Corporate Headquarters
Lansing, Michigan
3340 Ranger Road, Lansing, MI 48906
f: 877.884.6775
t: 517.321.3331

Michigan Locations
Berkley **Bay City**
Grand Rapids **Lansing**
Oak Park

August 5, 2024

City Clerk's Office
Coleman A. Young Municipal Center
2 Woodward Avenue, Suite 200
Detroit, Michigan 48226

RE: Request for Right-of-Entry for the Passive Vapor Mitigation System Associated with 465 West Grand Boulevard, Detroit, Michigan Parcel I.D.: 14008319-21

To Whom It May Concern:

On behalf of Hubbard Farms Apartments LDHA LP (property owner), PM Environmental, a Pinchin Company (PM), is submitting the enclosed Request for Right-of-Entry (ROE) relative to the proposed installation of a passive sub-slab venting (SSV) vapor mitigation system within the public alley immediately adjacent to the subject building. The proposed SSV system will act to ensure petroleum vapors, associated with an adjacent Leaking Underground Storage Tank (LUST) site (F&S) located at 3801 West Vernor Highway), do not impact occupants of the subject building.

Enclosed is an engineered design specification package outlining the details of the proposed SSV vapor mitigation system. A description of the proposed work activities is also outlined below:

- The proposed SSV system includes excavating and installing a vertical vapor barrier along the exterior foundation wall of the building, alongside the alley, with all utility penetrations from the alley to the subject building equipped with a vapor-tight seal, and the excavation and the installation of a vapor interceptor trench (VIT).
    - The VIT is comprised of a 92' long x 4' wide x 7' deep trench backfilled with AASHTO 57 coarse aggregates per the enclosed design specification package.
- The interface of the interceptor trench with the basement wall and footings will be lined with a water proofing and vapor barrier membrane to prevent accumulated vapors in the interceptor trench from migrating through the basement wall or footing into the indoor air space of the building.
- The vapor collection component of the VIT consists of flexible perforated high-density polyethylene (HDPE) drain piping laid in a serpentine fashion within the aggregate layer at two different elevations to enhance the effectiveness of capture.
- The vapor collection piping within the VIT is then connected to a vent riser (VR) through solid Schedule 40 PVC piping at vapor collection points (VPs). There are a total of four (4) VPs determined by the design radius of influence (ROI). The VPs connect to a single vent riser running vertically up the building exterior wall to above the roof level with a roof top wind turbine at least one foot above the roof parapet to assist with the venting process.
- Following completion of the installation activities, the existing alley surface cover (concrete) will be restored to match the existing thickness and grade.

The installation of the alley SSV/VIT components will require approximately 4-6 weeks to complete during regular business hours (i.e., Monday through Friday and not on holidays). The completed system is expected to remain a permanent structure within the City of Detroit owned alley.

If you have any questions related to this scope of work, please do not hesitate to contact our office at (248) 336-9988 or via email at ryan.feeny@pinchin.com

Sincerely,
PM Environmental, Inc.

Ryan Feeny
Senior Project Manager/State Contracts Coordinator

Attachments:

- Sub-Slab Depressurization System Design and Specifications

DESIGN AND SPECIFICATIONS PLAN SHEETS FOR THE PROPOSED
PASSIVE VAPOR INTRUSION MITIGATION SYSTEM CONSISTING OF AN INTERCEPTOR TRENCH
AND A LIMITED SUB-SLAB VENTILATION (SSV) SYSTEM

PM ENVIRONMENTAL PINCHIN | Environmental & Engineering Services

HARRINGTON APARTMENTS
465 WEST GRAND RIVER BOULEVARD
DETROIT, MI
PM PROJECT NO. 01-13782-1-001

APRIL 2024

DRAWING NO.	TITLE
VIM-0	COVER SHEET
VIM-1	SPECIFICATIONS SHEET
VIM-2	VAPOR INTERCEPTOR TRENCH AND SSV SYSTEM DETAILS
VIM-3	VAPOR INTERCEPTOR TRENCH AND SSV SYSTEM DETAILS
VIM-4	VAPOR INTERCEPTOR TRENCH AND SSV SYSTEM DETAILS
VIM-5	VAPOR INTERCEPTOR TRENCH AND SSV SYSTEM DETAILS
VIM-6	VAPOR INTERCEPTOR TRENCH AND SSV SYSTEM DETAILS
VIM-7	VAPOR INTERCEPTOR TRENCH AND SSV SYSTEM DETAILS
VIM-8	VAPOR INTERCEPTOR TRENCH AND SSV SYSTEM DETAILS
VIM-9	SUB-SLAB PASSIVE VENTING PIPING DETAIL
VIM-10	WATER PROOFING AND VAPOR BARRIER DETAIL

PM ENVIRONMENTAL PINCHIN | Environmental & Engineering Services

VIM-0 COVER SHEET
INTERCEPTOR TRENCH AND A LIMITED
SUB-SLAB VENTILATION (SSV) SYSTEM

PROJ:
HARRINGTON APARTMENTS
465 WEST GRAND RIVER BOULEVARD
DETROIT, MI

DESIGNED BY:	DRN BY:	APPROVED BY:
JP	CS	AP

DATE:	FILE NAME:
4/21/2022	01-13782-1-001F00R01

1.0 CONTENTS

1.1 GENERAL

THE PROPOSED VAPOR INTRUSION MITIGATION SYSTEM CONSISTS OF A VAPOR INTERCEPTOR TRENCH WITH PASSIVE VENTING TO INTERCEPT POTENTIAL PETROLEUM VAPOR MIGRATION FROM THE F&S FOOD & FUEL SITE (3801 WEST VERNOR HIGHWAY) LOCATED NORTHWEST OF THE HARRINGTON APARTMENT BUILDING. THE ABOVE VAPOR INTRUSION MITIGATION IS SUPPLEMENTED BY A CONTINGENCY PASSIVE SUB-SLAB VENTING SYSTEM WHEREBY A PATHWAY IS PROVIDED FOR POTENTIAL SUB-SLAB VAPORS TO VENT TO THE ATMOSPHERE BY-PASSING THE INDOOR AIR SPACE OF THE BUILDING. THE PASSIVE VENTING IS ASSISTED BY WIND-OPERATED VENTILATOR TURBINES TO AID IN THE PASSIVE VENTING OF THE CONTAMINATED SOIL VAPORS TO THE ATMOSPHERE. THE SYSTEM IS COMPRISED OF THE FOLLOWING MAIN COMPONENT PARTS: 1) A WATER PROOFING/VAPOR BARRIER SYSTEM ON THE SUB-GRADE EXTERIOR BASEMENT WALL ALONG THE NORTHWEST FACE OF THE BUILDING TO PREVENT SUB-SURFACE VAPORS FROM MIGRATING THROUGH THE BASEMENT FOUNDATION WALL, 2) INTERCEPTOR TRENCH BACKFILLED WITH HIGHLY PERMEABLE COARSE AGGREGATES TO PROVIDE A PREFERRENTIAL VAPOR ACCUMULATION MEDIUM 2) INTERCEPTOR TRENCH PASSIVE VENTING SYSTEM TO PROVIDE A PATHWAY FOR THE ACCUMULATED VAPORS FROM THE INTERCEPTOR TRENCH TO VENT TO ATMOSPHERE ABOVE THE ROOFLINE OF THE BUILDING, 3) PASSIVE SUB-SLAB VENTING SYSTEM TO PROVIDE A PATHWAY FOR SUB-SLAB VAPORS TO VENT OUT AS A CONTINGENCY MEASURE, 4) PIPING, FITTINGS, VALVES, AND GAUGES, 4) VENTILATOR TURBINES, 5) PERFORMANCE MONITORING PORTS OR POINTS.

1.2 DRAWINGS

THE ENCLOSED DRAWINGS AND DESIGN SPECIFICATIONS CONTAIN INFORMATION FOR THE INSTALLATION A SUB-SLAB DEPRESSURIZATION (SSD) SYSTEM. THE CONSTRUCTION NOTES AND SPECIFICATIONS INCLUDED IN THE FOLLOWING DRAWINGS SHALL BE IMPLEMENTED FOR THE CONSTRUCTION AND INSTALLATION OF THE SYSTEM:

DRAWING NO.	REVISION	TITLE
SHEET VIM-0	0	COVER SHEET
SHEET VIM-1	0	CONSTRUCTION NOTES AND SPECIFICATIONS
SHEET VIM-2	0	VAPOR INTERCEPTOR TRENCH AND PASSIVE SSV SYSTEM LAYOUT
SHEET VIM-3	0	BUILDING ROOF PLAN SHOWING VAPOR INTERCEPTOR TRENCH AND PASSIVE SSV SYSTEM LAYOUT
SHEET VIM-4	0	VAPOR INTERCEPTOR TRENCH AND SSVE SYSTEM DETAILS
SHEET VIM-5	0	VAPOR INTERCEPTOR TRENCH AND SSVE SYSTEM DETAILS
SHEET VIM-6	0	VAPOR INTERCEPTOR TRENCH AND SSVE SYSTEM DETAILS
SHEET VIM-7	0	VAPOR INTERCEPTOR TRENCH AND SSVE SYSTEM DETAILS
SHEET VIM-8	0	VAPOR INTERCEPTOR TRENCH AND SSVE SYSTEM DETAILS
SHEET VIM-9	0	SUB-SLAB PASSIVE VENTING PIPING DETAIL
SHEET VIM-10	0	WATER PROOFING AND VAPOR BARRIER DETAIL

THE TERM 'ENGINEER' IN THESE PLANS REFER TO PM ENVIRONMENTAL AND THE TERM 'CONTRACTOR' IS ANYONE WHO IS CONTRACTED OR SUBCONTRACTED BY THE CLIENT TO INSTALL ALL OR PART OF THE VAPOR MITIGATION SYSTEM SPECIFIED IN THESE PLANS.

2.0 SPECIFICATIONS

2.1 GENERAL

2.1.1 THE SELECTED CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SITE CONDITIONS BEFORE STARTING WORK. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY.

2.1.2 ALL MATERIALS USED FOR CONSTRUCTION OF THE VIMS SHALL BE NEW UNLESS OTHERWISE NOTED.

2.1.3 EQUIPMENT AND INSTRUMENTS WITHIN THE VIMS, UNLESS OTHERWISE SPECIFIED, SHALL BE PROVIDED BY THE CONTRACTOR.

2.1.4 ALL NECESSARY CONSTRUCTION PERMITS AND INSPECTIONS SHALL BE OBTAINED AND PAID FOR BY THE CONTRACTOR, INCLUDING PERMITS FOR ELECTRICAL, MECHANICAL, AND CIVIL CONSTRUCTION. ENGINEER SHALL OBTAIN AUTHORITY TO CONSTRUCT AND EITHER THE PERMIT EXEMPT STATUS OR PERMIT TO INSTALL THE EMISSION UNIT(S) ASSOCIATED WITH THE VIMS FROM EGLE.

2.1.5 THE CONTRACTOR SHALL RESTORE ALL TRENCHED AREAS, IF APPLICABLE, TO MATCH EXISTING CONDITIONS.

2.1.6 A PRE-CONSTRUCTION MEETING BETWEEN THE ENGINEER AND THE CONTRACTOR, AND THE SITE CONSTRUCTION GENERAL CONTRACTOR WILL BE REQUIRED BEFORE ANY WORK BEGINS. THE MEETING WILL BE HELD AT THE SITE.

2.1.7 CONTRACTOR SHALL COMPLETE THE INSTALLATION IN ACCORDANCE WITH THE FEDERAL, STATE, AND LOCAL CODES. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DEVIATIONS IN THE DESIGN SPECIFICATIONS FROM SUCH CODES BEFORE MAKING CHANGES IN THE INSTALLATION.

2.1.8 CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FROM THE ENGINEER BEFORE MAKING ANY SUBSTITUTION OR CHANGES TO THE MATERIAL, EQUIPMENT, AND THE SYSTEM LAYOUT SPECIFIED IN THESE PLANS.

2.1.9 THE CONTRACTOR SHALL WARRANTY ALL MATERIALS AND CONSTRUCTION FOR A PERIOD OF ONE YEAR. ALL DEFECTS SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.

2.1.10 ALL WORK SHALL BE CONDUCTED IN ACCORDANCE WITH THE FEDERAL, STATE, AND LOCAL HEALTH AND SAFETY RULES AND REGULATIONS

2.2 SUB-GRADE PREPARATION

2.2.1 CONTRACTOR SHALL PREPARE THE INTERCEPTOR TRENCH OF THE SPECIFIED DIMENSIONS.

2.2.2 CONTRACTOR SHALL TEMPORARILY STOCKPILE THE EXCAVATED SOIL ONSITE FOR WASTE CHARACTERIZATION BY THE ENGINEER FOR OFFSITE DISPOSAL WITHIN LESS THAN 90 DAYS FROM THE DATE OF GENERATION.

2.2.3 CONTRACTOR SHALL CLEAN THE EXPOSED EXTERIOR WALL OF THE BASEMENT OF THE BUILDING AND ANDY FOUNDATION FOOTING BY POWER WASHING OR OTHER MEANS OF ANY SOIL RESIDUE ON THE WALL.

2.2.4 CONTRACTOR SHALL REPAIR OR REPLACE ANY DAMAGED BRICKS OR HOLES IN THE BRICK WALL AND/OR FOUNDATION FOOTING BY APPLYING A CEMENTITOUS MORTAR TO PROVIDE A WORKABLE FLAT AND SMOOTH SURFACE FOR APPLYING
THE SPECIFIED WATER PROOFING/VAPOR BARRIER SHEETS. THE SPECIFIED CETCO BS-200 MASTIC CAN ALSO BE USED TO PREPARE THE SURFACE WHERE CEMENTITOUS MORTAR IS NOT PRESENT.

2.2.5 CONTRACTOR SHALL ACT AS THE "COMPETENT PERSON" FOR DESIGNING THE SAFETY ASPECTS OF THE PROPOSED EXCAVATION FOR THE INTERCEPTOR TRENCH. FOR EXAMPLE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING WHEN SHORING OR SLOPING IS REQUIRED AND FOR INSTALLING ALL SHORING/SLOPING REQUIRED DURING EXCAVATION IN ACCORDANCE WITH CURRENT MIOSHA STANDARDS.

2.2.6 CONTRACTOR SHALL PREPARE THE PASSIVE VENTING PITS AT THE SPECIFIED LOCATIONS BY CORE DRILLING THROUGH THE EXISTING CONCRETE SLAB IN THE BASEMENT OF THE BUILDING. THE DIAMETER OF THE CORE DRILL HOLES SHALL BE NO MORE THAN 5 INCHES IN DIAMETER. THE SUB-SLAB SOIL MATERIAL SHALL BE REMOVED WITHIN A 9 INCHES OF RADIUS TO DEVELOP A VOID SPACE. THE BOTTOM OF THE VOID SPACE SHALL BE LINED WITH 3/8 INCH WASHED PEA GRAVEL APPROXIMATELY UP TO A BED THICKNESS OF 1 INCH.

2.2.7 CRAWL SPACE TO BE FILLED WITH FLOWABLE CONCRETE FILL MATERIAL PRIOR TO INSTALLATION OF PASSIVE VENTING SYSTEM.

2.3 INTERCEPTOR TRENCH BACKFILL AGGREGATES

2.3.1 CONTRACTOR SHALL BACKFILL THE TRENCH WITH AASHTO #57 OR MDOT #6AA AGGREGATES. AASHTO #57 COARSE AGGREGATE STONE HAS 100% PASSING 1 1/2" SCREEN, 95-100% PASSING 1" SCREEN, 25-60% PASSING 1/2" SCREEN, 0-10% PASSING #4 SCREEN, AND 0-5% PASSING #8 SCREEN.

2.3.2 PRIOR TO BACKFILLING WITH AGGREGATES, CONTRACTOR SHALL INSTALL A NONWOVEN GEOTEXTILE FABRIC (CETCO GEOTEX 1601) ON TOP OF THE VAPOR BARRIER USING A SPRAY APPLIED ADHESIVE (3M HOLDFAST 70 SPRAY ADHESIVE.)

2.3.3 THE CONTRACTOR SHALL ONLY LIGHTLY USE A VIBRATORY COMPACTION DEVICES TO HAVE THE INDIVIDUAL STONE FACETS IN THE AGGREGATE LAYER PROPERLY ORIENTED. AASHTO #57 STONE IS SELF COMPACTING AND WILL TYPICALLY SETTLE ABOUT 8% OF THE DEPTH OF THE TRENCH. THIS CAN BE VISUALLY OBSERVED AND VERIFIED.

2.4 VAPOR BARRIER

2.4.1 A MINIMUM 40-MIL WATER PROOFING AND VAPOR BARRIER MEMBRANE (CETCO VINTEGRA SA20) WITH A MINIMUM BENZENE DIFFUSIVITY VALUE OF 4 X 10^{-14} M^2/SEC SHALL BE INSTALLED DIRECTLY ON THE EXPOSED, CLEANED, AND PREPARED SUB-GRADE EXTERIOR BRICK BASEMENT WALL AND FOOTING TO THE SPECIFIED DEPTH.

2.4.2 THE SEAMS OF THE WATER PROOFING/VAPOR BARRIER MEMBRANE SHALL BE SEALED USING CETCO SEAMTAPE AS PER THE MANUFACTURER'S INSTRUCTIONS.

2.4.3 THE CORNERS AND EDGES OF THE WATER PROOFING/VAPOR BARRIER MEMBRANE SHALL BE TERMINATED USING CETCO BS-200 MASTIC IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

2.4.4 CONTRACTOR SHALL INSTALL A NONWOVEN GEOTEXTILE FABRIC (CETCO GEOTEX 1601) ON TOP OF THE VAPOR BARRIER USING A SPRAY APPLIED ADHESIVE (3M HOLDFAST 70 SPRAY ADHESIVE.) THE GEOTEXTILE FABRIC SHALL LINE ALL SIDES OF THE TRENCH ALONG ITS LENGTH. UPON COMPLETION OF BACKFILLINGTHE GEOTEXTILE FABRIC SHALLED BE WRAPPED ON THE TOP WITH A MINIMUM OF 1 FOOT OF OVERLAPPING.

2.4.5 ALL UTILITY PENETRATIONS SHALL BE SEALED USING AS PER THE DETAILS INCLUDED IN…

2.4.6 THE INSTALLER SHALL FOLLOW MANUFACTURER INSTALLATION SPECIFICATIONS AND SHALL BE TRAINED AND EXPERIENCED AND/OR CERTIFIED IN THE INSTALLATION OF THE SPECIFIED PRODUCT.

2.5 INTERCEPTOR TRENCH PIPING AND SUB-SLAB PASSIVE VENT PIPING

2.5.1 ALL SPECIFIED RIGID PIPING USED FOR INTERCEPTOR TRENCH VENTING SHALL BE 6 INCH DIA SOLID SCHEDULE 40 PVC FOR THE VENT RISERS AND 4 INCH DIA SCHEDULE 40 PVC FOR THE CONNECTOR PIPING CONNECTING TO THE FLEXIBLE HDPE DRAINAGE PIPING. ALL VENT RISER AND CONNECTOR PIPING SHALL CONFIRM TO CONFORM TO THE ASTM D-1785 STANDARDS.

2.5.2 ALL VENT LATERALS IN THE INTERCEPTOR TRENCH SHALL BE 4 INCH DIAMETER PERFORATED HDPE CORRUGATED DRAIN PIPE WITH ¼ INCH DIAMETER PERFORATIONS.

2.5.3 ALL SUB-SLAB PASSIVE VENT VERTICAL AND HORIZONTAL AS WELL AS INTERIOR AND EXTERIOR PIPING FROM THE SUB-SLAB PASSIVE VENT PITS UP TO THE EXHAUST STACK SHALL BE 4 INCH DIAMETER SCHEDULE 40 PVC.

2.5.4 THE BOTTOM OF EACH INTERCEPTOR TRENCH VENT PIPE SHALL HAVE A BLIND SECTION OF PIPE AT THE BOTTOM AND A ½ INCH DIAMETER DRAIN HOLE SHALL BE PROVIDED ABOVE THE BLIND SECTION FOR POTENTIAL CONDENSATE DRAINAGE INTO THE TRENCH AGGREGATES FOR EVENTUAL INFILTRATION INTO THE SURROUNDING NATIVE SOILS.

2.5.5 ALL ABOVE-SLAB HORIZONTAL PIPE RUNS MUST BE PITCHED BACK TO THE SLAB PENETRATION WITH AT LEAST A ONE-INCH PITCH FOR EVERY 10 FEET OF PIPING TO ALLOW DOWNWARD CONDENSATE DRAINAGE INTO THE SUB-SLAB AGGREGATE LAYER.

2.5.6 ALL VENT PIPING SHALL BE ANCHORED TO BUILDING STRUCTURE AT FLOOR INTERSECTIONS AND AT INTERMEDIATE LOCATIONS NO GREATER THAN EVERY 8 FEET OF VERTICAL RISE AND NO GREATER THAN EVERY 6 FEET OF HORIZONTAL RUN TO PREVENT MOVEMENT OR RATTLING OF PIPING NETWORK.

2.5.7 WHERE PIPING IS ROUTED ABOVEGROUND INSIDE THE SITE BUILDING, THE PIPING SHALL BE SUPPORTED BY UNI-STRUT PIPE SUPPORTERS AND CLAMPS IN GENERAL ACCORDANCE WITH LOCAL AND STATE BUILDING AND PLUMBING CODES. THE UNI-STRUT SUPPORTS SHALL BE FASTENED TO THE WALL OR MOUNTED ON A BASE THAT IS SECURED TO THE GROUND SURFACE.

2.6 WALL PENETRATIONS

2.6.1 WALL PENETRATIONS THROUGH EXTERIOR WALLS SHOULD BE PERFORMED AND SEALED ACCORDING TO THE APPLICABLE LOCAL PLUMBING CODE IN CONFORMANCE WITH THE CITY OF DETROIT BUILDING CODE.

2.6.2 FOR FIRE SAFETY, PIPES PASSING THROUGH FOUNDATION WALLS SHOULD BE PROTECTED BY AN APPROVED PENETRATION FIRESTOP SYSTEM. THIS SYSTEM MUST BE INSTALLED ACCORDING TO TESTING STANDARDS SUCH AS ASTM E 814 OR UL 1479.

2.6.3 THE FIRESTOP SYSTEM SHOULD HAVE A MINIMUM POSITIVE PRESSURE DIFFERENTIAL OF 0.01 INCH (2.49 PA) OF WATER AND AN F RATING NOT LESS THAN THE REQUIRED FIRE RESISTANCE RATING OF THE WALL BEING PENETRATED.

2.6.4 A PIPE PASSING THROUGH A FOUNDATION WALL SHOULD BE PROVIDED WITH A RELIEVING ARCH OR A PIPE SLEEVE BUILT INTO THE WALL.

2.6.5 THE SLEEVE MUST BE TWO PIPE SIZES GREATER THAN THE PIPE PASSING THROUGH THE WALL.

2.6.6 WHEN INSTALLING PIPES THROUGH EXTERIOR WALLS, ENSURE PROPER CONSTRUCTION DETAILS TO MAINTAIN STRUCTURAL INTEGRITY AND PREVENT WATER INFILTRATION.

2.6.7 CONSIDER USING A CONTINUOUS AIR/WATER CONTROL MEMBRANE (SUCH AS HOUSE WRAP, FULLY ADHERED MEMBRANE, OR LIQUID-APPLIED MEMBRANE) WITH A HOLE FOR THE VENT OR PIPE.

2.6.8 APPLY SEALANT AROUND THE DUCT/PIPE PENETRATION, INSTALL INSULATING SHEATHING, VERTICAL WOOD FURRING STRIPS, AND SHEATHING TAPE FLASHING WITH WOOD BLOCKING FOR TRIM.

2.7 CONCRETE SEALING

2.7.1 ALL VISIBLE CRACKS, CONTROL JOINTS, AND COVE JOINTS IN INTERIOR CONCRETE SLABS THAT ARE GREATER THAN 1/16 INCH IN WIDTH SHALL BE SEALED UTILIZING A NON-CRACKING POLYURETHANE CAULK COMPLYING WITH ASTM C920 CLASS 25 OR HIGHER, OR EQUIVALENT. JOINTS, CRACKS, AND SAW CUTS SHALL BE SWEPT OR VACUUMED CLEAN BEFORE APPLICATION OF ANY SEALANT. USE CAULKING MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION OR CAULKING FOR CONCRETE SLAB FLOORS.

2.7.2 SUMP PITS (IF APPLICABLE) OPEN TO SUB-SLAB SOIL SHALL HAVE AIRTIGHT LIDS. OPENINGS IN OR AROUND SUMP COVERS SHALL BE SEALED WITH A GASKET OR WITH SILICONE CAULKING TO ALLOW EASY REMOVAL FOR SUMP PIT FOR MAINTENANCE. SUMP PITS THAT HAVE A SUMP PUMP SHALL HAVE AN ACCESS PORT IN THE SUMP PIT COVER TO ALLOW CHECKING OF THE SUMP PUMP WITHOUT NEEDING TO REMOVE THE COVER.

2.8 SYSTEM LABELING

2.8.1 ALL PIPING SHALL BE LABELED WITH DIRECTIONAL FLOW ARROWS POINTING IN THE DIRECTION OF AIR FLOW PRECEDED BY THE PHRASE "SUB-SLAB SOIL VAPOR" AND THE SUB-SLAB VENTILATION ZONE ID OR THE FAN ID EVERY 10 FT.

2.8.2 EACH PIPING SHALL BE LABELED WITH THE WARNING, "VAPOR MITIGATION SYSTEM. MAY CONTAIN VOLATILE ORGANIC COMPOUNDS. DO NOT DISTURB, CUT, REMOVE, OR TAP INTO PIPING" AT LEAST ONE OCCURRENCE PER FLOOR FOR VERTICAL RUNS AND EVERY 25 FEET IN THE HORIZONTAL RUNS.

2.8.3 WHEN CONNECTING TO OR BYPASSING EXISTING UNDERGROUND PIPING THE CONTRACTOR SHALL FIRST VERIFY THE EXISTING PIPING PATH.

2.8.4 AT ALL LOCATIONS WHERE SSD PIPING EXISTS IN THE BUILDING, THE PIPING SHALL BE LABELED WITH THE FOLLOWING WARNING: "VAPOR MITIGATION SYSTEM. MAY CONTAIN VOLATILE ORGANIC COMPOUNDS. DO NOT DISTURB, CUT, REMOVE, OR TAP INTO PIPING."

2.8.5 ALL EXHAUST STACKS SHALL BE LABELED "VOLATILE ORGANIC COMPOUNDS" FOLLOWED BY AN "UP ARROW" INDICATING THE FLOW DIRECTION.

2.9 VENTILATOR TURBINE & EXHAUST STACK SPECIFICATIONS

2.9.1 ALL INTERCEPTOR TRENCH PASSIVE VENTS AS WELL AS THE SUB-SLAB PASSIVE VENT EXHAUST STACKS SHALL BE MOUNTED WITH A VENTILATOR TURBINE. THE VENTILATOR TURBINE SHALL BE EMPIRE STEEL 17 INCH HEIGHT, 19 INCH WIDE, WITH A THROAT DIAMETER OF 12 INCHES AND RATED FOR 631 CFM AT 4 MPH WIND (SIM SUPPLY TV12G ZO-G2962032.)

2.9.2 THE EXHAUST STACKS SHALL TERMINATE NO LESS THAN 2 FEET ABOVE THE ROOFLINE, NO LESS THAN 10 FEET FROM THE OUTER EDGE OF THE ROOF, AND 20 FEET FROM ANY DOOR, WINDOW, RTU AIR INTAKE, HVAC INTAKE, OR OTHER DIRECT OPENING INTO THE BUILDING WHERE POSSIBLE UNLESS IT IS TERMINATED AT LEAST 3 FEET ABOVE THE TOP OF SUCH OPENINGS.

2.10 TESTING AND PERFORMANCE MONITORING POINTS

2.10.1 SUB-SLAB PASSIVE VENTING PERFORMANCE MONITORING POINT LOCATIONS ARE SHOWN ON SHEETS VIM-2.

2.10.2 EACH PERFORMANCE MONITORING LOCATION SHALL CONSIST OF A COX COLVIN VAPOR PIN INSTALLED TO MEASURE SUB-SLAB VACUUM.

2.10.3 SMOKE INJECTION PORTALS SHALL BE INSTALLED AS SHOWN ON SHEETS VIM-8 AND VIM-9.

2.10.4 EACH INTERCEPTOR PASSIVE VENT SHALL BE EQUIPPED WITH A VACUUM AND AIR FLOW MONITORING PORT (SEE DETAILS ON SHEET VIM-??)

3.0 EQUIPMENT

3.1.1 EQUIPMENT AND INSTRUMENTS WITHIN THE SYSTEM, UNLESS OTHERWISE SPECIFIED BY ENGINEERING PLANS, SHALL BE PROVIDED BY THE CONTRACTOR.

4.0 CONSTRUCTION

4.1.1 THE CONTRACTOR SHALL CONFIRM A CONSTRUCTION SCHEDULE WITH THE ENGINEER'S PROJECT MANAGER AT LEAST 7-DAYS PRIOR TO ANY WORK AT THE SITE.

4.1.2 THE PROPOSED CONSTRUCTION SCHEDULE SHALL BE PRESENTED IN A TIMELINE FORMATTED SHOWING ESTIMATED START DATE, DURATION, AND COMPLETION TIMES FOR EACH ACTIVITY. ANY DEVIATION FROM THE ORIGINALLY PROPOSED SCHEDULE MUST BE COMMUNICATED TO THE ENGINEER'S PROJECT MANAGER WITHIN 24-HOURS.

5.0 AS-BUILT DRAWINGS

5.1 THE CONTRACTOR SHALL PROVIDE AS-BUILT RECORD DRAWINGS (RED LINES) SHOWING ACTUAL DETAILS, DIMENSIONS, AND OTHER PERTINENT FEATURES THAT VARY FROM THE ORIGINAL DESIGN.

6.0 SAFETY / CLEANUP

6.1 ALL SITE WORKERS SHALL HAVE THE APPROPRIATE HEALTH AND SAFETY TRAINING AND CERTIFICATION AS REQUIRED BY FEDERAL LAW, STATE LAW, AND THE PROPERTY OWNER.

6.2 THE CONTRACTOR (INCLUDING WORKERS AND SUBCONTRACTORS) SHALL PREPARE A SITE-SPECIFIC HEALTH AND SAFETY PLAN (HASP) PRIOR TO BEGINNING ANY WORK AND SHALL ABIDE BY THE HASP DURING ALL SITE WORK. A COPY OF THE HASP SHALL BE PROVIDED TO THE ENGINEER PRIOR TO BEGINNING ANY SITE WORK.

6.3 PRIOR TO DEPARTURE FROM THE SITE EACH DAY AND AT PROJECT COMPLETION, THE CONTRACTOR SHALL MAKE SURE THAT THE WORK AREA IS CLEAN AND ORDERLY.

6.4 THE CONTRACTOR SHALL CONTAIN LOOSE DEBRIS AND STORE CONSTRUCTION MATERIALS DAILY PRIOR TO DEPARTURE FORM THE SITE TO PROVIDE A CLEAN AND ORDERLY WORK AREA.

6.5 CONTRACTOR SHALL MARK ALL POTENTIAL OVERHEAD AND/OR TRIP HAZARDS IN YELLOW.

7.0 INSPECTIONS

7.1 ALL SITE INSPECTIONS REQUIRE A MINIMUM 24-HOUR NOTICE

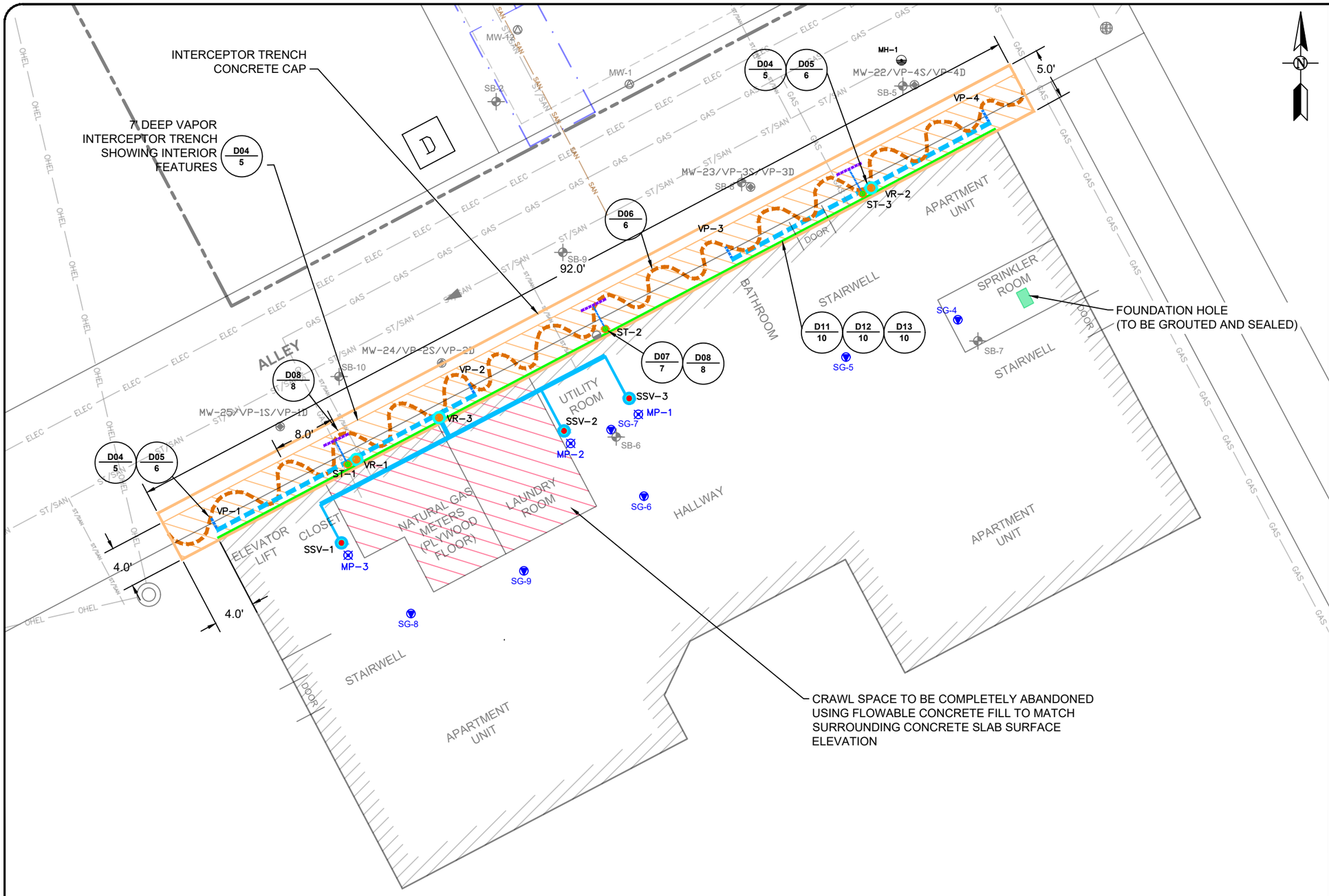
PM ENVIRONMENTAL ENGINEERING | Environmental & Engineering Services

SHEET VIM-1

SPECIFICATIONS AND CONSTRUCTION NOTES

PROJ:
FORMER GENERAL MOTORS TRANSMISSION PLANT
23500 MOUND ROAD
WARREN, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: CS	DATE: 4/21/2022
VERIFY SCALE 0 NTS	CHKD BY: JP	DATE REVISED: 4/2/2024
IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.		FILE NAME: 01-13782-1-001F00R01



LEGEND:

- SUBJECT PROPERTY
- APPROXIMATE FORMER/HISTORICAL SITE FEATURES
- ELEC — ELECTRIC
- OHEL — OVERHEAD ELECTRIC LINE
- W — WATER
- GAS — GAS
- SAN — SANITARY SEWER
- SAN — ABANDONED SANITARY SERVICE LINE
- ST/SAN — COMBINATION SANITARY / STORM SEWER
- TELE — COMMUNICATION LINE
- PL — FORMER PRODUCT LINE
- 4" DIA. PERFORATED HDPE DRAIN PIPING WITH ¼" PERFORATIONS
- WATER PROOFING/VAPOR BARRIER
- OVERHEAD PIPING (4" DIA. SCH. 40 PVC)
- OVERHEAD PIPING (6" DIA. SCH. 40 PVC)
- UNDERGROUND PIPING (2" DIA. SCH. 40 PVC)
- UNDERGROUND PIPING (4" DIA. SCH. 40 PVC)
- UNDERGROUND PIPING (6" DIA. SCH. 40 PVC)
- VAPOR INTERCEPTOR TRENCH
- CRAWL SPACE
- MANHOLE
- DUMPSTER CORAL
- PVC DRAIN CLEANOUT
- UTILITY POLE
- SOIL BORING
- MONITORING WELL / SOIL GAS
- SOIL GAS SAMPLE
- SMOKE TEST PORT (ST)
- INTERCEPTOR TRENCH PASSIVE VENT RISER (VR)
- PASSIVE SUB-SLAB VENT RISER (4" DIA. SCH. 40 PVC) (SSV)
- PERFORMANCE MONITORING POINTS
- VAPOR COLLECTION POINT (VP)
- SMOKE INJECTION POINT

NOTE:
1. REFERENCES: AERIAL PHOTOGRAPH FROM GOOGLE EARTH, IMAGERY DATE 5/9/2010

PM ENVIRONMENTAL FINCHIN — Environmental & Engineering Services

SHEET VIM 2

VAPOR INTERCEPTOR TRENCH AND PASSIVE SSV SYSTEM LAYOUT

PROJECT:
HARRINGTON APARTMENTS
461-465 WEST GRAND BOULEVARD
DETROIT, MI

THIS IS NOT A LEGAL SURVEY	DRAWN BY: KS/CS	DATE: 6/2/2023
VERIFY SCALE 0 — 10' IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CHECKED BY: JP	DATE REVISED: 4/2/2024
	FILE NAME: 01-13782-1-001F00R02	

LEGEND:

- SUBJECT PROPERTY
- APPROXIMATE FORMER/HISTORICAL SITE FEATURES
- ELEC — ELEC — ELECTRIC
- OHEL — OHEL — OVERHEAD ELECTRIC LINE
- W — W — W — WATER
- GAS — GAS — GAS
- SAN — SAN — SANITARY SEWER
- SAN — SAN — ABANDONED SANITARY SERVICE LINE
- ST/SAN — COMBINATION SANITARY / STORM SEWER
- TELE — TELE — COMMUNICATION LINE
- PL — PL — FORMER PRODUCT LINE
- INTERCEPTOR TRENCH CONCRETE CAP
- MANHOLE
- D — DUMPSTER CORAL
- PVC DRAIN CLEANOUT
- UTILITY POLE
- MONITORING WELL
- MONITORING WELL / SOIL GAS
- VENTILATOR TURBINE (VT)

NOTE:
THE VENT STACK/WIND TURBINES SHALL BE LOCATED 1.0 FEET ABOVE THE ROOF PARAPET AND A MINIMUM OF TWENTY (20) FEET AWAY FROM ANY OPENING INTO THE STRUCTURE INCLUDING ROOF HATCH, AIR INTAKE, RTU INTAKE VENTS ETC. OR AT LEAST THREE (3) FEET ABOVE THE HIGHEST POINT OF THE OPENING OR VENT.

1. REFERENCES: AERIAL PHOTOGRAPH FROM GOOGLE EARTH, IMAGERY DATE 5/9/2010

PM ENVIRONMENTAL & ENGINEERING — Environmental & Engineering Services

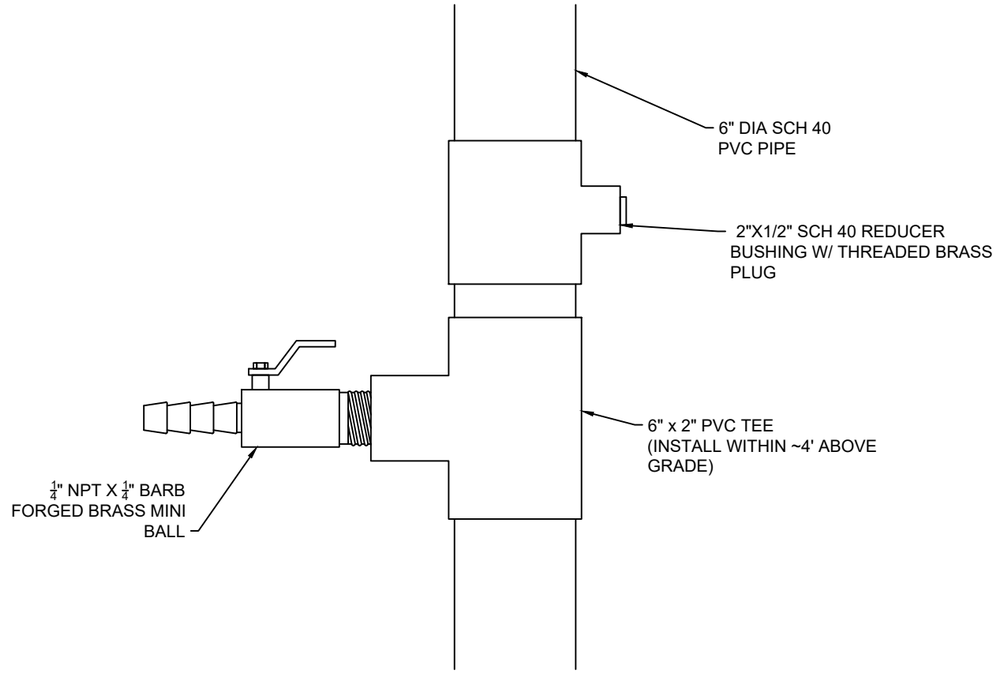
SHEET VIM 3

BUILDING ROOF PLAN SHOWING VAPOR INTERCEPTOR TRENCH AND PASSIVE SSV SYSTEM LAYOUT

PROJECT:
HARRINGTON APARTMENTS
461-465 WEST GRAND BOULEVARD
DETROIT, MI

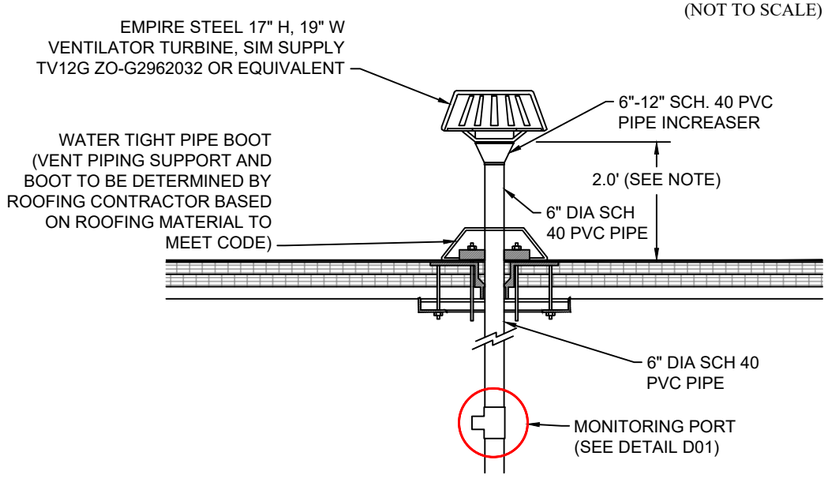
THIS IS NOT A LEGAL SURVEY	DRAWN BY: KS/CS	DATE: 6/2/2023
VERIFY SCALE 0 — 10' IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CHECKED BY: JP	DATE REVISED: 4/2/2024
	FILE NAME: 01-13782-1-001F00R02	

D01 MONITORING PORT DETAIL



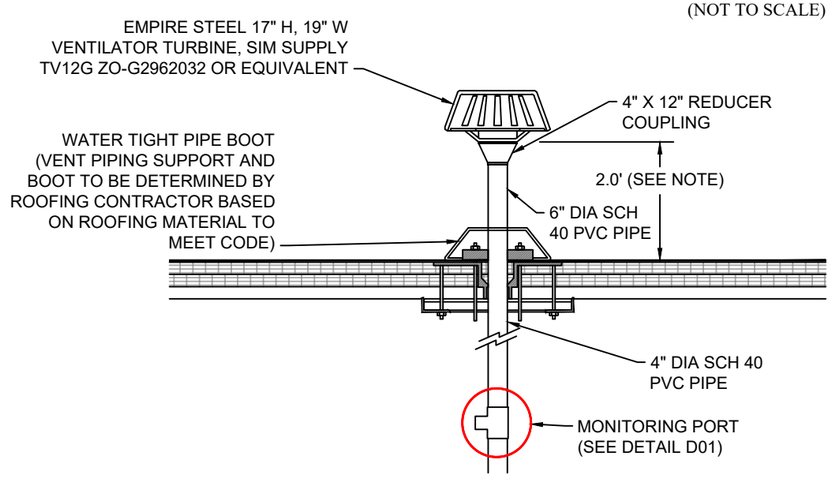
D02 INTERCEPTOR TRENCH PASSIVE VENT ABOVE GROUND PIPING DETAIL

(NOT TO SCALE)



D03 SUB-SLAB PASSIVE VENT EXTERIOR PIPING DETAIL

(NOT TO SCALE)



LEGEND:

NOTE:

THE VENT STACK/WIND TURBINES SHALL BE LOCATED 1.0 FEET ABOVE THE ROOF PARAPET AND A MINIMUM OF TWENTY (20) FEET AWAY FROM ANY OPENING INTO THE STRUCTURE INCLUDING ROOF HATCH, AIR INTAKE, RTU INTAKE VENTS ETC. OR AT LEAST THREE (3) FEET ABOVE THE HIGHEST POINT OF THE OPENING OR VENT.

THE MONITORING PORTS SHALL BE INSTALLED SUCH THAT THE VALVE AND ANY PARTS EXTENDING OUT FROM THE MAIN PIPE ARE PARALLEL TO THE BUILDING WALL WITH VALVE HANDLE OPENING AWAY FROM THE WALL.

PM ENVIRONMENTAL & ENGINEERING SERVICES

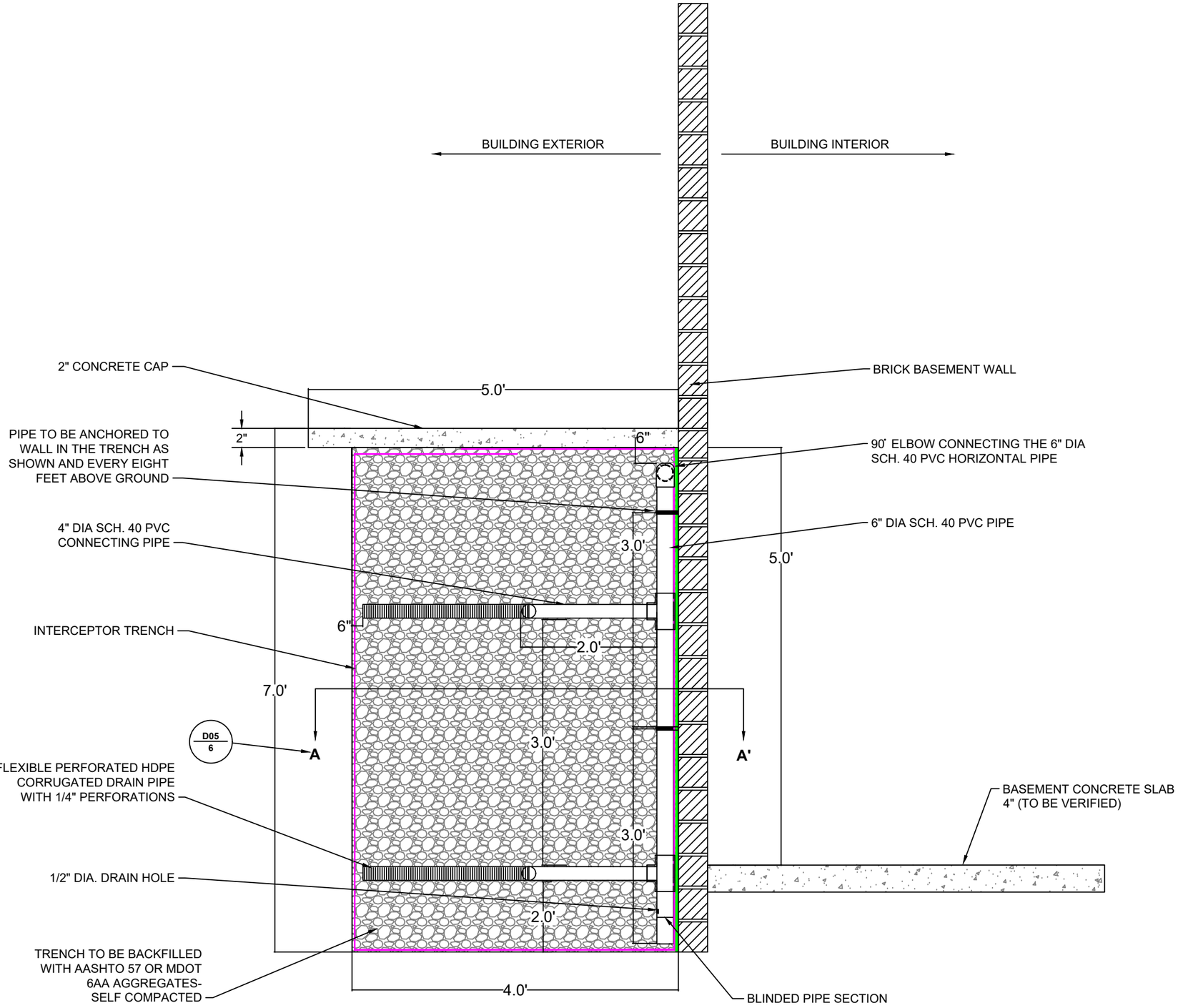
SHEET VIM-4

VAPOR INTERCEPTOR TRENCH
AND SSV SYSTEM DETAILS

PROJ:

HARRINGTON APARTMENTS
461-465 WEST GRAND BOULEVARD
DETROIT, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: KS/CS	DATE: 4/22/2022
VERIFY SCALE 0 — 10' IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CHKD BY: JP	DATE REVISED: 4/2/2024
	FILE NAME: 01-13782-1-001F00R01	



D04 INTERCEPTOR TRENCH VERTICAL CROSS SECTION SHOWING PIPING DETAIL AT VAPOR COLLECTION POINT

LEGEND:

- CONCRETE
- AASHTO #57 OR MDOT 6AA AGGREGATE
- WATERPROOFING/VAPOR BARRIER (CETCO VINTEGRA SA20)
- NONWOVEN GEOTEXTILE (CETCO GEOTEX 1601)

PM ENVIRONMENTAL PINCHIN — Environmental & Engineering Services

VIM-5

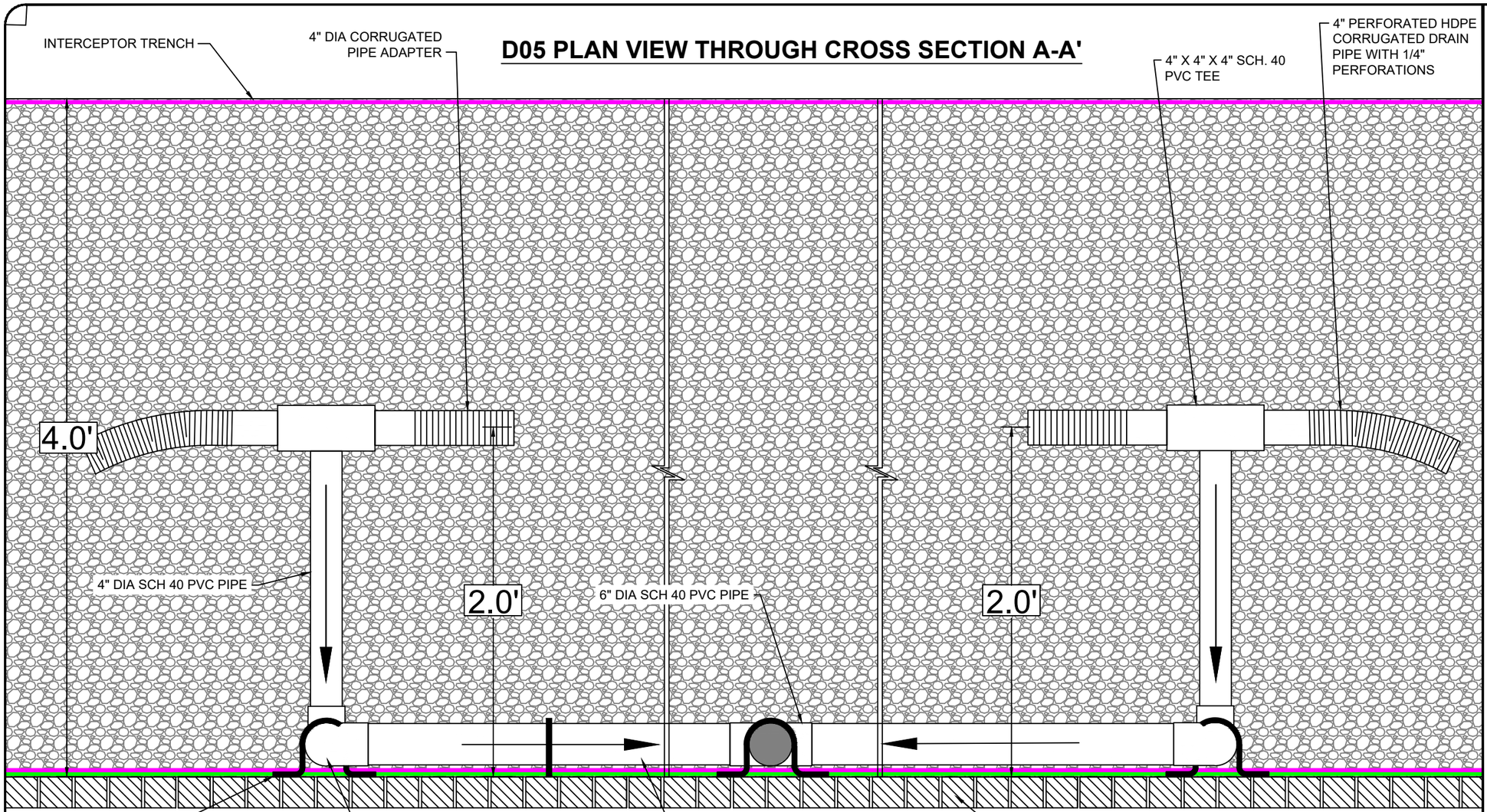
VAPOR INTERCEPTOR TRENCH AND SSV SYSTEM DETAILS

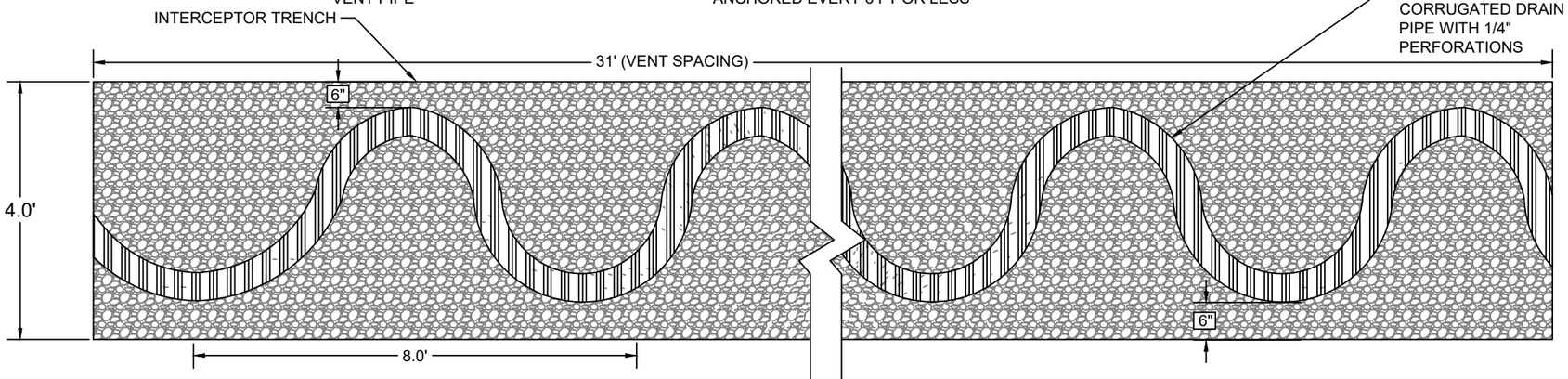
PROJ:

HARRINGTON APARTMENTS
461-465 WEST GRAND BOULEVARD
DETROIT, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: KS/CS	DATE: 4/21/2022
VERIFY SCALE 0 NTS IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CHKD BY: JP	DATE REVISED: 4/2/2024
	FILE NAME: 01-13782-1-001F00R01	

D05 PLAN VIEW THROUGH CROSS SECTION A-A'





D06 SCHEMATIC SHOWING PLAN VIEW OF CORRUGATED DRAIN PIPING LAYING PATTERN

LEGEND:

- AASHTO #57 OR MDOT 6AA AGGREGATE
- WATERPROOFING/VAPOR BARRIER (CETCO VINTEGRA SA20)
- NONWOVEN GEOTEXTILE (CETCO GEOTEX 1601)
- SOIL VAPOR FLOW DIRECTION

PM ENVIRONMENTAL PINCHIN — Environmental & Engineering Services

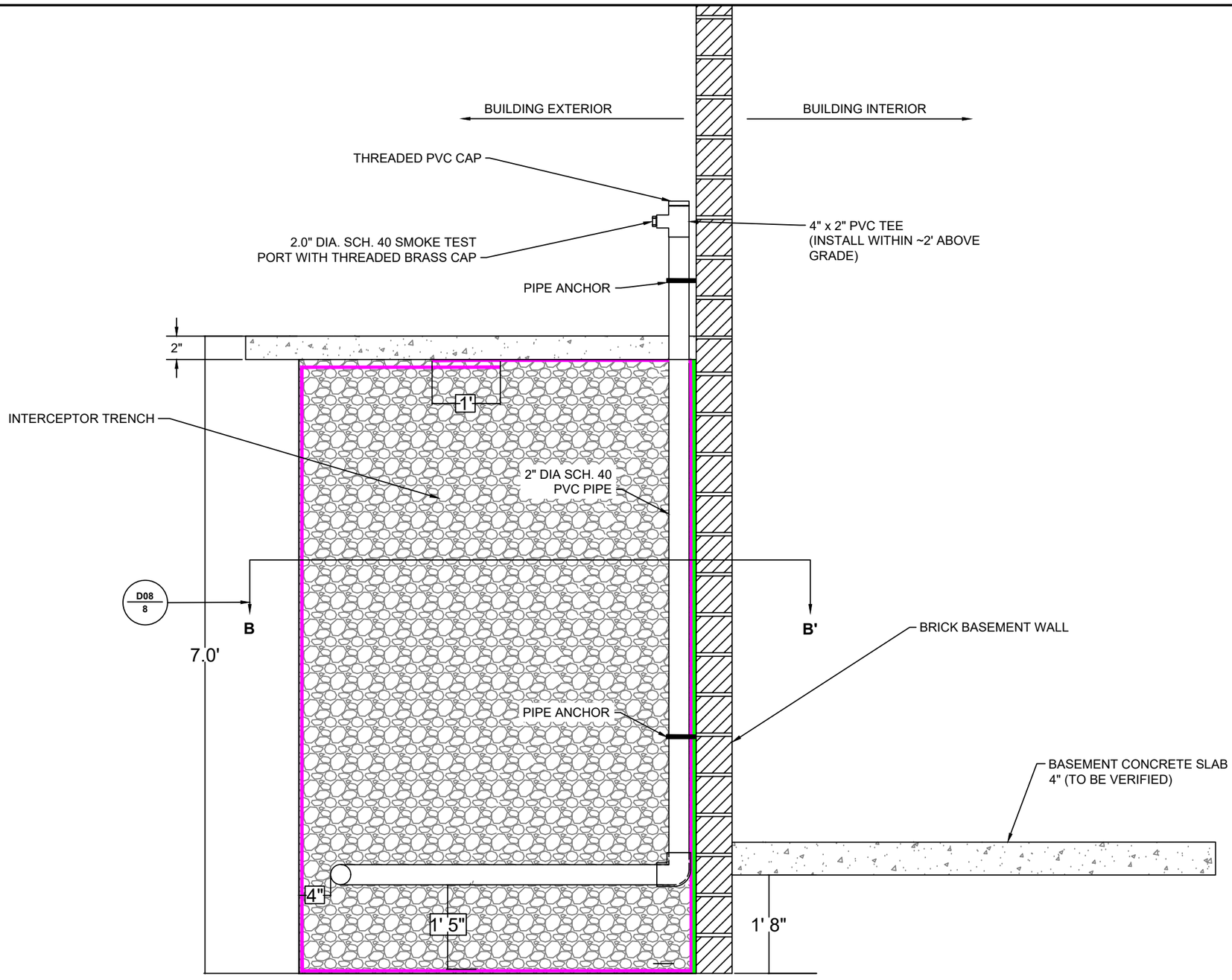
VIM-6

VAPOR INTERCEPTOR TRENCH AND SSV SYSTEM DETAILS

PROJ:

HARRINGTON APARTMENTS
461-465 WEST GRAND BOULEVARD
DETROIT, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: KS/CS	DATE: 4/21/2022
VERIFY SCALE 0 NTS IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CHKD BY: JP	DATE REVISED: 4/2/2024
	FILE NAME: 01-13782-1-001F00R01	



D07 SMOKE TEST PORT ELEVATION VIEW

LEGEND:

- CONCRETE
- AASHTO #57 OR MDOT 6AA AGGREGATE
- WATERPROOFING/VAPOR BARRIER (CETCO VINTEGRA SA20)
- NONWOVEN GEOTEXTILE (CETCO GEOTEX 1601)

PM ENVIRONMENTAL — Environmental & Engineering Services

VIM-7

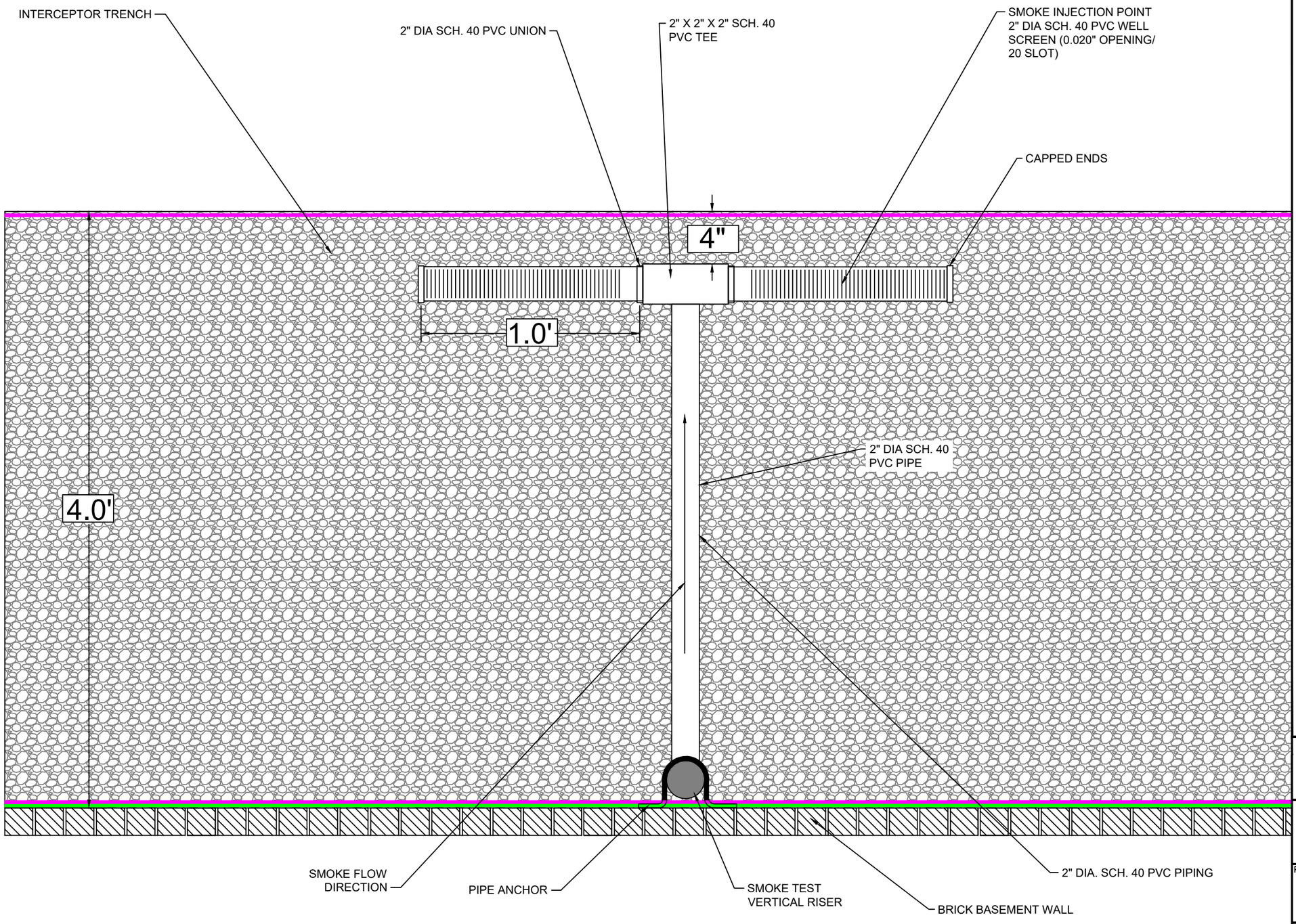
VAPOR INTERCEPTOR TRENCH AND SSV SYSTEM DETAILS

PROJ:

HARRINGTON APARTMENTS
461-465 WEST GRAND BOULEVARD
DETROIT, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: CS	DATE: 4/21/2022
VERIFY SCALE 0 NTS IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CHKD BY: JP	DATE REVISED: 4/2/2024
	FILE NAME: 01-13782-1-001F00R01	

D08 SMOKE TEST PORT PLAN VIEW B-B'



LEGEND:

- AASHTO #57 OR MDOT 6AA AGGREGATE
- WATERPROOFING/VAPOR BARRIER (CETCO VINTEGRA SA20)
- NONWOVEN GEOTEXTILE (CETCO GEOTEX 1601)

PM ENVIRONMENTAL — Environmental & Engineering Services

VIM-8

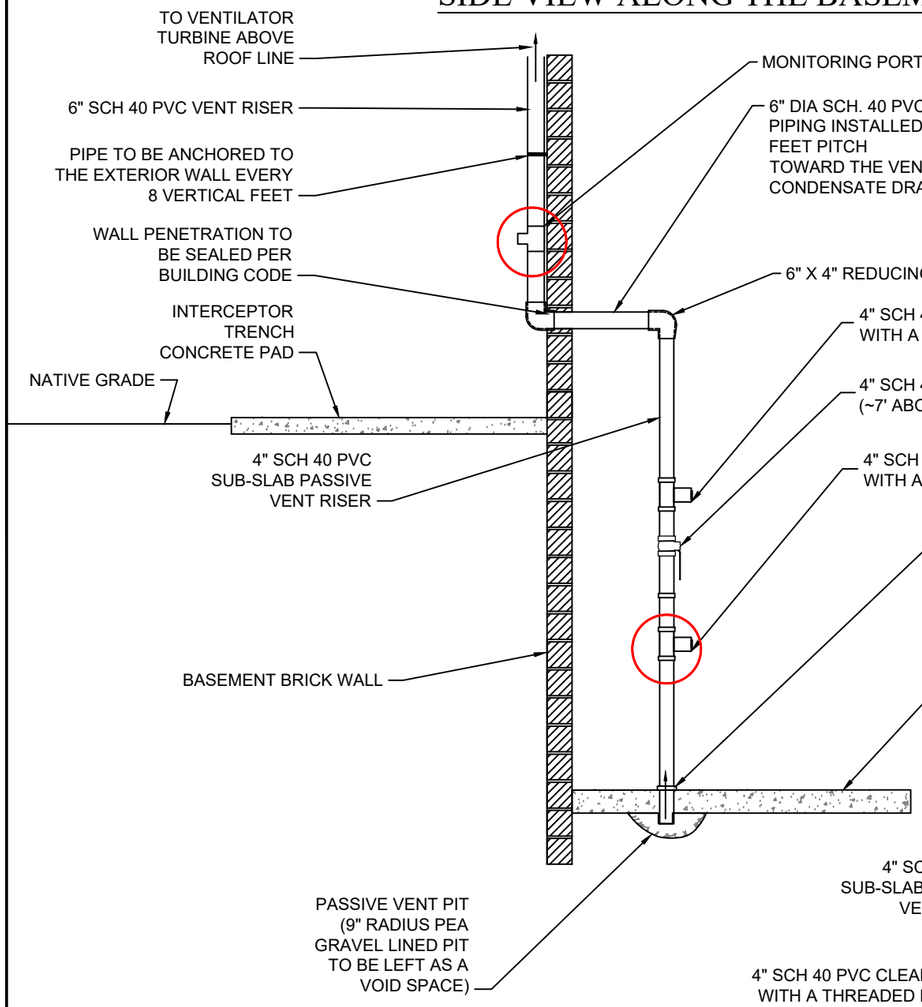
VAPOR INTERCEPTOR TRENCH AND SSV SYSTEM DETAILS

PROJ:

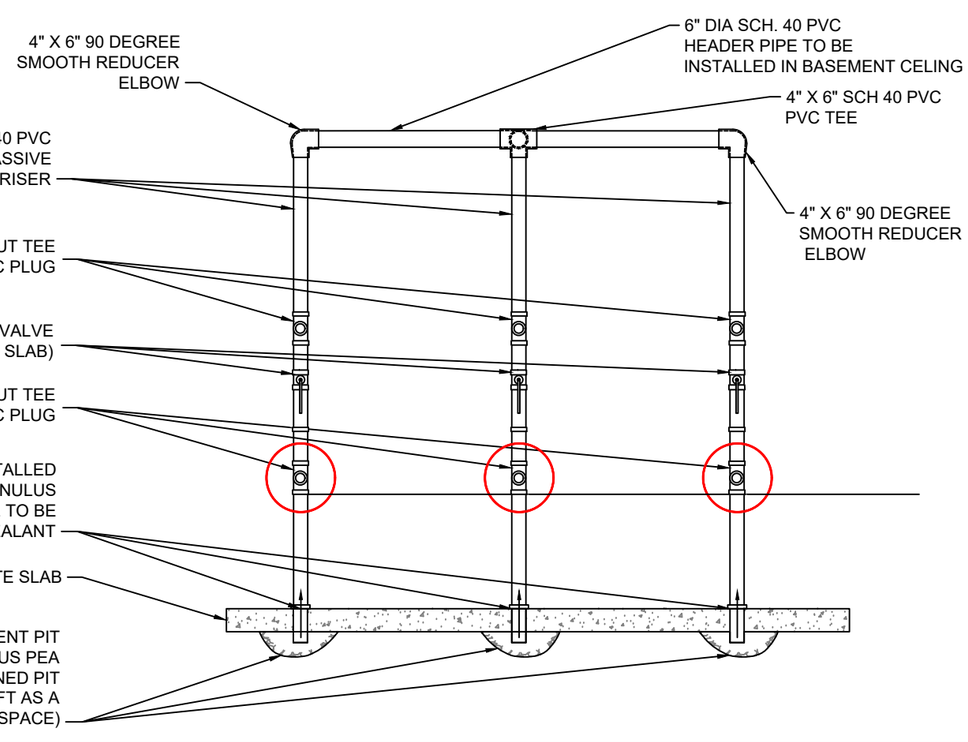
HARRINGTON APARTMENTS
461-465 WEST GRAND BOULEVARD
DETROIT, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: KS/CS	DATE: 4/21/2022
VERIFY SCALE 0 NTS IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CHKD BY: JP	DATE REVISED: 4/2/2024
	FILE NAME: 01-13782-1-001F00R01	

D09 SUB-SLAB PASSIVE VENTING PIPING DETAIL - SIDE VIEW ALONG THE BASEMENT WALL



D10 SUB-SLAB PASSIVE VENTING PIPING DETAILS - FRONT VIEW ACROSS THE BASEMENT WALL



LEGEND:

CONCRETE

NOTES:

1. ALL VERTICAL PIPING SHALL BE ANCHORED AT EVERY 8 FEET (MIN). AND ALL HORIZONTAL PIPING SHALL BE ANCHORED EVERY 6 FEET (MIN).
2. THE MONITORING PORTS SHALL BE INSTALLED SUCH THAT THE VALVE AND ANY PARTS EXTENDING OUT FROM THE MAIN PIPE ARE PARALLEL TO THE BUILDING WALL WITH VALVE HANDLE OPENING AWAY FROM THE WALL.

PM ENVIRONMENTAL PINCHIN | Environmental & Engineering Services

VIM-9

SUB-SLAB PASSIVE VENTING PIPING DETAIL

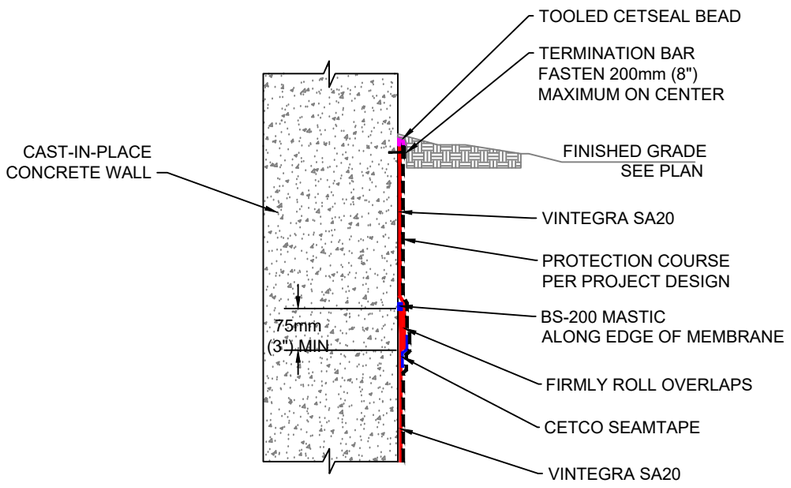
PROJ:

HARRINGTON APARTMENTS
461-465 WEST GRAND BOULEVARD
DETROIT, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: KS/CS	DATE: 4/21/2022
VERIFY SCALE 0 NTS IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CHKD BY: JP	DATE REVISED: 4/2/2024
	FILE NAME: 01-13782-1-001F00R01	

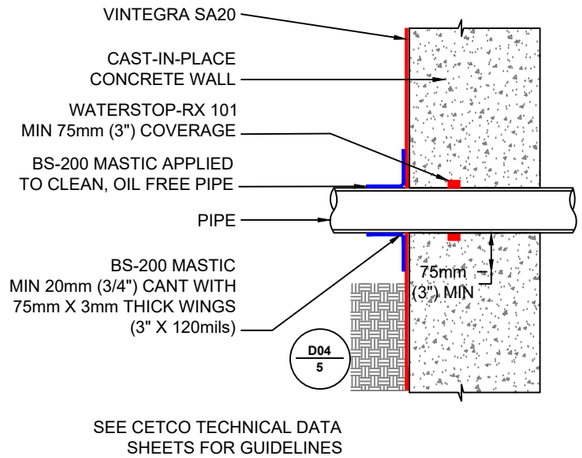
D11 BACKFILLED WALL
TERMINATION AT GRADE (HYDROSTATIC)

(TYPICAL)



D12 BACKFILLED WALL
THROUGH WALL PIPE PENETRATION

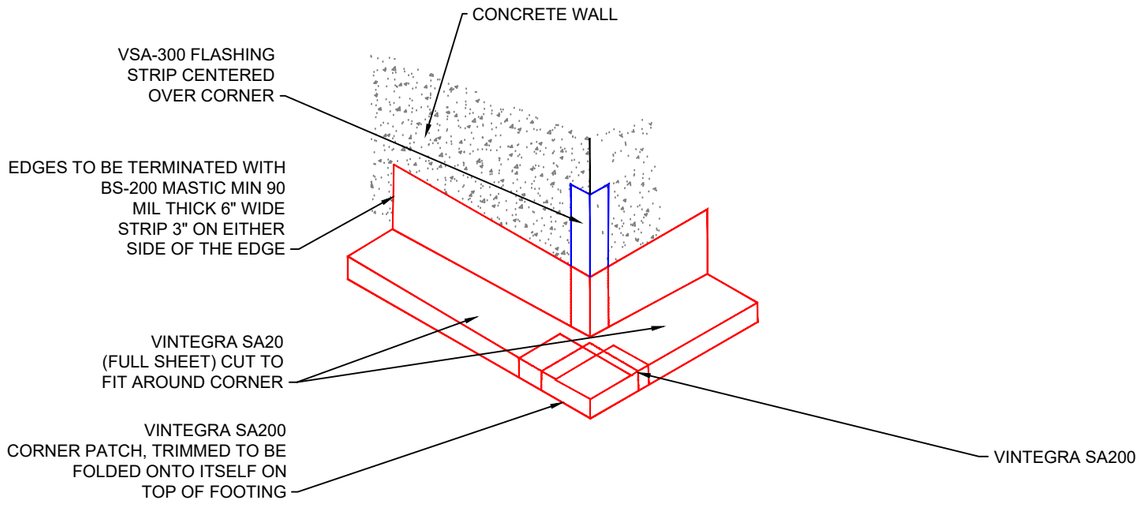
(TYPICAL)



SEE CETCO TECHNICAL DATA
SHEETS FOR GUIDELINES

D13 BACKFILLED WALL
OUTSIDE CORNER - FOOTING

(TYPICAL)



PM ENVIRONMENTAL PINCHIN
Environmental & Engineering Services

VIM-10

WATER PROOFING AND VAPOR
BARRIER DETAIL

PROJ:
HARRINGTON APARTMENTS
461-465 WEST GRAND BOULEVARD
DETROIT, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: KS/CS	DATE: 4/21/2022
VERIFY SCALE 0 NTS IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CHKD BY: JP	DATE REVISED: 4/9/2024
	FILE NAME: 01-13782-1-001F00R01	