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Site Characterization Sampling and Analysis Plan
Lima Laundromat Site
NYSDEC Site No. 826022
Town of Lima, Livingston County, New York
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Prepared for: New York State Department of Environmental Conservation (NYSDEC)
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1 Objective

This Sampling and Analysis Plan (SAP) was prepared for site characterization activities at the Lima Laundromat site, Site Number 826022 (the Site). This site characterization is driven by the discovery of volatile organic compounds (VOCs) in soil and groundwater during prior Phase II Site Assessments conducted in 2007 and 2010 (see Figure 1).

This SAP will be implemented during the site characterization activities. The primary elements of the site characterization include:

- Installation of soil borings and construction of new monitoring wells. Subsurface soil sampling will be conducted to determine if contamination is present in soil;
- Sampling of new monitoring wells to determine if contamination is present in groundwater and to evaluate the extent of contamination at the site;
- Collection of surface water samples from nearby Spring Brook; and
- Soil vapor intrusion and ambient air sampling.

2 Background

2.1 Site Description and Topography

The Site is located at 7510 East Main Street Lima, Livingston County, New York (see Figure 1). The Site is comprised of one building and a related parking lot located on 1.73 acres. The property is in a moderately developed industrial and residential area. The topography of the site is generally level at grade but slopes down to the west towards Stoney Brook, which flows from south to north along the western edge of the property parcel.

The building was constructed in the early 1950s as a laundromat and dry cleaner business. Dry cleaning operations continued until 1991 and the building remained a self-service laundromat and dry-cleaning drop-off until 1998, when dry cleaning drop-off ceased. Since approximately April 2007 the on-site building has been leased, and the building is shared by the active laundromat and a can redemption center. The property is currently owned by 7510 Lima Investors, Inc.

2.2 Site Geology and Hydrogeology

The soil overburden at the site consists of silt, clay, and sand, with a very dense silt layer at depth. Historical soil borings indicate that the thickness of the overburden generally ranges from 15 to 19 feet.

Groundwater flow in the overburden is likely along the bedrock interface to the southwest towards Stoney Brook, but no groundwater elevation contours are yet available for the Site.

2.3 Previous Investigations

2.3.1 2007 Phase II – Lender Consulting Services

In 2007 Lender Consulting Services (LCS) conducted a Phase II investigation to evaluate if historical dry-cleaning activities impacted on-site soils and groundwater. Five soil borings and four temporary monitoring wells were installed during the investigation and samples were tested for VOCs.

Finding of the 2007 Phase II included:

- LCS concluded that no chlorinated VOCs were detected at concentrations above NYSDEC Part 375 Commercial Soil Cleanup Objectives (SCOs). However, tetrachloroethene (PCE) and its attenuated degradation products, including trichloroethene (TCE), cis-1,2-dichloroethene (DCE), and vinyl chloride, were detected above NYSDEC Groundwater Quality Standards in three of the four monitoring wells. The highest concentrations of VOCs were reported from TPMW-1 centrally located outside the south wall of the building, followed by TPMW-2 near the southwest corner of the building and TPMW-4 located near the northeast corner of the building. VOC results from TPMW-3, which was installed in the parking lot opposite the northwest corner of the building, were within applicable groundwater quality standards.
- LCS concluded that additional study was necessary to determine the extent of contamination.

2.3.2 2010 Phase II – Fisher Associates

In 2010 Fisher Associates conducted a Phase II investigation to further delineate soil and groundwater contamination at the site. Six soil borings were installed to a maximum depth of 15 to 19 feet. Groundwater samples were collected from temporary wells installed in five of the six soil borings and analyzed for VOCs. Soil samples were collected and analyzed for VOCs.

The following affected site media were identified during the 2010 Phase II investigation:

- Borings SB-1 and SB-6 contained PCE, TCE, and DCE below Commercial SCOs. There were no VOC exceedances in soil.
- Samples from all five of the temporary monitoring wells (MW-1, MW-2, MW-3, MW-4, and MW-6) had elevated VOC concentrations including PCE, TCE, DCE, and vinyl chloride. MW-6, located just east of the building, had the highest PCE concentration at 7,600 micrograms per liter.

2.3.3 Data Gaps

E & E has identified the following data gaps based on review of the previous investigations:

- The source and extent of chlorinated solvents in site-wide groundwater and soil has not been identified.
- No indoor air or sub-slab vapor sampling has been conducted.

3 General Site Activities

A New York State-licensed land surveyor (Popli Design Group) will be subcontracted to perform site surveying activities. Following completion of monitoring well installation and sampling, the surveyor will collect locations and elevations. In addition, they will survey the locations of site buildings and other important site features to aid in preparation of a site base map for reporting purposes. All locations will be surveyed to a horizontal accuracy of 0.5 foot. Well and surface water sampling location elevations will be surveyed to a vertical accuracy of 0.05 foot.

LaBella Associates will be subcontracted to provide drilling and monitoring well installation services. LaBella will contact Dig Safely New York to request mark-outs of underground utilities prior to beginning intrusive activities in accordance with New York Code Rule 753.

All field activities listed below will be performed in accordance with E & E's Master Quality Assurance Project Plan (QAPP) (E & E 2020a) and Field Activities Plan (FAP) (E & E 2020b). Sampling and analysis for per- and polyfluoroalkyl substances (PFAS) shall be implemented in accordance with NYSDEC's January 2021 guidance, "Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) (NYSDEC 2021).

A Community Health and Safety Plan (CHSP) will be implemented during site activities (see Appendix A). A site-specific Community Air Monitoring Plan is incorporated in the CHSP.

A summary of planned environmental sampling is provided in Table 1.

4 Soil Boring/Monitoring Well Installation and Sampling

4.1 Subsurface Soil Sampling

Up to 10 soil borings will be installed by LaBella using a direct push (i.e., Geoprobe or equivalent) drill rig (see Figure 1). Continuous macro-core sampling will be conducted from ground surface to refusal depth (anticipated total depth of approximately 20 feet below ground surface). An E & E geologist will log the soil borings, screen soil for organic vapors with a photoionization detector (PID), and collect up to three grab soil samples per soil boring for laboratory analysis.

Nomenclature for soil sample identification will include the soil boring/well location name followed by the depth interval in feet (e.g., SB01-Z02-04). Sample depths will be determined based on observations in the field. Samples will be collected from depth intervals exhibiting potential signs of contamination (such as PID readings, fill, staining, or odors). If no visible

staining or elevated PID readings are encountered, samples will be collected 0-2" inches below the vegetative cover, from 5-10' bgs., and 2' above the water table.

All soil samples will be tested for Target Compound List (TCL) VOCs. Additionally, 20% of samples will be analyzed for full suite Target Compound List/Target Analyte List (TCL/TAL) (TCL SVOCs, PCBs, TAL Metals, and TCL Pesticides), and one sample from a location to be determined in the field near the building will be analyzed for 1,4-dioxane and PFAS.

An E & E geologist will log the soil cores from each sampling run and screen soil using a photoionization detector (PID) and the soil headspace method. Drilling observations during borehole advancement will include lithology of recovered soil, PID readings, and the depth of water bearing zone. Lithologic information will be recorded in a field book. An as-built boring log will be prepared for each borehole, and logs will be completed for each borehole after completion of the field activities.

4.2 Monitoring Well Installation

Up to 7 new monitoring wells will be installed at a subset of the soil boring locations and are expected to average approximately 20 feet in depth. Each well will be constructed with 2-inch-diameter PVC casing and 5-foot-long screens, sand filter pack, bentonite, and cement/bentonite grout (well construction details to be determined in the field based on depth to groundwater and bedrock). Screens will be set above the top of bedrock. If it is determined during drilling activities that a longer screen is needed, a 10ft screen will be used. Figure 1 shows the monitoring well locations, which may be modified in the field.

An E & E geologist will log the soil cores from each monitoring well location and screen soil using a photoionization detector (PID) and the soil headspace method. Drilling observations during borehole advancement will include lithology of recovered soil, PID readings, and the depth of water bearing zone. Lithologic and construction information will be recorded in a field book. An as-built boring log will be prepared for each monitoring well borehole, and well construction logs will be completed for each installed well after completion of the field activities.

4.3 Monitoring Well Development

All new monitoring wells will be developed no sooner than 24 hours after completion of well construction. The wells will be developed by surging and purging using bailers. Development will continue until water quality parameters (pH, temperature, conductivity, and turbidity) have stabilized and turbidity is less than 50 nephelometric turbidity units (NTU), not to exceed 2 hours.

4.4 Groundwater Sampling

One round of synoptic water level measurements will be collected prior to groundwater sampling from the seven new wells. Measurement and sampling will be at least 24 hours after

development of the new wells is complete. Groundwater levels will be measured with an electronic water-level indicator graduated to 0.01 foot.

Seven new wells will be sampled no sooner than 24 hours after well development. Where ample well recharge allows, sampling will be performed using EPA low-flow purging and sampling techniques using a bladder pump equipped with dedicated polyethylene bladders and tubing. Upon stabilization of parameters or sufficient recharge, groundwater samples will be collected and submitted to the laboratory for analysis of Target Compound List (TCL)VOCs by EPA Method 8260 for all wells. Additionally, 20% of samples will be analyzed for full suite Target Compound List/Target Analyte List (TCL/TAL) (TCL SVOCs, PCBs, TAL Metals, and TCL Pesticides), and one monitoring well near the building will be selected in the field and sampled for 1,4-dioxane and PFAS.

5 Surface Water Sampling

Three surface water grab samples will be collected from Spring Brook upstream of, adjacent to, and downstream of the site building and analyzed for TCL VOCs by EPA Method 8260. Temporary staff gauges will be installed at the time of sampling so that surface water elevation measurements may be obtained concurrently with groundwater elevation measurements.

6 Soil Vapor Sampling

Soil vapor and ambient air samples will be collected at four locations in and near the site building. One sub-slab vapor sample will be collected from beneath the main slab of the building from the basement, if present, or at grade slab. Two indoor air (one basement and one first-floor sample) will be collected. One ambient outdoor air sample will also be collected. All sampling will be concurrent and conducted over a 24-hour period using Summa passivated canisters. Samples will be analyzed for VOCs using EPA Method TO-15. Helium leak detection will be performed during sub-slab vapor sampling.

The soil vapor intrusion assessment will include performing a building inspection and materials inventory. A pre-sampling site inspection will be conducted prior to conducting the sampling activities. During the site inspection, E & E will evaluate the building construction, complete the NYSDOH's indoor air quality questionnaire and building inventory form, and conduct an inventory of materials and equipment stored in accessible areas on the first floor of the building. In general, the volatile ingredients of each material, if available, will be photographed or recorded on the inventory form, and the containers will be scanned with a photoionization detector (RAE Systems ppbRAE or equivalent) for potential vapor emissions. If the contents of a container are not listed on the label, WSP will record the product name and manufacturer's name and address (if available) on the inventory form. WSP will recommend that the facility remove from the building any materials that contain VOCs of concern (i.e., trichloroethene [TCE], tetrachloroethene [PCE], or cis-1,2-dichloroethene [cis-1,2-DCE]), or WSP will seal the containers in plastic bags. The sampling activities will be conducted in accordance with the New York State Department of Health's (NYSDOH's) Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006, and associated updates.

7 Equipment Decontamination

The following procedures will be used for all non-dedicated equipment and tools including downhole equipment such as macro-core cutting shoes:

- Initially remove all foreign matter;
- Scrub with brushes in a laboratory-grade detergent solution;
- Rinse with potable water; and
- Rinse with distilled water.

8 Quality Assurance/Quality Control (QA/QC)

QA/QC procedures will be performed in accordance with E & E's 2020 *Master Quality Assurance Project Plan for New York State Department of Environmental Conservation Projects*, *Contract No. D009807*. Specific activities that apply to the implementation of this sampling plan include:

- Collect field duplicates at a rate of 1 per 20 samples per matrix.
- Collect additional volume for matrix spike/matrix spike duplicate (MS/MSD) analysis at a rate of 1 per 20 samples per matrix.
- Collect at least one equipment rinsate blank daily from sampling equipment. Typically, one sample per matrix per day will be collected for all analyses performed on that matrix. Additional rinsate blanks will be collected for PFAS analysis only and shall include dedicated sampling equipment such as sampling pump bladders and tubing, bailers, etc. Laboratory-supplied, analyte-free water shall be used for rinsate blanks.
- Document all data and observations on field data sheets and/or in the field logbooks.
- Operate and calibrate all field instruments in accordance with operating instructions as supplied by the manufacturer unless otherwise specified.
- Ensure all laboratory deliverables are validated by an E & E chemist prior to release.

9 Project Logbook and Photo-Documentation

Photos of the site will be taken, and associated notes will be recorded in the field logbook. A logbook will be maintained to record all on-site activities. Data from the sampling events will be forwarded to NYSDEC and summarized in the site characterization report.

10 Sample Packaging and Shipping

The sample containers will be placed inside sealed plastic bags as a precaution against cross-contamination caused by leakage or breakage. The samples will be placed in coolers with wet ice to begin the cooling process. If sample shipment by common carrier is required, inert packaging material such as bubble wrap will be added to the cooler to minimize the chance of breakage during transport.

Pace Analytical Services/Con-Test Analytical (Con-Test) will provide laboratory analytical services as a call-out laboratory under direct contract to NYSDEC. The contract number (C100701) and call-out number (TBD) shall be provided on all chain-of-custody documentation and related correspondence.

Collection of VOC samples from soil volumes will be performed according to EPA Method 5035. Samples will be collected using Terra Core® kits (such as QEC USA kit 0535-0001-DI or equivalent). NYSDEC call-out laboratories do not provide Method 5035 sampling kits and E & E will obtain sampling kits from a reputable manufacturer.

Delivery of sample containers and supplies to the field and return shipment of samples to the laboratory will be coordinated through the laboratory at the following address or an alternative location to be determined in coordination with the lab:

Con-Test Analytical
39 Spruce Street
East Longmeadow, MA 01028
Phone 413-525-2332.

11 Investigation-Derived Waste Disposal

Three investigation-derived waste streams are expected to be generated during sampling activities: expendable material solid wastes such as personal protective equipment, paper towels, plastic tubing, macro-core sleeves etc.; excess soil from soil boring drilling; and groundwater from development and pre-sample purging. Expendable materials generated during the investigation will be bagged and disposed of off-site as non-hazardous solid waste by E & E or the drilling subcontractor. Soil and purge water generated during installation and sampling of soil borings/monitoring wells will be containerized in Department of Transportation-compliant 55-gallon steel drums. E & E will collect one composite sample from the soil drums and one from the water drums for analyses to be determined based on disposal facility requirements but are expected to include Toxicity Characteristic Leaching Procedure (TCLP) VOCs, SVOCs, and RCRA metals plus pH, and PCBs.

12 Site-Specific Health and Safety Plan

A site-specific health and safety plan has been prepared for this fieldwork and is attached in Appendix B.

13 Reporting

E & E will document the details of daily field activities submitted electronically to NYSDEC.

The laboratory shall provide “Category B” deliverables as described in Appendix 2B of NYSDEC's Technical Guidance for Site Investigation and Remediation, DER-10 (NYSDEC 2010). Lab deliverables will include a complete electronic (PDF) report and NYSDEC EQuIS electronic data deliverable (EDD). An E & E chemist will review the report for completeness and process the EDD to assign appropriate location codes, sample matrices, parent sample codes, etc. The laboratory data will be validated by E & E and will include review of the deliverables, assessment of the validity and usability of the results, and preparation of data usability summary reports in accordance with Appendix 2B of DER-10 (NYSDEC 2010). The validator will update the EDDs with validator qualifiers, prepare and submit an EQuIS EDD to NYSDEC, and

prepare final report tables. Validated sample data will be presented in a table accompanied by site figures depicting the sampling locations.

Following completion of all sample analyses and completion of data validation, E & E will prepare a site characterization report that will include photos and a description of the activities performed, any deviations from proposed procedures, sampling locations depicted on site maps, and analytical results in tables. The draft report will be submitted electronically to NYSDEC for review, with a final electronic version of the report produced approximately two weeks after receiving draft report comments.

14 References

Ecology and Environment Engineering and Geology, P.C. (E & E). 2020a. *Master Quality Assurance Project Plan (QAPP) for New York State Department of Environmental Conservation Projects*, May 2020.

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Fisher Associates. 2010. *Phase II Environmental Site Assessment*, October 2010.

Lender Consulting Services, Inc. (LCS). 2007. *Phase II Environmental Site Assessment*, May 2007.

New York State Department of Environmental Conservation (NYSDEC). 2010. *DER-10, Technical Guidance for Site Investigation and Remediation*, May 2010.

_____. 2021. *Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs*, January 2021.

Insert Table 1 and Figure 1 here

APPENDIX A

COMMUNITY HEALTH AND SAFETY PLAN
COMMUNITY AIR MONITORING PLAN

APPENDIX B

SITE-SPECIFIC HEALTH AND SAFETY PLAN