August 7, 2025

Brittany O'Brien-Drake, P.G.
Professional Geologist, Project Manager
Division of Environmental Remediation, Remedial Bureau D
New York State Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, New York 12233

RE: SSDS and Preoccupancy Testing Work Plan Response Letter
Site: DuPont-Stauffer Landfill Site
NYSDEC Site No: 336009

Dear Ms. O'Brien Drake:

On behalf of IV5 Newburgh South Logistics Center, LLV (Owner), LaBella Associates, D.P.C. (LaBella) offers the following response to a comment received by your office in a letter dated August 1, 2025, regarding the Sub-Slab Depressurization System (SSDS) and Preoccupancy Testing Work Plan.

1. Comment 1: *The work plan indicates that preoccupancy indoor air testing will be conducted to determine if the passive system needs to be converted to an active system. However, the work plan does not explain the process to which the results will be evaluated and decisions made to change the system to active. The work plan should indicate that the decision to make the passive system active, based on indoor air sampling results, will be made by NYS DEC and NYS DOH collectively.*
   Response: LaBella concurs with Comment 1 and has revised Page 3 of the work plan to include: *"Following receipt of post-construction/pre-occupancy monitoring and laboratory analytical data, a summary report will be prepared for the SSDS and submitted to the NYSDEC and NYSDOH for review. The report will summarize the testing conducted at the Site, including a comparison of laboratory analytical results to NYSDOH/USEPA Standards, Guidance Values, and recommendations. A decision to make the passive system active, based on post-construction/pre-occupancy monitoring results, will be made by NYSDEC and NYSDOH collectively."*

We appreciate your attention to this project, and respectfully request a written response indicating your conceptual approval of the SSDS and Preoccupancy Testing Work Plan. Please feel free to contact me at (720)626-6362 or bfields@labellapc.com if you have any questions or require additional information.

Respectfully submitted,

LaBella Associates

Branson Fields
Project Manager

CC: J. Pelton/A. Bollasina, NYSDEC
S. McCague, NYSDEC Region 3
M. Doroski/M. Sergott, NYSDOH
F. VanDerVeken, frank.vanderveken@brookfieldproperties.com
A. Brett, LaBella Associates

Attachments:
-Comment Letter (NYSDEC, 8/1/2025)
-Sub-Slab Depressurization System (SSDS) and Preoccupancy Testing Work Plan (Revised with attachments)

NEW YORK STATE | Department of Environmental Conservation

KATHY HOCHUL
Governor

AMANDA LEFTON
Commissioner

Transmitted via e-mail

August 1, 2025

Branson Fields
LaBella Associates
4 British American Boulevard
Latham, NY 12110
bfields@LaBellaPC.com

RE: SSDS and Preoccupancy Testing Work Plan Comments
NYSDEC Site Number 336009
DuPont-Stauffer Landfill Site

Dear Branson Fields:

The New York State Department of Environmental Conservation (NYS DEC) and Department of Health (NYS DOH) have reviewed the *Sub-Slab Depressurization System (SSDS) and Preoccupancy Testing Work Plan*, received on May 14, 2025 and provide the following comment:

1. The work plan indicates that preoccupancy indoor air testing will be conducted to determine if the passive system needs to be converted to an active system. However, the work plan does not explain the process to which the results will be evaluated and decisions made to change the system to active. The work plan should indicate that the decision to make the passive system active, based on indoor air sampling results, will be made by NYS DEC and NYS DOH collectively.

Please submit a revised workplan within 30 days following the receipt of this letter. If you have any questions or concerns please contact me at (518) 402-9672 or brittany.obrien-drake@dec.ny.gov.

Sincerely,

Brittany O'Brien-Drake

Brittany O'Brien-Drake, P.G.
Professional Geologist 1, Project Manager
Remedial Bureau D, Emerging Contaminants Unit
Division of Environmental Remediation

ec:
J. Pelton/A. Bollasina, NYSDEC
S. McCague, NYSDEC Region 3
M. Doroski/M. Sergott, NYSDOH
F. VanDerVeken, frank.vanderveken@brookfieldproperties.com

August 7, 2025

Brittany O'Brien-Drake
NYS Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, New York 12233

RE: Sub-Slab Depressurization System and Preoccupancy Testing Work Plan
NYSDEC Site Number 3-36-009 – DuPont Stauffer Landfill Site
700 South Street, City of Newburgh, Orange County, New York
LaBella Project #222335

Dear Ms. O'Brien Drake,

LaBella Associates, D.P.C. ("LaBella") is pleased to submit this Sub-Slab Depressurization System (SSDS) and Preoccupancy Testing Work Plan associated with the New York State Department of Environmental Conservation (NYSDEC) Inactive Hazardous Waste Disposal Site (IHWDS) (ID No. 3-36-009) located at 700 South Street, City of Newburgh, Orange County, New York, hereinafter referred to as the "Site." This letter work plan is to seek approval on the design of the SSDS and preoccupancy testing plan.

PROJECT BACKGROUND

The Site is comprised of an approximately 49.6-acre area consisting of two parcels located at 700-768 South Street and 121 Pierces Road in Newburgh, New York. The tax parcels are identified on the Orange County Tax Map as identifier numbers 5-1-1 and 5-2-1. As part of site redevelopment activities, the Site is planned to be regraded and redeveloped with an approximately 416,320-square-foot (sq-ft) slab on grade warehouse facility plus associated driveway/parking areas for trucks and stormwater management basins.

Although source areas were removed as part of the Remedial Action at the Site, there is still the potential for residual contamination to impact soil vapor and migrate into the planned Site building via soil vapor intrusion (SVI). As such, the Site Management Plan (dated November 2016) recommended that a passive SVI mitigation system be installed in any enclosed structures to be constructed at the Site to mitigate potential SVI impacts. Following installation of the system, indoor air quality (IAQ) samples will be collected to confirm successful mitigation prior to building occupancy.

SSDS DESIGN

Design drawings and specifications for the SSDS are attached. If any alterations to building plans result from permit approvals, etc. that warrant substantial changes to the SSDS, an

amendment will be made to this document detailing necessary changes based on any architectural/ structural changes.

Twelve (12) passive systems, designated as System 1 through System 12, are planned to be installed at the Site in the planned Site building. The passive systems will consist of a 4-inch diameter perforated HDPE pipes or equivalent that run beneath the building slab. In each of the systems, the perforated HDPE piping will connect to a solid schedule 40 PVC tee and header pipe. The header pipe will connect to a solid schedule 40 PVC riser pipe that will penetrate the floor slab near the center of the building and extended up vertically along a building column above the roofline to vent.

The sub-base material beneath the entire floor slab will consist of a minimum of 6 inches of washed stone or recycled concrete aggregate. SSDS piping will be installed within a 12-inch by 12-inch pea stone trench as shown on drawing R2.1, Detail 4. A minimum 15-mil vapor barrier will be installed directly beneath the floor slab.

The system includes ten (10) monitoring points for pressure field extension (PFE) testing or sampling as needed. These monitoring points will penetrate the floor slab where they will be accessible for pressure monitoring and SVI sampling. The points are referred to as MP-01 through MP-10 on the attached Figures R1.1 and R1.2. PFE testing will not be completed as long as the system remains passive. If indoor air sampling indicates a need for an active system, PFE testing will be conducted by connecting a micromanometer to each PFE location to confirm a negative pressure is being achieved beneath the slab following activation.

Penetrations (e.g. piping, utilities) through the vapor barrier as well as the edges of the vapor barrier will be sealed per the vapor barrier manufacturer instructions/specifications.

Labels will be attached to the vertical risers indicating the piping is for a SSDS. The SMP will be updated to include SSDS Operation and Maintenance and to reflect the additional engineering controls. This plan is subject to change following installation of the SSDSs to reflect any additional installation information and will be included in the updated Site Management Plan. The completed SSDS will be documented in the Construction Completion Report.

If preoccupancy testing indicates a need for system activation, a manometer will be installed on each vertical pipe in an accessible location and fans will be connected to vent piping. The fans will be selected based on Site conditions at the time of activation, if necessary. Each fan will be located on the roof and the exhaust will be located at least 10-ft from any air intake. An alarm (RadonAway Checkpoint IIA Mitigation System Alarm or equivalent) will be installed on a vertical pipe of each system with a fan/blower in an accessible location to alert if a loss of pressure occurs, if activation is required.

POST-INSTALLATION SVI SAMPLING

A minimum of thirty (30) days after SSDS startup, pre-occupancy indoor air quality (IAQ) sampling will be completed. To complete this sampling, six (6) indoor air samples will be collected from the lowest level of the building. Approximate sample locations are depicted on attached Figures R3.1 and R3.2. Note that sample locations are subject to change pending final building construction. Any significant changes will be discussed with the Department prior to sample collection.

One (1) outdoor air sample will also be collected as part of this sampling event for control purposes; the location of the outdoor air sample will be dependent on wind direction on the day of sampling and thus is not shown in Figures R3.1 and R3.2. Pending results, these samples will act as "endpoint" samples to confirm "the effectiveness of remedial measures" per the NYSDOH Guidance. Additionally, QA/QC sampling will be conducted consisting of one duplicate sample, one matrix spike and one matrix spike duplicate.

The indoor air sampling will be completed in substantial accordance with the procedures provided in the Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York dated October 2006 and subsequent updates. The applicable procedures to be implemented as part of this investigation are summarized below:

- The indoor air samples will be collected from a height of approximately 3-5-feet above the floor surface at the locations depicted on Figure R3.1 and R3.2.
- Indoor air samples and the outdoor air sample will be collected over the same general time period and in the same manner at all locations to minimize possible discrepancies. Indoor and outdoor air samples will be collected using one (1) Liter Summa Canisters® equipped with pre-calibrated laboratory supplied flow regulators. The regulators will be calibrated by the laboratory for a sampling time of eight (8) hours. The Summa Canisters® will be certified clean by the laboratory.
- Indoor air sampling will be completed prior to building occupancy once the building envelope is completed (i.e., walls windows, roofing, etc. are in-place).
- A NYSDOH Indoor Air Quality Questionnaire and Building Inventory will be completed in the lowest level of the building. Materials containing potential contaminants of concern will be listed to identify any potential indoor air sources of VOCs.

Subsequent to completing the indoor and outdoor air sampling, the samples will be sent under standard COC procedures to the laboratory for testing. The samples will be analyzed for VOCs by a New York State Environmental Laboratory Accreditation Program (ELAP) certified laboratory using USEPA Method TO-15. An "ASP-Category B-like" deliverables package will be generated by the laboratory and a DUSR will be completed.

Following receipt of post-construction/pre-occupancy monitoring and laboratory analytical data, a summary report will be prepared for the SSDS and submitted to the NYSDEC and

NYSDOH for review. The report will summarize the testing conducted at the Site, including a comparison of laboratory analytical results to NYSDOH/USEPA Standards, Guidance Values, and recommendations. A decision to make the passive system active, based on post-construction/pre-occupancy monitoring results, will be made by NYSDEC and NYSDOH collectively.

REPORTING

Construction details for the system including the final system layout, system components, as well as post-installation indoor air sampling data will be documented in a Construction Completion Report (CCR).

If you have any questions, or require additional information, please do not hesitate to contact me at (585) 770-2552.

Respectfully submitted,

LABELLA ASSOCIATES, D.P.C.

Alexander Brett, EIT
Environmental Engineer

Attachments:
- Attachment 1: SSDS System Drawings:
  - Figure R1.1: Sub-Slab Depressurization System Layout – North
  - Figure R1.2: Sub-Slab Depressurization System Layout - South
  - Figure R2.1: Sub-Slab Depressurization System Details
- Attachment 2: SSDS Specifications
  - Specification Section 312113- Passive Sub-Slab Depressurization System
- Attachment 3: Proposed Preoccupancy Indoor Air Testing Locations
  - Figure R3.1: Proposed Preoccupancy Indoor Air Sampling Locations – North
  - Figure R3.2: Proposed Preoccupancy Indoor Air Sampling Locations – South

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ATTACHMENTS

ATTACHMENT 1 –
SSDS SYSTEM DRAWINGS

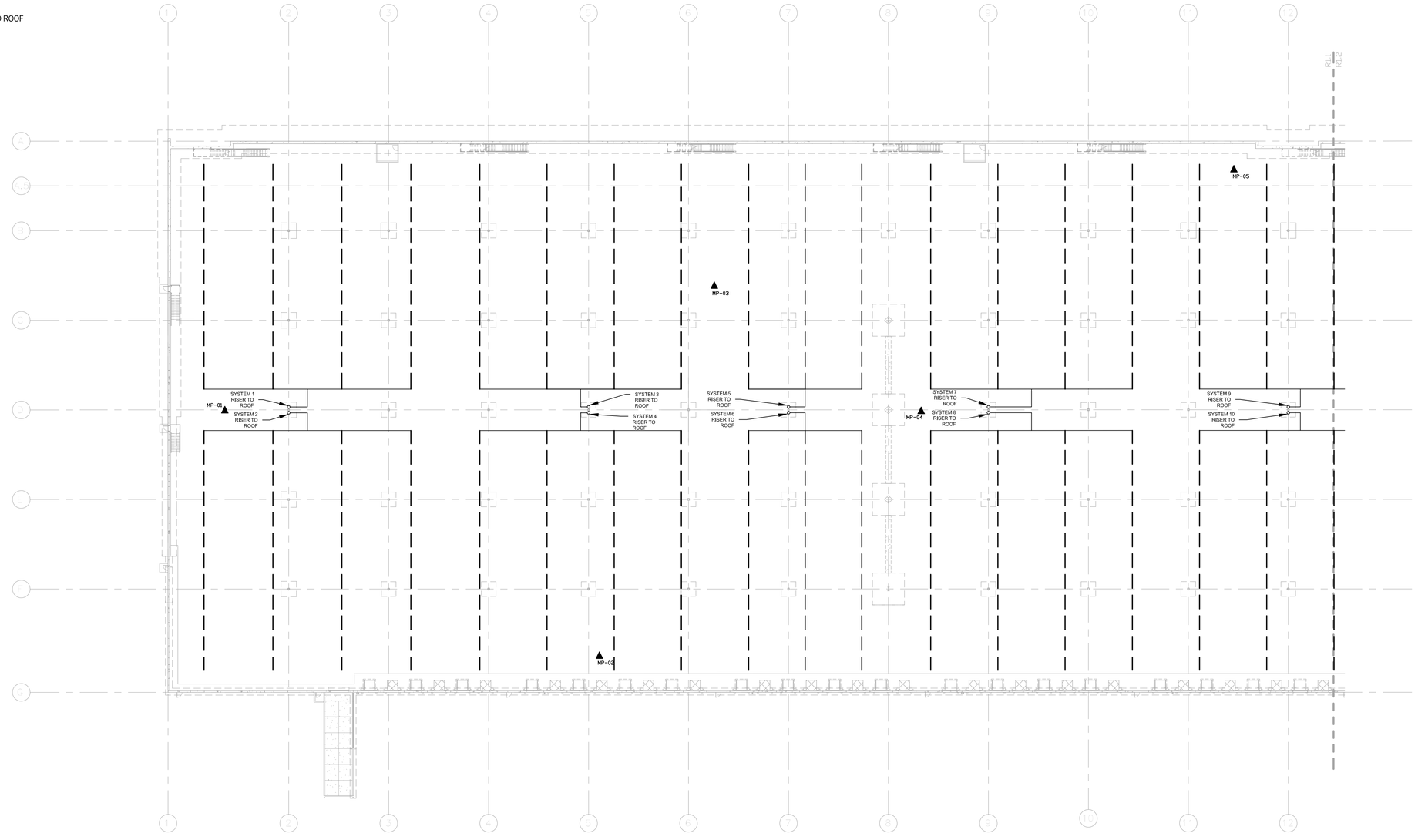
LEGEND

FABRIC WRAPPED 12 INCH WIDE, 1 INCH THICK VAPOR COLLECTION MAT

4 INCH SOLID SCH 40 PVC HEADER PIPE SLOPED AWAY FROM VERTICAL RISER ALLOW FOR DRAINAGE

○ 4" SCH 40 PVC VERTICAL RISER UP TO ROOF

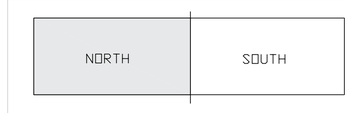
▲ MONITORING POINT



SUB-SLAB DEPRESSURIZATION SYSTEM LAYOUT - NORTH
SCALE: 1/32" = 1'-0"
NORTH

NOTES

1. 4 INCH SCHEDULE 40 PVC RISER TO BE LOCATED AGAINST INTERIOR COLUMN AND VENTED UP AT LEAST 12-INCHES ABOVE THE ROOF. REFER TO DETAIL 1: VERTICAL RISER AND DETAIL 6: VENT STACK AT ROOF
2. 4 INCH SCHEDULE 40 PVC TO VAPOR COLLECTION MAT CONNECTION. REFER TO DETAIL 2: DETAIL AT HEADER.
3. 4 INCH HDPE PERFORATED PIPE WRAPPED IN FABRIC AND PLACED IN PEASTONE TRENCH. REFER TO DETAIL 4: MATERIAL PROFILE
4. ALL SUB-SLAB VAPOR COLLECTION PIPING TO BE GEOTEXTILE-WRAPPED 12 INCH WIDE, 1 INCH THICK CETCO GEOVENT, LAND SCIENCE TERRAVENT, EPRO VAPOR VENT OR EQUIVALENT VAPOR COLLECTION MAT
5. HEADER PIPING TO BE SOLID 4 INCH DIAMETER SCHEDULE 40 PVC.
6. VAPOR COLLECTION MAT TO BE INSTALLED SO THE TOP IS FLUSH WITH THE TOP OF THE GRAVEL SUBBASE OR IN THE MIDDLE OF GRAVEL TRENCH.
7. SPLICING OF VAPOR COLLECTION MAT SHALL BE COMPLETED PER MANUFACTURER SPECIFICATIONS (I.E., CUT BACK FABRIC, OVERLAP POLY CORE, FOLD BACK FABRIC AND TAPE SEAMS)
8. TRANSITIONS FROM PVC TO VAPOR COLLECTION MAT SHOULD BE COMPLETED USING THE VAPOR COLLECTION MAT TRANSITION FITTINGS.
9. SOLID BELOW GRADE HEADER PIPE SLOPED DOWN AWAY FROM RISER (I.E., DRAINED BACK TO VAPOR COLLECTION MAT).
10. DRILL 3/8 INCH HOLES EVERY 20 FEET ALONG INVERT OF SUBSLAB SOLID PVC HEADER PIPING TO ALLOW FOR DRAINAGE TO THE SUBSURFACE.
11. GAS PEARMEABLE LAYER SHALL CONSIST OF A MINIMUM OF 4 INCHES OF #57 STONE
12. TO PROTECT THE VAPOR BARRIER, ALL PENETRATIONS IN THE CONCRETE SLAB MADE AFTER POURING OF THE SLAB, SUCH AS JOINTS, ETC, SHALL BE CUT IN MANNER TO AVOID PENETRATING THE VAPOR BARRIER.
13. SEAL ALL PENETRATIONS AND GAPS WITH AN ELASTOMERIC JOINT SEALANT.
14. CONTRACTOR TO CONFIRM THAT VENT STACK OUTLET IS AT LEAST 10 FEET FROM AND AT LEAST 4 FEET ABOVE ANY AIR INTAKE,SUPPLY REGISTER, WINDOW, OR OTHER OPENING INTO CONDITIONED SPACES OF THE BUILDING.
15. SLOPE ANY ABOVE GRADE HORIZONTAL PIPING AT A MINIMUM OF 1/8 INCH PER FOOT TO ALLOW DRAINAGE BACK TO THE SUBSURFACE.
16. LABEL ALL ABOVE GRADE PIPING FOR EACH SYSTEM RISER INDICATING "SUB-SLAB DEPRESSURIZATION SYSTEM" AT INTERVALS NOT GREATER THAN 20 FEET LONG THE DEVELOPED LENGTH OF PIPING.
17. VAPOR PIN INSERT® MONITORING POINTS WITH CAPS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
18. VAPOR PIN INSERT® TO BE INSTALLED PRIOR TO SLAB CONSTRUCTION. INSERT TO EXTEND FROM SURFACE OF CONCRETE THROUGH VAPOR BARRIER AND TERMINATE IN GRAVEL SUBBASE. REFER TO DETAIL 3: PROFILE AT MONITORING POINT.
19. INSTALL ELECTRICAL CONDUIT/CONNECTIONS NEAR ROOF VENT STACK CAPABLE OF POWERING VENT FAN IN EVENT TESTING DETERMINES AN ACTIVE FAN IS REQUIRED.
20. INSTALL STANDARD CONDUIT/CONNECTIONS ON COLUMNS WITH SYSTEM RISERS TO ALLOW FOR ALARM INSTALLATION IF SYSTEM REQUIRES ACTIVATION IN FUTURE.
21. IF SYSTEM ACTIVATION IS REQUIRED, METHANE EVALUATION IS REQUIRED PRIOR TO FAN SELECTION AND OPERATION.
22. CONTRACTOR SHALL COORDINATE INSTALLATION OF SUB-SLAB DEPRESSURIZATION SYSTEM AND ALL UTILITY CROSSINGS.
23. HEAVY EQUIPMENT SHALL NOT BE DIRECTLY DRIVEN OVER SUB-SLAB PIPING PRIOR TO POURING CONCRETE SLAB.
24. THIS DRAWING IS NOT INTENDED TO PROVIDE STRUCTURAL INFORMATION. REFER TO STRUCTURAL DRAWINGS.



KEY PLAN
SCALE: 1" = 300'-0"
NORTH

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LaBella
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PROJECT/CLIENT
NEWBURGH SOUTH LOGISTICS CENTER
700 SOUTH STREET
CITY OF NEWBURGH, ORANGE COUNTY, NY

DRAWING TITLE
SUB-SLAB DEPRESSURIZATION SYSTEM LAYOUT NORTH

ISSUED FOR
BID SET

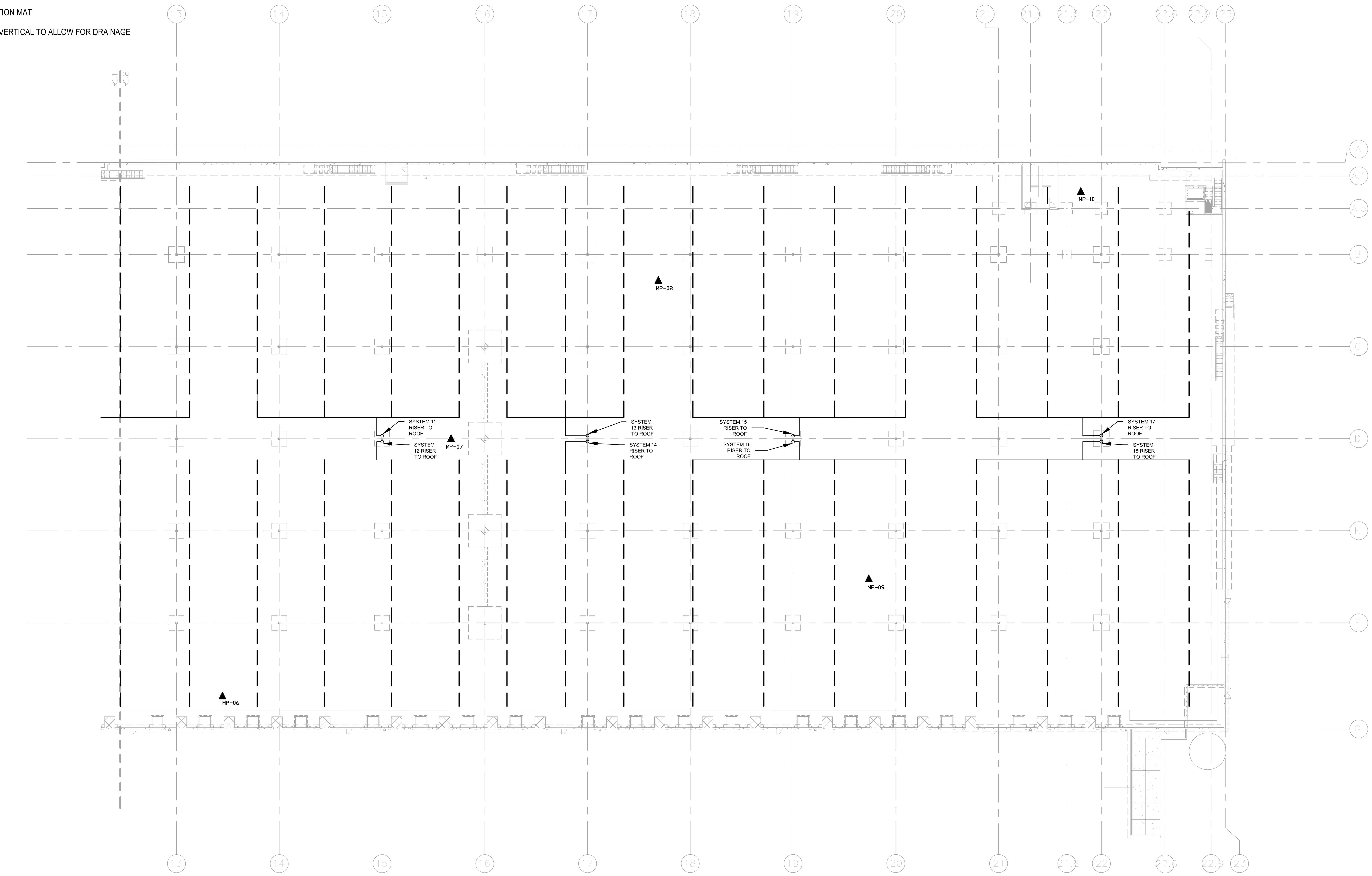
DESIGNED BY: AB
DRAWN BY: AB
REVIEWED BY: DN
DATE: July 16, 2024
SCALE: 1/32" = 1'-0"

PROJECT/DRAWING NUMBER
2222335.01

R1.1

LEGEND

- FABRIC WRAPPED 12 INCH WIDE, 1 INCH THICK VAPOR COLLECTION MAT
- 4 INCH SOLID SCH 40 PVC HEADER PIPE , SLOPED AWAY FROM VERTICAL TO ALLOW FOR DRAINAGE
- 4" SCH 40 PVC VERTICAL RISER UP TO ROOF
- MONITORING POINT



SUB-SLAB DEPRESSURIZATION SYSTEM LAYOUT - SOUTH
SCALE: 1/32" = 1'-0"
NORTH

NOTES

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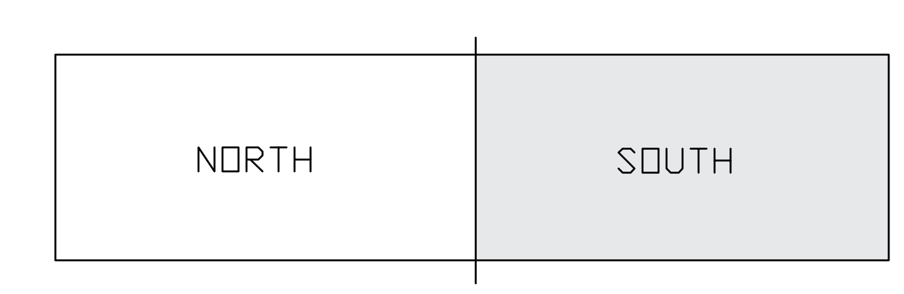

KEY PLAN
SCALE: 1" = 300'-0"
NORTH

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LaBella
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PROJECT/CLIENT
NEWBURGH SOUTH LOGISTICS CENTER
700 SOUTH STREET
CITY OF NEWBURGH, ORANGE COUNTY, NY

DRAWING TITLE
SUB-SLAB DEPRESSURIZATION SYSTEM LAYOUT SOUTH

ISSUED FOR: BID SET
DATE: JULY 16, 2024
DESIGNED BY: AB
DRAWN BY: AB
REVIEWED BY: DN
SCALE: 1/32" = 1'-0"

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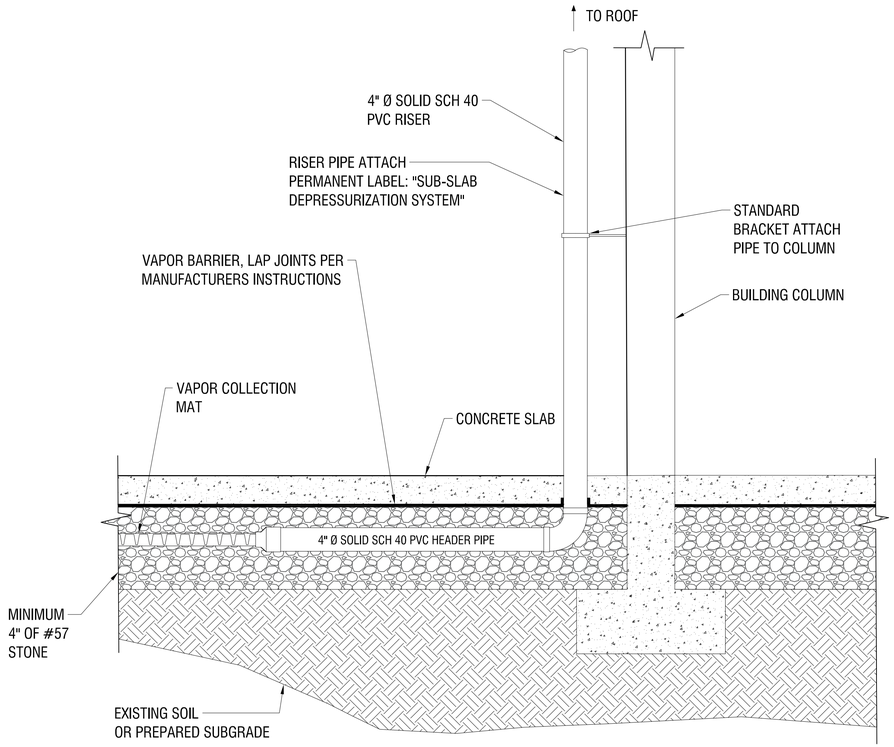
PROJECT/DRAWING NUMBER
2222335.01

R1.2



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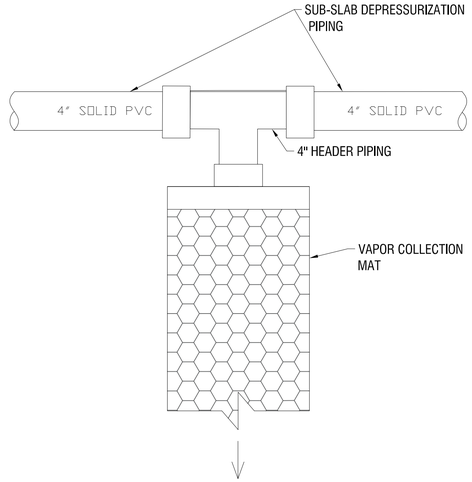
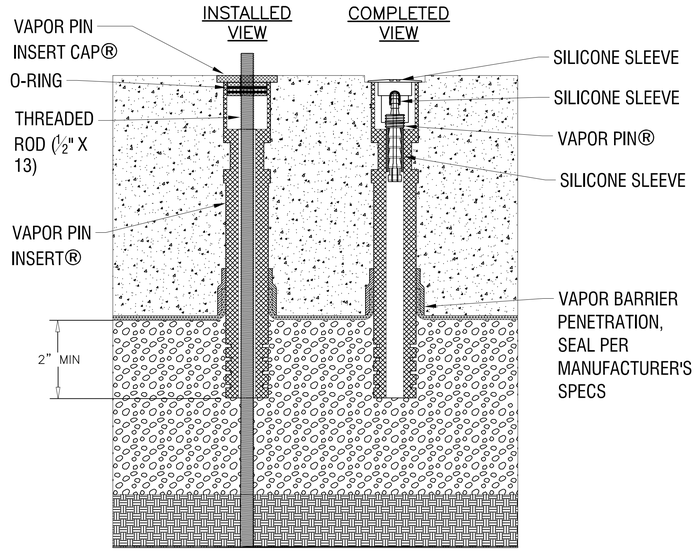
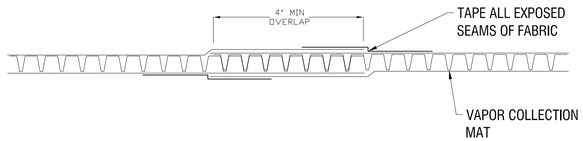
SCALE: NONE



2 DETAIL AT HEADER
SCALE: NONE

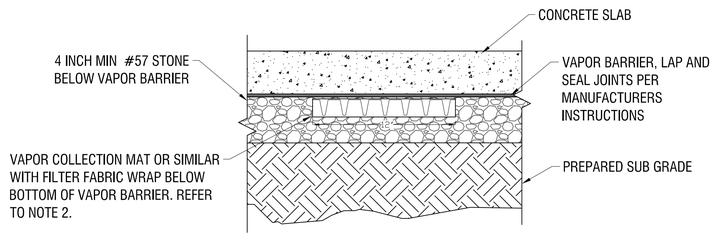


3 PROFILE AT MONITORING POINT
SCALE: NONE

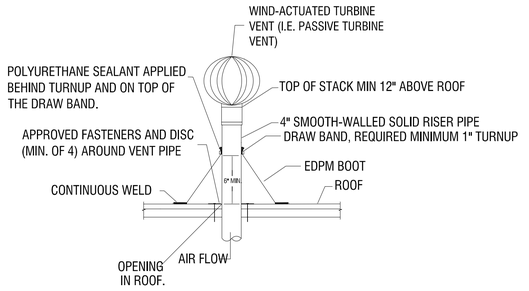


NOTE: PULL AWAY FABRIC AT OVERLAP TO EXPOSE DIMPLES AND OVERLAY THE VAPOR COLLECTION MAT

5 VAPOR COLLECTION MAT FIELD OVERLAP
SCALE: NONE



4 VAPOR COLLECTION MAT CROSS SECTION DETAIL
SCALE: NONE



6 VENT STACK AT ROOF
SCALE: NONE

NOTES

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4. ALL SUB-SLAB VAPOR COLLECTION PIPING TO BE GEOTEXTILE-WRAPPED 12 INCH WIDE, 1 INCH THICK CETCO GEOVENT, LAND SCIENCE TERRAVENT, EPRO VAPOR VENT OR EQUIVALENT VAPOR COLLECTION MAT
5. HEADER PIPING TO BE SOLID 4 INCH DIAMETER SCHEDULE 40 PVC.
6. VAPOR COLLECTION MAT TO BE INSTALLED SO THE TOP IS FLUSH WITH THE TOP OF THE GRAVEL SUBBASE OR IN THE MIDDLE OF GRAVEL TRENCH.
7. SPLICING OF VAPOR COLLECTION MAT SHALL BE COMPLETED PER MANUFACTURER SPECIFICATIONS (I.E., CUT BACK FABRIC, OVERLAP POLY CORE, FOLD BACK FABRIC AND TAPE SEAMS)
8. TRANSITIONS FROM PVC TO VAPOR COLLECTION MAT SHOULD BE COMPLETED USING THE VAPOR COLLECTION MAT TRANSITION FITTINGS.
9. SOLID BELOW GRADE HEADER PIPE SLOPED DOWN AWAY FROM RISER (I.E., DRAINED BACK TO VAPOR COLLECTION MAT).
10. DRILL 3/8 INCH HOLES EVERY 20 FEET ALONG INVERT OF SUBSLAB SOLID PVC HEADER PIPING TO ALLOW FOR DRAINAGE TO THE SUBSURFACE.
11. GAS PEARMEABLE LAYER SHALL CONSIST OF A MINIMUM OF 4 INCHES OF #57 STONE
12. TO PROTECT THE VAPOR BARRIER, ALL PENETRATIONS IN THE CONCRETE SLAB MADE AFTER POURING OF THE SLAB, SUCH AS JOINTS, ETC, SHALL BE CUT IN MANNER TO AVOID PENETRATING THE VAPOR BARRIER.
13. SEAL ALL PENETRATIONS AND GAPS WITH AN ELASTOMERIC JOINT SEALANT.
14. CONTRACTOR TO CONFIRM THAT VENT STACK OUTLET IS AT LEAST 10 FEET FROM AND AT LEAST 4 FEET ABOVE ANY AIR INTAKE,SUPPLY REGISTER, WINDOW, OR OTHER OPENING INTO CONDITIONED SPACES OF THE BUILDING.
15. SLOPE ANY ABOVE GRADE HORIZONTAL PIPING AT A MINIMUM OF 1/8 INCH PER FOOT TO ALLOW DRAINAGE BACK TO THE SUBSURFACE.
16. LABEL ALL ABOVE GRADE PIPING FOR EACH SYSTEM RISER INDICATING "SUB-SLAB DEPRESSURIZATION SYSTEM" AT INTERVALS NOT GREATER THAN 20 FEET LONG THE DEVELOPED LENGTH OF PIPING.
17. VAPOR PIN INSERT® MONITORING POINTS WITH CAPS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
18. VAPOR PIN INSERT® TO BE INSTALLED PRIOR TO SLAB CONSTRUCTION. INSERT TO EXTEND FROM SURFACE OF CONCRETE THROUGH VAPOR BARRIER AND TERMINATE IN GRAVEL SUBBASE. REFER TO DETAIL 3: PROFILE AT MONITORING POINT.
19. INSTALL ELECTRICAL CONDUIT/CONNECTIONS NEAR ROOF VENT STACK CAPABLE OF POWERING VENT FAN IN EVENT TESTING DETERMINES AN ACTIVE FAN IS REQUIRED.
20. INSTALL STANDARD CONDUIT/CONNECTIONS ON COLUMNS WITH SYSTEM RISERS TO ALLOW FOR ALARM INSTALLATION IF SYSTEM REQUIRES ACTIVATION IN FUTURE.
21. IF SYSTEM ACTIVATION IS REQUIRED, METHANE EVALUATION IS REQUIRED PRIOR TO FAN SELECTION AND OPERATION.
22. CONTRACTOR SHALL COORDINATE INSTALLATION OF SUB-SLAB DEPRESSURIZATION SYSTEM AND ALL UTILITY CROSSINGS.
23. HEAVY EQUIPMENT SHALL NOT BE DIRECTLY DRIVEN OVER SUB-SLAB PIPING PRIOR TO POURING CONCRETE SLAB.
24. THIS DRAWING IS NOT INTENDED TO PROVIDE STRUCTURAL INFORMATION. REFER TO STRUCTURAL DRAWINGS.

NO.	REVISION	BY	DATE
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PROJECT/CLIENT
NEWBURGH SOUTH LOGISTICS CENTER
700 SOUTH STREET
CITY OF NEWBURGH, ORANGE COUNTY, NY

DRAWING TITLE
SUB-SLAB DEPRESSURIZATION SYSTEM DETAILS

ISSUED FOR
BID SET

DATE: JULY 16, 2024

DESIGNED BY: AB
DRAWN BY: AB
REVIEWED BY: DN

SCALE: 1/32" = 1'-0"

PROJECT/DRAWING NUMBER
2222335.01

R2.1

ATTACHMENT 2 –
SSDS SPECIFICATIONS

SECTION 312113 – PASSIVE SUB-SLAB DEPRESSURIZATION SYSTEM

PART 1 - VAPOR BARRIER

1.1 A 46-mil thermoplastic membrane or approved alternate flexible sheeting material shall be placed above (on top of) the Gas Permeable Layer prior to pouring the slab or placing the floor assembly to serve as a soil-vapor-barrier, by bridging any cracks that develop in the slab or floor assembly. The sheeting should cover the entire floor area, and separate sections of sheeting should be overlapped at least 6 inches. The sheeting shall be sealed around any pipe, wire or other penetrations of the material, per the manufacturer's instructions. All punctures or tears in the material repaired according to the manufacturer's instructions. The sheeting shall meet the following requirements (e.g., Vintega P20 Waterproofing and gas vapor protection membrane or approved equivalent):

Property and ASTM Standard	**Performance Standard**
Underslab Vapor Retarders, ASTM E1745 Class A	Meet or Exceed
Water Vapor Transmission, ASTM E96	0.0098 perms (0.004 gr/hr/ft^2)
Tensile Strength, ASTM D412	2100 psi (14.48 Mpa)
Puncture Resistance, ASTM E154	845 N (190 lbf)
Methane Permeability, ASTM D1434	<10 mL/m^2.day.atm
Radon Diffusion Coefficient, K124/02/95	<1.1x10^{-13}m^2/s

A. Seams in the vapor barrier shall be sealed with a product designed to be compatible with the vapor barrier.

B. Follow all manufacturer's instructions and specifications.

PART 2 - PREVENTION OF SOIL VAPOR ENTRY

A. All concrete floor slabs shall be designed, mixed, placed, reinforced, consolidated, finished, and cured to minimize the formation of cracks in accordance with standards set forth in the Model Building Codes.

B. Large openings, if any, through the concrete floor slab, grade beams, or other foundation components in contact with the soil (e.g., spaces around storm sewer piping, etc.) shall be filled or closed with materials that provide a permanent airtight seal such as non-shrink mortar, grouts, expanding foam, or similar materials designed for such application.

C. Smaller gaps around all pipe, wire, or other objects, if any, that penetrate concrete floor slab or other floor assemblies shall be made air-tight with an elastomeric joint sealant, as defined in ASTM C920-87, and applied in accordance with the manufacturer's recom-

mendations.

D. All control joints, isolation joints, construction joints, and any other joints in the concrete floor slab or between the floor slab and the building's walls shall be sealed. A continuous formed gap (for example, a "tooled edge") which allows the application of a sealant that will provide a continuous, airtight seal shall be created along all joints. When the slab has cured, the gap shall be cleared of loose material and filled with an elastomeric joint sealant, as defined in ASTM C920-97, and applied in accordance with the manufacturer's recommendations.

E. Joints, cracks, or other openings around all penetrations of both exterior and interior surfaces of masonry block or poured concrete foundation components below the ground surface shall be sealed with an elastomeric sealant that provides an air-tight seal. Penetrations of poured concrete walls should also be sealed on the exterior surface. This includes sealing of wall tie penetrations, if applicable.

PART 3 – VAPOR COLLECTION AND VENT SYSTEM

A. Lengths of sub-slab vapor collection piping shall be installed beneath the vapor barrier as depicted on R1.1 and R1.2. Sub-slab vapor header piping will consist of 4-inch diameter, schedule 40 PVC, with 3/8-inch diameter drilled holes every 20-ft for drainage of condensate or approved equivalent. Sub-slab vapor collection piping will connect to the PVC header and will consist of at least 12-inch wide by at least 1-inch thick, geotextile-wrapped low profile type vapor collection mat.

B. The vapor collection mat shall be connected via appropriate fittings to the 4-inch diameter PVC header pipe per manufacturer's instructions and specifications.

C. Vapor collection mat shall be geotextile fabric wrapped and installed at least 1-inch into the gas permeable stone subbase as depicted on R2.1. Pipe trenches shall be backfilled with washed pea stone or #57 bluestone. A minimum of 3 inches stone shall be maintained beneath the pipe.

D. Vapor collection mat connections to other portions of vapor collection mat and changes in direction of vapor collection mat will be overlapped and taped per manufacturer's instructions and specifications.

E. Slope all PVC pipe up 1/8-inch per foot from connection with vapor collection piping to allow for drainage to the subsurface.

F. The header pipes shall penetrate the building envelope through the concrete floor slab as depicted on R2.1.

G. The header pipe shall daylight above the floor slab, in the locations depicted on R1.1 and R1.2. The vertical pipes shall extend through the roof and terminate at least 12 inches above the surface of the roof, in a location that is: at least 10 feet from any air intakes, any window, or other opening into the conditioned spaces of the building that is less than 4 feet below the exhaust point; and at least 10 feet from any adjoining or adjacent build-

ings. All roof penetrations must be properly sealed and completed in accordance with other related specifications.

H. All exposed and visible interior and exterior vent pipes shall be identified with labels indicating “SUB-SLAB DEPRESSURIZATION SYSTEM” placed at least every 20 feet.

I. Vent pipes shall be installed in a configuration and supported in a manner that ensures that any rain water or condensation accumulating within the pipes drains downward into the ground beneath the vapor barrier.

J. The contractor shall provide photo documentation for all piping prior to covering.

K. Each vent stack termination on the roof will be furnished with a wind-actuated vent turbine.

PART 4 – MONITORING POINTS

A. Monitoring points shall be Vapor Pin® Inserts poured in place in locations depicted on R1.1 and R1.2. Vapor Pins® will be installed into inserts and finished with protective caps and secure covers.

B. Vapor Pin® Inserts shall be installed prior to pouring concrete. Opening in bottom of Vapor Pin ® Insert shall extend at least 3 inches below the bottom of the vapor barrier and terminate in the gravel subbase.

C. Trim or extend Vapor Pin® Insert per manufacturer’s instructions and specifications.

D. Following pouring of the slab, Vapor Pins® will be installed into inserts and finished with protective caps and secure covers. Follow all manufacturer's instructions and specifications.

PART 5 – ACCESSORIES

A. Install electrical conduits/connections in the vicinity of the vent stacks to allow for the installation of an active fan/blower at a future point in time. Install electrical conduits/connects in vicinity of system risers to allow for installation of system alarms approximately 4-ft from the floor surface if the system is activated with a fan at a future point in time.

PART 6 – MISCELLANEOUS

A. Heating, Ventilating, and Air Conditioning (HVAC) systems shall be designed and installed to avoid depressurization of the building relative to underlying and surrounding soil. Specifically, joints in air ducts and plenums passing through unconditioned spaces shall be sealed.

END OF SECTION 312113

Standard Operating Procedure Installation of the Vapor Pin® Insert

June 2020

Scope:

This standard operating procedure describes the installation the Vapor Pin® Insert (Figure 1).

Purpose:

The purpose of this procedure is to assure good quality control in field operations and uniformity between field personnel in the use of the Vapor Pin® Insert. The Vapor Pin® Insert is used to facilitate the collection of soil gas samples and pressure measurements beneath engineered vapor intrusion barriers (e.g., Geo-Seal®), or vapor mitigation coatings (e.g., Retro-Coat™).

Equipment Needed:

- Vapor Pin® Insert;
- Vapor Pin® Insert Cap;
- Hacksaw (optional);
- Power drill and small diameter bits (optional);
- Threaded rod (1/2" x 13); and
- Dead blow hammer.

Installation Procedure (New Construction):

1) Check for buried obstacles (pipes, electrical lines, etc.) prior to proceeding.

2) Locate the desired position (horizontally and vertically) of the top of the Vapor Pin® Insert.

3) Pierce the barrier with a threaded rod of sufficient length to extend slightly above the elevation of the finished floor and into the subgrade a sufficient depth to provide support for the Vapor Pin® Insert. Make sure the rod is perpendicular to the proposed floor surface. Avoid bending the rod, as it may inhibit its removal after the concrete has cured. Also avoid damaging the threads on the rod.

4) Dry fit the Vapor Pin® Insert and trim, or extend the length. Extend the length by sliding the Insert into a length of 1.5 inch diameter schedule 40 PVC pipe. The insert and pipe can be joined using PVC cement or similar material. Allow sufficient time for the adhesive to cure prior to sampling. Vent holes may be added at the bottom of the Insert or PVC extension to promote air flow.

5) Assemble the Vapor Pin® Insert and Cap by pressing the Cap into the top of the Insert. Position the assembly on the threaded rod so that the top of the Cap lies flush with the elevation of the finished floor. It is important that the position of the Insert be perpendicular to the slab so that the Vapor Pin® Secure Cover meets uniformly with the floor.

6) Marry the barrier to the Insert per the manufacture's specification prior to pouring the concrete slab.

7) After the concrete has set, remove the threaded rod and Cap and install the Vapor Pin® or FLX-VP Vapor Pin® product in the Insert.

Installation Procedure (Exisiting Construction:

1) Check for buried obstacles (pipes, electrical lines, etc.) prior to proceeding.

2) Prior to installation in an existing slab, a large diameter hole must be cored through the slab to either expose the barrier, or provide access to the base beneath the slab prior to the application of a vapor mitigation coating. Contact the vendor of the barrier or coating about the desired diameter of the hole, the procedures used to expose the seal, and the methods and materials used to marry the seal or coating to the Insert prior to proceeding.

3) Locate the desired position (horizontally and vertically) of the top of the Vapor Pin® Insert.

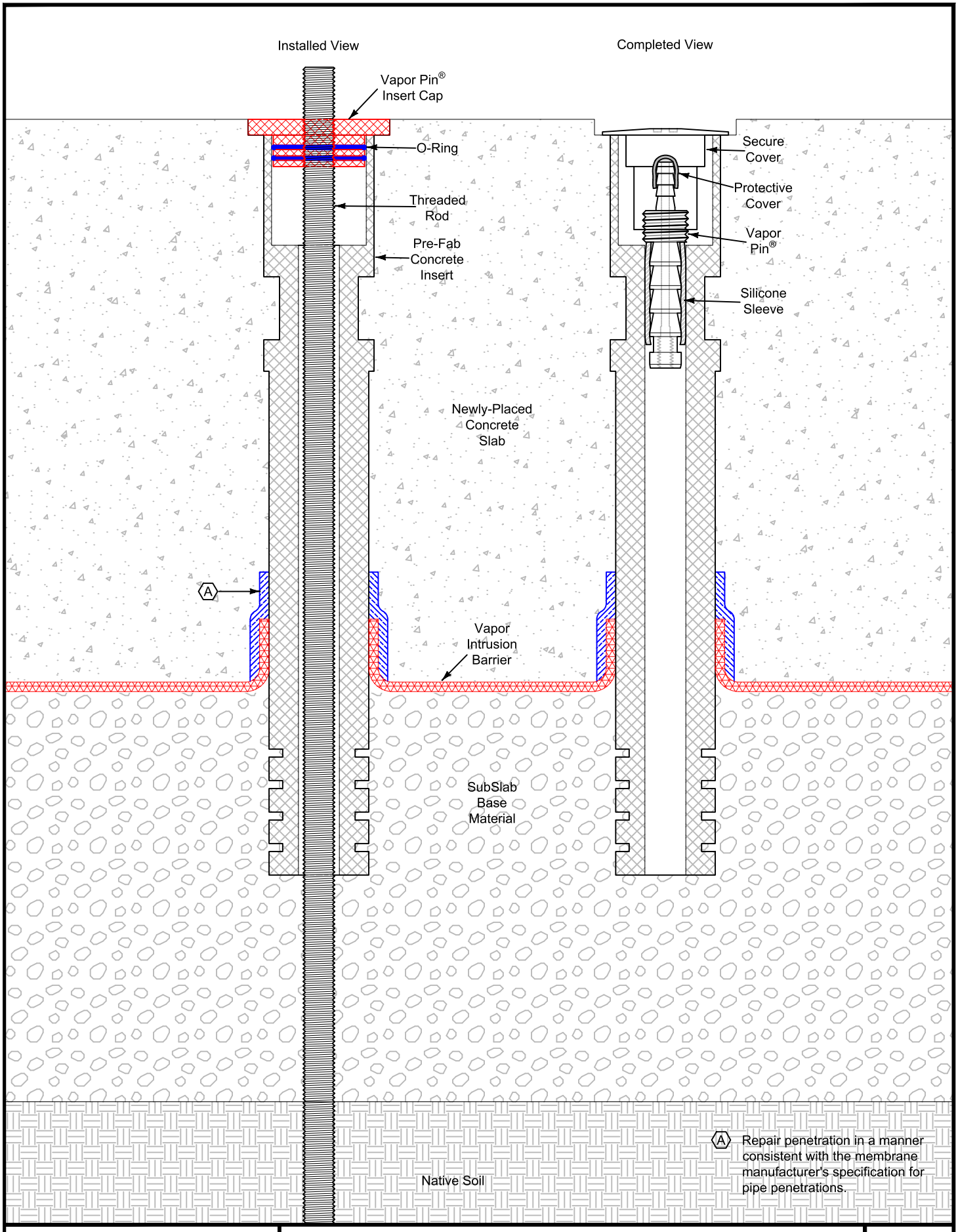
4) Pierce the barrier (if applacble) with a threaded rod of sufficient length to extend slightly above the elevation of the finished floor and into the subgrade a sufficient depth to provide support for the Vapor Pin® Insert. Make sure the rod is perpendicular to the proposed floor surface. Avoid bending the rod, as it may inhibit its removal after the concrete has cured. Also avoid damaging the threads on the rod.

5) Dry fit the Vapor Pin® Insert and trim, or extend the length. Extend the length by sliding the Insert into a length of 1.5 inch diameter schedule 40 PVC pipe. The insert and pipe can be joined using PVC cement or similar material. Allow sufficient time for the adhesive to cure prior to sampling. Vent holes may be added at the bottom of the Insert or PVC extension to promote air flow.

6) Assemble the Vapor Pin® Insert and Cap by pressing the Cap into the top of the Insert. Position the assembly on the threaded rod so that the top of the Cap lies flush with the elevation of the finished floor. It is important that the position of the Insert be perpendicular to the slab so that the Vapor Pin® Secure Cover meets uniformly with the floor.

7) If the Insert is used in conjunction with a vapor intrusion barrier, marry the barrier to the Insert per the barrier manufacture's specification prior to pouring the concrete slab.

8) After the concrete has set, remove the threaded rod and Cap and install the Vapor Pin® or FLX-VP Vapor Pin® product in the Insert.



VaporPin®

Vapor Pin® Insert with Cap,
Vapor Pin Enterprises, Inc.

Figure
1

ATTACHMENT 3 –
PROPOSED PREOCCUPANCY INDOOR AIR TESTING LOCATIONS

LEGEND

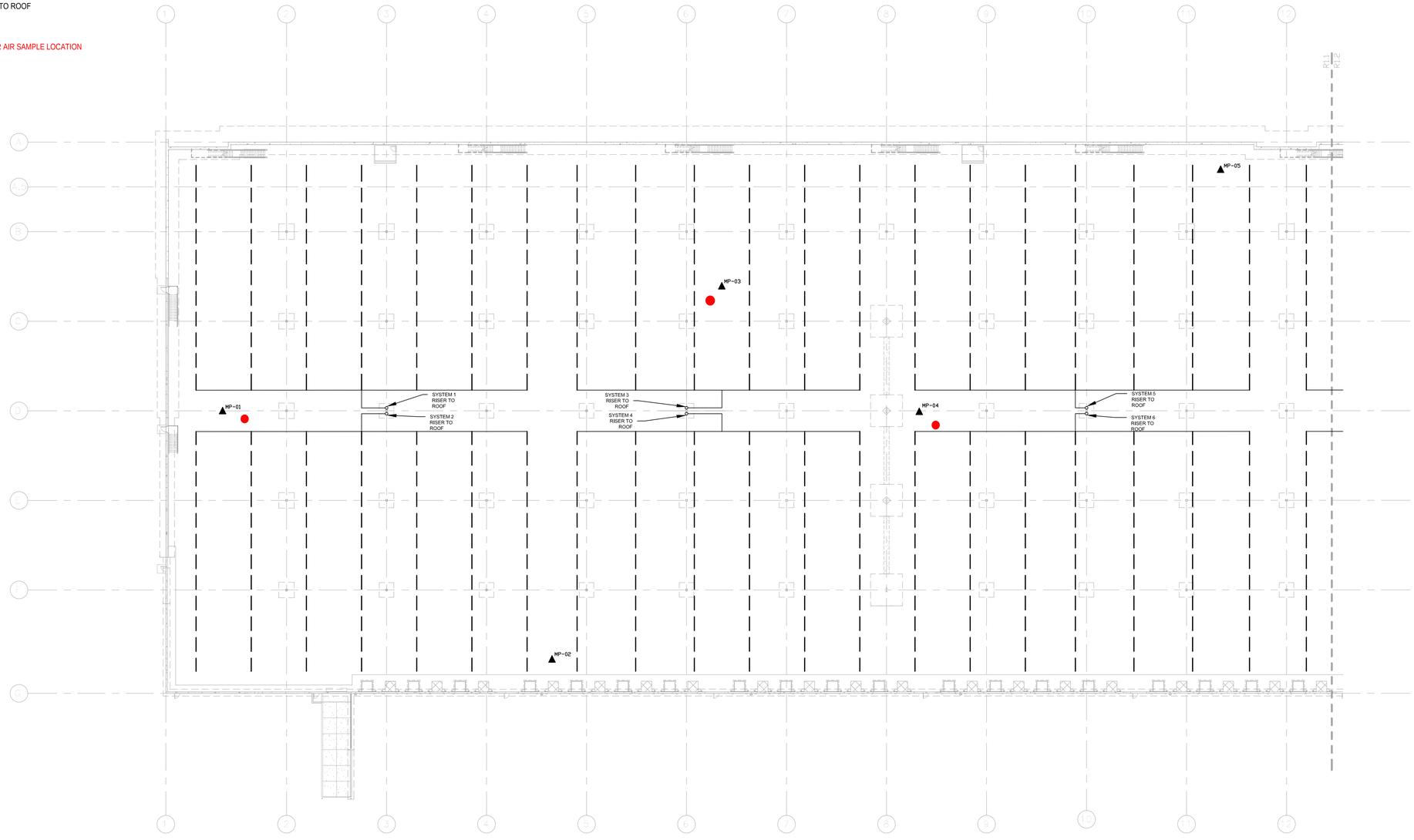
FABRIC WRAPPED 4 INCH HDPE PERFORATED COLLECTION PIPE PLACED WITHIN MIDDLE OF PEASTONE TRENCH

4 INCH SOLID SCH 40 PVC HEADER PIPE PLACED WITHIN MIDDLE OF PEASTONE TRENCH, SLOPED AWAY FROM VERTICAL RISER AT 1/8 INCH PER FOOT TO ALLOW FOR DRAINAGE

4" SCHU 40 PVC VERTICAL RISER UP TO ROOF

MONITORING POINT

PROPOSED PREOCCUPANCY INDOOR AIR SAMPLE LOCATION



SUB-SLAB DEPRESSURIZATION SYSTEM LAYOUT - NORTH

SCALE: 1/32" = 1'-0"

NORTH

NOTES

1. 4 INCH SCHEDULE 40 PVC RISER TO BE LOCATED AGAINST INTERIOR COLUMN AND VENTED UP AT LEAST 12-INCHES ABOVE THE ROOF. REFER TO DETAIL 1: VERTICAL RISER TYP. AND DETAIL 5 VENT STACK AT ROOF TYP.
2. 4 INCH SCHEDULE 40 PVC TO 4 INCH HDPE PERFORATED PIPE CONNECTION. REFER TO DETAIL 2: DETAIL AT HEADER.
3. 4 INCH HDPE PERFORATED PIPE WRAPPED IN FABRIC AND PLACED IN PEASTONE TRENCH. REFER TO DETAIL 4: MATERIAL PROFILE
4. ALL SUB-SLAB VAPOR COLLECTION PIPING TO BE GEOTEXTILE-WRAPPED 4 INCH DIAMETER PERFORATED DUAL-WALLED CORRUGATED EXTERIOR SMOOTH INTERIOR HDPE OR APPROVED EQUIVALENT.
5. INSTALL 4 INCH CAP AT EACH VAPOR COLLECTION PIPE TERMINATION
6. HEADER PIPING TO BE SOLID 4 INCH DIAMETER SCHEDULE 40 PVC.
7. SOLID BELOW GRADE HEADER PIPE SLOPED DOWN AT MINIMUM 1/8 INCH PER FOOT AWAY FROM RISER (I.E., DRAINED BACK TO PERFORATED PIPE).
8. PEA STONE SHALL CONSIST OF WASHED MATERIAL THAT WILL PASS THROUGH A 2 INCH SIEVE AND BE RETAINED BY A 1/4 INCH SIEVE.
9. TO PROTECT THE VAPOR BARRIER, ALL PENETRATIONS IN THE CONCRETE SLAB MADE AFTER POURING OF THE SLAB, SUCH AS JOINTS, ETC, SHALL BE CUT IN MANNER TO AVOID PENETRATING THE VAPOR BARRIER.
10. SEAL ALL PENETRATIONS AND GAPS WITH AN ELASTOMERIC JOINT SEALANT.
11. CONTRACTOR TO CONFIRM THAT VENT STACK OUTLET IS AT LEAST 10 FEET FROM AND AT LEAST 4 FEET ABOVE ANY AIR INTAKE,SUPPLY REGISTER, WINDOW, OR OTHER OPENING INTO CONDITIONED SPACES OF THE BUILDING.
12. SLOPE ANY ABOVE GRADE HORIZONTAL PIPING AT A MINIMUM OF 1/8 INCH PER FOOT TO ALLOW DRAINAGE BACK TO THE SUBSURFACE.
13. LABEL ALL ABOVE GRADE PIPING FOR EACH SYSTEM RISER INDICATING "SUB-SLAB DEPRESSURIZATION SYSTEM" AT INTERVALS NOT GREATER THAN 20 FEET LONG THE DEVELOPED LENGTH OF PIPING.
14. VAPOR PIN INSERT® MONITORING POINTS WITH CAPS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
15. VAPOR PIN INSERT® TO BE INSTALLED PRIOR TO SLAB CONSTRUCTION. INSERT TO EXTEND FROM SURFACE OF CONCRETE THROUGH VAPOR BARRIER AND TERMINATE IN GRAVEL SUBBASE. REFER TO DETAIL 3: PROFILE AT MONITORING POINT.
16. INSTALL ELECTRICAL CONDUIT/CONNECTIONS NEAR ROOF VENT STACK CAPABLE OF POWERING VENT FAN IN EVENT TESTING DETERMINES AN ACTIVE FAN IS REQUIRED.
17. INSTALL STANDARD CONDUIT/CONNECTIONS ON COLUMNS WITH SYSTEM RISERS TO ALLOW FOR ALARM INSTALLATION IF SYSTEM REQUIRES ACTIVATION IN FUTURE.
18. IF SYSTEM ACTIVATION IS REQUIRED, METHANE EVALUATION IS REQUIRED PRIOR TO FAN SELECTION AND OPERATION.
19. CONTRACTOR SHALL COORDINATE INSTALLATION OF SUB-SLAB DEPRESSURIZATION SYSTEM AND ALL UTILITY CROSSINGS.
20. HEAVY EQUIPMENT SHALL NOT BE DIRECTLY DRIVEN OVER SUB-SLAB PIPING PRIOR TO POURING CONCRETE SLAB.
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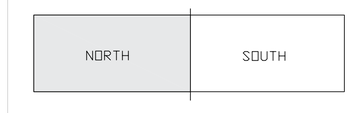

KEY PLAN

SCALE: 1" = 300'-0"

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PROJECT/CLIENT

NEWBURGH SOUTH LOGISTICS CENTER

700 SOUTH STREET
CITY OF NEWBURGH, ORANGE COUNTY, NY

DRAWING TITLE

PROPOSED PREOCCUPANCY INDOOR AIR TESTING LOCATIONS - NORTH

ISSUED FOR: BID SET

DESIGNED BY: AB
DRAWN BY: AB
REVIEWED BY: DN

DATE: APRIL 29, 2024

SCALE: 1/32" = 1'-0"

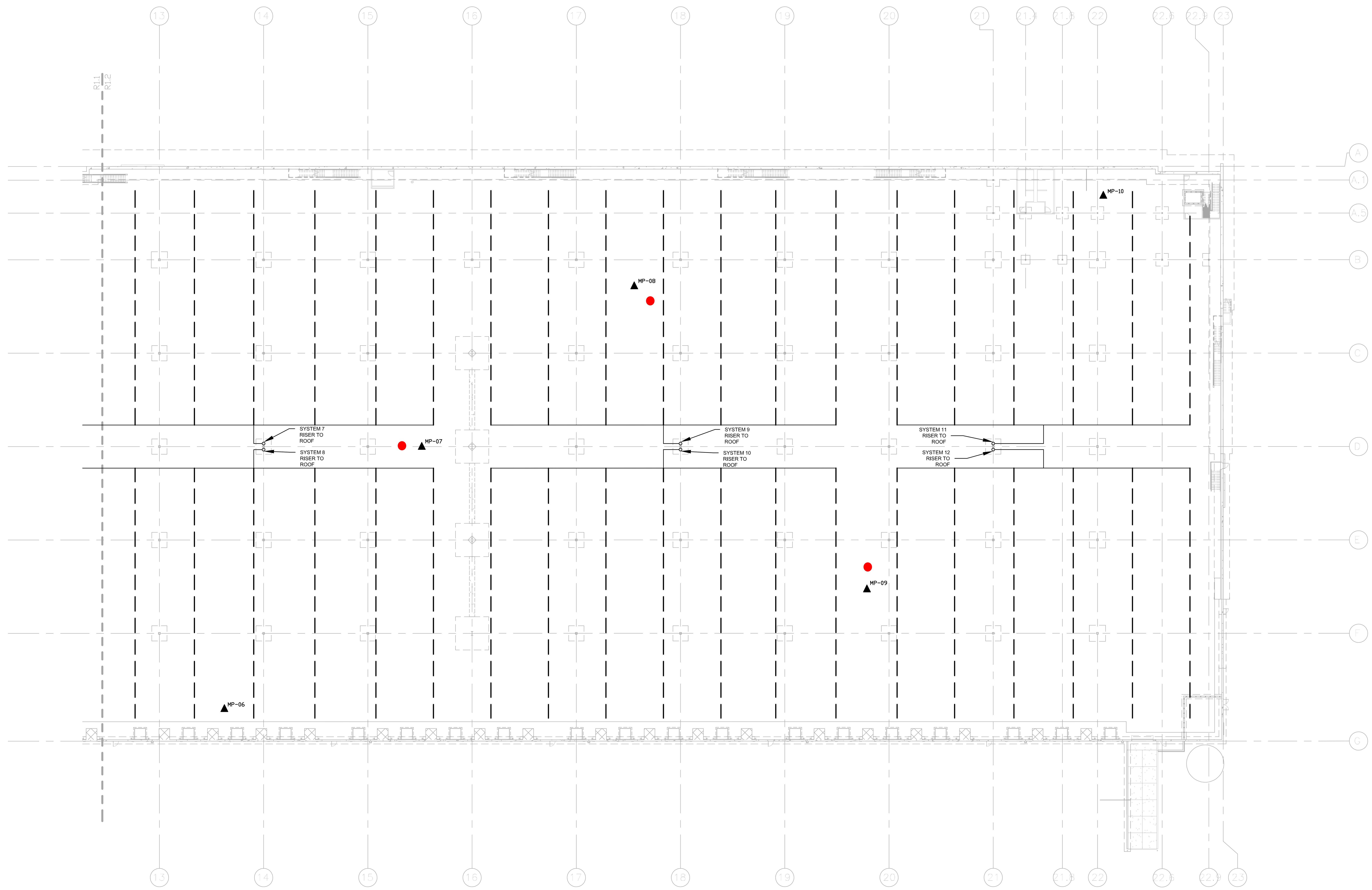
PROJECT/DRAWING NUMBER

2222335.01

R3.1

LEGEND

- FABRIC WRAPPED 4 INCH HDPE PERFORATED COLLECTION PIPE PLACED WITHIN MIDDLE OF PEASTONE TRENCH
- 4 INCH SOLID SCH 40 PVC HEADER PIPE PLACED WITHIN MIDDLE OF PEASTONE TRENCH, SLOPED AWAY FROM VERTICAL RISER AT 1/8 INCH PER FOOT TO ALLOW FOR DRAINAGE
- 4" SCHU 40 PVC VERTICAL RISER UP TO ROOF
- MONITORING POINT
- PROPOSED PREOCCUPANCY INDOOR AIR SAMPLE LOCATION



SUB-SLAB DEPRESSURIZATION SYSTEM LAYOUT - SOUTH

SCALE: 1/32" = 1'-0"

NORTH

NOTES

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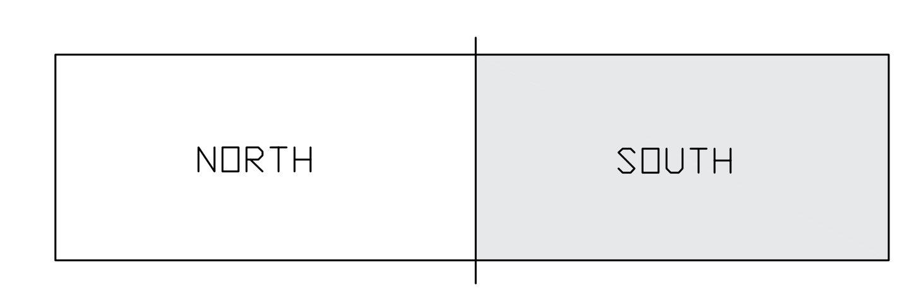

KEY PLAN

SCALE: 1" = 300'-0"

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PROJECT/CLIENT

NEWBURGH SOUTH LOGISTICS CENTER

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DRAWING TITLE

PROPOSED PREOCCUPANCY INDOOR AIR TESTING LOCATIONS - SOUTH

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BID SET

DATE: APRIL 29, 2024

DESIGNED BY: AB
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PROJECT/DRAWING NUMBER

2222335.01

R3.2