

The name and part number (if possible) of the defective part

A brief description of the respirator's use when the defect was discovered

A description of the defect

A description of the defects adverse effect on the respirator's performance

This report should be addressed to the NIOSH Division of Safety Research, testing and Certification Branch, 944 Chestnut Ridge Road, Morgan Town, West Virginia 26595.

EXHIBIT 1

CLASSIFICATION AND DESCRIPTION OF RESPIRATOR BY MODE OF OPERATION

1.1 ATMOSPHERE-SUPPLYING RESPIRATORS

A respirable atmosphere independent of the ambient air is supplied to the wearer.

Self-Contained Breathing Apparatus (SCBA). A supply of oxygen, or oxygen-generating material is carried by the wearer. Normally equipped with full face piece, but may be equipped with a quarter-mask face piece, half-mask, helmet, hood or mouth piece, and nose clamp.

1.2 CLOSED-CIRCUIT SCBA (Oxygen only, negative pressure or positive pressure)

1.2.A COMPRESSED OR LIQUID OXYGEN TYPE

Equipped with a face piece or mouth piece and nose clamp. High pressure oxygen from a gas cylinder passes through a high pressure reducing valve and, in some designs, through a low-pressure admission valve to a breathing bag or container. Liquid oxygen is concerted to low pressure gaseous oxygen and delivered to the breathing bag. The wearer inhales from the bag, through a corrugated tube connected to a mouth piece or face piece and a one way check valve. Exhaled air passed through check valve and tube into a container of carbon dioxide removing chemical or as the bag deflates sufficiently to actuate an admission valve. A pressure-relief system is provided; and a manual bypass system and saliva trap may be provided depending upon the design.

1.2.B OXYGEN-GENERATING TYPE

Equipped with a face piece or mouth piece and nose clamp. Water vapor in the exhaled breath reacts with chemicals in the canister to release oxygen to the breathing bag. The wearer inhales from the bag through a corrugated tube and one-way check valve at the face piece. Exhaled air passes through a second check valve breathing tube assembly into the canister. The oxygen-release rate is governed by the volume of exhaled air. Carbon dioxide in the exhaled breath is removed by the canister fill.

1.3 OPEN-CIRCUIT SCBA (Compressed air, compressed oxygen, liquid air, liquid oxygen).

A bypass system is provided in case of regulator failure, except on escape-type units.

1.22A DEMAND TYPE C

Equipped with a face piece or mouth piece and nose clamp. The demand valve permits oxygen or air flow only during inhalation. Exhaled breath passes to ambient atmosphere through a valve(s) in the face piece.

1.2.B PRESSURE-DEMAND TYPE D

Equipped with a face piece only. Positive pressure is maintained in the face piece. The apparatus may have provisions for the wearer to select the demand or pressure-demand mode of operation, in which case the demand mode should be used only when donning or removing the apparatus.

1.3 SUPPLIED-AIR RESPIRATOR

1.3.A HOSE MASK

Equipped with a face piece, breathing tube, rugged safety harness, and a large diameter heavy-duty non-kinking air supply hose. The breathing tube and air-supply hose are securely attached to the harness. The face piece is equipped with an exhalation valve. The harness has provisions for attaching a safety line.

1.3.B HOSE MASK WITH BLOWER

Air is supplied by a motor driven or hand operated blower. The wearer can continue to inhale through the hose if the blower fails. Up to 200 feet (91 meters) of hose length is permissible.

1.3.C HOSE MASK WITHOUT BLOWER

The wearer provides motivating force to pull air through the hose. The hose inlet is anchored and filled with a funnel or like object covered with a fine mesh screen to prevent entrance of coarse particulate matter. Up to 75 feet (23 meters) of hose length permissible.

1.4 AIR-LINE RESPIRATOR

Respirable air is supplied through a small diameter hose from a compressor or compressed-air cylinder(s). The hose is attached to the wearer by a belt or other suitable means and can be detached readily in an emergency. A flow-control valve or orifice is provided to govern the rate of air to the wearer. Exhaled air passes to the ambient atmosphere through a valve(s) or opening(s) in the enclosure (face piece, helmet, hood or suit). Up to 300 feet (91 meters) of hose length is permissible.

1.4.A CONTINUOUS-FLOW CLASS

Equipped with a face piece, hood, helmet, or suit. At least 115 liters (4 cubic feet) of air per minute to light-fitting face pieces and 170 liters (6 cubic feet) of air per minute to loose-fitting helmets, hoods, and suits is required. Air is supplied to a suit through a system of internal tubes to the head, trunk, and extremities through valves located in appropriate parts of then suit.

1.4.B DEMAND TYPE C

Equipped with a face piece only. The demand valve permits the flow of air only during inhalation

1.4.C PRESSURE-DEMAND TYPE D

Equipped with a face piece only. A positive pressure is maintained in the face piece.

1.4.D COMBINATION AIR-LINE RESPIRATORS WITH AUXILIARY SELF-CONTAINED AIR SUPPLY

Include an air-line respirator with an auxiliary self-contained air supply. To escape from a hazardous atmosphere in the event the primary air supply fails to operate, the wearer switches to the auxiliary self-contained air supply. Devices approved for both entry into and escape from dangerous atmospheres have a low-pressure warning alarm and contain at least 15-minute self-contained air supply.

1.4.E COMBINATION ATMOSPHERE-SUPPLY AND AIR-PURIFYING RESPIRATORS

Provide the wearer with the option of using either of two different modes of operation:

1. An atmosphere-supplying respirator with an auxiliary air purifying attachment which provides protection in the event the air supply fails; or

2. An air purifying respirator with an auxiliary self-contained air supply which is used when the atmosphere may exceed safe conditions for use of an air-purifying respirator.

2.1 AIR-PURIFYING RESPIRATORS

Ambient air, prior to being inhaled, is passed through a filter, cartridge or canister which removes particles, vapors, gases, or a combination of these contaminants. The breathing action of the wearer operates the non-powered type of respirator. The power type contains a blower - stationary or carried by the wearer - which passes ambient air through an air-purifying component and then supplies purified air to the respirator inlet covering. The non-powered type is equipped with

a face piece or mouth piece and nose clamp. The powered type is equipped with a face piece, helmet, hood, or suit.

2.2 VAPOR - AND GAS - REMOVING RESPIRATOR

Equipped with cartridge(s) or canister(s) to remove a single vapor or gas (for example, chlorine gas), a single class of vapors or gases (for example: dust and fume), from air. Filter may be a replaceable part of a permanent part of the respirator. Filter may be the single-use or the reusable type.

2.3 PARTICULATE-REMOVING RESPIRATORS

Equipped with filter(s) to remove a single type of particulate matter (for example: dust), or a combination of two or more types of particulate matter (for example: dust and fume), from air. Filter may be a replaceable part of a permanent part of the respirator. Filter may be the single-use or the reusable type.

2.4 COMBINATION PARTICULATE - AND VAPOR - AND GAS - REMOVING RESPIRATOR

Equipped with cartridge(s) or canister(s) to remove particulate matter, vapors, and gases from air. The filter may be a permanent part, or replacement part of a cartridge or canister.

A. Device procedures negative pressure on respiratory inlet covering during inhalation

B. Device procedures positive pressure on respiratory inlet covering during both inhalation and exhalation.

C. Equipped with a demand valve that is activated on initiation of inhalation and permits the flow of breathing atmosphere to the face piece. On exhalation, pressure in the face piece becomes positive and the demand valve is deactivated.

D. A positive pressure is maintained in the face piece by a spring loaded or balanced regulator and exhalation valve.

EXHIBIT 2

CAPABILITIES AND LIMITATIONS OF RESPIRATORS

1.1 ATMOSPHERE-SUPPLYING RESPIRATORS

Atmosphere-supplying respirators provide protection against deficiency and toxic atmospheres. The breathing atmosphere is independent of ambient atmospheric conditions.

1.2 GENERAL LIMITATION

Except for some air-line suits, no protection is provided against skin irritation by material such as ammonia and hydrogen chloride, or against sorption of materials such as hydrogen cyanide, tritium, or organic phosphate pesticides through the skin. Face pieces present special problems to individuals required to wear prescriptive lenses (See 9.1). Use of atmosphere-supplying respirators in atmospheres immediately dangerous to life or health is limited to specific devices under specified conditions.

1.3 SELF CONTAINED BREATHING APPARATUS (SCBA)

The wearer carries his/her own breathing atmosphere.

1.3.A LIMITATIONS

The period over which the device will provide protection is limited by the amount of air or oxygen in the apparatus, the ambient atmospheric pressure (service life of open-circuit devices is cut in half by a doubling of the atmospheric pressure), and the type of work being performed. Some SCBA devices have a short service life (less than 15 minutes) and are suitable only for escape (self-rescue) from an irrespirable atmosphere.

Chief limitations of SCBA devices are their weight or bulk, or both, limited service life, and the training required for their maintenance and sale use.

1.4 CLOSED-CIRCUIT SCBA

The closed-circuit operation conserves oxygen and permits longer service life at reduced weight. The negative pressure type produces a negative pressure in the respiratory -inlet covering during inhalation, and this may permit leakage of contaminants, whereas the positive pressure type always maintains a positive pressure in the respiratory-inlet covering, and is less apt to permit inward leakage of contaminants.

1.4.A OPEN-CIRCUIT SCBA

The demand type produces a negative pressure in the respiratory-inlet covering during inhalation, whereas the pressure-demand type maintains a positive pressure in the respiratory-inlet covering during inhalation, and is less apt to permit inward leakage of contaminants.

1.4.B SUPPLIED-AIR RESPIRATORS

The respirable air supply is not limited to the quantity the individual can carry, and the devices are lightweight and simple.

1.3.B.1 LIMITATIONS

Limited to use in atmospheres from which the wearer can escape unharmed without the aid of the respirator.

The wearer is restricted in movement by the hose and must return to a respirable atmosphere by reacting his/her route of entry. The hose is subject to being severed or pinched off.

1.5 HOSE MASK

The hose inlet or blower must be located and secured in a respirable atmosphere.

1.5.A HOSE MASK WITH BLOWER

If the blower fails, the unit still provides protection, although a negative pressure exists in the face piece during inhalation.

1.5.B HOSE MASK WITHOUT BLOWER

Maximum hose length may restrict application of device.

1.6 AIR-LINE RESPIRATOR (Continuous Flow, Demand, and Pressure-Demand Types)

The demand type produces a negative pressure in the face piece on inhalation, whereas continuous-flow and pressure-demand types maintain a positive pressure in the respiratory-inlet covering and are less apt to permit inward leakage of contaminants.

Air-line suits may protect against atmosphere that irritate the skin or that may be absorbed through unbroken skin.

1.6.A LIMITATIONS

Air-line respirators provide no protection if the air supply fails. Some contaminants, such as tritium, may penetrate the material of an air-line suit and limit its effectiveness.

Other contaminants, such as fluorine, may react chemically with the material on an air-line suit and damage it.

1.6.B COMBINATION AIR-LINE RESPIRATORS WITH AUXILIARY SC AIR SUPPLY

The advantages and disadvantaged, expresses above, of the mode of operation being used will govern. The mode with greater limitations (air-purifying mode) will mainly determine the overall capabilities and limitation of the respirator, since the wearer may for some reason fail to change the mode of operation even though conditions would require such a change.

2.1 AIR-PURIFYING RESPIRATORS

2.2 GENERAL LIMITATIONS

Air purifying respirators do not protect against oxygen-deficient atmospheres, nor against skin irritations by, or sorption through the skin, of airborne contaminants.

The maximum contaminant concentration against which an air-purifying respirator will protect is determined by the design efficiency and capacity of the cartridge, canister, or filter, and face piece-to-face seal on the user. For gases and vapors, the maximum concentration for which the air-purifying element is designated is specified by the manufacturer or is listed on labels of cartridges and canisters.

Non-powered air purifying will not provide the maximum design protection specified unless the face piece or mouth piece/nose clamp is carefully fitted to the wearer's face to prevent inward leakage (See 7.2). The time period over which protection is provided is dependent on canister, cartridge, or filter type; concentration of contaminant; humidity levels in the ambient atmosphere; and the wearer's respiratory rate.

The proper type of canister, cartridge, or filter must be selected for the particular atmosphere and conditions. Non-powered air-purifying respirators may cause discomfort, due to noticeable resistance to inhalation. This problem is minimized in powered respirators. Respirators face piece present special problems to individual required to wear prescription lenses (See 9.1). These devices do have the advantage of being small, light, and simple in operation.

Use of air-purifying respirators in atmosphere immediately dangerous to life or health is limited to specific devices under specific conditions.

2.3 VAPOR AND GAS-REMOVING RESPIRATORS

2.3.A LIMITATIONS

No protection is provided against particulate contaminants. A rise in canister or cartridge temperature indicates that a gas vapor is being removed from the inspired air.

An uncomfortably high temperature indicates a high concentration of gas or vapor and requires and immediate return to fresh air.

Use should be avoided in atmosphere where the contaminant(s) lacks sufficient warning properties (that is: odor, taste, or irritation at a concentration in air at or above the (permissible exposure limit). Vapor-and-gas-removing respirators are not approved for contaminants that lack adequate warning properties.

Not for use in atmospheres immediately dangerous to life or health unless the device is a powered-type respirator with escape provisions (See Table 5).

- Full Face Piece Respirator provides protection against eye irritation, in addition to respiratory protection.
- Quarter-mask and Half-mask Face Piece Respirator provides a fabric covering (face let) available from some manufacturers shall not be used.
- Mouth Piece Respirator shall be used only for escape applications. Mouth breathing detection of contaminant by odor. Nose clamps must be securely in place to prevent nasal breathing.
- Limitations include no protection is provided against particulate contaminants. A rise in canister or cartridge temperature indicates that a gas or vapor is being removed from the inspired air.

3.1 PARTICULATE-REMOVING RESPIRATORS

3.2 LIMITATIONS

Protection against non-volatile particles only. No protection against gases and vapors.

Not for use in atmosphere immediately dangerous to life or health unless the device is a powered-type respirator with escape provisions.

3.2.A FULL FACE PIECE RESPIRATOR

Provide protection against eye irritation, in addition to respiratory protection.

3.2.B QUARTER-MASK AND HALF-MASK FACE PIECE RESPIRATOR

A fabric covering (facelet) available from some manufacturers shall not be used unless approved for use with respirator.

3.2.C MOUTH PIECE RESPIRATOR

Shall be used only for escape application. Mouth breathing prevents detection of contaminant by odor. Nose clamp must be securely in place to prevent nasal breathing.

3.3 COMBINATION PARTICULATE-AND-VAPOR-AND-GAS REMOVING RESPIRATORS

The advantages and disadvantages of the component sections of the combinations respirator as described above apply.

EXHIBIT 3

PROCEDURES FOR CONDUCTING A QUALITATIVE FIT-TEST

1.1 SMOKE TEST

1.2 RESPIRATOR SELECTION

1.2.A The test subject should be allowed to select the most comfortable respirator from any array of various sizes and manufacturers that includes at least three sizes and units of at least two manufacturers.

1.2.B The selection process should be conducted in an area away from the fit-test area to prevent odor fatigue. Prior to the selection process, the test subject should be shown how to put on a respirator, how it should be positioned on the face, and how to set strap tension.

1.3 SELECT THE TEST AGENT

1.3.A One of the two test agents, isoamyl acetate, or saccharin solution should now be selected.

1.4 CONDUCTING THE FIT-TEST

1.4.A Have the test subject properly don the selected respirator and tighten the tension straps to get a good face piece-to-face seal.

1.4.B At this point, have the test subject “seat” the mask by rapidly moving the head from side-to-side and up and down while taking a few deep breaths.

1.4.C The test subject should now conduct the positive and/or negative pressure test. If the positive and/or negative pressure test is not satisfactory, the selected respirator should be discarded at this point, and an alternate respirator selected and tested.

1.4.D If the positive and/or negative pressure was satisfactory, the test subject is ready for the fit-test.

1.4.E Allow the test subject to wear the respirator for approximately 8 to 10 minutes before continuing with the fit-test. During this time, review the test procedures with the test subject.

1.4.F Break both ends of a ventilation smoke tube. Attach a short length of tubing to one end of the smoke tube

and low pressure air pump or squeeze the bulb and force out of the tube.

1.4.G Direct the stream of smoke from the tube towards the face seal area of the test subject, beginning at least 12 inches from the face piece and gradually moving to within 1 inch, moving around the whole perimeter of the mask.

1.4.H Instruct the test subject to conduct the following exercise while respirator seal is being challenged by the smoke. Each exercise should be performed for at least one minute.

1. Breathing normally

2. Breathing deeply. Be certain the breaths are deep and regular.

3. Turn the head from side-to-side. Be certain the movements are complete and that the test subject is inhaling when his/her head is at either side.

4. Nod the head up and down. Be certain the motions are complete. Have the test subject inhale when his/her head is at either side.

5. Have the test subject jog in place for a few seconds.

1.4.I When the test subject has passed the smoke test without evidence of a response, the respirator should be removed and the test subject is given a sensitivity check of the smoke from the same tube to determine whether he/she reacts to the smoke. Failure to evoke a response will void the whole fit-test.

1.5 SEMI-ANNUAL TESTING

The qualitative fit-test should be repeated at least once more every six months, if the user is assigned a new respirator, or whenever one or more of the following occur:

1.5.A The employee has a weight change of 20 pounds or more;

1.5.B Facial scaring occurs in an area of the face seal;

1.5.C The employee has significant dental changes;

1.5.D The employee has reconstruction or cosmetic surgery of the face, and

1.5.E Any other condition that may interfere with the face piece seal.

1.6 RECORD KEEPING

The Respirator Test Summary, shown in Exhibit 4, must be completed after each fit-test.

EXHIBIT 4

RESPIRATOR FIT-TEST AND TRAINING RECORD

Employee's Name:_____ Social Security No.:_____-_____-

Project Name:_____ Job Number:

RESPIRATOR FIT-TEST SUMMARY (*Must be conducted for each negative pressure respirator used*)

Fit-Test Date:_____ Person Conducting Fit-Test:
Respirator Selected:

Manufacturer:_____ Model:
Respirator Size:_____ NIOSH Approval No.:

Was Rainbow Passage Used: Yes No Was Face piece-to-face Seal Obtained: Yes No

Signature of person conducting Fit-Test:

RESPIRATOR TRAINING RECORD

Your signature on the respirator Training Record will attest to your having received and understood the following respirator training information which both OSHA and LiRo Engineers, Inc. require as part of their Respiratory Protection Program.

The required respirator training consists of the following:

An explanation of the problems involved in misusing or inter-changing parts of the respirator.
A discussion of why engineering controls could not prevent the use of respiratory protection.
How and why this make and model was chosen for this specific project.
The limitations of this make and model was chosen for this specific project. How
to put on this respirator and properly adjust the face piece and tension straps. How
to wear this respirator properly.
What the essential points of the care and maintenance of this respirator are.

How to recognize and handle emergencies which may occur while using this respirator.

How to properly inspect, clean, and disinfect this respirator.

How to properly use an Air Purifying Respirator.

When a Type-C Supplied-air respirator is required.

The purpose of medical evaluation.

How LiRo Engineers conducts a proper respirator fit-test.

That a Powered Air Purifying Respirator (PAPR) is available to you upon request, as long as it meets the protection factor for the hazard involved.

Employee's Signature:_____ Date:

EXHIBIT 4

LiRo Engineers, INC.

QUALITATIVE RESPIRATOR FIT TESTING

Date:

Employee Name:_____(Last, First, Middle Intl.)

Age:_____Sex:

Years Experience:_____Frequency:_____**See Key

Mask Now Using:_____Usual Conditions:____**See Key Mask Selected:

_____(i.e. MSA, Half Mask, Medium)

Qualitative Tests: (PP)_____(NP)(IA)_____(IS)

(1) = Passed (2) = Failed (3) = Did Not Run

IAA Sensitivity Test:_____(Pass) or (Fail) Smoke

Sensitivity Test:_____(Pass) or (Fail)

Respirator Selection: 1st Choice:_____(Pass) or (Fail)

2nd Choice:_____(Pass) or (Fail)

3rd Choice:_____(Pass) or (Fail)

Final Selection:_____(Pass) or (Fail)
(Manufacturer/Size)

Test Instructor:_Employee Signature: Comments: Facial

Conditions:

( ) Wrinkles ( ) Wide-Bridge
( ) Broken Nose ( ) Shallow-Bridge
( ) Deep Nostrils ( ) Small Face
( ) Narrow Face ( ) Wide Face
( ) Other

Frequency:
How many times
used during a week:
(1) Less than 1/Week
(2) 2-5 Times/Week
(3) 5-10 Times/Week
(4) 1-4 Times/Day

Usual Conditions:
(1) Beard/Heavy
(2) Beard/Light
(3) Scars
(4) Wrinkles
(5) Glasses
(6) Several Days Beard Growth

Qualitative Tests:
PP - Positive Pressure
NP - Negative Pressure
IA - Isoamyl Acetal
IS - Irritant Smoke

EXHIBIT 5

RESPIRATOR INSPECTION CHART

Item	Half Face APR	Full Face APR	PAPR	Type C	SCBA
FACE PIECE					
Dirt or debris	X	X	X	X	X
Cracks, tears or holes	X	X	X	X	X
Distortion	X	X	X	X	X
Cracked or scratched lens		X	X	X	X
Looseness of parts	X	X	X	X	X
HEAD STRAPS					
Break or tears	X	X	X	X	X
Loss of elasticity	X	X	X	X	X
Broken or malfunctioning buckles	X	X	X	X	X
VALVES					
Dirt or dust	X	X	X	X	X
Detergent residue	X	X	X	X	X
Distortion	X	X	X	X	X
Missing Pieces	X	X	X	X	X
Fit of valve set	X	X	X	X	X
FILTER/CARTRIDGES					
Proper one for intended use	X	X	X	X	X
Approval designation	X	X	X	X	X
Missing or worn gasket	X	X	X	X	X
Worn threads on filter	X	X	X	X	X
Worn threads on face piece	X	X	X	X	X
Cracks or dents	X	X	X		X
Missing or loose hose clamps	X	X	X		X

Item	Half Face APR	Full Face APR	PAPR	Type C	SCBA
COMPRESSORS					
Air Quality				X	
Breaks or kinks in supply hose				X	
Supply hose fittings				X	
Connections				X	
Regulator set properly and working				X	
Valves working correctly				X	
Carbon monoxide alarms				X	
High Temperature alarm				X	
Air-purifying elements					
TANKS					
Regulator					X
Valves					X
Reserves air system					X
Harness					X
PUMPS					
Motors			X		
Charging units			X		
Hoses			X		
Batteries			X		
Test gauges			X		
Power cords			X		
Belt holder			X		

APPENDIX D

LiRo Engineers, Inc.

PERSONNEL DECONTAMINATION PROCEDURES

APPENDIX D-1

LEVEL D DECONTAMINATION

Scrub outer boots and gloves with soap and water.

Rinse off soapy water from boots and gloves with clean water.

Remove outer gloves and dispose in container or store in decon zone for later use.

Wash hands and face as soon as possible.

Equipment - 30 gallon tub
soapy water
fresh water
long handle brush
garbage can with plastic linear

APPENDIX D-2

LEVEL C DECONTAMINATION

Deposit equipment used onsite (tools, sampling devices, and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths or in different designated containers with plastic liners.

Scrub outer boots and gloves with decon solution or detergent/water.

Rinse off decon solution using copious amounts of water. Repeat as many times as necessary.

Remove tape around boots and gloves and deposit in container with plastic liner.

Remove boot covers and deposit in container with plastic liner.

Remove outer gloves and deposit in container with plastic liner.

Remove disposable suit. Deposit in container with plastic liner.

Remove face piece. Avoid touching face with gloves. Wash respirator with spray cleaner and paper towels, and store in plastic liner.

Remove inner gloves and deposit in container with plastic liner.

Wash hands and face as soon as possible.

Equipment - container (20-30 gallons)
decon solution or detergent/water long handle, soft bristle scrub brushes
container (30-50 gallons) or spray unit
clean water
plastic liners

APPENDIX D-3

LEVEL B DECONTAMINATION

Deposit equipment used onsite (tools, sampling devices, and containers, monitoring instruments, radios, clipboards, etc.) On plastic drop cloths or in different designated containers with plastic liners.

Scrub outer boots and gloves with decon solution or detergent/water.

Rinse off decon solution using copious amounts of water. Repeat as many times as necessary.

Remove tape around boots and gloves and deposit in container with plastic liner.

Remove boot covers and deposit in container with plastic liner.

Remove outer gloves and deposit in container with plastic liner.

Remove SCBA back pack / air line harness and wash with a spray cleaner, paper towels and store in plastic liner

Remove disposable suit. Deposit in container with plastic liner.

Remove face piece. Avoid touching face with gloves. Wash respirator with spray cleaner and paper towels, and store in plastic liner.

Remove inner gloves and deposit in container with plastic liner.

Wash hands and face as soon as possible.

Equipment - container (20-30 gallons)
decon solution or detergent/water long handle, soft bristle scrub brushes
container (30-50 gallons) or spray unit
clean water
plastic liners

APPENDIX E

LiRo ENGINEERS, Inc.

WASTE MANAGEMENT AND SPILL CONTROL PLAN

LiRo ENGINEERS, INC.

WASTE MANAGEMENT
AND SPILL CONTROL PLAN

LiRo Engineers Hazardous Waste Management Procedures are prepared in writing on a site specific basis by the Project Manager/Competent Person.

The following list of topics can be used by the competent person as a guide in the preparation of the site specific plan. Additionally, the competent person will also consult with the LiRo Engineers procedures for Hazard Communication Standard, Respiratory Protection, and PPE Sections.

1. Obtain MSDS Sheets for each waste encountered. Follow all safety precautions, PPE, handling procedures, and training as detailed on the MSDS.

2. Refer to OSHA Regulations, TSCA, RCRA and CRCLA Regulations for laws governing the handling/disposal of specific types of hazardous substances.

3. Follow the Site Specific Safety and Health Plan for handling hazardous waste. Use only certified/trained/authorized personnel to handle hazardous waste.

4. Utilize the proper drums/containers for the specific waste encountered. Refer to 40 CFR 260-272 and 300 and DOT Regulations 49 CFR Parts 171-178.

5. Provide sufficient quantity of the proper labels, and ID tags to identify the wastes in the containers. Use appropriate warning signs around the on-site staging area.

6. Maintain a suitable quantity of absorbent materials and fire extinguishers in event of a spill, leak, or discharge. The emergency spill materials shall be located in close proximity to the staging area.

7. The staging area shall include a “secondary containment” around the drums/containers.

8. Drums/containers shall be stored in a neat and orderly manner. Containers shall be segregated by waste type. Do not

co-mingle waste on site.

9. The generation of hazardous waste shall be minimized. Care shall be taken to not cross-contaminate waste on site.

10. Do not overfill or overpack a given container beyond its rated capacity. Allow for expansion/contraction due to freeze/thaw temperature changes. Do not overload roll-off, gondolas, or railroad cars.

11. A written log with the date and quantity of waste generated on site shall be kept by the Project Foreman/Competent Person.

12. The Site Specific Hazardous Waste Management Procedures shall be covered at the Weekly/Daily Tool Box Talks held on site with all employees who may be near or handling the waste on site. Each employee shall acknowledge their understanding of the procedures by signing the tool box talk meeting minutes. Copies of procedures shall be posted on site and readily available personnel.

The transportation and disposal of hazardous waste from a LiRo Engineers environmental remediation project is performed only through licensed, certified, trained and permitted 3rd party subcontractors.

The following guide is used to insure the use of qualified subcontractor to be used for the disposition of hazardous wastes:

1. Obtain copies of all waste characterization reports from a qualified/licensed laboratory.

2. Obtain copies of all permits for both the waste transporters and the T.S.D.F. (Make sure the waste being disposed of is on their permit and their permits have not expired).

3. Obtain written approval from the T.S.D.S. to accept the waste.

4. Obtain a certificate of insurance for General Liability, Workman's Comp, and auto for each transporter and T.S.D.F. LiRo Engineers is to be named additional insured on all policies/certificates. All original certificates are to be sent to LiRo Engineer's main office.

5. Fill out the Waste Manifest Transport/Disposal Form provided by the T.S.D.F. Facility. Obtain signatures from the generator prior to shipment (in no case shall LiRo Engineers act or sign on behalf of the generator of hazardous waste).

6. A Summary Log showing the date, transporter, T.S.D.F, quantity and waste type shall be maintained at the site for future reference and tracking.

SPILL CONTROL & CONTINGENCY PLAN

LiRo Engineer's Spill Control & Contingency Plan (SCP) details procedures for the diking/berming of contaminated liquid and/or fuel storage areas; the development of operating procedures to include spill prevention design; and the training of employees in spill prevention and control techniques.

In the event of a spill, LiRo Engineers will implement the following flexible spill response:

1. *First aid will be administered to injured/contaminated persons*. Any LiRo Engineers employee observing a spill will act immediately to remove and/or protect injured/contaminated persons from any life-threatening situation. First aid and/or decontamination procedures who are familiar with spill control and cleanup.

2. *Warn unsuspecting persons/vehicles of the hazard*. LiRo Engineers personnel will act to prevent any unexpecting persons from coming in contact with spilled materials by alerting other nearby persons and by obtaining assistance of other LiRo Engineers personnel who are familiar with spill control and cleanup.

3. *Stop the spill at the source, if possible*. Without taking unnecessary risks, LiRo Engineers personnel will attempt to stop the spill at the source. This may involve activities such as uprighting a drum, closing a valve, or temporarily sealing a hole with a plug.

4. *Notify LiRo Engineers Project Manager/Competent Person*. Utilizing available radio communications or other rapid communication procedures. The Project Manager will be notified of the spill, including information on material spilled, quantity, personnel injuries, and immediate life-threatening hazards.

5. *Spill assessment and primary containment*. The competent person will make rapid assessment of the spill and direct primary containment measures. Depending upon the nature of the spill, primary containment measures may include, but are not limited to:

    - Constructing a temporary berm to control the horizontal flow of the spill using absorption pads, booms, sandbags, or inert material.

    - Placing drums under the leak to collect the spilling material before it flows over the ground.

    - Transferring the material from its original container to another container.

6. *Notify the Customer*.

7. *Spill cleanup procedure*. LiRo Engineers will develop a spill cleanup procedure taking into consideration associated hazards, and quantity of spilled material.

8. *Spill cleanup inspection*. The Project Manager and customer will jointly inspect the spill to determine that the spill has been cleaned up to the satisfaction of the client.

A Spill Report Form must be completed by the Project Manager, and submitted to Corporate Management within 24 hours of the incident.

LiRo ENGINEERS, INC.

EMISSION - SPILL - DISCHARGE REPORT

Job:_____ Date/Time:

Location:

Superintendent:

This form must be completed if any spill occurs on company or customer premises.

Substance(s) Spilled/Discharged:
Actions Taken to Control Spill/Discharge:
Amount Spilled/Discharged:

Reported By:
Report Reviewed By:
Date Report Sent to Owner:
Names of Persons Receiving Report:

APPENDIX I - SITE MANAGEMENT FORMS

MONITORING/OBSERVATION WELL GAUGING AND INSPECTION FORM
WESTERN NEW YORK WORKFORCE TRAINING CENTER
683 NORTHLAND AVENUE, BUFFALO, NEW YORK
NYSDEC SITE NO. C915310

Date _____

Inspector_____

Equipment Used _____

WELL ID	DEPTH TO PRODUCT (ft)	DEPTH TO WATER (ft)	PRODUCT THICKNESS (ft)	WELL CONDITION/COMMENTS

SITE COVER INSPECTION FORM
WESTERN NEW YORK WORKFORCE TRAINING CENTER
683 NORTHLAND AVENUE, BUFFALO, NEW YORK
NYSDEC SITE NO. C915310

Inspector: _____

Date: _____

1. Landscaped Areas

Adequate topsoil cover present? _____

Signs of Erosion? _____

Recommended corrective action, if needed. _____

2. Outdoor Paving/Sidewalks

Note any signs of cracking or other damage _____

Note any areas where greater than 25% of surface is cracked/damaged _____

Recommended corrective action, if needed _____

3. Building Interior Floors

Note any signs of cracking or other damage _____

Note any areas where greater than 25% of surface is cracked/damaged _____

Recommended corrective action, if needed _____

SSD SYSTEM INSPECTION FORM
WESTERN NEW YORK WORKFORCE TRAINING CENTER
683 NORTHLAND AVENUE, BUFFALO, NEW YORK
NYSDEC SITE NO. C915310

INSPECTION DATE: _____

INSPECTED BY: _____

Visual Inspection of System

System Component	***Condition (Circle one)***			***Comments/Reading***
Vent fan	Good	Fair	Needs Repair	
Piping	Good	Fair	Needs Repair	
Manometer reading	Good	Fair	Needs Repair	

Visual Inspection of Flooring

Flooring Condition	***Present (Circle one)***		***Location (Attach Figure If Present)***
Cracks	Yes	No	
Penetrations with Void/Annular Space	Yes	No	

Pressure Monitoring Point Measurements

Monitoring Equipment Used_____

Monitoring Point ID	***Vacuum (inches H2O)***	***Monitoring Point Condition***

LOW-FLOW PURGE RECORD

WESTERN NEW YORK WORKFORCE TRAINING CENTER

683 NORTHLAND AVENUE, BUFFALO, NEW YORK

NYSDEC SITE NO. C915310

Project Data:

Date: _____

Personnel: _____

Monitoring Well Data:

Well ID.: _____

PID (ppm): _____

Constructed Well Depth (ft.): _____

Measured Well Depth (ft.): _____

Depth of Sedimetnt (ft.): _____

Saturated Screen Length (ft): _____

Depth to Pump Intake (ft)(1): _____

Well Diameter, D (in): _____

Well Screen Volume, Vs (G)(2): _____

Initial Depth to Water (ft): _____

Time	*Pumping Rate (mL/min)*	*Depth to Water (ft)*	*Drawdown from Initial Water (ft)*	*Temperature ₀ C*	*Conductivity (mS/cm)*	*Turbidity NTU*	*DO (mg/L)*	*pH*	*ORP (mV)*	*Volume Purged, Vp (G)*	*No. of Well Screen Volumes Purged (4)*
			Precision Required :	*± 3 %*	*± 3 %*	*± 10 %*	*± 10 %*	*± 0.1 Units*	*± 10 mV*		

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 2 ft above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 10-foot screen length (L).

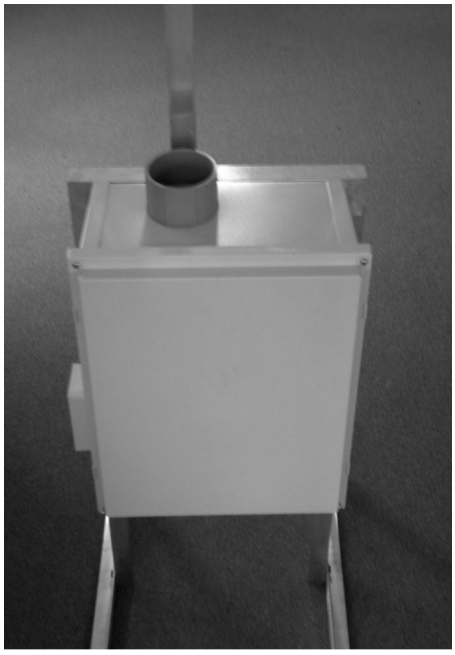
(3) The drawdown from the initial water level should not exceed 0.3 ft. The pumping rate should not exceed 600 mL/min.

(4) Purging will continue until stabilization is achieved or until 3 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

APPENDIX J - OPERATION AND MAINTENANCE MANUAL
(FOR ALL ACTIVE ECS)

THE OBAR GBR89
COMPACT RADIAL BLOWER

Based on 25 years of experience and 2 years of research and development, the patent pending GBR series of compact radial blowers provide the perfect combination of performance and design.



GBR89 WITH ROOF MOUNT

PERFORMANCE

- GBR89 HA 14" WC at 100CFM max flow 500 CFM.
- Built in speed control to customize performance.
- Condensate bypass built in.
- 12 month warranty 40,000 hr sealed bearings.

DESIGN

- Our modular design means the blower and manifold assembly can be removed and replaced as a unit. This makes repairs cost effective and easy and allows contractors to upgrade systems simply by swapping assemblies.
- The GBR series is based on a bypass blower designed to handle combustible materials.
- The housing is not required to be air tight so you can add gauges and alarms without compromising the system.
- Built in condensate bypass.
- Built in speed control.
- Quick disconnect electrical harness.
- All UL listed components including UL listed enclosure for outside use.
- Wall fastening lugs included.
- GBR series roof and wall mounts available to quickly configure the blowers for your installation while providing a custom built look.
- Compact design 18"x 16"x 10" weighing only 18 lbs.
- 4" schedule 40 inlet and 6" schedule 40 exhaust.

1. COST	GBR89 HA
COMPLETE UNIT	**$1,789.00**
3 YEAR WARRANTY	**$650.00**

Enclosure Specifications
Rating:

Ingress Protection (EN 60529): 66/67

Electrical insulation: Totally insulated

Halogen free (DIN/VDE 0472, Part 815): yes

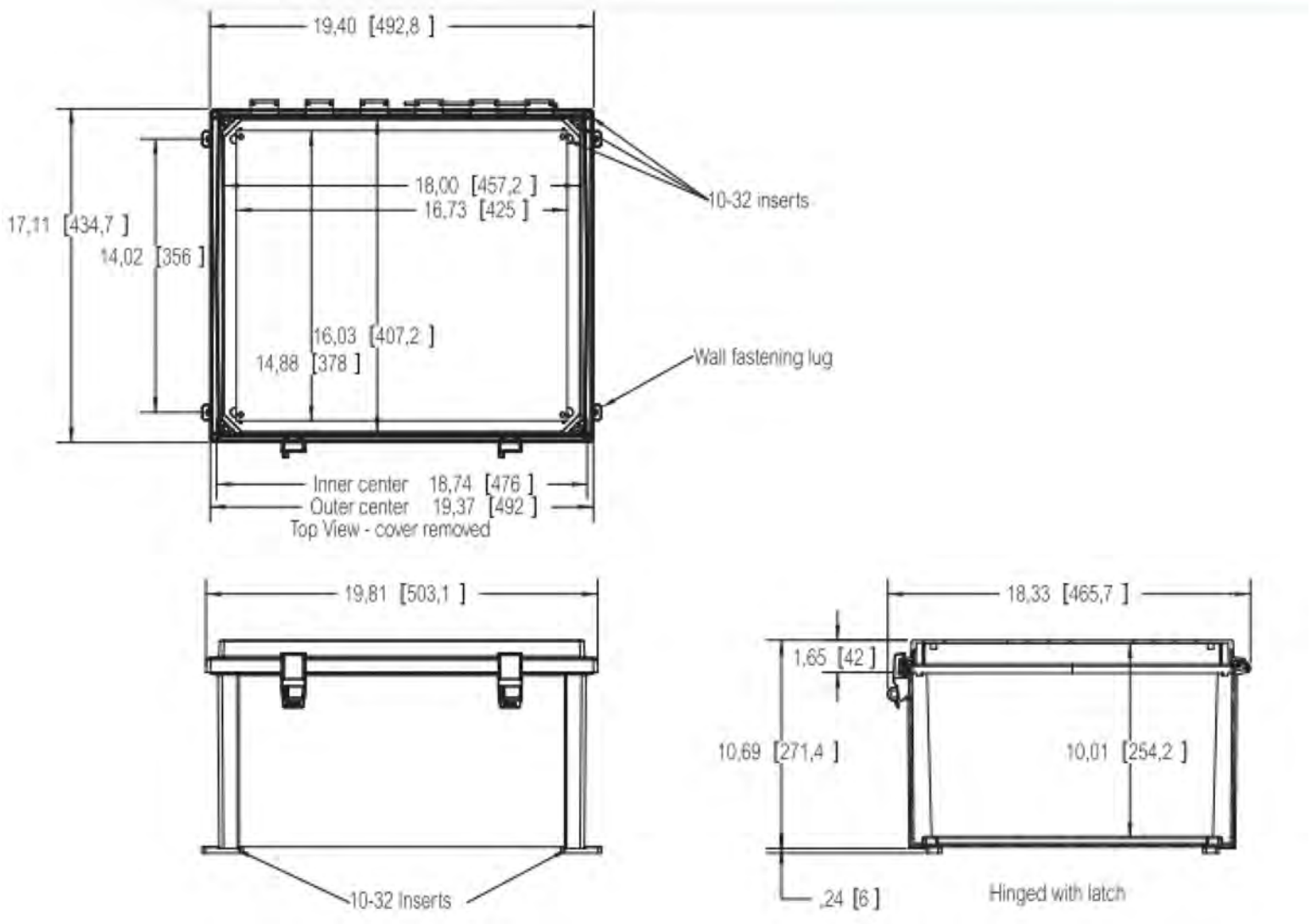
UV resistance: UL 508

Flammability Rating (UL 746 C 5): complies with UL 508

Glow Wire Test (IEC 695-2-1) °C: 960

NEMA Class: UL Type 4, 4X, 6, 6P, 12 and 13

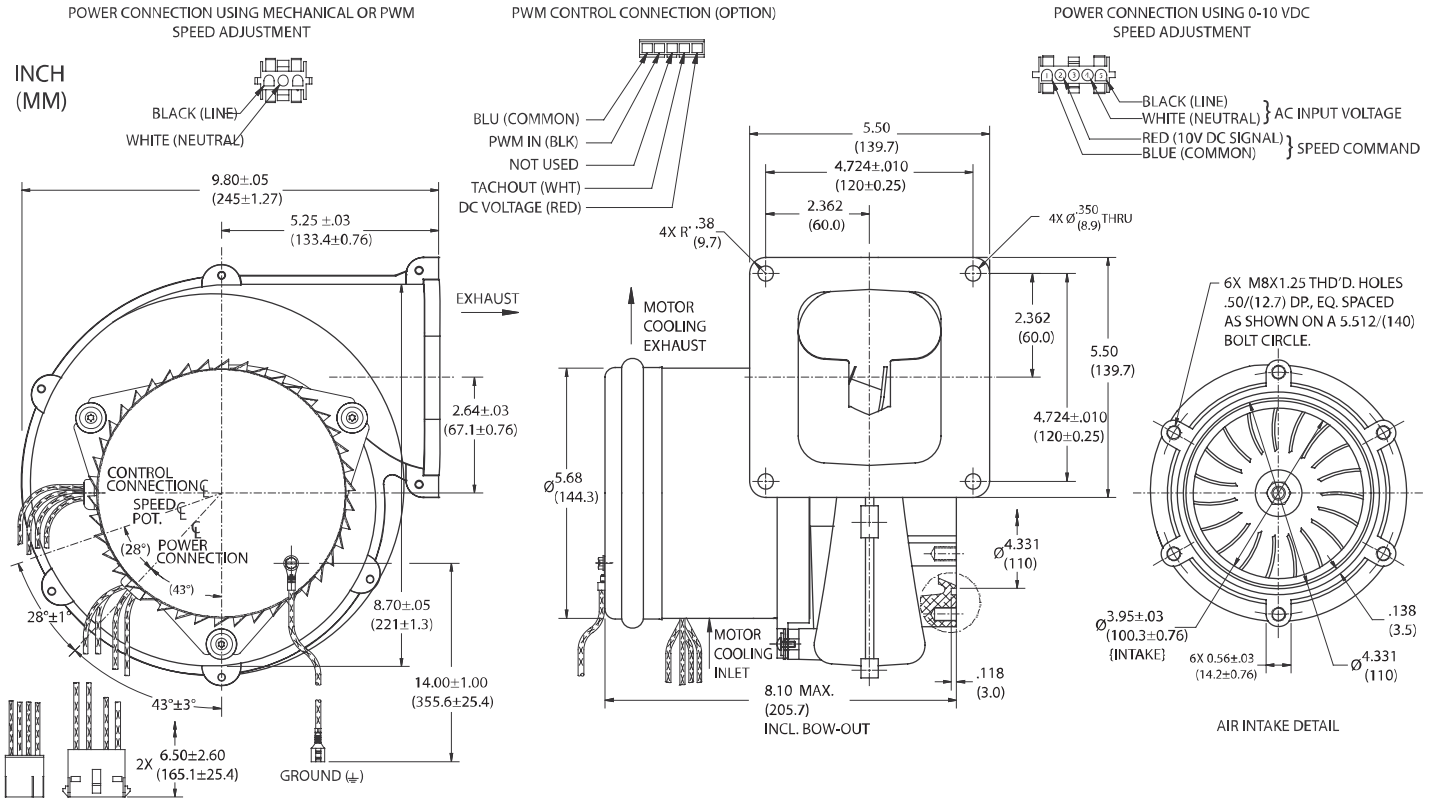
Certificates: Underwriters Laboratories



High Voltage Brushless DC Blowers

Nautilair (TM) 8.9" (226mm) Variable Speed Blower

240 Volt AC Input, Single Phase, High Output



		Part/ Model Number		
Specification	Units	150240	150241	150242
Speed Control	-	Mechanical	0-10 VDC	PWM

Notes:

- **Input Voltage Range:** 216 - 264 Volts AC RMS, 50/60 Hz, single phase.
- **Input Current:** 10 amps AC RMS
- **Operating Temperature (Ambient Air and Working Air):** 0°C to 50°C
- **Storage Temperature:** -40°C to 85°C
- **Dielectric Testing:** 1800 Volts AC RMS 60 Hz applied for one second between input pins and ground, 3mA leakage maximum.
- **Speed Control Methods:** PWM (Pulse Width Modulation). Speed control input signal of 15 - 45 VDC @ 500 Hz - 10 kHz, and tachometer output (2 Pulses / Revolution). Optional tachometer output (3 Pulses / Revolution).
  0 to 10 VDC with a speed control input current of 5 mA to 20 mA at 10 VDC Input with multi-turn potentiometer set to minimum resistance (fully clockwise).
  Mechanical: A potentiometer is available for speed control of the blower. The potentiometer can be preset for a specific speed. Access for speed adjustment located in motor housing.
  4-20mA speed control available.
- **Approximate Weight:** 9.3 Lbs. / 4.2 Kg.
- **Option Card available for Customization**
- **Regulatory Agency Certification:** Underwriters Laboratories Inc. UL507 Recognized under File E94403 and CSA C22.2#133 under File LR43448
- **Design Features:** Designed to provide variable airflow for low NOx & CO emission in high efficiency gas fired combustion systems. Built with non-sparking materials. Blower housing assembly constructed of die cast aluminum. Impeller constructed from hardened aluminum. Rubber isolation mounts built into blower construction to dampen vibration within the motor. Two piece blower housing assembly sealed with O-ring gasket for combustion applications. Customer is responsible to check for any leakage once the blower is installed into the final application.
- **Miscellaneous:** Blower inlet, discharge, and all motor cooling inlet and discharge vents must not be obstructed. Motor ventilation air to be free of oils and other foreign particles, (i.e. breathing quality air). Blower is to be mounted so ventilation air cannot be re-circulated.
  POWER CONNECTION (3 CAVITY): Blower connector, AMP Universal MATE-N-LOK, part no. 1-480701-0.
  POWER CONNECTION (5 CAVITY): Blower connector, AMP Universal MATE-N-LOK, part no. 350810-1.
  SPEED CONNECTION (5 CAVITY): Blower connector, Molex Mini-Fit Jr., part no. 39-01-4057.
  Mating harnesses available upon request.

AMETEK TECHNICAL & INDUSTRIAL PRODUCTS
627 Lake Street, Kent OH 44240
USA: +1 215-256-6601 - Europe: +44 (0) 845 366 9664 - Asia: +86 21 5763 1258
www.ametektip.com

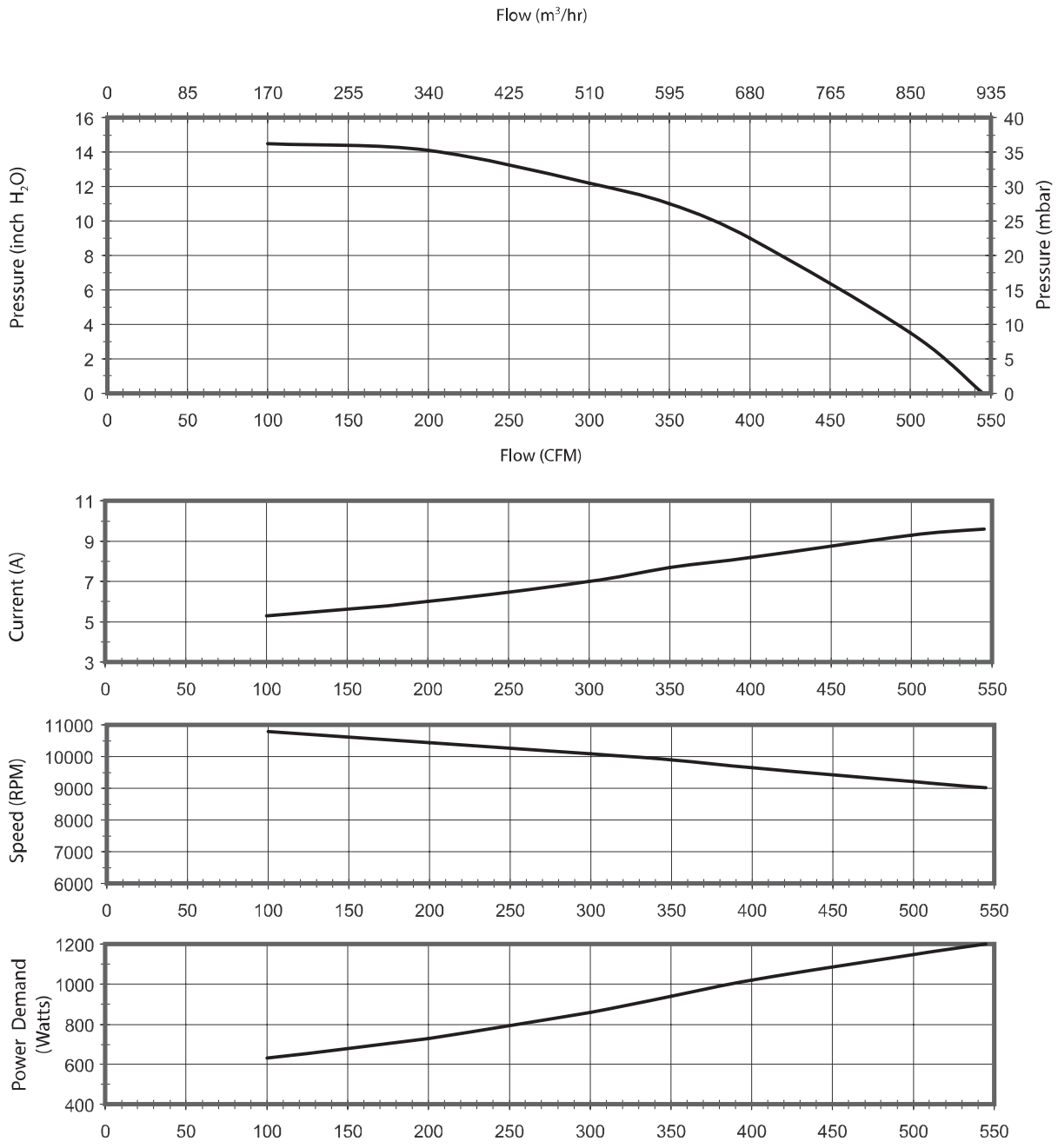
AMETEK
PRECISION MOTION CONTROL

Nautilair (TM) 8.9" (226mm) Variable Speed Blower

240 Volt AC Input, Single Phase, High Output

Nautilair

Typical Performance



Data presented represents blower performance at STANDARD AIR DENSITY, .075 lb/ft³ (29.92" Hg, Sea Level, 68° F)
Vacuum performance available upon request.

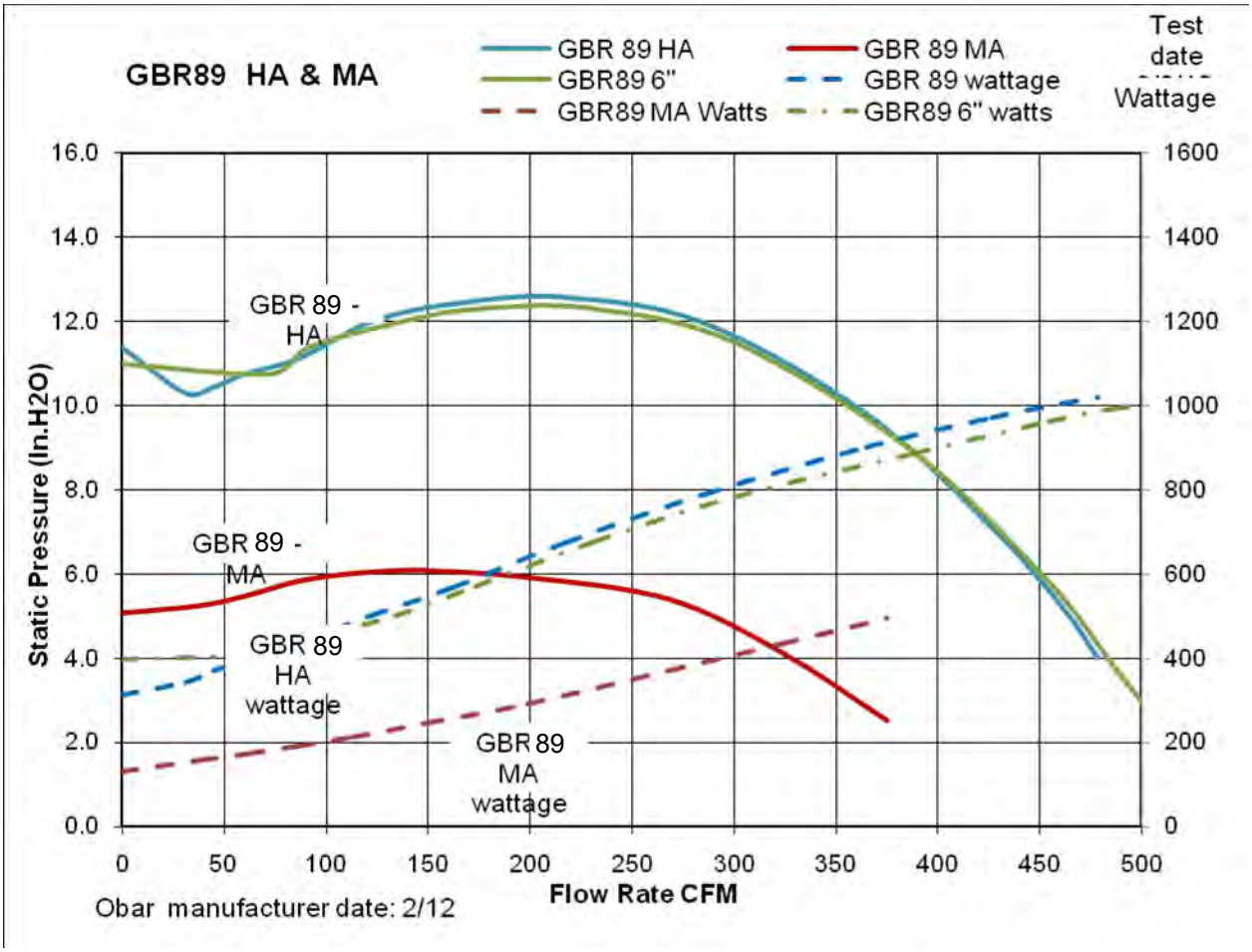
AMETEK TECHNICAL & INDUSTRIAL PRODUCTS
627 Lake Street, Kent OH 44240
USA: +1 215-256-6601 - Europe: +44 (0) 845 366 9664 - Asia: +86 21 5763 1258
www.ametektip.com

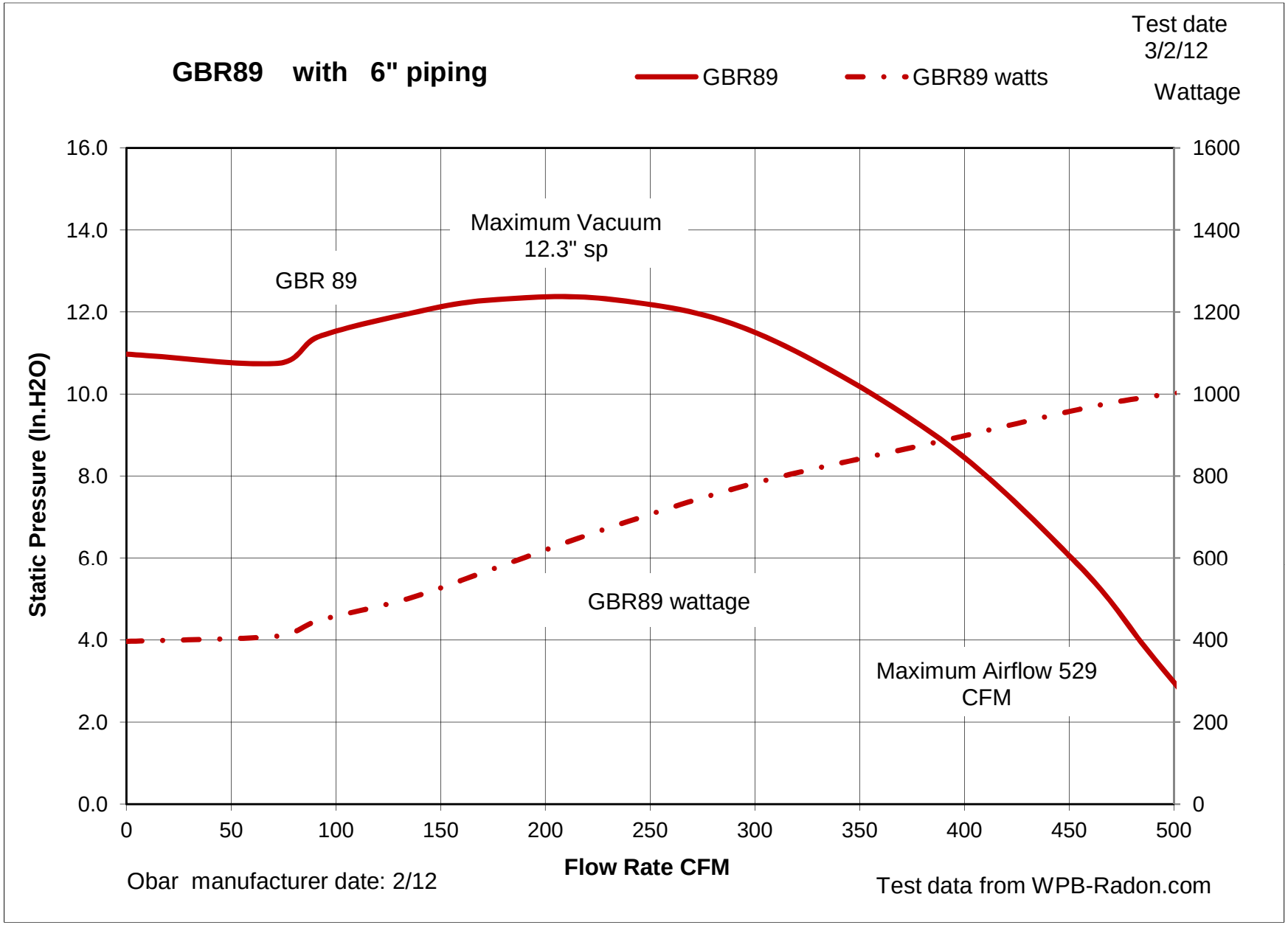
AMETEK
PRECISION MOTION CONTROL

GBR89 HA tested at full voltage with 8 feet of 4" inlet (Blue Lines) and 6" Inlet (Green lines)

Maximum airflow with no exhaust piping and 8' of 6" piping is 529 CFM

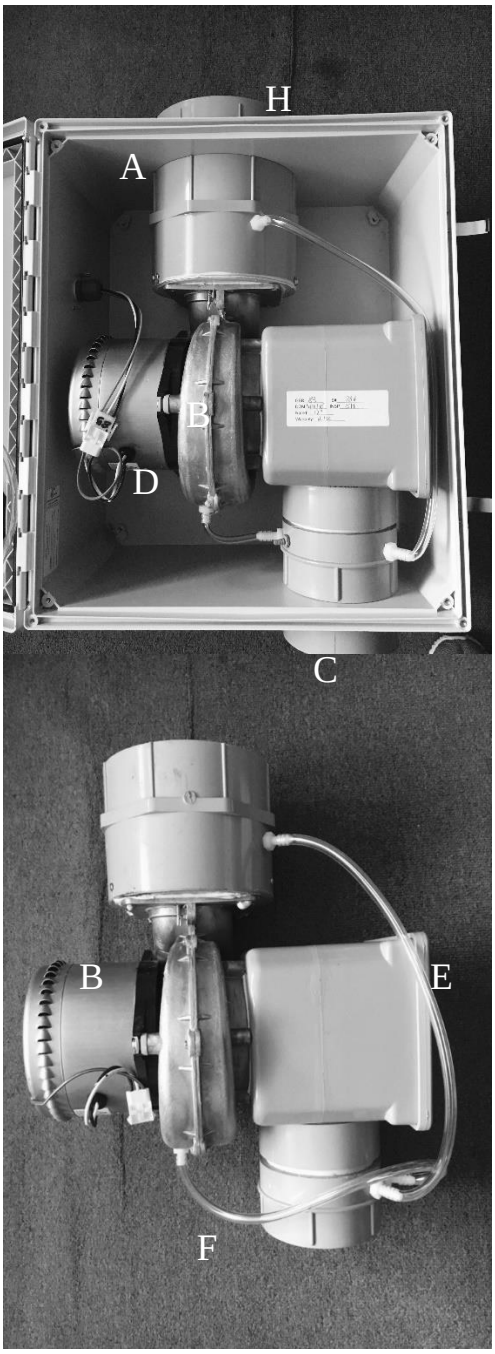
GBR89 MA tested with speed control set to half the wattage consumption (Red Line)




GBR89 with 6" piping
GBR89
GBR89 watts
Test date
3/2/12
Wattage
Maximum Vacuum
12.3" sp
GBR 89
GBR89 wattage
Maximum Airflow 529
CFM
Static Pressure (In.H2O)
Flow Rate CFM
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1600
1400
1200
1000
800
600
400
200
0
0
50
100
150
200
250
300
350
400
450
500
Obar manufacturer date: 2/12
Test data from WPB-Radon.com

GBR 89 SERIES PARTS LIST

A. Enclosure
B. Motor Assembly
C. Male threaded adapter 4” Schedule 40
D. Quick Disconnect electrical
E. Condensate collector for discharge
F. Condensate collector for impeller
G. Speed control
H. Male threaded adapter 6” Schedule 40



OBAR SYSTEMS 2969 RT 23 SOUTH NEWFOUNDLAND NJ 07435

FLOOR PORT

Components

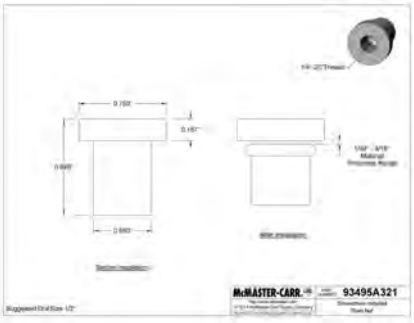
1. A hard plastic inner core that measures 1.5" in length with a .50 inch bore, a .75 inch outside diameter and 4 lugs that extend to .84 inches.
2. A plastic sleeve that has a.75 inch inside diameter and a .80 inch outside diameter
3. A 1/4 -20 x 1/2 rubber insulated brass rivet nut
4. A stainless steel 1/4-20 x1" bolt

Port assembly

Port assembly

Rubber insulated nut

Rubber insulated nut



Installation

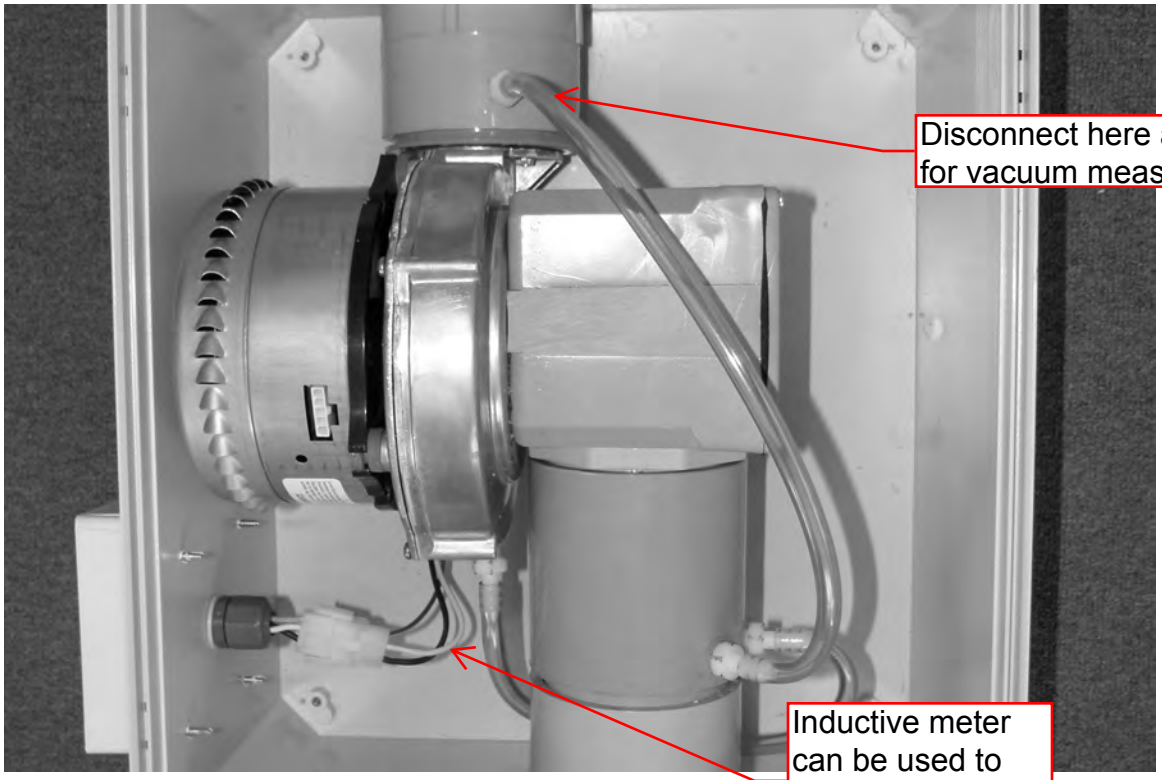
Warning: Installation requires the use of concrete drilling equipment. The installer must be familiar with and follow all safety procedures required for the use of such equipment including but not limited to the use of hearing and eye protection.

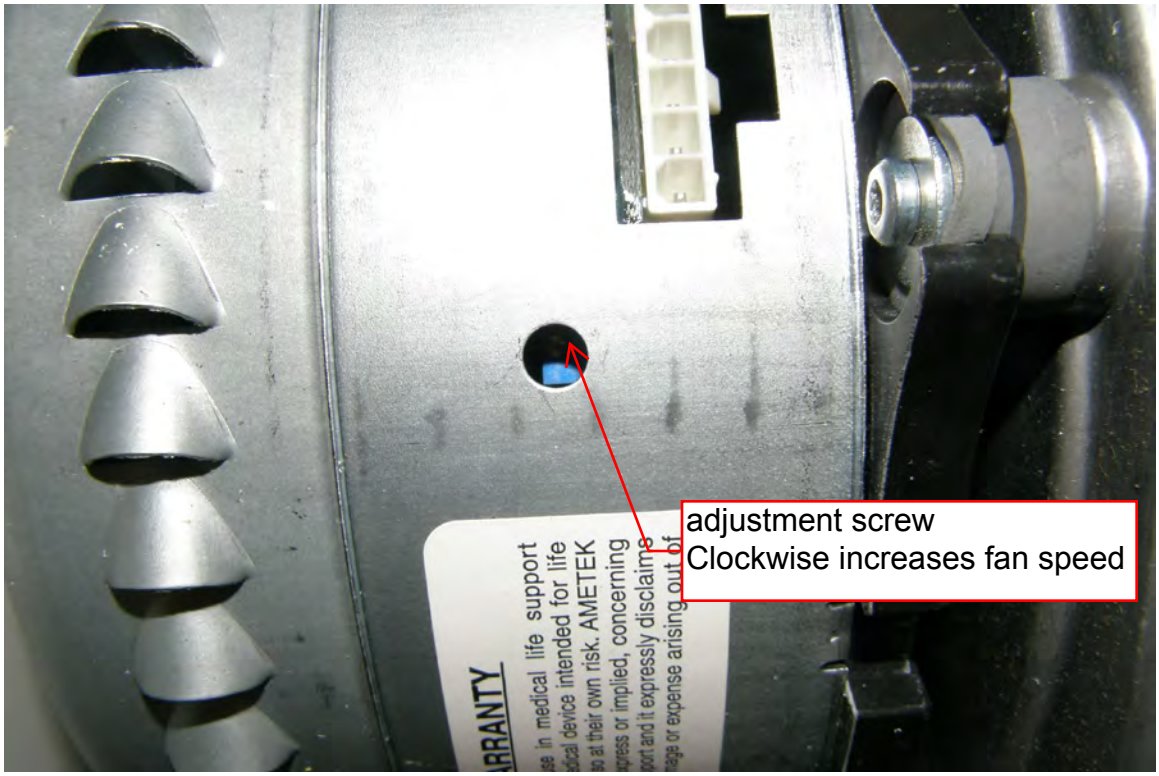
1. Select the area to drill the hole for the port. The contractor should make every effort to determine the the selected area is free of any utilities or pipes in or under the selected point. In addition the use of a drill interrupter such as the Protek11 is highly recommended .

2. Drill a 20MM (.79") hole through the concrete and clean all dust and debris from both in and around the hole with a commercial vacuum equipped with a HEPA filter.

3. Insert the port assembly into the clean hole and using a dead blow hammer and the driver tool drive the assembly into floor to a point where the top of the bolt is flush with the surface of the floor. The port is now ready to use.

Protek 11 Drill Interrupter


Disconnect here and use tube for vacuum measurement
Inductive meter can be used to measure Amps and Wattage


adjustment screw
Clockwise increases fan speed

Distributed by Obar Systems

Installation & Warranty

Read these instructions completely and retain for future reference.

1. Warning! The use of this fan may affect combustion devices, always check for a backdraft on all combustion devices before and after installation.
2. Warning! This fan is not intended for use in hazardous environments where a motor spark could ignite combustible or flammable materials.
3. All wiring must be performed by a licensed electrical contractor in accordance with the National Electrical Code and all local and state codes governing the municipality in which it is installed.
4. The GBR series blowers are intended for use and installation by professionals familiar with installation and design of systems for the remediation of radon and volatile organic compounds. Unqualified or unlicensed individuals should not undertake the installation or service of this product.

INSTALLATION

The installation instructions provided are for guidance only, any installation should meet all state and local codes and guidelines.

1. Temperature restrictions: The GBR SOE/UD will run and start in a temperature range from -20 to 180 degrees F. The GBR HA will run at a temperature of -20 to 180 degrees F but may not start if the motor temperature is below 0 degrees F at time of startup.
2. Ground water restrictions: The blower should not be installed at a height above water table that is less than the vacuum setting for the blower, if the water table is unknown then the base of the slab should be used as a default. The GBR series is a high vacuum blower and will draw water into the assembly and damage the impeller and motor if not properly installed.
3. Speed control: The GBR series blowers have a built in speed control that can be used to field adjust the vacuum on your system. These should only be adjusted by an experienced installer familiar advanced systems design and installation. For information regarding on site adjustments please contact Obar Systems for further information.
4. Enclosure: It is not recommended that the enclosure be opened except for repairs and adjustments. Contact Obar Systems before removing the cover.
5. Mounting: The fan should be mounted in a vertical orientation with the discharge pointing

upward. The inlet and discharge should be attached with a PipeConx or similar flexible connector of the appropriate size. The connector should provide a gap of 1.5 inches between the inlet pipe and inlet fitting and discharge pipe and discharge fitting. This will allow for motor assembly replacement in future repairs. The GBR comes with wall fastening lugs that provide for a flush installation on a flat even surface. Optional roof and wall mounts are available and are designed to reduce installation times dramatically. Contact Obar Systems for additional information on mounting systems. The fan should be located in an area that provides easy access and does not obstruct the operations of the building to which it is attached.

6. Discharge: Make sure the discharge meets or exceeds National guidelines and local codes for the installation and venting of Radon and or VOCs (Volatile Organic Compounds). In the event that there is the possibility of debris entering the discharge of the fan, it is recommended that a guard be installed to protect the blower from damage.

Warranty

Subject to any applicable consumer protection legislation, Obar Systems warrants the GBR series fans for 12 months from the date of purchase.

Obar systems will repair or replace any fan which fails due to defects in materials and workmanship. A RMA must be obtained and proof of purchase is required to be serviced by this warranty.

This warranty is contingent upon the fan having been installed as per the installation requirements set forth by Obar Systems and in accordance with the requirements of federal and state authorities governing the installation systems designed for radon and volatile organic compounds.

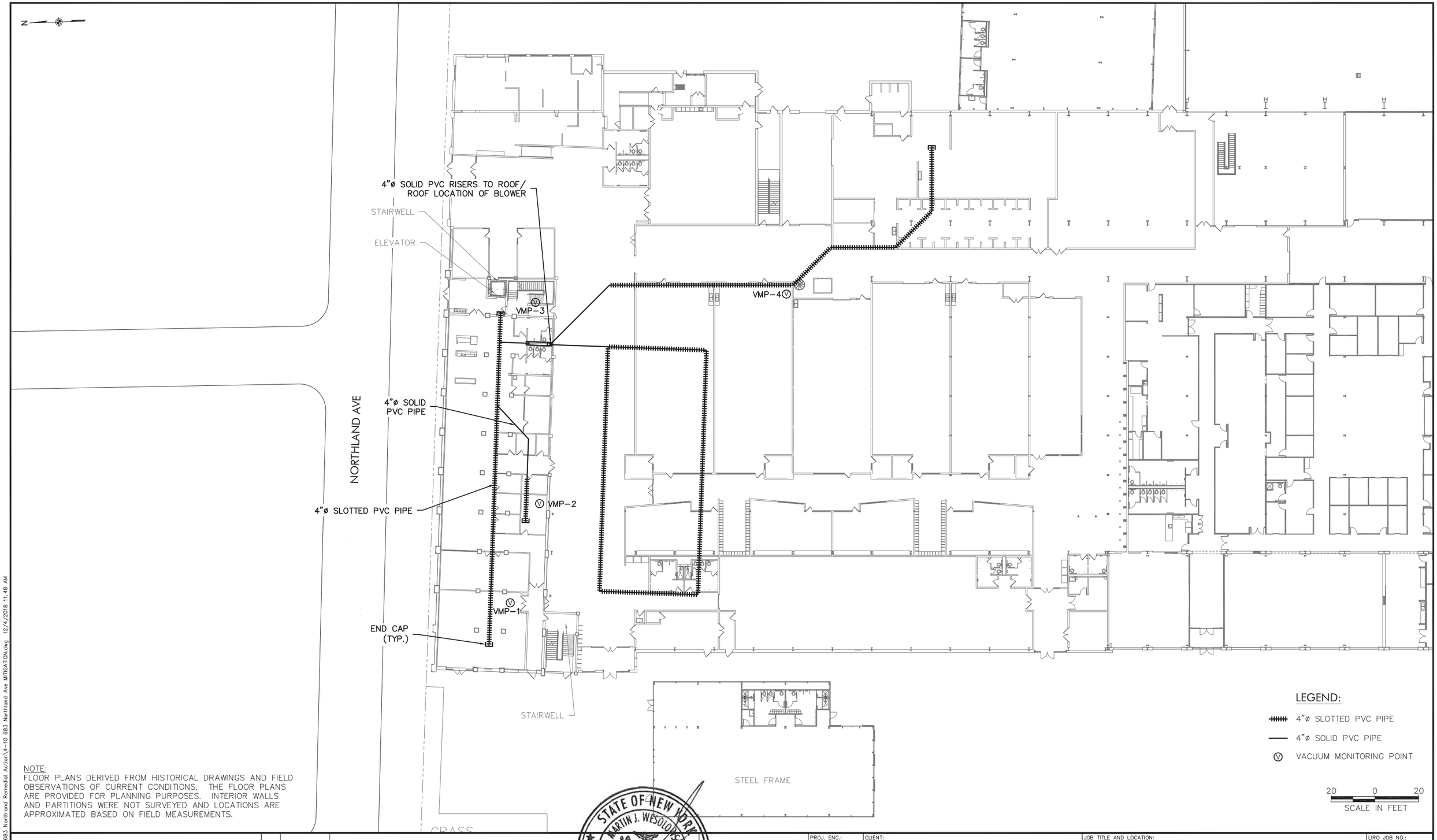
Obar systems is not responsible for the installation, removal or delivery costs associated with this warranty.

Except as stated, the GBR series are provided without warranty of any kind, either expressed or implied, including without limitation, implied warranties of merchantability and fitness for a particular use.

Obar systems is in no way responsible for any direct or indirect damages relating to the performance of the GBR series fan. Any liability shall not exceed the purchase price of the unit. The sole remedy under this warranty shall be the repair or replacement of the unit

Contact Obar Systems to obtain a RMA (Return Material Authorization) number for any and all warranties. If return is required, the customer is responsible for all freight charges.

Obar Systems Inc.
2969 Route 23 South
Newfoundland NJ 07435
800 949 6227



NOTE:
FLOOR PLANS DERIVED FROM HISTORICAL DRAWINGS AND FIELD OBSERVATIONS OF CURRENT CONDITIONS. THE FLOOR PLANS ARE PROVIDED FOR PLANNING PURPOSES. INTERIOR WALLS AND PARTITIONS WERE NOT SURVEYED AND LOCATIONS ARE APPROXIMATED BASED ON FIELD MEASUREMENTS.

LEGEND:

- 4"ø SLOTTED PVC PIPE
- 4"ø SOLID PVC PIPE
- Ⓥ VACUUM MONITORING POINT

20 0 20
SCALE IN FEET

WARNING
IT IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, OTHER THAN THOSE WHOSE SEAL APPEARS ON THIS DRAWING, TO ALTER IN ANY WAY AN ITEM ON THIS DRAWING. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

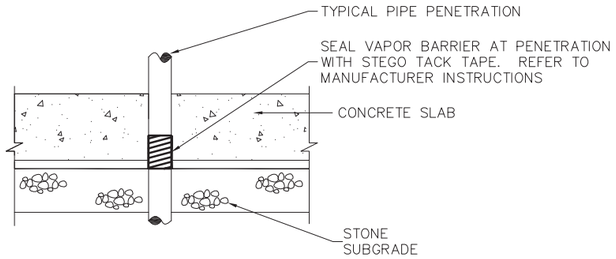
NO.	DATE	DESCRIPTION
		REVISIONS

STATE OF NEW YORK
MARTIN J. WESOLOWSKI
LICENSED PROFESSIONAL ENGINEER
NO. 074266

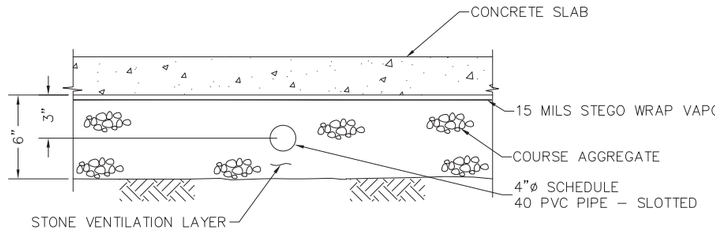
LiRo Engineers, Inc.
690 Delaware Avenue
Buffalo, New York

PROJ. ENG.: M.J.W.	CLIENT: 683 NORTHLAND, LLC	JOB TITLE AND LOCATION: WESTERN NEW YORK WORKFORCE TRAINING CENTER FINAL ENGINEERING REPORT	LIRO JOB NO.: 15-029-1054
DESIGNED BY: M.J.W.			SHEET OF
CHECKED BY: S.F.		DRAWING TITLE: SUB SLAB DEPRESSURIZATION SYSTEM	FIGURE NO. 4-10
DRAWN BY: A.M.K.	DATE: DECEMBER 2018	SCALE: AS SHOWN	

J:\15-029-1054 BUDC\CAD\683 Northland Remedial Action\4-10 683 Northland Ave MITIGATION.dwg 12/4/2018 11:48 AM

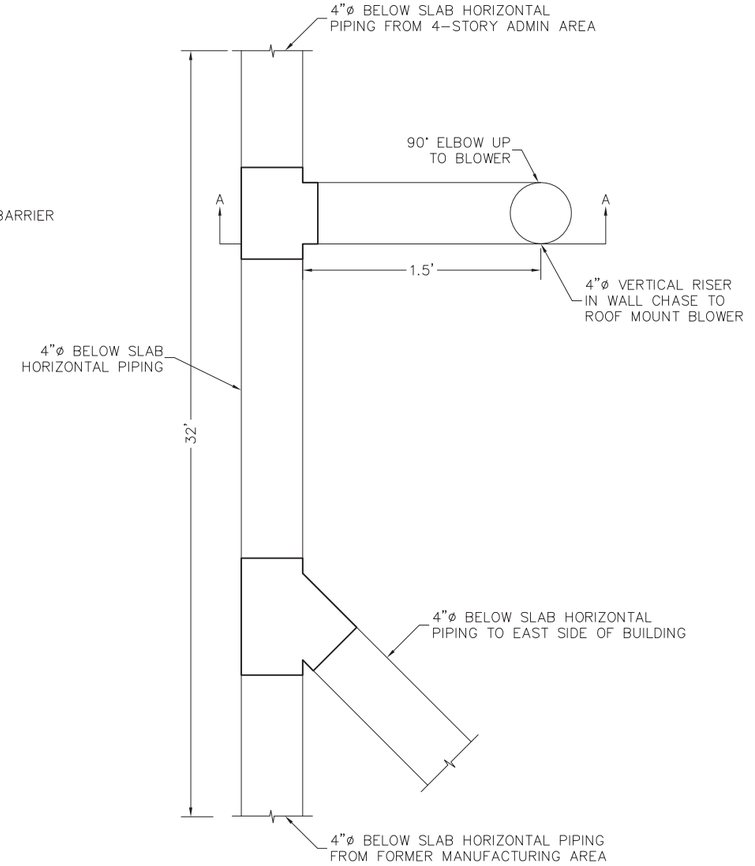


GAS VAPOR BARRIER SEALING PENETRATIONS

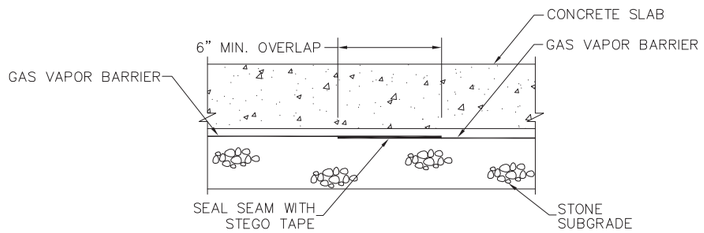


HORIZONTAL GAS VAPOR BARRIER AND VENTILATION PIPING SECTION UNDER SLAB

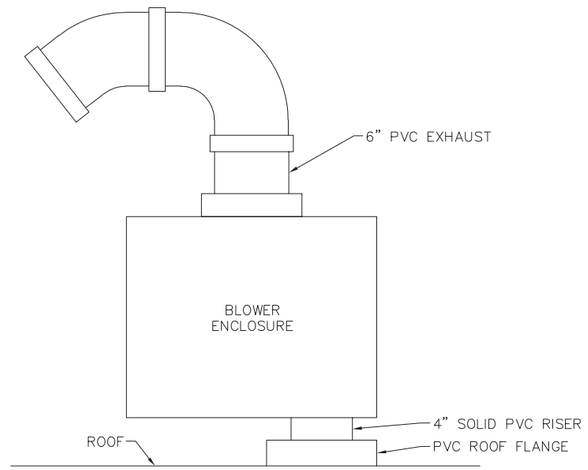
CHAIRS AND SUPPORTS FOR CONCRETE REINFORCEMENT PLACED ON MEMBRANE HAVE PLASTIC TIPS OR SPACERS TO PRECLUDE DAMAGE TO MEMBRANE.



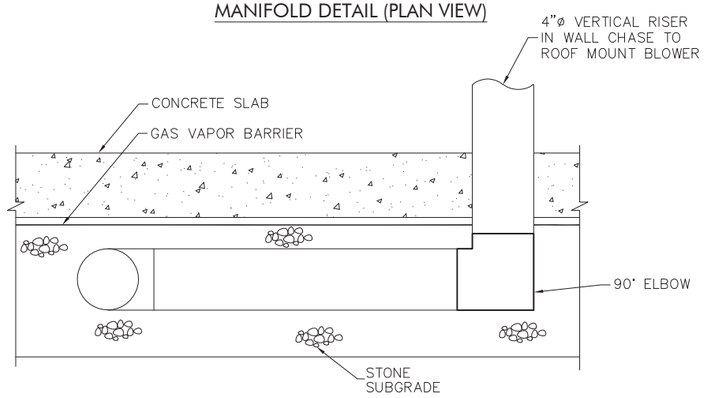
MANIFOLD DETAIL (PLAN VIEW)



GAS VAPOR BARRIER AT MEMBRANE LAP JOINTS



BLOWER INSTALLATION



MANIFOLD DETAIL (SIDE VIEW)
SECTION A–A

NO.	DATE	DESCRIPTION

REVISIONS

STATE OF NEW YORK
MARTIN J. WESOLOWSKI
NO. 074266
LICENSED PROFESSIONAL ENGINEER

LiRo Engineers, Inc.
690 Delaware Avenue
Buffalo, New York

PROJ. ENG.:	M.J.W.
DESIGNED BY:	M.J.W.
CHECKED BY:	S.F.
DRAWN BY:	A.M.K.
CLIENT:	683 NORTHLAND, LLC
DATE:	DECEMBER 2018
SCALE:	AS SHOWN
JOB TITLE AND LOCATION:	WESTERN NEW YORK WORKFORCE TRAINING CENTER FINAL ENGINEERING REPORT
LIRO JOB NO.:	15–029–1054
SHEET	OF
DRAWING TITLE:	SUB SLAB DEPRESSURIZATION SYSTEM MISCELLANEOUS DETAILS
FIGURE NO.	4-11