IRM WORK PLAN

For the

1318 Niagara Street Site
Buffalo, New York
NYSDEC ID# E915213

PREPARED FOR:
City of Buffalo

PREPARED BY:

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LIST OF ACRONYMS AND ABBREVIATIONS

COB	City of Buffalo
cy	cubic yard
ERP	Environmental Restoration Program
HASP	Health and Safety Plan
IRM	interim remedial measure
LiRo	LiRo Engineers, Inc.
mg/kg	milligram per kilogram
ND	non-detect
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PID	photoionization detector
PPE	personal protective equipment
ppm	parts per million
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Audit
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SCGs	Standards, Criteria, and Guidance
SIP	Site Investigation Plan
SI/RAR	Site Investigation and Remedial Alternatives Report
SOP	Standard Operation Procedures
TAL	Target Analyte List
TCL	Target Compound List
UST	underground storage tank

1.0 INTRODUCTION

LiRo Engineers, Inc. (LiRo) is in contract agreement with the City of Buffalo, Office of Strategic Planning to provide a Site Investigation and Remedial Alternatives Report (SI/RAR) and to develop an Interim Remedial Measure (IRM) Work Plan for the 1318 Niagara Street Site in Buffalo, New York. The site location is shown on Figure 1. The property is bounded by Niagara Street to the east, a rail corridor to the west and commercial properties to the north and south.

In support of the SI/RAR, LiRo developed and submitted a project Health and Safety Plan (HASP) for the investigation. The HASP details procedures and protocols that will be implemented to protect site workers and the surrounding community including levels of personal protective equipment for planned site activities, air monitoring requirements, action levels, and emergency response procedures.

LiRo also conducted a Preliminary Site Investigation (Report dated October 14, 2009) for the site, the primary purpose of which is to acquire sufficient site data to support planning for this IRM. The results of the Preliminary Site Investigation are summarized in Section 2 of this Work Plan and the Preliminary Site Investigation Report is provided in Attachment A. The key objectives of the Preliminary Investigation are to:

- Characterize PCB concentrations in surface soil to evaluate current hazards posed by soil;
- Characterize PCB concentrations and quantities in residual sludge and liquids in the former site USTs to support the IRM cleaning/disposal specifications and;
- Characterize contents of the 55-gallon drums staged at the site to support the IRM disposal specifications.
- Characterize surface water present in the furnace pit portion of the site.

Site preparation activities included installation of a secure fencing system along the Niagara Street (east side) of the site to prevent unauthorized entry.

This IRM Work Plan was prepared to identify the specific requirements for implementing the IRM work. The IRM Work Plan was developed following the NYSDEC Environmental Restoration Program (ERP) requirements and the DER-10 Guidance Document.

1.1 Site Setting

The site is on approximately 0.77 acres of land in an urban setting, with commercial properties along Niagara Street north and south of the site, and residential/commercial properties across Niagara Street to the southeast, east, and northeast. The site is bordered to the west by the Penn Central Railroad and beyond that by the New York State I-190 and the Black Rock Canal.

1.2 Site Background

The site was operated as a brewery from approximately 1909 until approximately 1987. The site was held by private owners from 1987 until November 2004, at which time the City of Buffalo (COB) obtained the property through the tax foreclosure process. It is not known what the property was utilized for during the period from 1987 until 2004.

Demolition of the site buildings began in May of 2006. During demolition, two 20,000 gallon fuel oil underground storage tanks (USTs) were discovered. A laboratory report from January 2007 indicated that residual oil in the tanks contained hazardous levels of PCBs (Aroclor 1242 at concentrations of 90 ppm and 124.5 ppm). The samples also contained tetrachloroethene (150 ppm and 200 ppm), trichloroethene (78 ppm and 270 ppm), 1,2-dichlorobenzene (44 ppm), and lead (4,100 ppm and 2,100 ppm). The residual oil was reportedly removed using a Vac-truck in February 2007. The two tanks were excavated in February 2007, staged along the southern margin of the site, and covered with polyethylene tarps. Upon UST excavation, it was found that one of the USTs had leaked into the subsurface, impacting the surrounding soil. Piping from the USTs was also discovered. Site records indicate that one soil sample described as “tank soil” was collected on February 12, 2007. The soil sample was analyzed for PCBs and TCLP organics/metals. The PCB concentration was 0.866 ppm in soil and the TCLP results showed non-hazardous levels of barium and lead.

In addition to contamination associated with the USTs, a former furnace was uncovered in January 2007. The furnace contained sludge that was tested for PCBs and TCLP

organics/metals. The PCB concentration in sludge was 23,700 ppm and the TCLP results showed detectable (but non-hazardous) levels of VOCs, SVOCs and barium.

In addition, 55-gallon drums reportedly containing PCBs, waste oil/sludge, and used personal protective equipment (PPE) were staged along the northern margin of the site and covered with polyethylene tarps.

LiRo visited the site on June 25, 2009 with representatives from the City of Buffalo. Mr. Larry Schiavone, who directed the site demolition project for the COB in 2006, indicated the northeast portion of the site where the USTs had been removed. He recalled that soil from the tank excavation was used for backfilling and that a polyethylene tarp (the edge of which is visible) had been placed to mark the excavation limit. A concrete manway, approximately 24 inches in diameter and 12 feet deep was observed Mr. Schiavone also recalled that imported fill had been used to level the site and that the existing mound of fill material was imported. The furnace excavation remains open and it appears that the former bottom of the structure has been covered by recent sedimentation.

1.3 Project Goals and Scope

The purpose of the IRM is to:

- Remove, clean and dispose of USTs
- Remove and dispose of PCB-containing 55-gallon drums; and
- Excavate impacted surface soil and dispose of it at a permitted treatment, storage, and disposal facility.

1.4 Project Organization

The 1318 Niagara Street SI/RAR and IRM is being conducted under a NYSDEC ERP State Assistance Contract with the City of Buffalo (the City), Office of Strategic Planning. LiRo is under contract with the City to plan and implement the SI/RAR and IRM Work Plan and NYSDEC is responsible for oversight of the investigation as well as review and approval of project deliverables.

2.0 INTERIM REMEDIAL MEASURE

2.1 Summary of Environmental Concerns

Two excavated USTs are staged along the south margin of the site. Sludge and oil samples from these USTs contained PCBs. Drums containing PCB-contaminated waste oil/sludge and used personal protective equipment are staged along the northern margin of the site. The former furnace reportedly contains PCB-contaminated sludge and material.

A potential risk to human health under the current use scenario (i.e., trespassers) exists by exposure through direct contact with the contents of the USTs and drums, and/or contaminated surface soil at the site.

2.2 Preliminary Surface Soil Investigation Results

LiRo conducted a preliminary site investigation and documented the results in a letter report dated October 14, 2009. The purpose of the preliminary surface soil investigation was to determine if surface soils pose a significant health risk due to PCB contamination. Surface soil samples were collected from 14 locations including the furnace pit, the area of the UST excavation, the area near the staged USTs and general site locations (i.e., locations not directly associated with any known PCB source). LiRo collected a sample of surface water and sediment present in the furnace pit for PCB analysis, also.

Aroclor-1260 was detected in all of the surface and sediment soil samples ranging in concentrations from 0.043 parts per million (ppm) to 51 ppm. Surface soil samples SS-1 through SS-5, SS-12 and SS-15 all exceeded the NYSDEC Part 375 Soil Clean-up Objective (SCO) of 1 ppm. Sample locations where the SCO was exceeded are shown on Figure 2.

The pit water sample showed Aroclor 1260 at a concentration of 0.29 parts per billion (ppb). The pit water concentration exceeds the NYSDEC Class GA groundwater standard which is 0.09 ppb for PCB.

2.3 Drum and Tank Investigation Results

The nineteen (19) onsite drums contain sludge, oil, polyethylene sheeting, and personal protective equipment (PPE). LiRo opened each drum and classified the contents (to the extent

possible) and a summary of the drum contents is provided in Table 1. A composite sample of drum sludge and a composite sample of the residual oil/water were analyzed for PCBs and VOCs (total), and hazardous waste characteristics (full TCLP, sludge composite only). Sludge and residual oil/water samples were also collected from each of the former USTs.

Both tank oil samples contained relatively low concentrations of Aroclor 1260. Also detected were trichloroethene (in both samples) and toluene (in the West Tank). The companion sludge samples showed PCB concentrations up to 7.9 ppm (in the west tank), as well as chlorinated solvents and fuel-related compounds.

Compared to the UST samples, the drum samples showed significantly higher levels of PCBs, chlorinated solvents and fuel related compounds. The PCB concentration in the drum sludge composite sample was 59 ppm for Aroclor 1242. Both drum sludge samples exceeded the TCLP limit for lead.

2.4 IRM Requirements

The objective of the IRM described herein will be to properly remove and dispose of all highly contaminated PCB wastes at the site including the USTs and contents, the drums and contents, the remaining metallic furnace structure and PCB-contaminated soil.

2.4.1 IRM Cleanup Objectives

The PCB soil cleanup objective for the IRM is 1 ppm consistent with Part 375 Restricted-Residential SCO. No groundwater remediation is contemplated for the IRM, however, dewatering of the furnace pit will be conducted.

2.4.2 Scope

The IRM Contractor has the responsibility of determining the means and methods of, and providing the labor, equipment, and materials necessary for transporting both solid and liquid waste materials from the site to the off-site disposal facilities in accordance with USEPA, NYDOT, State and local regulations. Requirements for removal and disposal of PCBs and the handling of PCB containing materials are subject to 40 CFR 761 – Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions of PCBs. All materials to be transported off-site for disposal will have been properly characterized through visual observation and sampling

and laboratory analysis for disposal purposes. All soil, sludge, tanks, drums and their contents, removed from the site will be loaded into trucks for transport to the approved off-site disposal facilities. Disposal approvals will be obtained from the off-site facilities prior to transport; and names and addresses of approved facilities will be supplied by the Contractor. In general, the IRM Contractor's scope of work will include the following:

- Furnish labor, materials, services, and equipment necessary for the complete removal and disposal of PCB-contaminated soil, USTs, Drums and remediation waste in accordance with local, state, or federal regulations. Package and mark PCB wastes as required by EPA and DOT regulations.

- The Contractor's proposed cleaning and removal procedures and protocols must be provided in a Work Plan and approved by the City and NYSDEC prior to initiating PCB work.

- The Contractor will provide an on-site equipment decontamination pad and stabilize the construction entrance to mitigate off-site migration of contaminated soil.

- The Work Plan must include means for isolating a PCB control area to prevent unauthorized entry of personnel and specify decontamination requirements for personnel and equipment. The Work Plan must also specify PPE to be utilized for the cleaning and removal work, and a spill management protocol with procedures for reporting, containing and decontaminating of spills.

- The Contractor will be responsible to provide any additional laboratory testing required for materials disposal and to determine that tanks are sufficiently clean for proposed disposal method. The testing must be conducted by an NYSDOH ELAP-certified laboratory using USEPA-approved analytical method(s).

- Place PCB materials in suitable DOT approved drums or approved alternate disposal method (i.e., Vac-truck).

2.4.3 Material Preparation

The Contractor will prepare the materials for transportation to an offsite disposal facility. All materials staged and/or packaged onsite prior to offsite disposal will be secured and prepared to prevent contaminant migration.

All materials will be removed from the tanks and properly packaged in NYSDOT-approved 55-gallon drums or approved transportation vessel (i.e., vac-truck). Drums or containers will be sealed water-tight to prevent rain infiltration and spills and/or leaks. Drums and containers will be labeled in accordance with federal and State regulations. Following content removal, the tanks may be cleaned onsite in accordance with NYSDEC and USEPA regulations. Metal surfaces in contact with PCBs (e.g., painted metal) may use solvent rinsing or thermal decontamination (e.g., scrap metal recovery oven or smelting) procedures in accordance with 40 CFR Part 761.79. Liquids utilized during decontamination processes will be collected separately in 55-gallon drums. Cleaned materials will be immediately loaded onto trucks for offsite disposal, or protected from site re-contamination through staging on polyethylene liners on the ground surface and tarp coverings.

2.4.4 Pre-Characterization of Soils

Site surface soils, sediments, and surface water were tested for PCBs during the Preliminary Site Investigation activities conducted on the 24th of September 2009. The extent of surface soil contamination from PCB impacts at the Site are shown in Figure 2. All excavated soil and sediment will be handled, transported and disposed of as PCB contaminated waste. The Contractor will be responsible for excavating, characterizing, and transporting/disposing of PCB-contaminated soil.

2.4.5 Excavation of Soils

The planned excavation for the Site includes removal of soils in the area of the former UST excavation, at the furnace pit and at discrete locations where PCB concentrations were greater than 1 ppm. The planned remediation areas are shown on Figure 3 and are discussed below.

UST Excavation Area

The UST excavation area is indicated by the blue polyethylene tarp, the approximate location of which is shown on Figure 3. The tarp was reportedly placed to mark the limits of the excavation when the USTs were removed. It is unknown if the tanks were vaulted, located in a "basement" type of structure or surrounded only by soil. The IRM will include removal and disposal of all soil overlying the tarp and limited over-excavation of soil underlying the tarp. The purpose of the over-excavation will be to determine if the tanks were enclosed by a concrete structure and to remove additional PCB-contaminated soil. The determination for continuing the excavation work will be based initially on observations of soil conditions/PID screening results and ultimately on the discovery of concrete walls/floor or endpoint sampling results.

For planning purposes the dimensions of the excavation are assumed to be 20 x 20 by 12 feet deep. Excavation endpoint samples will be collected from the bottom and sidewalls as indicated in Table 2. Soil above the blue polyethylene tarp is anticipated to contain PCBs at concentrations less than 50 ppm. For planning purposes the soil below the tarp will be anticipated to exceed 50 ppm for PCBs. If a concrete vault is discovered, soil excavation will proceed to the limits of the vault. The vault shall be inspected, sampled and an approach to decontaminate or remove/dispose the concrete will be developed depending on the results of the sampling. Vault decontamination materials will be recovered and disposed of.

Impacted Soil Immediately North and West of the UST Excavation Area

The impacted soil immediately north and west of the UST excavation area will initially be excavated to a depth of 1 foot. For planning and cost estimating purposes, these soils are anticipated to contain PCB levels that are less than 50 ppm. Excavation endpoint samples will be collected from the bottom and sidewalls as indicated in Table 2.

Furnace Pit Area

Soils/sediment should also be removed to a depth of 1 foot bgs in the furnace pit area. Scrap metal found within the pit will be excavated and properly disposed of off-site. The Contractor will be responsible for characterizing and cleaning or disposing of the scrap metal. For planning purposes, soils excavated from the furnace pit area are anticipated to exceed 50 ppm for PCBs.

Excavation endpoint sampling requirements for the furnace pit area are indicated in Table 2.

Discrete Areas at SS-5 and SS-12

Limited shallow excavations will be conducted to a depth of one foot at surface soil sample locations SS-5 and SS-12. The planned length and width of the excavations is 10 feet by 10 feet. Excavation endpoint sampling requirements are indicated in Table 2.

Table 3 gives the approximate quantities of soils to be removed from the locations identified above as well as the PCB concentrations that will be used for cost estimating. Soil excavation endpoint sampling will be conducted at each excavation as indicated in Table 2. Laboratory analysis of the endpoint samples will be conducted to confirm that the PCB contamination has been removed from each excavation area.

To support the ongoing ERP investigation of the site for other contaminants, a portion of the endpoint samples (up to a maximum of 5) will be analyzed for the full NYSDEC target compound list. The results from these "full parameter suite" samples will be incorporated into the site Remedial Investigation.

2.4.6 Dewatering

The furnace pit will require dewatering prior to excavation as will any standing water in the UST vault. Water collected through dewatering operations will be contained, sampled, and disposed of. The Contractor will describe their proposed dewatering and treatment/disposal methods in their site work plan.

2.4.7 Transportation

The Contractor will be responsible for transportation and containment controls during the offsite transport of materials in accordance with federal, State, and local requirements. Materials will be covered and conveyed during transportation in equipment that is properly designed, equipped, operated, and maintained to prevent leakage, spillage or airborne emissions during transport.

2.4.8 Disposal Requirements

Materials with PCB concentrations greater than or equal to 50 ppm, as analyzed using USEPA Method 8082, will be disposed in a facility permitted to receive hazardous level PCB waste. Materials with PCB concentrations less than 50 ppm must be disposed of in a permitted facility in accordance with 40CFR 761. Materials from which PCBs have been removed by decontamination (i.e., non-porous metal tanks) through solvent rinsing or thermal decontamination in accordance with 40 CFR 761.79 are unregulated for disposal. Cleaning solvents at any PCB concentration used for decontamination will be disposed of in an offsite incinerator in accordance with 761.79 (g) 4.

2.4.9 Tracking

The Contractor will be responsible for waste management tracking including generation and disposal information. The Contractor will provide documentation including transported manifests, final waste facility manifests, and Certificates of Disposal to record the location and disposition of materials transported offsite. Sales of materials to recyclers, vendors, and other third parties (i.e., scrap metal) must be properly documented to ensure that applicable regulatory requirements are met.

2.4.10 Decontamination Pad

The Contractor will be responsible for installing and maintaining a vehicle and equipment decontamination station at the Site. The decontamination station shall be located in the Contamination Reduction Zone and shall be used to clean all vehicles leaving the Exclusion Zone prior to entering the Support Zone or leaving the site.

The decontamination station will have a berm around the perimeter so that wash water will remain contained within the decontamination station. The floor of the decontamination station will be sloped to allow for the collection of wash water during the decontamination process. Decontamination shall only take place within the decontamination station..

All equipment and material used in the exclusion zone or contamination reduction zone of the project shall be thoroughly washed down in accordance with established federal and state procedures before it is removed from the project site. All other contaminated debris, equipment,

clothing, decontamination liquids, etc. that cannot be decontaminated shall be disposed at the Contractor's expense by a method permitted by appropriate regulatory agencies. The Contractor shall certify, in writing, that each piece of equipment has been decontaminated prior to removal from the site.

2.4.11 Stabilized Construction Entrance

A stabilized construction entrance will be constructed at the Site to prevent dirt and mud from the tires of construction vehicles from affecting Niagara Street and traveling off-site. The stabilized construction entrance will be properly sized for all anticipated vehicles during the duration of the soil excavation activities.

2.4.12 Importation of Clean Fill Material

The site excavation activities will create several areas (tank pit, furnace pit, etc.) of disturbed ground that will be backfilled to a level near surrounding surface levels at the Site, utilizing imported fill from an off-site source. Fill requirements will comply with NYSDEC DER-10 which states that:

- Fill material used to restore a site after the remediation has been completed must comply with the Restricted Residential SCO site remedial action objective (lower of protection of groundwater or protection of public health SCO).
- Fill should be comprised of soil and free of extraneous debris or solid waste.
- Prior to importation, the soil fill will be sampled in accordance with the requirements of NYDEC DER-10. The testing shall demonstrate that the fill complies with the Allowable Constituent Levels listed in Appendix 5A of DER-10 (restricted-residential).
- Prior to importation, documentation of the fill source will be provided to NYSDEC in accordance with DER-10 requirements for NYSDEC approval.
- The bills of lading should be provided to the DER to document that the fill was delivered from the DER-approved source.

2.5 Site Safety and Monitoring

The IRM Contractor conducting the site work will be required to develop a HASP that specifically addresses health and safety procedures for all aspects of the PCB remediation work. A member of the Contractor's field team will be designated to serve as the on-site Health and Safety Officer and will monitor Health and Safety activities throughout the IRM program.

The HASP must include a Contingency Plan that addresses potential site-specific emergencies, and a Community Air Monitoring Plan (CAMP) that describes required particulate and vapor monitoring to protect the community during intrusive remediation activities. Requirements of the CAMP are detailed below:

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below..

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or 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 taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less -but in no case less than 20 feet, is below 5 ppm over background for

the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period 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 PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/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 PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

2.6 Permits and Approvals

The IRM Contractor is responsible for obtaining all permits and approvals required for the project. The City of Buffalo will provide a waste generator identification number.

2.7 IRM Schedule

Key milestones of the IRM schedule are detailed below:

- Prepare and submit Contractors Work Plan (4 weeks)
- Plan review and revisions (3 weeks)
- Mobilization (2 weeks)
- Onsite IRM Work (4 weeks)
- IRM Closure Report (8 weeks)

3.0 IRM REPORTING

3.1 Monitoring

A LiRo Engineer or Scientist will be on-site on a full-time basis to document the IRM activities and to screen soil within excavation areas using a photoionization detector. Documentation will include at a minimum, daily reports of IRM activities, air monitoring results, photographs and sketches.

Standard daily reporting procedures will include preparation of a daily report, and when appropriate, problem identification and corrective measures report. Information that may be included on the daily report form includes:

- Approximate sampling locations (sketches) and sample designations.
- Processes and locations of activities under way.
- Equipment and personnel working in the area, including subcontractors.
- Approximate volume and description of materials removed (i.e., soil, sludge, tanks, drums, other).
- Number and type of truckloads of materials removed from the site.

The completed reports will be submitted to the NYSDEC as part of the IRM Closure Report. Photo documentation of the IRM activities will be prepared by the Engineer or Scientist throughout the duration of the project as necessary to convey typical work activities and whenever changed conditions or unexpected circumstances are encountered.

LiRo will provide IRM oversight to evaluate the on-going adequacy and cost-effectiveness of the IRM to ensure that all activities are conducted in accordance with the IRM Work Plans.

3.2 IRM Closure Report

Details of completion of IRM activities will be documented in an IRM Closure Report submitted to the NYSDEC. The results of all sampling and analysis will be presented. The Report will present a detailed summary of site physical conditions, chemical conditions and potential risks to

human health or the environment. The IRM Report will be stamped by a Professional Engineer and will include (at a minimum):

- Text describing the IRM activities performed; a description of any deviations from the Work Plan and associated corrective measures taken; and other pertinent information necessary to document that site activities were carried out in accordance with this Work Plan.
- A site map showing the sampling locations with sample identification; UST and drum locations; and significant site features.
- Tabular quantity summaries of: volume of materials removed.
- Documentation on the disposition of material removed from the site.
- Tabular comparison of soil sampling and disposal characterization analytical results to disposal criteria, respectively.
- Tabular comparison of confirmation analytical results to SCGs.
- Copies of daily inspection reports and, if applicable, problem identification and corrective measure reports.
- Photo documentation of IRM activities.

TABLES AND FIGURES

TABLE 1
55-GALLON DRUM CONTENTS INVENTORY

Drum Number	Volume (fullness)	Contents and Observations
1	Full	Mostly liquid, some poly sheeting, ~10” of sludge at bottom.
2	Full	Mostly liquid, some poly sheeting, ~20” of sludge at bottom.
3	7/8	Mostly liquid, some poly sheeting, ~12-14” of sludge at bottom.
4	2/3	Mostly poly sheeting, some liquid, ~12-18” of sludge at bottom.
5	5/8	All liquid.
6	2/3	Mostly liquid, ~3-4” of sludge at bottom.
7	7/8	Mostly poly sheeting, some liquid, ~12-14” of sludge at bottom.
8	Full	PPE.
9	Full	PPE.
10	2/3	All liquid.
11	Full	Mostly poly sheeting, some oily water.
12	7/8	Mostly liquid, some poly sheeting, ~2-3” of sludge at bottom.
13	7/8	Mostly liquid, some poly sheeting, ~4-6” of sludge at bottom.
14	7/8	Mostly liquid, some poly sheeting, ~4-6” of sludge at bottom.
15	7/8	Mostly liquid, some poly sheeting.
16	2/3	Mostly liquid, ~1” of sludge at bottom.
17	2/3	Mostly liquid, ~2-4” of sludge at bottom, top of drum is crushed, wont re-seal, top labeled “diesel”.
18	2/3	Mostly PPE, some poly sheeting, some oily water, ~2-3” of sludge at bottom.
19	1/2	Mostly poly sheeting, ~2-3” sludge at bottom.

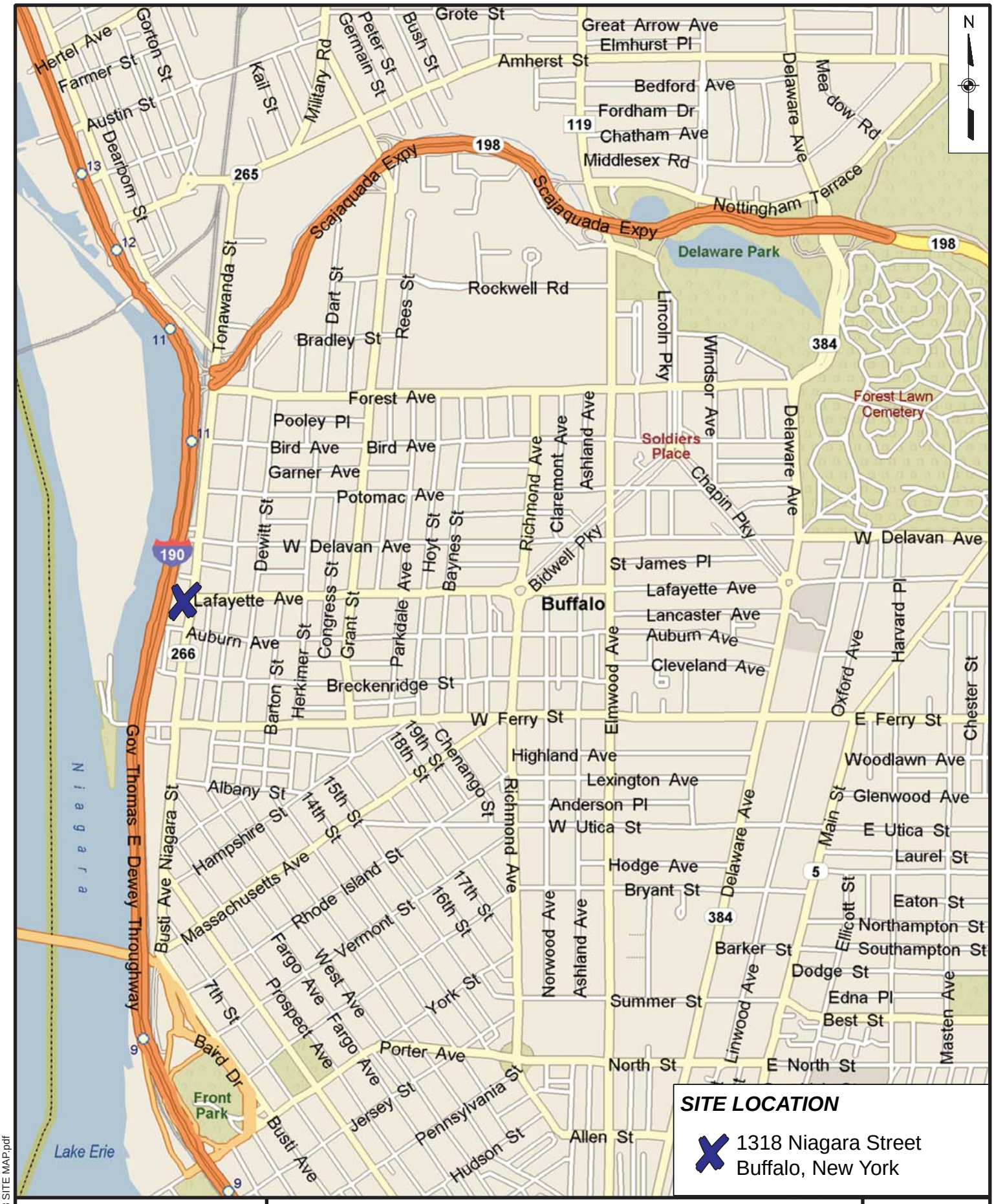
TABLE 2
SUMMARY OF IRM CONFIRMATION SAMPLING
1318 NIAGARA STREET SITE

Remediation Area (Fig 3)	Anticipated Perimeter (LF)	Anticipated Depth (FT)	# Sidewall Samples	Anticipated Bottom Area (Sq Ft)	# Bottom Samples	Confirmation Analysis	Site Characterization Sampling
UST Excavation Area	160	12	12	1,600	2	PCB - All Samples Sidewall samples planned at 1 per 30 linear feet and at two depth intervals (shallow and deep)	As noted in Section 2.4.5, up to 5 samples will be collected for full suite of parameters (VOC, SVOC, Pest, Metals)
Area Immediately north and west of UST excavation area	167	1	6	1,200	2	PCB - All Samples	
Furnace Pit Area	160	1	6	1,600	2	PCB - All samples	
Discrete Area SS-5	40	1	4	100	1	PCB - All samples	
Discrete Area SS-12	40	1	4	100	1	PCB - All samples	

VOCs - Target Compound List - USEPA Method 8260
SVOCs - Target Compound List - USEPA Method 8270
PCBs - Target Compound List - USEPA Method 8082
Pesticides - Target Compound List - USEPA Method 8081
Metals - Target Analyte List - USEPA Methods 6010/7000

TABLE 3
ANTICIPATED SOIL EXCAVATION AREAS AND QUANTITIES

Location	Approximate Depth of Excavation	Approximate Soil Quantity for Removal	PCB concentration for cost estimating
UST Excavation Area – near surface	2 feet bgs	~120 CY	< 50 ppm
UST Excavation Area – deeper	12 foot bgs	~600 CY	> 50 ppm
Impacted Soil Immediately North and West of UST Excavation Area	1 foot bgs	~50 CY	< 50 ppm
Furnace Pit Area	1 foot bgs	~100 CY	> 50 ppm
Areas at Locations SS-5 and SS-12	1 foot bgs	~10 CY	< 50 ppm



LiRo Engineers, Inc.
690 Delaware Ave.
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1318 NIAGARA STREET
SITE LOCATION MAP

FIGURE NO.

1

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REV-1

N

LEGEND:

SS-1 — SURFACE SOIL SAMPLE LOCATION

FORMER FOUNDATION WALL

1318 NIAGARA STREET PROPERTY LINE

LOCATION ID — SS-5 | 2.4 — PCB SCO EXCEEDANCE

TOTAL PCB CONCENTRATION IN PPM

20 0 20
APPROXIMATE
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

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

PROJ. ENG.:	
DESIGNED BY:	
CHECKED BY:	
DRAWN BY:	
CLIENT:	
DATE:	FEBRUARY 2010
SCALE:	NONE

JOB TITLE AND LOCATION:
CITY OF BUFFALO - ERP INVESTIGATION
OF 1318 NIAGARA STREET

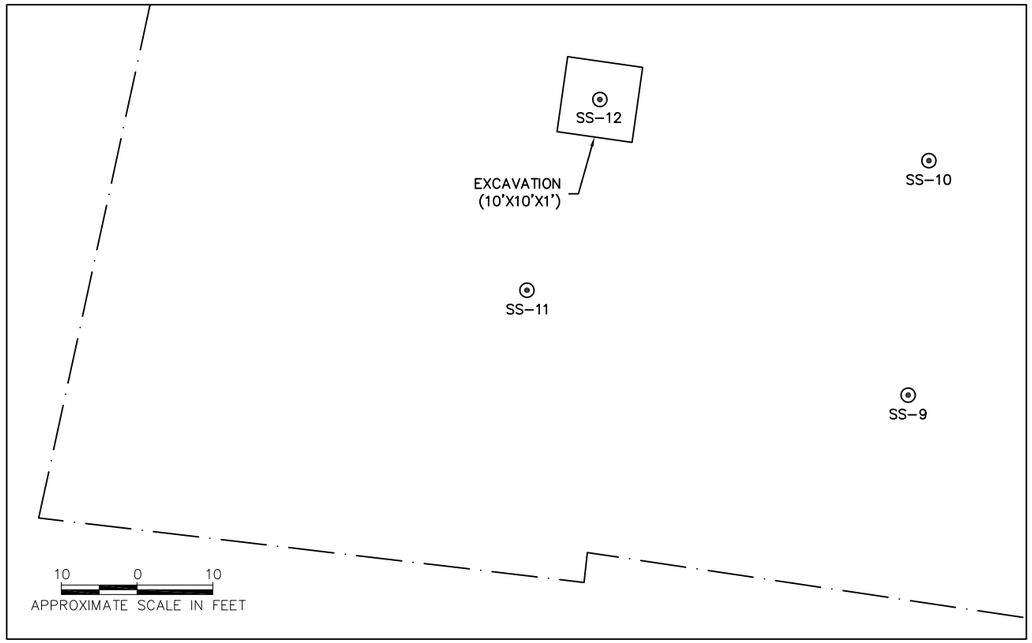
LIRO JOB NO.: 09-29-426

SHEET OF

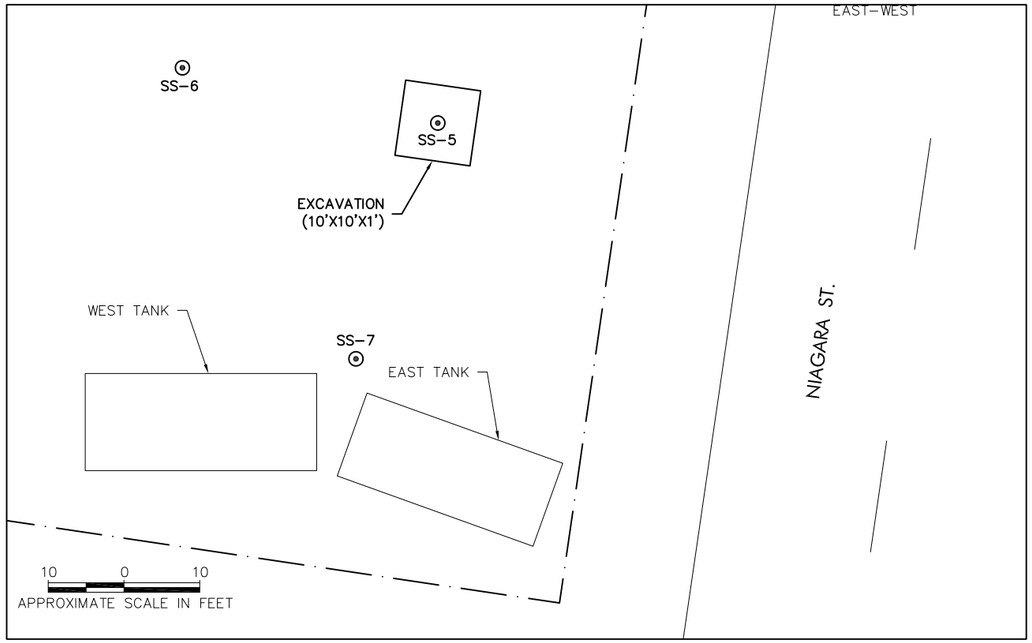
DRAWING TITLE:
INTERM REMEDIAL MEASURE
PROPOSED REMEDIAL LOCATIONS

FIGURE NO. 2

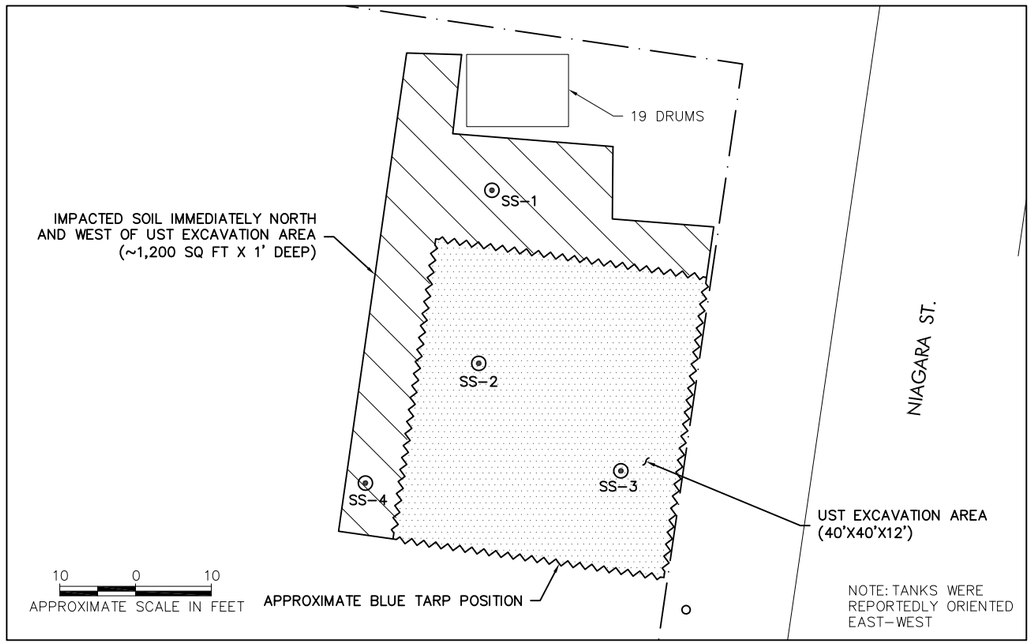
REV-1



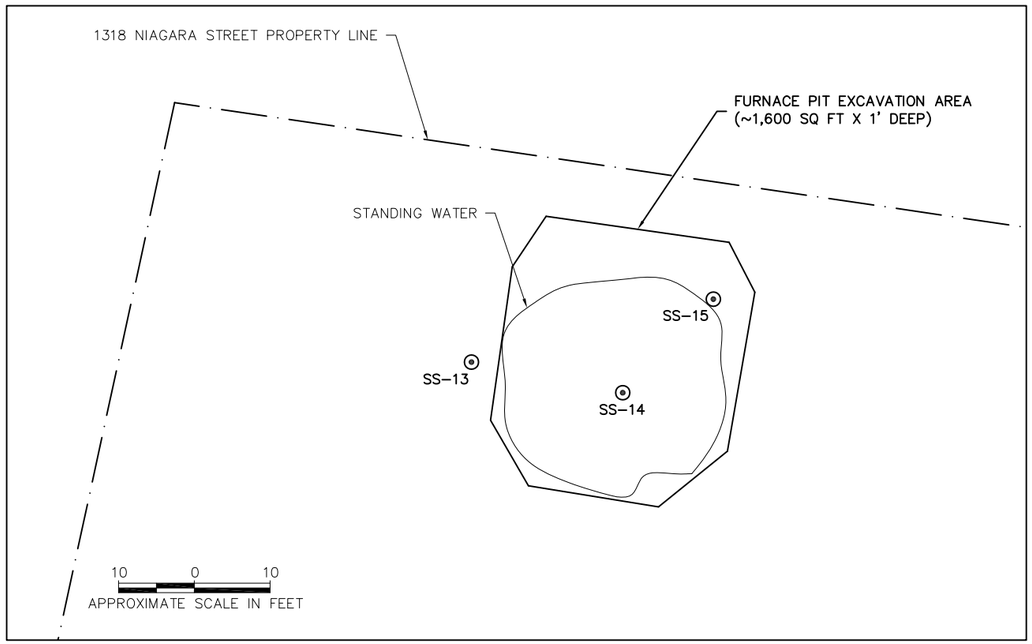
SS-12 EXCAVATION AREA DETAIL



SS-5 EXCAVATION AREA DETAIL



UST EXCAVATION AREA DETAIL



FURNACE PIT EXCAVATION AREA DETAIL

J:\1318 nia 09-29-426\CAD\1318 NIAGARA STREET EXCAVATION DETAILS.dwg, 2/5/2010 1:23:13 PM, ES

NO.	DATE	DESCRIPTION

REVISIONS

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

PROJ. ENG.:	CLIENT:	JOB TITLE AND LOCATION:	LIRO JOB NO.: 09-29-426
DESIGNED BY:		CITY OF BUFFALO - ERP INVESTIGATION OF 1318 NIAGARA STREET	SHEET OF
CHECKED BY:		DRAWING TITLE:	FIGURE NO.
DRAWN BY:	DATE: FEBRUARY 2010 / SCALE: NONE	EXCAVATION AREA DETAILS	3