Operations and Maintenance Plan
101 Green Acres Road Site
Valley Stream, New York

Prepared for:
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1 Introduction

1.1 Purpose

ENVIRON International Corporation (ENVIRON) has prepared this Operation and Maintenance Plan (O&M Plan), on behalf of Bulova Corporation (Bulova), for the 101 Green Acres Road Site in Valley Stream, New York (the "Site"). The Site location is depicted on Figure 1. Based on the results of prior investigations and remedial actions at the Site, the New York State Department of Environmental Conservation (NYSDEC) determined that no further remedial actions are warranted at the Site. As detailed in the Record of Decision (NYSDEC; March 2000), NYSDEC has determined that the remedial actions completed to date at the Site have eliminated or mitigated all significant threats to the public health or the environment.

In conjunction with the reclassification of the Site from a Class 2 to a Class 4 site on the New York State Registry of Inactive Hazardous Waste Disposal Sites, NYSDEC required additional periodic ground water monitoring be completed at and in the vicinity of the Site. In addition, at the time of the Record of Decision associated with the Site, NYSDEC determined, based on sampling conducted by NYSDOH, that the migration of subsurface soil vapor into on-site or nearby structures was not a concern. NYSDEC also stated that the positive pressure ventilation system associated with the on-site building would serve to suppress subsurface vapors. However, given recent concerns regarding vapor intrusion, NYSDEC requested that additional vapor intrusion investigation actions, including periodic monitoring, be completed at the existing on-site building.

1.2 Objectives

This O&M Plan updates the March 2000 plan for the site and incorporates current monitoring activities. The primary objective of this O&M Plan is to define the scope of monitoring programs to be conducted to (1) evaluate changes in conditions in ground water on-site and (2) evaluate the effectiveness of the existing building at the Site which serves as a mitigation measure to address the vapor intrusion exposure pathway. Although prior work plans prepared for the Site summarize certain monitoring requirements for the site, this document is intended to provide the comprehensive scope for current and future monitoring programs.

Pursuant to NYSDEC's July 25, 2011 correspondence, the additional monitoring for the site will include the following:

- Semi-annual groundwater sampling in September and March for at least two years; and
- Annual indoor air sampling in March for at least two years.

Details of the additional monitoring activities are provided in Sections 3 and 4 below.

1.3 Background

1.3.1 Location and Physical Setting

The Site is located in the Town of Hempstead, Nassau County, New York in a mixed-use urban area with residential, commercial, and light industrial properties. The Site is included in the Lynbrook, New York USGS topographic quadrangle and the Site location is depicted on

Figure 1. The Site covers approximately 7.2 acres and is bordered to the northwest and northeast by retail stores and paved parking areas. The Green Acres shopping mall is immediately northeast of the Site. The northern limits of the retail stores and parking areas are bordered by the Sunrise Highway and the Far Rockaway branch of the Long Island Railroad. A residential area is adjacent to the eastern property boundary. Light industrial facilities, including distribution and shipping companies, are located to the south of the Site at the Airport Industrial Office Park (AIOP). John F. Kennedy International Airport is approximately 2 miles southwest of the Site.

Hook Creek, an intermittent stream, is located beyond the western edge of the Site. The creek receives storm water drainage from the Site as well as from upgradient areas including paved parking areas, Sunrise Highway, and the Long Island Railroad adjacent to the Sunrise Highway. Hook Creek flows south, merges with Valley Stream approximately 0.5 miles south of the Site, and then flows to the west, discharging to Jamaica Bay. Clear Stream, located approximately 0.3 miles southeast of the Site, flows to the south and joins Valley Stream approximately 0.2 miles upstream of Hook Creek. In the vicinity of the Site, the Nassau/Queens County line roughly follows Hook Creek.

1.3.2 Geology

The Site is located within Long Island's glacial outwash plain, which extends 10 miles southward from the Ronkonkama and Harbor Hill terminal moraines to the south shore. Surface topography at the Site is flat, with surface elevations ranging from approximately 8 to 10 feet above mean sea level (amsl). Topography in the vicinity of the Site is also generally flat and gently slopes toward the south and southeast in the direction of Hook Creek and Valley Stream. The Site is underlain by upper Pleistocene deposits, which form the upper glacial aquifer. The upper Pleistocene deposits consist mainly of stratified beds of fine to coarse sand and of sand and gravel. Thin beds of silt and clay are often interbedded with the coarse-grained material. The upper glacial aquifer is underlain by the "20-foot" clay and the Gardiners Clay. The "20-foot" clay is lithologically similar to the underlying Gardiners Clay and the two units are distinguished primarily by stratigraphic position. In some portions of southern Nassau County, the "20-foot" clay is separated from the Gardiners Clay by a layer of upper Pleistocene deposits. The "20-foot" clay and the Gardiners Clay represent the major confining layers within the upper portion of the ground water reservoir beneath Nassau County. Additional information related to the regional geology is detailed in the Geologic Review and Well Record Search Results letter report (ENVIRON, April 16, 1998).

Based on observations during the prior site investigations, geologic conditions at and in the vicinity of the Site are consistent with the findings of regional geologic investigations. The Site is underlain by fine to medium sands. Ground water is located approximately 5 feet below ground surface (bgs). Regional geologic investigation reports indicate that the northern boundary of the "20-foot" clay is present in the vicinity of the Site, and the site investigation results indicate that the "20-foot" clay is discontinuous beneath the Site. Where the "20-foot" clay is present, a thin layer of upper Pleistocene deposits appear to be positioned between the "20-foot" clay and the Gardiners Clay. The top of the "20-foot" clay has been encountered at depths of 38 – 45 feet bgs and the top of the Gardiners Clay has been encountered at depths of 45 – 52 feet bgs.

1.3.3 Site History

Industrial operations at the Site are believed to have started in the late 1920s with the construction of the Curtiss-Wright Airport in 1929.[1] Airport related structures at the Site included airplane hangars and a portion of the runway. Although Curtiss Flying Service abandoned the airfield in approximately 1938, several other air service companies continued to operate the airfield. Occupants included the Columbia Aircraft Corporation, which built airplanes for military and private concerns between 1940 and 1948. The Bulova Watch Company leased the property from 1948 until 1960, when Bulova took title of the property.

When Bulova took occupancy of the Site in 1948, two airplane hangars existed on the eastern portion of the Site. Based on discussions with Bulova personnel, it is believed that Bulova connected the airplane hangars in 1952, creating Building No. 1. Building No. 2 was erected west of Building No. 1 in 1967. During Bulova's occupancy, the eastern and northern portions of the Site were paved; a portion of the paved area incorporated the original concrete airfield runway, which traversed the eastern portion of the property from north to south. Bulova ceased operations at the Site during 1990 and title of the property was transferred to Home Depot in April 1993.

The Site was redeveloped during 1993. Redevelopment included demolition of all existing Site structures and construction of a Home Depot retail store. The entire Site is currently covered by the Home Depot building and the associated paved parking areas. Potable water and sanitary service at the Site are provided by the local municipal authority. Storm water drainage from the building roof and paved parking areas is collected in a series of catch basins and directed via reinforced concrete piping beyond the eastern property boundary.

1.4 Prior Investigation/Interim Action Activities

Numerous phases of investigation and remediation have been completed at the site, under the oversight of the NYSDEC. As described above, in the Record of Decision, NYSDEC determined that actual or threatened releases of hazardous waste constituents at the Site had been addressed through the implementation of interim response actions and that the response actions had significantly reduced the threat to public health and the environment. Based on the results of the investigations and response actions at the Site, NYSDEC determined in the Record of Decision that no further remedial action was required and that natural attenuation represented an appropriate alternative to address impacted ground water at the Site. Details of investigation and interim action results completed at the site have been provided to NYSDEC in prior report submittals.

[1] Information related to prior site operations was obtained from a Phase I environmental assessment performed by Certified Engineering and Testing Company during 1990.

2 Well Installation

2.1 Well Installation

Although ENVIRON and Bulova do not anticipate the need for additional monitoring wells at the Site, well installation procedures have been retained in the updated O&M Plan in the unlikely event that additional wells are required.

2.2 Field Procedures

2.2.1 Drilling and Sampling

Additional wells, if necessary, will be installed by a truck-mounted drill rig using 4.25-inch I.D. hollow-stem augers. Split-spoon samples will be collected at continuous intervals to characterize soils within the proposed well screen interval. Soil cores obtained from split-spoon samples will be screened over 6-inch intervals using a photoionization detector (PID) to identify the potential presence of volatile organic compounds. All drilling will be performed by a qualified drilling contractor, under direct supervision of an ENVIRON field geologist.

2.2.2 Soil Logging

The ENVIRON field geologist will log soils to assess hydrogeologic characteristics. Unconsolidated material will be logged and described in accordance with the Unified Soil Classification System (USCS).

2.2.3 Well Construction

All items and materials used in well construction will be properly protected by the driller so that no damage, deterioration, or contamination occurs from the time of shipment until installation is complete. No solvents/cleaners or lubricants will be permitted to be used in construction of the monitoring well. Additional monitoring wells will be installed to a depth of approximately 10 to 15 feet bgs and will be screened across the water table. The well will be constructed with 2-inch diameter, Schedule 40 PVC casing and screen.

2.2.4 Well Development

Following installation of additional monitoring wells, each well will be developed by pumping using a submersible pump until a non-turbid discharge is produced. Additionally, a water quality meter will be used to monitor pH, conductivity, temperature, dissolved oxygen, turbidity, and oxidation-reduction potential to determine the completeness of development. Development will be considered complete when these parameters have stabilized such that the pH, conductivity, dissolved oxygen, oxidation-reduction potential, and turbidity values are within approximately 10 percent of the previous reading, and the water is, to the extent reasonably possible, visibly clear and free of turbidity and sediment during active development. Well development water will be containerized, characterized, and disposed of appropriately.

2.2.5 Decontamination Procedures

All down-hole drilling equipment (e.g., augers, split-spoons, drill rods) will be steam-cleaned prior to the initial use on-site and after monitoring well installation. Water to be used during steam cleaning will be obtained from a potable water source. Soil sampling equipment used to collect samples of the drill cuttings will be decontaminated before the initial use on-site. The

ground water purge pump will also be decontaminated prior to well development. The decontamination procedure will consist of an Alconox (detergent) and tap water wash, tap water rinse, and final distilled/deionized water rinse. Decontamination fluids will be containerized, characterized, and disposed of appropriately.

2.2.6 Management of Investigation-Derived Wastes

Soil cuttings generated during drilling activities associated with additional well installation will be containerized in 55-gallon drums and temporarily staged on site. A waste classification sample will be collected to aid in characterizing the soil for appropriate off-site disposal.

3 Ground Water Monitoring Program

3.1 Ground Water Sampling Program

Ground water sampling activities have been conducted at the Site since 1991. Contaminant concentration trends at the southeast corner of the Site have displayed an overall decreasing trend and reported VOC concentrations have decreased by as much as approximately two orders of magnitude since a September 1995 sampling event.

Based on NYSDEC's request, ENVIRON and Bulova proposed to conduct semi-annual ground water sampling at the Site to further monitor the decreasing constituent concentrations. Semi-annual ground water monitoring was conducted from 1999 through 2002 and ground water samples were collected at monitoring wells MW-HD2, MW-HD4, MW-HD6, and MW-HD7. In 2009, NYSDEC requested additional ground water sampling to be conducted contemporaneously with additional vapor intrusion investigations at the Site. Pursuant to NYSDEC's request in correspondence dated July 25, 2011, semi-annual groundwater sampling will be conducted in September and March for a period of at least two years. During the semi-annual monitoring program, groundwater samples will be collected from monitoring wells MW-HD4, MW-HD6, and MW-HD7. Sampling procedures associated with semi-annual ground water sampling are discussed in detail below.

3.2 Sampling Procedures

3.2.1 Ground Water Level Measurements

Ground water level measurements will be collected at each monitoring well (i.e., MW-HD1 and MW-HD4 through MW-HD7) at the beginning of each semi-annual sampling event. Ground water monitoring wells are depicted on Figure 2. Ground water level measurements will be taken using an electric water level indicator. The tape on the electronic meter will have gradations to the nearest 0.02 foot, and interpolation will be used to measure the level of the ground water to the nearest 0.01 foot. Measurements will be made until two consecutive readings are within 0.01 foot of each other. The last measurement will be recorded. Total well depth measurements will also be collected during each semi-annual sampling event to confirm that each monitoring well remains open to the constructed depth.

3.2.2 Monitoring Well Purging

Each monitoring well included in the semi-annual sampling events will be purged prior to sampling to ensure that the water samples collected will be representative of formation ground water. Prior to purging, the standing water volume within each monitoring well will be calculated to estimate the purge volume. Monitoring wells will be purged using a submersible pump with dedicated, disposable tubing.

The submersible pump along with dedicated tubing will be gently lowered into the monitoring well to minimize disturbance to the standing water column, as well as any sediment that may have settled to the bottom of the monitoring well. The pump intake will be set as close to the top of the water column as possible and the purge rate will be set at an even, sustainable flow rate. The purge rate will be set to minimize water level drawdown during purging and water level measurements will be collected during purging to confirm that the water level in the well

remains above pump intake level. These procedures are intended to minimize turbulence in the monitoring well and prevent fine solids at the bottom of the monitoring well and in the surrounding gravel pack from being mixed into the water column. Purged ground water will be temporarily containerized in 55-gallon drums and appropriately disposed of upon review of analytical data.

Samples of ground water will be collected periodically during monitoring well purging and tested for select indicator parameters (i.e., pH, conductivity, temperature, dissolved oxygen, turbidity, and oxidation-reduction potential) to assess when formation water flowing into the well has stabilized. These measurements will be collected using a water quality meter equipped with a flow through cell. Prior to use each day, the water quality meter will be calibrated according to the manufacturer's recommended procedures. Calibration information will be recorded in the field log book. Field equipment calibration frequencies are provided below.

Purging of monitoring wells will continue until at least three casing volumes have been evacuated and indicator parameters indicate steady-state conditions (i.e., ±10 percent of the previous reading). If steady-state conditions are not attained after the minimum volume has been removed, purging will continue until field parameters are consistent.

All data relating to the monitoring well purging, including date and time of activity, monitoring well number, ground water purge volume, estimated pumping rate, field parameter measurements, and purging method will be carefully recorded in a bound field logbook.

3.2.3 Ground Water Sample Collection

Ground water samples will be collected using standard sampling techniques and equipment to ensure that samples are representative of aquifer conditions. Disposable Teflon™ bailers will be used to minimize potential reactions with ground water samples.

Samples will be collected in containers supplied by Accutest Laboratory of Dayton, New Jersey, a NYSDOH ELAP CLP-certified laboratory. Sample containers will be filled slowly until a positive meniscus is achieved, minimizing the possibility of aeration during sample collection and transport. Once full, sample bottles will be capped, inverted, and tapped to ensure no air bubbles are present. In accordance with prior requests from NYSDEC, sample containers will be unpreserved. Ground water samples will be analyzed for the six primary constituents of concern identified in NYSDEC's March 2000 Record of Decision associated with the Site (i.e., tetrachloroethene [PCE]; trichloroethene [TCE]; 1,1,1-trichloroethane [TCA]; 1,1-Dichloroethane [1,1-DCA]; 1,1,-Dichloroethene [1,1-DCE]; and Freon 113. Laboratory deliverables will be provided in a NYSDEC ASP Category B format.

3.2.4 Field Equipment Calibration

Each item of equipment used in field activities will be calibrated at a frequency and to the specifications presented in owner/operator manuals provided by the manufacturer. If the calibration schedule is not adequately maintained, or if accuracy as required in the operations manual cannot be attained, that instrument will be identified and will be unavailable for use until repaired so the specifications are attained. Calibration information will be recorded by

ENVIRON field personnel in bound field logbooks. Calibration frequencies for field equipment to be used are presented below.

Organic Vapor Meter

Thermo Environmental OVM 580B or equivalent: Factory-calibrated at least annually. Field calibrated at beginning of each day and after field operations have been completed for the day following manufacturer's directions.

Water Level Measurements

Electronic depth-to-water meter: Factory calibrated. No re-calibration required.

Ground Water Field Parameters

Horiba U-22 Monitoring System: Field calibrated at the beginning of each day. A 2-point calibration will be performed for pH, conductivity, dissolved oxygen, turbidity (calibration of oxidation-reduction potential is included as part of the pH calibration). The temperature probe is factory calibrated and no re-calibration is required.

3.2.5 Equipment Decontamination

All equipment used during sampling will be decontaminated prior to use on-site. Decontamination water will be containerized in 55-gallon drums and characterized for appropriate disposal. Decontamination procedures are outlined below.

Water Level Indicator

Ground water levels in monitoring wells will be measured using an electronic water level indicator. Prior to use, all parts of the water level indicator that may come into contact with ground water inside the well casing, including the measurement probe and permanent line/cable, will be rinsed with non-phosphate detergent solution, rinsed with tap water to remove detergent, and air dried.

Field Parameter Measurement Equipment

Measurements of previously specified field parameters will be taken during purging of monitoring wells. Prior to use, all parts of the water quality meter and flow through cell that may come into contact with extracted ground water will be rinsed with non-phosphate detergent solution, rinsed with tap water to remove detergent, and air dried. Between measurements at sampling points, all parts of the equipment that come into contact with extracted ground water will be rinsed (or spray cleaned) with deionized water.

Purging Equipment

Dedicated, disposable polyethylene discharge tubing will be used at each monitoring well.

3.3 Sample Custody Procedures

3.3.1 Field Documentation

Sample identification documents will be carefully prepared to maintain sample identification and chain-of-custody, and to control sample disposition. Sample identification documents are detailed below.

3.3.1.1 Sample Labels

Sample tags are necessary to prevent misidentification of samples. Sample labels will be affixed to the sample bottles either before sampling activities or immediately following sample collection. At a minimum, sample labels will contain the following information:

- Sample identification number;
- Project code, an assigned ENVIRON project number;
- Name and initials of collector;
- Date;
- Time;
- Preservative; and
- Analysis requested.

3.3.1.2 Field Logbook

Information pertinent to the semi-annual monitoring program, measurements, and /or sampling will be recorded in a bound logbook. Entries in the logbook will contain:

- Name and title of author, date and time of entry, and physical/environmental conditions during field activity;
- Location of sampling or measurement activity;
- Name(s) and title(s) of site visitors;
- Type of sampled or measured medium (surface water, ground water, etc);
- Sample collection or measurement method(s);
- Number and volume of sample(s) taken;
- Description of sampling point(s);
- Date and time of collection or measurement;
- Sample identification number(s);
- Sample preservative;
- Sample distribution (e.g., laboratory);
- Field observations/comments;
- Field measurement data; and
- Sample documentation including dates and methods of sample shipment.

3.3.1.3 Chain-of-Custody Form

The Chain-of-Custody Form for each sample will originate at the Site, where samples will be prepared for shipment to the laboratory. This form will be completed to establish the documentation necessary to trace sample possession from sample collection through sample

analysis. ENVIRON will be responsible for completion of the Chain-of-Custody Form throughout the sampling program until the samples have been picked up by the laboratory personnel or delivered to the laboratory. The Chain-of-Custody Form will contain:

- Project name;
- List of sampling team members;
- Sample identification number (which includes a project/site-specific identifier);
- Date and time of sample collection;
- Total number of containers per sample;
- Sample type (grab, composite);
- Medium type;
- Analyses requested;
- Remarks (if applicable);
- Turnaround time requested;
- Data package requirements;
- Signature of sampler; and
- Signatures of persons involved in the chain of possessions.

3.3.2 Sample Packaging and Shipping

Samples will be packaged, labeled and placed in coolers with ice as indicated below. All samples will be shipped via overnight carrier or by courier to reduce processing time, unless otherwise determined. The following procedures shall be followed for packing samples for shipment to the laboratory:

- Make sure all sample container caps are tight.
- Place the sample containers in the cooler, allowing sufficient space for the addition of packing material between the sample containers.
- Place blue ice packs (or equivalent) on top of and between the samples.
- Place a copy of the Chain-of-Custody Form in a sealed clear plastic envelope and place in the cooler.

Immediately upon arrival of the samples at the laboratory, the laboratory will record the condition of the shipping container and sample containers. The original Chain-of-Custody Form will be returned from the laboratory as part of the final analytical report. This record will be used to document sample custody transfers from the sampler to the laboratory and will become a permanent part of the project file.

3.3.3 Corrections and Documentation

Original data recorded in the field logbook, Chain-of-Custody Forms, and other forms will be written in ink. None of these documents will be altered, destroyed, or discarded even if they are illegible or contain inaccuracies that require a replacement document.

If an error is made on a document, the individual responsible for the error will make the correction by drawing a line through the error, entering the correct information, and initialing and dating the change. The erroneous information will not be obliterated. Any additional error(s) discovered on a document will be corrected by the person who made the entry. All corrections will be initialed and dated by the author in permanent ink.

3.4 Quality Assurance/Quality Control Samples

To evaluate laboratory performance and matrix variability, duplicate samples will be collected during the ground water sampling events at a frequency of no less than 1 per 20 samples.

To determine the effectiveness of the decontamination procedures, equipment rinsate blank samples will be collected during the ground water sampling events. Rinsate blanks will be collected at a frequency of no less than 1 per 20 samples. These samples will be obtained by pouring laboratory-supplied deionized water over or through the sampling equipment into the appropriate sample containers. The rinsate blank samples will be analyzed for the six primary constituents of concern identified in NYSDEC's March 2000 Record of Decision associated with the Site (i.e., PCE, TCE, TCA, 1,1-DCA, 1,1-DCE, and Freon 113).

To identify possible VOC contamination during sample handling, transportation, or storage, one trip blank sample will accompany each sample shipment. The laboratory will prepare the trip blanks by placing deionized water in appropriate sample containers. The trip blank samples will be transported to the field and placed with the sample collected. The blanks will be handled in the same manner as samples collected in the field. Trip blank samples will be analyzed for the six primary constituents of concern identified in NYSDEC's March 2000 Record of Decision associated with the Site (i.e., PCE, TCE, TCA, 1,1-DCA, 1,1-DCE, and Freon 113).

4 Vapor Intrusion Monitoring Program

4.1 Vapor Intrusion Monitoring Program

Vapor intrusion investigations conducted at the Site have identified elevated VOC concentrations below the on-site building slab; however, reported VOC concentrations in corresponding indoor air samples were below corresponding NYSDOH Air Guidance Values, Calculated Health-Based Indoor Air Criterion, USEPA benchmark values for indoor air quality in public and commercial buildings, and Occupational Indoor Air Standards. Based on the vapor intrusion investigation results, the existing building at the Site would appear to be serving as an effective mitigation measure (i.e., an engineering control) to address the vapor intrusion exposure pathway and no significant human exposures are currently occurring via the vapor intrusion pathway at the Site.

Notwithstanding, NYSDEC has requested that annual indoor air samples be collected in March (concurrent with the semi-annual ground water monitoring) for at least two years.

The indoor air sampling locations will be positioned immediately adjacent to areas where prior soil gas investigations identified elevated VOC concentrations beneath the footprint of the current building at the Site (i.e., ENVIRON sample locations ENV01 through ENV06). Indoor air sampling locations are depicted on Figure 3.

Active indoor air sampling will be conducted in accordance with the Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, October 2006) and the procedures described below.

4.2 Building Walkthrough Survey, Inspection, and Preventative Maintenance

Prior to conducting the vapor intrusion investigation, a building walkthrough and survey shall be completed to identify potential background sources of indoor air contamination. If background sources of indoor air contamination are identified, the sources shall be removed from the building, to the extent practical, before the commencement of the indoor air sampling event. An Indoor Air Quality Questionnaire and Building Inventory form will be completed following the pre-sampling building walkthrough to document the site conditions. A copy of this form is provided as Attachment A. As requested by NYSDEC, the Building Inventory will focus on materials utilized at the Site and any spills that may have occurred recently.

Based on the results of the prior investigations, the existing building at the Site (i.e., competent concrete slab, building construction, building size, air circulation, and the generally positive/neutral pressures within the building) is serving as an effective mitigation measure/engineering control to address the vapor intrusion exposure pathway. In conjunction with the walkthrough survey, ENVIRON personnel will visually inspect the condition of the building slab and document the presence of cracks or potential features that may allow leaks of sub-slab soil gas to indoor air. If changes to the integrity of the building slab are identified that represent a potential pathway for soil gas migration, these features will be appropriately sealed to remove the potential for migration of soil vapor to indoor air. Results of the inspection, and the nature of any repairs, will be documented on the Indoor Air Quality Questionnaire and Building Inventory form and provided in the annual report (as described in Section 6 below).

To further ensure that the existing building at the Site continues to serve as an effective mitigation measure, annual inspection and preventative maintenance of the building's heating, ventilation, and air conditioning (HVAC) system will be completed on behalf of the property owner and any necessary adjustments will be made. Documentation regarding the annual HVAC inspection and maintenance activities, and the nature of any system adjustments, will be provided in the annual report (as described in Section 6 below).

4.3 Sampling Procedures

4.3.1 Indoor Air Sample Collection

Indoor air sample collection within the on-site building will consist of the collection of six indoor air locations immediately adjacent to existing sub-slab soil gas sampling locations; and one outdoor ambient air reference sample. Sampling canisters will be positioned in the breathing zone (3 to 5 feet above the floor surface). An ambient air sample will also be collected during the investigation. The ambient air sample will be located outside the building in area that is reasonably representative of background conditions and not adjacent to a high traffic area.

Sampling activities will take place while the heating, ventilation, and cooling (HVAC) system is operating in a manner consistent with normal operating conditions. Written documentation that the HVAC system was in normal operations during the time that samples were collected will be prepared and provided with the investigation results report. The following information will also be documented during the field investigation and included in monitoring results report: serial number of regulator and canister, outdoor weather conditions, and laboratory vacuum.

Samples will be collected into an evacuated, laboratory-cleaned 6-Liter stainless steel Summa® canister and transported to an Environmental Laboratory Approval Program (ELAP) certified laboratory. Laboratory services will be provided by Accutest Laboratories of Dayton, New Jersey. Consistent with the prior vapor intrusion investigation activities, each sample will be analyzed for the six primary constituents of concern identified in NYSDEC's March 2000 Record of Decision associated with the Site (i.e., PCE, TCE, TCA, 1,1-DCA, 1,1-DCE, and Freon 113) using USEPA Method TO-15. In addition, for quality assurance purposes, one duplicate sample will be collected.

4.3.2 Field Sampling Equipment

Summa® canisters

The Summa® canisters will be equipped with regulators pre-set by the laboratory to correspond to an 8-hour sampling time, with the end of the sampling period corresponding to the store closing time for that day. Summa® canisters condition and pressures will also be laboratory calibrated. Reporting Limits (RLs) and Method Detection Limits (MDLs), for undiluted air samples, for the selected constituents are outlined below.[2]

[2] The RL is the lowest concentration standard in the calibration range of each compound analyzed. This value is also the low limit for unqualified quantitative data. The MDL is determined via experimentation and verified through additional testing. This value represents the lowest concentration of each compound that can be qualitatively identified by the method in use.

Constituent	Reporting Limit (ug/m3)	Method Detection Limit (ug/m3)
PCE	0.27	0.14
TCE	0.21	0.099
TCA	1.1	0.13
1,1-DCA	0.81	0.13
1,1-DCE	0.79	0.17
Freon 113	1.5	0.17

4.4 Sample Custody Procedures

4.4.1 Field Documentation

Sample identification documents will be carefully prepared to maintain sample identification and chain-of-custody, and to control sample disposition. Sample identification documents are detailed below.

4.4.1.1 Sample Labels

Sample tags are necessary to prevent misidentification of samples. Sample labels will be affixed to the sample canisters either before sampling activities or immediately following sample collection. At a minimum, sample labels will contain the following information:

- Sample identification number;
- Project code, an assigned ENVIRON project number;
- Name and initials of collector;
- Date;
- Temperature;
- Sample start and end times;
- Sample start and end Summa® canister pressure; and
- Analysis requested.

4.4.1.2 Field Logbook

Information pertinent to the annual indoor air monitoring program will be recorded in a bound logbook. Entries in the logbook will contain:

- Name and title of author, date and time of entry, and physical/environmental conditions during field activity;
- Location of sampling or measurement activity;
- Name(s) and title(s) of site visitors;
- Type of sampled or measured medium (indoor air, ambient air, etc.);
- Sample collection or measurement method(s);
- Number and volume of sample(s) taken;

- Description of sampling point(s);
- Sample identification number(s);
- Summa® canister identification number and associated flow controller identification number;
- Date and time of collection;
- Air temperature before and after sample collection;
- Barometric pressure on the day of sampling;
- Summa® canister pressure before and after sample collection;
- Sample distribution (e.g., laboratory);
- Field observations/comments; and
- Sample documentation including dates and methods of sample shipment.

4.4.1.3 Chain-of-Custody Form

The Chain-of-Custody Form for each sample will originate at the Site, where samples will be prepared for shipment to the laboratory. This form will be completed to establish the documentation necessary to trace sample possession from sample collection through sample analysis. ENVIRON will be responsible for completion of the Chain-of-Custody Form throughout the sampling program until the samples have been picked up by the laboratory personnel or delivered to the laboratory. The Chain-of-Custody Form will contain:

- Project name;
- List of sampling team members;
- Sample identification number (which includes a project/site-specific identifier);
- Date and time of sample collection;
- Sample type (indoor air, ambient air, etc.);
- Medium type;
- Summa® canister identification number and associated flow controller identification number;
- Air temperature before and after sample collection;
- Barometric pressure on the day of sampling;
- Summa® canister pressure before and after sample collection;
- Analyses requested;
- Remarks (if applicable);
- Turnaround time requested;
- Data package requirements;
- Signature of sampler; and

- Signatures of persons involved in the chain of possessions.

4.4.2 Sample Packaging and Shipping

Samples will be packaged as indicated below. All samples will be shipped via overnight carrier or by courier to reduce processing time, unless otherwise determined. The following procedures shall be followed for packing samples for shipment to the laboratory:

- Make sure the Summa® canister zero air shut-off valves are tightly closed.
- Ensure that all canister connections are capped with a stainless steel fitting.
- Package all flow controllers in bubble wrap and place in individual containers.
- Package each canister in form-fitting foam pieces and fit snugly in the laboratory provided shipping box.
- Place a copy of the Chain-of-Custody Form in a sealed clear plastic envelope and place in the shipping box.

Immediately upon arrival of the samples at the laboratory, the laboratory will record the condition of the shipping container and Summa® canisters. The original Chain-of-Custody Form will be returned from the laboratory as part of the final analytical report. This record will be used to document sample custody transfers from the sampler to the laboratory and will become a permanent part of the project file.

4.4.3 Corrections and Documentation

Original data recorded in the field logbook, Chain-of-Custody Forms, and other forms will be written in ink. None of these documents will be altered, destroyed, or discarded even if they are illegible or contain inaccuracies that require a replacement document.

If an error is made on a document, the individual responsible for the error will make the correction by drawing a line through the error, entering the correct information, and initialing and dating the change. The erroneous information will not be obliterated. Any additional error(s) discovered on a document will be corrected by the person who made the entry. All corrections will be initialed and dated by the author in permanent ink.

4.5 Quality Assurance/Quality Control Samples

To evaluate laboratory performance and matrix variability, duplicate samples will be collected during the indoor air sampling events at a frequency of no less than 1 per 20 samples.

To identify possible VOC contamination due to background conditions, one ambient air sample location will also be collected at a frequency of no less than 1 per sampling event. The ambient air sample will be positioned outside of the building in an area that is reasonably representative of background conditions and was not adjacent to high traffic areas.

5 Health And Safety

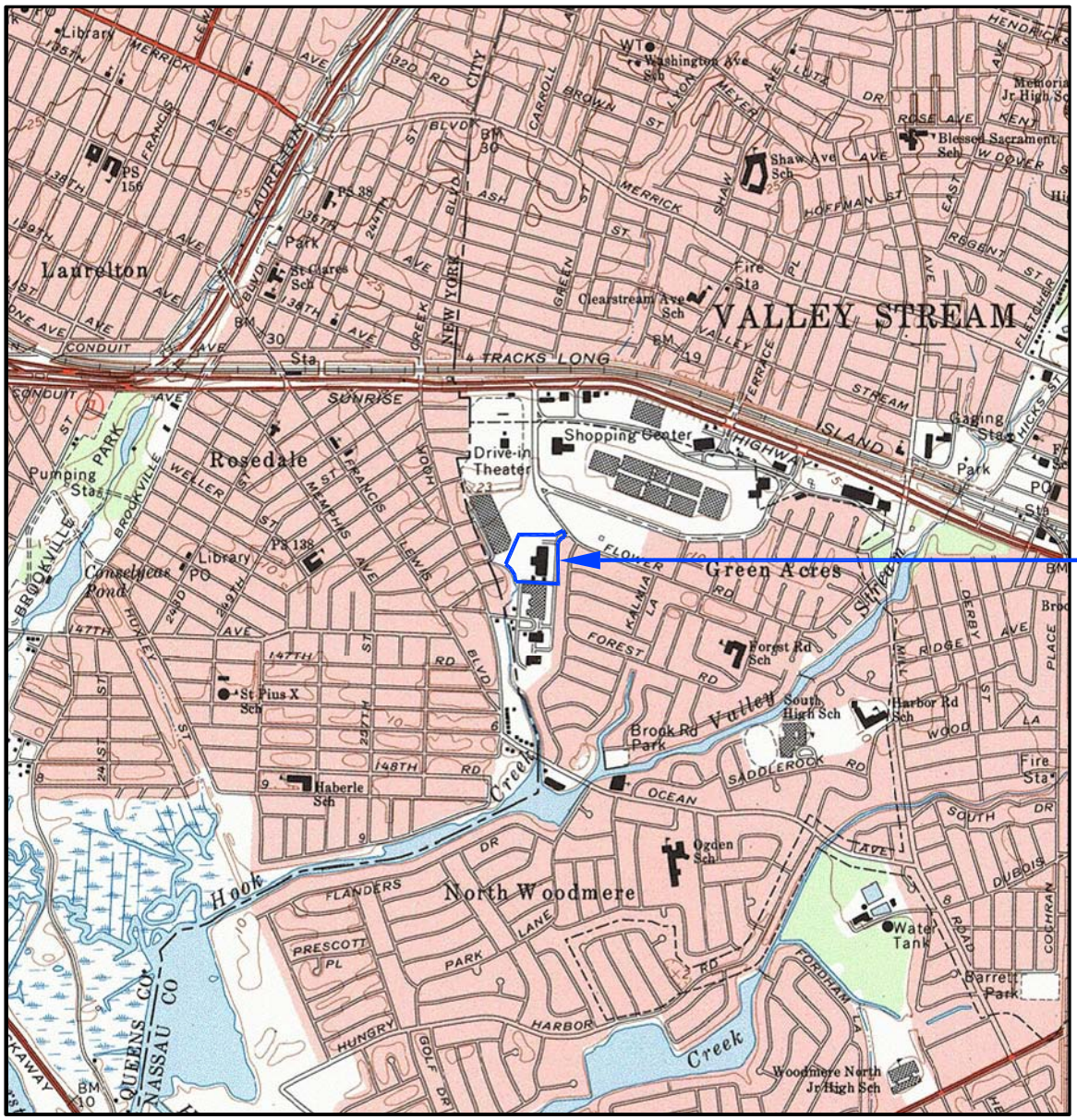
Health and safety issues associated with the proposed indoor air and ground water sampling program will be addressed as per ENVIRON's September 2009 Health and Safety Plan (HASP). ENVIRON field personnel will take all responsible precautions to ensure worker safety and protection, and to prevent injury or loss, and will comply with the requirements of the HASP.

6 Report Preparation

Analytical tables will be provided to the NYSDEC following receipt and review of the data associated with each semi-annual ground water sampling and annual indoor air sampling event. ENVIRON will prepare an annual report detailing the methods, results, conclusions, and recommendations 90 days after conducting the March sampling activities. The report will include a Data Usability Summary Report prepared in accordance with Section 2.0 and Appendix 2B of Technical Guidance for Site Investigation and Remediation (DER-10). The *Declaration of Covenants and Restrictions* requires periodic certifications that the existing building at the Site (*i.e.,* the engineering control) is unchanged from the previous certification (or will describe any changes), that the engineering control complies with the O&M Plan, and that the engineering control and the institutional control (*i.e.,* groundwater use restriction) have not been impaired.

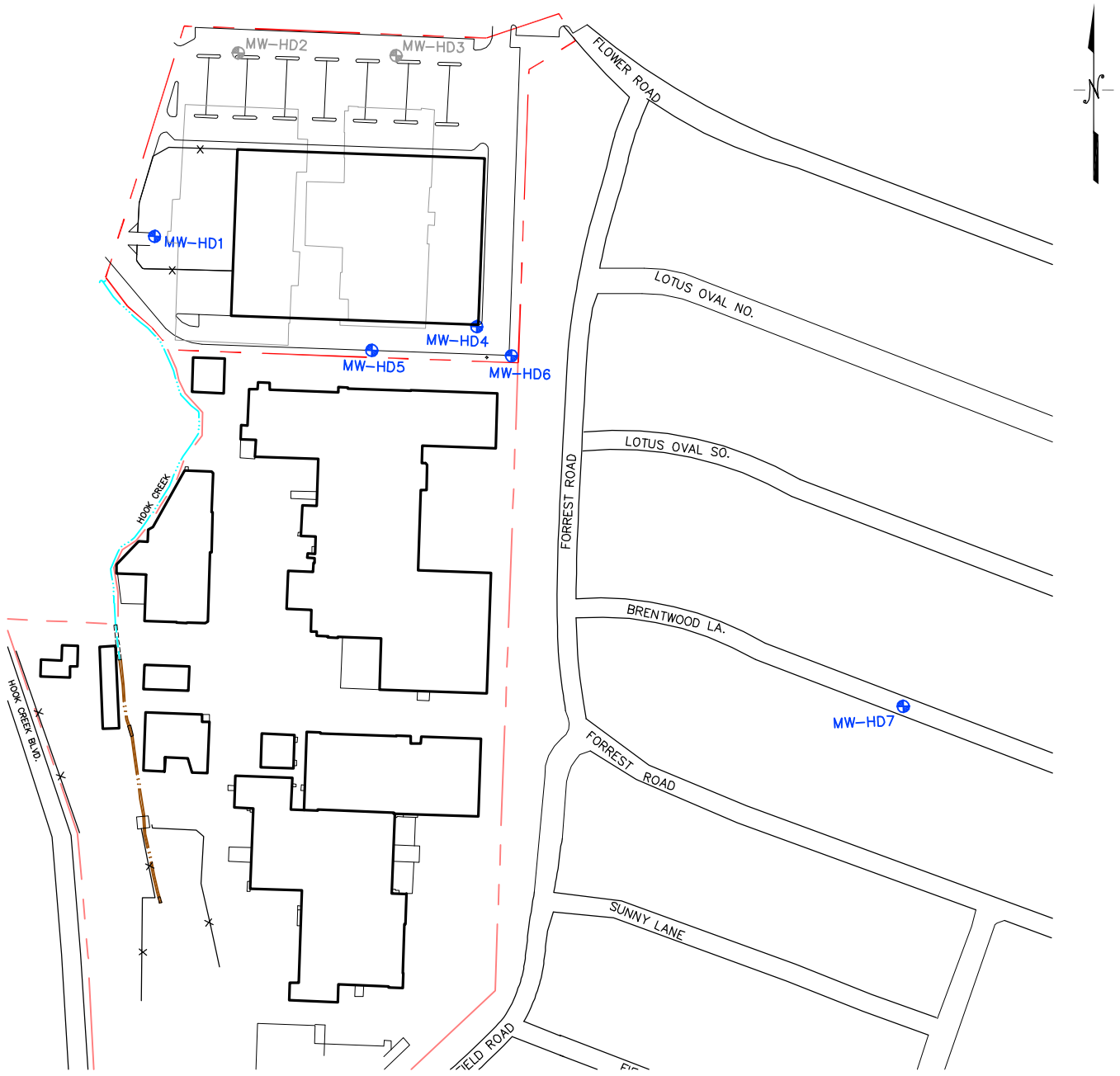
02-1961B\WP\33154\v4

Figures



SOURCE: 40°39'35" N, 73°43'28" W WGS84 TOPO! map printed on 01/20/00 from "NYC.tpo"

ENVIRON	SITE LOCATION MAP 101 GREEN ACRES ROAD SITE VALLEY STREAM, NEW YORK	FIGURE 1
DRAFTED BY: KPM/PMASCARO | DATE: 2/19/09		021961BJ01



ENVIRON

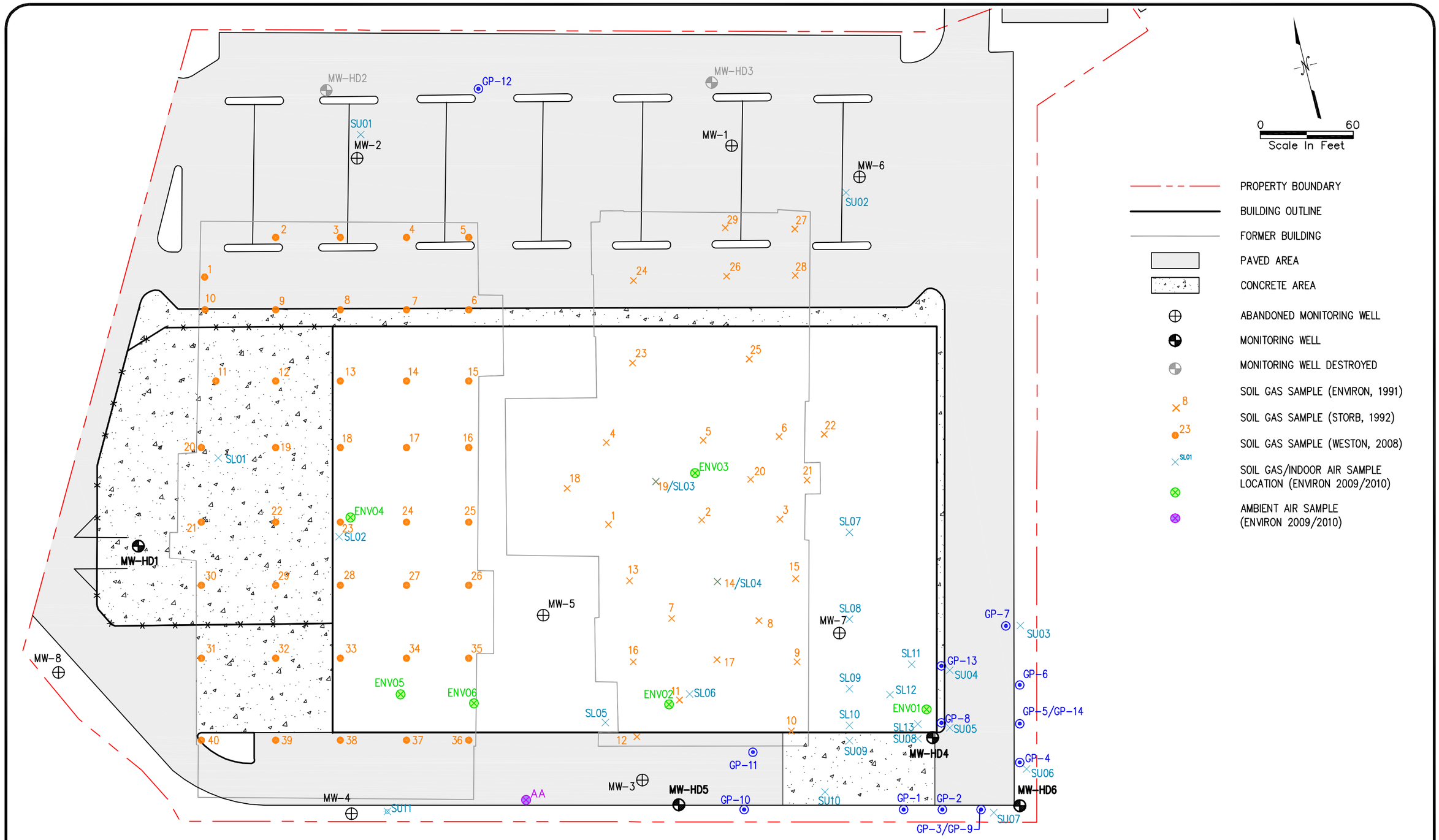
MONITORING WELL LOCATION MAP

101 GREEN ACRES ROAD SITE
VALLEY STREAM, NEW YORK

FIGURE
2

DRAFTED BY: KPM/PRM	DATE: 12/29/11	021961BS01

TSP



SOURCE: HENDERSON AND BODWELL CONSULTING ENGINEERS GRADING & UTILITIES PLAN, SEPT. 1992

ENVIRON

DRAFTED BY: KPM/PRM/TSP | DATE: 12/29/11

SITE LAYOUT AND SAMPLE LOCATIONS

101 GREEN ACRES ROAD SITE

VALLEY STREAM, NEW YORK

FIGURE 3

021961BS05

Attachment A

Building Walkthrough Survey Form

NEW YORK STATE DEPARTMENT OF HEALTH
INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY
CENTER FOR ENVIRONMENTAL HEALTH

This form must be completed for each residence involved in indoor air testing.

Preparer's Name _____ Date/Time Prepared _____

Preparer's Affiliation _____ Phone No._____

Purpose of Investigation_____

1. OCCUPANT:

Interviewed: Y / N

Last Name: _____ First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

Number of Occupants/persons at this location _____ Age of Occupants _____

2. OWNER OR LANDLORD: (Check if same as occupant ___)

Interviewed: Y / N

Last Name: _____First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

Residential	School	Commercial/Multi-use
Industrial	Church	Other: _____

If the property is residential, type? (Circle appropriate response)

Ranch	2-Family	3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other:_____

If multiple units, how many? _____

If the property is commercial, type?

Business Type(s) _____

Does it include residences (i.e., multi-use)? Y / N If yes, how many? _____

Other characteristics:

Number of floors_____ Building age_____

Is the building insulated? Y / N How air tight? Tight / Average / Not Tight

4. AIRFLOW

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow between floors

_____

_____

_____

Airflow near source

_____

_____

_____

Outdoor air infiltration

_____

_____

_____

Infiltration into air ducts

_____

_____

_____

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply)

a. Above grade construction:	wood frame	concrete	stone	brick
b. Basement type:	full	crawlspace	slab	other _____
c. Basement floor:	concrete	dirt	stone	other _____
d. Basement floor:	uncovered	covered	covered with _____	
e. Concrete floor:	unsealed	sealed	sealed with _____	
f. Foundation walls:	poured	block	stone	other _____
g. Foundation walls:	unsealed	sealed	sealed with _____	
h. The basement is:	wet	damp	dry	moldy
i. The basement is:	finished	unfinished	partially finished	
j. Sump present?	Y / N			
k. Water in sump?	Y / N / not applicable			

Basement/Lowest level depth below grade: _____(feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

_____

_____

6. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

Hot air circulation	Heat pump	Hot water baseboard	
Space Heaters	Stream radiation	Radiant floor	
Electric baseboard	Wood stove	Outdoor wood boiler	Other _____

The primary type of fuel used is:

Natural Gas	Fuel Oil	Kerosene
Electric	Propane	Solar
Wood	Coal	

Domestic hot water tank fueled by: _____

Boiler/furnace located in:	Basement	Outdoors	Main Floor	Other_____
Air conditioning:	Central Air	Window units	Open Windows	None

Are there air distribution ducts present? Y / N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

_____

_____

_____

_____

7. OCCUPANCY

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never

Level	**General Use of Each Floor (e.g., familyroom, bedroom, laundry, workshop, storage)**
Basement	_____
1st Floor	_____
2nd Floor	_____
3rd Floor	_____
4th Floor	_____

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a. Is there an attached garage? Y / N

b. Does the garage have a separate heating unit? Y / N / NA

c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, atv, car) Y / N / NA Please specify_____

d. Has the building ever had a fire? Y / N When?_____

e. Is a kerosene or unvented gas space heater present? Y / N Where? _____

f. Is there a workshop or hobby/craft area? Y / N Where & Type? _____

g. Is there smoking in the building? Y / N How frequently? _____

h. Have cleaning products been used recently? Y / N When & Type? _____

i. Have cosmetic products been used recently? Y / N When & Type? _____

j. Has painting/staining been done in the last 6 months? Y / N Where & When? _____

k. Is there new carpet, drapes or other textiles? Y / N Where & When? _____

l. Have air fresheners been used recently? Y / N When & Type? _____

m. Is there a kitchen exhaust fan? Y / N If yes, where vented?_____

n. Is there a bathroom exhaust fan? Y / N If yes, where vented?_____

o. Is there a clothes dryer? Y / N If yes, is it vented outside? Y / N

p. Has there been a pesticide application? Y / N When & Type?_____

Are there odors in the building? Y / N
If yes, please describe: _____

Do any of the building occupants use solvents at work? Y / N
(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist

If yes, what types of solvents are used? _____

If yes, are their clothes washed at work? Y / N

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No
Yes, use dry-cleaning infrequently (monthly or less) Unknown
Yes, work at a dry-cleaning service

Is there a radon mitigation system for the building/structure? Y / N Date of Installation: _____
Is the system active or passive? Active/Passive

9. WATER AND SEWAGE

Water Supply:	Public Water	Drilled Well	Driven Well	Dug Well	Other: _____
Sewage Disposal:	Public Sewer	Septic Tank	Leach Field	Dry Well	Other: _____

10. RELOCATION INFORMATION (for oil spill residential emergency)

a. Provide reasons why relocation is recommended: _____

b. Residents choose to: remain in home relocate to friends/family relocate to hotel/motel

c. Responsibility for costs associated with reimbursement explained? Y / N

d. Relocation package provided and explained to residents? Y / N

11. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

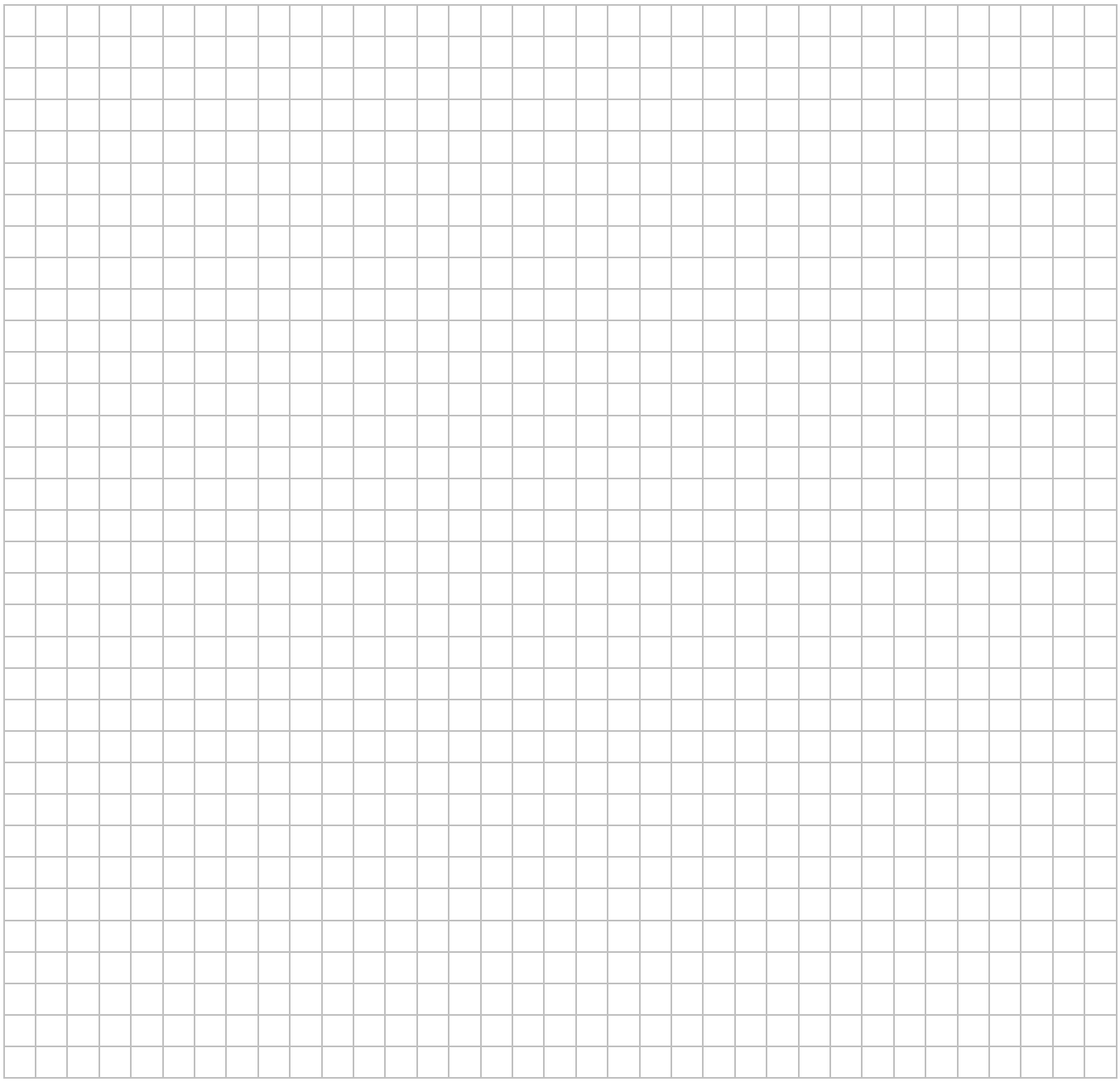
Basement:

First Floor:

12. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



13. PRODUCT INVENTORY FORM

Make & Model of field instrument used: _____

List specific products found in the residence that have the potential to affect indoor air quality.

Location	Product Description	Size (units)	Condition*	Chemical Ingredients	Field Instrument Reading (units)	Photo** Y / N

* Describe the condition of the product containers as **Unopened (UO), Used (U),** or **Deteriorated (D)**
** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.