

NOTE:

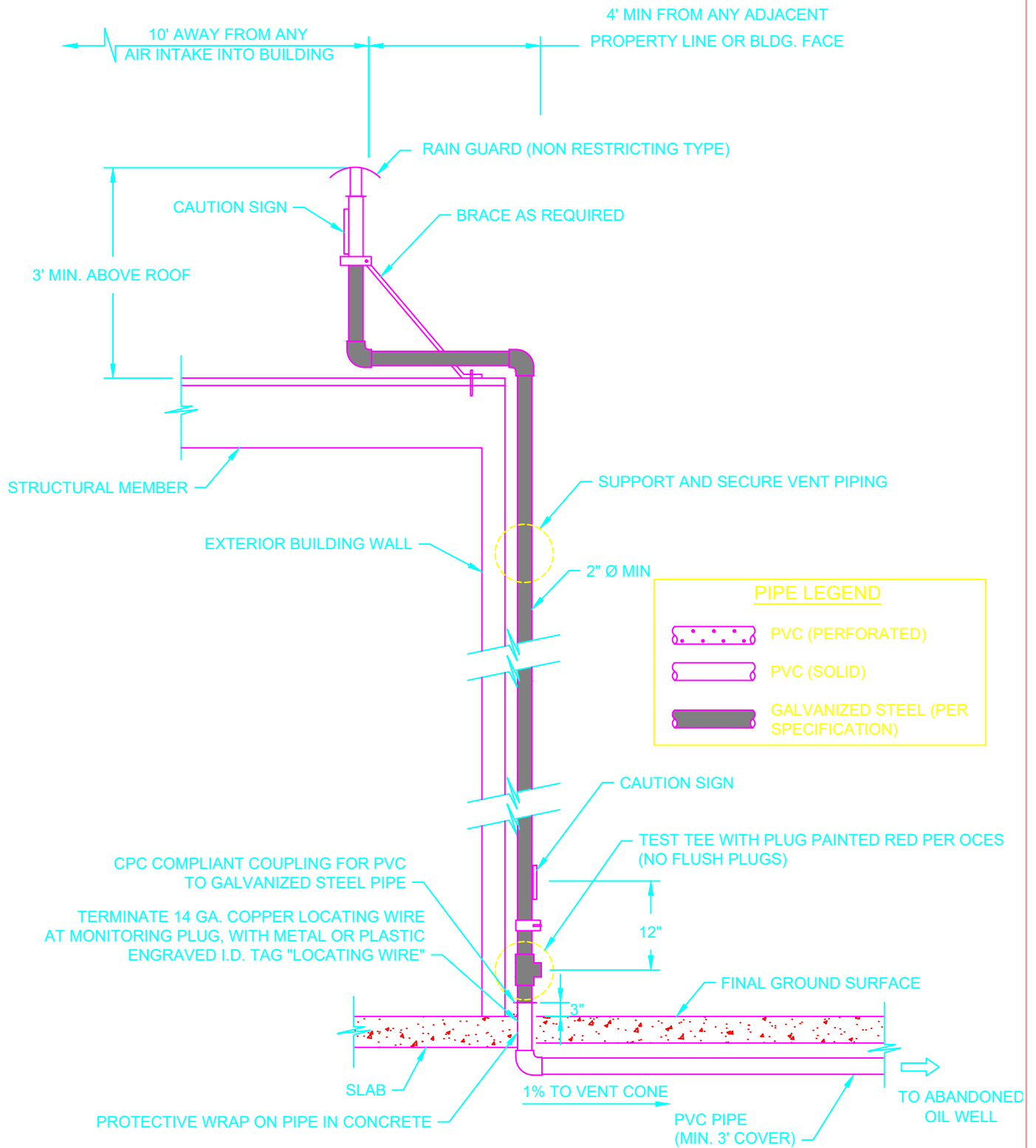
1. CONCRETE AND REINFORCEMENT DETAILS TO BE PROVIDED BY THE DESIGN ENGINEER.

NOT TO SCALE

STANDARD - DETAILS
WELL VENT
OIL WELL REDEVELOPMENT
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
1



NOTES:

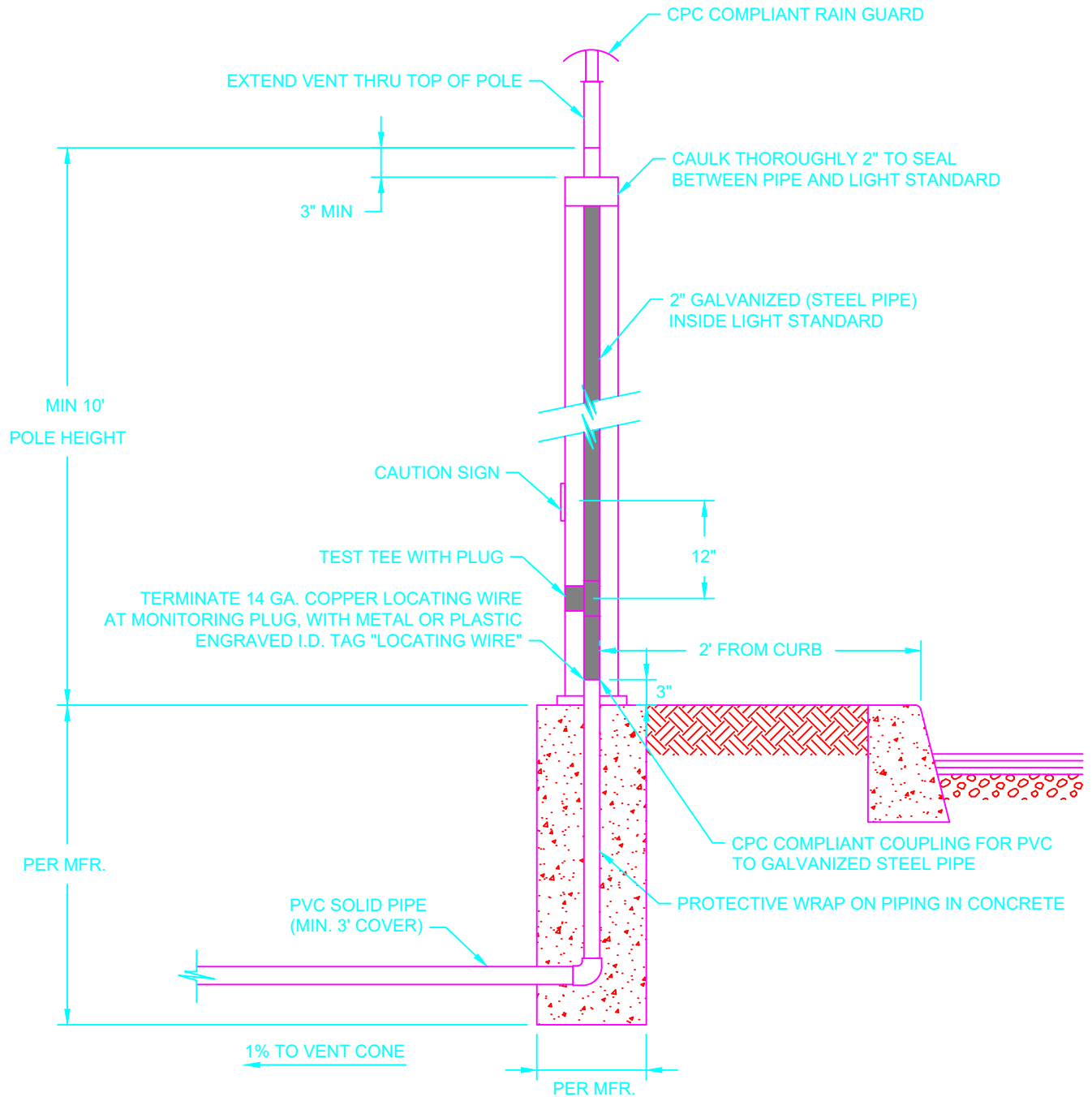
1. VENT PIPE AND RISER PER CURRENT ADOPTED CPC.
2. CPC - CALIFORNIA PLUMBING CODE.

NOT TO SCALE

STANDARD - DETAILS
OIL WELL VENT RISER
OIL WELL REDEVELOPMENT
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
2

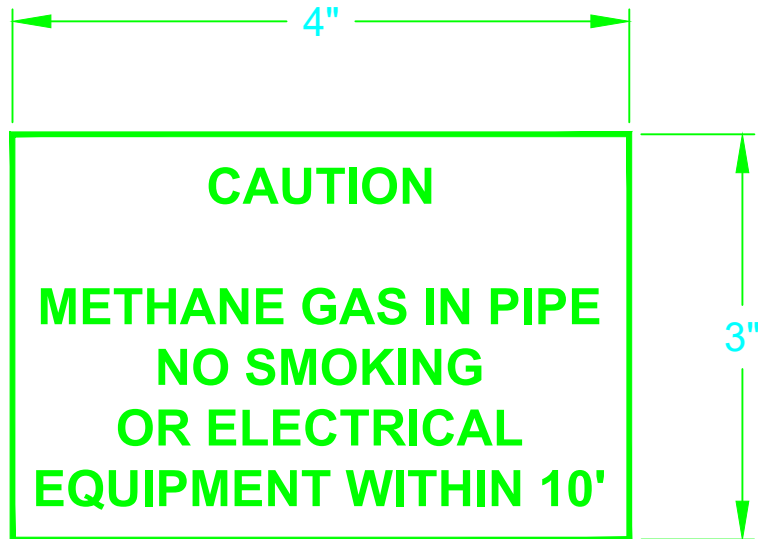


NOT TO SCALE

STANDARD - DETAILS
OIL WELL VENT RISER TO LIGHT STANDARD
OIL WELL REDEVELOPMENT
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
3



NOTES:

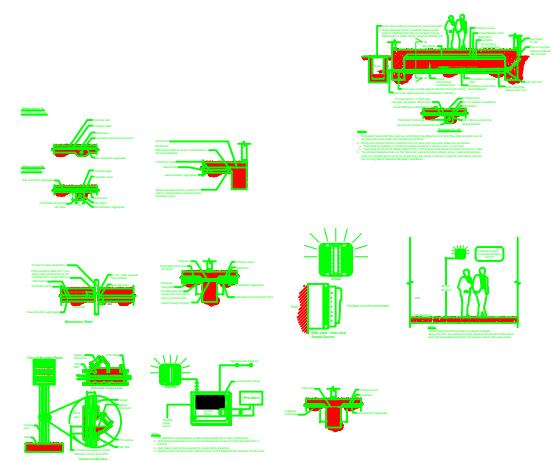
1. SIGN SHALL BE PLASTIC WITH ADHESIVE BACKING OR APPROVED EQUAL.
2. 1/4" HIGH BLACK LETTERS ON WHITE BACKGROUND AT A MINIMUM.

NOT TO SCALE

STANDARD - DETAILS
OIL VENT SIGN
OIL WELL REDEVELOPMENT
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
4



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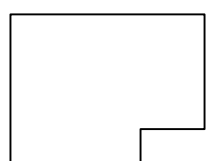
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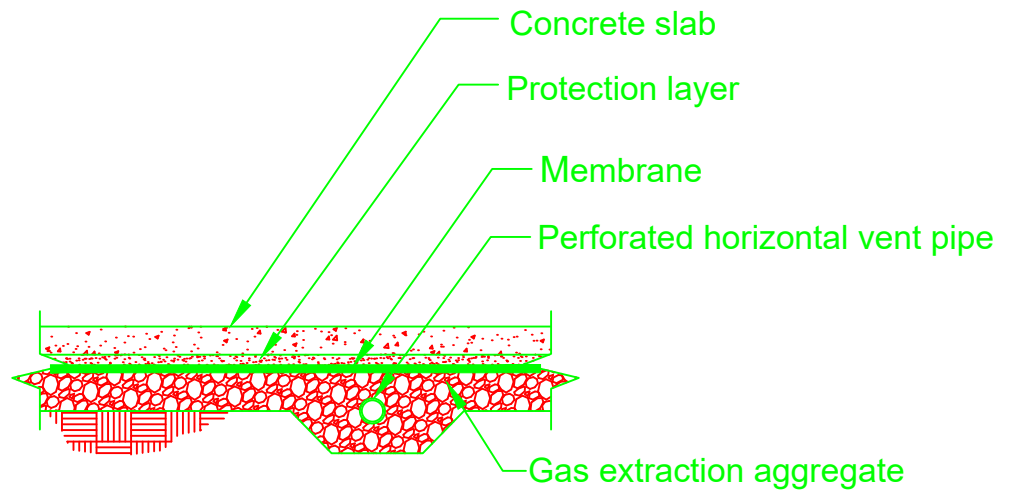
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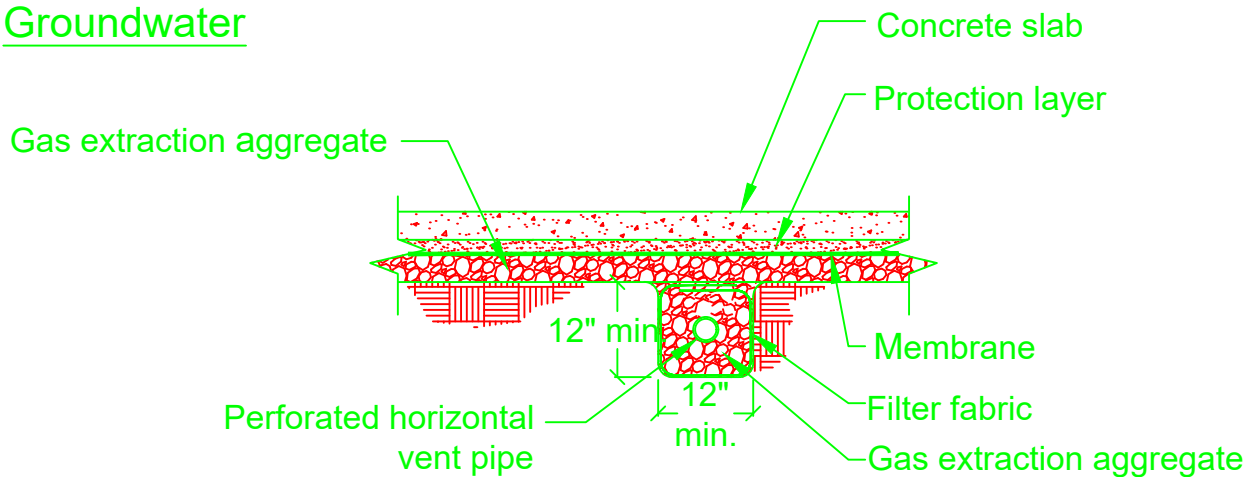
100%



Alternative A:
No Groundwater



Alternative B:
Groundwater



NOTE:

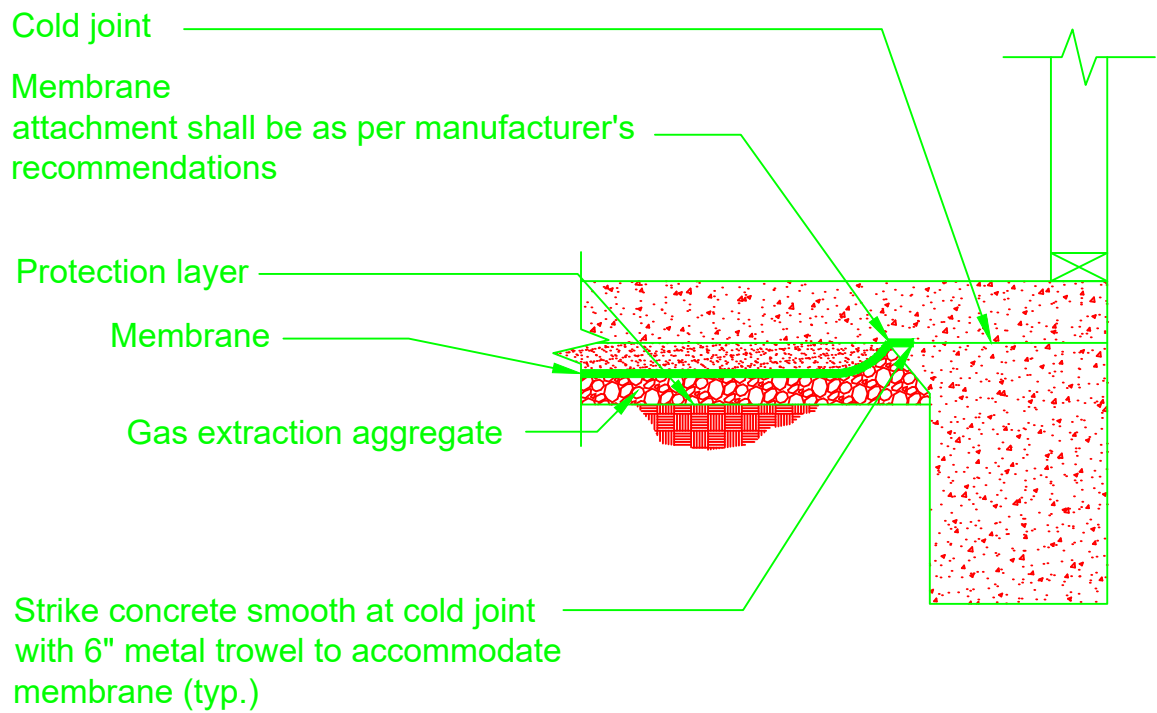
1. THE STANDARD DETAILS SHOWN ON THIS FIGURE ARE TYPICAL MINIMUM DETAILS. ACTUAL MATERIAL DIMENSIONS TYPES AND SPECIFICATIONS ARE TO BE PREPARED BY THE DESIGN ENGINEER IN GENERAL ACCORDANCE WITH THE CITY OF LONG BEACH METHANE MITIGATION STANDARDS.

NOT TO SCALE

STANDARD - DETAILS
SUB-SLAB VENT SYSTEM
METHANE MITIGATION
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
2

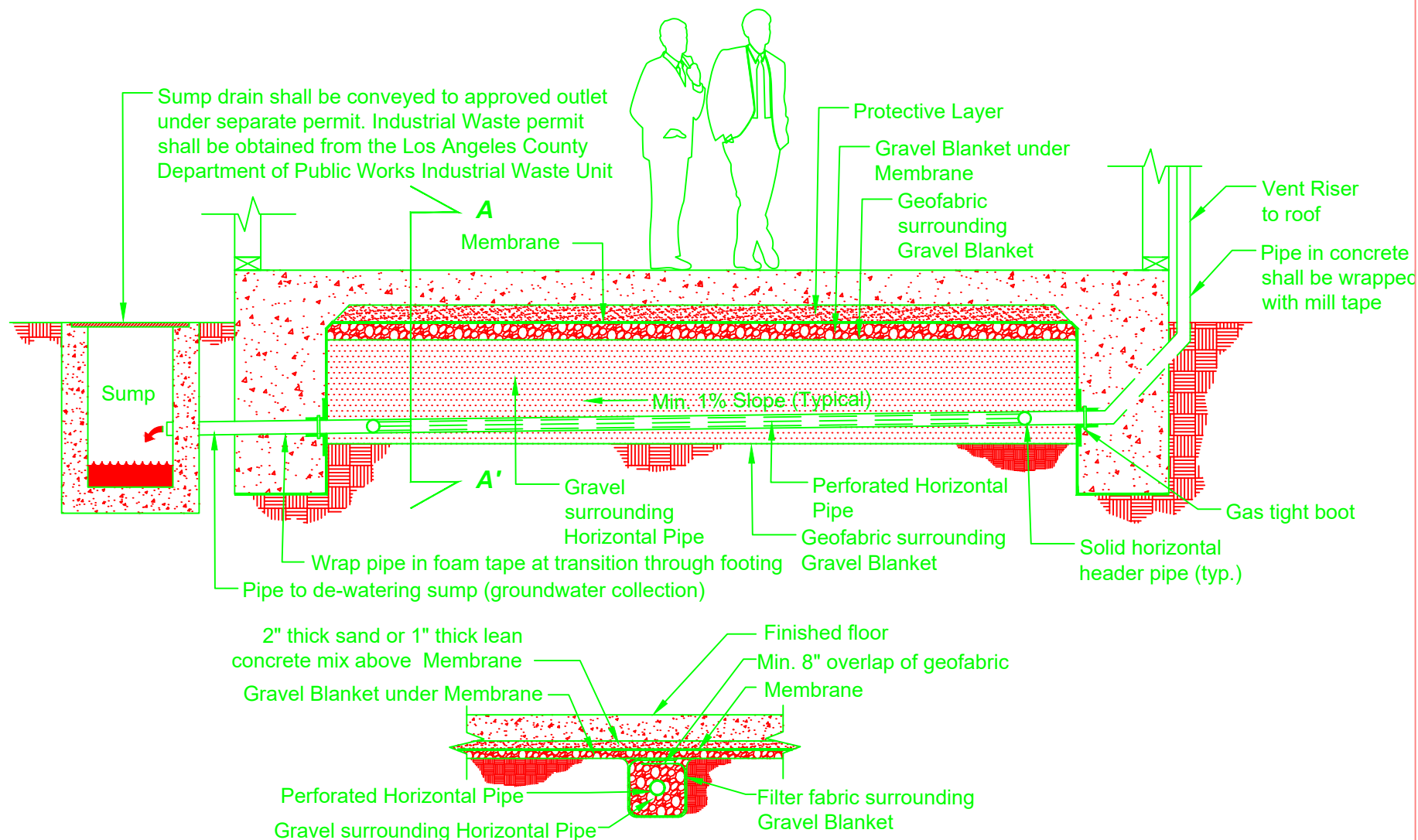


NOT TO SCALE

STANDARD - DETAILS
MEMBRANE TERMINATION AT EXTERIOR
FOOTING - TWO POUR
METHANE MITIGATION
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
3



Notes:

1. Perforated Horizontal Pipe used as combination De-Watering and Vent Pipe shall be sized one full plumbing pipe size larger than required by spacing.
2. Piping and conduit shall be protected from corrosion and structural settlement as follows:
 - a. Tape shall be applied on conduit and piping encased in cement slurry or concrete.
 - b. Tape shall be PS-37-90, Black Plastic PVC or PE Pressure-Sensitive Corrosion Preventive Tape.
3. The standard details shown on this figure are typical minimum details. actual material dimensions types and specifications are to be prepared by the design engineer in general accordance with the City of Long Beach Methane Mitigation Standards.

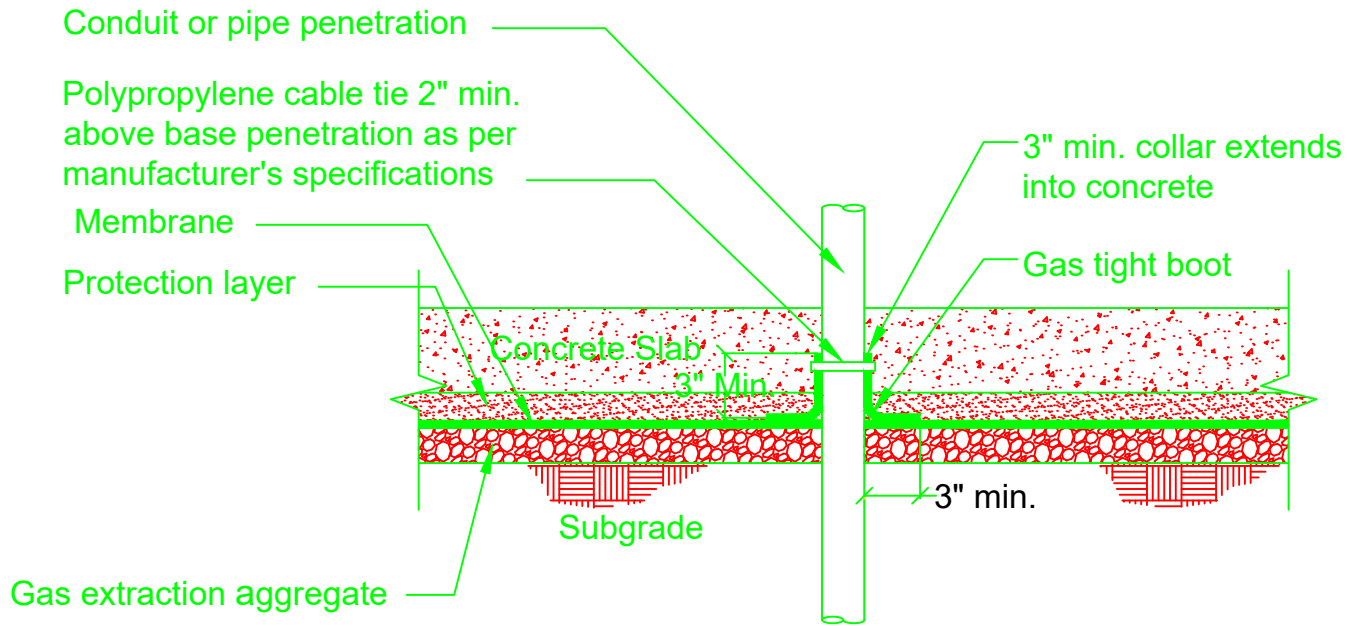
Section A - A'

NOT TO SCALE

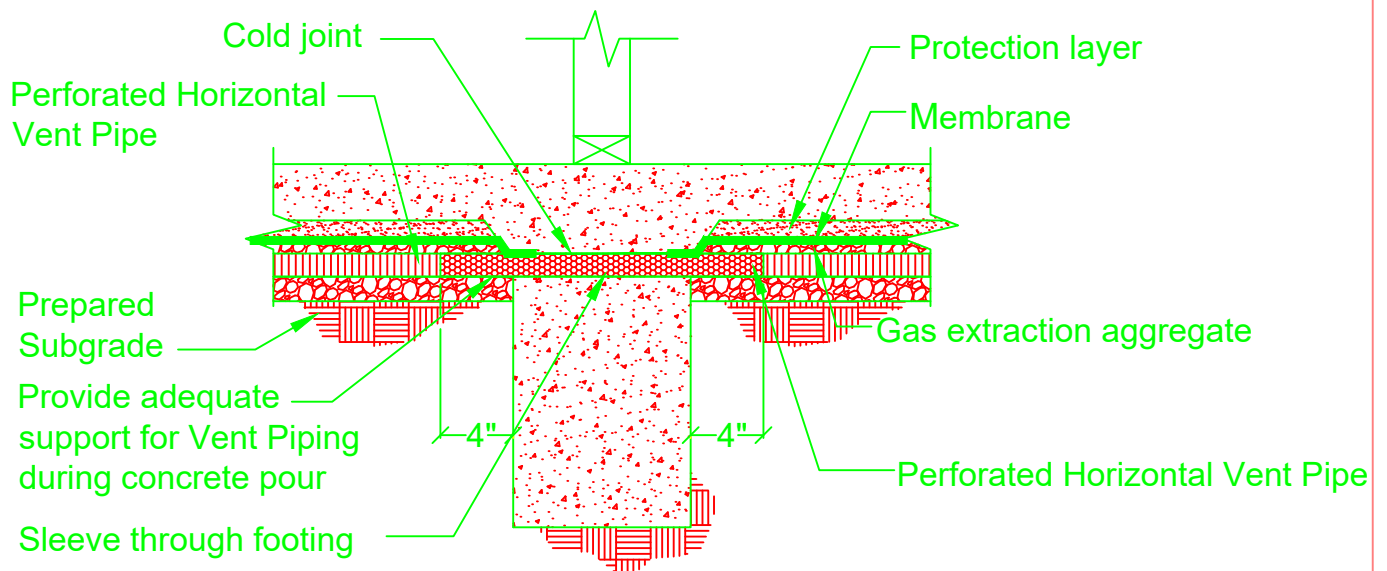
STANDARD - DETAILS
COMBINATION DE-WATERING AND VENT
PIPE
METHANE MITIGATION
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
4



Membrane Boot

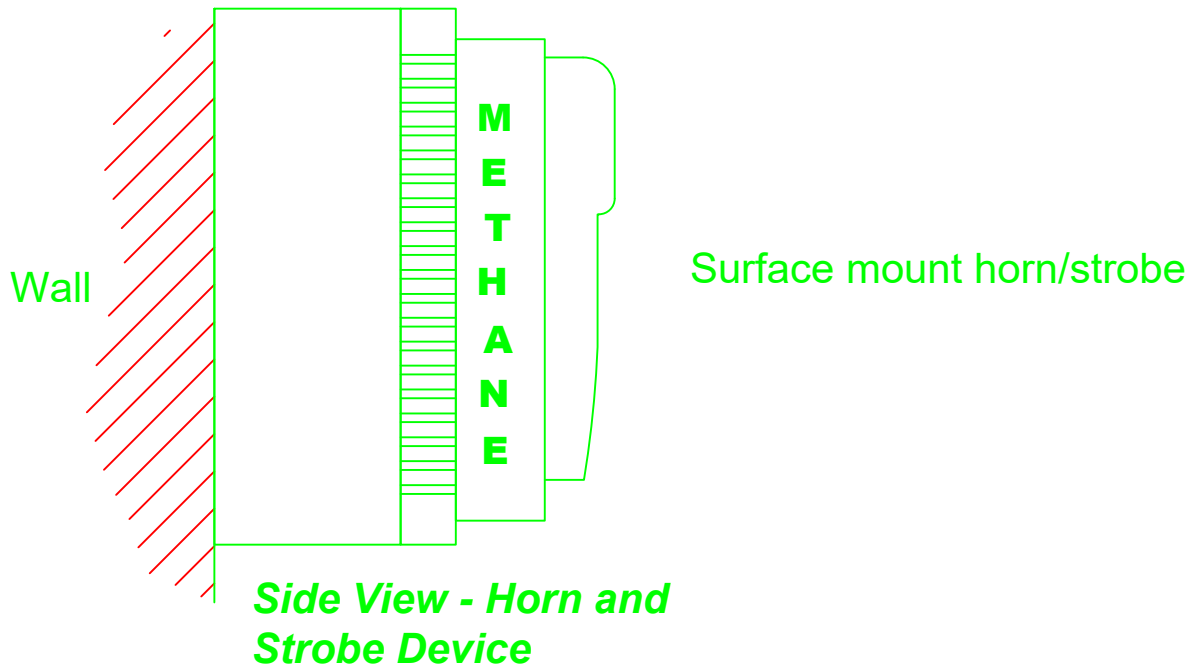
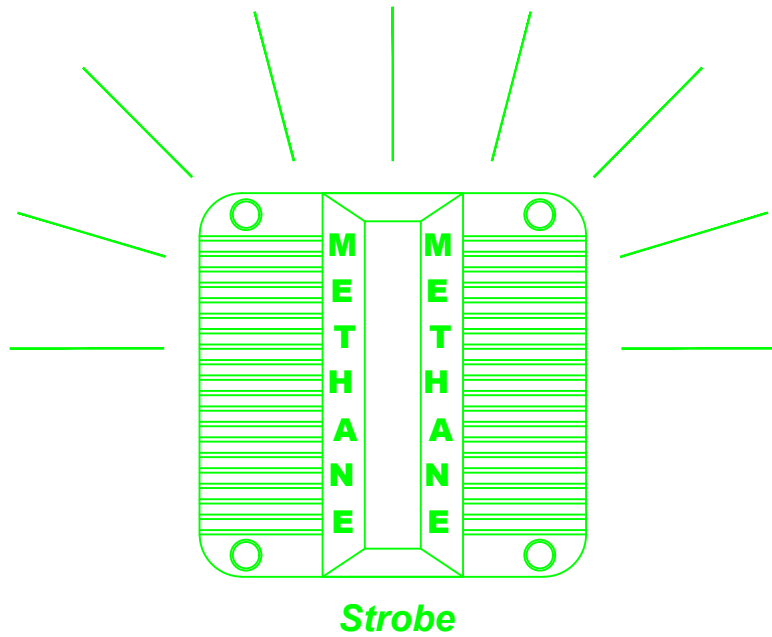


NOT TO SCALE

STANDARD - DETAILS
VENT PIPE AT INTERIOR FOOTING
METHANE MITIGATION
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
5

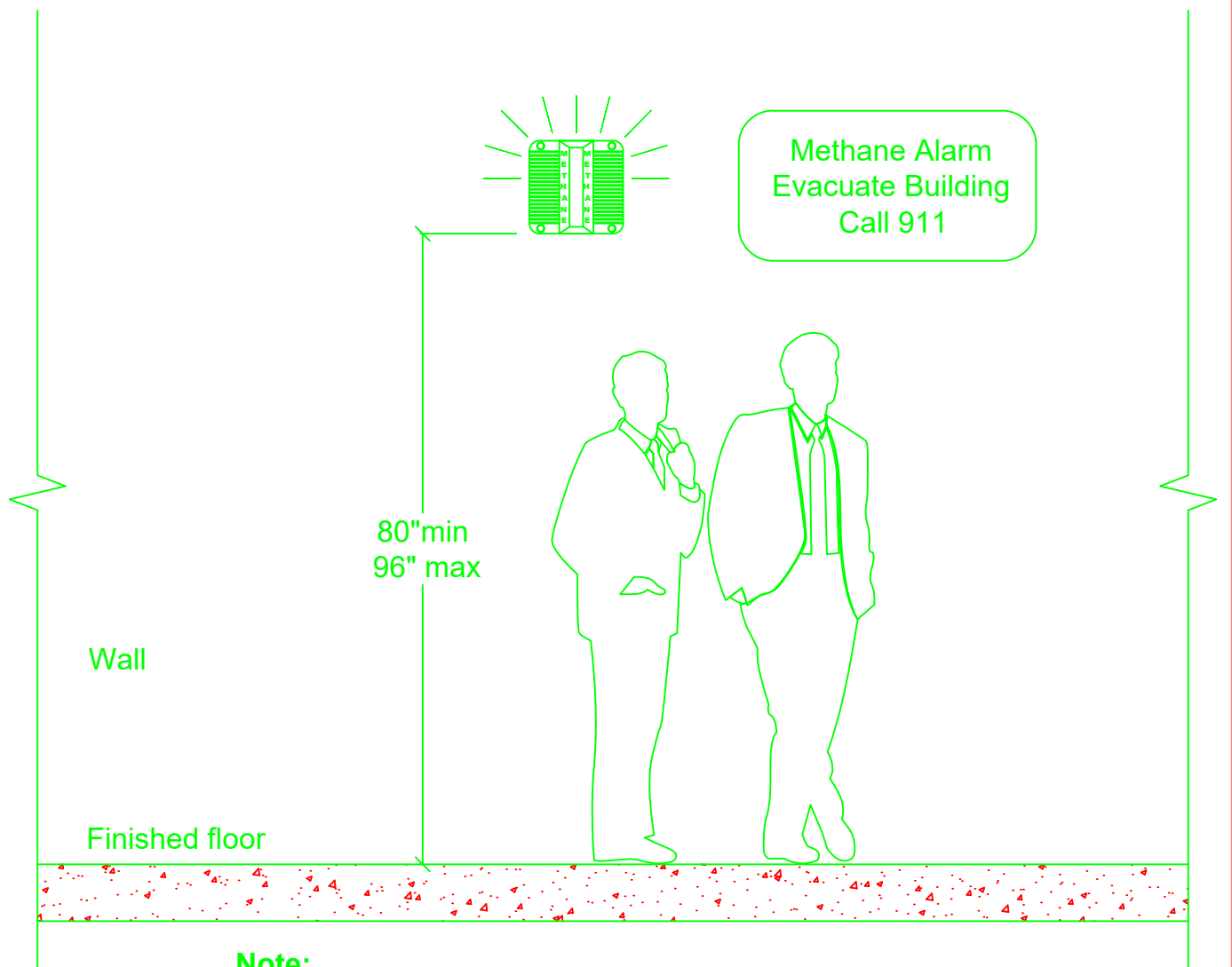


NOT TO SCALE

STANDARD - DETAILS
METHANE ALARM DEVICE - HORN AND
STROBE COMBINATION
METHANE MITIGATION
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
6



Note:

All methane Audio/Visual Alarms shall be installed above the floor at a standard height between 80 and 96 inches with a blue light and adjacent signage (as shown) unless otherwise noted.

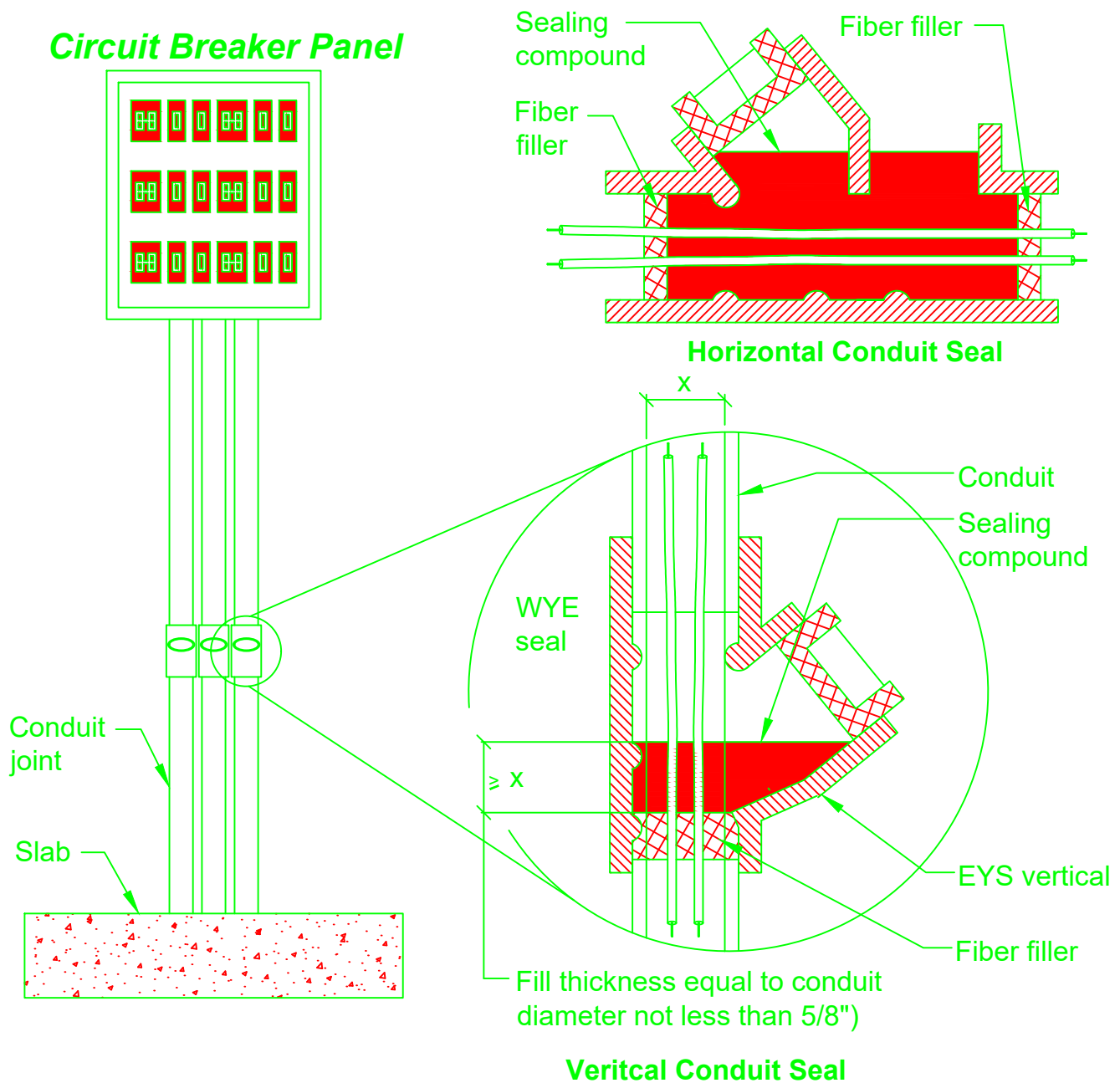
NOT TO SCALE

STANDARD - DETAILS
METHANE ALARM DEVICE MOUNT
METHANE MITIGATION
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
7

Circuit Breaker Panel



NOTE:

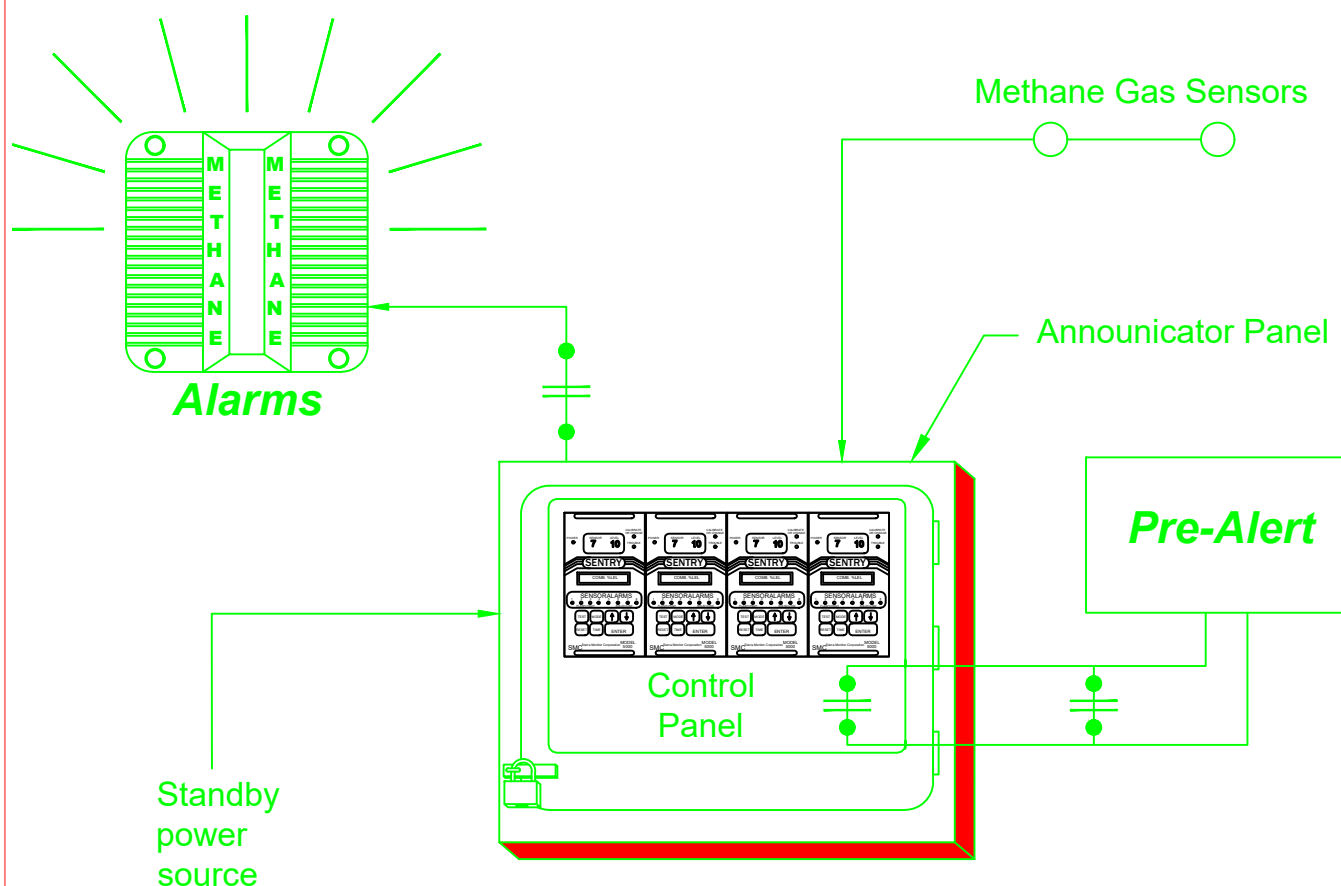
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NOT TO SCALE

STANDARD - DETAILS
CONDUIT SEAL
METHANE MITIGATION
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
8



Notes:

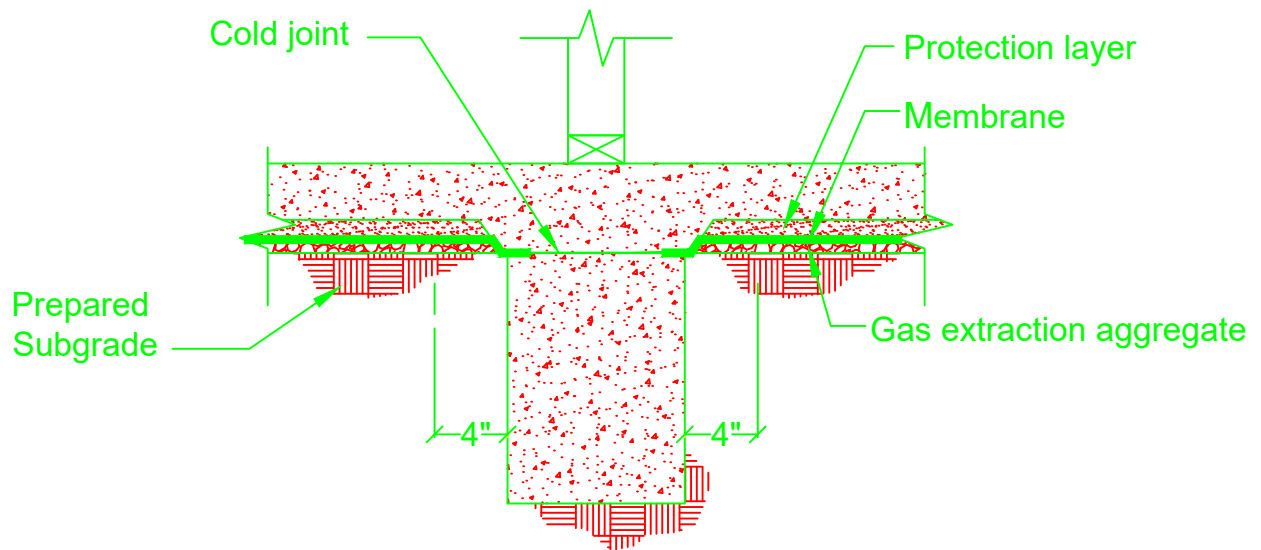
1. The Methane Gas Detection System shall operate 24 hr./day continuously.
2. All building strobe/alarms to sound simultaneously upon any high Gas Detection in building.
3. Auto dialer shall not be required for single family dwellings.
4. Standby power shall provide sufficient power to the Methane Gas Sensors for 24 hours.

NOT TO SCALE

STANDARD - DETAILS
METHANE DETECTION SYSTEM
METHANE MITIGATION
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
9



NOTE:

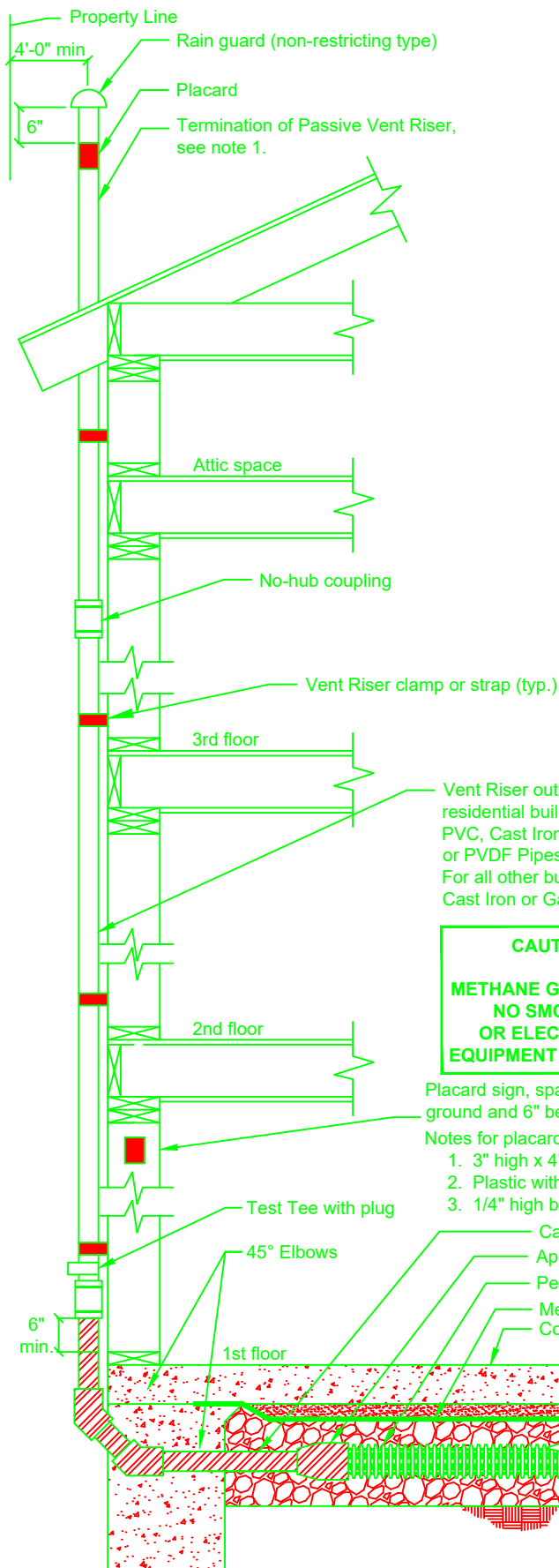
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NOT TO SCALE

STANDARD - DETAILS
MEMBRANE TERMINATION AT INTERIOR
FOOTING
METHANE MITIGATION
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
10



Notes:

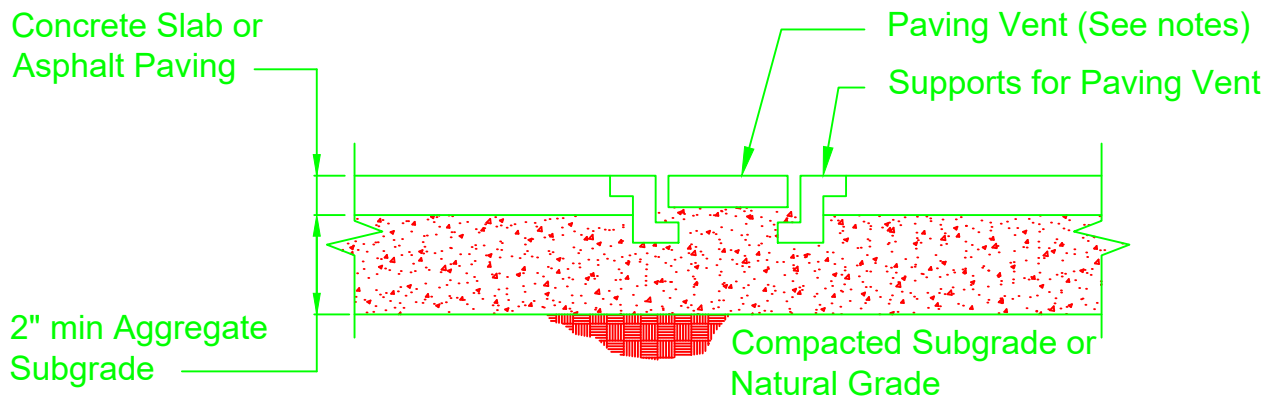
1. Termination of Passive Vent Riser shall be as follows:
 - a. 10' min. away from, or at least 3' above any openable window, door, opening or air intake, or vent shaft.
 - b. 3' min. in every direction from any lot line, alley, and street.
 - c. Extend through the vent flashing, 6" min. above the roof, and 1' min. from any parapet or building wall.
 - d. 10' above grade
 - e. 3' above roof line
2. Wrap all piping with approved material through concrete slab or floor.
3. Support all piping in accordance with City of Long Beach Plumbing Code.
4. The piping of the venting system shall be tested with air.
5. Vent riser penetrations through fire rated walls, ceilings, floors, and roof assemblies shall be protected.
6. All exposed PVC shall be protected from UV light.

NOT TO SCALE

STANDARD - DETAILS
VENT RISER
METHANE MITIGATION
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
11



Notes:

1. 12 square inches Paving Vent shall be constructed on cast iron.
2. 12 square inches Paving Vent shall be installed at the same rate as the vent risers.
3. 12 square inches Paving Vent shall be spaced a maximum of 100' apart.
4. Net area of openings in each Paving Vent shall be 12 square inches.

NOT TO SCALE

STANDARD - DETAILS
PAVED AREAS VENTING
METHANE MITIGATION
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
12

WARNING

**THIS BUILDING IS PROTECTED WITH A
METHANE GAS CONTROL BARRIER.
ANY PROPOSED PENETRATION OR
ALTERATION OF FLOOR SLAB
REQUIRES NOTIFICATION OF CITY OF
LONG BEACH OIL CODE
ENFORCEMENT SECTION (OCES) AND
INSPECTION BY AN ENGINEER**

Notes:

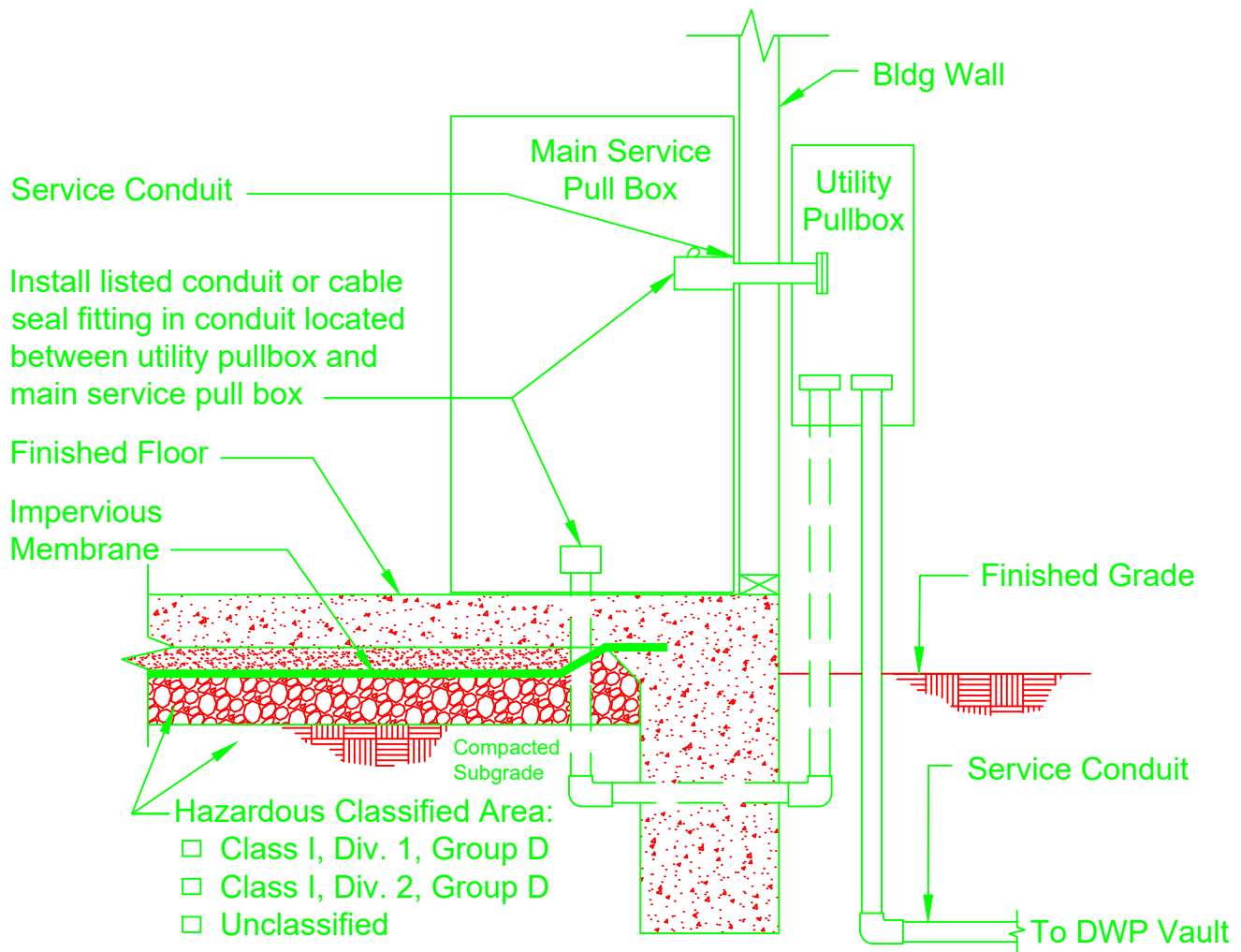
1. This notification is to be permanently stamped or etched in the surface of the garage slab, near main building entrance, or other location approved by the OCES at the time of construction.
2. All letters 1/2" (min.) in height.
3. At least one required per building.
4. This notification shall be posted and maintained at the front entrance of the building, except residential buildings.

NOT TO SCALE

STANDARD - DETAILS
GAS MEMBRANE NOTIFICATION PLACARD
METHANE MITIGATION
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
13



Note:

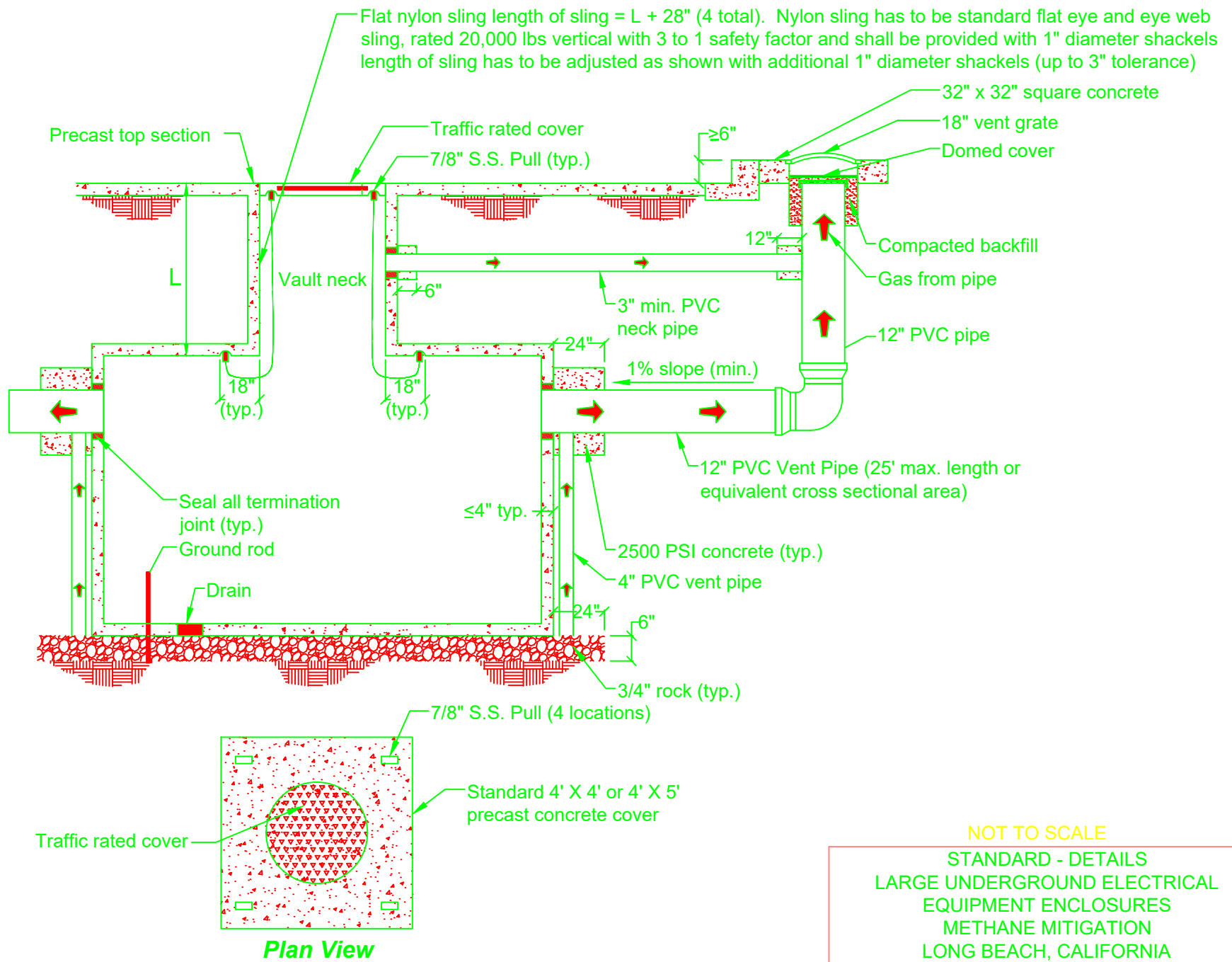
1. Piping and conduit shall be protected from corrosion and structural settlement as follows:
 - a. Tape shall be applied on conduit and piping encased in cement slurry or concrete.
 - b. Tape shall be PS-37-90, Black Plastic PVC or PE Pressure - Sensitive Corrosion Preventive Tape.

NOT TO SCALE

STANDARD - DETAILS
CONDUIT OR CABLE SEAL FITTINGS FOR
BUILDING SERVICE AND DWP PULL BOXES
METHANE MITIGATION
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
14



NOT TO SCALE

STANDARD - DETAILS
LARGE UNDERGROUND ELECTRICAL
EQUIPMENT ENCLOSURES
METHANE MITIGATION
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
15

Section:

Finished grade

Trench

Trench Dam Length (See Notes #3 a and b)

6"

Sand backfill

Trench Dam (See Note #2)

Under membrane

Subgrade

Gas extraction aggregate under membrane

Pipe or conduit (See Note #4)

Plan View:

Sand backfill

Trench Dam Length (See Notes #3 a and b)

Trench width (See Note #2)

4" min.

Pipe or conduit

Trench Dam (See Notes #3 a and b)

Slab

Backfill below slab level

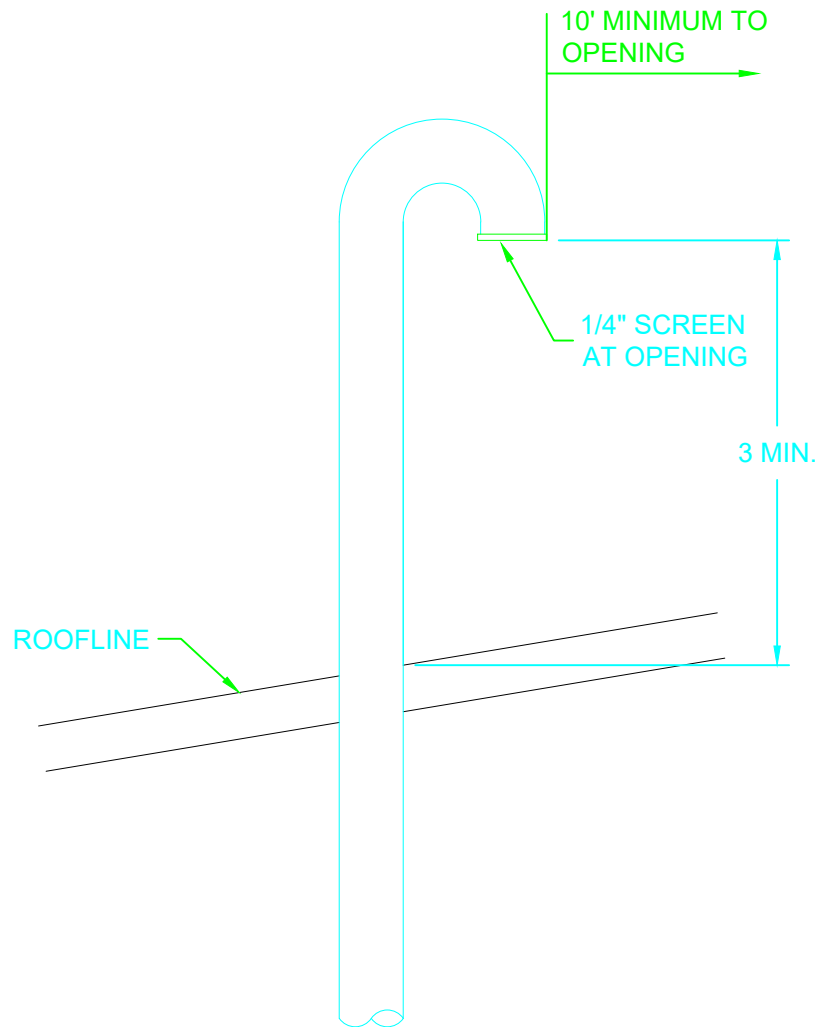
1. All Trench Dams shall be installed in trenches containing piping and conduit that connects directly from the utility lines in the street.
2. The width of a Trench Dam shall be one half the length.
3. Trench Dams shall be constructed of one of the following:
 - a. Bentonite Cement Slurry three feet long: A mixture of 4% Type II Cement, and 2% Powdered Bentonite.
 - b. Compacted Native Soils Backfill five feet long: Native soils shall be compacted at least 90% relative compaction in accordance with ASTM D-1557 Testing Procedures.
 - c. Concrete mixes other than Bentonite Cement Slurry may be used provided conduit or piping is wrapped with High Density PVC Foam Tape, Closed Cells, Adhesive Backed, 1/4" thick by 1/2" wide shall be applied to clear surface with ends butted together at most visible locations in Trench Dam.
4. Piping and conduit shall be protected from corrosion and structural settlement as follows:
 - a. Tape shall be applied on conduit and piping encased in cement slurry or concrete.
 - b. Tape shall be PS-37-90, Black Plastic PVC or PE Pressure-Sensitive Corrosion Preventive Tape.

NOT TO SCALE

STANDARD - DET.
TRENCH DAM
METHANE MITIGA
LONG BEACH, CALIF

STANDARD - DETAILS
TRENCH DAM
METHANE MITIGATION
LONG BEACH, CALIFORNIA

FIGURE 16

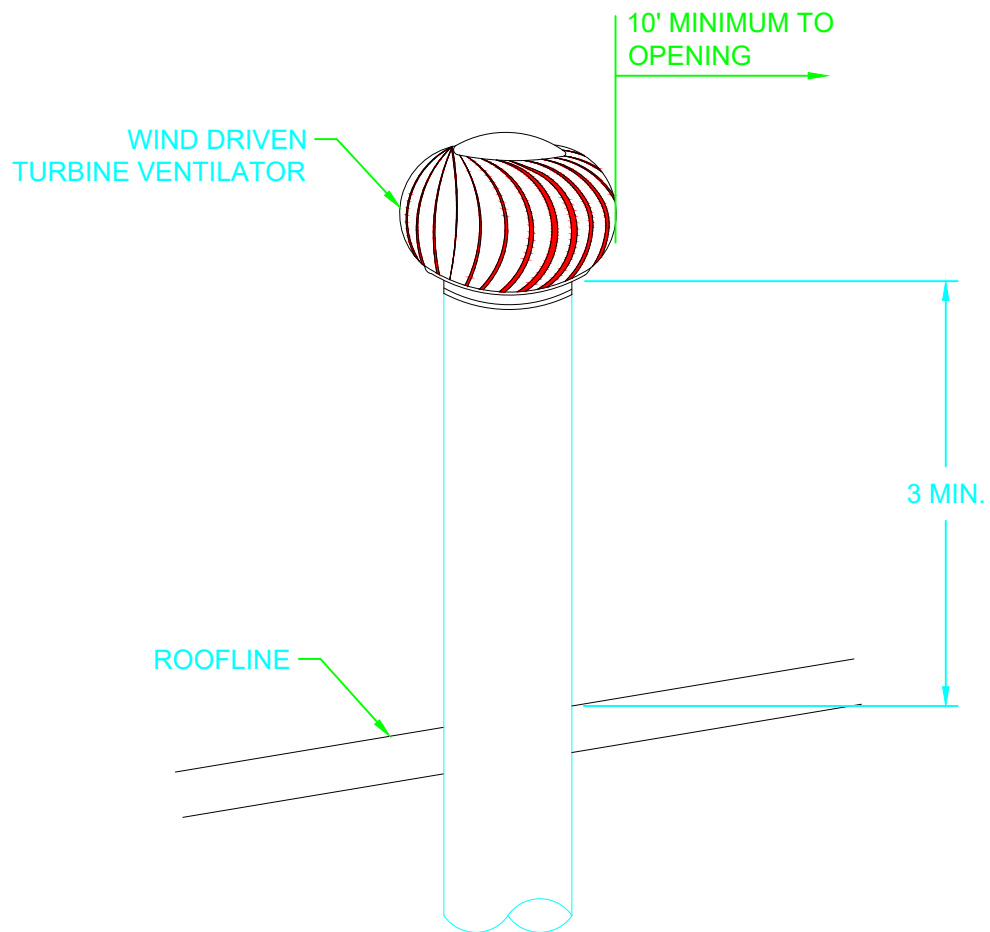


NOT TO SCALE

STANDARD - DETAILS
OPTIONAL PASSIVE PIPE TERMINATION
METHANE MITIGATION
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
17

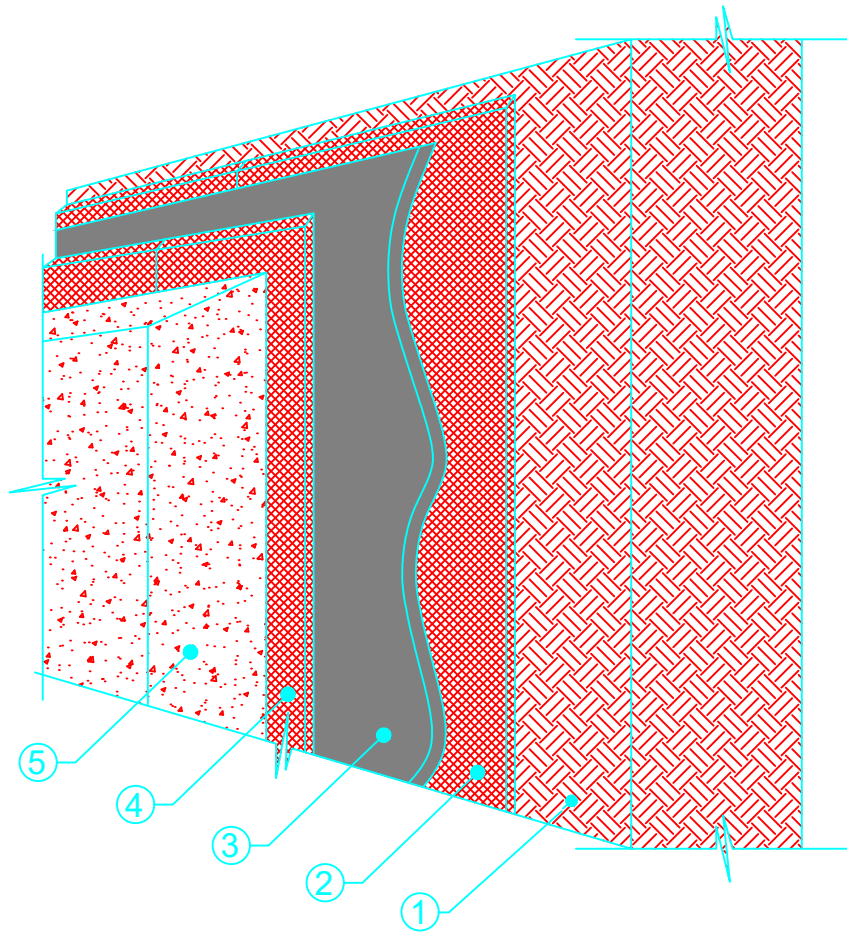


NOT TO SCALE

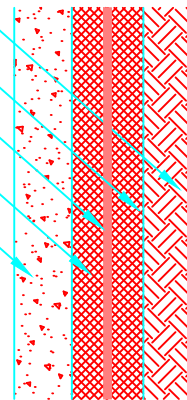
STANDARD - DETAILS
OPTIONAL PASSIVE RISER PIPE TERMINATION
METHANE MITIGATION
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
18



- ① PREPARED EARTH SUBGRADE
- ② APPROVED GEOSYNTHETIC IF NEEDED
- ③ GEOMEMBRANE PER SPEC
- ④ APPROVED GEOSYNTHETIC IF NEEDED
- ⑤ CONCRETE

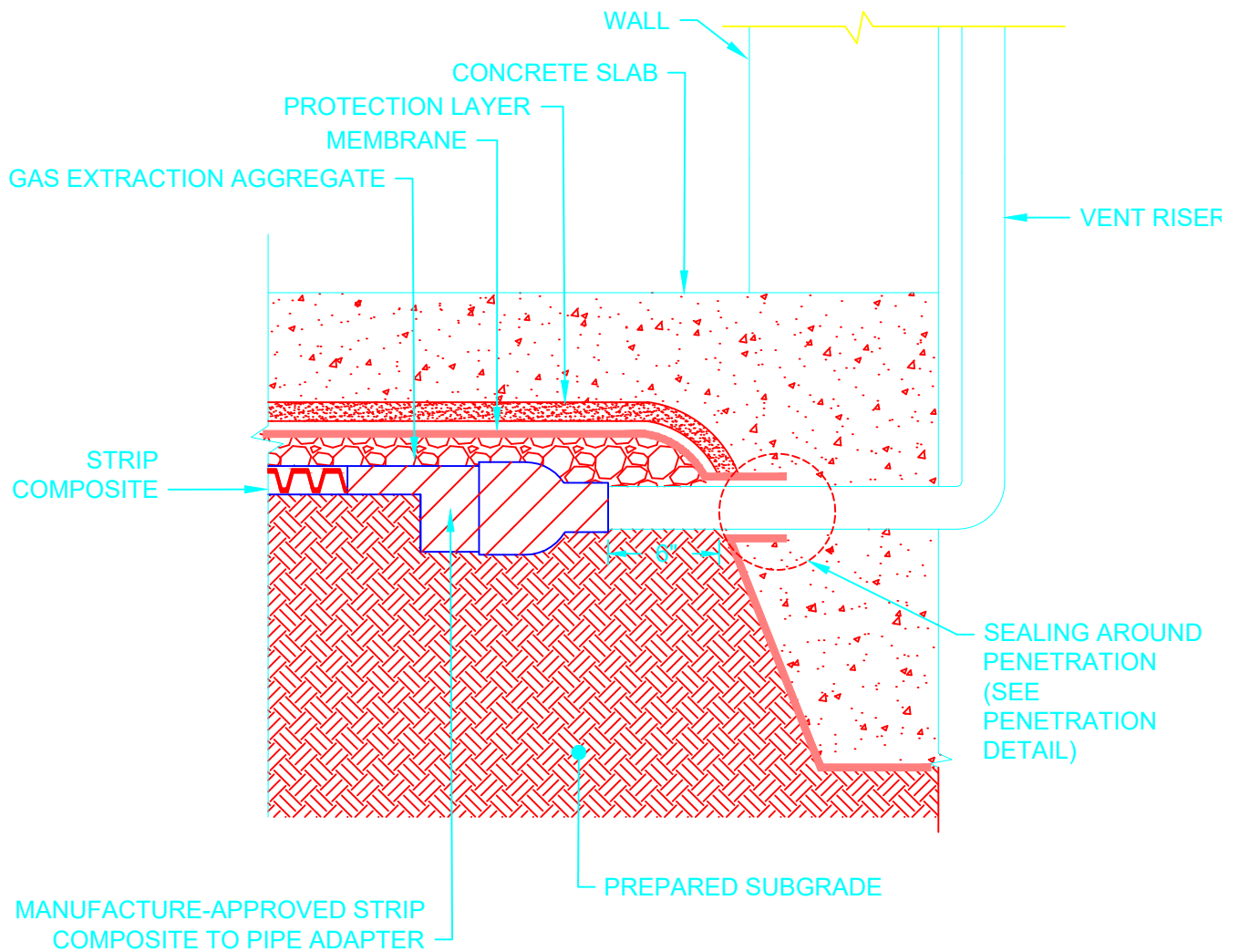


NOT TO SCALE

STANDARD - DETAILS
VERTICAL MEMBRANE
METHANE MITIGATION
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
19



NOTE:

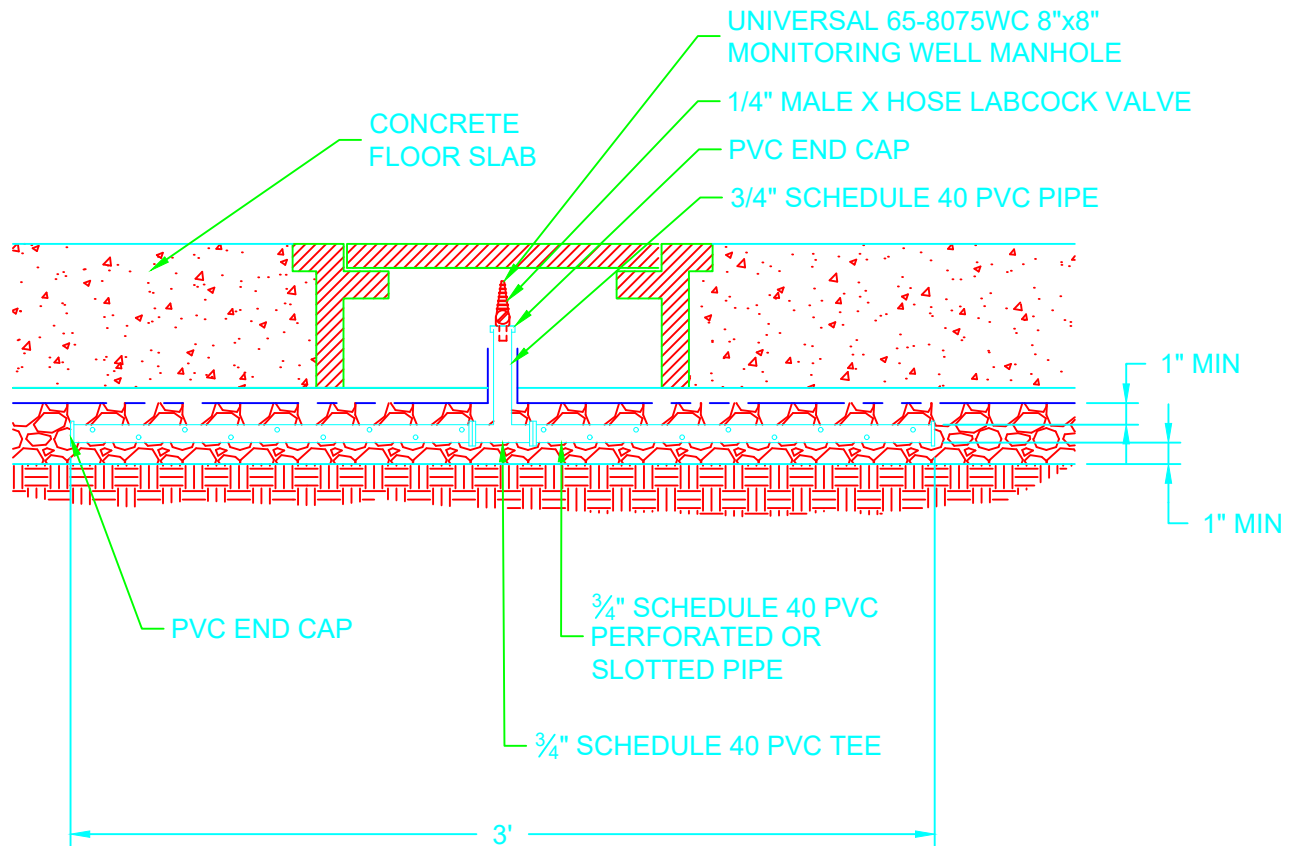
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NOT TO SCALE

STANDARD - DETAILS
STRIP COMPOSITE TO VENT RISER
TRANSITION
METHANE MITIGATION
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
20



NOT TO SCALE

STANDARD - DETAILS
MANUAL MONITORING PROBE VAULT
METHANE MITIGATION
LONG BEACH, CALIFORNIA

JANUARY 2020

FIGURE
21