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March 12, 2025

Mr. Daniel Lanners, P.E.
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7014

Subject: Work Plan for VIMS Commissioning
Duracell Inc. Site (#360011)
Sleepy Hollow, Westchester County, New York

Dear Mr. Lanners,

On behalf of The Gillette Company LLC (Gillette), AECOM has prepared this Work Plan for the Passive Vapor Intrusion Mitigation System (VIMS) Commissioning to be conducted at newly constructed buildings on the 30 Andrews Lane property. The subject property is adjacent to the former Duracell Inc. Site located at 60 Elm Street in Sleepy Hollow, New York (NYSDEC Registry No. 360011; hereinafter, the Site). The Site location is depicted on **Figure 1**.

The purpose of this work is to assess the concentrations of chlorinated volatile organic compounds (CVOCs) in soil vapor existing beneath the new buildings and to aid in an evaluation of the installed passive VIMS, which consists of a sub-slab ventilation network and TerraShield® vapor barrier.

Further background information and a summary of the scope of work is provided below.

Background

Soil vapor intrusion sampling was conducted at the former single-family home that existed on 30 Andrews Lane. The results indicated that mitigation of the vapor intrusion pathway was required due to the reported concentrations of CVOCs in sub-slab vapor. However, before design and implementation of a mitigation system could occur, AECOM was informed by the property owner that 30 Andrews Lane was being sold for redevelopment and that the single-family home would be demolished. AECOM established communication with the new owner and eventually learned of the plans to develop the property with new multi-unit buildings. The final plans included two buildings consisting of townhouse style condominium

units, with four and five units within the western (Building A) and eastern (Building B) buildings, respectively. The locations of the new buildings are shown on Figure 2.

In consideration of the conceptual site model for VI, and, in an effort to accommodate the developer's construction schedule, AECOM developed a design for a VIMS for the new buildings. The design included installation of a network of TerraVent® vapor collection matting embedded in open-grade stone within the building foundations. The collection network is overlain by a TerraShield® multi-layer vapor barrier. TerraVent® and TerraShield® are both products by Land Science®, a division of Regenesis®. Riser pipe connected to the collection network extends upward through the slab and navigates to an exit point above the roof to vent soil vapor. The system is intended to provide passive ventilation to mitigate the vapor intrusion pathway. The VIMS design is shown on Figure 3.

AECOM subcontracted Edgeboro International, Inc. of Milltown, NJ, a certified Land Science® installer, to install the VIMS. Work by Edgeboro was conducted and overseen by AECOM in June and July of 2023. Smoke testing was performed by Edgeboro to demonstrate the integrity of the vapor barrier system. Following the developer's completion of building slabs and building framing, AECOM's subcontractor returned to the Site to extend riser piping through the roof. As of December 2024, Building B is substantially complete, including interior finish work, while Building A still requires some finish work, including flooring, painting, and trim-work. According to the developer, the buildings are to be occupied sometime in the Spring of 2025.

Prior to occupancy of both buildings, monitoring is recommended to quantify the sub-slab soil gas concentrations. This information will be useful when performing future monitoring events to evaluate the VIMS. Indoor air concentrations will not be monitored due to likely interference with newly installed building materials, which could potentially yield false positive detections of constituents of concern.

Scope of Work Summary

The objective of the proposed work is to obtain representative sub-slab vapor samples for comparison to guidance values provided in New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2006). Traditional sub-slab soil vapor probes cannot be installed without substantial risk to the integrity of the installed vapor barrier system. Therefore, it is proposed that samples be obtained from the installed vent piping connected to the TerraVent® layer. Samples will be collected using passive soil gas (PSG) samplers by Beacon Environmental. PSG samplers are used effectively in assessment of sewer gas and have also been previously accepted as a sampling method for indoor air for soil vapor intrusion(SVI) projects in New York State. The attached Technical Sheet provides additional information on the Beacon PSG Samplers.

PSG Sampler methods will be conducted in general accordance with the NYSDOH guidance. AECOM will access vent riser piping at floor slab penetration points and will install a wye fitting within the 3-inch or 4-inch PVC vent pipe. The wye will allow access to the vent pipe for sampling and will include a threaded connection to be capped and sealed with Teflon tape. The capped riser vent (inactive) at the opposite end of the building will be similarly outfitted with a threaded connection and cap to serve as a second monitoring point in each building. The PSG sampler will be secured to fishing line and lowered to the bottom of the vent pipe to a point closest to the sub-slab vapor collection network. The fishing line will then be tied to an eye hook or other fastener affixed to the threaded cap for the wye or capped riser. The

PSG samplers will be exposed to soil gas within the ventilation piping for approximately one week. If possible, the heating/cooling system at each of the structures will be operated continuously to maintain a normal temperature (i.e., 65 to 75 degrees Fahrenheit) for at least 24 hours prior to and during the scheduled sampling time. Following the exposure period, the Samplers are to be collected and shipped to Beacon's laboratory for analysis.

No ice or preservatives are required during shipment; however, the samplers are shipped with tug-tight custody seals and shipped under chain-of-custody procedures. One duplicate sample will be collected for the purposes of quality assurance / quality control (QA/QC). One PSG sampler will also be placed outside the buildings to measure CVOCs in ambient air. A trip blank, which will remain with the other PSG samples during preparation, shipment, and storage, will be included. The field sampling team will maintain a sample log sheet summarizing the sample identification, date and time of sample collection, location of duplicate samples, identification of samplers, sampling methods, and sample analyses.

The PSG samples will be packaged and shipped to Beacon Environmental in Forest Hill, Maryland under standard chain-of-custody procedures. Beacon Environmental is a current New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certification. Samples will be analyzed for select VOCs using Environmental Protection Agency (EPA) Method TO-17. Soil gas samples will be analyzed using thermal desorption-gas chromatography/mass spectrometry (TD-GC/MS) instrumentation in accordance with the method reporting requirements. Samples will be analyzed for those compounds listed below and presented in **Table 1**. The project specific list of VOCs has been established based on known Site impacts identified during investigation activities to date.

Two vent riser penetration locations exist for each building; a sample will be collected from each for a total of four primary samples. A summary of the number of samples and their associated QA/QC samples is provided in **Table 2**. The targeted list of VOCs for analysis is as follows:

- tetrachloroethene (PCE)
- trichloroethene (TCE)
- cis-1,2 dichloroethene (cis-1,2 DCE)
- vinyl chloride (VC); and
- 1,1,1- Trichloroethane (1,1,1-TCA)
- 1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)

The list of VOCs and respective laboratory limits of quantitation (LOQs) is shown in **Table 1**. Data review will be performed by a qualifier validator, and a data usability summary report (DUSR) will be prepared.

Field QA/QC procedures will include the following tasks:

- Calibration of sampling
- Equipment checks
- Documentation of field procedures
- Use of chain-of-custody forms
- Collection of QC samples

<u>Health and Safety</u>

The Site specific Health and Safety Plan (HASP) will be updated as necessary to outline health and safety risks and procedures for all Site workers and visitors for this scope of work.

Schedule

Following review and concurrence from the NYSDEC and NYSDOH, sampling work will be coordinated with the property owner/developer prior to planned occupancy of the buildings.

Reporting

A written summary report will be submitted to NYSDEC/NYSDOH approximately eight weeks after the completion of the data review. The report will include a Data Usability Summary Report (DUSR). Data will be uploaded in electronic data deliverable (EDD) format to the NYSDEC EQuIS database following review and submittal of the summary report. Based on results of the sampling work described herein, additional sampling may be proposed in the future.

If you or your staff has any questions or comments, please do not hesitate to contact Mr. Ian Schnabel.

Yours sincerely,

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Michael Doherty, PE
Program Manager
michael.doherty@aecom.com

Cc:
Ian Schnabel – The Gillette Company

Ec: Amen Omorogbe – NYSDEC
Alali Tamuno, Esq. – NYSDEC
Anthony Perretta – NYSDOH
Melissa Doroski – NYSDOH

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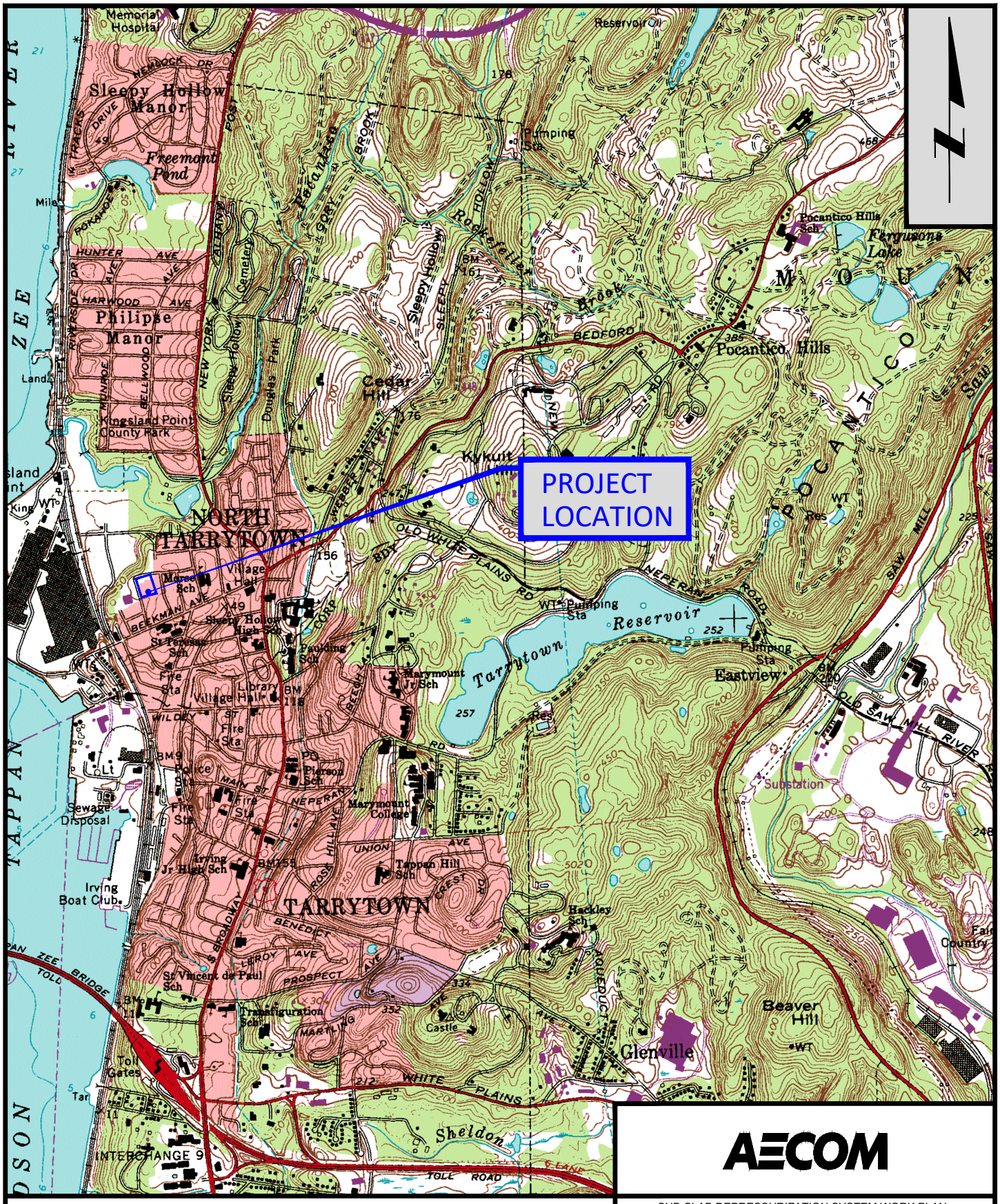
FIGURES



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MAP REFERENCE:
USGS 7.5 MINUTE QUADRANGLE: WHITE PLAINS

PLAN

0’ 1000’ 2000’ 4000’

SUB-SLAB DEPRESSURIZATION SYSTEM WORK PLAN

FIGURE 1
PROJECT LOCATION PLAN

DURACELL INC., SITE
SLEEPY HOLLOW, NEW YORK

FILE NAME:	DRN	PROJECT NO.	DATE	FIGURE NO.
	---		Sept. 2024	1

Plotted By: MeisterK
Layout-Sheet Name: FIG-1
Plot File Date Created: Sep/03/2024 2:34 PM

Filename: C:\USERS\MEISTERK\AECOM\DURACELL SLEEPY HOLLOW - GENERAL\SVE FIGURES\60-ELM\WESTCHESTER COUNTY DOH\DURACELL-SLEEPY_HOLLOW-SITE_PLAN.DWG

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PLAN

0 30' 60'

Duracell Inc. Site
Sleepy Hollow, NY

Project No. 60494279 December 2024

FIGURE 2
30 ANDREWS LANE DEVELOPMENT
30 ANDREWS LANE
VILLAGE OF SLEEPY HOLLOW, NY

ANSI D 22" x 34"

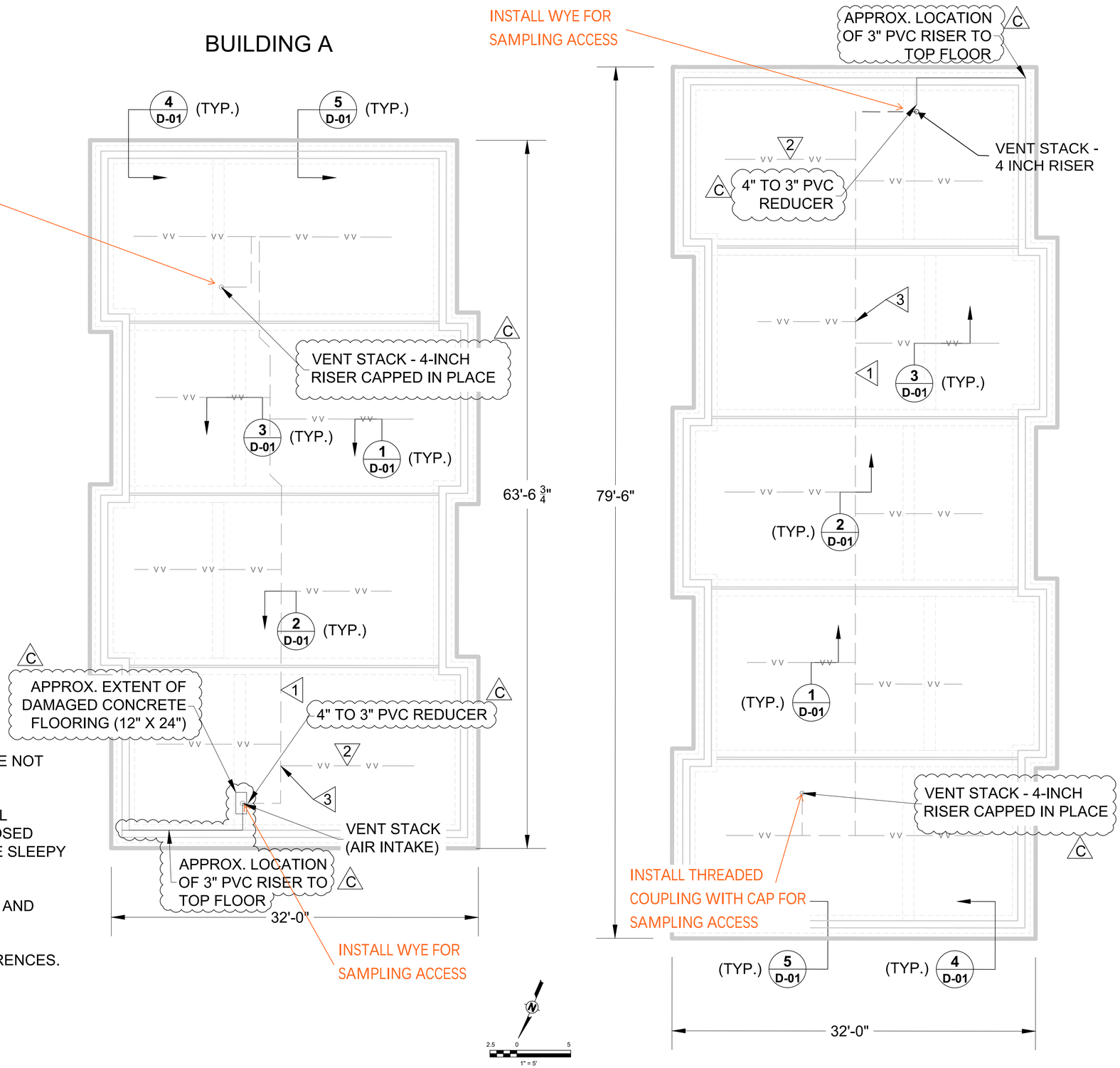
Approved:

Checked:

Designer:

Project Management Initials:

BUILDING A



LEGEND

- TerraVent
- 4" PVC HEADER LINE
- PROPOSED BUILDING
- PROPOSED WALL
- PROPOSED FOOTING

FLAG NOTES

1. 4" SCHEDULE 40 PVC HEADER PIPE
2. TerraVent
3. TerraVent Pipe Reducer

NOTES

1. LOCATIONS SHOWN ARE APPROXIMATE AND ARE NOT BASED ON SURVEY.
2. BUILDING LAYOUT OBTAINED FROM RESIDENTIAL CONTRACTORS DESIGN SHEETS TITLED "PROPOSED TOWNHOUSE DEVELOPMENT 30 ANDREWS LANE SLEEPY HOLLOW, NY 10591 9 UNITS" DATED 6/30/20.
3. DEVIATIONS FROM ORIGINAL DESIGN AS NOTED AND DESCRIBED IN REVISION TABLE AT RIGHT.
4. REFER TO DESIGN SHEETS FOR SECTION REFERENCES.

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PROJECT

AS-BUILT VAPOR INTRUSION BARRIER SYSTEM
30 ANDREWS LANE
SLEEPY HOLLOW, NEW YORK

CONSULTANT

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Morrisville, North Carolina 27560
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REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
C	10/18/024	AS-BUILT RISERS
B	11/28/2023	AS-BUILT
A	01/17/2022	100% DESIGN

VERIFY PRINTED SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALE ACCORDINGLY

PROJECT NUMBER

60494279

SHEET TITLE

VAPOR INTRUSION BARRIER AS-BUILT PLAN

FIGURE 3

TABLES

Table 1
Laboratory Method Limits of Quantitation for Target Analytes

Analyte	Analytical Laboratory	Sampling Period	Limit of Quantitation (EPA Method TO-17)	Units
Vinyl chloride	Beacon Environmental	7 Days	1.22	$\mu g/m^3$
1,1,1-Trichloroethane			0.94	$\mu g/m^3$
1,1,2-Trichlorotrifluoroethane (Freon 113)			1.11	$\mu g/m^3$
cis-1,2-Dichloroethene			1.87	$\mu g/m^3$
Trichloroethene			3.01	$\mu g/m^3$
Tetrachloroethene			2.42	$\mu g/m^3$

Notes:

$\mu g/m^3$ is micrograms per cubic meter
Limit of Detection is typically one half of LOQ.
Final LOQs and LODs are dependent on actual sampling period.

Table 2
Reporting Limits and QA/QC Sample Quantity Summary

MATRIX/ANALYSIS	Analytical Method	Laboratory	Field Sample Quantity	Matrix Spike (MS) or LCS	MS Duplicate or Matrix Duplicate	Field Duplicate	Equipment Blank	Trip Blank
Air Samples								
Volatile organics	TO-17	Beacon	5	NA	NA	1	NA	1

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HIGH-RESOLUTION PASSIVE SOIL GAS SURVEYS

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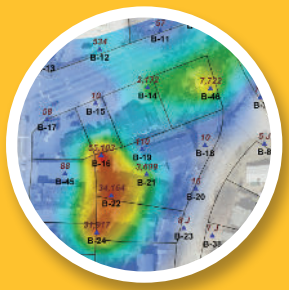
BENEFITS

- Time-weighted average concentrations
- Vapor intrusion monitoring
- Sample for hours, days, or weeks
- More accurate than other methods
- Target petroleum and chlorinated compounds, including Vinyl Chloride
- High resolution site characterization maps
- Easy-to-use BeSure Sample Collection Kit™

APPLICATIONS



High-Resolution Site Characterization

Vapor Intrusion Monitoring

Highest Level of Accuracy

To achieve high-resolution site characterization data for your remediation and monitoring program, you must begin with accurate data. Beacon's time-integrated passive soil gas surveys utilize proven technologies that have been demonstrated to provide the most accurate data on sites where VOCs and SVOCs are of concern.

The advanced sampling and analytical procedures followed by Beacon are the foundations of a highly sensitive technology used to identify trace levels of compounds present in the vapor phase and report data in units of concentration (ug/m3) based on third-party validated uptake rates.

A comprehensive report that includes color isopleth maps of targeted compounds is provided to clearly depict areas of contamination and improve the conceptual site model.

Beacon Environmental is ISO/IEC 17025:2017, DoD ELAP QSM 5.4 and NELAP accredited for the analysis of sorbent samples following US EPA Methods TO-17, TO-15, 8260D and 325B

PASSIVE SOIL GAS SAMPLER REPORTING LIMITS

Limits of Quantitation (LOQs) based on Exposure Periods and Third-Party Validated Uptake Rates. When required, lower detection limits can be reported.

COMPOUND	CAS	Uptake Rate (ml/min)	1 Day LOQ (ug/m3)	3 Days LOQ (ug/m3)	7 Days LOQ (ug/m3)	14 Days LOQ (ug/m3)
Vinyl Chloride	75-01-4	0.81	8.57	2.86	1.22	0.61
1,1-Dichloroethene	75-35-4	0.33	21.04	7.01	3.01	1.50
Methylene Chloride	75-09-2	0.35	19.84	6.61	2.83	1.42
1,1,2-Trichlorotrifluoroethane (Fr.113)	76-13-1	0.89	7.80	2.60	1.11	0.56
trans-1,2-Dichloroethene	156-60-5	0.44	15.78	5.26	2.25	1.13
Methyl-t-butyl ether	1634-04-4	0.50	34.72	11.57	4.96	2.48
1,1-Dichloroethane	75-34-3	0.85	8.17	2.72	1.17	0.58
cis-1,2-Dichloroethene	156-59-2	0.53	13.10	4.37	1.87	0.94
Chloroform	67-66-3	0.35	19.84	6.61	2.83	1.42
1,2-Dichloroethane	107-06-2	0.56	12.40	4.13	1.77	0.89
1,1,1-Trichloroethane	71-55-6	1.05	6.61	2.20	0.94	0.47
Carbon Tetrachloride	56-23-5	0.43	16.32	5.44	2.33	1.17
Benzene	71-43-2	0.53	32.76	10.92	4.68	2.34
Trichloroethene	79-01-6	0.33	21.04	7.01	3.01	1.50
1,4-Dioxane	123-91-1	0.41	16.94	5.65	2.42	1.21
1,1,2-Trichloroethane	79-00-5	0.33	21.04	7.01	3.01	1.50
Toluene	108-88-3	0.40	43.40	14.47	6.20	3.10
1,2-Dibromoethane (EDB)	106-93-4	0.39	18.03	6.01	2.58	1.29
Tetrachloroethene	127-18-4	0.41	16.94	5.65	2.42	1.21
1,1,1,2-Tetrachloroethane	630-20-6	0.41	17.04	5.68	2.43	1.22
Chlorobenzene	108-90-7	0.85	8.17	2.72	1.17	0.58
Ethylbenzene	100-41-4	0.85	20.42	6.81	2.92	1.46
p & m-Xylene	108-38-3	0.88	19.73	6.58	2.82	1.41
o-Xylene	95-47-6	0.88	19.73	6.58	2.82	1.41
1,2,3-Trichloropropane	96-18-4	0.75	9.26	3.09	1.32	0.66
Isopropylbenzene	98-82-8	0.83	20.92	6.97	2.99	1.49
1,3,5-Trimethylbenzene	108-67-8	0.83	20.92	6.97	2.99	1.49
1,2,4-Trimethylbenzene	95-63-6	0.83	20.92	6.97	2.99	1.49
1,3-Dichlorobenzene	541-73-1	0.75	9.26	3.09	1.32	0.66
1,4-Dichlorobenzene	106-46-7	0.75	9.26	3.09	1.32	0.66
1,2-Dichlorobenzene	95-50-1	0.75	9.26	3.09	1.32	0.66
1,2,4-Trichlorobenzene	120-82-1	0.39	17.72	5.91	2.53	1.27
Naphthalene	91-20-3	0.80	8.68	2.89	1.24	0.62
1,2,3-Trichlorobenzene	87-61-6	0.39	17.72	5.91	2.53	1.27
2-Methylnaphthalene	91-57-6	0.76	9.14	3.05	1.31	0.65
TPH C5-C8		0.59	5,874	1,958	839	420
TPH C9-C15		0.69	5,032	1,677	719	359