October 20, 2023

Megan Kuczka
Environmental Program Specialist 1
Division of Environmental Remediation
700 Delaware Avenue
Buffalo, New York 14209

Re: Soil Vapor Intrusion Sampling Work Plan
240 - 260 Lakefront Boulevard Site (C915340)
Buffalo, New York

Dear Ms. Kuczka:

On behalf of Lakefront Boulevard, LLC, C&S Engineers (C&S) is providing this Work Plan to collect soil vapor samples within the two four-unit townhomes – identified as "Building A" and "Building B." located at 240 Lakefront Boulevard in Buffalo, New York.

BACKGROUND

The Site is an approximately a 2.09-acre area and is bounded by the Lakefront Boulevard to the northeast, Marina Parks townhomes to the south, Ojibwa Circle to the east, and Erie Basin Marina to the west.

Lakefront Boulevard, LLC entered into a Brownfield Cleanup Agreement (BCA) on February 13, 2019 with the NYSDEC to remediate the Site to achieve a Track 4 Restricted Residential Use Level Cleanup. A Site Management Plan (SMP) was prepared and approved by the NYSDEC and NYSDOH to manage the remaining contamination at the Site. The SMP states that after each building is enclosed, indoor air samples and air samples from the vent piping will be collected to evaluate if the passive system will need to be converted to an active system.

NATURE AND EXTENT OF GROUNDWATER CONTAMINATION

Historic Fill Material

Remaining contaminated urban fill is present throughout the Site from underneath the demarcation layer (2 feet below grade) to a depth of 32 feet below grade. Contaminated urban fill extends horizontally across the entire BCP boundary. The approximate area of contaminated material is 91,040 square feet (2.09-acres).

Analytical results from the RI are summarized in the table below.

Summary of Exceedances in Remaining Fill Material

Analyte	Samples with Detections above SCOs					Low Concentration (ppm)	High Concentration (ppm)
	UR	RS	RR	CM	IN		
VOCs							
Acetone	3					0.053	0.11
SVOCs / PAHs							
Benzo(a)anthracene			12			1	4.8
Benzo(a)pyrene				2	8	1	3.5
Benzo(b)fluoranthene			12			1.1	4.1
Benzo(k)fluoranthene	3	2				0.84	1.7
Chrysene		12				1	3.7
Dibenz(a,h)anthracene			2			0.45	0.48
Indeno(1,2,3-cd)pyrene		1	12			0.51	1.9
PCBs							
Total PCB	15					0.11	0.977
Pesticides							
4,4'-DDE	1					0.00766	0.00766
4,4'-DDD	1					0.00153	0.0153
4,4'-DDT	1					0.00128	0.0128
Metals							
Chromium	1					62.8	62.8
Copper	1					61.2	73
Lead	17					66.4	1510
Mercury	17		2		1	0.191	13.8
Zinc	9					110	508

Notes: UR = Unrestricted Use SCOs
RS = Residential Use SCOs
RR = Restricted Residential Use SCOs
CM = Commercial Use SCOs
IN = Industrial Use SCOs

Groundwater

No post remedial action groundwater sampling was conducted on-site. RI results identified marginal concentrations of VOCs (acetone and benzene), SVOCs (phenol and PAHs), PCBs and metals (aluminum, iron, lead, magnesium and manganese) that exceed NYSDEC standards. Remaining concentrations of metals above NYSDEC standards are primarily limited to naturally occurring metals commonly found in regional groundwater. Depth to groundwater ranges from

six to eleven feet. Due to the depth of contamination, city wide groundwater use ban and the placement of the soil cover system, the potential exposure to remaining groundwater contamination is unlikely.

Soil Vapor

Contaminated soil vapor may be present throughout the Site. During the RI, two soil vapor samples were collected in areas adjacent to neighboring buildings. Samples were placed in the locations requested by the NYSDOH. One sample was located on the northern portion of the Site adjacent to Portside Condominiums; the second location was placed adjacent to the Marina Park Condominiums tennis court. Chlorinated VOCs were detected. Other VOCs were detected in the two soil vapor samples.

On November 20, 2020, C&S conducted the soil vapor intrusion on the only building constructed on the Site to date. Based on guidance values outlined in the NYSDOH 2006 guidance document (updated May 2017, including updates to the matrices), the sample results indicate no further action.

On January 15, 2021, C&S received a correspondence from the NYSDEC stating that NYSDOH review the SVI report and the passive soil vapor system can remain passive.

BUILDING CONSTRUCTION AND USAGE

The Site was purchased in order to redevelop the property under the BCP to construct one eight-unit townhome and three four-unit townhomes. Each townhome is a slab-on-grade construction with a garage on the first floor to be used for storage and vehicle parking and the living spaces above.

The HVAC system used for interior living space is a +/-500 sf unit. A HVAC system is not installed in the garage space.

Each building will have a passive system. The system underneath all building floor slabs consists of a 10-mil vapor barrier and a network of perforated pipes to collect and passively exhaust sub-slab air.

SSDS construction drawings for each building, stamped by a Professional Engineer, and NYSDEC SSDS installation forms will be submitted with the 2024 Periodic Review Report.

SOIL VAPOR SAMPLING

The following scope of work has been designed to determine if sub-slab and interior conditions require the passive SSDS to be converted into an active SSDS.

- Sub-slab and interior samples will be collected inside the 1st floor of four townhouse units (approximately 700 square feet of living space) either in the mechanical room, located under the stairwell.
- Sampling will be completed during the heating season (after November 15th).
- Prior to sampling, C&S will screen the sampling areas for volatile organic vapors (VOVs) utilizing a photoionization detector (PID) with a 10.6 eV lamp.
- C&S will prepare an inventory of petroleum or chemical storage in the vicinity of the sampling areas, that could affect sampling results.
- Sampling protocol will generally follow New York State Department of Health (NYSDOH) guidance.
- C&S will collect four sub-slab air samples (two per building) per the following:
    - A hammer drill will be used to create a ½ inch hole through the concrete floor. Polyethylene tubing will be inserted one to two inches into each hole and the floor penetration around the tubing will be sealed at each location using soft, pliable, VOC-free clay.
    - An enclosure will be constructed around the sub-slab sampling point (e.g., plastic bag, plastic bucket, etc.) and sealed to the sample point tubing in order to perform a tracer gas evaluation. The enclosure will be enriched with helium as a tracer gas.
    - The sub-slab sampling point will be purged 1 to 3 tubing volumes at a rate not to exceed 0.2 L/m to ensure that a representative sample of soil vapor will be obtained. During purging, the purged soil gas will be tested for the tracer gas by an appropriate meter (i.e., a meter capable of measuring the concentration of the tracer gas in at least percentage increments). In the event that the tracer gas is detected at a concentration of 10% or greater, the sample point will be resealed and retested prior to sampling.
    - Subsequent to purging and tracer gas testing, a certified clean summa canister equipped with a laboratory calibrated regulator will be connected to the tubing to collect the sample over a 24-hour period.
    - At the end of sampling, at least one inch of vacuum will be left in the summa canister to meet data quality objectives.
    - After removing the tubing from holes in the floor, the floor will be repaired with a quick drying cement mixture.
- C&S will collect four air samples (two per building) to evaluate indoor air quality. The indoor air samples will be co-located with the sub-slab vapor samples. The sampling devices will be placed approximately three to five feet off the ground for sample collection purposes and samples will be collected using a Summa canister equipped with a laboratory calibrated regulator over a 24-hour period.
- C&S will collect one outdoor air sample to characterize background air quality in the upwind vicinity of the building as a means to evaluate the sub-slab and indoor air results.

The sampling device will be located downwind of the structure and will be placed approximately three to five feet off the ground for sample collection purposes. The outdoor air sample will be collected using a Summa canister equipped with a laboratory calibrated regulator over a 24-hour period.

- The samples will be sent to a certified laboratory and analyzed for volatile organic compounds (VOCs) by USEPA Method TO-15. Detection limits are 0.25 µg/m3 for:
  - Trichloroethene
  - Cis-1,2-dichloroethene
  - 1,1-dichloroethene
  - Carbon tetrachloride
  - Vinyl chloride
- A brief letter report will be prepared summarizing the field activities, including locations of the samples and comparison of analytical data to NYSDOH standards and guidance.
- Air sampling data will be reviewed by a 3rd party validator and a Data Usability Summary Report will be provided.

REPORTING

The analytical results for the samples will be compared to the guidance values outlined in the NYSDOH 2006 guidance document (updated May 2017, including updates to the matrices).

A summary of the findings will be submitted to the NYSDEC that will include the results of the investigation and recommendations for mitigative measures, if appropriate.

Sampling is expected to be completed in November 2023. The letter report will be provided for NYSDEC review three weeks after the completion of field activities.

Should you have any questions regarding this proposal or require additional information, please feel free to contact the undersigned.

Sincerely,

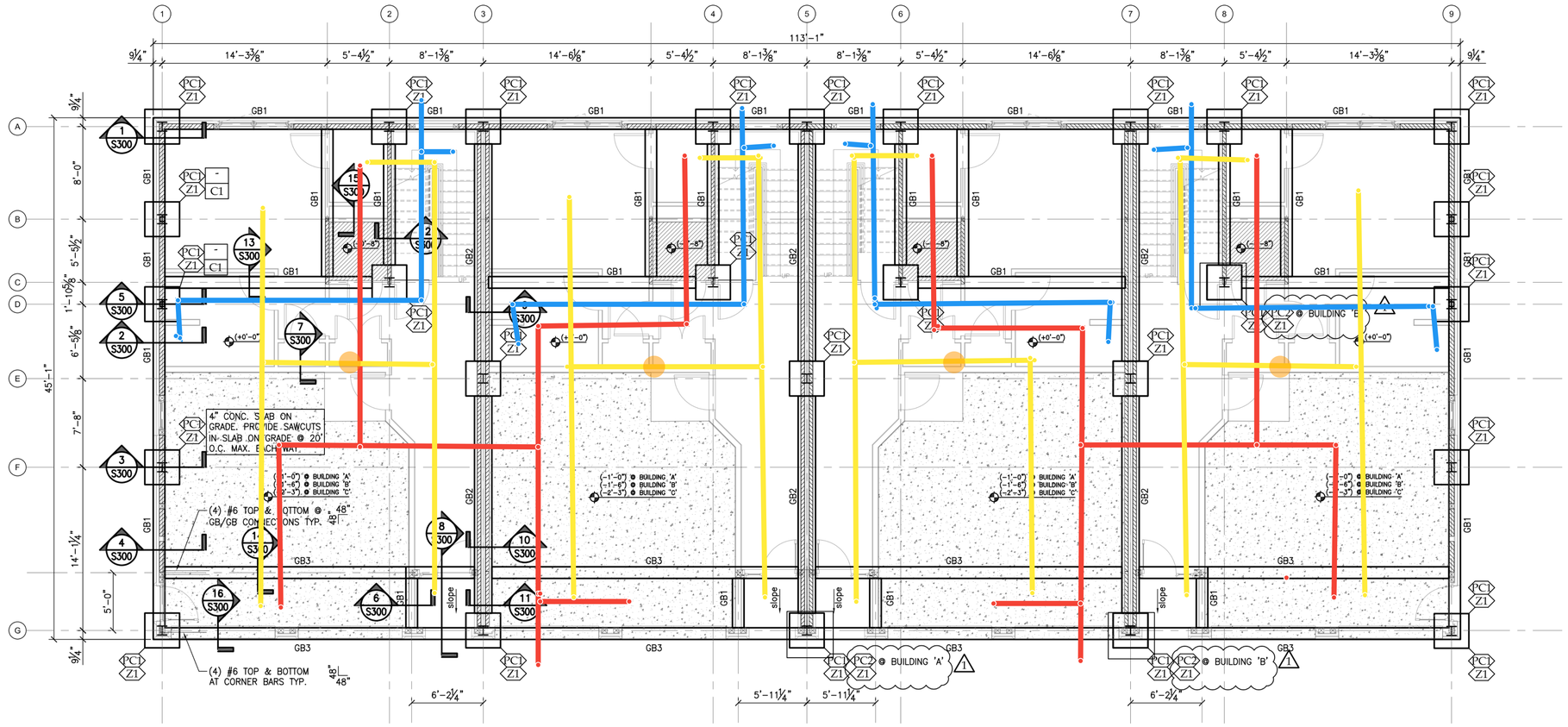
C&S ENGINEERS, INC.

Daniel E. Riker, P.G.
Department Manager – Environmental Services

Cody Martin
Project Environmental Scientist

F:\Project\E67 - Ciminelli Development\E67.022.009 - Lakefront SMP Documentation\240 Lakefront Ave Building A and B SVI Sampling Work Plan.docx

Storm: Red: 3'-4' depth
Sanitary: Blue 2'-3' depth
SSDS: Yellow: Up to 12" depth



FOUNDATION PLAN BUILDING 'A', 'B' & 'C'

SCALE: 3/16"= 1'-0"

LEGEND

PILE SIZE — PC — PR — PIER TYPE
PILE CAP LOCATION — Z — C — COLUMN

GRADE BEAM SCHEDULE

TYPE	SIZE	REINFORCING
GB1-GB3	SEE DETAILS S300	SEE DETAILS S300

COLUMN SCHEDULE

TYPE	SIZE	BASE PLATE
C1	HSS5x5x5/16	1

PILE SCHEDULE

TYPE	SIZE
PC1	SEE DETAILS S302

NOTE: PILES ARE HP10x42.

PILE LOCATION SCHEDULE

TYPE	TOP PILE CAP ELEVATION	LOCATION
Z1	(-1'-6") @ BUILDING 'A' (-2'-0") @ BUILDING 'B' (-2'-9") @ BUILDING 'C'	PER PLAN; SEE DETAIL

THIS PLAN HAS BEEN PREPARED IN CONJUNCTION WITH THE SITE GRADING PLAN PREPARED
BY: CARMINA WOOD MORRIS
PROJECT NO.: 18-122
DRAWING NO.: C-200
REVISION NO.:
DATED: 6-29-18

ALL PILES MUST BE INSTALLED PER THE SOILS REPORT NOTED BELOW

NOTE:
VERIFY ALL COLUMN LOCATIONS WITH ARCHITECTURAL DRAWINGS.

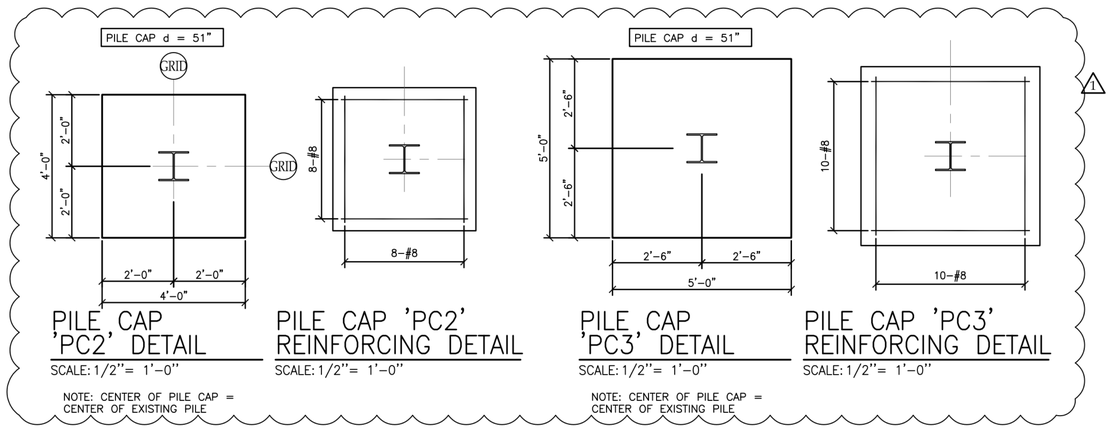
TOP OF SLAB ELEV. 0'-0" = REFERENCE ELEV.

NOTE:
VERIFY LOCATIONS & SIZES OF ALL EXTERIOR DOORS WITH ARCH. DWGS. VERIFY DIMENSIONS WITH ARCH. DWGS.

NOTE:
VERIFY ALL SLAB RECESS DIMENSIONS AND LOCATIONS WITH ARCHITECTURAL DRAWINGS.

NOTE: ALL FOUNDATION & BACKFILL WORK SHALL BE DONE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT PREPARED
BY: BARRON & ASSOCIATES P.C.
PROJECT NO.: 17-510
DATED: JANUARY 25, 2018

FLOOR CONSTRUCTION: 4" CONCRETE SLAB ON GRADE WITH FIBERMESH REINFORCING ON COMPACTED GRANULAR FILL PER GEOTECHNICAL ENGINEERS REPORT. GENERAL CONTRACTOR MUST REVIEW FLOOR SLAB CONSTRUCTION REQ'TS. IN SOILS REPORT PRIOR TO PREPARING SUBGRADE FOR SLAB ON GRADE.



PILE CAP 'PC2' DETAIL
SCALE: 1/2"= 1'-0"

PILE CAP 'PC2' REINFORCING DETAIL
SCALE: 1/2"= 1'-0"

PILE CAP 'PC3' DETAIL
SCALE: 1/2"= 1'-0"

PILE CAP 'PC3' REINFORCING DETAIL
SCALE: 1/2"= 1'-0"

NOTE: CENTER OF PILE CAP = CENTER OF EXISTING PILE

NOTE: CENTER OF PILE CAP = CENTER OF EXISTING PILE

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.816.8143

PROFESSIONAL SEAL

REVISIONS:

No.	Description	Date
1	REVISED	7/30/19
2	REVISED	8/30/19
3	REVISED	10/18/19
4	REVISED	11/21/19
5	REVISED	2/24/20

PROJECT NAME:
New Construction:
The West End
240-260 Lakefront Blvd
Buffalo Ny, 14202

Issued for Construction: xx.xx.xx
Municipality Submission: 19/01/23
Drawn By:
Checked By: L.Traynor

DRAWING NAME:
4 Unit Building 'A', 'B' & 'C' Foundation Plan

DRAWING NO.
S-100

Project No: 18.122

studio T3
ENGINEERING, PLLC
2495 Main Street, Suite 301
Buffalo, New York 14214
Phone: (716) 803-6400
Fax: (716) 810-9504

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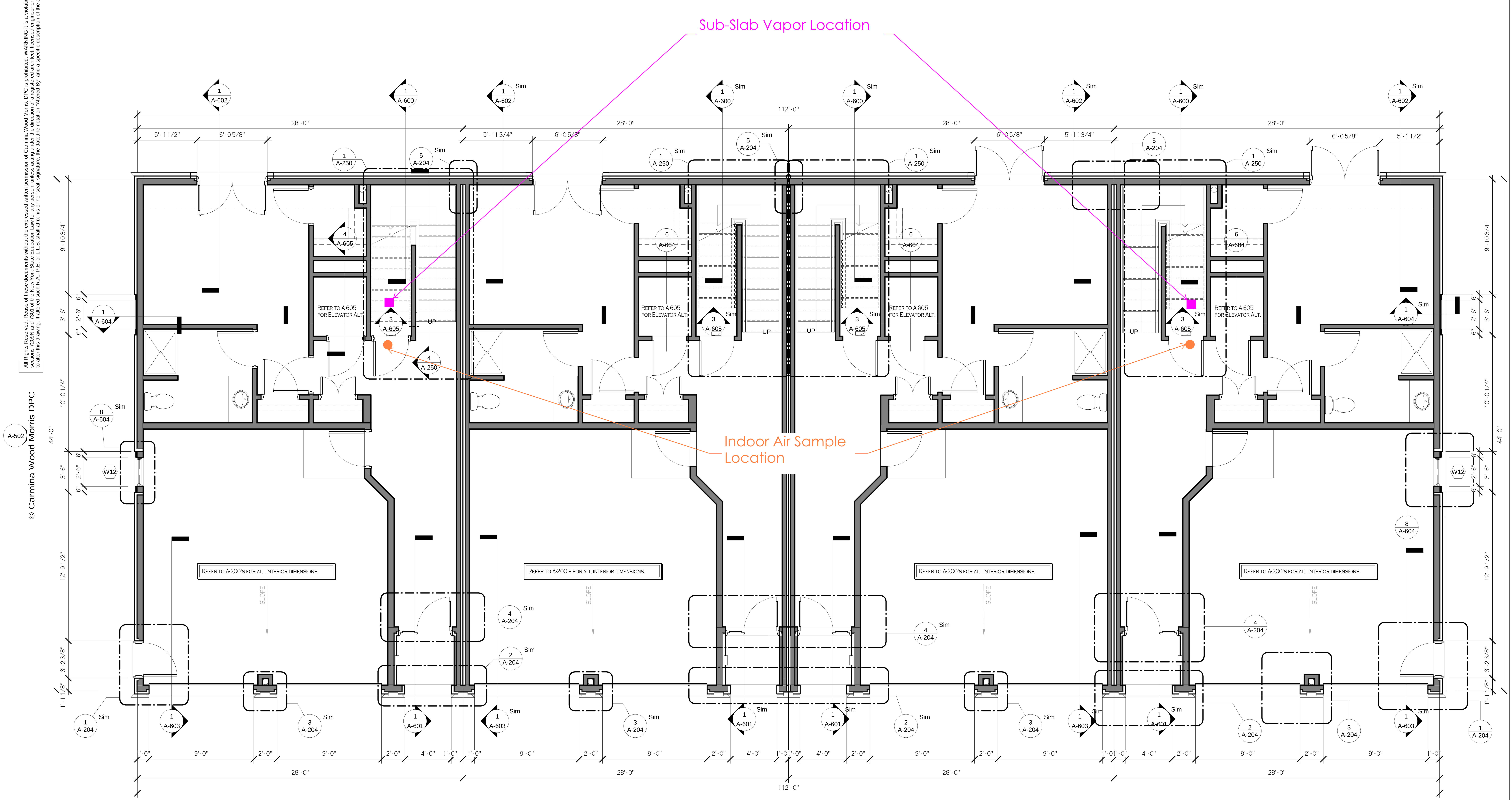

Sample locations for both Building A and B

1 A-100 4 UNIT - LEVEL 1
1/4" = 1'-0"

1/23/2019 7:12:38 PM

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PROFESSIONAL SEAL

REVISIONS:

No.	Description	Date

PROJECT NAME:
New Construction:
The West End
240-260 Lakefront Blvd
Buffalo Ny, 14202

Issued for Construction: XX.XX.XX
Municipality Submission: 2019.01.23
Drawn By: D. Topolski
Checked By: J. Dorobiala

DRAWING NAME:
Four Unit - First Floor Plan

DRAWING NO.
A-100

Project No: 18.122