PEAK ENVIRONMENTAL
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August 11, 2023

Mr. Mark Domaracki, P.G.
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7014

Re: **Remedial Investigation Workplan for Additional Vapor Intrusion Investigation**
5 Westchester Plaza
Elmsford, New York 10523
Project No. 2847
NYSDEC Site #: C360205

Dear Mr. Domaracki:

A previous Remedial Investigation Workplan (RIWP) was submitted and subsequently approved by the New York State Department of Environmental Conservation's (NYSDEC) on December 22, 2021. A December 2022 Remedial Investigation Report (RIR) was later submitted after remedial investigations were conducted. Pursuant to the NYSDEC February 6, 2023 RIR rejection letter and our conversation of March 7, 2023, Peak Environmental, A Nova Group, GBC Company (Peak) has prepared this Remedial Investigation Workplan (RIWP) Letter on behalf of Mack-Cali CW Realty Associates L.L.C. (Mack-Cali) for NYSDEC's approval, prior to conducting additional Remedial Investigations (RI) for the Vapor Intrusion (VI) delineation, and conducting diagnostic testing to obtain the necessary information needed to design a Sub-Slab Depressurization System (SSDS).

The specific objectives of the additional RI are to delineate contamination identified on-Site during prior VI investigations and evaluate the potential for the vapor intrusion pathway to be complete with respect to offsite areas. Results of the proposed investigation detailed herein will be presented in a revised RIR and the results of the diagnostic testing and SSDS design will be presented in an Interim Remedial Measures Report (IRM).

Background

Previous Site investigations conducted during a Phase II environmental assessment in August 2020 identified impacts to the sub-slab soil vapor (SSSV) beneath the Site. Subsequent VI investigations conducted on-Site by Peak in March 2022 confirmed CVOC impacts in the SSSV and indoor air. The results of the March 2022 VI investigation are presented on **Drawing 1**.

Vapor Intrusion Investigation

Further investigation is proposed to delineate soil vapor concentrations previously identified during the March 2022 VI investigation. Eight off-Site soil vapor samples are proposed in two separate step-outs on each side of the Site. **Drawing 2** depicts proposed vapor intrusion sampling locations. The samples will be submitted to a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certified laboratory of USEPA Method TO-15 for analysis for volatile organic compounds (VOCs) with a library search. All samples that will be used to make decisions on appropriate actions to

address exposures and environmental contamination will be analyzed by an ELAP-certified laboratory. Samples collected from the first set of step-outs closest to the Site will be analyzed initially, while samples from the second further step out will be placed on hold, contingent on the results of the initial sample analyses.

To collect the proposed soil vapor samples, a licensed well driller, using the direct-push method, will install temporary soil vapor probes in accordance with the NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (SVI). Soil vapor sampling probes will be installed to a depth of 5-ft, as any shallower depth may be prone to negative bias due to infiltration of outdoor air. Sub-slab vapor will be purged and sampled in accordance with Section 2.7.1 of the SVI. Samples will be collected in batch-certified 2.7-Liter (L) Summa® passivated stainless-steel canisters with a regulator-controlled collection time not exceeding 0.2 liters per minute, provided by an ELAP accredited laboratory. In accordance with our approved Community Air Monitoring Plan (CAMP), dust monitoring will be conducted during the advancement of soil borings. Air monitors will be placed upwind and downwind of intrusive work.

In accordance with the SVI, appropriate QA/QC procedures will be followed during sample collection to ensure that sampling error is minimized, and data of known quality is obtained. Field sampling staff will avoid actions that may cause cross contamination in the field. Equipment utilized in the field will be properly maintained and calibrated. Air sampling equipment and the samples will be stored, transported, and decontaminated by Peak and the laboratory consistent with best environmental consulting practices. Pursuant to section 2.7.5 of the SVI, a tracer gas will be used as a QA/QC measure to verify that the soil vapor samples are not diluted by outdoor air. A tracer gas will be added to a shroud placed around each sampling port and a portable monitoring device will be used to analyze soil vapor for the presence of the tracer gas prior to sampling. Vapor intrusion samples will be submitted to an ELAP-accredited laboratory for analysis of VOCs via USEPA Method TO-15.

Sample preservation and holding times, container types and volumes, sampling methods, equipment calibration, chain of custody procedures, sample storage procedures, and laboratory data deliverable format associated with the proposed Remedial Investigation will be in accordance with procedures and guidelines presented in the SVI.

SSDS Diagnostic Testing and Design

The purpose of diagnostic testing is to obtain the information necessary to design an SSDS capable of depressurizing the sub slab soils to a predefined sub slab pressure differential requirement. A diagnostic survey will be completed by a vapor mitigation contractor. A diagnostic survey includes a visual investigation of the building to examine physical routes of soil vapor entry and a series of mechanical tests to determine the volume of air and applied vacuum needed to influence the slab areas of concern. Once completed, a report is generated providing the results of the diagnostic tests and the design of the mitigation system. The design will include a drawing showing all relevant suction point(s), fan(s), and pipe locations. Fan selection is made by comparing the diagnostic data to the flow rate and vacuum of blowers used specifically for mitigation systems.

The method used for diagnostic testing and system design involves coring 2 ½" suction holes in the floor and 5/16" test holes at various distances from the suction holes. A specialized Sub Slab Diagnostic Vacuum (SSDV), capable of up to 200 CFM and an applied vacuum of up to 100 inches of water column ("w.c.) is

used with a variable speed controller to apply vacuum to the sub slab material via the suction holes. By varying the applied vacuum, the flow and vacuum characteristics of the soil beneath the slab can be defined. The SSDV has a built-in pitot tube to measure air velocity and the suction tube has a port for measuring vacuum at the suction point.

During the diagnostic testing the pressure and flow values are monitored by a vacuum meter capable of measuring 60 "w.c. and a micromanometer capable of reading 0.0001 "w.c. The 5/16" test holes are used to monitor the pressure differential created by the SSDV with a micromanometer capable of reading down to 0.0001"w.c. The data produced by this process will determine the area of the slab that can be depressurized to the required sub slab pressure differential by a specific volume of air flow at a specific applied vacuum. Once the area of influence (AOI) per suction point has been determined, a design will be prepared by mapping out the building to provide the proper amount of vacuum coverage with the appropriate number of suction points. Proposed diagnostic testing locations are presented on **Drawing 3.**

Following the completion of the diagnostic testing, the contractor will prepare a vapor intrusion mitigation system design plan that contains the diagnostic data collected along with an explanation of the diagnostics performed. The design will include all information including drawings and specifications required for the installation of the mitigation system.

Schedule

An anticipated schedule for the proposed remedial investigation and diagnostic activities, including timelines and target dates for the start and completion of field activities and receipt of analytical results dependent on the availability of subcontractors is between 2-5 weeks after NYSDEC approval of the RIWP. Sample results will be reported in a subsequent revised RIR and the SSDS design plan will be included and summarized in the subsequent IRM for NYSDEC review and approval.

Sincerely,
Peak Environmental, A Nova Group, GBC Company

Michael Stopen
Project Manager

cc. Robert M. Edgar, Managing Principal
Jeffrey Campbell, PG, Campbell Geological Services, PLLC
Jay Jaffe, Esq., Greenbaum, Rowe, Smith & Davis LLP

Soil Vapor/Indoor Air Matrix 1

SUB-SLAB VAPOR CONCENTRATION of COMPOUND (µg/m³)	INDOOR AIR CONCENTRATION of COMPOUND (µg/m³)			
	< 0.25	0.25 to < 1	1 to < 5.0	5.0 and above
< 5	1. No farther action	2. Take reasonable and practical actions to identify source(s) and reduce exposures	3. Take reasonable and practical actions to identify source(s) and reduce exposures	4. Take reasonable and practical actions to identify source(s) and reduce exposures
5 to < 50	5. No farther action	6. MONITOR	7. MONITOR	8. MITIGATE
50 to < 250	9. MONITOR	10. MONITOR/MITIGATE	11. MITIGATE	12. MITIGATE
250 and above	13. MITIGATE	14. MITIGATE	15. MITIGATE	16. MITIGATE

Notes

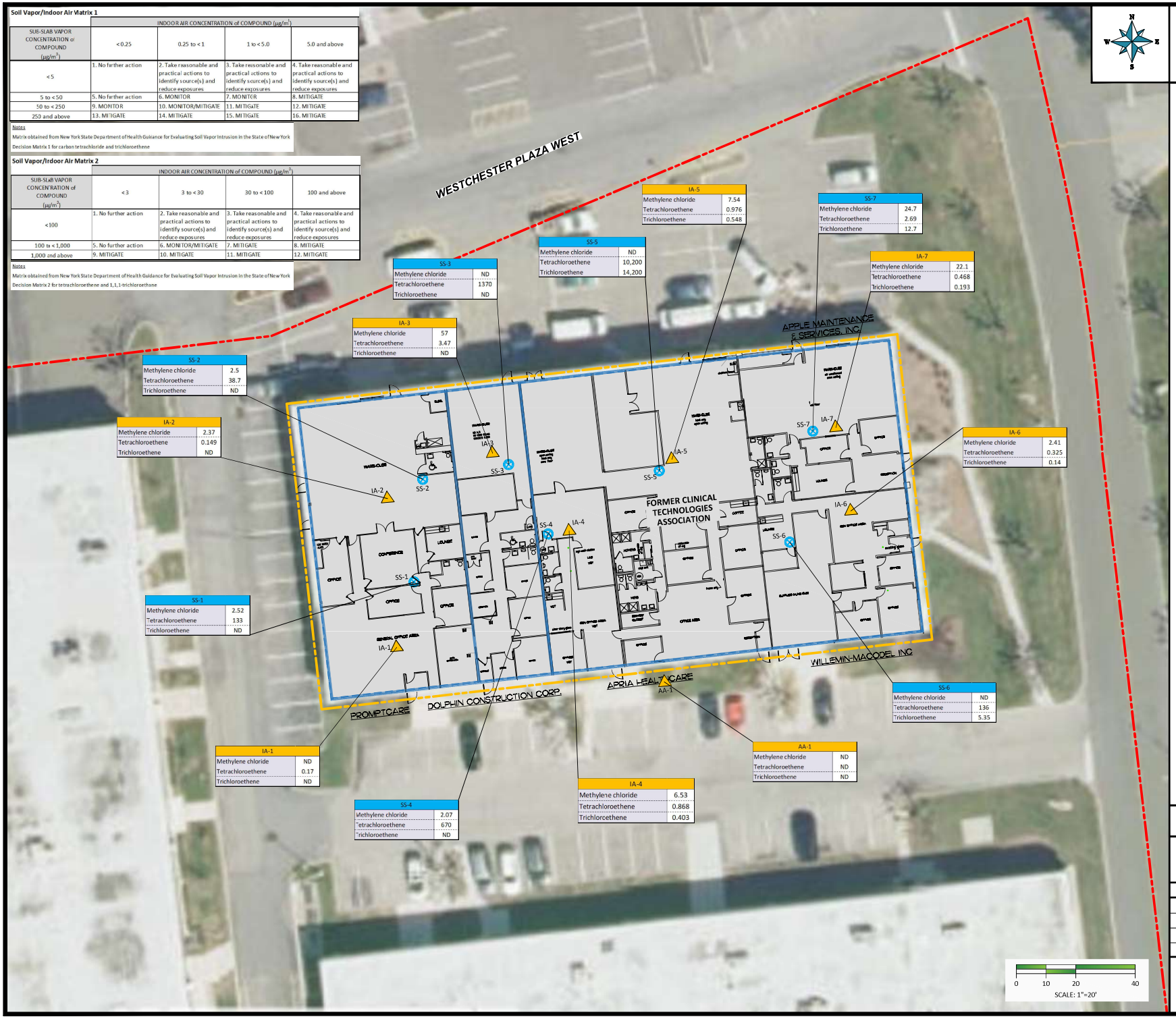
Matrix obtained from New York State Department of Health Guidance for Evaluating Soil Vapor Intrusion in the State of New York Decision Matrix 1 for carbon tetrachloride and trichloroethene

Soil Vapor/Indoor Air Matrix 2

SUB-SLAB VAPOR CONCENTRATION of COMPOUND (µg/m³)	INDOOR AIR CONCENTRATION of COMPOUND (µg/m³)			
	< 3	3 to < 30	30 to < 100	100 and above
< 100	1. No further action	2. Take reasonable and practical actions to identify source(s) and reduce exposures	3. Take reasonable and practical actions to identify source(s) and reduce exposures	4. Take reasonable and practical actions to identify source(s) and reduce exposures
100 to < 1,000	5. No further action	6. MONITOR/MITIGATE	7. MITIGATE	8. MITIGATE
1,000 and above	9. MITIGATE	10. MITIGATE	11. MITIGATE	12. MITIGATE

Notes

Matrix obtained from New York State Department of Health Guidance for Evaluating Soil Vapor Intrusion in the State of New York Decision Matrix 2 for tetrachloroethene and 1,1,1-trichloroethane



SS-1	
Methylene chloride	2.52
Tetrachloroethene	133
Trichloroethene	ND

SS-2	
Methylene chloride	2.5
Tetrachloroethene	38.7
Trichloroethene	ND

SS-3	
Methylene chloride	ND
Tetrachloroethene	1370
Trichloroethene	ND

SS-4	
Methylene chloride	2.07
Tetrachloroethene	670
Trichloroethene	ND

SS-5	
Methylene chloride	ND
Tetrachloroethene	10,200
Trichloroethene	14,200

SS-6	
Methylene chloride	ND
Tetrachloroethene	136
Trichloroethene	5.35

SS-7	
Methylene chloride	24.7
Tetrachloroethene	2.69
Trichloroethene	12.7

IA-1	
Methylene chloride	ND
Tetrachloroethene	0.17
Trichloroethene	ND

IA-2	
Methylene chloride	2.37
Tetrachloroethene	0.149
Trichloroethene	ND

IA-3	
Methylene chloride	57
Tetrachloroethene	3.47
Trichloroethene	ND

IA-4	
Methylene chloride	6.53
Tetrachloroethene	0.868
Trichloroethene	0.403

IA-5	
Methylene chloride	7.54
Tetrachloroethene	0.976
Trichloroethene	0.548

IA-6	
Methylene chloride	2.41
Tetrachloroethene	0.325
Trichloroethene	0.14

IA-7	
Methylene chloride	22.1
Tetrachloroethene	0.468
Trichloroethene	0.193

AA-1	
Methylene chloride	ND
Tetrachloroethene	ND
Trichloroethene	ND

0 10 20 40
SCALE: 1"=20'

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LEGEND

- PROPERTY BOUNDARY
- BROWNFIELD SITE BOUNDARY LINE
- LEASEHOLD BOUNDARY
- INDOOR/AMBIENT AIR SAMPLE LOCATION
- SUB-SLAB SOIL VAPOR SAMPLE LOCATION

NOTE:

1. SAMPLE RESULTS WERE COMPARED TO THE NYDOH DECISION MATRICES.

SOURCES:

1. MAP CREATED IN HARN/NY.NY-EF, NEW YORK STATE PLANE, EAST ZONE, U.S. SURVEY FOOT
2. AERIAL IMAGE FROM 2019 GOOGLE MAPS.
3. SITE BOUNDARY GRAPHICALLY SHOWN PER THE WESTCHESTER COUNTY GEOGRAPHIC INFORMATION SYSTEMS WEBSITE.
4. BUILDING LAYOUT DETAIL OBTAINED FROM CLIENT SUPPLIED PDF ENTITLED "FLOOR PLAN", UNDATED.

MARCH 2022 VAPOR INTRUSION SAMPLE LOCATION MAP WITH BUILDING INTERIOR WALLS

5 WESTCHESTER PLAZA
ELMSFORD, NEW YORK

NYSDEC SITE #: C360205

PROJECT: 2847

DATE: NOVEMBER 14, 2022

DRAWN BY: JK

CHECKED BY: MS

DRAWING 1

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LEGEND

- PROPERTY BOUNDARY
- BROWNFIELD SITE BOUNDARY LINE
- PROPOSED SOIL VAPOR SAMPLE

SOURCES:

1. MAP CREATED IN HARN/NY.NY-EF, NEW YORK STATE PLANE, EAST ZONE, U.S. SURVEY FOOT
2. AERIAL IMAGE FROM 2019 GOOGLE MAPS.
3. SITE BOUNDARY GRAPHICALLY SHOWN PER THE WESTCHESTER COUNTY GEOGRAPHIC INFORMATION SYSTEMS WEBSITE.

PROPOSED SOIL VAPOR SAMPLE LOCATION MAP

5 WESTCHESTER PLAZA
ELMSFORD, NEW YORK

NYSDEC SITE #: C360205
PROJECT: 2847
DATE: NOVEMBER 3, 2022
DRAWN BY: JK
CHECKED BY: MS

DRAWING 2

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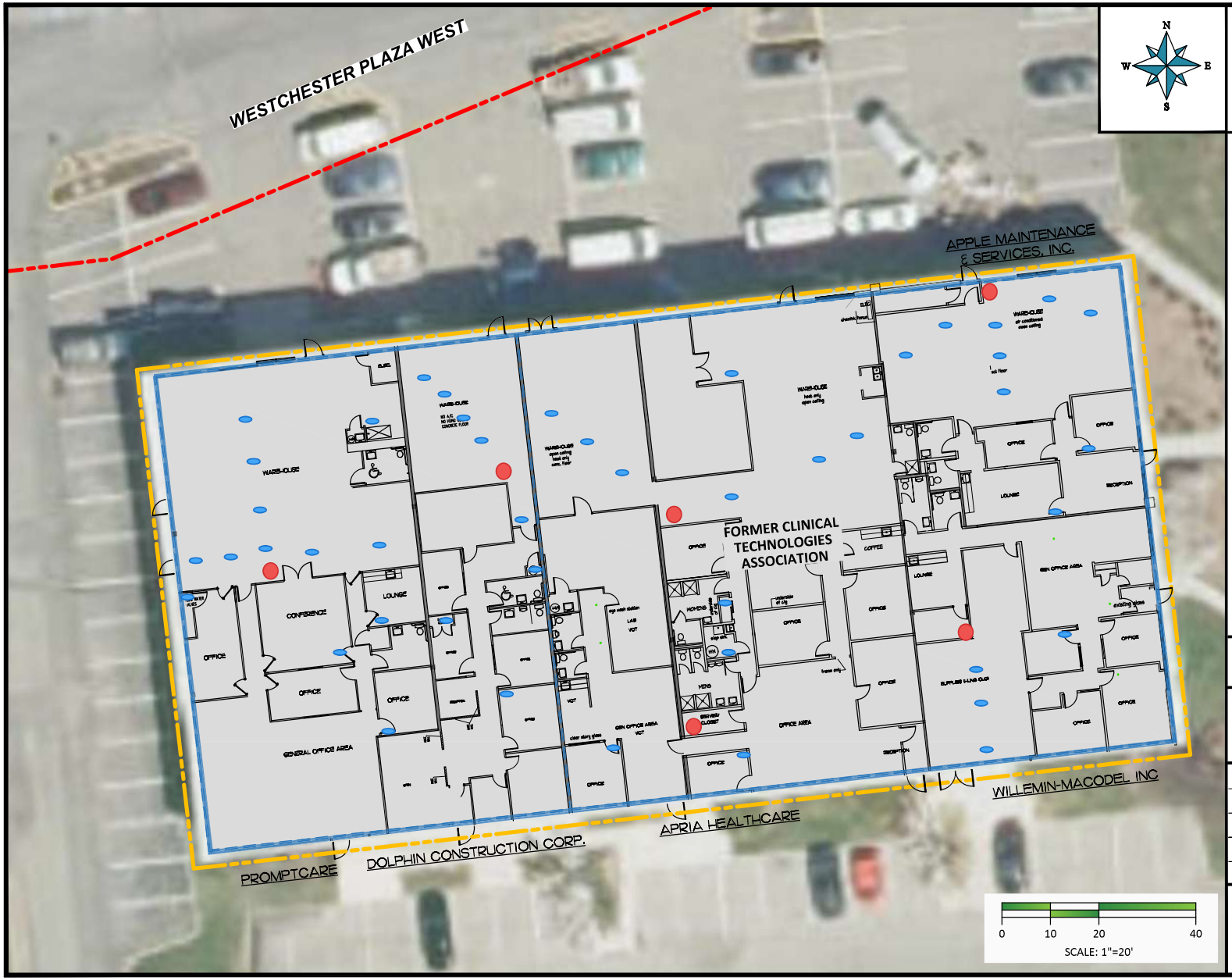

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LEGEND

- PROPERTY BOUNDARY
- BROWNFIELD SITE BOUNDARY LINE
- LEASEHOLD BOUNDARY
- Projected Suction Holes
- Projected Test Holes

SOURCES:

1. MAP CREATED IN HARN/NY.NY-EF, NEW YORK STATE PLANE, EAST ZONE, U.S. SURVEY FOOT
2. AERIAL IMAGE FROM 2019 GOOGLE MAPS.
3. SITE BOUNDARY GRAPHICALLY SHOWN PER THE WESTCHESTER COUNTY GEOGRAPHIC INFORMATION SYSTEMS WEBSITE.
4. BUILDING LAYOUT DETAIL OBTAINED FROM CLIENT SUPPLIED PDF ENTITLED "FLOOR PLAN". UNDATED.

PROPOSED DIAGNOSTIC TESTING LOCATION MAP

5 WESTCHESTER PLAZA
ELMSFORD, NEW YORK

NYSDEC SITE #: C360205
PROJECT: 2847
DATE: NOVEMBER 16, 2022
DRAWN BY: JK
CHECKED BY: MS

DRAWING 3

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