Site Characterization Work Plan

K&L Cleaners

NYSDEC Site No. 862010

Location:

2469 Route 54A
Penn Yan (Town of Jerusalem)
Yates County, New York 14527

Prepared on Behalf of:

K&L Cleaners, LTD.
2469 Route 54A
Penn Yan, New York 14527

LaBella Project No. 2251236

August 11, 2025
Revised October 24, 2025

LaBella
Powered by partnership.

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COMMON ACRONYMS / ABBREVIATIONS

CAMP – Community Air Monitoring Plan
CP – Commissioner's Policy
CVOC – Chlorinated Volatile Organic Compound
DEC – Department of Environmental Conservation
DER – Division of Environmental Remediation
DO – Dissolved Oxygen
DUSR – Data Usability Summary Report
EM – Electromagnetic
EMI – Electromagnetic Induction
ESA – Environmental Site Assessment
GPR – Ground Penetrating Radar
HASP – Health and Safety Plan
IDW – Investigation Derived Waste
LNAPL – Light Non-Aqueous Phase Liquid
NYSDEC – New York State Department of Environmental Conservation
NYSDOH – New York State Department of Health
ORP – Oxidation Reduction Potential
PCB – Polychlorinated Biphenyl
PERC – Perchloroethene (a.k.a. tetrachloroethene)
PFAS – Per- and Poly-Fluoro Alkyl Substances
PNOD – Permanganate Natural Oxidant Demand
PID – Photoionization Detector
QA/QC – Quality Assurance / Quality Control
QAPP – Quality Assurance Project Plan
QEP – Qualified Environmental Professional
SC – Site Characterization
SCO – Soil Cleanup Objective
SCWP – Site Characterization Work Plan
SVI – Soil Vapor Intrusion
SVOC – Semi-Volatile Organic Compound
TAL – Target Analyte List
TIC – Tentatively Identified Compound
TCL – Target Compound List
USEPA – United States Environmental Protection Agency
VOC – Volatile Organic Compound

CERTIFICATION

I, Drew Brantner, certify that I am a QEP and that this Site Characterization Work 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) and Green Remediation (DER-31).

Drew Brantner	10/24/2025	
Name	Date	Signature

1.0 INTRODUCTION

LaBella Associates, D.P.C. ("LaBella") has developed this Site Characterization Work Plan (SCWP) on behalf of K&L Cleaners, LTD. ("K&L Cleaners") for the property located at 2469 Route 54A, in Penn Yan (Town of Jerusalem), Yates County, New York (DEC Site No. 862010, hereinafter referred to as the "Site"). Refer to Figure 1 (Site Location) and Figure 2 (Site Plan) for additional Site location information.

K&L Cleaners entered into an Order on Consent with the NYSDEC on July 18, 2025 (Index No. CO 8-20250128-33).

This Work Plan has been developed in accordance with the Order on Consent executed July 18, 2025, NYSDEC Division of Environmental Remediation (DER)-10 *Technical Guidance for Site Investigation and Remediation* Issued May 3, 2010, and DER-31 *Green Remediation*.

2.0 PROJECT BACKGROUND, SITE DESCRIPTION, AND HISTORY

Various environmental investigation and assessment of the Site has previously occurred. Based on the findings of these previous environmental investigations and the review of the NYSDEC, additional site characterization is required, as outlined in the NYSDEC letter dated October 11, 2024, the conference call held on November 6, 2024, and the Order on Consent executed July 18, 2025.

2.1 Site Description

The Site is located at 2469 Route 54A in Penn Yan (Town of Jerusalem), Yates County, New York. The Site is located within a mixed-use but predominantly commercial area. Local zoning and land use information is included on the attached Site Plan (Figure 2).

The Site comprises approximately 0.58-acre of land and is identified by Yates County Tax ID # 61.24-1-5. The Site is currently developed with approximate 8,270 square feet in total, consisting of three discrete interconnected single-story building spaces as shown on the attached Site Plan (Figure 2).

Building Description	Current Use	Construction Characteristics	Historical Use / Notes
Central / Main Building	Laundry	Single-Story, No Basement	-Dry Cleaning by others in approx. 1971 -Dry Cleaning and Laundry by K&L Cleaners from 1986 to 2025 -Now Rented/Tenant Space only used as Laundry (all dry cleaning equipment removed)
Northeastern Addition	Garage / Storage	Single-Story, No Basement	-Garage / Storage
Southwestern Addition	Woodworking	Single-Story, No Basement	-Constructed after the central/main building -Rented/Tenant Space

The Site was utilized as a dry cleaner and laundry facility by K&L Cleaners from 1986 until April 2025. Dry cleaning no longer occurs at the Site. Former owners included Con-Way Eastern Express, Inc.

2.1.1 Drinking Water Status

The Site and surrounding properties are served by the local municipal water system (Village of Penn Yan Water). The Village of Penn Yan Water collects water from Keuka Lake, the sole surface water source. Raw water is then pumped from the lake into the Water Treatment Plant at West Lake Road and stored in the two reservoirs on the hill above the plant, which have a total capacity of two million gallons.

Using the NYSDEC Info Locator Tool, accessed on October 23, 2025, no private water wells are located within a 0.25-mile radius of the Site. The following private water well is located within a 0.5-mile radius of the Site:

Well Number	Owner	Type	Relative Location
YA01201	Jonas W Zimmerman	Domestic	0.3 mi NNW of Site

It is notable that this well is topographically upgradient of the Site.

2.2 Site History

Based on the historical records reviewed during the completion of a Phase I ESA for the Site in 2021 (refer to Section 2.3 for additional information), the following Site history was outlined:

- In at least 1903, the Site was undeveloped.
- Between at least 1938 and 1942, the Site was developed; however, uses of the Site at the time are unknown.
- All portions of the existing building was constructed on the Site by 1960.
- The central/main portion of the existing building has been occupied by K&L Cleaners and was utilized as a dry cleaner between from 1986 until April 2025.

Based on the historical records reviewed during the completion of the Phase I ESA, it appears the properties adjacent to the Site were historically utilized for a variety of purposes, including commercial, religious, and residential uses (in addition to plots of vacant / undeveloped land).

2.3 Summary of Previous Environmental Reports

The following environmental reports have previously been prepared for the Site:

- Phase I ESA by LaBella for Lyons National Bank, dated November 18, 2021
- Phase II ESA by LaBella for Lyons National Bank, dated January 25, 2022
- Supplemental Phase II ESA by LaBella for Lyons National Bank, dated May 9, 2022
- Supplemental Environmental Investigation by LaBella for K&L Cleaners, dated August 24, 2023

The aforementioned reports are summarized below.

2.3.1 Phase I ESA, LaBella (November 18, 2021)

LaBella previously completed a Phase I ESA for the Site, dated November 18, 2021. The Phase I ESA identified no previous environmental records, reports, or investigations related to the Site. The Phase I ESA identified two Recognized Environmental Conditions (RECs) associated with the Site:

1) the use of the Site as a drycleaner since at least 1986; and,

2) the (possible) existence of two (2) underground storage tanks (USTs) on the Site.

2.3.2 Phase II ESA, LaBella (January 25, 2022)

Based on the findings of the Phase I ESA, a Phase II ESA was performed for the Site in January 2022.

The Phase II ESA identified subsurface impacts (including field evidence of impairment) in seven (7) of thirteen (13) soil borings completed. LNAPL was observed in one (1) of the two (2) groundwater monitoring wells installed (SB-04/SBMW-04). Petroleum-related VOCs (more specifically BTEX) and the chlorinated VOC tetrachloroethene (also known as perchloroethene and commonly abbreviated as PCE or PERC) were identified by laboratory analysis of soil and groundwater at the Site.

The following table summarizes the maximum concentration and location of key compounds (contaminants) of concern in each media type (soil and groundwater) detected during the January 2022 Phase II ESA (note that the list is non-exhaustive):

Compound	Media	Concentration	Location
1,2,4-Trimethylbenzene	Soil	450 ppm	SB-13 (17 ft bgs)
	Groundwater	1,900 ppb	SBMW-04
1,3,5-Trimethylbenzene	Soil	170 ppm	SB-02 (18 ft bgs)
	Groundwater	560 ppb	SBMW-04
Toluene	Groundwater	14 ppb	SBMW-04
Ethylbenzene	Soil	3 ppm	SB-13 (17 ft bgs)
	Groundwater	61 ppb	SBMW-04
Xylene (Total)	Soil	23 ppm	SB-13 (17 ft bgs)
	Groundwater	400 ppb	SBMW-04
Tetrachloroethene (PERC)	Soil	3.5 ppm	SB-03 (12.5 ft bgs)
	Groundwater	52 ppb	SBMW-12
Trichloroethene (TCE)	Groundwater	15 ppb	SBMW-04
cis-1,2-Dichloroethene	Groundwater	250 ppb	SBMW-04

Based on the findings of the Phase II ESA, the NYSDEC was notified and NYSDEC Spill No. 2108932 was assigned to the Site.

2.3.3 Supplemental Phase II ESA, LaBella (May 9, 2022)

A supplemental Phase II ESA was performed in the spring of 2022. The supplemental Phase II ESA included an additional eleven (11) soil borings and three (3) groundwater monitoring wells. The supplemental investigation again identified BTEX and PCE in certain locations, and further defined the extent of the contaminants.

The following table summarizes the maximum concentration and location of key contaminants of concern in each media type (soil and groundwater) detected during the Supplemental Phase II ESA dated May 9, 2022 (note that the list is non-exhaustive):

Compound	Media	Concentration	Location
1,2,4-Trimethylbenzene	Soil	400 ppm	SB-16 (18-19 ft bgs)
	Groundwater	790 ppb	MW-21
1,3,5-Trimethylbenzene	Soil	200 ppm	SB-16 (18-19 ft bgs)
	Groundwater	280 ppb	MW-21

Compound	Media	Concentration	Location
Ethylbenzene	Soil	1.9 ppm	SB-21 (12-13 ft bgs)
	Groundwater	27 ppb	MW-21
Xylene (Total)	Soil	8.2 ppm	SB-16 (18-19 ft bgs)
	Groundwater	78 ppb	MW-21
Tetrachloroethene (PERC)	Soil	1.9 ppm	SB-21 (12-13 ft bgs)
	Groundwater	150 ppb	MW-21
Trichloroethene (TCE)	Groundwater	6.9 ppb	MW-21
cis-1,2-Dichloroethene	Groundwater	500 ppb	MW-21

The additional investigation also identified that the two USTs identified in the Phase I ESA were reportedly owned and operated by Conway Eastern Express, located behind (south) of the building, and were previously removed from the Site.

2.3.4 Supplemental Environmental Investigation, LaBella (August 24, 2023)

A supplemental investigation was performed in the summer of 2023, after consultation with the NYSDEC Division of Petroleum Spill Prevention & Response. The supplemental investigation consisted of the advancement of another six (6) soil borings, installation of groundwater monitoring wells, and laboratory analysis of six (6) soil and five (5) groundwater samples. This supplemental investigation was performed to further establish the extent (i.e., delineation) of the contaminants identified in previous investigations conducted at the Site. The investigation concluded the following:

- *"PID readings greater than 700 ppm were observed in each of the six (6) soil borings advanced at the Site during the Supplemental Investigation, with the highest PID reading (1,328 ppm) measured in SB-27 at approximately 12-13 ft bgs. A plume map that includes PID readings (volatile vapors) from all thirty (30) investigation locations at the Site has been produced as Figure 4C.*
    - *In general, PID readings were observed to be most elevated in a clay and/or silt and clay layer directly beneath a fill layer. PID readings in the sand layer below this layer rapidly decreased.*
    - *Based on the plume map, the highest concentrations of volatile vapors [detected by PID] are located in the parking lot behind the building, with significant [PID readings detected] on the neighboring property to the east and estimated to be beneath the existing building on-site. Significant [PID readings] may also extend to the southeasterly adjacent property, based on available data.*
- *There appears to be a perched aquifer within the fill layer, confined by the clay and silt layers situated between the fill and sand layers. However, it is noted that the nature of the investigation methodology limits the ability to identify a true determination of groundwater depth and/or potential perched aquifers. This observation and any groundwater flow direction estimates provided herein should be considered unreliable.*
- *VOCs were detected at concentrations exceeding their corresponding Unrestricted Use SCOs in each of the six (6) soil samples analyzed for VOCs, and concentrations of the VOC 1,2,4-Trimethylbenzene in sample SB-28-17-18 was detected in exceedance of its Commercial Use SCO.*
- *Chlorinated-VOCs (CVOCs), most significantly tetrachloroethene (PERC), was detected in each of the six (6) soil samples analyzed for VOCs above Unrestricted Use SCOs. CVOCs were detected at concentrations above the NYSDEC TOGS 1.1.1 AWQS in three (3) of the five (5) groundwater samples. Additional summary of chlorinated VOCs (solvents commonly*

associated with dry cleaning operations), including incorporation of previous data, is shown on Figure 4A.

- *Concentrations of PERC and other chlorinated VOCs are most prevalent nearer the existing Site building, and do not appear to be migrating off-site in a significant fashion, based on the data and plume mapping performed to-date.*

- *Non-chlorinated VOCs were detected in each of the six (6) soil samples analyzed for VOCs above Unrestricted Use SCOs (and above Commercial Use SCOs in one sample). Non-chlorinated VOCs were detected at concentrations above the NYSDEC TOGS 1.1.1 AWQS in all five (5) groundwater samples. Additional summary of non-chlorinated VOCs, including incorporation of previous data, is shown on Figure 4B.*
  - *Concentrations of non-chlorinated VOCs appear most concentrated on the eastern portion of the lot, further from the site building. Concentrations appear to be migrating off-site to the east and southeast in a significant fashion, based on the data and plume mapping performed to-date.*
- *Note that low-levels of the VOC acetone identified during this investigation (but not during previous investigations) is considered a laboratory artifact and not indicative of actual site conditions.*
- *SVOCs were detected in five (5) of the six (6) soil samples collected during this investigation; however, no concentrations in exceedance of Unrestricted Use SCOs were identified. SVOCs were detected in groundwater but their concentrations should be considered skeptically due to the limited recharge/development of the wells and turbidity of the samples able to be collected from the Site.*
- *Investigation towards the southeastern property line was impeded by a steep slope (approximately 15-foot drop in topography) and thick vegetation. As a result, investigation locations SB/MW-28 and SB/MW-29 had to be moved to the northwest from their original proposed locations (per electronic correspondence/notification to NYSDEC). As such, the extent of the contaminant plume in the southeastern direction remains somewhat undefined. Plume mapping included on Figures 4A-4C has been used to estimate off-site concentrations and the extent of possible impacts.*
- *Monitoring well MW-26 did not produce groundwater and was therefore unable to be sampled."*

The following table summarizes the maximum concentration and location of key contaminants of concern in each media type (soil and groundwater) detected during the Supplemental Phase II ESA dated August 24, 2023 (note that the list is non-exhaustive):

Compound	Media	Concentration	Location
1,2,4-Trimethylbenzene	Soil	250 ppm	SB-28 (17-18 ft bgs)
	Groundwater	1,500 ppb	MW-28
1,3,5-Trimethylbenzene	Soil	84 ppm	SB-28 (17-18 ft bgs)
	Groundwater	440 ppb	MW-28
Ethylbenzene	Soil	2.9 ppm	SB-28 (17-18 ft bgs)
	Groundwater	20 ppb	MW-28
Xylene (Total)	Soil	19.2 ppm	SB-28 (17-18 ft bgs)
	Groundwater	150 ppb	MW-28
Tetrachloroethene (PERC)	Soil	33 ppm	SB-25 (11-12 ft bgs)
	Groundwater	85 ppb	MW-25
Trichloroethene (TCE)	Soil	2.3 ppm	SB-25 (11-12 ft bgs)
	Groundwater	4 ppb	MW-25

Compound	Media	Concentration	Location
cis-1,2-Dichloroethene	Soil	0.81 ppm	SB-25 (11-12 ft bgs)
	Groundwater	210 ppb	MW-28

Based on the findings, conclusions, and recommendations of the Supplemental Environmental Investigation completed in 2023, more specifically the detection of PERC above applicable NYSDEC groundwater quality standards, management of the Site was transferred from the Division of Petroleum Spill Prevention & Response to the Division of Environmental Remediation (DER). Correspondingly, NYSDEC Spill No. 2108932 was closed on September 26, 2023.

The findings and conclusions of the Supplemental Environmental Investigation completed in 2023 have been heavily relied upon while generating this SCWP.

2.4 Site Inspection (November 20, 2024)

In order to be able to appropriately scope the SCWP, LaBella performed a targeted Site inspection on November 20, 2024. During the visit, LaBella inspected the condition of the existing groundwater monitoring wells that have been previously installed at the Site. From the inspection, LaBella generated a list of monitoring wells that can be used for additional sampling and those that require decommissioning in accordance with NYSDEC protocols. The findings related to well condition are reported in Sections 4.1 and 4.2 below.

During the visit, LaBella also noted apparent buried utilities in the vicinity of subsurface activities planned within this SCWP. This observation supports the need for private utility locating services on the Site (refer to Section 4.3).

Finally, LaBella noted the presence of two (2) drums of Investigation Derived Waste (IDW) generated by previous assessment on the rear of the Site. The drums of IDW appear to be in good condition. These drums will be characterized and disposed alongside any IDW generated by SC activities (refer to Section 5.0 – Investigation Derived Waste Management, for further information).

2.5 Geology & Hydrogeology

Based on a review of information gathered during the Phase I ESA, areal groundwater flow direction is assumed to be towards the Keuka Lake Outlet approximately 570 feet to the east and southeast of the Site. According to the NYSDEC Environmental Resource Mapper, freshwater wetlands are also present east of the Site, surrounding the Keuka Lake Outlet.

Per the findings of previous environmental investigations, there appears to be a perched aquifer within the fill layer underlying the Site, confined by clay and silt layers (potentially native) situated between the fill and sand layers. Fill, gravel, and sand is generally the predominant material in the upper twenty (20) feet of the Site's subsurface. However, it is noted that the nature and methodology of previous investigations, including the limited area of the Site, limits the ability to identify the true nature of groundwater depth, flow, and/or potential perched aquifers. All estimates of depth to groundwater and flow direction should be considered approximate and unreliable.

3.0 OBJECTIVE

The goal of the site characterization (SC) is to determine whether contaminants are present at the Site above applicable NYS standards. Per Section 3.2.1(b) of NYSDEC's Technical Guidance for Site Investigation and Remediation (DER-10), it may be appropriate to phase the SC work and begin in the

area most suspected to be contaminated at concentrations above applicable standards so that the SC can be concluded and work can begin on evaluating the full nature and extent of site contamination as part of a full remedial investigation (RI). *Note: This phased approach does not preclude the need to evaluate the entirety of the site to determine if it poses a threat to public health and/or the environment.*

It is also an objective of this SC to provide enough information and data for K&L Cleaners to implement any necessary interim remedial measures and associated site management.

4.0 SCOPE OF WORK

Field activities have been separated into six (6) tasks as listed below and detailed in the following subsections:

1. Monitoring Well Decommissioning
2. Monitoring Well Redevelopment
3. Public and Private Utility Stakeout
4. Advancement of three (3) overburden soil borings and associated subsurface soil sampling
5. Installation of two (2) overburden groundwater monitoring wells and associated groundwater sampling of new and previous wells in suitable condition
6. Soil Vapor Intrusion (SVI) Assessment

The Site Characterization will be conducted in accordance with NYSDEC's *DER-10 - Technical Guidance for Site Investigation and Remediation* Issued May 3, 2010. Proposed testing locations are depicted on Figure 3. *NOTE - Based on the topography of the Site, the southeastern portion of the Site is inaccessible for drilling due to steep slopes.*

4.1 Monitoring Well Decommissioning

Groundwater monitoring wells installed during previous environmental investigations are in various states of suitability for reuse. Per NYSDEC CP-43 (Groundwater Monitoring Well Decommissioning Policy):

> "*Unprotected, neglected and improperly abandoned monitoring wells are a serious environmental liability. They can function as a pollution conduit for surface contaminants to reach the subsurface and pollute our groundwater. They also can cause unwanted mixing of groundwater, which degrades the overall water quality within an aquifer. Improperly constructed, poorly maintained or damaged monitoring wells can yield anomalous poor data that can compromise the findings of an environmental investigation or remediation project. Unneeded or compromised monitoring wells should be properly decommissioned in order to prevent harm to our groundwater.*"

Based on previous assessment and the findings of the inspection performed November 20, 2024 (refer to Section 2.4), the following existing groundwater monitoring wells shall be decommissioned in accordance with NYSDEC CP-43:

Well ID	Reason for Decommissioning
MW-16	Monitoring Well MW-16 did not produce groundwater when installed in 2022. Monitoring Well MW-30 was installed adjacent to MW-16 in 2023 to a deeper depth in an attempt to collect a groundwater sample from this location. Monitoring Well MW-16 appears to have been grouted per the observations made during inspection on November 20, 2024.
MW-17	Monitoring Well MW-17 produced minimal groundwater when installed in 2022 and was found to be dry during inspection on November 20, 2024. The minimal volume of groundwater collected in 2022 was sampled and no VOCs were detected.
MW-25	Monitoring Well MW-25 produced minimal groundwater when installed in 2023 and was found to be dry during inspection on November 20, 2024.
MW-26	Monitoring Well MW-26 did not produce groundwater when installed in 2023 and was found to be dry during inspection on November 20, 2024.
MW-27	Monitoring Well MW-27 produced minimal groundwater when installed in 2023 and was found to contain insufficient groundwater for sampling (less than 0.02 gal) during inspection on November 20, 2024.
MW-29	Monitoring Well MW-29 is not located on the subject property, and PERC was not detected above applicable groundwater quality standards in the sample collected in 2023.
MW-30	Monitoring Well MW-30 was found to contain minimal groundwater for sampling (approximately 0.4 gal) during inspection on November 20, 2024, and is not located on the subject property.

In addition to the above well decommissioning activities, it was identified during the November 20, 2024, site inspection that apparent cave-in of the former soil boring SB-07 has occurred. SB-07 will be backfilled with grout and the surface of the borehole shall be restored to the condition of the area surrounding the borehole (i.e., concrete or asphalt will be patched with concrete or asphalt of similar type and thickness).

4.2 Monitoring Well Redevelopment

As mentioned in Section 4.1 above, groundwater monitoring wells installed during previous environmental investigations are in various states of suitability for reuse. Based on previous assessment and the findings of the inspection performed November 20, 2024 (refer to Section 2.4), and the length of time that has passed since previous well development and sampling activities occurred, the following existing groundwater monitoring wells shall be redeveloped in support of future sampling:

Well ID	Note
SBMW-04	PERC and various petroleum-related VOCs detected in groundwater sample collected from Monitoring Well SBMW-04 in 2022.
SBMW-12	PERC and various petroleum-related VOCs detected in groundwater sample collected from Monitoring Well SBMW-12 in 2022.
MW-21	PERC and various petroleum-related VOCs detected in groundwater sample collected from Monitoring Well MW-21 in 2022. This location represents the highest detectable concentration of PERC identified on the Site to-date.
MW-28	PERC and various petroleum-related VOCs detected in groundwater sample collected from Monitoring Well MW-28 in 2023.

Well development (or redevelopment) refers to the removal of fine-grained sediment that has settled out of solution inside a monitoring well casing. Well development should be performed on newly installed monitoring wells and existing wells that haven't been purged or developed in a significant period of time (which is the case with the aforementioned monitoring wells).

Well redevelopment shall be accomplished using a pump or bailer to remove accumulated sediments and to clean the pore spaces in the sand pack. No dispersing agents, acids, disinfectants, or other additives will be used during development or introduced into the well at any time.

General Procedures for Well Development

1. Prior to development, an oil-water interface probe will be used to evaluate each monitoring well for the presence of non-aqueous phase liquid (NAPL). The presence/absence of NAPL, apparent thickness of the NAPL layer, and comparison with groundwater elevation will be recorded.
2. Regardless of what equipment is used for development, it shall be lowered to the bottom of the well and surged up and down to help get sediment that has accumulated in the well into solution so that it can be evacuated from the well.
3. Aggressively surge the well for a few minutes and then evacuate the well using a pump (i.e. whale pump or other submersible pump designed to pump sediment) or bailer.
4. Redevelopment shall continue until:
    - at least three (3) to five (5) well volumes are removed; and/or,
    - the hard PVC cap at the bottom of the well screen can be felt with the equipment being used for development and/or a water level meter.
5. Development water will be properly contained (i.e. sealed container/drum) and disposed of in accordance with applicable regulations (refer to Section 5.0 – Investigation Derived Waste Management).

Note that newly installed groundwater monitoring wells (refer to Section 4.5) shall be developed in a similar manner as described above prior to sampling.

4.3 Public and Private Utility Stakeout

A public utility stakeout (via *UDig NY*) will be called-in a minimum of three (3) days prior to the

commencement of any subsurface activities. The stakeout will identify public subsurface utilities along right-of-ways at the perimeter of the Site. *NOTE: The UDig NY process does not identify subsurface utilities beyond right-of-ways and is limited to registered public utilities (i.e. does not include private or unregistered utilities).* As such, and based on the observations of the inspection performed November 20, 2024 (refer to Section 2.4), private utility locating shall also occur at the Site.

The private utility locating process shall serve the primary purpose of identifying any buried utilities not identified by the public stakeout to ensure the safe execution of additional soil borings and groundwater monitoring well installation. The process shall also identify the precise route of buried utilities that might offer a preferential pathway for contaminant migration in the subsurface. The private utility locating process shall employ one or more of the following methods:

- Ground Penetrating Radar (GPR);
- Electromagnetic (EM) Locating (active and/or passive); and/or,
- Electromagnetic Induction (EMI).

Subsurface/buried utilities and other potential obstructions identified by the private utility locating process shall be field marked using marking paint and/or flags. GPS coordinates shall be recorded for key subsurface features identified and demarcated on mapping to be included in the Site Characterization report.

4.4 Overburden Soil Borings and Subsurface Soil Sampling

Three (3) additional (i.e., "new") soil borings will be advanced at the Site to further assess subsurface conditions, labeled SB-31, SB-32, and SB-33 on Figure 3. Proposed soil boring locations are shown on Figure 3; however, the soil boring locations are subject to revision based on the Public and Private Utility Stakeout (refer to Section 4.3). Soil borings will be completed as follows:

- Soil borings will be advanced via hollow-stem auger and rotary drilling techniques, capable of achieving greater depths in various soil types than direct-push drilling techniques, including sand, silt, clay, and unconsolidated fill material that have all been encountered at the Site previously. Continuous spilt-spoon sampling shall be performed for the entire length of soil borings completed. Split-spoon soil samples will be retrieved for observation and screening with a PID, with soil samples collected for laboratory analysis from discrete interval based on field observation and screening. Soil borings will be advanced to equipment refusal, into an apparent confining layer, or at the discretion of the field geologist or engineer, to a maximum depth of 40-ft below ground surface (bgs).
- Drilling equipment will be decontaminated prior to use and between boring locations, using an Alconox® and potable water solution.
- Per Section 3.5.1(c) of DER-10, soils will be described and classified using the Unified Soil Classification System (USCS) which is set forth in ASTM 2488.
- Soils from borings will be continuously screened in the field for visible impairment, olfactory indications of impairment, and/or indication of detectable VOCs with a PID collectively referred to as "evidence of impairment."
- Soil samples will be collected and determined in the field based on the presence of fill material and/or evidence of impairment, or the top of groundwater if evidence of impairment is not observed. The following subsurface soil samples will be collected for analysis:
    - One (1) soil sample for "full-suite" parameters from SB-31 including the following:
        - United States Environmental Protection Agency (USEPA) Target Compound List (TCL) and NYSDEC Commissioner Policy (CP-51) list VOCs including the top thirty (30) tentatively identified compounds (TICs) using USEPA Method 8260;

        - USEPA TCL and NYSDEC CP-51 list SVOCs (including 1,4-dioxane) and including the top thirty (30) TICs using USEPA Method 8270;
        - Target Analyte List (TAL) metals using USEPA Methods 6010/7471;
        - Cyanide using USEPA Method 9012;
        - PCBs using USEPA Method 8082;
        - Pesticides using USEPA Method 8081 (*NOTE: 2,4,5-TP Acid (Silvex) shall not be analyzed for*); and,
        - Per and polyfluoroalkyl substances (PFAS) using USEPA Method 1633A.
    - An additional two (2) soil samples (one each from SB-32 and SB-33) for the following:
        - TCL and CP-51 list VOCs including the top thirty (30) TICs using USEPA Method 8260.
    - Separately from the above characterization samples, one (1) soil sample for permanganate natural oxidant demand (PNOD) analysis shall be collected for the purpose of evaluating future remedial options.
- Refer to Section 8.0 for QA/QC sampling.
- Soil samples will be submitted to a NYSDOH Environmental Laboratory Approval Program (ELAP) certified laboratory for analysis
- The soil sample locations (depth interval) will be biased towards the depth/interval exhibiting the strongest evidence of impairment (i.e., highest PID response).
- Soil boring locations (northing, easting, and elevation) will be recorded using a GPS.
- Excess soil generated during soil boring and sampling activities (i.e., "cuttings) will be containerized in 55-gallon drums, characterized, and disposed of off-Site in accordance with applicable regulations (refer to Section 5.0 – Investigation Derived Waste Management).

4.5 Overburden Monitoring Wells and Groundwater Sampling

During the soil boring program, two (2) overburden groundwater monitoring wells (MW-31 and MW-32) will be installed as follows:

- Overburden monitoring wells will consist of 2-inch diameter polyvinyl chloride (PVC). Wells will be constructed of 10 feet of 0.010-slot well screen connected to an appropriate length of solid PVC well riser to complete each well.
- The annulus will be sand packed with quartz sand to a nominal depth of 1 to 2-ft. above the screen section. A bentonite seal will be placed above the sand pack to 1-ft bgs.
- A road-box will be installed to protect the well at the ground surface, intended to match surrounding grade and retain a safe environment for vehicle traffic.
- Following installation, overburden groundwater monitoring wells will be developed as described in Section 4.2 above. Development water will be properly contained (i.e. sealed container/drum) and disposed of in accordance with applicable regulations (refer to Section 5.0 – Investigation Derived Waste Management).
- Following development (or redevelopment, as applicable), wells will be allowed to recharge for a minimum of 1 week prior to sampling.

Once (re)development has occurred and the 1-week recharge period has elapsed, the following six (6) groundwater monitoring wells will be sampled at the Site:

- SBMW-04
- SBMW-12
- MW-21
- MW-28

- MW-31
- MW-32

Groundwater monitoring and sampling activities shall occur as follows:

- A round of static water levels will be collected from the monitoring wells prior to sampling in an effort to generate groundwater elevation contours. However, it is noted that past evidence of perched aquifer(s), fill materials, development/foundations, subsurface utilities, and the small size of the Site renders a true determination of groundwater flow direction to likely be qualified as uncertain or accepted with low-confidence.
- Static water levels will be collected using an oil-water interface probe capable of detecting the presence of NAPL. The presence/absence of NAPL, apparent thickness of the NAPL layer, and comparison with groundwater elevation will be recorded.
- Wells will be sampled using modified low-flow techniques using a bladder pump or mini-bladder pump based on well construction characteristics (i.e., mini-bladder pump required for 1"-diameter wells, and bladder pump required in general due to depth of groundwater being beyond the capabilities of a peristaltic pump). All associated tubing will be PFAS-free HDPE tubing. The sampling intake will be the middle of the screened interval of each well, unless inadequate water is present that would require lowering the intake. All available effort will be made to ensure the intake is at least two (2) feet above the bottom of the monitoring well to prevent the disturbance of any sediment.
- Water quality parameters including turbidity, pH, temperature, specific conductivity, dissolved oxygen, oxidation reduction potential, and depth to water will be recorded at three-to-five (3-5) minute intervals, depending on flow rate. Samples will be collected when the parameters have stabilized for two (2) consecutive intervals to within the specified ranges below, or after 60 minutes of monitoring (whichever occurs first). *NOTE: low recharge rate of the wells may dictate that further modified sampling protocol occur. If any specific well runs dry prior to stabilization of parameters and/or the 60-minute monitoring period, the well shall be allowed to recharge for 12-24 hours (i.e., overnight) with sample collection then occurring via the use of bladder pump or a bailer.* The following parameters and metrics shall be used for evaluating stabilization:
    - Water level drawdown (<0.3')
    - Turbidity (+/- 10%, <50 NTU for metals)
    - pH (+/-0.1)
    - Temperature (+/- 3%)
    - Specific conductivity (+/- 3%)
    - Dissolved Oxygen (+/- 10%)
    - Oxidation reduction potential (+/- 10 millivolts)
- The following groundwater samples will be collected for analysis:
    - One (1) groundwater sample for "full-suite" parameters from MW-31 (refer to Section 4.4).
        - Note 1: 1,4-dioxane will be analyzed by EPA Method 8270 Selected Ion Monitoring (SIM) for groundwater samples.
        - Note 2: mercury will be analyzed by EPA Method 7470 for groundwater samples.
    - An additional five (5) groundwater samples (one each from SBMW-04, SBMW-12, MW-21, MW-28, and MW-32) for the following:
        - TCL and CP-51 list VOCs including the top thirty (30) TICs using USEPA Method

8260.

- Refer to Section 8.0 for QA/QC sampling.
- Groundwater samples will be submitted to a NYSDOH ELAP certified laboratory for analysis
- Purge water will be properly contained (i.e. sealed container/drum) and disposed of in accordance with applicable regulations (refer to Section 5.0 – Investigation Derived Waste Management).
- Monitoring well locations (northing, easting, and elevation) will be recorded using a GPS. Elevation of the top of PVC and the ground surface will be collected.

4.6 Soil Vapor Intrusion (SVI) Assessment

An SVI assessment of the Site building shall be completed in general accordance with the (NYSDOH) document entitled *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*, dated October 2006, and all applicable updates.

Pre-Sampling Inspection & Product Inventory

Prior to the collection of sub-slab soil vapor and indoor air samples, a pre-sampling inspection will be performed to evaluate the physical layout and conditions of the building and to identify and minimize conditions that may affect or interfere with the proposed vapor sampling. A NYSDOH building questionnaire and product inventory form will be completed. The inspection will assess the following:

- Construction characteristics, including foundation cracks, utility penetrations, and/or other openings that may serve as preferential pathways for vapor intrusion;
- Recent renovations or maintenance to the building (i.e. fresh paint, new carpet or furniture, etc.)
- Use or storage of petroleum products (i.e. fuel containers, gas-operated equipment, etc.), solvents, chemical products, cosmetics, and/or cleaning products; and,
- Recent use of petroleum-based finishes or products containing volatile chemicals, if applicable.

Since products stored within the building have the potential to affect air quality, a product inventory survey will be completed. As identified and if readily available, chemical ingredients of interest will be recorded for each product observed. Air within the building in the area of proposed sampling locations and any chemical storage areas will be screened using a portable part per billion (ppb) PID equipped with a minimum 10.6 eV lamp. While a PID is not capable of detecting volatile organic compounds (VOCs) to the level that is required for making decisions regarding exposure risks and appropriate response actions, it can help identify potential indoor sources of VOCs that may affect sample integrity and laboratory data usability. The presence and description of any odors (e.g., solvent, petroleum, etc.) and PID readings will be noted and utilized to help evaluate potential sources of VOCs.

In the event that sources of VOCs are encountered during the pre-sampling inspection, attempts will be made to control the potential source of the VOCs (by tightly sealing the container, placing them in a tightly sealed “Tupperware” type container or “Zip-lock” bag, and collecting them in an area of the building away from sample collection points), prior to the sampling event. Indoor sampling locations will be biased away from chemical and product storage areas to the extent possible.

During the pre-sampling inspection, LaBella will determine the final sampling locations and record them on a floor plan / site sketch. Sample locations will be selected based on the criteria established by the NYSDOH and NYSDEC in their SVI Guidance document and the results of the pre-sampling inspection. All final sampling locations shall be approved by NYSDEC/NYSDOH.

Soil Vapor and Air Sampling Event

The following sample locations are anticipated, per NYSDOH guidance, the characteristics of the Site, and the comments of the NYSDEC/NYSDOH in the letter dated October 1, 2025. Note that all final sampling locations shall be approved by NYSDEC/NYSDOH.

Location Description	Number and Location of Sample(s)
Inside Site Building	Six (6) Sub-Slab Vapor: • **SS-01** - located near the outdoor groundwater monitoring wells exhibiting the most elevated concentrations of PERC to-date (SB-03, SB-21, and SB-25) and nearest the area of former solvent storage. • **SS-02** - located in the same vicinity as above but in an apparent cross-gradient or down-gradient location. • **SS-03** - located in an apparent upgradient location relative to the contaminant plume and indoor solvent storage area, in occupied office space. • **SS-04** - centrally located in the garage/storage portion of the building. • **SS-05** - central portion of the main/central building (laundry building). • **SS-06** – centrally located in the woodworking portion of the building. Six (6) Indoor Air: • Co-located with the sub-slab vapor sample locations, and identified as **IA-01, IA-02, IA-03, IA-04, IA-05,** and **IA-06** (see above).
Outdoor	One Outdoor / Ambient Sample: • **OA-01** - On-Site, in the "upwind" area on the day of sampling, away from obstructions, and in an unbiased area (i.e., away from automobiles, lawn mowers, etc.) to the extent practical.

Refer to the attached Figure 3 for proposed soil vapor intrusion sample locations.

The sampling event will include the following elements and precautions:

- Field sampling personnel will not pump gasoline en route to the sampling event to avoid the potential introduction of VOCs via clothing or contact from such activities.
- Field sampling personnel will not wear clothing that has been recently dry cleaned to avoid the potential introduction of VOCs via such clothing.
- Field notes and sample canister labels will be prepared with ballpoint pens, and no use of "Sharpie" or similar type markers containing VOCs will occur during the sampling event.

- At the time of sampling, weather conditions (e.g., precipitation, indoor and outdoor temperatures) and ventilation conditions (e.g., heating system active and windows closed) will be documented.
- Pertinent observations, such as odors, readings from field instrumentation, and significant activities in the vicinity (e.g., operation of heavy equipment) will be documented.
- Photographs of each sample location and its surrounding area, the building, and its foundation, all observed foundation penetrations, and any other pertinent features will be collected.
- A sample log sheet summarizing the following will be maintained: sample identification, date & times of sample collection, sampling height, sampling method & devices, volume of air sampled, vacuum of canisters before-and-after samples are collected, and chain-of-custody forms.
- Sample locations will be centrally located within the building, away from building footers and other ground/slab penetrations.

To collect the sub-slab vapor samples, an approximate 1"-diameter hole will be drilled through the building's foundation floor/slab (ground level) using a rotary hammer drill to a depth of no more than 2 inches below the bottom of the concrete slab. 1/4" Teflon® tubing will be inserted into the hole and an air-tight seal around the tubing will be created using modeling clay and/or duct seal to connect the remainder of the sampling equipment (flow regulator and Summa® canister). *Note: In lieu of such installation, a soil vapor pin may be used.* A tracer gas (helium) and portable/field monitoring device will be used as a quality assurance/quality control (QA/QC) measure to verify the integrity of the seal.

Sub-slab vapor, indoor air, and outdoor ambient air samples will be collected utilizing certified-clean laboratory-supplied 1-liter Summa® canisters (or equivalent) equipped with laboratory-provided flow regulators. The indoor and outdoor air samples will be collected at a height of approximately 3 to 5 feet above the floor or ground surface to simulate the breathing zone.

Immediately after opening each Summa® canister, the initial vacuum (inches of mercury) and time will be noted and recorded on the laboratory chain-of-custody. Samples will be collected over an approximate eight (8) hour time period. After the sample period has elapsed, final vacuum readings (inches of mercury) will be noted and the Summa® canisters will be closed.

After sampling is complete, each sampling point / penetration in the foundation floor/slab will be patched with fast-drying liquid concrete.

Samples will be submitted to a NYSDOH ELAP certified laboratory for analysis of VOCs by USEPA method TO-15.

5.0 INVESTIGATION DERIVED WASTE MANAGEMENT

Investigation derived waste (IDW) including drilling/boring cuttings, development water, purge water, and decontamination water will be containerized in 55-gallon drums stored on-Site and disposed of following all investigation activities at a permitted facility, pending waste characterization. Waste characterization requirements will be dependent on the disposal facility requirements and contaminant concentrations. Drums will be labeled identifying their contents and date generated.

Two (2) drums of IDW generated by previous assessment were identified during the Inspection performed November 20, 2024 (refer to Section 2.4). These drums will be characterized and disposed alongside any IDW generated by SC activities.

6.0 GREEN REMEDIATION

NYSDEC DER-31 *Green Remediation* is defined as "*the practice of considering all environmental effects of remedy implementation and incorporating options to minimize the environmental footprint of cleanup actions.*" This SCWP endeavors to employ 'Green Remediation' principles and best management practices where practicable, including the following:

Planning & Strategy

- Consider the current and future use of the Site in investigation and remedial plans to consider alternatives to excessive soil excavation and costly offsite disposal.
- Limit investigation efforts to only those required to accomplish remedial objectives.
- Limit/reduce laboratory analysis to focus on potential contaminants of concern (COCs) and allow for reduction in unnecessary analytical sampling.
- Evaluate opportunities to reuse IDW on-site rather than transport/dispose off-site once characterization and profiling is understood.
- Limit the amount of waste generated and identify destination facilities that are in proximity to the project Site.

Field Mobilization & Operational Efficiency

- Consolidate field mobilizations to combine work tasks on the same or consecutive days where possible.
- Use of local LaBella and subcontractor personnel to conduct investigation activities.
- Limit the need for use of fuel to address cold weather-related conditions.
- Avoid use of oversized equipment and vehicles.
- Limit vehicle and equipment idling during downtime. Vehicles will be shut off when not in use for more than 5 minutes consistent with 6 NYCRR Part 217 Motor Vehicle Emissions, Subpart 217-3 Idling Prohibition for Heavy Duty Vehicles.

Sustainability & Green Practices

- Limit the use of disposable materials, where feasible.
- Employ efforts to minimize stormwater runoff and sediment erosion.
- Store and transmit data and documents electronically where possible.

Additional efforts will be made to incorporate green remediation strategies as the Site progresses through the remedial planning processes.

7.0 HEALTH AND SAFETY PLAN

LaBella's Site-Specific Health and Safety Plan (HASP) for this project is included in Appendix 1.

All contractors working on the Site will be responsible for their own HASP.

8.0 COMMUNITY AIR MONITORING PLAN

The NYSDOH Generic Community Air Monitoring Plan (CAMP) and associated special requirements for work within twenty (20) feet of a building will be utilized for this SC and is included in Appendix 2.

Ground intrusive activities such as drilling and soil handling shall require implementation of the CAMP; however, non-intrusive activities such as groundwater monitoring well development and sampling shall not require implementation of the CAMP.

CAMP logs/reports shall be submitted to NYSDEC/NYSDOH on a weekly basis (at a minimum) when ground-intrusive and soil handling activities are taking place. Additionally, the NYSDEC/NYSDOH shall be notified of monitoring results which exceed the action levels set by the CAMP, including the duration and actions taken in response to any such exceedance. These notifications must be provided to NYSDEC and NYSDOH as soon as possible, within one (1) business day.

8.1 Dust and Vapor Mitigation

All contractors and subcontractors performing ground-intrusive and soil-handling activities are responsible for taking action to reduce and mitigate dust generation and ambient air concentrations of total organic vapors if action levels in the CAMP are exceeded.

CAMP monitoring is conducted to minimize the possibility that field personnel and the surrounding community will be exposed to site contaminants during ground-intrusive activities and any soil handling/disposal activities.

9.0 QUALITY CONTROL

LaBella's Quality Assurance Project Plan (QAPP) is included as Appendix 3. Quality assurance / quality control (QA/QC) sampling shall include the following:

- One (1) blind duplicate sample for each matrix type (i.e., soil, groundwater, and soil vapor) for all investigation-related analytical parameters (i.e., a blind duplicate shall not be collected for waste characterization or remedial analysis parameters (PNOD)).
- One (1) matrix spike / matrix spike duplicate (MS/MSD) for soil and groundwater sample for all investigation-related analytical parameters (i.e., an MS/MSD sample shall not be collected for waste characterization parameters).
- One (1) trip blank will be included in each shipment of groundwater samples for VOC analysis.
- One (1) equipment blank will be included for each shipment of PFAS samples.

Samples will be delivered under Chain of Custody procedures to a NYSDOH ELAP-certified laboratory. The laboratory will provide NYSDEC ASP Category B Deliverables and NYSDEC EQUIS Electronic Data Deliverables (EDDs) for all samples except waste characterization. A data usability summary report (DUSR) will be completed for all ASP Category B format laboratory data packages per DER-10.

The soil sample submitted for PNOD analysis will be handled in accordance with the Submittal Procedure provided by Carus Remediation (refer to the Submittal Procedure included at attachment to the QAPP).

A Table Summarizing Planned Analytical Testing has been included as Appendix 4.

10.0 SCHEDULE AND DELIVERABLES

At the conclusion of the investigation a Site Characterization Report will be developed including investigation methods, logs, field notes, representative photographs, laboratory results, summary of findings, and conclusions. The report will contain data tables with results compared to applicable regulatory criteria and mapping depicting key site features, testing locations, contaminant contours,

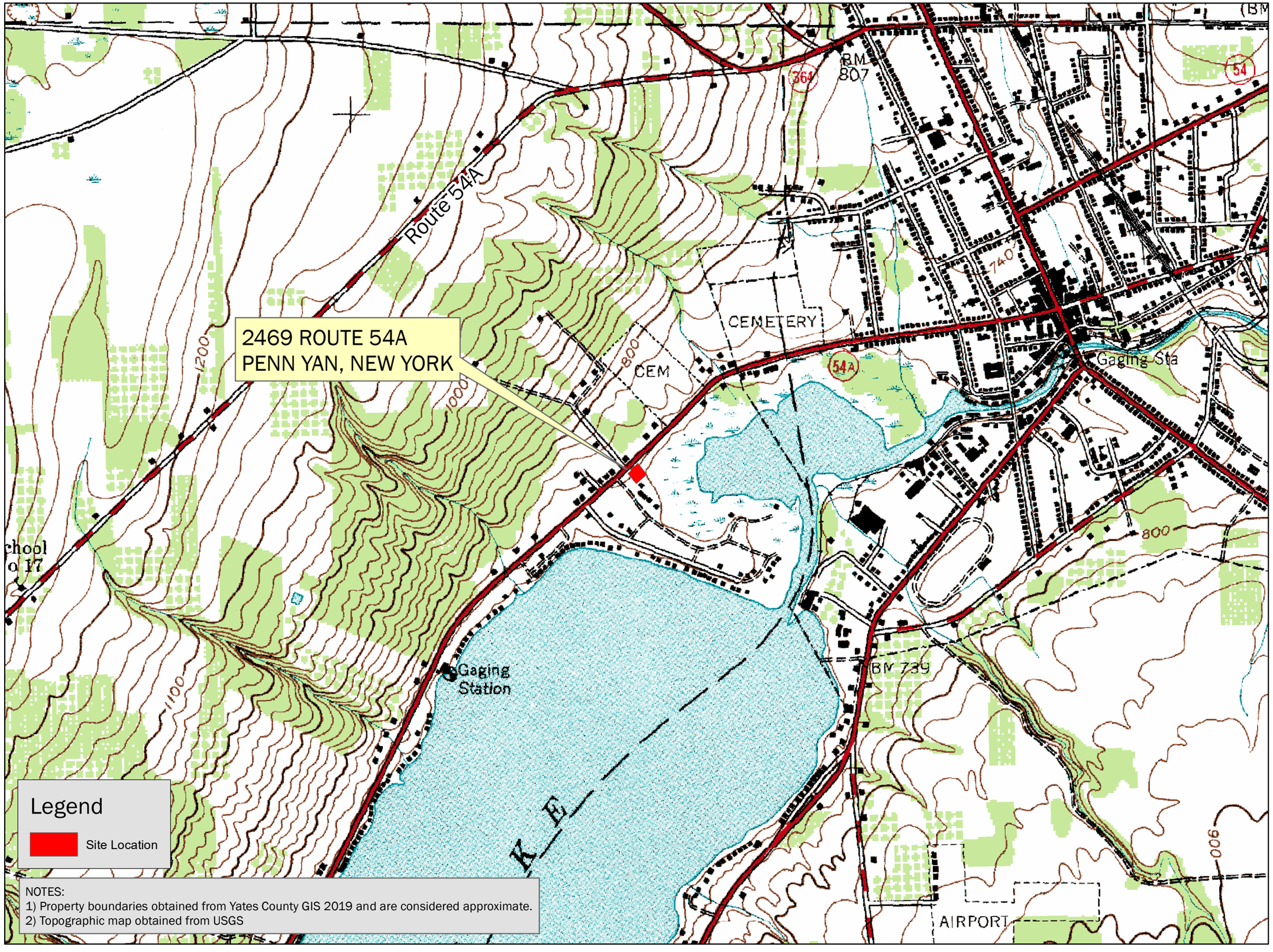
groundwater elevation contours, and areas of the Site that exceed applicable regulatory criteria. The SC Report will also include all IDW disposal records/manifests.

The total project duration is anticipated to be approximately 5 months from approval of the SCWP. An anticipated schedule is below. Exact start dates are unknown at this time and are subject to agency review, contractor availability, and weather. Some tasks may overlap or be performed concurrently, potentially reducing the amount of time required to complete SC activities. The NYSDEC will be notified two (2) weeks prior to the commencement of field activities.

Task	Duration
Public and Private Utility Stakeout, Monitoring Well Redevelopment, and SVI Assessment	4-6 Weeks
Monitoring Well Decommissioning, Overburden Soil Borings/Sampling, Installation of New Groundwater Monitoring Wells, and Groundwater Sampling	6-8 Weeks
Laboratory Analysis and Data Validation	4-6 Weeks
IDW Management and Disposal, Compile and Submit Site Characterization Report	6-10 Weeks

B:\GLOBAL\PROJECTS\K&L CLEANERS\2251236 - ENVIRONMENTAL CONSULTING\11_REPORTS\SCWP\PLAN.862010.2025-10-24.SITE_CHARACTERIZATION_WORK_PLAN.DOCX

FIGURES



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K&L CLEANERS

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Feet
1 inch = 1,000 feet

INTENDED TO PRINT AS: 11" X 17"

SITE CHARACTERIZATION
WORK PLAN
2469 ROUTE 54A
PENN YAN, NY 14527

NYSDEC SITE NO. 862010

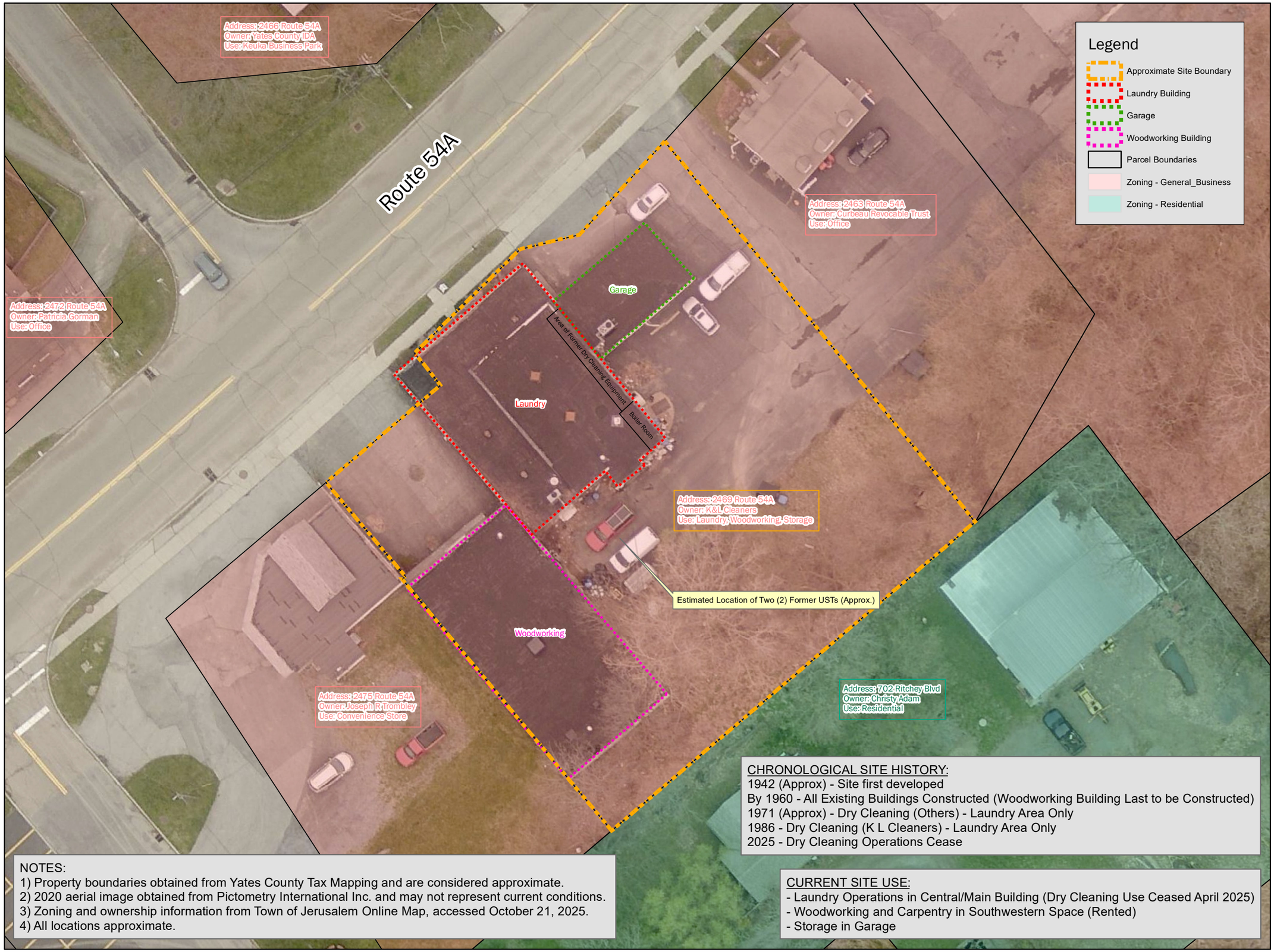
SITE
LOCATION

2251236

FIGURE 1

4/30/2025

B:\GLOBAL\Projects\K&L Cleaners\2251236 - Environmental Consulting\06_Drawings\Environmental\Figure 1 - Site Location.mxd



NOTES:
1) Property boundaries obtained from Yates County Tax Mapping and are considered approximate.
2) 2020 aerial image obtained from Pictometry International Inc. and may not represent current conditions.
3) Zoning and ownership information from Town of Jerusalem Online Map, accessed October 21, 2025.
4) All locations approximate.

CHRONOLOGICAL SITE HISTORY:
1942 (Approx) - Site first developed
By 1960 - All Existing Buildings Constructed (Woodworking Building Last to be Constructed)
1971 (Approx) - Dry Cleaning (Others) - Laundry Area Only
1986 - Dry Cleaning (K L Cleaners) - Laundry Area Only
2025 - Dry Cleaning Operations Cease

CURRENT SITE USE:
- Laundry Operations in Central/Main Building (Dry Cleaning Use Ceased April 2025)
- Woodworking and Carpentry in Southwestern Space (Rented)
- Storage in Garage

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Feet
1 inch = 30 feet

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LOCATION/PROJECT:

SITE CHARACTERIZATION
WORK PLAN
2469 ROUTE 54A
PENN YAN, NY

NYSDEC SITE NO. 862010

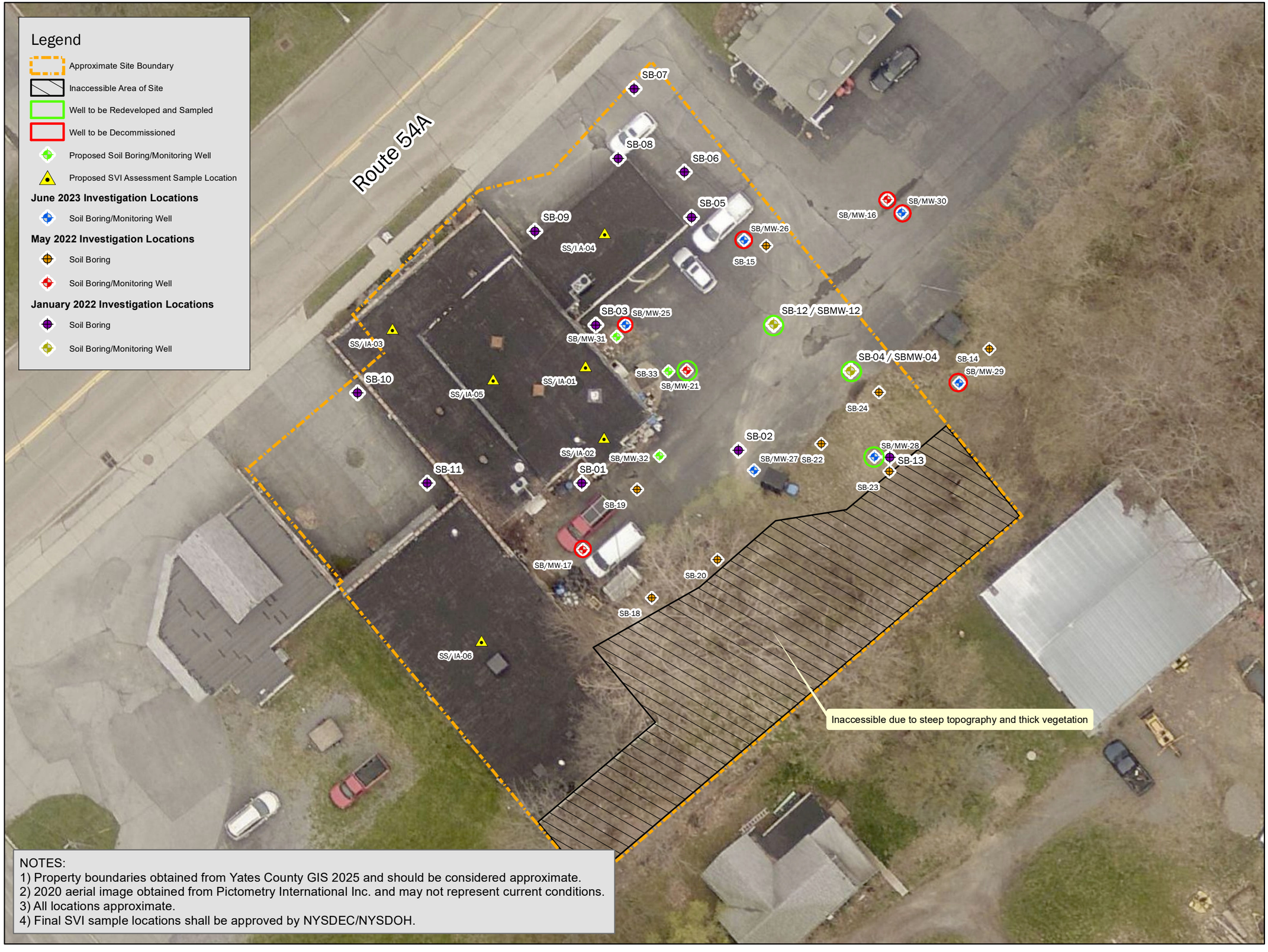
SITE PLAN

2251236

FIGURE 2

10/23/2025

B:\GLOBAL\Projects\K&L Cleaners\2251236 - Environmental Consulting\06_Drawings\Environmental\Figure 2 - Site Plan.mxd



NOTES:
1) Property boundaries obtained from Yates County GIS 2025 and should be considered approximate.
2) 2020 aerial image obtained from Pictometry International Inc. and may not represent current conditions.
3) All locations approximate.
4) Final SVI sample locations shall be approved by NYSDEC/NYSDOH.

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Feet
1 inch = 25 feet

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LOCATION/PROJECT:

SITE CHARACTERIZATION WORK PLAN
2469 ROUTE 54A
PENN YAN, NY

NYSDEC SITE NO. 862010

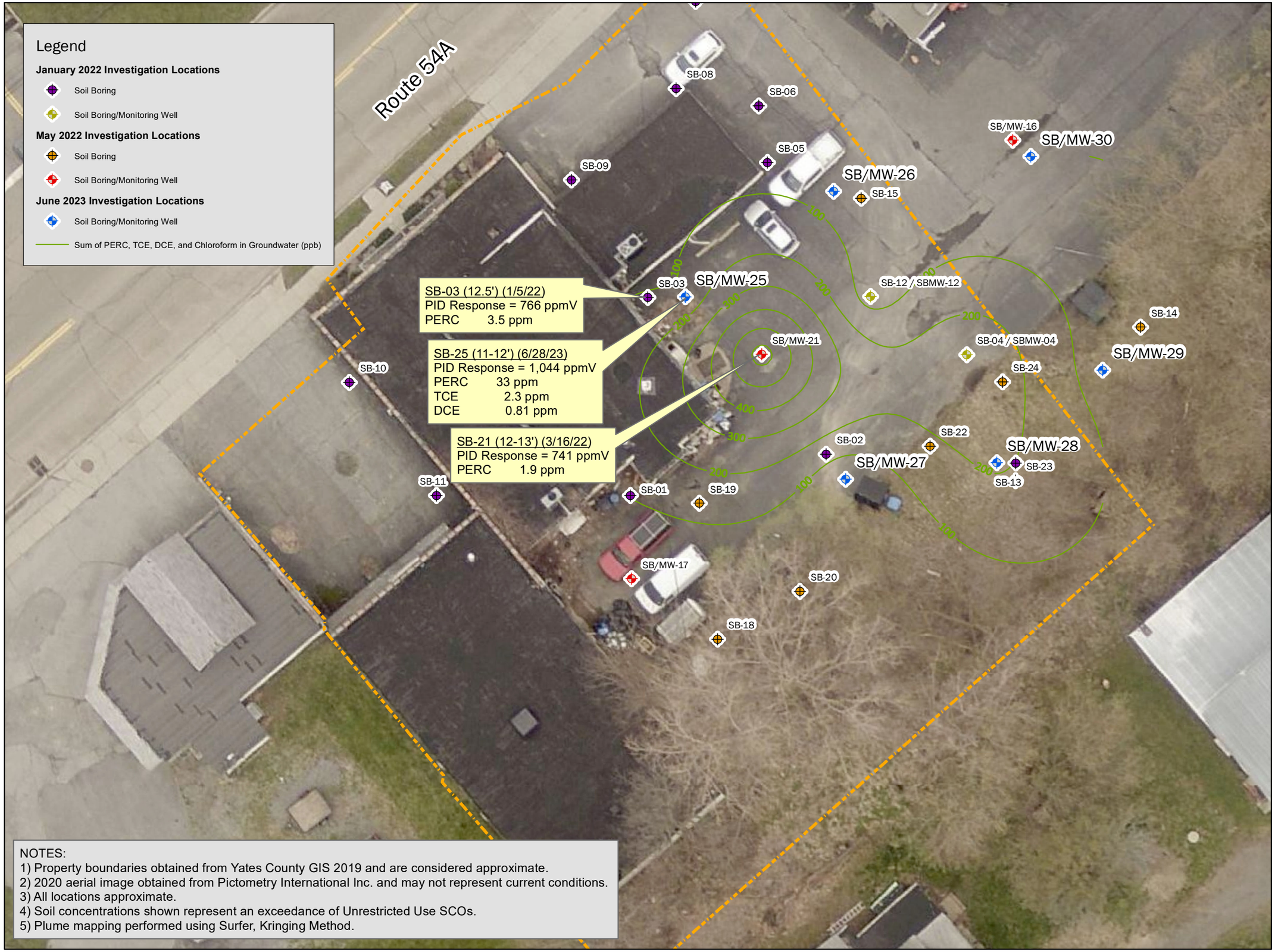
PREVIOUS INVESTIGATION LOCATIONS & PROPOSED TESTING LOCATIONS

2251236

FIGURE 3

10/22/2025

B:\GLOBAL\Projects\K&L Cleaners\2251236 - Environmental Consulting\06_Drawings\Environmental\Figure 3 - Investigation Locations.mxd



Legend

January 2022 Investigation Locations

- Soil Boring
- Soil Boring/Monitoring Well

May 2022 Investigation Locations

- Soil Boring
- Soil Boring/Monitoring Well

June 2023 Investigation Locations

- Soil Boring/Monitoring Well
- Sum of PERC, TCE, DCE, and Chloroform in Groundwater (ppb)

SB-03 (12.5') (1/5/22)
PID Response = 766 ppmV
PERC 3.5 ppm

SB-25 (11-12') (6/28/23)
PID Response = 1,044 ppmV
PERC 33 ppm
TCE 2.3 ppm
DCE 0.81 ppm

SB-21 (12-13') (3/16/22)
PID Response = 741 ppmV
PERC 1.9 ppm

NOTES:
1) Property boundaries obtained from Yates County GIS 2019 and are considered approximate.
2) 2020 aerial image obtained from Pictometry International Inc. and may not represent current conditions.
3) All locations approximate.
4) Soil concentrations shown represent an exceedance of Unrestricted Use SCOs.
5) Plume mapping performed using Surfer, Kringing Method.

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1 inch = 20 feet

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LOCATION/PROJECT:

SUPPLEMENTAL INVESTIGATION
2469 ROUTE 54A
PENN YAN, NY 14527

NYSDEC SPILL NO. 2108932

DRAWING NAME:

SUMMARY OF CONDITIONS (CHLORINATED SOLVENTS)

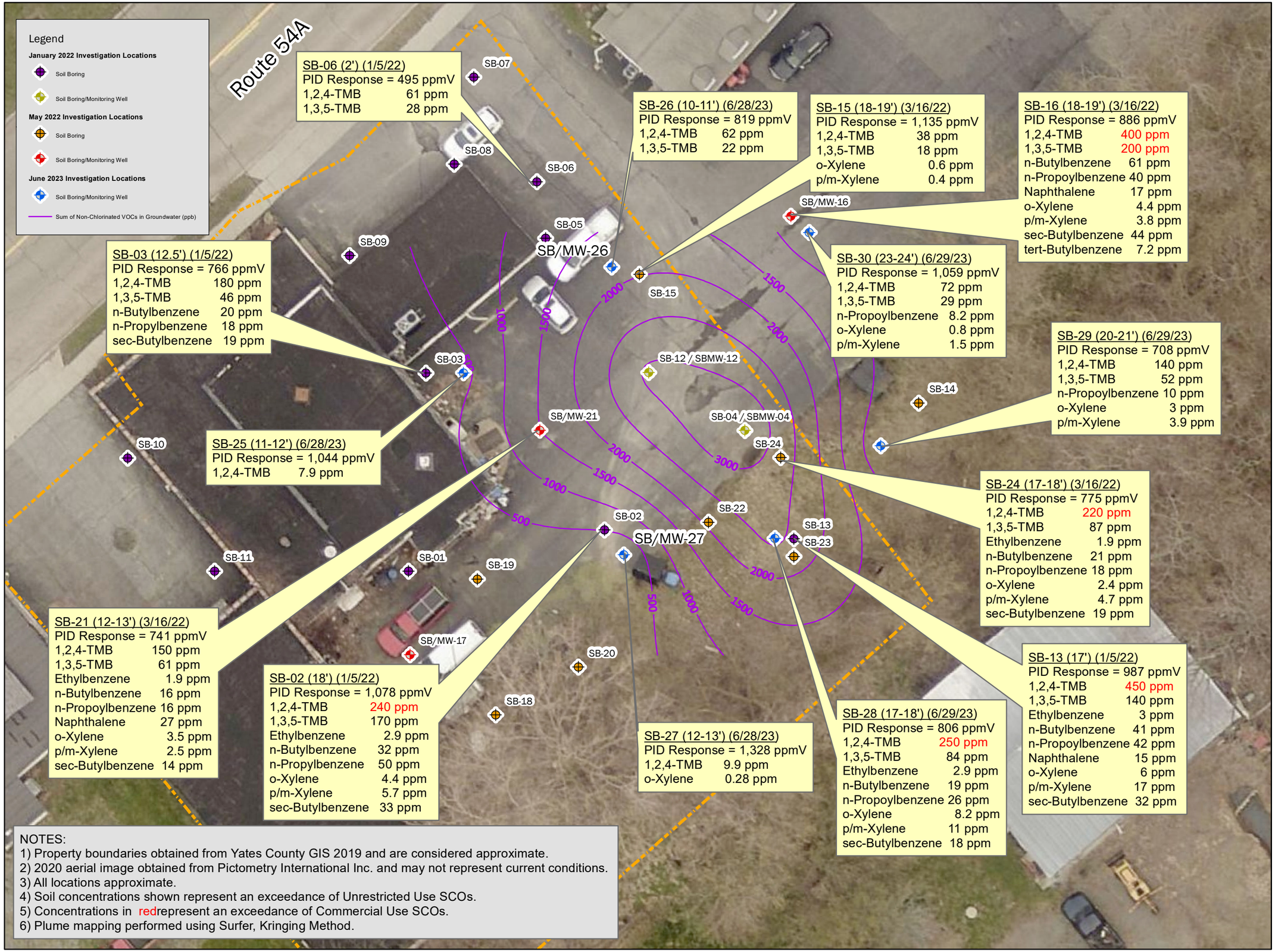
PROJECT #/DRAWING #/ DATE

2232232

FIGURE 4A

8/18/2023

B:\GLOBAL\Projects\K&L Cleaners\2232232 - 2469 Route 54A Supp. Investigation\06_Drawings\Environmental\Figure 4A - Summary of Conditions - Cl.mxd



NOTES:
1) Property boundaries obtained from Yates County GIS 2019 and are considered approximate.
2) 2020 aerial image obtained from Pictometry International Inc. and may not represent current conditions.
3) All locations approximate.
4) Soil concentrations shown represent an exceedance of Unrestricted Use SCOs.
5) Concentrations in redrepresent an exceedance of Commercial Use SCOs.
6) Plume mapping performed using Surfer, Kringing Method.

B:\GLOBAL\Projects\K&L Cleaners\2232232 - 2469 Route 54A Supp. Investigation\06_Drawings\Environmental\Figure 4B - Summary of Conditions - Non-Cl.mxd

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K&L CLEANERS

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1 inch = 20 feet

INTENDED TO PRINT AS: 11" X 17"

LOCATION/PROJECT:

SUPPLEMENTAL INVESTIGATION
2469 ROUTE 54A
PENN YAN, NY 14527

NYSDEC SPILL NO. 2108932

DRAWING NAME:

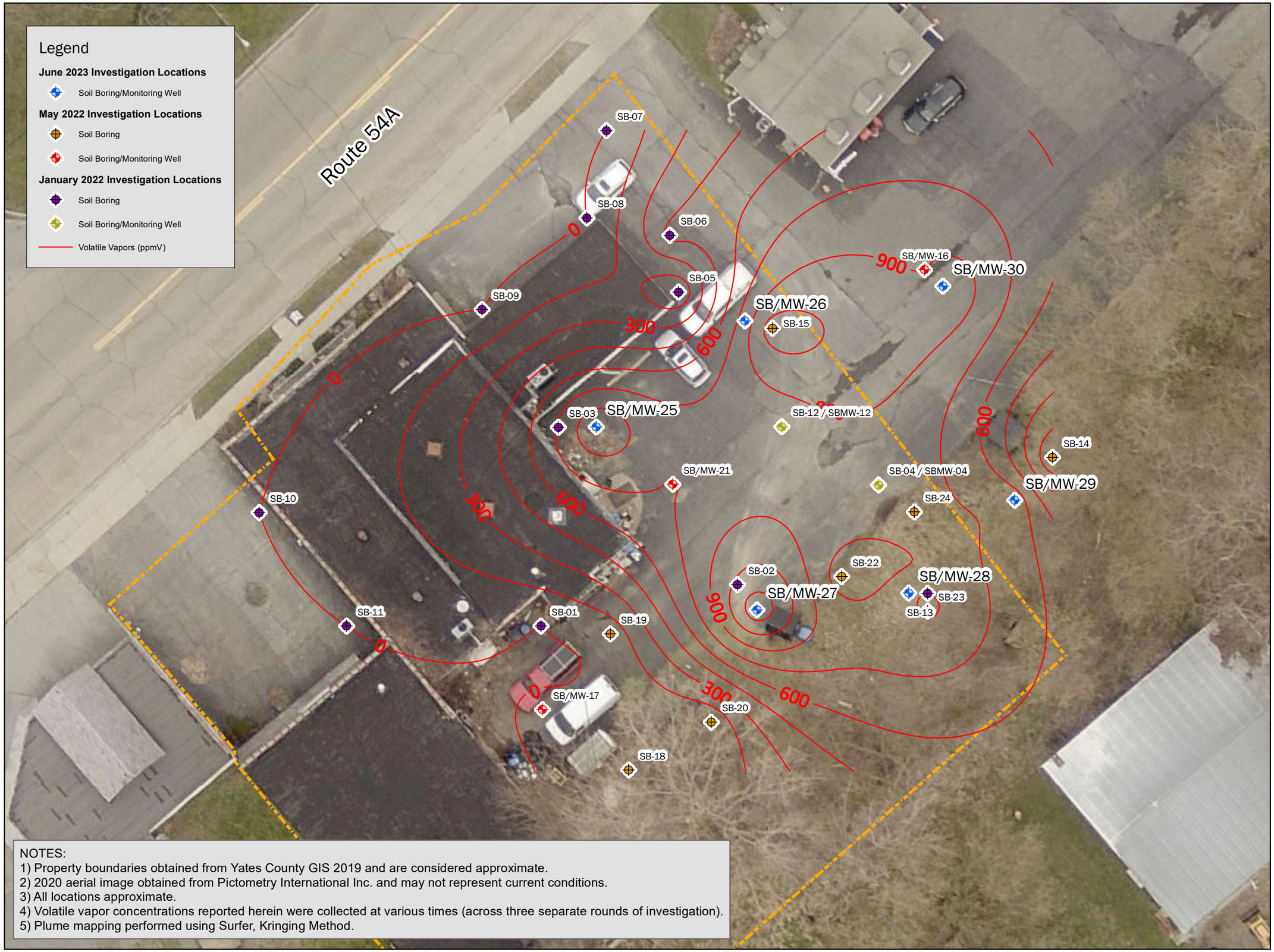
SUMMARY OF CONDITIONS (NON-CHLORINATED VOCS)

PROJECT #/DRAWING #/ DATE

2232232

FIGURE 4B

8/18/2023



NOTES:
1) Property boundaries obtained from Yates County GIS 2019 and are considered approximate.
2) 2020 aerial image obtained from Pictometry International Inc. and may not represent current conditions.
3) All locations approximate.
4) Volatile vapor concentrations reported herein were collected at various times (across three separate rounds of investigation).
5) Plume mapping performed using Surfer, Kringing Method.

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K&L CLEANERS

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1 inch = 20 feet

INTENDED TO PRINT AS: 11" X 17"

LOCATION/PROJECT:

SUPPLEMENTAL
INVESTIGATION
2469 ROUTE 54A
PENN YAN, NY 14527

NYSDEC SPILL NO. 2108932

DRAWING NAME:

SUMMARY OF CONDITIONS
VOLATILE VAPORS

PROJECT #/DRAWING #/ DATE

2232232

FIGURE 4C

8/18/2023

B:\GLOBAL\Projects\K&L Cleaners\2232232 - 2469 Route 54A Supp. Investigation\06_Drawings\Environmental\Figure 4C - Summary of Conditions - PID.mxd

APPENDIX 1

Site-Specific Health and Safety Plan

Site-Specific Health and Safety Plan (HASP)

Project Title:

Site Characterization

Location:

NYSDEC Site No. 862010
2469 Route 54A, Penn Yan (Town of Jerusalem
Yates County, New York 14527

Prepared For:

K&L Cleaners, LTD.

LaBella Project No. 2251236

TABLE OF CONTENTS

ATTACHMENTS

APPENDICES

APPENDIX A - Directions to Medical Facility

APPENDIX B - Task Hazard Analysis Forms

APPENDIX C - Safety Data Sheets

APPENDIX D - Daily Tailgate Safety Meeting Form

APPENDIX E – Silica Exposure Control Plan

0.0 HASP Acknowledgment

All LaBella project personnel, contractors, and subcontractors are required to sign the following agreement prior to conducting work:

1. I have read and fully understand the requirements of this site-specific HASP including my individual responsibilities listed above.

2. I agree to abide by the provisions of the HASP and participate in any health and safety meetings or modifications to the HASP criteria during the implementation of work.

Name	Company	Date

1.0 Introduction

The purpose of this Health and Safety Plan (HASP) is to provide guidelines for responding to potential health and safety issues that may be encountered at the project site, located at 2469 Route 54A, Penn Yan (Town of Jerusalem), Yates County, New York 14527. This HASP only reflects the policies of LaBella Associates D.P.C. and its affiliated company LaBella Environmental, LLC, collectively referred to as "LaBella". The requirements of this HASP are applicable to all approved LaBella personnel, contractors and subcontractors at the work site. This document's project specifications are to be consulted for guidance in preventing and quickly abating any threat to human safety or the environment. The provisions of the HASP do not replace or supersede any federal, state or local regulatory requirements.

2.0 Responsibilities

This HASP presents guidelines to minimize the risk of injury to project personnel, and to provide rapid response in the event of injury. The HASP is applicable only to activities of approved LaBella personnel and their authorized visitors specific to this project. The Project Manager shall implement the provisions of this HASP for the duration of the project. It is the responsibility of LaBella employees to follow the requirements of this HASP, and all applicable company safety procedures.

3.0 Daily Pre-Job Safety Meetings

Prior to the beginning of work each day the Field Supervisor/Foreman or on-site Project Manager will review upcoming daily job requirements, anticipated hazards and hazard control measures with the project team members. At this meeting information such as personal protective equipment, site conditions, emergency procedures, and other applicable topics may be addressed. A copy of the **Daily Pre-Job Safety Tailgate/Toolbox Meeting Form** is attached to this HASP.

4.0 Site Information

Project Name:	Site Characterization – K&L Cleaners NYSDEC Site No. 862010
LaBella Project No.:	2251236
Project Location:	2469 Route 54A, Penn Yan (Town of Jerusalem), Yates County, New York 14527
Current Use of Project Location:	The Site has been utilized as a dry cleaner since 1986.
Uses of Surrounding Areas (Res Vacant Land, Commercial, etc.):	Mixed-use but predominantly commercial area.

Proposed Date(s) of Field Activity - Start:	2025-09-02
Proposed Date(s) of Field Activity - End:	2025-12-12

5.0 Scope of Work

The proposed field work covered under this HASP includes the following:

1. Monitoring Well Decommissioning
2. Monitoring Well Redevelopment
3. Public and Private Utility Stakeout
4. Advancement of overburden soil borings and associated subsurface soil sampling
5. Installation of overburden groundwater monitoring wells and associated groundwater sampling of new and previous wells in suitable condition
6. Soil Vapor Intrusion (SVI) Assessment

6.0 Emergency Information

The personnel and emergency response contacts associated with the proposed scope of work are presented below and are to be posted onsite during all field activities. The Site Safety Officer (SSO) is the primary authority for directing site operations and relaying communications under emergency conditions. During the SSO's absence, the Project Manager or Site Supervisor will lead emergency operations.

Project Personnel		
Contact	**Name**	**Phone**
LaBella Project Manager	Drew Brantner	585-287-9089
LaBella Site Supervisor	TBD	
Corporate Safety Manager	Catherine Monian	845-486-1557
Environmental Division Safety Program Manager	Tim Ruddy	315-440-5125
Site Contact	TBD	
Emergency Personnel including Police and Fire Dept and Ambulance – Dial 911		
Hospital- *see Hospital Route Section below for directions*	Soldiers & Sailors Memorial Hospital	315-531-2000
Poison Control		800-336-6997
NYSDEC Spill Response Hotline		800-457-7362

First Aid

A First Aid Kit will be located in the company vehicle(s) on-site.

The injured person may be transported to a trained medical center for further examination and treatment. The preferred transport method is a professional emergency transportation service; however, if this option is not readily available or would result in excessive delay, other transport is authorized.

Under no circumstances should an injured person transport themselves to a medical facility for treatment, no matter how minor the injury may appear.

Incident Reporting

Employees shall report all incidents and injuries to their supervisor as soon as possible, including those involving employees operating vehicles and other equipment. All reporting procedures contained in LaBella Safety Policy 1.22 must be followed.

During emergencies employees should seek medical care immediately. When contacting their Supervisor/Safety Manager/HR, employees should discuss medical care options. If an employee is asked by medical personnel for a worker's compensation number they should tell them that LaBella should be billed directly.

When emergency medical care is not imminent, employees shall immediately report events to their immediate Supervisor, the Safety Manager and Human Resources, and participate in the investigation process as well as the corrective action process, as needed. An Accident-Incident-Near Miss-Hazard Form must be submitted online or by e-mail to the Supervisor, Safety Manager and HR as soon as possible but no later than 24 hours after the event. The Form can be found on LaBella's intranet under "Operations".

7.0 Potential Health and Safety Hazards and Controls

This section lists potential health and safety hazards that project personnel may encounter at the project site and actions to be implemented by approved personnel to control and reduce the associated risk to health and safety. This is not intended to be a complete listing of any and all potential health and safety hazards. New or different hazards may be encountered as site environmental and site work conditions change. The suggested actions to be taken under this plan are not to be substituted for good judgment on the part of project personnel. At all times, the Site Safety Officer has responsibility for site safety and their instructions must be followed.

Physical Hazards		
Work Action or Condition	**Potential Safety Hazard**	**Controls (including PPE)**
Blades and Sharp Objects	Injury	Blades and Sharp objects are likely to be present on site, presenting risk of physical injury. The following hazard control measures will be applied: • Only use tools designed for the task. Do not improvise. • Inspect the tool before sure; do not use dull or damaged blades. • Carry blades with tip sheathed or pointed down and away from the body. • Cut on a stable surface with sufficient lighting. • Wear appropriate PPE (gloves, safety glasses, etc.).
Drilling Activities	Potential presence of underground or overhead utilities, rotating and moving parts, pinch point hazards, falling objects/debris, high noise levels, ergonomic issues related to lifting heavy drill tooling and supplies (e.g., augers, bags of sand or grout).	• Prior to initiating drilling activities conduct a utility stakeout via the state one call system (e.g., UDig NY). A private utility location service may be required if private utilities may be present. • Ensure safe distance from overhead utilities such as electric, telephone and fiber optic/cable lines. • Wear appropriate PPE and avoid loose clothing or jewelry. • Stay clear of moving parts and know the location of emergency shut-off switches. • Take particular caution when raising/lowering the mast and near rotating augers/drill rods. • Practice safe lifting techniques. • Where possible use winches/cables to lift heavy tooling. • Use team lifting where mechanical lifting is not practical.
Hot Weather & Sun, Other Heat Hazards	Prickly Heat (Heat rash), Heat Cramps, Heat Exhaustion Heat Fatigue, Heat Collapse, Heat Stroke, Sunburn	Environmental heat hazards, whether indoors or outdoors, present physical injury risks. Exercise caution when working in hot temperatures or around hot tar or other materials, hot ovens or other equipment, heat absorbing surfaces such as roofs and roads, and reflective surfaces such as water or metal. The following hazard control measures will be applied: • Have sunscreen available for ultraviolet protection on sunny days. • Have water or electrolyte drinks for dehydration.

		• Check the weather and adjust work schedules if heat is excessive. Work early or later in day. • Perform work during cooler hours of the day or at night if adequate lighting can be provided. • Utilize shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods. • Use cooling devices such as fans and water misters. • Allow workers to take breaks in air-conditioned vehicles.
Power Tools	Injury from improper use Electrical shock and electrocution	• Unplug power tools when not in use. • Do not use a tool if you have not been trained. Inspect tool and cord before use and do not use damaged tools. • Maintain tools in good condition and follow manufacturers' instructions. • Wear gloves, safety glasses and and appropriate PPE /apparel, avoiding loose clothing; secure long hair. • Never remove a safety guard when a tool is being used. • Only plug electric tools into a grounded receptacle with a GFCI. Stop using tool if slight shock or tingling is felt. • Secure work with clamps to have both hands free to use the tool. • Keep power tool cords away from heat, oil and sharp edges. • Tag all damaged tools with "Do Not Use".
Underground Utilities	Damage to utility infrastructure, Electrocution, Explosion	• Utility marking is needed for this project. • Prior to the commencement of ground intrusive activities, underground utilities will be located by a third-party locator. • Workers will not stand within 20-feet of any active excavations or boreholes if not actively working in those areas.

Ergonomic Hazards		
Work Action or Condition	**Potential Safety Hazard**	**Controls (including PPE)**
Noise (Loud, Sustained)	Hearing Damage	• Ear protection will be worn at all times when personnel are within 20-feet of operating equipment or when noise level becomes consistently loud enough to have to raise voice to communicate with someone. • Hearing protection will also be worn in the vicinity of generators, concrete cutters, and any other high noise emitting equipment.

Chemical Hazards (General)		
Work Action or Condition	**Potential Safety Hazard**	**Controls (including PPE)**
Chemical Exposure - Volatile Organic Compounds (VOC)	*Contaminants identified in testing locations at the Site include various volatile organic compounds (VOCs), primarily VOCs associated with Site contamination. Volatile organic vapors may be encountered during subsurface activities at the project work site. Inhalation of high concentrations of volatile organic vapors can cause headache, stupor, drowsiness, confusion and other health effects. Skin contact can cause*	Volatile Organic Compound (VOC) gases may be emitted from a number of materials and products. The presence of organic vapors may be detected by their odor and by monitoring instrumentation and can lead to physical harm. VOC concentrations at this Site are not anticipated to exceed PELs. The following hazard control measures will be applied, however: • Workers should be wearing appropriate PPE, following listed decontamination procedures and be periodically screening the work zone to prevent against and evaluate for unexpected exposures. Refer to the relevant sections of this HASP for more detail regarding PPE, decontamination procedures and work zone screening.

	irritation, chemical burn, or dermatitis. Relevant Safety Data Sheets are included as Appendix 1.	
Sample Collection - Soil or Groundwater	*Exposure to contaminants. Hand injury from cutting, crushing, tool or glass breakage. Back strain from lifting cooler.*	• When collecting samples, workers will utilize nitrile gloves, safety glasses or goggles. If material being sampled potentially contains fill or other sharp material, use a stainless steel spoon (or similar) as a tool to collect the sample. Any such tools should be dedicated or properly decontaminated between samples. • When lifting sample coolers, workers will use proper lifting techniques and get assistance when possible, especially for containers heavier than 50 lbs.

Individual Contaminant Hazards			
Chemical	**OSHA Permissible Exposure Limit (PEL)/ NIOSH Recommended Exposure Limit (REL) or Immediately dangerous to life or health air concentration values (IDLH)**	**Routes of Exposure**	**Symptoms of Overexposure**
Tetrachloroethane (VOC)	**REL: TWA 10 ppm (60 mg/m3) ST 20 ppm (120 mg/m3)**	inhalation, skin absorption, ingestion, skin and/or eye contact	nausea, vomiting, abdominal pain; tremor fingers

8.0 Personal Protective Equipment (PPE)

All site workers will have appropriate training as identified in Section 7.0. Training includes the identification of PPE necessary for various tasks; how to don, doff, adjust, and wear PPE; limitations of PPE; and proper care, inspection, testing, maintenance, useful life, storage, and disposal of the PPE. PPE will be inspected on a regular basis.

Level D: A work uniform affording minimal protection, used for nuisance contamination, only.	• Coveralls or long-sleeves and pants • Gloves • Nitrile sampling gloves (as needed) • Boots/shoes, chemical-resistant steel toe and shank • Safety glasses or chemical splash goggles • Hard hat

9.0 Employee Training

All workers and other personnel shall receive appropriate training prior to engaging in site activities. All workers must recognize and understand the potential hazards to health and safety that are associated with the proposed scope of work and must be thoroughly familiar with programs and procedures contained in this Safety Plan.

The following training levels were determined to be needed:

- OSHA 40 Hour - HAZWOPER

10.0 Exposure Monitoring

Not required during site characterization activities.

11.0 Site Control

No - Contaminant Exclusion or Reduction zone not required or applicable at the site during characterization activities.

12.0 Recordkeeping

An electronic or hardcopy version of this HASP will be present at the Site during all field work activities. Copies of field logs, including daily pre-job safety meeting logs, will be filed by LaBella and available for the duration of the project.

Employees will be able to provide physical or electronic copies of required training certificates.

Incident reporting will be completed in accordance with LaBella policies.

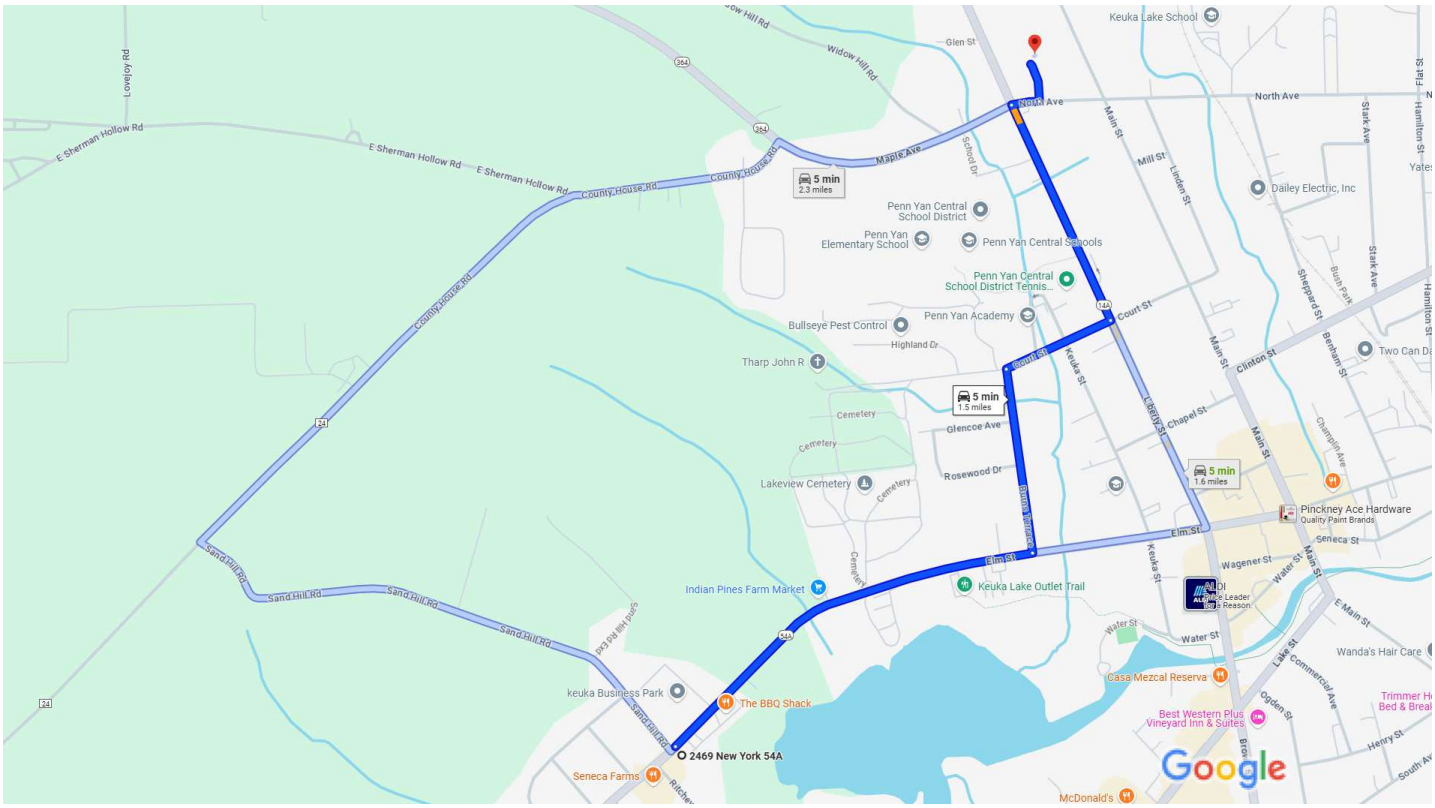
APPENDIX A

Directions to Nearest Medical Facility

Google Maps

2469 NY-54A, Penn Yan, NY 14527 to Soldiers & Sailors Memorial Hospital, 418 N Main St, Penn Yan, NY 14527

Drive 1.5 miles, 5 min



Map data ©2025 500 ft

2469 NY-54A
Penn Yan, NY 14527

1. Head northeast on NY-54A N/W Lake Rd toward Keuka Business Park
   Continue to follow NY-54A N
   0.6 mi
2. Turn left onto Burns Terrace
   0.3 mi
3. Turn right onto Court St
   0.2 mi
4. Turn left onto Liberty St
   0.3 mi
5. Turn right onto North Ave
   217 ft
6. Turn left
   299 ft

Soldiers & Sailors Memorial Hospital
418 N Main St, Penn Yan, NY 14527

APPENDIX B

Task Hazard Analysis Forms

6.02 TASK HAZARD ANALYSIS (THA) FORM

THA Title:		THA ID #:	Date: ☐ New ☐ Revised
Work Activity:		Risk Code (Table Page 2):	Division:
Person Preparing THA:		Person Assisting with THA:	
Sequence of Steps or Activities	Materials, Equipment & Tools Needed	Hazards	Recommended Controls Measures / PPE/ Training
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Risk Assessment Codes (RACs) Likelihood & Severity Classification			
Likelihood of Harm (People, Environment, Facility)	**Severity of Harm/Consequences** (People, Environment, Facility, Supply Chain Disruption, Brand Impact)		
	Slight Harm	**Moderate Harm**	**Extreme Harm**
Very Unlikely	Very low risk	Very low risk	High risk
Unlikely	Very low risk	Medium risk	Very high risk
Likely	Low risk	Medium risk	Very high risk
Very Likely	Low risk	High risk	Very high risk
Definitions			
Likelihood of Harm Categories: -Very Unlikely: Will not occur except in rare instances under certain conditions -Unlikely: Typically would not occur -Likely: May occur on a regular basis -Very Likely: Will occur in most instances	Severity of Harm Categories: -Slight harm: Only first aid required -Moderate harm: Injury or illness resulting in inability to work for a short period of time -Extreme harm: Death or serious injury or illness resulting in inability to work indefinitely		

PREPARATION SIGN OFF			
Role	Name	Signature	Date
Preparer			
Reviewer with Relevant Task Technical Experience or Safety Expertise			
Safety Manager – Needed for High Risk or Very High Risk THAs			

ACKNOWLEDGEMENT IF THA IS USED AS A TRAINING RESOURCE By signing I am indicating that I have read and understand the contents of this Task Hazard Assessment and the controls required to mitigate the risks from identified hazards.			
Name	Signature	Company	Date

APPENDIX C

Safety Data Sheets

Safety Data Sheet Digital Library for Reference

APPENDIX D

Daily Tailgate Safety Meeting Form

6.08 PRE-JOB SAFETY TAILGATE/TOOLBOX MEETING FORM

Date		Time	
Location or Address		Temperature	
Project Number		Humidity	
Conducted by		Conditions	
Were all workers reminded that COVID is still prevalent and that appropriate measures should be taking to prevent infection of themselves and others?			Yes ☐ No ☐

911	**If 911 is unavailable at this location, please state the procedure for reporting emergencies** _____

List Safety Topic of Discussion and/or Any Specific Hazards for the Work Being Performed Today	
1	
2	
3	
4	
5	
6	
7	
List Control Measures for Each Specific Hazard Listed Above	
1	
2	
3	
4	
5	
6	
7	

PLEASE SIGN THE BACK OF THIS SHEET

The presenter and all attendees shall print and sign in the appropriate areas on the back of this sheet

By signing, you declare that you understand the information presented in today's meeting, and that you have had the opportunity to ask questions and to clarify any uncertainty regarding such information.

All Visitors and Contractors Must Print Their Company Name

Name	Signature	Company

APPENDIX E

Silica Exposure Control Plan

6.17 SILICA EXPOSURE CONTROL PLAN

Silica Exposure Control Plans are Required for all Tasks with Potential Exposure to Silica
See LaBella Safety Manual Policy 4.09 and Attachment A - Table 1 of OSHA 1926.1153

Exposure Control Plan Project Information

Person Completing the Plan:	Date:
Location:	Division:
Project Number:	Phase:

Description of Task

Controls

OSHA requires Silica Exposure Control Plans include the following:
- Engineering Controls - Work Practice Controls - Respiratory Protection
- Housekeeping Measures - Procedures Used to Restrict Access to Work Areas

Types of Controls:

Elimination or Substitution Controls:
☐ Other means of demo _____
☐ Different products _____
☐ Other _____

Engineering and Work Practice Controls:
☐ Doing work when concrete is wet _____
☐ Equipment with integrated water delivery _____
☐ Equipment w/ shroud/dust collection system _____
☐ HEPA vacuuming _____
☐ Water or water/surfactant for dust suppression _____
☐ Isolation/Enclosure _____
☐ Heavy equip. operation from enclosed cab _____
☐ Ventilation* _____
☐ Other _____

*When using ventilation, draw air out and don't expose others to exhaust dusts. See Ventilation section, below.

Restricted Access to Work Areas Measures:
☐ Signage _____
☐ Physical Barriers _____
☐ Dust Barriers _____
☐ Other _____

Housekeeping Measures:
☐ Wet mopping/wet sweeping _____
☐ HEPA vacuuming of work area _____
☐ HEPA vacuuming of clothing/coveralls _____
☐ Other _____

6.17 SILICA EXPOSURE CONTROL PLAN

Administrative Controls:

☐ Work schedules/coordination _____
☐ Inspections by competent persons _____
☐ Control points _____

Respiratory Protection and PPE:

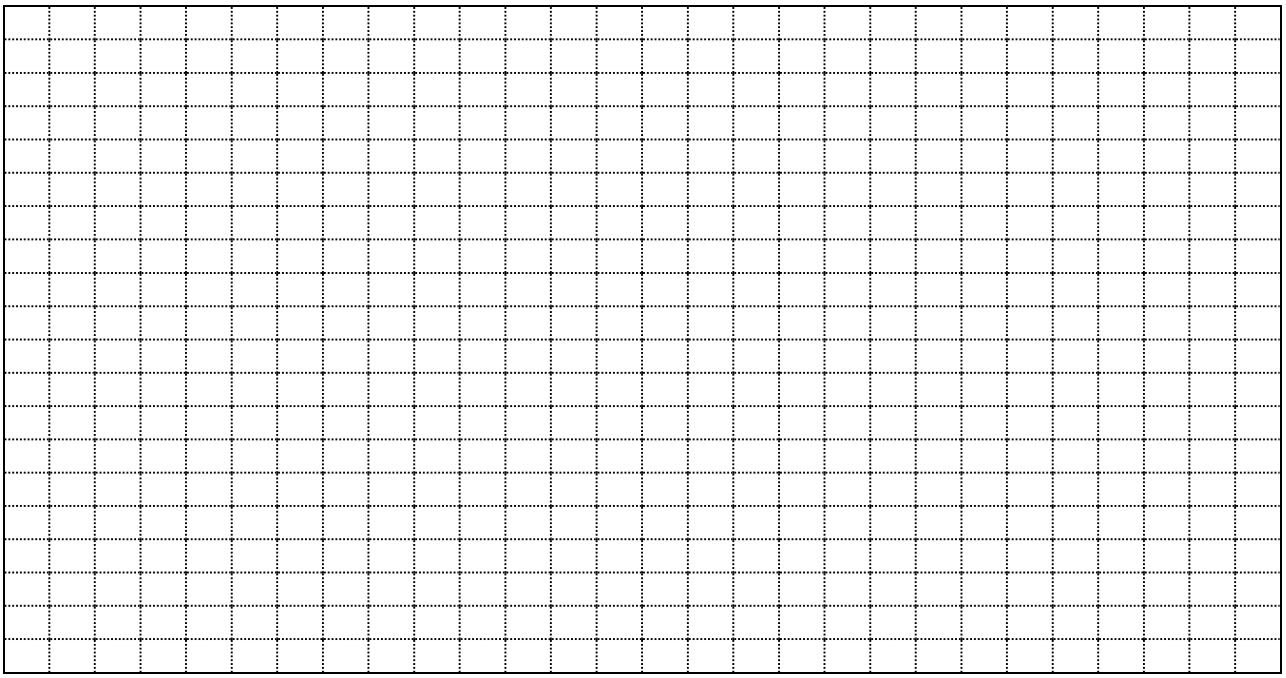
☐ Half face: _____ Cartridge Type: _____
☐ Full face: _____ Cartridge Type: _____
☐ Supplied air units_____
☐ Coveralls: _____ ☐ Other _____
☐ Gloves: _____ ☐ Other _____

Hygiene and Decontamination:

☐ Water or washing facilities on site _____
☐ Vacuuming clothing/self _____
☐ Other _____

Ventilation

Ventilation Plan: Indicate number/location of fans (positive / negative), airflow direction ⇦ makeup air locations, discharge air outlets.



Area of location in building of ventilation plan: _____

Date Plan was posted/reviewed by workers: _____

Ventilation Safety Checklist:

☐ Makeup air free of contaminants
☐ Exhaust fan operation has failure warning
☐ Wetting of materials used to keep dust down
☐ Discharge not affecting others
☐ Dilution fans not stirring up dust
☐ All workers have approved respirators
☐ Workers not placed between contaminants created and exhaust inlet ports

ATTACHMENT

Table 1: Specified Exposure Control Methods When Working With Materials Containing Crystalline Silica

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
1	Stationary masonry saws	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
2a	Handheld power saws (any blade diameter) when used outdoors	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
2b	Handheld power saws (any blade diameter) when used indoors or in an enclosed area	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
3	Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less) for tasks performed outdoors only	• Use saw equipped with commercially available dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.	None	None
4a	Walk-behind saws when used outdoors	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
4b	Walk-behind saws when used indoors or in an enclosed area	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
5	Drivable saws for tasks performed outdoors only	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
6	Rig-mounted core saws or drills	• Use tool equipped with integrated water delivery system that supplies water to cutting surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
7	Handheld and stand-mounted drills (including	• Use drill equipped with commercially available shroud or cowling with dust	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
	impact and rotary hammer drills)	collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. • Use a HEPA-filtered vacuum when cleaning holes.		
8	Dowel drilling rigs for concrete for tasks performed outdoors only	• Use shroud around drill bit with a dust collection system. • Dust collector must have a filter with 99% or greater efficiency and a filter cleaning mechanism. • Use a HEPA-filtered vacuum when cleaning holes.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
9a	Vehicle-mounted drilling rigs for rock and concrete	• Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector.	None	None
9b	Vehicle-mounted drilling rigs for rock and concrete	• Operate from within an enclosed cab and use water for dust suppression on drill bit.	None	None
10a	Jackhammers and handheld powered chipping tools when used outdoors	• Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10b	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	• Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10c	Jackhammers and handheld powered chipping tools when used outdoors	• Use tool equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10d	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	• Use tool equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
11	Handheld grinders for mortar removal (i.e., tuckpointing)	• Use grinder equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	Powered Air-Purifying Respirator (PAPR) with P100 Filters
12a	Handheld grinders for uses other than mortar removal for tasks performed outdoors only	• Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
12b	Handheld grinders for uses other than mortar removal when used outdoors	• Use grinder equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	None	None
12c	Handheld grinders for uses other than mortar removal when used indoors or in an enclosed area	• Use grinder equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
13a	Walk-behind milling machines and floor grinders	• Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
13b	Walk-behind milling machines and floor grinders	• Use machine equipped with dust collection system recommended by the manufacturer. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
		recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. • When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.		
14	Small drivable milling machines (less than half-lane)	• Use a machine equipped with supplemental water sprays designed to suppress dust. • Water must be combined with a surfactant. • Operate and maintain machine to minimize dust emissions.	None	None
15a	Large drivable milling machines (half-lane and larger) for cuts of any depth on asphalt only	• Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. • Operate and maintain machine to minimize dust emissions.	None	None
15b	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	• Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. • Operate and maintain machine to minimize dust emissions.	None	None
15c	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	• Use a machine equipped with supplemental water spray designed to suppress dust. • Water must be combined with a surfactant. • Operate and maintain machine to minimize dust emissions.	None	None
16	Crushing machines	• Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyers, sieves/sizing or vibrating components, and discharge points). • Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions. • Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.	None	None
17a	Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	• Operate equipment from within an enclosed cab.	None	None
17b	Heavy equipment and utility vehicles used to abrade or fracture silica-containing	• When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
	materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	to minimize dust emissions.		
18a	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	• Apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None
18b	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	• When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	None	None

APPENDIX 2

Community Air Monitoring Plan

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

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, particularly if wind direction changes. 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.

1. 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.

2. 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.

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

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

Particulate Monitoring, Response Levels, and Actions

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.

1. 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.

2. 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.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

CAMP Special Requirements

Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures

When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices should be considered to prevent exposures related to the work activities and to control dust and odors. Consideration should be given to implementing the planned activities when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring should occur within the occupied structure(s). Depending upon the nature of contamination, chemical-specific colorimetric tubes of sufficient sensitivity may be necessary for comparing the exposure point concentrations with appropriate pre-determined response levels (response actions should also be pre-determined). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.

- If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 mcg/m^3, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 mcg/m^3 or less at the monitoring point.

- Depending upon the nature of contamination and remedial activities, other parameters (e.g., explosivity, oxygen, hydrogen sulfide, carbon monoxide) may also need to be monitored. Response levels and actions should be pre-determined, as necessary, for each site.

APPENDIX 3

Quality Assurance Project Plan

Quality Assurance Project Plan
K&L Cleaners
NYSDEC Site No. 862010

Location:

2469 Route 54A
Penn Yan (Town of Jerusalem)
Yates County, New York 14527

LaBella Project No. 2251236

August 2025

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300 State Street, Suite 201 | Rochester, NY 14614 | p 585-454-6110 | f 585-454-3066

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Attached LaBella Standard Operating Procedures (SOPs):

Subsurface Soil Sampling
Groundwater Sampling
Equipment Decontamination
SVI and Soil Gas Sampling
Sample Identification and Nomenclature

Attached Submittal Procedure for PNOD Analysis (Carus Remediation)

1.0 INTRODUCTION

LaBella's Quality Assurance Project Plan (QAPP) is an integral part of its approach to environmental investigations. By maintaining a rigorous Quality Control (QC) program, our firm is able to provide accurate and reliable data. This QAPP should be followed during implementation of environmental investigation and remediation projects and should serve as a basis for quality control methods to be implemented during field programs. Project-specific requirements may apply.

The QC program contains procedures which allow for the proper collection and evaluation of data and documents that QC procedures have been followed during field investigations. The QC program presents the methodology and measurement procedures used in collecting quality field data. This methodology includes the proper use of equipment, documentation of sample collection, and sample handling procedures.

Procedures used in the firm's QC program are compatible with federal, state, and local regulations, as well as appropriate professional and technical standards.

This QC program includes the following:

- QC Objectives and Checks
- Field Equipment, Handling, and Calibration
- Sampling and Logging Techniques
- Sample Handling, Packaging, and Shipping
- Laboratory Requirements and Deliverables

It should be noted that project-specific work plans (e.g., Site Characterization or Remedial Investigation Work Plans) may have project specific details that will differ from the procedures in this QC program. In such cases, the project-specific work plan should be followed (subsequent to regulatory approval).

The characteristics of major importance for the assessment of generated data are accuracy, precision, completeness, representativeness, and comparability. Application of these characteristics to specific projects is addressed later in this document. The characteristics are defined below.

1.1 Accuracy

Accuracy is the degree of agreement of a measurement or average of measurements with an accepted reference or "true" value and is a measure of bias in the system.

1.2 Precision

Precision is the degree of mutual agreement among individual measurements of a given parameter.

1.3 Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount expected to be obtained under correct normal conditions.

1.4 Representativeness

Representativeness expresses the degree to which data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition

Careful choice and use of appropriate methods in the field will ensure that samples are representative. This is relatively easy with water or air samples since these components are homogeneously dispersed. In soil and sediment, contaminants are unlikely to be evenly distributed, and thus it is important for the sampler and analyst to exercise good judgment when removing a sample.

1.5 Comparability

Comparability expresses the confidence with which one data set can be compared to another. The data sets may be inter- or intra- laboratory.

2.0 MEASUREMENT OF DATA QUALITY

2.1 Accuracy

Accuracy of a particular analysis is measured by assessing its performance with "known" samples. These "knowns" take the form of EPA standard reference materials, or laboratory prepared solutions of target analytes spiked into a pure water or sample matrix. In the case of gas chromatography (GC) or GC/MS (mass spectrometry) analyses, solutions of surrogate compounds are used. These solutions can be spiked into every sample and are designed to mimic the behavior of target analytes without interfering with their determination.

In each case the recovery of the analyte is measured as a percentage, correcting for analytes known to be present in the original sample if necessary, as in the case of a matrix spike analysis. For EPA supplied known solutions, this recovery is compared to the published data that accompany the solution.

For the firm's prepared solutions, the recovery is compared to EPA-developed data or the firm's historical data as available. For surrogate compounds, recoveries are compared to EPA CLP acceptable recovery tables.

If recoveries do not meet required criteria, then the analytical data for the batch (or, in the case of surrogate compounds, for the individual sample) are considered potentially inaccurate. The analyst or his supervisor must initiate an investigation of the cause of the problem and take corrective action. This can include recalibration of the instrument, reanalysis of the QC sample, reanalysis of the samples in the batch, or flagging the data as suspect if the problems cannot be resolved. For highly contaminated samples, recovery of the matrix spike may depend on sample homogeneity. As a rule, analyses are not corrected for recovery of matrix spike or surrogate compounds.

2.2 Precision

Precision of a particular analysis is measured by assessing its performance with duplicate or replicate samples. Duplicate samples are pairs of samples taken in the field and transported to the

laboratory as distinct samples. Their identity as duplicates is typically not known to the laboratory. For most purposes, precision is determined by the analysis of replicate pairs (i.e., two samples prepared at the laboratory from one original sample). Often in replicate analysis the sample chosen for replication does not contain target analytes so that quantitation of precision is impossible. For EPA CLP analyses, replicate pairs of spiked samples, known as matrix spike/matrix spike duplicate samples, are used for precision studies. This has the advantage that two real positive values for a target analyte can be compared.

Precision is calculated in terms of Relative Percent Difference (RPD).

- Where X_1 and X_2 represent the individual values found for the target analyte in the two replicate analyses or in the matrix spike/matrix spike duplicate analyses.
- RPDs must be compared to the method RPD for the analysis. The analyst or his supervisor must investigate the cause of RPDs outside stated acceptance limits. This may include a visual inspection of the sample for non-homogeneity, analysis of check samples, etc. Follow-up action may include sample reanalysis or flagging of the data as suspect if problems cannot be resolved.
- During the data review and validation process, field duplicate RPDs are assessed as a measure of the total variability of both field sampling and laboratory analysis.

2.3 Completeness

Completeness for each parameter is calculated as follows:

- The firm's target value for completeness for all parameters is 100%. A completeness value of 95% will be considered acceptable. Incomplete results will be reported to the site managers. In planning the field sample collection, the site manager will plan to collect field duplicates from identified critical areas. This procedure should assure 100% completeness for these areas.

2.4 Representativeness

The characteristic of representativeness is not quantifiable. Subjective factors to be taken into account are as follows:

- The degree of homogeneity of a site;
- The degree of homogeneity of a sample taken from one point in a site; and
- The available information on which a sampling plan is based.

To maximize representativeness of results, sampling techniques and sample locations will be carefully chosen so that they provide laboratory samples representative of the site and the specific area. Within the laboratory, precautions are taken to extract from the sample bottle an aliquot representative of the whole sample. This includes premixing the sample and discarding pebbles from soil samples.

2.5 Comparability

Comparability of laboratory tests is ensured by utilizing only New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP)- certified laboratories. This certification is the basis for demonstrating proficiency in testing requirements. Using ELAP certified laboratories will result in consistency amongst analytical data within a specific project and across projects.

3.0 QUALITY CONTROL TARGETS

Target values for detection limit, percent spike recovery and percent "true" value of known check standards, and RPD of duplicates/replicates are included in the QCP, Analytical Procedures. Note that tabulated values are not always attainable. Instances may arise where high sample concentrations, non-homogeneity of samples, or matrix interferences preclude achievement of target detection limits or other quality control criteria. In such instances, the firm will report reasons for deviations from these detection limits or noncompliance with quality control criteria.

4.0 LABELLA STANDARD OPERATING PROCEDURES (SOPs)

Refer to the following LaBella SOPs that are attached and are pertinent to the SCWP:

- Subsurface Soil Sampling
- Groundwater Sampling
- Equipment Decontamination
- SVI and Soil Gas Sampling
- Sample Identification and Nomenclature

5.0 CARUS REMEDIATION - SUBMITTAL PROCEDURE FOR PNOD ANALYSIS

Refer to the Submittal Procedure from Carus Remediation that is attached and is pertinent to the SCWP. The Submittal Procedure details the Permanganate Natural Oxidant Demand (PNOD) analysis of soil.

6.0 DELIVERABLES

This section will describe laboratory requirement and procedures to be followed for laboratory analysis. Samples collected in New York State will be analyzed by a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory. When required, analyses will be conducted in accordance with the most current NYSDEC Analytical Services Protocol (ASP). For example, ASP Category B reports will be completed by the laboratory for samples representing the final delineation of the Remedial Investigation, confirmation samples, samples to determine closure of a system, and correlation samples taken using field testing technologies analyzed by an ELAP-certified laboratory to determine correlation to field results. Data Usability Summary Reports will be completed by a third party for samples requiring ASP Category B format reports. Electronic data deliverables (EDDs) will also be generated by the laboratory in EQUIS format for samples requiring ASP Category B format reports.

NYSDEC DER-10 DUSR requirements are as follows:

a) Background. The Data Usability Summary Report (DUSR) provides a thorough evaluation of analytical data with the primary objective to determine whether or not the data, as presented, meets the site/project specific criteria for data quality and data use.

1. The development of the DUSR must be carried out by an experienced environmental scientists, such as the project Quality Assurance Officer, who is fully capable of conducting a full data validation. The DUSR is developed from:

    i. A DEC ASP Category B Data Deliverable; or
    ii. The *USEPA Contract Laboratory Program National Functional Data Validation Standard Operating Procedures for Data Evaluation and Validation.*

2. The DUSR and the data deliverables package will be reviewed by DER staff. If full third party data validation is found to be necessary (e.g. pending litigation) this can be carried out at a later data on the same data package used for the development of the DUSR.

b) Preparation of a DUSR. The DUSR is developed by reviewing and evaluating the analytical data package. In order for the DUSR to be acceptable, during the course of this review the following questions applicable to the analysis being reviewed must be answered in the affirmative.

    1. Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?
    2. Have all holding times been met?
    3. Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?
    4. Have all of the data been generated using established and agreed upon analytical protocols?
    5. Does an evaluation of the raw data confirm the results provided in the data summary sheets and quality control verification forms?
    6. Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?
    7. Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheets from the data package been attached to the DUSR?

c) Documenting the validation process in the DUSR. Once the data package has been reviewed and the above questions asked and answered the DUSR proceeds to describe the samples and the analytical parameters, including data deficiencies, analytical protocol deviations and quality control problems are identified and their effect on the data is discussed.

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Subsurface Soil Sampling

Standard Operating Procedure

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Revision	*Effective Date*	*Prepared By*	*Description of Changes*	*Affected Pages*
0	01/31/2022	D. Brantner	New Procedure	
1	2/24/2022	K. Truong	Formatting	All

1.0 INTRODUCTION

1.1 Applicability

The purpose of this Standard Operating Procedure (SOP) is to establish uniform procedures for the collection of subsurface soil samples via direct-push methods (i.e., Geoprobe® or similar drilling equipment). Adherence to this SOP will promote consistency in sampling methods and if properly followed will ensure sample representativeness.

1.2 Background

Direct-push sampling involves the hydraulic pushing and/or percussive hammering of a sampling tube into the subsurface. The inside of the sampling tube is generally lined with a sleeve or liner (typically made of acetate, stainless steel, plastic, Teflon, etc.), that encapsulates the soil during the samplers advancement. The sampler typically includes a cutting shoe, and may also include an internal locking piston (or similar device) that seals the sampling tube until it is unlocked at the top of a specific depth to facilitate the collection of soils from a discrete interval. The sampling tube is threaded onto direct-push rods. The rods and tooling are driven into, and subsequently pulled from the subsurface with the hydraulic/percussive direct-push equipment. The direct-push "drill rig" or "rig" may be mounted on wheels so that it can be manually moved by personnel. More typically, however, the rig is track-mounted, attached to a skid-steer, or on the back of a pick-up truck so that it can be easily moved from location to location across a site.

Direct-push sampling methods are generally applicable to unconsolidated soil/fill materials to a maximum recommended depth of approximately thirty (30) feet below ground surface (bgs). Soils may be obtained using this method for visual classification, field screening for contamination, as well as for physical and/or chemical analysis. Sampling is continuous throughout the length of the boring.

The ability to drive the sample tooling to a desired depth (as well as the ability to retrieve the sampling device from the subsurface) depends on the density and composition of the soil and the power of the hydraulic equipment. Additionally, sample recovery is somewhat dependent on grain size and density. Coarse gravel, cobbles, and boulders may plug a small diameter sample tube, preventing material from entering, or may cause refusal of the tooling altogether.

Soil types that might be encountered and background site information (accessibility, surface conditions, etc.) should be considered to decide whether direct-push methods are appropriate for a site, and to determine the specific tooling best suited for subsurface characterization.

It is noted that specific state and/or federal agencies may maintain specific guidelines and procedures that require deviation from this SOP. Such deviation should be identified prior to sampling (ideally during the work plan/sampling plan development) and should be explained in the project-specific work plan/sampling plan, when applicable.

2.0 RESPONSIBILITIES

2.1 Drilling Contractor

Direct-push drilling / sampling is an intrusive subsurface exploration method. By law, the clearance of underground utilities must be performed prior to the initiation of any intrusive subsurface activities. The drilling contractor performing the direct-push activities are responsible for notifying *Dig Safely New York* prior to initiating drilling / sampling activities.

Safety is of critical importance when working with and around hydraulics, drill rigs / drilling equipment, heavy machinery, etc. The drill contractor / crew must be aware of the safety requirements of working with and around such equipment. Prior to the start of a project, the drill crew should conduct a tailgate meeting / toolbox talk to ensure safe completion of activities.

The drilling contractor is responsible for providing the necessary equipment for obtaining subsurface soil samples. This generally includes the track-mounted, truck-mounted, or ATV-mounted Geoprobe® (or similar percussion/probing rig) and one or more sampling tubes (multiple diameters) in good operating condition, appropriate liners, and other necessary equipment for borehole preparation and sampling. Equipment decontamination materials should also be provided by the drilling contractor and should meet project specifications. Finally, materials for cleanup are required (i.e., sand, bentonite, asphalt cold-patch, brooms, etc.)

2.2 Project Manager

Typically, the Project Manager prepared the scope of work, work plan, and/or sampling plan (including the project proposal). The Project Manager must fully understand all elements of the applicable project documents and provide / communicate project-specific pertinent information to the Drilling Contractor and Project Geologist / Scientist (i.e., number and location of proposed sampling locations, analytical requirements, etc.).

The Project Manager is responsible for coordinating appropriate site access with applicable parties (property owner, tenant(s), client, etc.) and scheduling appropriate access and field activities with the Drilling Contractor and Project Geologist / Scientist. **The Project Manager should reconfirm the Drilling Contractor made the *Dig Safely New York* notification.** The Project Manager should also communicate specific safety concerns / requirements and Task Hazard Analysis (THA) forms.

Open and clear communication between the Project Manager, Drilling Contractor, Project Geologist / Scientist, and Client is a key component of the successful completion of direct-push / subsurface soil sampling projects. The Project Manager is responsible for maintaining these lines of communication.

2.3 Project Geologist / Scientist

The Project Geologist / Scientist is responsible for conducting subsurface soil sampling in a manner consistent with this SOP. The Project Geologist / Scientist will observe all sampling activities to ensure that the SOP is properly followed and record all pertinent data and information on appropriate forms, logs and/or in the project field notebook. Data recording may also include photo documentation.

It is the Project Geologist / Scientist's responsibility to review and understand the project work plan / sampling plan, and to communicate pertinent elements of the plan to the drilling contractor during activities. The Project Geologist / Scientist should be able to indicate the specific targeted sampling depth or sampling interval to the drilling contractor on-site. **The Project Geologist / Scientist should reconfirm the Drilling Contractor made the *Dig Safely New York* notification.** The Project Geologist / Scientist should also confirm the Drilling Contractor conducted an appropriate on-site tailgate meeting / toolbox talk prior to the initiation of work activities, and sign-off that such meeting occurred on the Contractor's form.

The Project Geologist / Scientist is also responsible for the collection of representative soil samples once the sampling device has been retrieved from the subsurface, disassembled, and liner removed. Additional sample collection responsibilities include labeling, handling, and storage of samples using standard chain-of-custody procedures.

3.0 EQUIPMENT/MATERIALS

In addition to the equipment and materials provided by the drilling contractor, materials to be furnished by LaBella field personnel (i.e., the Project Geologist / Scientist) typically include the following:

- Project-specific documents (proposal / scope of work, Health and Safety Plan (HASP), QAPP, Sampling Plan, etc.)
- Boring logs, field notebook
- Personal Protective Equipment (PPE) (as required by applicable HASP, Work Plan, Task Hazard Analysis Form, or Toolbox Talk)
    - Typical PPE required includes Hi-Visibility Safety Vest, Steel-Toe Boots, Safety Glasses, Hard Hat, Hearing Protection, work gloves, and Nitrile Gloves.
- Stainless steel spoons, collection / mixing pans, etc.
- Ziploc-type bags
- Sampling supplies (jars, labels, chain-of-custody records, tape, cooler)
- Ice (for sample preservation)
- Tape measure
- Field screening equipment (i.e., Photoionization Detector (PID), etc.)
- Phone / Camera
- GPS

4.0 PROCEDURES

4.1 General

Site-specific characteristics and project-specific requirements such as sampling depth will dictate the preferred type of sampling equipment to be used. In addition, the analytical program requirements will define the volume of sample needed, which will also influence the selection of the appropriate sampling equipment (i.e., sampling for semi-volatile organic compounds requires a larger soil volume and thus may require a wider diameter sample core than that necessary for volatile organic compound sampling via terracore). The project work plan / sampling plan should define specific requirements and equipment required for the given site. Sampling personnel should be equipped with a variety of sampling equipment to address deviations from anticipated sampling situations, including extra sample jars / containers in case of loss, damage, inadvertent contamination, or change in scope.

4.2 Equipment Decontamination

Sample tooling and components that may come in contact with soil must be decontaminated prior to their initial use and following the collection of each sample. Site specific decontamination might also be outlined in the sampling / work plan. If site-specific decontamination procedures are not stipulated, the procedures described in LaBella SOP – Equipment Decontamination, shall be followed. *Note: the level of decontamination will depend on whether soils are being sampled for laboratory analysis, field screening, or simply for visual classification.*

4.3 Typical Direct-Push Sampling Procedure

1. Don required PPE.
2. Decontaminate sample tooling and components that may encounter soil during sampling.
3. Drilling contractor / crew prepares the surface for direct-push sampling. Direct-push tooling can generally penetrate several inches of asphalt and/or crushed stone surface materials. If several inches of concrete are present at the location, core-drilling or another method of coring the concrete would be necessary to penetrate the surface pavement.
4. Drill contractor / crew assembles the sampling tube including the liner, discrete sample tooling (if appropriate), etc.
5. The direct-push rig operator will thread a push/drive cap on the top of the device and advance the sample tube into the ground.
6. The direct-push rig operator removes the push/drive cap, replaces it with a pull-cap, and pulls the sampler from the ground with the machine hydraulics.
7. The sample tube is then opened, to allow the soil-filled liner to be removed so that it can be cut open to allow for soil logging, field-screening, sampling for laboratory analysis, etc.
8. The sampling tube and components that contact soil during the sampling process are decontaminated, re-assembled, a new disposable liner inserted, and the process is repeated. The advancement of the sampling tube to depth is achieved through the addition of drive-rods, each of which is typically the same length as the sampling tube (commonly 3, 4, or 5 feet in length).
9. Upon completion of activities, the borehole is backfilled with soil cuttings, sand, and/or granular bentonite, or is completed as a piezometer or monitoring well.

4.4 Exposing Soils for Characterization and/or Sampling for Laboratory Analysis

Upon extraction of the liner from the direct-push sampling tube, the liner must be opened so as to expose the soils for visual classification/description, field screening, and/or sampling for laboratory analysis. This is preferably accomplished through the use of a liner cutting system, typically comprising a liner holder, and a liner cutter. The liner holder is a trough-like device that holds the liner securely in place so that it can be cut open.

The liner cutter is a tool affixed with two parallel hook-shaped blades that is drawn along the liner to cut a lengthwise opening in the liner for easy access and viewing of the sampled material. Liner cutters come in one-handle and two-handle varieties.

1. Place the soil-filled liner into the soil holder. Be sure that the liner holder is placed on a solid surface such as a sturdy work table, tailgate, etc.
2. Install the liner in the liner holder. Adjust the stop on the liner holder to secure the liner tightly in the holder.
3. Wearing leather work gloves, grasp the cutter by the handle(s) (avoid accidental contact with the blades) and place the cutter on the liner. The liner holder will usually have a bent bar that secures the liner in place, which provides resistance against the draw of the liner cutter. Begin the cut at the end of the liner opposite this bar. Be sure that blades are positioned just beyond the end of the liner to initiate the cut.
4. With slight downward pressure on the cutter, draw the cutter slowly and smoothly along the liner. If excessive force is required to open the liner, the cutter blades may be dull and should be replaced.
5. When the cutter has been drawn the entire length of the liner, the cut section of the liner may be removed to access the sampled material.

The equipment described above is standard practice for most drilling contractors and is recommended by this SOP. Alternate methods of cutting sample liners open (i.e., holding a liner with one hand and using a hook-blade utility knife with the other to open the liner) can result in severe cuts and nasty infections, and their use should be avoided whenever possible. If the use of a hook-blade is necessary, don cut-resistant work gloves and use exceptional caution by cutting away from you and others.

4.5 Screening and Sampling Soils for Environmental Laboratory Analysis

Target locations, depths, and/or intervals to be sampled are typically specified in the work plan or sampling plan, although they are sometimes subject to the findings of field screening/characterization and/or the discretion of the Project Geologist / Scientist. If the sampling program includes laboratory analysis for volatile organic compounds (VOCs), the VOC sampling shall be performed before any other activity (see *Volatile Organic Samples*, below).

Once the liner has been opened, the soils contained within can be sampled for laboratory analysis and classified. Materials from the liner can be removed using clean decontaminated/disposable spoons, etc. Except for soils to be sampled for volatile organic compound analysis (see below), the soils should be placed into a sample collection pan and homogenized or placed directly into the appropriate sample container(s). Note that samples for VOCs and PFAS are almost always to be collected as “grab” samples, while samples for other parameters (such as SVOCs, metals, etc.) may be collected as “grab” or “composite” samples. Grab samples are collected from a specific and discrete location, while Composite samples are generally collected from 3- to 5- locations and mixed into one sample jar(s).

Once filled, the sample container(s) should be properly capped, cleaned and labeled, and placed into a cooler with ice in preparation for delivery to the laboratory. Log the samples in field notebook, chain of custody and other required documentation. Handle samples for shipment to the laboratory in accordance with LaBella Sample Packaging, and Shipping.

If more soil is needed to meet sample volume requirements, additional soil cores may be collected from an immediately adjacent location. Decontaminate sampling tools prior to reuse.

4.5.1 Volatile Organic Samples

In order to minimize the loss of VOCs during the sampling process, VOC samples should be collected into laboratory-supplied glassware as soon as possible after retrieving the sampler from the subsurface. Other tasks (classification, sampling for other parameters, field-screening, equipment decontamination, etc.) should either be performed by others, or be completed after collecting samples for VOC analysis.

Upon filling the sample container, clean and label the container and place it into a cooler immediately. Residual sample may then be used to meet other sample quantity requirements.

When using direct-push methods for collecting soil samples for VOC analysis, the drilling contractor should not retrieve more than one subsequent sampler from the subsurface while the Project Geologist / Scientist collects samples from a previous interval.

4.5.2 Per- and Polyfluoroalkyl Substances (PFAS) Samples

Because PFAS can be present in a variety of common materials, the required detection limits are extraordinarily small (parts per trillion), and PFAS is considered an Emerging Contaminant (EC) by the NYSDEC, special sampling precautions are necessary when collecting soil samples for analysis of PFAS. A sample collected for PFAS analysis should be collected first (before collecting samples to be analyzed for other parameters), is required to be collected into specific laboratory-supplied bottleware, and should collected according to the NYSDEC's *Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances Under NYSDEC's Pat 275 Remedial Programs – June 2021*, found online at:
https://www.dec.ny.gov/docs/remediation_hudson_pdf/pfassampanaly.pdf

4.6 Soil Classification

Soils should be visually classified using the Modified Burmeister Soil Classification System, unless alternate methods are required by project specifications. Refer to the Soil Identification and Description SOP.

4.7 Ground Surface Restoration at the Boring / Sampling Location

Upon completion of sampling activities, backfill the sampling / borehole location and restore the surface to as close to pre-sampling conditions as possible to eliminate surface hazards (i.e., trip hazards) or preferred path for contaminant migration (unless the borehole is intended to be outfitted with a groundwater monitoring well). The sampling / work plan may specify requirements for backfilling and surface restoration, and/or locations that require finishing as a groundwater monitoring well.

4.8 Field Screening Equipment / Procedures

Photoionization Detectors (PID)

When conducting soil sampling, the most commonly used field instrument is the PID. The PID allows for the rapid detection of VOCs while conducting work in the field or at any given site. Specific operating instructions for using and handling the PID are documented in the Owner's Manual that accompanies the instrument; however, it is useful to also be aware of the following items regarding proper use and handling of the PID for obtaining accurate field-screening data, and how to interpret the data collected from a PID:

- PIDs should be routinely calibrated per manufacturer's recommendations and the requirements of any project-specific work plans.
- In most outdoor environments, a properly calibrated PID will read 0.0 ppmV when on and reading the "open-air". If the PID is not reading 0.0 and you suspect it should be (i.e., that there are not any nearby sources of VOCs), this is an indication that the instrument requires calibration.
- Protect the PID from excess moisture. Moisture or high-humidity environments can damage the sensor and cause inaccurate readings.
- Whenever possible, use a "pre-filter" on the end of the PID's nozzle so that soil / debris does not enter and damage the inner components of the instrument. Keep the pre-filter clear of obstruction and replace as-needed to ensure accurate readings.
- Make sure that the PID is fully charged prior to bringing it to the project site. Not all batteries will last a full 8-hour shift, especially if they are not fully charged. The use of 4-AA alkaline battery packs with certain PIDs is appropriate as a temporary fix, but should not be relied upon for typical routine /everyday use.
- PIDs are expensive and should be handled with care. Do not leave PIDs unattended for extended periods of time, or in the vicinity of other contractors or activities that could result in damage to the instrument.
- When screening soil with a PID, there two primary methods of collecting data: "open air" and "headspace".
- Open air readings are collected by pointing the inlet nozzle of the PID <1" from the exposed soil targeted for screening. Point the PID at the soil immediately after exposing a 'fresh' surface (i.e., Dig into the soil and then use the PID. Do not use the PID on soil that has been exposed to the open air for an extended period of time as most VOCs will have already dissipated once exposed to the open air).
- "Headspace" readings are obtained by collecting freshly exposed soil directly into a sealed jar or Ziploc bag, then allowing the soil to be exposed to sunlight and heat to 'volatize' potential VOCs. The headspace reading is collected by inserting the PID nozzle into the jar or bag after an approximately 1 – 5 minute period of being allowed to volatize. *<u>NOTE:</u> soil used to collect a headspace reading should not be used for laboratory analysis. Collect a fresh soil sample for lab analysis of VOCs.*

5.0 DOCUMENTATION

Documentation of sample collection, handling and shipping is required, and takes a variety of forms including:

- Field Log Book
- Soil Boring Logs
- Sample Collection Records
- Sample Container Labels
- Chain-of-Custody Forms
- Shipping Labels

The field log book will be maintained as an overall log of all samples collected during a project. Sample collection records are generated for each sample collected during a project and must include:

- Project Number and Location / Address
- Sampling point location / ID
- Date and time that sample was collected
- Name of collector
- Equipment used to collect the sample (when applicable)
- Number of sample containers, sizes, preservatives
- Specific Sample ID
- Depth
- Soil type (when applicable)
- Analysis Requested
- Shipping ID Number/Tracking ID Number (when applicable)

Soil boring logs provide visual and descriptive information for each sample collected and are often the most critical form of documentation generated during a direct-push / subsurface soil sampling program. The field log book is kept as a general log of activities and should not be used in place of the boring log. Occasionally, sample collection records are used to supplement boring logs, especially for environmental samples which have been collected for laboratory analysis.

Chain-of-custody forms are transmitted with the samples to the laboratory for sample tracking purposes. These may be LaBella-specific or be provided by the laboratory providing analytical services for the project. Shipping labels are required if sample coolers are to be transported to the laboratory by a third-party (courier service). Original and/or copies of these documents must be retained in the appropriate project files.

6.0 TRAINING AND QUALIFICATIONS

Direct-push / subsurface soil sampling is a moderately complex task requiring some general training and experience that is usually earned by shadowing and assisting experienced field staff. Individuals conducting direct-push / subsurface soil sampling for the first time will be supervised/assisted by experienced personnel. Personnel collecting samples that might contain petroleum compounds, heavy metals, or other potentially hazardous materials will be trained and certified in accordance with the requirements of 29 CFR 1910.120 (OSHA's HAZWOPER standard).

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Groundwater Sampling

Standard Operating Procedure

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1.0 GROUNDWATER SAMPLING

Groundwater sampling is typically conducted following monitoring well development and/or purging, depending on whether the well to be sampled is newly constructed or previously existing at the Site. Newly constructed monitoring wells are typically developed prior to purging and sampling. If there are existing wells at a Site that haven't been sampled in a long period of time, well development may be completed prior to purging and sampling, at the discretion of the Project Manager. The groundwater in newly installed monitoring wells will be allowed to stabilize for at least 24-hours following development, or as specified in the site-specific work plan prior to purging and sampling. Section 1.1 below describes well development activities.

Prior to initiating purging and sampling activities at each well, the static water level will be measured to the nearest 0.01 of a foot using a water level meter and recorded in the field notes. It is best to collect and record water level measurements from all wells on a Site on the same day to help generate accurate groundwater contouring data and avoid groundwater elevation fluctuation resulting from weather events and seasonal changes.

Groundwater sample collection is typically accomplished using either active or passive sampling techniques, as described in Section 1.2 and below:

1.1 Active Purging and Sampling:

Active purging and sampling includes the use of well pumping equipment and/or bailers to evacuate groundwater from the well by one of the following three (3) methods:

- Low Stress (low-flow) Purging and Sampling Procedure For the Collection of Groundwater Samples From Monitoring Wells (US EPA Region 1 EQASOP-GW4); this is typically conducted using a submersible bladder pump
- Modified low-flow purging and sampling by use of a peristaltic pump
- Purging and Sampling by Disposable Bailer (LDPE or HDPE)

1.2 Passive Sampling:

Passive sampling is typically conducted using the following equipment:

- Passive Diffusion Bag (PDB); purging is not required prior to sample collection.

1.3 Drinking Water Wells or Private Wells:

Drinking Water Wells and/or Private Wells require an additional procedure than Active Purging and Sampling of Monitoring Wells (Section 1.1):

- All intrusive groundwater equipment needs to be disinfected using at least a **10% bleach solution** to ensure there is no transfer of bacteria or viruses into the wells.

2.0 WELL DEVELOPMENT

Well development refers to the removal of fine-grained sediment that has settled out of solution inside a monitoring well casing during well installation, and to the extent possible, evacuating drilling fluids used to install the well (i.e. recirculation water used during bedrock coring or roller-bitting). Well development should be performed on newly installed monitoring wells and existing wells that haven't been purged or developed in a significant period of time, as specified in the Site-specific work plan.

Accumulated sediment that is not removed from inside a well can negatively influence groundwater sample analysis. Removing sediment and drilling fluids prior to purging and sampling helps ensure that the sample quality is most representative of groundwater aquifer conditions. If a newly installed well has been completed with grout, development should not occur until 24 hours after grouting has taken place.

Well development is typically accomplished using a pump, bailer, or surge block to remove accumulated sediments and to clean the pore spaces in the sand pack. It is generally not possible to over-develop a well. The more it is developed, the more representative of your sample will be. No dispersing agents, acids, disinfectants, or other additives will be used during development or introduced into the well at any time.

It is noted that if the well is to be sampled for PFAS, do not introduce any non-PFAS free equipment into the well at any time, including pumps, tubing, bailers, twine or water level meters.

General Procedure for Well Development

1) Regardless of what equipment is used for development, it should be lowered to the bottom of the well and surged up and down to help get sediment that has accumulated in the well into solution so that it can be evacuated from the well.

2) Aggressively surge the well for a few minutes and then evacuate the well using a pump (i.e. whale pump or other submersible pump designed to pump sediment) or bailer.

3) Development should continue until:
    - removal of 110% of the water lost during drilling is accomplished (i.e. water used during coring),
    - at least three (3) to five (5) well volumes are removed,
    - the hard PVC cap at the bottom of the well screen can be felt with the equipment being used for development and/or a water level meter,
    - or as specified in the Site-specific work plan or by the Project Manager.

4) The Site-specific work plan will indicate whether or not ground water quality parameters should be collected periodically during development. At a minimum, turbidity is typically measured, monitored and recorded during development.
    - Turbidity should decrease over time as the sediment is evacuated from the well.

5) If limited groundwater recharge does not allow for the recovery of:
    - All drilling water lost in the well during installation or does not allow for evacuation of three (3) well to five (5) well volumes,

6) The well will be allowed to stabilize to conditions deemed representative of groundwater conditions, per the work plan or Project Manager. Stabilization periods will vary by Site and will often be discussed with NYSDEC prior to sampling, depending on the type of work being performed.

7) Development water will either be properly contained (i.e. 55-gallon drum(s)) and treated as waste until results of the chemical analysis of samples are obtained, or discharged on Site as determined by the Site-specific work plan and/or as directed by the Project Manager.

3.0 GROUNDWATER PURGING PRIOR TO SAMPLE COLLECTION

3.1 Active Purging and Sampling:

For active sampling methods including use of well pumps or bailers, monitoring wells are typically purged first to ensure stabilization of select groundwater quality parameters has been achieved prior to sample collection, as specified in the Site-specific work plan or as directed by the Project Manager.

Stabilization of water quality indicates the water being tested is representative of groundwater conditions at the well location. Prior to purging, the static water level in the well will be measured to the nearest 0.01 of a foot and recorded on the groundwater sampling log/field notes. There are different methods and equipment used to purge monitoring wells, each with their own advantages and disadvantages.

Equipment/Method	Advantages	Disadvantages
Bailers/Grab	- Inexpensive	-Time consuming/labor intensive - Transfer of water from bailer to sample jars can cause aeration and release VOCs - Requires complete removal of stagnant water in casing
Bladder Pump/Low Flow	- Presumes isolation of water from the screened well -Optimal for VOC sampling	- Careful measurements of pumping rate and drawdown -Rental fees can be costly
Peristaltic Pump/Low Flow	- Presumes isolation of water from the screened well -Fewer equipment -Optimal for VOC sampling	- Careful measurements of pumping rate and drawdown -Rental fees can be costly

3.1.1 Purging by Bladder Pump:

Bladder Pump Equipment:

- Bladder pump
- Bladders/Grab Plates (for each well)
- Twine (or cable)
- Compressor
- Battery (for compressor)
- YSI or Horiba Water Quality Meter (including turbidity)
- Water level meter
- Bucket to contain & measure volume of purge water removed
- Knife or cutting tool
- Tubing (typically 0.25-inch diameter; will need tubing for airline and water line; replace tubing between each well sampled)

<u>General Procedure for Well Purging via Bladder Pump</u>

1) When purging a well by use of a bladder pump, make sure of the following:
    - The bladder pump and any other equipment being introduced into the well (i.e. water level meter) have been properly **decontaminated**
    - New HDPE bladder and hoisting plate (aka grab plate) has been installed in the pump prior to lowering it into the well.

2) Given the depth of the well and depth to groundwater, the pump will be connected to the appropriate length of 0.25-inch diameter air and water tubing, and lowered into the well with twine or cable tied to the pump tether until the pump intake is positioned approximately at the midpoint of the screened interval.
    - Once the pump has been placed at the desired depth, secure the twine or cable so that the depth of the pump intake doesn't change.
    - Sometimes depth to groundwater (i.e. partially submerged screen) or other conditions (i.e. continuous drawdown during purging) will require the pump to be lowered to a depth greater than the midpoint of the screened interval for purging and sampling.
    - The depth of the pump intake should be recorded on the sampling log.

3) Once the pump is positioned in the well, the tubing should be connected to the airline attached to the compressor (activates bladder) and to the flow-through cell between the pump and the discharge point of the tubing so water quality parameters can be continuously monitored during purging.

4) The air compressor is then connected to the battery.

5) The water quality multi-meter (i.e. YSI, Horiba) connects to the flow through cell so it can continuously measure water quality parameters as the purge water passes through the flow through cell.

6) Place the discharge tubing from the flow through cell to a bucket to collect any discharge

7) Water quality parameters will be recorded at approximate 5 minute intervals until stabilization of parameters has been achieved and sampling can be completed.

- Water quality parameters should be measured from the flow-through cell, not from within the container (i.e. 5-gallon bucket) being used to capture the discharged purge water, since measurements from the bucket will not be representative of purge water conditions in the well at the time they are recorded.

8) The pumping rate of the bladder pump should be adjusted by the compressor during purging to produce the minimum drawdown possible, per the EPA method.
   - To determine the flow rate of the pump, measure the amount of water collected over a set period of time (i.e. how much water is discharged into a container of known volume in one (1) minute).
   - Make sure to record the depth to water each time groundwater quality parameters are recorded so drawdown of the well can be frequently monitored and the flow rate of the pump can be adjusted as necessary to minimize drawdown.

9) At a minimum, the entire pump apparatus should be decontaminated with an alconox and water solution and rinsed with DI water, and the bladder and hoisting plate should be changed between each well sampling event.
   - The twine or cable used to lower and raise the pump to its desired vertical position in the well should also be changed or decontaminated between each well sampled.
   - The flow-through cell, water quality instrument and water level meter should also be decontaminated between each well purged and sampled. Re-calibrate the water quality meter as necessary.

3.1.2 Purging by Peristaltic Pump:

Peristaltic Pump Equipment:

- Peristaltic pump
- String (or cable)
- Battery
- YSI or Horiba Water Quality Meter (including turbidity)
- Water level meter
- Flexi Tubing (need 3-inches per well)
- Bucket to contain & measure volume of purge water removed
- Knife or cutting tool
- Tubing (typically 0.25-inch diameter and surgical tubing in pump; replace tubing between each well sampled)

<u>General Procedure for Well Purging via Peristaltic Pump</u>

1) When purging a well by use of a peristaltic pump, make sure to use new tubing and decontaminate any equipment being introduced into the well (i.e. water level meter, flow-through cell, water quality meter) before lowering it into the well.

2) Given the depth of the well and depth to groundwater, the peristaltic pump tubing will be lowered into well until the intake end of the tubing is positioned approximately at the midpoint of the screened interval.
   - Sometimes depth to groundwater or other conditions (i.e. partially submerged screen, or continuous drawdown during purging) will require the tubing to be lowered to a depth greater than the midpoint of the screened interval for purging and sampling.
   - The depth of the intake tubing should be recorded on the sampling log.

3) The pumping rate of the peristaltic pump should be adjusted during purging to produce the minimum drawdown possible, per the EPA method.
    - To determine the flow rate of the pump, measure the amount of water collected over a set period of time (i.e. how much water is discharged into a container of known volume in one (1) minute).
    - Make sure to record the depth to water each time groundwater quality parameters are recorded so drawdown of the well can be frequently monitored and the flow rate of the pump can be adjusted as necessary to minimize drawdown.

4) All tubing used in the peristaltic pump should be replaced between each well purged and sampled.
    - The flow-through cell, water quality instrument and water level meter should also be decontaminated between each well purged and sampled. Re-calibrate the water quality meter as necessary.

3.1.3 Purging by disposable bailer:

Bailer Equipment:

- Types of bailers: LDPE for non-PFAS sampling; PVC/HDPE for PFAS sampling
- String/twine (PFAS-free if PFAS sampling)
- Water level meter (PFAS-free if PFAS sampling)

<u>General Procedure for Well Purging via Bailer</u>

1) Cut a length of string/twine to the appropriate length to allow the bailer to reach the bottom of the well, including the stickup length of the well casing, if applicable.

2) Attach the twine to the bailer and begin purging.

3) Discharge the purge water to a 5-gallon bucket (or similar container) so the water is containerized, and purge volumes can be measured.

4) Purge water will periodically (every +/- 5 minutes) be poured out of the bailer and into the container provided with the multi-meter so groundwater quality parameters can be measured, monitored for stabilization, and recorded.

5) Water quality parameters should not be measured from within the container (i.e. 5-gallon bucket) being used to capture the discharged purge water, since measurements from within the bucket will not be representative of purge water conditions in the well at the time they're recorded.

Purge water will typically be transferred from the 5-gallon bucket into a 55-gallon steel drum, as necessary during purging. The purge water will be treated as waste until results of the chemical analysis of groundwater samples are obtained, or discharged on Site as determined by the Site-specific work plan and/or as directed by the Project Manager.

3.2 Achieving Stabilization of Groundwater Quality Parameters:

As previously mentioned, groundwater quality parameter measurements should be recorded approximately every 5 minutes during purging. The tolerance for achieving stability of each groundwater quality parameter is listed on the low-flow sampling log. The goal for turbidity level prior to sample collection is <50 NTU (or lower for metals analysis). The lower the turbidity, the better.

Once all groundwater parameters achieve stability for three (3) consecutive readings, groundwater samples can be collected. If stability doesn't occur within the amount of time specified in the Site-specific work plan or within a reasonable amount of time, discuss the appropriate time for purging and sample collection with the Project Manager. Some wells stabilize fairly quickly but it is not uncommon for it to take 45 minutes to an hour to achieve stabilization of all parameters.

4.0 RECORD KEEPING OF PURGING AND SAMPLING DATA:

Purging and sampling information, including groundwater quality parameters that are typically measured, monitored and recorded during purging, is recorded on the Labella low-flow groundwater sampling log, and includes the following:

- Date
- Weather
- Well ID
- Static water level (including measurement point reference)
- Depth of well including measurement point reference (typically feet below top of PVC well casing)
- Well construction details (screen interval, total well depth)
- Pump type (i.e. bladder vs peristaltic pump, watera pump) and depth of pump intake
- Purge start time
- Pump rate (may be adjusted during purging)
- Gallons purged
- Temperature (ºC)
- Dissolved oxygen (mg/L)
- Conductivity (mS/cm)
- pH
- Redox (mV)
- Turbidity (NTU)
- General observations (i.e. odor, changes in turbidity during purging, presence of NAPL and, if any, approximate or measured thickness)
- Purge end time
- Final static water level after purging
- Total water volume purged (typically recorded in gallons)
- Sample ID (including QC sample references if collected)

5.0 GROUNDWATER SAMPLING

5.1 Active Groundwater Sampling

As previously described, low-flow sample collection can commence once stabilization of groundwater quality parameters has been achieved through purging. Low-flow groundwater sampling is typically conducted using a bladder pump. There are times when "modified" low-flow sampling is conducted by use of a peristaltic pump. Consult the Site-specific work plan and/or Project Manager to determine which type of pump is best suited for your sampling job.

The following link provides the EPA sampling methodologies and procedures for low-flow sample collection:

https://www.epa.gov/sites/default/files/2015-06/documents/lwflw2a.pdf

5.1.1 Groundwater Sample Collection by Bladder Pump:

Once sufficient stabilization of groundwater quality parameters has been achieved and purging is complete, groundwater sample collection can be completed.

1) Prior to sample collection, disconnect the flow-through cell from the pump's discharge tubing.

2) Collect the groundwater sample directly from the discharge tubing by filling the appropriate sample containers as specified in the Site-specific work plan.

3) At a minimum, the bladder and hoisting plate should be changed between each well sampling event, and the entire pump apparatus should be decontaminated with an alconox and water solution and rinsed with DI water.

4) The string used to lower and raise the pump and all tubing should be replaced between each well sampled.

5.1.2 Sample Collection by Peristaltic Pump:

Once sufficient stabilization of groundwater quality parameters has been achieved and purging is complete, groundwater sample collection can be completed.

1) Prior to sample collection, disconnect the flow-through cell from the pump's discharge tubing.

2) Collect the groundwater sample directly from the discharge tubing by filling the appropriate sample containers as specified in the Site-specific work plan.

3) All tubing should be replaced between each well sampling event.
    - The flow-through cell, water quality instrument and water level meter should also be decontaminated between each well purged and sampled.
4) Re-calibrate the water quality meter as necessary.

5.1.3 Groundwater Sampling by Bailer

Once sufficient stabilization of groundwater quality parameters has been achieved and purging is complete, groundwater sample collection can be completed.

1) Pour the groundwater from the bailer directly into the appropriate sample containers as specified in the Site-specific work plan using the sample tip/port provided with the bailer.

2) New string/twine and a new bailer should be used for each well sampled.
    - Water quality instrument and water level meter should also be decontaminated between each well purged and sampled.

3) Re-calibrate the water quality meter as necessary.

5.2 Passive Groundwater Sampling

5.2.1 Passive Groundwater Sampling by Passive Diffusion Bag

Passive groundwater sampling methods are typically only used for collecting samples to be analyzed for Volatile Organic Compounds (VOCs) and do not require purging of the monitoring well prior to sample collection.

Passive sampling involves placement of a Passive Diffusion Bag (PDB) into a well where it is allowed to stabilize for a minimum of two (2) weeks after deployment before extracting the PDB from the well to collect the sample. PDBs operate by diffusion of contaminants across their polyethylene (LDPE) membrane and are typically pre-filled with laboratory grade (ASTM Type II) deionized water and sealed at both ends.

1) Each PDB is hung from a cable or rope, and positioned within the well screen interval until equilibrium has taken place between the water in the sampler and surrounding groundwater.
    - The PDBs also act as a filter, so field filtering is not required.

2) Once the PDB is deemed ready for sampling, it is retrieved from the well, cut open and the groundwater is poured into the appropriate sample container(s).
    - PDBs come in several different sizes and volumes.
    - Once the sample has been collected, the empty PDB should be properly disposed of.

Some reminders for passive sampling by PDB:

- Pre-filled PDBs will not be stored for longer than 30 days prior to deployment and will be kept stored at room temperature in a sealed plastic bag until ready to use.
- PDBs filled in the field will be used immediately and not stored for future use.
- PDB samplers will only be used to collect groundwater samples which will be analyzed for VOCs.
- Mesh covers will be utilized for open rock holes (so the PDB is not punctured or broken by abrasion) and will be secured to the bag using zip-ties.
- PDB samplers will be deployed by hanging in the well at the depth(s) specified in the project-specific work plan. The PDB samplers will be deployed at least 14 days prior to sampling.
- When transferring water from the PDB to sample containers, care will be taken to avoid agitating the sample, since agitation promotes the loss of volatile constituents;
- Gloves will be changed between collection of each PDB and tools used to open the PDB will be decontaminated with an alconox and potable water solution between each PDB;
- Any volume not used will be treated as investigation derived waste;
- Any observable physical characteristics of the groundwater (e.g., color, sheen, odor, turbidity) at the time of sampling will be recorded; and
- Weather conditions (i.e., air temperature, sky condition, recent heavy rainfall, drought conditions) at the time of sampling will be recorded.

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Equipment Decontamination

Standard Operating Procedure

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1.0 INTRODUCTION

1.1 Applicability

The purpose of this SOP is to establish a uniform set of methods and procedures for decontaminating field sampling equipment. Decontamination is performed as a quality assurance measure and a safety precaution. The use of equipment that has not been properly decontaminated for collecting samples for chemical analysis can lead to erroneous data due to cross contamination. Decontamination protects field personnel from potential exposure to hazardous materials. Additionally, it prevents contamination from being transported off- site.

This SOP focuses on decontamination of non-disposable equipment used for sampling environmental media for chemical analysis. Decontamination of other materials (for example well-construction materials) are sometimes required and discussed in project-specific work plans.

It is noted that additional / other state or federal agency SOPs or requirements may exist that require deviation from this SOP. These required deviations should be identified before the sampling program begins and explained in the project-specific work / sampling plan.

1.2 Equipment/Materials

Materials for equipment decontamination typically include some or all of the following:

- Project-specific documents (proposal / scope of work, Health and Safety Plan (HASP), QAPP, Sampling Plan, etc.), as applicable
- Field notebook
- Personal Protective Equipment (PPE) (as required by applicable HASP, Work Plan, Task Hazard Analysis Form, or Toolbox Talk)
    - Typical PPE required could include disposable / washable clothing such as Tyvek, Steel-Toe Boots, Safety Glasses, Hard Hat, Hearing Protection, work gloves, and Nitrile Gloves.
- Tap / potable water
- Distilled and/or deionized water
- Phosphate-free detergent (Liquid-nox, Alconox, etc.)
- Solvents (such as dilute acids, methanol, hexane, isopropanol, etc., *only if defined by the work plan*)
- Paper towels
- Wash buckets / basins / containers
- Waste containers / trash bags
- Cleaning brushes / sponges
- Spray bottles, hoses, and/or pressure sprayers
- Plastic / poly sheeting
- Phone / Camera

2.0 PROCEDURE

2.1 Typical Equipment Decontamination Procedure

LaBella's standard equipment decontamination procedure is presented in the steps below. The procedure may be modified on a project-specific basis, as described in project specific documents (i.e., proposal, work / sampling plan, QAPP, etc.), and may include additional steps, solvents, materials, etc., depending on the quality assurance objectives for the project. Site and/or project specific documents should be referenced as appropriate.

1) Don PPE items appropriate to the characteristics of the contaminated material that was encountered (for example safety glasses, nitrile gloves, and disposable Tyvek garment).

2) Remove gross contamination, dirt, etc. from the equipment by physical methods (i.e., scraping, brushing, and/or rinsing with tap water). This step should be completed in a 5-gallon bucket or appropriately sized containment.

3) Wash the equipment with a phosphate-free detergent and tap water solution. This step should be completed in a separate wash bucket using brush, hose, sprayer, etc.

4) Rinse the equipment with potable water until all detergent has been removed. This step can be performed over an empty bucket using a squeeze bottle, hose, or pressure sprayer.

5) When required, triple-rinse the equipment with distilled or de-ionized water.

6) Allow the equipment to air dry on clean plastic sheeting. If faster drying is required, use paper towels to blot the equipment dry before reuse.

7) Containerize and/or manage wash water and decontamination rinseate in accordance with project-specific requirements.

When decontaminating submersible pumps used for groundwater sampling (or monitoring well development), the above-listed steps 2 and 3 may be conducted in a bucket, tube, or cylinder filled with the wash water, detergent solution, or rinse water. Turn on the pump at a low flow rate / setting for approximately five (5) minutes, allowing the wash solution to cycle through the pump's internal components. After the pump is removed from the potable water rinse cycle, the final rinse is performed with distilled/deionized water, being sure to flush through the internal components.

As previously stated, project-specific decontamination procedures may be required and will be specified in the project documents. Some project-specific modifications include the following:

- For glass and plastic sampling equipment used for sampling environmental media for metals analyses, decontamination may include a rinse with a 10% solution of nitric acid.
- For metallic sampling equipment used for sampling environmental media for metals analyses, decontamination may include a rinse with a 10% hydrochloric acid solution.
- For sampling equipment used for sampling environmental media for organic parameters (VOCs, SVOCs, pesticides, PCBs, etc.), decontamination may include an intermediate rinse with methanol, hexane, or isopropanol.

The above-listed solvents are usually hazardous materials due to their toxicity and/or corrosivity, and are specifically excluded from LaBella's standard decontamination procedure because of these properties. When the use of these (or other similar) solvents is required by project-specific documents, the project documents must also describe the additional protocols and procedures necessary for their safe use, handling, and disposal in accordance with federal, state and local requirements.

2.2 Large Equipment Decontamination

On some projects, heavy machinery and other large equipment (i.e., excavators, backhoes, truck-mounted drilling equipment, etc.) is used for sampling or site characterization activities, and may become contaminated during site activities (or may require decontamination prior to use on site). In these situations, the large equipment contractor should construct a temporary decontamination pad that typically consists of a bermed, plastic-sheet lined area where equipment and tooling can be staged for decontamination with a high-temperature high pressure washer and/or manual scrubbing. If heavy equipment decontamination is required on a project, the specifications for the decontamination pad and procedures for decontamination will be stipulated in the project documents.

2.3 Quality Assurance/Quality Control (QA/QC)

Quality control requirements for equipment decontamination are dependent on project-specific conditions and objectives typically outlined in the site-specific documents (proposal, sampling / work plan, Health and Safety Plan (HASP), and/or Quality Assurance Project Plan (QAPP)). The Project Manager is responsible for assuring that the QA/QC objectives are specified and communicated to individuals responsible for equipment decontamination.

Projects requiring specific equipment decontamination procedures usually require the collection of an equipment blank from the decontaminated equipment (typically at a rate of one per day; however the collection of equipment blanks and similar QA/QC samples is to be based on project documents that specify the type and frequency of collection of each type of quality assurance sample).

Equipment blanks are generally collected by pouring laboratory-supplied deionized water into, over, or through the freshly decontaminated sampling equipment and then transferring this water into a sample container. Equipment blanks should then be labeled as a sample and submitted to the laboratory to be analyzed for the same parameters as the associated environmental samples. Field blank sample numbers, as well as collection method, time and location should be recorded in the field notebook.

2.4 Documentation

Specific information regarding decontamination procedures should be recorded in the project notes and field notebook. Documentation in should thoroughly describe the construction of each decontamination facility and the decontamination steps implemented in order to show compliance with the project documents. Decontamination events should be logged when they occur with the following information recorded:

- Date, time and location of the decontamination event
- What equipment was decontaminated
- Method(s) of decontamination
- Solvents used
- Other notable circumstances
- Date, time and location of equipment blank samples collected, and the methods / procedures used for collection
- Storage of decontamination wastes (spent wash and rinse water)

Repetitive decontamination of small items of equipment does not need to be logged each time the item is cleaned; however, a note should be made that such equipment was decontaminated as required and in accordance with this SOP, or project specific documents.

2.5 Training/Qualifications

Equipment decontamination is a relatively simple procedure generally requiring minimal training. Individuals conducting equipment decontamination for the first time will be supervised/trained by experienced personnel. Personnel exposed to sites / projects that might contain petroleum compounds, heavy metals, or other potentially hazardous materials will be trained and certified in accordance with the requirements of 29 CFR 1910.120 (OSHA's HAZWOPER standard).

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SVI and Soil Gas Sampling

Standard Operating Procedure

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Revision	*Effective Date*	*Prepared By*	*Description of Changes*	*Affected Pages*
0	10/31/2024	A. Barber	New Procedure	

1.0 INTRODUCTION

1.1 Applicability

The purpose of this Standard Operating Procedure (SOP) is to establish uniform procedures for the collection of soil vapor intrusion (SVI) and soil gas sampling via Summa® canisters. Adherence to this SOP will promote consistency in sampling methods and if properly followed will ensure sample representativeness.

1.2 Background

SVI sampling and exterior soil gas sampling shall be conducted in accordance with *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* dated October 2006 and subsequent updates found on the NYS Department of Health website.

SVI refers to the process by which volatile chemicals form a subsurface source enter into the indoor air of buildings. For the purpose of this SOP, SVI refers to interior sampling (sub-slab and/or indoor air) and soil gas refers to exterior sampling via installation of soil gas sampling points. Site-specific conditions shall determine the method to be used. SVI and soil gas samples are to be collected via Summa® canisters.

It is noted that specific state and/or federal agencies may maintain specific guidelines and procedures that require deviation from this SOP. Such deviation should be identified prior to sampling (ideally during the work plan/sampling plan development) and should be explained in the project-specific work plan/sampling plan, when applicable.

2.0 RESPONSIBILITIES

2.1 Drilling Contractor

By law, the clearance of underground utilities must be performed prior to the initiation of any intrusive subsurface activities including installation of soil gas sampling points. The drilling contractor performing the installation activities are responsible for notifying *UDig NY* prior to initiating drilling / sampling activities.

Safety is of critical importance when working with and around hydraulics, drill rigs / drilling equipment, heavy machinery, etc. The drill contractor / crew must be aware of the safety requirements of working with and around such equipment. Prior to the start of a project, the drill crew should conduct a tailgate meeting / toolbox talk to ensure safe completion of activities.

The drilling contractor is responsible for providing the necessary equipment for installing soil gas sampling points. This generally includes the track-mounted, truck-mounted, or ATV-mounted Geoprobe® (or similar percussion/probing rig) and one or more sampling tubes (multiple diameters) in good operating condition, appropriate liners, and other necessary equipment for borehole preparation and sampling. Equipment decontamination materials should also be provided by the drilling contractor and should meet project specifications. Finally, materials for cleanup are required (i.e., sand, bentonite, asphalt cold-patch, brooms, etc.)

2.2 Project Manager

Typically, the Project Manager prepared the scope of work, work plan, and/or sampling plan (including the project proposal). The Project Manager must fully understand all elements of the applicable project documents and provide / communicate project-specific pertinent information to the Drilling Contractor and Project Geologist / Scientist (i.e., number and location of proposed sampling locations, analytical requirements, etc.).

The Project Manager is responsible for coordinating appropriate site access with applicable parties (property owner, tenant(s), client, etc.) and scheduling appropriate access and field activities with the Drilling Contractor and Project Geologist / Scientist. **The Project Manager should reconfirm the Drilling Contractor made the *U Dig NY* notification.** The Project Manager should also communicate specific safety concerns / requirements and Task Hazard Analysis (THA) forms.

Open and clear communication between the Project Manager, Drilling Contractor, Project Geologist / Scientist, and Client is a key component of the successful completion of soil gas sampling point installation. The Project Manager is responsible for maintaining these lines of communication.

2.3 Project Geologist / Scientist

The Project Geologist / Scientist is responsible for conducting SVI/ soil gas sampling in a manner consistent with this SOP. The Project Geologist / Scientist will observe all sampling activities to ensure that the SOP is properly followed and record all pertinent data and information on appropriate forms, logs and/or in the project field notebook. Data recording may also include photo documentation.

It is the Project Geologist / Scientist's responsibility to review and understand the project work plan / sampling plan, and to communicate pertinent elements of the plan to the drilling contractor during activities. The Project Geologist / Scientist should be able to indicate the specific targeted sampling depth of the sampling points to the drilling contractor on-site. **The Project Geologist / Scientist should reconfirm the Drilling Contractor made the *UDig NY* notification.** The Project Geologist / Scientist should also confirm the Drilling Contractor conducted an appropriate on-site tailgate meeting / toolbox talk prior to the initiation of work activities, and sign-off that such meeting occurred on the Contractor's form.

The Project Geologist / Scientist is also responsible for the collection of SVI/ soil gas samples. Additional sample collection responsibilities include labeling, handling, and storage of samples using standard chain-of-custody procedures.

3.0 EQUIPMENT/MATERIALS

In addition to the equipment and materials provided by the drilling contractor, materials to be furnished by LaBella field personnel (i.e., the Project Geologist / Scientist) typically include the following:

- Project-specific documents (proposal / scope of work, Health and Safety Plan (HASP), QAPP, Sampling Plan, etc.)
- SVI logs, field notebook
- NYSDOH Indoor Air Quality Questionnaire and Building Inventory
- Personal Protective Equipment (PPE) (as required by applicable HASP, Work Plan, Task Hazard Analysis Form, or Toolbox Talk)
    - Typical PPE required includes Hi-Visibility Safety Vest, Steel-Toe Boots, Safety Glasses, Hard Hat, Hearing Protection, work gloves, and Nitrile Gloves.
- Sampling supplies (Summa® canisters and regulators, labels, chain-of-custody records, tape, cooler)
- Tracer gas testing equipment (helium, dome, helium detector).
- Micromanometer
- Tubing
- Tape measure
- Field screening equipment (i.e., Photoionization Detector (PID), etc.)
- Phone / Camera
- GPS

4.0 PROCEDURES

4.1 General

Site-specific characteristics and project-specific requirements such as such as depth to groundwater, building construction type and building access will dictate the preferred type of sampling to be used. SVI and soil gas samples are typically collected via Summa® canisters for analysis via USEPA method TO-15. The project work plan / sampling plan should define specific requirements for the given site. The laboratory shall provide the required Summa® canisters with pre-set regulators for the desired sampling timeframe.

4.2 Typical Soil Gas Point Installation and Sampling Procedures

1. Don required PPE.
2. Decontaminate sample tooling and components.
3. Drilling contractor / crew prepares the surface for direct-push sampling/ drilling.
4. Drilling contractor/ crew drills to the appropriate sampling depth for soil gas sampling point installation.
5. Soil gas points shall be installed 1 to 2 feet above the water table or as otherwise directed by the work plan. Nearby wells (if present) can be used to measure depth to water.
6. A new, 6-inch or 12-inch long, stainless-steel vapor screen will be installed at the bottom of the open cavity and connected to ¼-inch Teflon®-lined tubing to the surface. Clean sand will be installed to 6 inches above the screen followed by a minimum of 12 inches of granular hydrated bentonite. The remaining annulus of the soil gas point may be backfilled with native soil, granular bentonite, or tremie grouted to 6-inch below the ground surface. The sample tubing will be capped with a stainless-steel, air-tight fitting. It is recommended that approximately 36 inches of tubing will extend above the ground surface.
7. A flush-mounted curb box or stick-up well cover shall be installed at the surface.
8. Subsequent to installation, the probes will be allowed to equilibrate a minimum of 24 hours prior to purging and sampling.
9. Project Geologist / Scientist documents sampling point installation and construction.

4.3 Typical Sub-Slab SVI Sample Point Installation Procedures

1. Don required PPE.
2. An initial Site visit will be conducted at each residence or structure proposed for SVI sampling to select sample locations and identify if there is a basement or crawl space.
3. Sub-slab samples will be installed by using a hammer drill or similar to core an approximate 5/8-inch diameter hole through the floor slab.
4. A wet/dry vacuum shall be used to collect the concrete dust and drill cuttings.
5. Do not core greater than 2 inches below the bottom of the floor slab.
6. Install the Vapor Pin® assembly (or similar) consisting of a metal barbed fitting and using a silicone sleeve or similar to ensure a seal between the Vapor Pin® and the nominal 5/8-diameter concrete borehole.
7. Place the protective cap on the Vapor Pin® to prevent vapor loss prior to sampling.
8. For flush mount installation, a protective cap may be installed over the Vapor Pin® when not in use.

4.4 Soil Gas and SVI Sampling Procedures

1. Don required PPE.
2. A tracer-gas test will be performed at each soil gas or sub-slab vapor sample location to confirm the integrity of the seal. The tracer-gas test is typically performed using helium in accordance with the NYSDOH Guidance. Tracer-gas testing requires a dome or bucket to be placed over the sub-slab sampling point. A tracer gas (e.g., helium) is then introduced to the dome/ bucket. A helium detector is used to measure the helium in the dome/ bucket and in the sample tubing. Three (3) volumes (i.e., the volume of the sample probe and tube) will be purged from each sampling location during the seal test at a rate not to exceed 200 milliliters per minute. The purge volume will be consistent across all the samples collected. If the tracer gas is detected at <10% in the sample tubing, the sampling point has been installed correctly. If >10% is detected, the sampling point must be re-sealed in the floor slab.
3. Following the tracer gas test, a micromanometer shall be used to measure sub-slab pressure for SVI sample locations.
4. Sub-slab, soil vapor, indoor air, and ambient air samples will be collected following the successful passing of the helium tracer test described above.
5. For sample collection, connect a Summa® canister to each soil gas or sub-slab sampling point via tubing. Samples will be collected using passive (less than -28 inches of mercury [in. Hg]) stainless-steel SUMMA canisters supplied from a laboratory with current Environmental Laboratory Approval Program (ELAP) certification. The canisters will be individually certified clean by the laboratory and supplied with vacuum gauges and pre-set flow controllers.
6. For SVI sampling, a co-located indoor air sample shall be set-up for collection within the immediate vicinity (i.e., approximately 15-ft.) of each sub-slab vapor sample. The indoor air samples will be placed approximately 3-ft. to 5-ft. above the floor surface.
7. SVI samples should be collected over the same generally time period. For residential properties, samples should be collected over a 24-hour time period and commercial and industrial sites, samples should be collected over an 8-hour time period.
8. One (1) outdoor air sample shall be collected using Summa® canister to evaluate background conditions during sampling.
9. For SVI sampling, a NYSDOH Indoor Air Quality Questionnaire and Building Inventory will be completed in each building sampled as part of the SVI study. Materials containing potential contaminants of concern (e.g., cleaning chemicals, etc.) will be listed to identify any potential indoor air sources of impacts.
10. Following sample collection, the sampling points shall be removed, sealed with grout, and the floor shall be restored to pre-sample conditions to the extent feasible.
11. Samples shall be sent under standard chain of custody procedures to an ELAP certified laboratory for analysis. For sample collection, a Summa® canister shall be connected to the sampling point via inert tubing.
12. Samples shall be sent under standard chain of custody procedures to an ELAP certified laboratory for analysis.

4.5 Ground Surface/ Floor Restoration

Upon completion of sampling activities, sub-slab sampling points shall be removed and filled with grout or similar to be flush with the finished floor. Exterior soil gas sample points may remain in place if fitted with a j-plug or similar cap. If removed, soil gas sample points shall be filled with gravel, sand, or soil to fill void space and be flush with the surrounding ground surface.

5.0 DOCUMENTATION

Documentation of sample collection, handling and shipping is required, and takes a variety of forms including:

- Field Log Book
- SVI Sampling Logs
- Sample Collection Records
- Sample Container Labels
- Chain-of-Custody Forms
- Shipping Labels
- NYSDOH Indoor Air Quality Questionnaire and Building Inventory

The field log book will be maintained as an overall log of all samples collected during a project. Sample collection records are generated for each sample collected during a project and must include:

- Project Number and Location / Address
- Sampling point location / ID
- Date and time that sample was collected
- Name of collector
- Equipment used to collect the sample (when applicable)
- Number of sample containers, sizes
- Specific Sample ID
- Analysis Requested
- Shipping ID Number/Tracking ID Number (when applicable)

Chain-of-custody forms are transmitted with the samples to the laboratory for sample tracking purposes. These may be LaBella-specific or be provided by the laboratory providing analytical services for the project. Shipping labels are required if samples are to be transported to the laboratory by a third-party (courier service). Original and/or copies of these documents must be retained in the appropriate project files.

6.0 TRAINING AND QUALIFICATIONS

SVI/ soil gas sampling is a moderately complex task requiring some general training and experience that is usually earned by shadowing and assisting experienced field staff. Individuals conducting SVI/ soil gas sampling for the first time will be supervised/assisted by experienced personnel. Personnel collecting samples that might contain petroleum compounds, chlorinated VOCs, or other potentially hazardous materials will be trained and certified in accordance with the requirements of 29 CFR 1910.120 (OSHA's HAZWOPER standard).

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Sample Identification Nomenclature

Standard Operating Procedure

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0	1/20/2022	M. Pelychaty	New Procedure	
1	2/24/2022	K. Truong	Formatting	All
2	7/24/2022	M. Pelychaty	Modified Procedure	

1.0 INTRODUCTION

Each sample collected during will be given a unique identification code. Deviations from the sampling code should be approved by the project manager. For any type of samples not included below, the project manager should be contacted to discuss assigning a unique identification code. Each unique sample identification will consist of the following.

2.0 SOIL/SEDIMENT SAMPLES

The soil or sediment samples should be named using the applicable identification below that is intended to identify how the sample was collected, a hyphen, followed by a consecutive sampling location number, a hyphen, and the approximate sample depth interval (expressed as tenths of feet or as otherwise approved by the project manager). For example, a sample collected with a Geoprobe at a depth of approximately from 5 to 6 feet below the ground surface would be named "GP-01-5-6".

Additional site-specific information may be included after the name using a hyphen. For example a confirmation soil sample collected at AOC1 can be named "AOC1-CS02-6".

2.1 Soil Sediment Sample Identification

- **GP** for samples collected with a Geoprobe or similar direct push sampling systems
- **SB** for samples collected with a rotary drill rig sampling system
- **SS** for surface soil samples collected using manual labor (e.g., shovel, spade, etc.)
- **HA** for soil samples collected using a hand auger
- **SE** for sediment samples
- **TP** for samples collected using and excavator or other similar type powered equipment
- **CS** for confirmation soil samples (e.g., excavation end point samples)

3.0 GROUNDWATER MONITORING WELLS AND WATER SAMPLES

Groundwater samples should be named using the applicable identification below that is intended to identify the location the sample was collected. The groundwater sample should be named using the boring identification (i.e., "GP" or "SB") followed by type of well installed (see applicable identification below), followed by the boring ID (i.e., "01"), a hyphen. **For wells that are monitored periodically (i.e., BCP sites), add the date the sample was collected on so that each sample has a unique ID**. For example, a groundwater sample collected from a well installed in rotary boring SB-05 that was sampled on January 5, 2021 would be named "SBMW-05-20210105" and the well would be named "SBMW-05". For typical Phase II ESA sites, the sample date does not need to be included.

If requested by the project manager, wells may be named in consecutive order such as MW01, MW02, MW03, etc.

Surface water samples should be named using the applicable identification below that is intended to identify the type sample collected followed by a consecutive sampling location number, a hyphen, and the date the sample was collected. For example, a surface water sampled on January 5, 2021 would be named SW01-20210105. Additional site-specific information may be included before or after the name using a hyphen.

3.1 Groundwater/Surface Water Sample Identification

- **MW** for groundwater samples collected from a monitoring well
- **GW** for groundwater samples collected from an open borehole or excavation where a well was not installed
- **SW** for surface water sample

4.0 AIR SAMPLES

Air samples should be named using the applicable identification below that is intended to identify the type of sample collected, a hyphen, and then consecutive sampling location number such as IA-01. **For sites that are monitored periodically (i.e., BCP sites), add the date the sample was collected on so that each sample has a unique ID**. For example, an indoor air sample collected on May 5, 2021 would be named "IA-01-20210505".

Additional site-specific information may be included before or after the name to identify a specific location such as a room, floor, or building (e.g., RM201-, FL2-, BLDG01-). For example, an indoor air sample collected on May 5, 2021 from room 214 would be named "RM214-IA-01-20210505" or "IA-01-2021-0505-RM214".

4.1 Air Sample Identification

- **IA** for indoor air samples
- **OA** for outdoor indoor air samples
- **SG** for soil gas samples
- **SV** for sub-slab vapor samples

5.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) SAMPLES

Quality Assurance/Quality Control (QA/QC) samples should consist of the following abbreviations listed below. Below for each QA/QC sample, are specific information that should be included in the sample name.

5.1 QA/QC Sample identification

- **BD** for blind duplicate samples (for samples the laboratory does not know the sample it was split from), a consecutive number should follow the abbreviation (e.g., BD01).

- **EB** for equipment blanks, a consecutive sampling number, a hyphen, and the date the sample was collected on (e.g., EB-01-20211025).
- **FB** for field blanks, a consecutive sampling number, a hyphen, and the date the sample was collected on (e.g., FB-01-20211025).
- **TB** for trip blanks, a consecutive sampling number, a hyphen, and the date the sample was collected on (e.g., TB-01-20211025).
- **DU** for duplicate samples (for samples the laboratory knows the sample it was split from). These samples should be named using the unique sample name followed by DU. For example, GPMW-01DU-20210505.

For samples submitted for MS/MSD analysis, a note should be made on the COC to inform the laboratory to analyze the sample for MS/MSD. There should ***not*** be a different name for the sample.

6.0 WASTE CHARACTERIZATION AND OTHER TYPES OF SAMPLES

The following naming format should be used followed by a hyphen, a consecutive sampling location number, a hyphen, and the date the sample was collected on. Additional information may be included before or after the name to identify a specific location (e.g., WW-01-20210505-Tank1456917).

- **WW** for wastewater samples
- **SWA** for solid waste samples
- **LE** for leachate samples
- **SL** for sludge samples
- **IDW** for investigative derived waste
- **FP** for a free product sample (e.g., NAPL)

CARUS REMEDIATION



Permanganate Natural Oxidant Demand (PNOD) Procedure and Non-Regulated Soil Submittal Procedure

RemOx® ISCO Reagent

TECHNICAL BRIEF

PROCEDURE

Carus follows ASTM Method D7262-10, Test Method A, for permanganate natural oxidant demand (PNOD) analysis. A brief summary of D7262-10 Test Method A follows:

For each soil sample, 600 g of soil are baked at 105°C. The soils are dosed in triplicate at one initial potassium permanganate ($KMnO_4$) level of 100 ml of 20g/L $KMnO_4$ to 50 g of soil for an initial dose of 40 g $KMnO_4$/kg dry soil. The reactor vials are gently inverted. Following 48 hours of reaction time, the liquid portion of the treated sample is analyzed for permanganate residual following method 4500-$KMnO_4$ Potassium Permanganate in Standard Methods for the Examination of Water and Wastewater.

To order a complete copy of the ASTM method, visit http://www.astm.org.

NON-REGULATED SOIL SUBMITTAL PROCEDURE

Note: This procedure is for soils from areas of the United States for which movement is not restricted under the U.S. Department of Agriculture (USDA).

For each sample location at a remediation site, collect at least 600 grams of soil sample. Two completely filled 250-mL wide mouth glass jars (free of large rocks) with PTFE lined screw caps will provide a sufficient quantity. The ASTM D7262-10 method for PNOD specifies that at least 600 grams soil/aquifer solids be available at the start of testing. Groundwater is not collected for this method.

Fill the containers completely and pack the soil as tightly as possible to eliminate as much entrapped air as possible.

Record the following information on the labels of the sample containers:

Date and time of sampling
Location of the sampling
Initials of the person collecting the sample

Enclose the bottles in bubble wrap or other acceptable packing material to prevent the glass bottles from breaking in transit. Place the samples in a cooler with ice if needed to maintain proper temperature. ASTM D7262-10 specifies the holding time of samples as up to 28 days if held at 4°C.

The Carus laboratory is closed on weekends and holidays. Samples should be shipped between Monday and Thursday to the address below specify overnight delivery. As part of the Responsible Care® 14001 Plant Security requirements, the following information must be on the outside of the shipping container:

Carus
Attention: Tina Garcia
1500 Eighth Street
Bldg 45- Customer Service Lab
LaSalle, IL 61301

Also include the name and address of the originator, the contact person and a phone number on the shipping container.

Note: The Carus receiving department will not accept samples without the identifications above.

CORPORATE HEADQUARTERS | 315 Fifth Street, Peru IL 61354 | Tel +1.815.223.1500 / 1-800-435-6856 | Fax +1.815.224.6697 | Web: www.caruscorporation.com | E-mail: salesmkt@caruscorporation.com
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rev. 04/20
form RX 1625

CARUS®

APPENDIX 4

Table Summarizing Planned Analytical Testing

Location ID	Sample Matrix	Sample Depth or Well Screen Interval (ft bgs)	Laboratory Analyses								
			VOCs	SVOCs	Metals	Cyanide	PCBs	Pesticides	PFAS	1,4 -Dioxane	PNOD
SB-31*	Overburden / Subsurface soil	Est. 12.5	X	X	X	X	X	X	X	X	X
SB-32	Overburden / Subsurface soil	Est. 12.5	X								
SB-33	Overburden / Subsurface soil	Est. 12.5	X								
SBMW-04	Groundwater	9.3 – 19.3	X								
SBMW-12	Groundwater	9.0 – 19.0	X								
MW-21	Groundwater	13.5 – 23.5	X								
MW-28	Groundwater	18.0 – 28.0	X								
MW-31*	Groundwater	Est. 20.0 – 30.0	X	X	X	X	X	X	X	X	
MW-32	Groundwater	Est. 20.0 – 30.0	X								
Trip Blank	Water	N/A	X								
SS-01	Sub-Slab Soil Vapor	0	X								
SS-02	Sub-Slab Soil Vapor	0	X								
SS-03	Sub-Slab Soil Vapor	0	X								
SS-04	Sub-Slab Soil Vapor	0	X								
SS-05	Sub-Slab Soil Vapor	0	X								
SS-06	Sub-Slab Soil Vapor	0	X								
IA-01	Indoor Air	N/A	X								
IA-02	Indoor Air	N/A	X								
IA-03	Indoor Air	N/A	X								
IA-04	Indoor Air	N/A	X								
IA-05	Indoor Air	N/A	X								
IA-06	Indoor Air	N/A	X								
OA-01	Outdoor Air	N/A	X								
Equipment Blank (Soil)	Water	N/A							X		
Equipment Blank (GW)	Water	N/A							X		

Table Note:
* - Location of Blind Duplicate and MS/MSD Samples

Overburden Soil / Subsurface Soil

- USEPA TCL and NYSDEC CP-51 list VOCs including the top thirty (30) TICs using USEPA Method 8260
- USEPA TCL and NYSDEC CP-51 list SVOCs (including 1,4-dioxane) and including the top thirty (30) TICs using USEPA Method 8270
- TAL metals using USEPA Methods 6010/7471
- Cyanide using USEPA Method 9012
- PCBs using USEPA Method 8082
- Pesticides using USEPA Method 8081
- PFAS using USEPA Method 1633A
- PNOD using ASTM Method D7262-10, Test Method A

Groundwater

- USEPA TCL and NYSDEC CP-51 list VOCs including the top thirty (30) TICs using USEPA Method 8260
- USEPA TCL and NYSDEC CP-51 list SVOCs and including the top thirty (30) TICs using USEPA Method 8270
- TAL metals using USEPA Methods 6010/7470

Groundwater (continued)

- Cyanide using USEPA Method 9012
- PCBs using USEPA Method 8082
- Pesticides using USEPA Method 8081
- PFAS using USEPA Method 1633A
- 1,4-dioxane using EPA Method 8270 SIM

Sub-Slab Soil Vapor / Indoor Air

- VOCs using USEPA Method TO-15

B:\GLOBAL\PROJECTS\K&L CLEANERS\2251236 - ENVIRONMENTAL CONSULTING\11_REPORTS\SCWP\APPENDIX 4 - ANALYTICAL TABLE SUMMARY\2251236 SCWP ANALYTICAL SUMMARY TABLE.DOCX

APPENDIX 5

Resumé of QEP

DREW BRANTNER

Senior Project Manager

Drew is a Senior Project Manager who has 15 years experience and is responsible for the coordination and successful completion of a wide range of environmental investigation and remediation projects. Drew's background includes Phase I Environmental Site Assessments (ESAs), Phase II ESAs, NYSDEC Brownfield Cleanup Program projects and NYSDEC Spills projects.

EDUCATION

Muhlenberg College: B.S. Environmental Science & Chemistry

CERTIFICATIONS

OSHA 30-Hour Construction

OSHA 40-Hour HAZWOPER Construction

NYSDOL Mold Assessor

NYSDOL Asbestos Building Inspector

Former Gas Station (NYSDEC Brownfield Site): Periodic Groundwater Monitoring—Syracuse, NY

Drew reviewed and compiled historical sampling data and performed or directed field sampling, prepared quarterly monitoring reports, and assisted with the planning, coordination, inspection, and completion of annual summary reports necessary for maintaining the site's status in the NYSDEC Brownfield Cleanup Program.

Vacant Commercial Property (NYSDEC Brownfield Site): Remedial Investigation—Syracuse, NY

Drew reviewed and compiled historical sampling data, assisted with the development of a sampling plan, and performed field tasks associated with executing a Remedial Investigation of a NYSDEC Brownfield Site. Prepared the Remedial Investigation Report and assisted with the Remedial Alternatives Analysis.

Abandoned Industrial Facility (NYSDEC Brownfield Site)—Johnson City, New York

Drew assisted with the Brownfield Cleanup Program Application process and development of a Supplemental Remedial Investigation Work Plan. Assisted with field tasks and reporting of findings.

Confidential Client: Vacant Facility, Soil, Groundwater, and Vapor Intrusion Investigation—Fulton, New York

Drew oversaw a targeted GPR survey, collected soil and groundwater samples, and performed vapor intrusion sampling to determine whether TCE contamination from an adjacent Brownfield site was impacting the indoor air quality of a multiple-unit residential facility.

Confidential Client: Industrial Park, Surface Soil Investigation—DeWitt, NY

Drew assisted with the completion of a Phase II ESA involving the investigation of a multi-acre undeveloped parcel of land contaminated by PCBs. Used GPS and related computer software to assist in determining sample locations and to define the extent of contamination. Collected soil samples for PCB analysis and assisted with writing the final investigation report provided to the NYSDEC, for consideration of the project entering the Brownfield Program.

Former Manufacturing Facility: Site Management at former Brownfield Site—Rochester, NY

Drew manages a former Brownfield site where some contamination was left in-place to be monitored over time. There are various engineering and institutional controls imposed on

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the site, including semi-annual inspections of the controls, annual groundwater monitoring, and annual reporting. With the site now under new ownership, Drew is also assisting with the successful redevelopment of the site within the constraints and challenges provided by the site history and remaining contamination.

Manufacturing Facility: Remedial Investigation & Environmental Site Management Services—Scottsville, NY

Coordinated the completion of additional environmental investigation activities to delineate historical contamination and assist with the design of newly engineered remedial techniques. Drew also provides year-round environmental monitoring services to maintain site compliance with NYSDEC requirements. He completed activities with minimal disruption to active manufacturing operations and in difficult geological environment.

City of Rochester: Implementation of USEPA Multi-Purpose Grant for Environmental Investigation & Cleanup (Multiple Properties)—Rochester, NY

Drew assists the City of Rochester with implementing environmental investigation and cleanup activities for multiple properties within the City, using funds from an USEPA Multi-Purpose Grant. Provide all plans and reports (QAPP, HASP, CAMP, ESA, ABCA, etc.) for City and USEPA review and approval.

Private Residence: Emergency Petroleum Release Response—Castile, NY

Assisted homeowner and their attorney with investigation and cleanup of petroleum release that occurred as a result of improperly installed heating oil tank. Activities included soil excavation and off-site disposal, recovery of oil-impacted groundwater, potable water testing after installation of Point-of-Entry Treatment (POET) system, and ongoing environmental monitoring to satisfy NYSDEC request. Provided reports for state regulatory and insurance agency review. Insurance provider is compensating services.

Soil Remediations: Various Properties—Western and Central, NY

Drew and LaBella's Environmental Construction Team regularly work together to excavate and properly dispose of contaminated soil discovered during Phase II ESA, remedial investigations, or during construction/development activities. Ensure all material is handled in accordance with NYSDEC and NYSDOT regulations.

Confidential Client, Former Manufacturing Facility Phase I ESA, Asbestos & Hazardous Materials Survey, and Subsurface Investigation—Syracuse, New York

Drew coordinated the completion of a Phase I ESA and subsequent asbestos, lead-based paint, and PCB caulk building materials surveys, and limited subsurface investigation, for a 200,000+ square foot abandoned manufacturing facility. Assisted with the completion of summary reports, site plans, and building drawings documenting all sample locations.

Confidential Client: Former Industrial Site, Phase I ESA & Surface Soil Investigation—Buffalo, New York

Drew reviewed historical records, including investigative assessments and cleanup reports, completed a Phase I ESA, and coordinated the completion of a Phase II ESA involving the investigation of a multi-acre parcel of land contaminated by SVOCs, heavy metals, and PCB. Used GPS, AutoCAD, and related computer software to assist in determining sample locations. Collected soil samples for SVOCs, metals, and PCB analysis and prepared a summary report for a prospective developer.

Wayne County Water & Sewer Authority: Environmental Consulting, Investigation, & Construction Oversight for New Force Main Sewer Across Active Manufacturing Facility—Palmyra, NY

Drew worked with the WCWSA and their engineers, active manufacturing facility representatives, and NYSDEC regulators with assessing the proposed route of a new sewer line for historical environmental impacts, prepare required plans and permits, and provide oversight during construction to ensure all construction-related spoils are properly handled in accordance with NYSDEC regulations. Performed air monitoring during activities and provide daily and weekly summaries to stakeholders.

Confidential Client, Former Manufacturing Facility, Phase I & II Environmental Site Assessment—Utica, New York

Drew completed a Phase I ESA for a 200,000+ square foot manufacturing facility and adjacent lot. Identified environmental concerns were further assessed by implementing multiple investigation activities that included: indoor air quality sampling, ground penetrating radar (GPR), exploratory excavation, soil borings and sampling, and the installation and sampling of temporary groundwater monitoring wells.

Confidential Client: Former Gas Station, Subsurface Investigation & Remedial Oversight—Syracuse, NY

Drew assisted with tank registration and closure, subsurface soil and groundwater sampling, the preparation of a remedial work plan, provided excavation oversight, and coordinated waste transport during remedial excavation at a former gas station. Worked closely with the owner, contractor, and NYSDEC officials during the project.

NYPA: Sediment Testing Services, North Montezuma Wildlife Management Area - Montezuma, NY

Drew managed the collection and sampling of over 100 sediment samples from six areas of the North Montezuma Wildlife Management Area. Prepared summary reports for each of the six areas and assisted with agency correspondence.

Home Leasing: Tailor Square—Rochester, NY

This project includes a Phase I ESA, Phase II ESA, SSDS Design, RBM Survey, Pre-Occupancy Radon Testing, Environmental Management Plan, and Site Suitability. As Project Manager, Drew is coordinating all environmental aspects of this multi-disciplinary project. This involves frequent communication with Home Leasing, the project team, and NYSHCR to provide updates and recommendations.

Confidential Utility Client: Permitting & Oversight for Sediment Removal Project—Western, NY

Provided environmental permitting and construction oversight services for the dredging, upland staging, transportation, and final placement of sediment (spoils) generated upstream of the dam. Included wetland delineation, sediment testing, and obtaining of NYSDEC approved Beneficial Use Determination for placement of spoils off-site.

Underground Storage Tank (UST) Closures: Various Properties—Upstate NY

Drew routinely works with the NYSDEC and municipal regulators to properly close/remove abandoned USTs discovered during construction activities in urban settings. He overcome challenges related to timeline and working around other contractors to maintain project budget and schedule to maximum extent feasible.

City of Utica: Demolished Manufacturing Facility, Phase II Environmental Site Assessment—1732 Erie Street, Utica, NY

Drew developed a multi-step investigative plan to address multiple contaminants from different sources across the 5-acre site, which had previously been home to a large manufacturing facility. A widespread GPR survey and comprehensive soil and groundwater sampling plan was implemented to identify and then delineate the various contaminant plumes located on the property.

Confidential Client: Redevelopment of Former Industrial/Commercial Facilities for Residential Use, Asbestos & Hazardous Materials Survey, Vapor/Radon Mitigation System Design

Drew assisted real estate and redevelopment firms with redeveloping various former commercial and industrial properties for future residential and/or commercial use. Projects often include hazardous building material surveys prior to renovation, and assisting with the design of sub-slab depressurization systems to mitigate radon and/or other vapor intrusion concerns.

Confidential Client: Construction Management of Excavated Materials—Rochester, NY

Drew prepared and executed a pre-construction soil sampling plan and evaluated the obtained data so that soil spoils generated during the construction project were properly handled for minimal costs. Impacted soils were profiled and accepted for use as cover material at a local landfill, while non-impacted (native) soils were able to be transferred to a 3rd party site meeting the requirements of NYSDEC Part 360 Regulations.

Norry Management: Commercial Warehouse—100 Mushroom Boulevard, Henrietta, NY

Coordinated sub-slab communication testing and design of a subsurface depressurization system (SSDS) for the 20,000+ square foot facility. Oversaw installation of the SSDS and performed post-construction testing to confirm efficacy of the system.

Multiple K-12 Schools: Lead & Copper in Water Testing—Upstate NY

Drew has prepared drinking water sampling plans in accordance with USEPA regulations for multiple K-12 schools throughout upstate New York. Assisted with the execution of the sampling plans and prepared summary reports based on the results.

Residential Well Sampling—Town of Ridgeway, NY

Prepared sampling plan in accordance with NYSDOH guidance for multiple residences within the municipality. Coordinated field staff and scheduling of sampling events. Reviewed data and prepared summary report.

Manufacturing Facility: Site Management Services—Webster, NY

Drew is responsible for the annual inspection and reporting associated with an active manufacturing site in Webster, NY. The site was partially remediated by others in the early 1990s. LaBella performed additional remedial activities in 2016 and has since greatly reduced the annual monitoring requirements of the site. However, the discovery of the emerging contaminant PFAS in 2019 has complicated the site management activities and dictates that annual monitoring continue to occur.