



Sent via email to jess.laclair@dec.ny.gov

December 7, 2018  
iPARK0118.14

Jessica LaClair  
Environmental Engineer  
Division of Environmental Remediation  
New York State Department of Environmental Conservation  
625 Broadway  
Albany, NY 12233-7013

Re: iPark 84  
Former IBM East Fishkill Facility  
Building 330C - Sloop Brewing Co.  
Soil Vapor Intrusion Investigation Work Plan

Dear Ms. LaClair:

Walden Environmental Engineering, PLLC (Walden) is submitting this Soil Vapor Intrusion Investigation Work Plan on behalf of National Resources (NR), the owner of Building 330C at the iPark 84 Former IBM East Fishkill Facility located in Hopewell Junction, New York. This Work Plan details the sampling proposed to evaluate indoor air quality and potential soil vapor intrusion (SVI) impacts within the Sloop Brewing Co. space located in Building 330C. The proposed field work includes collection of sub-slab vapor, indoor air, and outdoor air samples in accordance with guidelines set forth by NYSDEC and NYSDOH.

If you have any questions or require any additional information, please call (516) 624-7200.

Very truly yours,  
Walden Environmental Engineering, PLLC

Joseph M. Heaney III, P.E.  
Principal

cc: J. Kenney, NYSDOH  
M. Buckley, National Resources

Z:\iPark0118\iPark0118.14 - Sloop Brewing Air Monitoring\SVI Investigation December 2018\SVI Work Plan Transmittal 12.7.2018.doc

# **SOIL VAPOR INTRUSION INVESTIGATION WORK PLAN**

**AT**

**SLOOP BREWING Co.  
IPARK - BUILDING 330C  
FORMER IBM EAST FISHKILL FACILITY**

**DECEMBER 2018**

**PREPARED FOR:**

**JESSICA LACLAIR  
NEW YORK STATE DEPT. OF ENVIRONMENTAL CONSERVATION  
DEPT. OF ENVIRONMENTAL REMEDIATION  
625 BROADWAY  
ALBANY, NEW YORK 12233-7013**

**WALDEN ENVIRONMENTAL ENGINEERING, PLLC**  
**Industry Leader in Environmental Engineering Consulting**

———— PROACTIVE SOLUTIONS SINCE 1995 ————

## **TABLE OF CONTENTS**

1	INTRODUCTION .....	1
2	SAMPLING ACTIVITIES .....	2
2.1	Sampling Scope and Locations .....	2
2.2	Interior Inspection .....	3
2.3	Subsurface Mark-out .....	4
2.4	Sub-slab Vapor Sampling .....	4
2.5	Indoor Air Sampling .....	5
2.6	Ambient Air Sampling .....	6
2.7	Summa <sup>®</sup> Canister Air Sampling Procedures .....	6
2.8	Scheduling .....	7
3	SAMPLE ANALYSIS AND HANDLING .....	8
3.1	Laboratory .....	8
3.2	Sample Handling .....	8
3.3	Soil Vapor and Air Sample Analysis .....	8
3.4	Data Usability .....	9
4	SUMMARY REPORT .....	10

## **FIGURES**

1	Site Location Map
2	Proposed Sampling Locations
3	Typical Sub-Slab Vapor Sampling Probe Schematic

# 1 INTRODUCTION

Walden Environmental Engineering, PLLC (Walden) has prepared this Soil Vapor Intrusion Investigation Work Plan (Work Plan) for the sampling proposed to evaluate indoor air quality and potential soil vapor intrusion (SVI) impacts within the Sloop Brewing Co. space located in Building 330C at the Former IBM East Fishkill facility. The Site location is illustrated on Figure 1. Building 330C is owned by National Resources and Sloop Brewing Co. leases space in the northeastern portion of Building 330C for Sloop's brewing operations, offices, tasting room and event space.

This Work Plan has been developed in accordance with the guidelines set forth in New York State Department of Environmental Conservation (NYSDEC) *DER-13: Strategy for Evaluating Soil Vapor Intrusion at Remedial Sites in New York* (issued October 18, 2006) and New York State Department of Health (NYSDOH) *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (dated October 2006, along with all subsequent updates issued by NYSDOH). The proposed field work includes collection of sub-slab vapor, indoor air, and outdoor air samples.

The sampling will be conducted during the 2018-2019 heating season, which runs from approximately November 15<sup>th</sup> through March 31<sup>st</sup>. Walden will schedule the work upon NYSDEC and NYSDOH approval of this Work Plan. The sampling results will be presented in an SVI investigation summary report for NYSDEC and NYSDOH review.

## **2 SAMPLING ACTIVITIES**

### **2.1 Sampling Scope and Locations**

The scope of work for the SVI sampling is outlined below. The proposed sampling locations are shown on Figure 2; actual locations will be determined in the field. Any significant changes from the locations shown on Figure 2 will be discussed with NYSDEC and NYSDOH to gain the State's concurrence before sample collection begins.

#### Indoor Air Sampling

- Indoor air samples shall be collected at nine (9) locations within the Sloop Brewing space as detailed below and shown on Figure 2:
  - Event Space (IA-01)
  - Tasting Room (IA-02, IA-08, IA-09)
  - Ladies' Room (IA-03)
  - Men's Room (IA-04)
  - Office (IA-05)
  - Brewery (IA-06)
  - Kitchen (IA-07)
- One (1) duplicate indoor air sample will be collected from any of these locations.
- The indoor air samples will be collected at a height approximately three (3) to four (4) feet above the floor to represent the height at which occupants normally are seated, in accordance with the NYSDOH SVI guidance.
- Indoor air samples will be collected concurrently with the sub-slab vapor samples.
- Indoor air samples will be collected over an 8-hour period utilizing laboratory provided and individually certified clean 6-liter Summa<sup>®</sup> canisters equipped with 8-hour regulators.

#### Sub-Slab Vapor Sampling

- Sub-slab soil vapor samples shall be collected from sampling ports installed below the concrete slab at the following locations and as shown on Figure 2:
  - Event Space (SS-01)
  - Tasting Room (SS-02, SS-08, SS-09)
  - Men's Room (SS-04)
  - Brewery (SS-06)
  - Kitchen (SS-07)

- One (1) duplicate sub-slab vapor sample will be collected from any of these locations.
- Sub-slab vapor samples will be collected concurrently with the indoor air samples.
- Sub-slab vapor samples will be collected over an 8-hour period utilizing laboratory provided and individually certified clean 6-liter Summa<sup>®</sup> canisters equipped with 8-hour regulators.

#### Outdoor Ambient Air Sampling

- Two outdoor air samples and one duplicate will be collected outside the northeastern portion of Building 330C concurrently with the sub-slab and indoor air samples. The outdoor air samples will be collected over an 8-hour period utilizing laboratory provided and individually certified clean 6-liter Summa<sup>®</sup> canisters equipped with 8-hour regulators.
  - One sample upwind
  - One sample downwind
  - Duplicate at either location

## **2.2 Interior Inspection**

A pre-sampling interior inspection will be performed to identify potential vapor intrusion pathways and to verify appropriate sub-slab and indoor air sampling locations. The Sloop Brewing space will be inspected to identify conditions or materials stored and/or used (especially historic or current storage or use of volatile chemicals in commercial processes and/or during building maintenance) that may affect or interfere with the proposed sampling or interpretation of the sampling results. Consideration will be given to factors such as access for installation/sampling purposes, interior site uses, foundation/floor slab installation and conditions, heating/ventilation/mechanical system operation, and utility layout/breaches. NYSDOH's Indoor Air Quality Questionnaire and Building Inventory form will be completed based on the inspection.

To reduce the potential for interference and dilution effects of samples, the Site tenants and off-site property owners will be notified in advance of sampling to ensure that the occupants avoid the following activities within 24 hours prior to sampling wherever possible (per NYSDOH *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York*, October 2006, p. 33):

- Opening any windows, fireplace dampers, openings or vents;
- Operating ventilation fans unless special arrangements are made;
- Smoking in the building;
- Painting;
- Using a wood stove, fireplace or other auxiliary heating equipment (e.g., kerosene heater);
- Operating or storing automobile in an attached garage;
- Allowing containers of gasoline or oil to remain within the house or garage area, except for fuel oil tanks;
- Cleaning, waxing or polishing furniture, floors or other woodwork with petroleum or oil-based products;
- Using air fresheners, scented candles or odor eliminators;
- Engaging in any hobbies that use materials containing volatile chemicals;
- Using cosmetics including hairspray, nail polish, nail polish removers, perfume/cologne, etc.;
- Lawn mowing, paving with asphalt, or snow blowing;
- Applying pesticides;
- Using building repair or maintenance products, such as caulk or roofing tar; and
- Bringing freshly dry-cleaned clothing or furnishings into the building.

### **2.3 Subsurface Mark-out**

A ground penetrating radar survey will be conducted to identify and locate subsurface utilities and other features in the area of the proposed sub-slab vapor sampling locations. No drilling into the slab will be conducted until the location has been cleared by the mark-out.

### **2.4 Sub-slab Vapor Sampling**

Sub-slab vapor samples will be collected from sampling ports installed below the concrete slab using 6-liter Summa<sup>®</sup> canisters over an 8-hour period. A schematic diagram of a typical sub-slab sampling port is presented on Figure 3.

Sub-slab vapor probes will be installed at locations where the potential for ambient air infiltration from floor penetrations is minimal. Accordingly, the interior floors will be inspected prior to installation of the sub-slab vapor probe, and any penetrations (cracks, floor drains, utility perforations, sumps, etc.) observed will be noted and recorded.

Permanent recessed sampling probes will be installed at the sub-slab vapor sampling locations shown on Figure 2 by the following procedure or equivalent procedures in accordance with the NYSDOH SVI guidance. A small diameter hole (approximately one inch) will be drilled through the concrete floor slab and into sub-slab material approximately two (2) inches below the bottom of the floor slab. This will create an open cavity in the sub-slab material to prevent obstruction of probes by small pieces of gravel that may be present. Concrete and soil cuttings will be removed from the hole.

Permanent sub-slab sampling probes will be constructed from small-diameter stainless-steel screens and connectors/fittings installed to no greater than two (2) inches into the sub-slab material. The top of the probe will be contained within a small (approximately 3 inch) diameter manhole finished with a bolt-down cover flush with the surface of the concrete slab. Porous, inert backfill material (e.g., glass beads, washed #1 crushed stone, etc.) will be added to the sub-slab annular space surrounding the sampling probe, and the implant will be sealed to the surface with cement. For sampling purposes, a threaded fitting connected to tubing (Teflon-lined or other inert material) will be inserted into the sampling port for connection to a Summa<sup>®</sup> canister.

## **2.5 Indoor Air Sampling**

The indoor air samples will be collected at the locations shown on Figure 2, at a height approximately three (3) to four (4) feet above the floor to represent the height at which occupants normally are seated, in accordance with the NYSDOH SVI guidance. The indoor air samples will be collected using 6-liter Summa<sup>®</sup> canisters over an 8-hour period. Indoor air samples will be collected concurrently with the sub-slab vapor samples.



## **2.6 Ambient Air Sampling**

Two outdoor air samples plus one duplicate will be collected outside Building 330C concurrently with the sub-slab and indoor air samples to obtain samples representative of ambient (background) conditions. One sample will be collected upwind of the Sloop Brewing space and one downwind. Outdoor sample locations will be selected in the field dependent upon the wind direction observed at the time of sampling, away from wind obstructions (e.g., trees or bushes), at a height of approximately three (3) to five (5) feet above the ground to represent breathing zones. The sampling locations will be sited away from potential sources of volatile organic compounds (VOCs), such as automobiles, lawn mowers, oil storage tanks, gasoline stations, industrial facilities, and away from structures such as building HVAC outdoor air intakes, etc., in order to obtain representative samples. The outdoor air samples will be collected using 6-liter Summa<sup>®</sup> canisters over an 8-hour period.

## **2.7 Summa<sup>®</sup> Canister Air Sampling Procedures**

A laboratory provided and individually certified clean 6-liter Summa<sup>®</sup> canister will be placed adjacent to each sub-slab sampling port or at each indoor/outdoor air sampling location. Where a sub-slab vapor sample is being collected, a tee fitting will be utilized to connect the Summa<sup>®</sup> canister tubing (Teflon-lined or other inert material) to the sampling port tubing, and the third leg of the tee will be connected to a purge pump. Additionally, the weather conditions will be noted at the time of sampling (wind speed and direction, precipitation, outdoor temperature, barometric pressure, etc.).

Prior to and immediately after sampling at each point, a pressure gauge will be used to check each Summa<sup>®</sup> canister for vacuum, and the pressure will be recorded. In the case of sub-slab vapor sampling, the ground surface will be sealed in advance to prevent ambient air infiltration during purging and sample collection, and tracer gas such as helium, will be used. A regulator will be used to keep flow rates during purging and sampling below 0.2 liters per minute to minimize outdoor air infiltration during the 8-hour sampling period.

The volume of air in each of the vapor/air sampling points (volume of sampling probe and/or tube depending on sample being secured) will be calculated, and a minimum of

one to three volumes will be purged at a flow rate of 0.2 liters (or 200 mls) per minute immediately prior to sample collection. The soil gas/air samples will then be collected by opening the valve of the Summa<sup>®</sup> canister to draw air through the regulator to collect the sample at a rate of 0.2 liters per minute 8 hours as specified above.

After the sampling is completed, the Summa<sup>®</sup> canister valve will be closed, and the pressure gauge will again be read, and the vacuum will be recorded.

## **2.8 Scheduling**

Because some of the sampling locations are in the Sloop Brewing tasting room and event space, and with sub-slab monitoring set-ups on the floor, the SVI sampling will be conducted on a day when Sloop Brewing is not open to the public. The indoor air, sub-slab vapor and outdoor air samples will be collected between approximately 2:00 PM and 10:00 PM on either a Monday, Tuesday or Wednesday to coincide with the time periods the facility is open to the public on other days of the week. In addition, the sampling will be conducted when standard brewery operations are in progress and the HVAC system and kitchen fans are in normal operation. Signs will be posted and the 6-liter Summa<sup>®</sup> canisters will be protected during the sampling period to prevent disturbance by workers at Sloop.

### **3 SAMPLE ANALYSIS AND HANDLING**

#### **3.1 Laboratory**

All samples will be submitted to Phoenix Labs of Manchester, CT, a NYSDOH ELAP certified laboratory (NYSDOH ELAP #11301) for analysis.

#### **3.2 Sample Handling**

All sub-slab soil vapor and air samples will be collected in accordance with the NYSDOH's *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*. The collected samples will be containerized in laboratory provided, individually certified clean Summa® canisters or laboratory provided single-use sampling glassware, as applicable. The sample containers will be labeled with the site name, the Walden job number, sample location and identification, date, time, sampler's initials, and the parameter(s) for analysis. Samples will be transported to the laboratory in such a manner as to avoid container breakage during transportation and to minimize the possibility of cross-contamination. The samples will be picked up by the analytical laboratory or delivered via an overnight courier under the appropriate Chain-of-Custody protocol.

#### **3.3 Soil Vapor and Air Sample Analysis**

The soil vapor and air samples will be analyzed for VOCs in accordance with USEPA Method TO-15 with Category B deliverables. The laboratory will be instructed to expedite the results. Due to the inherent presence of ethanol within the brewery, the TO-15 analysis will not include ethanol to avoid impacting the TO-15 method detection limits for the other VOCs.

The analytical laboratory will achieve a minimum detection limit of 1.0 ug/m<sup>3</sup> for all VOCs in sub-slab soil vapor samples.

For the indoor and outdoor air samples, the analytical laboratory will achieve a minimum detection limit of 0.20 ug/m<sup>3</sup> for trichloroethene (TCE), carbon tetrachloride, cis-1,2-dichloroethene, 1,1-dichloroethene, and vinyl chloride, and 1.0 ug/m<sup>3</sup> for all other VOCs in the USEPA Method TO-15 analysis.

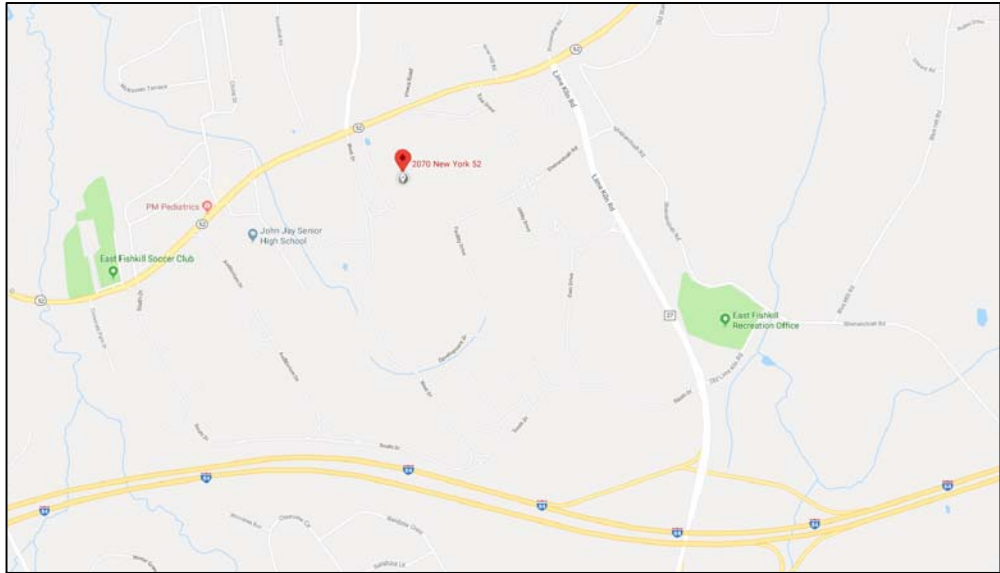
### **3.4 Data Usability**

The laboratory data reports will be evaluated and a Data Usability Summary Report (DUSR) will be prepared in accordance with the NYSDEC Draft DER-10 Appendix 2B Guidance for the Development of Data Usability Summary Reports.

#### **4 SUMMARY REPORT**

The sub-slab vapor, indoor air and outdoor air sampling results will be evaluated and an SVI investigation summary report will be prepared. This report will include data tables, photographs, the DUSR and the completed Indoor Air Quality Questionnaire and Building Inventory form. Based on the results, the report will discuss any controls needed to prevent VOC vapors from migrating into the Building 330C Sloop Brewing space. The summary report will be submitted to NYSDEC and NYSDOH for review.

## **FIGURES**



NOT TO SCALE  
SOURCE: GOOGLEMAPS.COM



BUILDING 330C SLOOP BREWING SPACE




---

1" = 400'-0"

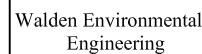
0 200 400 800 1200

SCALE: 1"=400'

### LEGEND

-  PROPERTY LINE  
 PARCEL LINE  
 PROPOSED AREA OF SWALE CLEANOUT

SITE BASEMAP: CHAZEN ENGINEERING, LAND SURVEYING & LANDSCAPE ARCHITECTURE CO. D.P.C. POUGHKEEPSIE, NY (XBASE-SVY\_51421-00.DWG 8/10/15); PARCELS: XSUBD\_51539-00.DWG.  
OFFSITE BASEMAP: "GROUNDWATER MONITORING BASEMAP", IBM EAST FISHKILL FACILITY (9718NEW.DWG, ORIGINAL DATE 12/21/98).  
TOPOGRAPHY: PHOTOGRAMMETRY BY GOLDEN AERIAL SURVEYS, INC., NEWTON, CT (3/3/1997).  
CONTOUR INTERVAL: 1 FOOT (HORIZONTAL DATUM BASED UPON IBM EAST FISHKILL COORDINATE SYSTEM; VERTICAL DATUM BASED UPON NATIONAL GEODETIC VERTICAL DATUM OF 1929).  
HORIZONTAL ACCURACY: 90% OF ALL DETAIL, FIELD CHECKED, WILL BE WITHIN +/- 1.0 FOOT, THE REMAINING 10% OF DETAIL, WILL BE WITHIN +/- 2.0 FEET OF ITS TRUE POSITION.  
VERTICAL ACCURACY: 90% OF ALL CONTOURS, FIELD CHECKED, WILL BE WITHIN +/- 0.5 FOOT. THE REMAINING 10% OF CONTOURS, FIELD CHECKED, WILL BE WITHIN +/- 1.0 FEET.



WWW.WALDENENVIRONMENTALENGINEERING.COM

REVISION		
NO.	DATE	COMMENTS
0	12/7/18	FIGURE 1

LOCATION:

IPARK CAMPUS  
2070 ROUTE 52  
HOPEWELL JUNCTION, NEW YORK

FOR:

**SVI INVESTIGATION  
BUILDING 330C SLOOP  
BREWING**

APPROVED BY: JMH

SCALE: AS NOTED

DRAWING TITLE:
----------------

## FIGURE 1

---

### SITE LOCATION MAP

CAD FILE NAME: Z:\iPark0118\iPark0118.14 - Sloop Brewing Air Monitoring\ACAD\SVI INVESTIGATION.dwg

Loop Brewing Air Monitoring\ACAD\SVI INVESTIGATION.dwg

DRAWING NO:

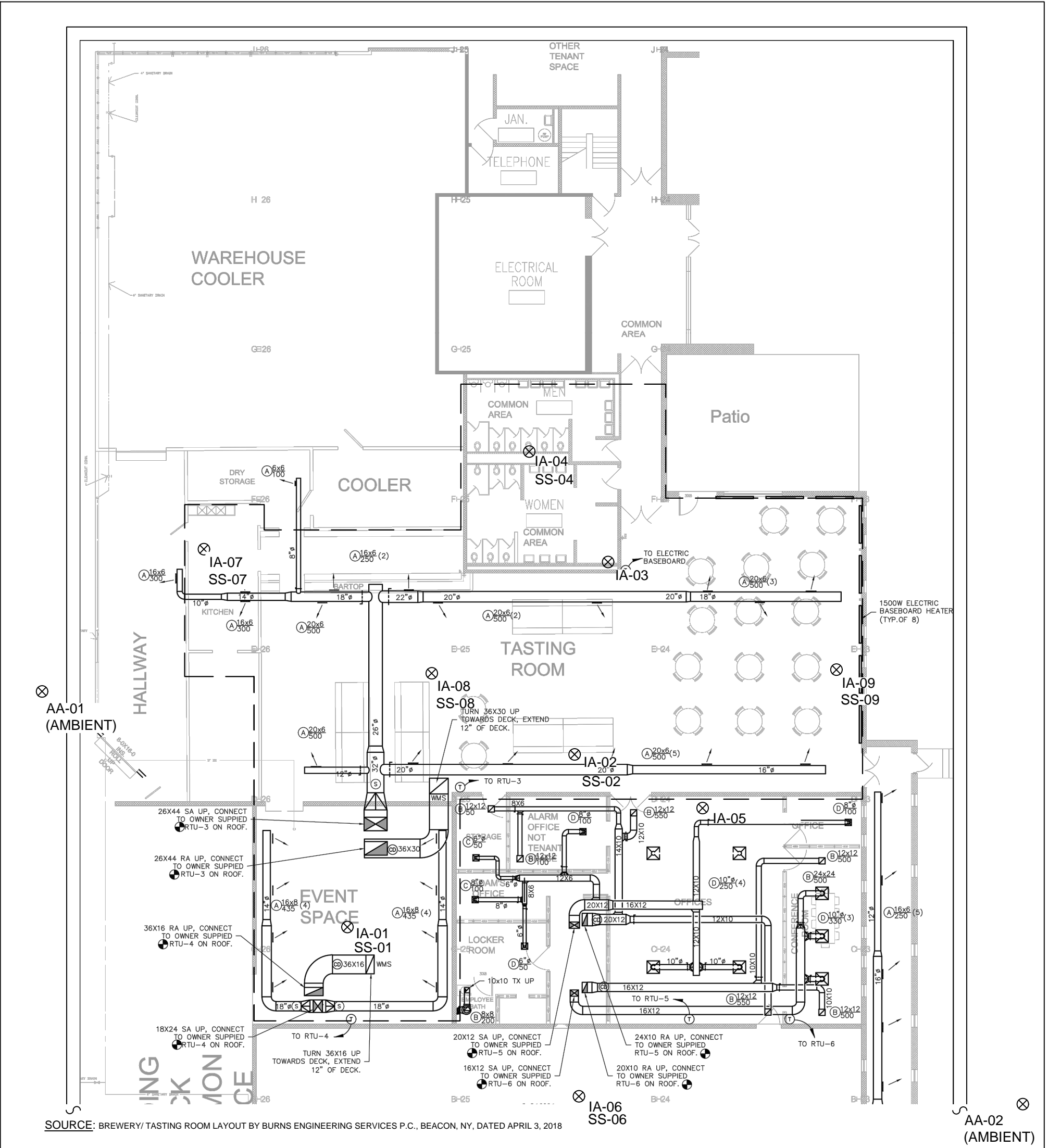
SUED

1

REVISION NO:

0

11" x 36"



INDOOR AIR, SUB-SLAB VAPOR, AND  
OUTDOOR AMBIENT; SAMPLING LOCATIONS

NOT TO SCALE

AIR SAMPLE LOCATIONS:

IA-01/SS-01	EVENT SPACE
IA-02/SS-02	TASTING ROOM
IA-03	LADIES ROOM
IA-04/SS-04	MENS ROOM
IA-05	OFFICE
IA-06/SS-06	BREWERY
IA-07/SS-07	KITCHEN
IA-08/SS-08	TASTING ROOM
IA-09/SS-09	TASTING ROOM
AA-01	AMBIENT
AA-02	AMBIENT

NOTES -

- SAMPLING LOCATIONS MAY BE MODIFIED IF NECESSARY DUE TO FIELD CONDITIONS. ANY MODIFICATIONS TO THE SAMPLING LOCATIONS WILL BE APPROVED BY NYSDEC AND NYSDOH PRIOR TO SAMPLE COLLECTION.
- UPWIND AND DOWNWIND AMBIENT AIR SAMPLING LOCATIONS SHALL BE DETERMINED BASED ON WIND DIRECTION DURING THE SAMPLING EVENT. TYPICAL LOCATIONS ARE SHOWN ON THIS FIGURE.
- SAMPLES SHALL BE COLLECTED OVER AN 8-HOUR PERIOD.

LEGEND:

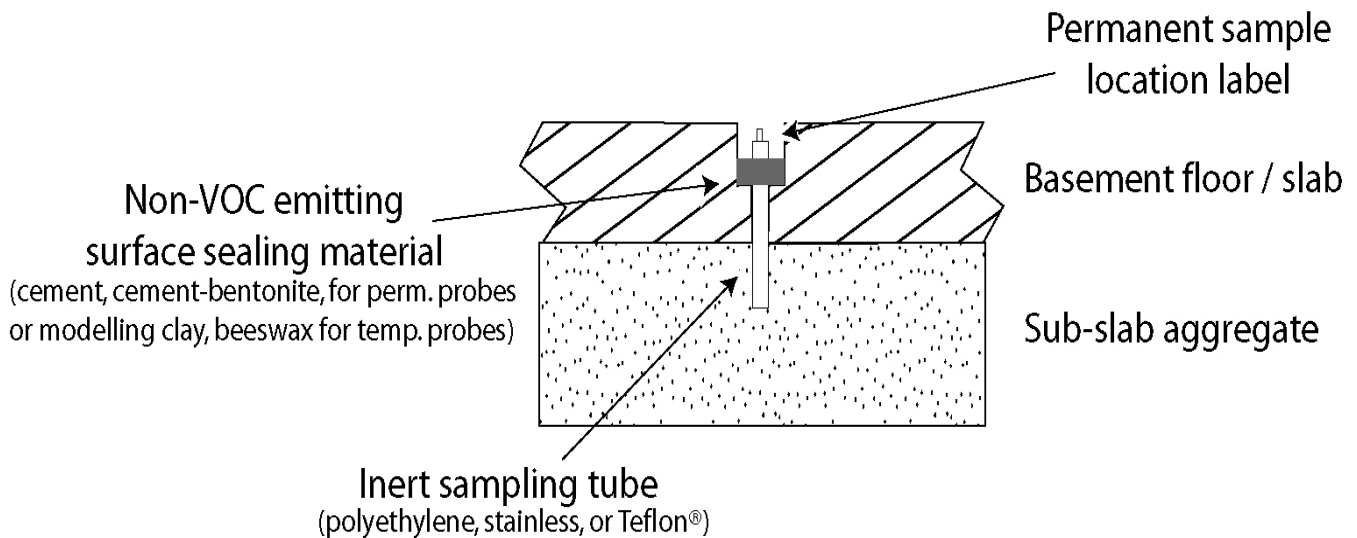
⊗	AIR SAMPLE LOCATIONS
IA	INDOOR AIR
SS	SUB-SLAB VAPOR
AA	OUTDOOR AMBIENT AIR



Former IBM East Fishkill Facility  
iPark 84 – Building 330C  
Sloop Brewing Co.  
Hopewell Junction, New York

**FIGURE 3**

**TYPICAL SUB-SLAB VAPOR SAMPLING PROBE SCHEMATIC**



Source: Guidance for Evaluating Soil Vapor Intrusion in the State of New York (New York State Department of Health, October 2006), Figure 2.3 Schematic of a generic sub-slab vapor probe