201 N. DOUGLAS STREET

EL SEGUNDO, CA 90245

INSPECTION CHECKLIST

☐ SUB-SLAB VENT PIPE	☐ BARRIER PROTECTION
☐ VENT RISER STUB OUTS	☐ VENT RISER TERMINATIONS
☐ GRAVEL BLANKET	☐ SIGNAGE
☐ METHANE BARRIER	☐ UTILITY TRENCH DAMS
☐ SMOKE TEST	☐ ELECTRICAL SEAL-OFFS

THE METHANE MITIGATION SYSTEM COMPONENTS SHALL BE INSPECTED BY THE BUILDING DEPARTMENT OFFICIAL AND BY METHANE SPECIALISTS OR ITS AUTHORIZED REPRESENTATIVE PRIOR TO EACH COMPONENT BEING COVERED. THE METHANE BARRIER INSTALLATION WILL REQUIRE CONTINUOUS INSPECTION BY A METHANE SPECIALISTS' DEPUTY INSPECTOR.
UPON COMPLETION OF THE INSPECTIONS OF THE MITIGATION SYSTEM, METHANE SPECIALISTS WILL CERTIFY THAT THE WORK WAS COMPLETED PER PLANS AND SPECIFICATIONS

CALL (805) 987-5356 MIN. 24 HOURS PRIOR TO SCHEDULE YOUR INSPECTION.

CONSTRUCTION OF A NEW 4,200 SQ FT ACCESSORY BUILDING (CTE SHOP) AT THE WISEBURN HIGH SCHOOL CAMPUS AND AN ADDITIONAL 1,920 SQ FT THAT INCLUDES (2) SEPARATE SHOP BUILDINGS ADJACENT TO EACH OTHER BUILT ENTIRELY ON GRADE

METHANE MITIGATION SYSTEM

VICINITY MAP

PROJECT INFORMATION

A SCHOOL DISTRICT PROJECT FOR:

WISEBURN SCHOOL DISTRICT
201 N DOUGLAS ST
EL SEGUNDO, CA 90245

PROJECT DIRECTORY

ARCHITECT	STRUCTURAL ENGINEER
SVA ARCHITECTS 6 HUTTON CENTRE DR, SUITE 1150 SANTA ANA, CA 92707 TEL: 949.809.3380	MBARC CONSTRUCTION INC. 1770 LA COSTA MEADOWS DRIVE SAN MARCOS, CA 92078 TEL: 760.744.4131 EMAIL: ERIK@MCARCONLINE.COM

SHEET INDEX

REFERENCE TO METHANE DRAWINGS REQUIRED FOR ALL PROJECT DRAWINGS, INCLUDING MECHANICAL, ARCHITECTURAL, ELECTRICAL, HVAC, PLUMBING, AND STRUCTURAL DRAWINGS.

BUILDING PERMIT # _____

MECHANICAL PERMIT # _____

OWNER: WISEBURN UNIFIED SCHOOL DISTRICT

PROJECT NAME: DA VINCI HS CAREER TECHNICAL EDUCATION STUDIO & SHOP

PROJECT ADDRESS: 201 N Douglas St, El Segundo, CA 90245

REGISTERED PROFESSIONAL ENGINEER
MICHAEL WO
C 75964
Exp. 06/30/24
CIVIL
STATE OF CALIFORNIA

REVISIONS:

	DESCRIPTION	DATE
1	DTSC COMMENTS	12-28-2022

PROJECT NO: 2020-40150

DATE ISSUED: 2022.07.29

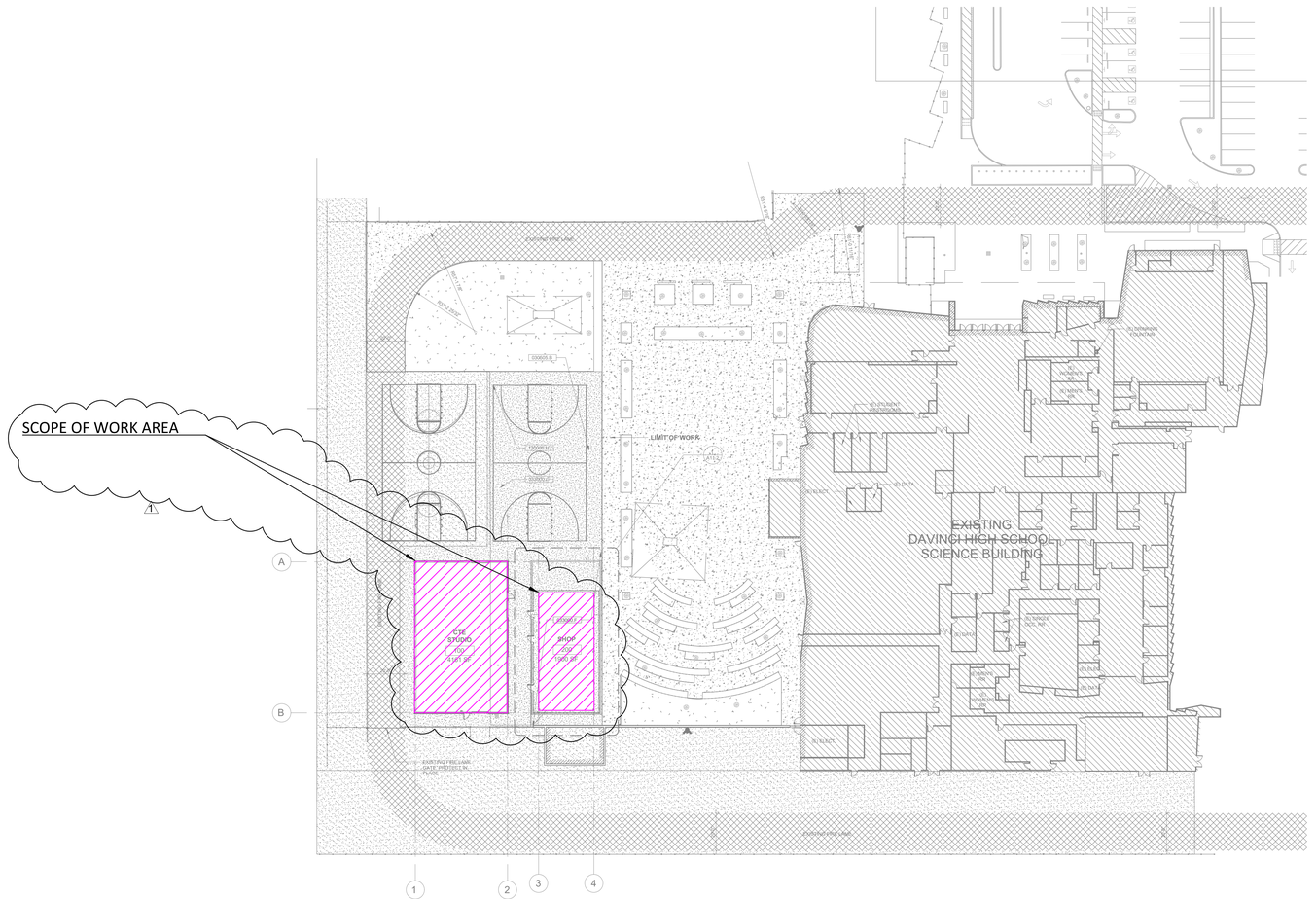
SCALE: As indicated

SHEET NUMBER: GC-1.0

SHEET TITLE: TITLE SHEET

METHANE SPECIALISTS

5210 LEWIS ROAD
SUITE 1
AGOURA HILLS, CA
91301
TEL: 805.987.5356
www.methanespecialists.com



N

1/32"=1'-0"

OWNER: WISEBURN UNIFIED SCHOOL DISTRICT

PROJECT NAME: DA VINCI HS CAREER TECHNICAL EDUCATION STUDIO & SHOP

PROJECT ADDRESS: 201 N Douglas St, El Segundo, CA 90245

REGISTERED PROFESSIONAL ENGINEER
MICHAEL WU
C 75964
Exp. 06/30/24
CIVIL
STATE OF CALIFORNIA

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PROJECT NO:	2020-40150
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SHEET NUMBER:	**GC-2.0**
SHEET TITLE:	

SITE PLAN

METHANE SPECIALISTS

5210 LEWIS ROAD
SUITE 1
AGOURA HILLS, CA
91301
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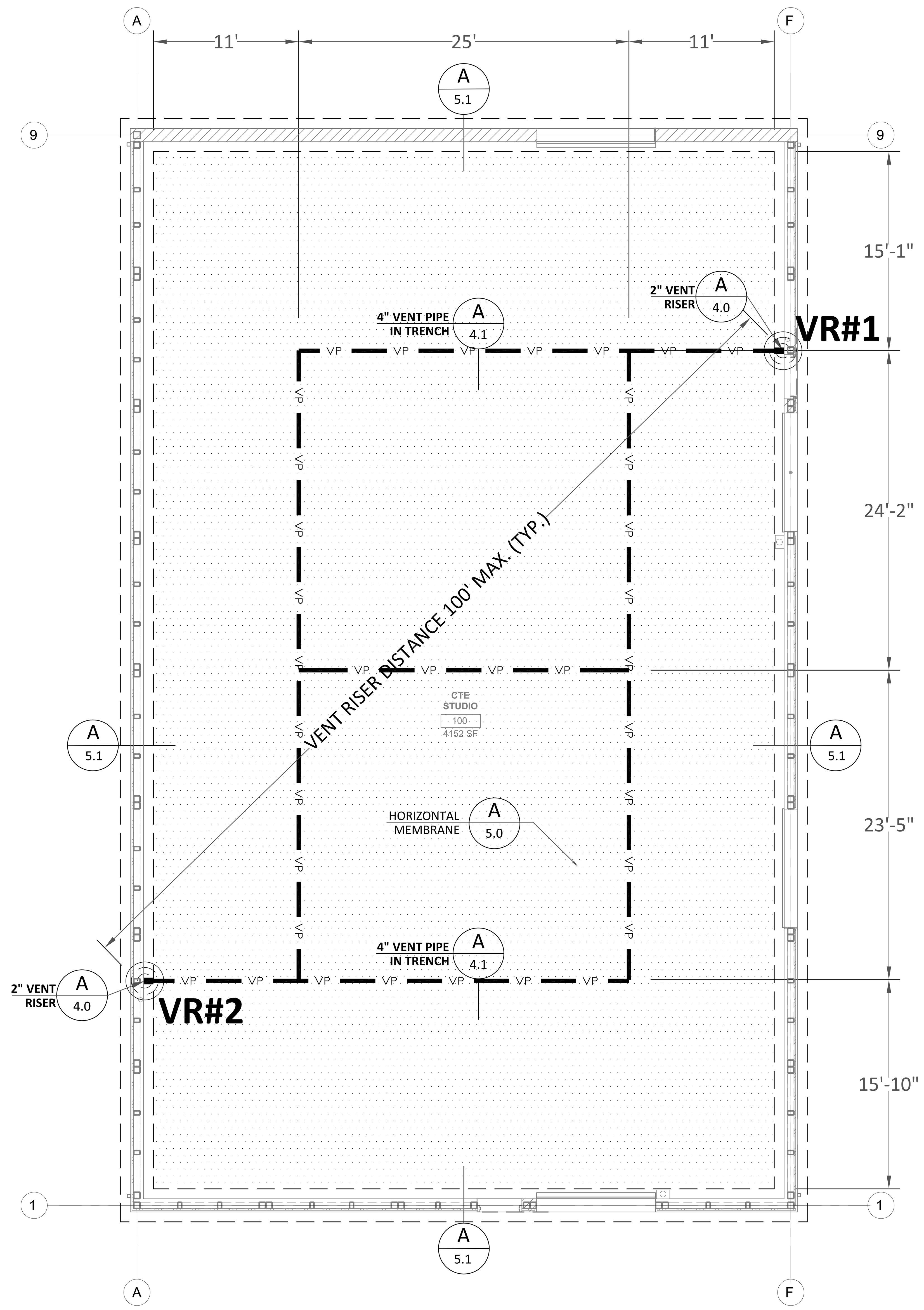


NOTES

1. PRIOR TO TRENCHING, CONTRACTOR SHALL VERIFY VENT RISER LOCATIONS WITH BUILDING CONTRACTOR & ARCHITECT FOR STRUCTURAL FRAMING, DOOR AND WINDOW LOCATIONS.
2. VENT PIPING MAY BE FIELD LOCATED TO COINCIDE WITH UTILITY TRENCHES, WITH APPROVAL OF ARCHITECT.
3. VENT RISERS MAY BE FIELD ADJUSTED TO AVOID DOORS, WINDOWS, OR OTHER ARCHITECTURAL INTERFERENCE.
4. INTERIOR SIDE OF FOOTINGS NEED TO BE TROWELED SMOOTH FOR THE METHANE BARRIER TERMINATIONS.
5. FIELD SITUATIONS NOT SPECIALLY DETAILED SHALL BE HANDLED PER THE INTENT OF THESE PLANS AND SPECIFICATIONS WITH THE APPROVAL OF METHANE SPECIALISTS. CONTRACTOR MAY SUBMIT SHOP DRAWINGS FOR ALTERNATIVE METHODS, WHICH MAY BE APPROVED IF THEY REPRESENT NO ADDITIONAL COST TO THE OWNER.
6. BUILDING DIMENSIONS ARE APPROXIMATE AND PROVIDED BY OTHERS.
7. THE UPPER SURFACE OF THE GAS MEMBRANE BARRIER SHALL BE PROTECTED BY A MINIMUM 2" SAND LAYER OR 2" THICK LEAN CONCRETE PLACED BETWEEN THE FLOOR SLAB AND THE MEMBRANE.
8. NO VENT RISER SHALL BE INSTALLED WITHIN 10 FT. OF THE EXTREME OUTSIDE EDGE OF A FIRE PLACE.

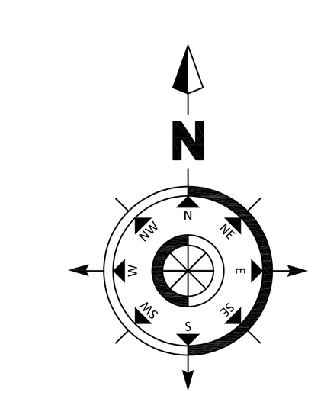
CALCULATIONS

BUILDING FOOTPRINT: APPROX. 4,200 SQ. FT.
USING 2" DIA VENT RISER
NUMBER OF VENT RISERS REQUIRED= 4,200/ 2,500 =1.68

MIN. OF 2 REQUIRED
PROVIDED 2 VENT RISERS

LEGEND

Symbol	Description
(dashed outline)	MEMBRANE LIMITS
VP	VENT PIPE
VR#2	VENT RISER



3/16"=1'-0"

OWNER: WISEBURN UNIFIED SCHOOL DISTRICT

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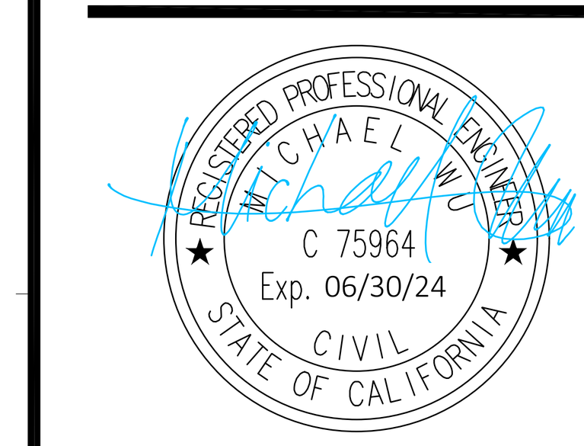

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1	DTSC COMMENTS	12-28-2022

PROJECT NO:	2020-40150
DATE ISSUED:	2022.07.29
SCALE:	As indicated
SHEET NUMBER:	GC-3.0

SHEET TITLE:

SUB-SLAB VENT PIPE AND MEMBRANE PLAN: CTE STUDIO

METHANE SPECIALISTS

5210 LEWIS ROAD
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AGOURA HILLS, CA
91301
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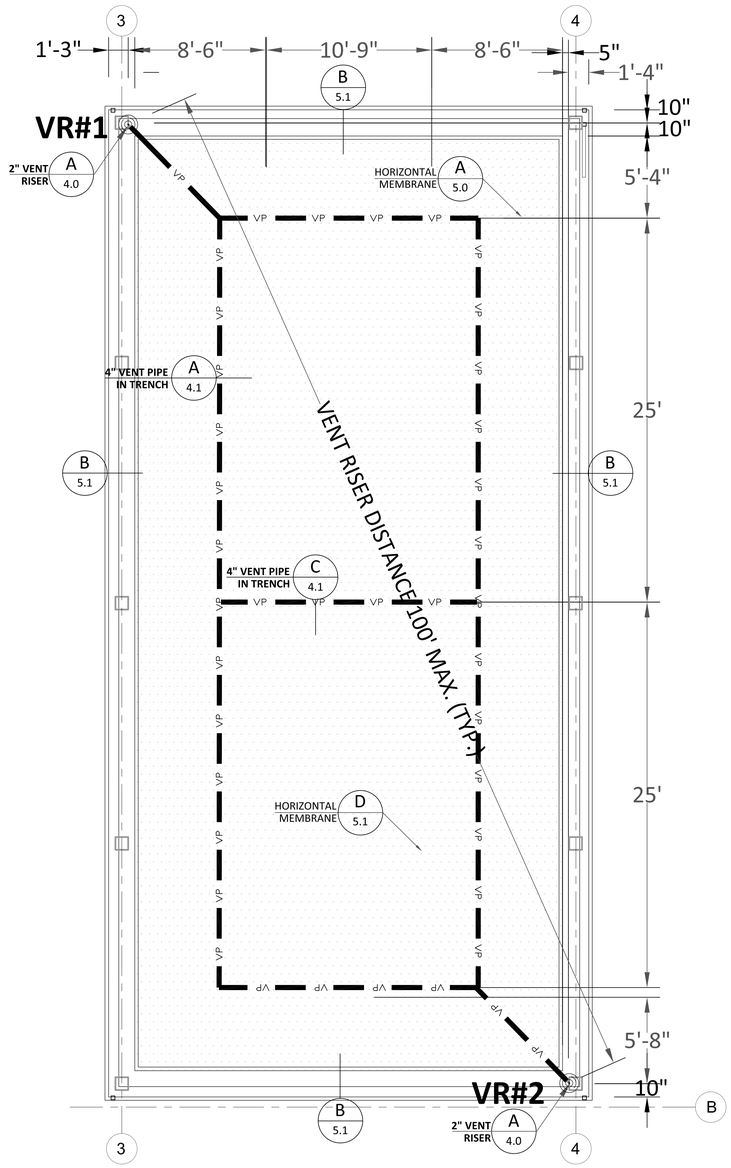

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8. NO VENT RISER SHALL BE INSTALLED WITHIN 10 FT. OF THE EXTREME OUTSIDE EDGE OF A FIRE PLACE.

CALCULATIONS

BUILDING FOOTPRINT: APPROX.1,920 SQ. FT.
USING 2" DIA VENT RISER
NUMBER OF VENT RISERS REQUIRED= 1,920/ 2,500 =0.77

MIN. OF 2 REQUIRED
PROVIDED 2 VENT RISERS

LEGEND

- MEMBRANE LIMITS
- VP — VENT PIPE
- VR#2 — VENT RISER

N

0' 2' 4' 8'

OWNER: WISEBURN UNIFIED SCHOOL DISTRICT

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REGISTERED PROFESSIONAL ENGINEER
MICHAEL W. WOLF
C 75964
Exp. 06/30/24
CIVIL
STATE OF CALIFORNIA

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SUB-SLAB VENT PIPE & MEMBRANE PLAN: SHOP

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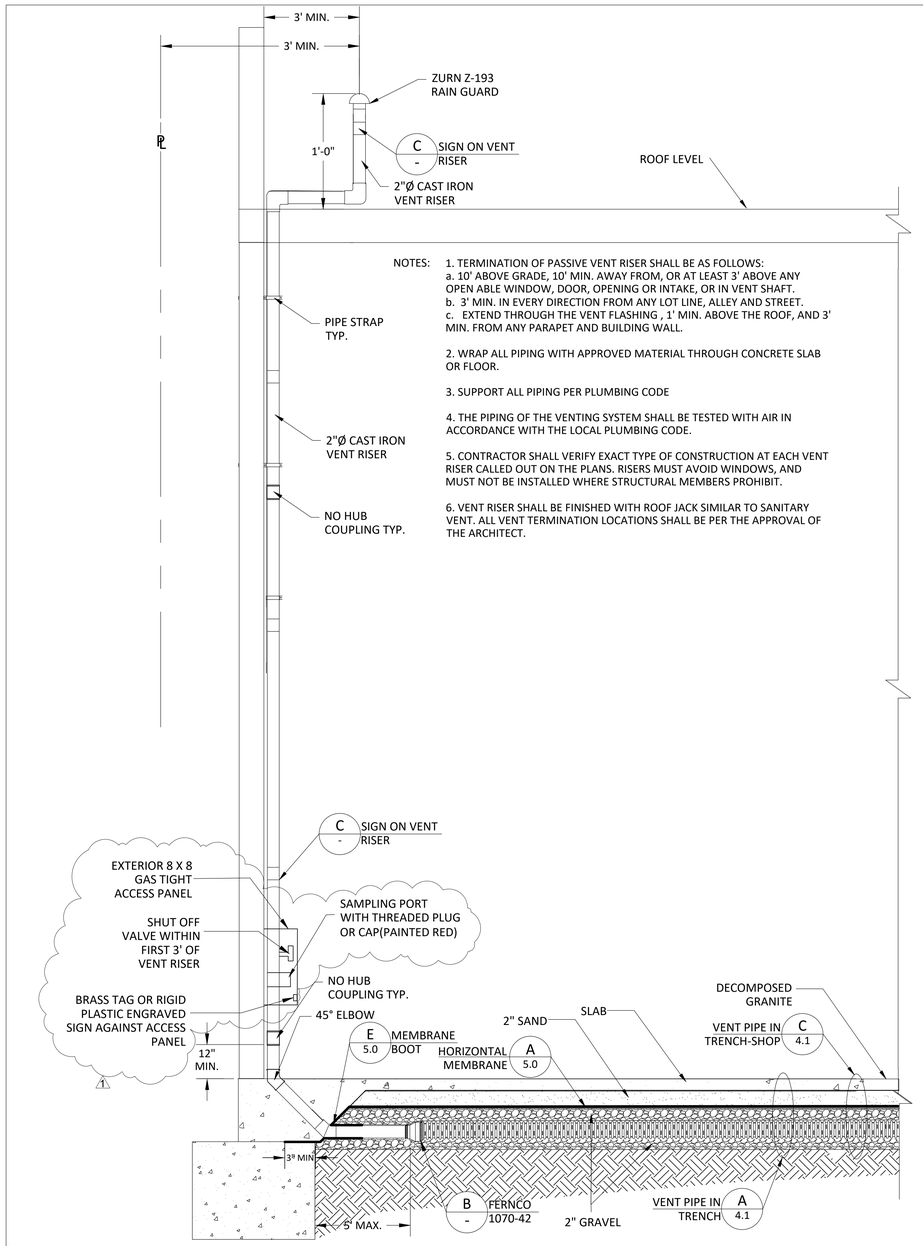
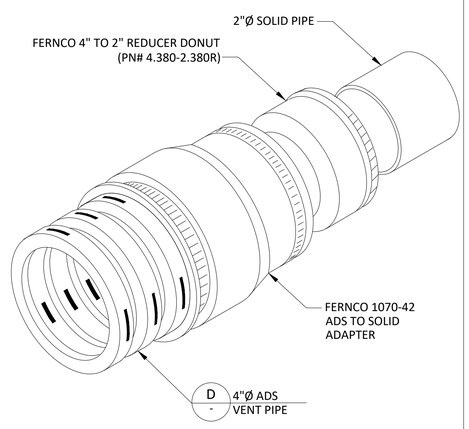


NOTES:

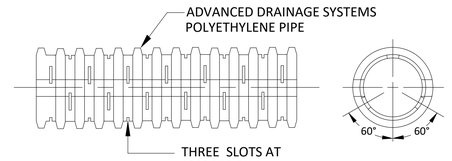
1. TERMINATION OF PASSIVE VENT RISER SHALL BE AS FOLLOWS:
   a. 10' ABOVE GRADE, 10' MIN. AWAY FROM, OR AT LEAST 3' ABOVE ANY OPEN ABLE WINDOW, DOOR, OPENING OR INTAKE, OR IN VENT SHAFT.
   b. 3' MIN. IN EVERY DIRECTION FROM ANY LOT LINE, ALLEY AND STREET.
   c. EXTEND THROUGH THE VENT FLASHING , 1' MIN. ABOVE THE ROOF, AND 3' MIN. FROM ANY PARAPET AND BUILDING WALL.
2. WRAP ALL PIPING WITH APPROVED MATERIAL THROUGH CONCRETE SLAB OR FLOOR.
3. SUPPORT ALL PIPING PER PLUMBING CODE
4. THE PIPING OF THE VENTING SYSTEM SHALL BE TESTED WITH AIR IN ACCORDANCE WITH THE LOCAL PLUMBING CODE.
5. CONTRACTOR SHALL VERIFY EXACT TYPE OF CONSTRUCTION AT EACH VENT RISER CALLED OUT ON THE PLANS. RISERS MUST AVOID WINDOWS, AND MUST NOT BE INSTALLED WHERE STRUCTURAL MEMBERS PROHIBIT.
6. VENT RISER SHALL BE FINISHED WITH ROOF JACK SIMILAR TO SANITARY VENT. ALL VENT TERMINATION LOCATIONS SHALL BE PER THE APPROVAL OF THE ARCHITECT.

VENT RISER (TYPICAL) | A

NOTE: FERNCO 1070-42 IS AN ASSEMBLY OF THE FERNCO 1070-43 AND A 4" TO 2" REDUCER DONUT. SEE BELOW FOR PART NUMBERS. THIS ASSEMBLY CAN BE ORDERED BY ASKING FOR A 1070-43 ASSEMBLY.



FERNCO 1070-42 ADAPTER | B



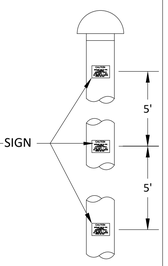
4" Ø ADS VENT PIPE | D

CAUTION

METHANE GAS IN PIPE
NO SMOKING
OR ELECTRICAL
EQUIPMENT WITHIN 10'

3" X 4" WIDE, ALL SIGNS PLASTIC WITH ADHESIVE BACKING, LARGE LETTERS MIN. 1/2" HIGH BLACK LETTERS ON WHITE BACKGROUND.

THIS SIGN SHALL BE POSTED ON EACH VENT RISER AT FIVE FOOT (5') INTERVALS ALONG PIPE.



SIGN ON VENT RISER | C

Gravel and Washed Sand

GRAVEL SHALL CONSIST OF HARD, DURABLE, CLEAN MATERIAL, SCREENED AND WASHED TO REMOVE ALL FINE MATERIALS AND DUST AND TO PASS THE SIZE SPECIFIED. THE TABLE BELOW SHOWS THE ALLOWABLE SIZE DISTRIBUTION FOR VARIOUS TYPES OF SAND AND GRAVEL USED IN METHANE MITIGATION WORK.

Gravel			Sand	
Sieve Size	% Pass Sieve 3/4" METHANE GRAVEL	% Pass Sieve 3/8" PEA GRAVEL	Sieve Size	% Passing Sieve
1-1/2"	100	-	3/8"	100
1"	90-100	-	No. 4	90-100
3/4"	55-85	100	No. 8	75-90
3/8"	8-20	85-100	No. 16	55-75
No. 4	0-5	0-30	No. 30	30-50
No. 8	0-5	0-10	No. 50	10-25
No. 200	0-2	0-2	No. 100	2-10
ASST. C 131 TEST GRADING	B	C	No. 200	0-5

Our field inspectors will need to see a sieve analysis prior to delivery and a final analysis prior to placement.

SAND AND GRAVEL SPECIFICATIONS | E

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MICHAEL P. [illegible]
C 75964
Exp. 06/30/24
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SUB-SLAB VENT PIPE DETAILS

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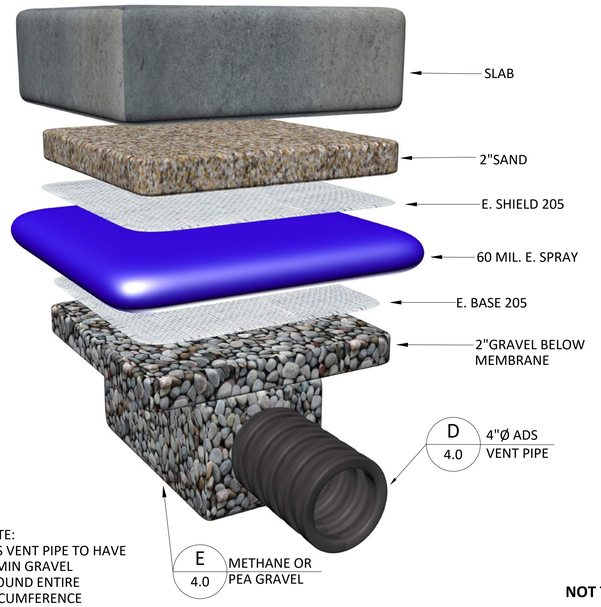
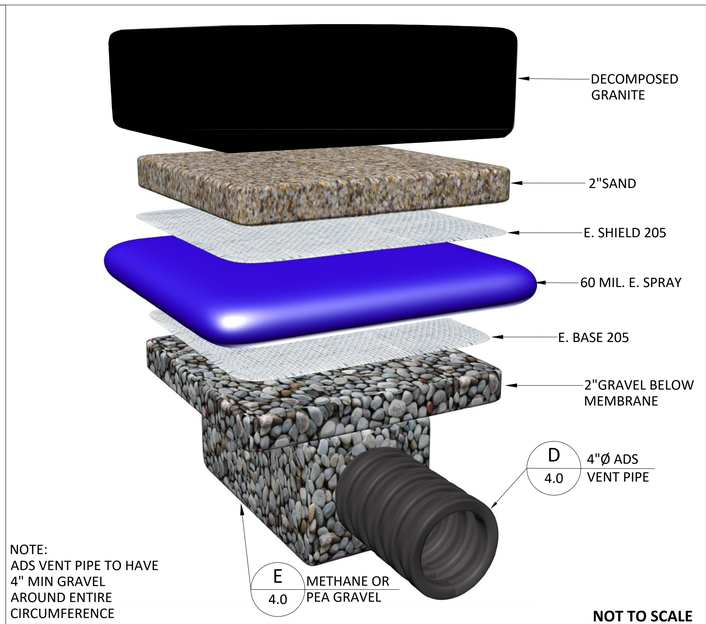


NOTE:
ADS VENT PIPE TO HAVE 4" MIN GRAVEL AROUND ENTIRE CIRCUMFERENCE

NOT TO SCALE

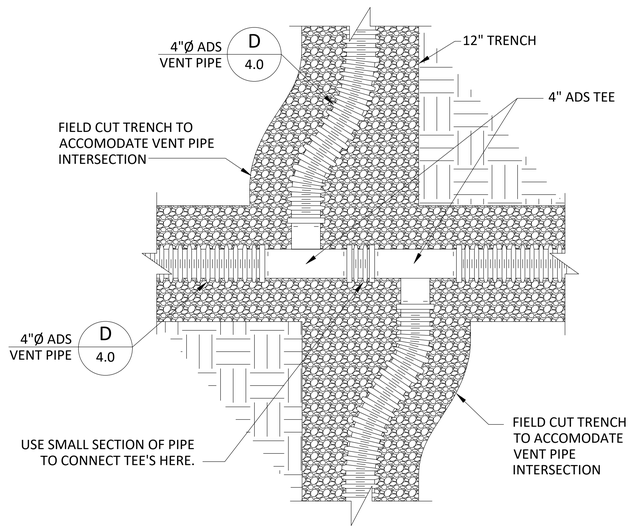
VENT PIPE IN TRENCH | A



NOTE:
ADS VENT PIPE TO HAVE 4" MIN GRAVEL AROUND ENTIRE CIRCUMFERENCE

NOT TO SCALE

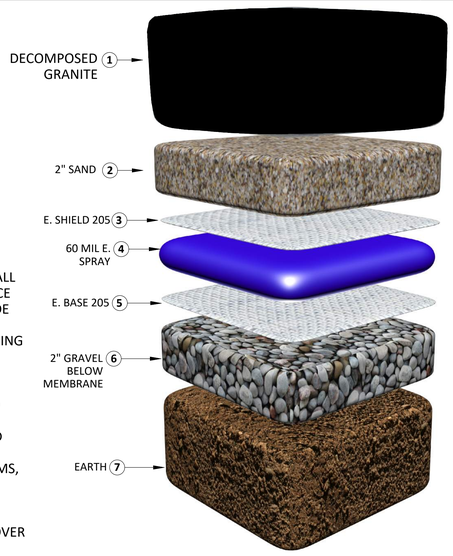
VENT PIPE IN TRENCH | C



NOT TO SCALE

VENT PIPE AT 4-WAY INTERSECTION | B

NOTES:
1. THE IMPERVIOUS MEMBRANE SHALL BE PLACED ON THE EXTERIOR SURFACE OF WALLS FROM THE FINISHED GRADE LEVEL TO A MINIMUM OF 6 INCHES BELOW THE BOTTOM OF THE ADJOINING DECOMPOSED GRANITE.
2. THE UPPER SURFACE OF THE GAS MEMBRANE BARRIER SHALL BE PROTECTED BY A MINIMUM 2" SAND LAYER OR 1" THICK LEAN CONCRETE PLACED BETWEEN THE DECOMPOSED GRANITE AND THE MEMBRANE.
3. REINFORCING STEEL, PIPING, FORMS, ETC. SHALL NOT BE SUPPORTED DIRECTLY ON THE MEMBRANE OR PROTECTIVE COVERING AND EQUIPMENT SHALL NOT BE DRIVEN OVER THE MEMBRANE OR ITS PROTECTIVE COVERING.



NOT TO SCALE

HORIZONTAL MEMBRANE | D

GAS VENT SPECIFICATIONS
1. ADVANCED DRAINAGE SYSTEMS (ADS).
WHERE ADS CORRUGATED POLYETHYLENE PIPE IS USED ALL WORK SHALL COMPLY WITH THE MANUFACTURER'S RECOMMENDATIONS.

2. WHERE PVC SCHEDULE 40 MATERIAL IS USED FOR SUB-SLAB OR RISER MATERIAL PIPING, ALL FITTINGS SHALL ALSO BE SCHEDULE 40 PVC ELBOWS, REDUCERS, CAPS; AND OTHER FITTINGS SHALL BE SLIP TYPE FOR A SOLVENT CEMENT APPLICATION. SOLVENT AND CEMENT SHALL BE HIGH STRENGTH, HEAVY DUTY, GRAY COLOR, HEAVY BODY, AND MEDIUM CURING SPEED. ALL PVC MATERIALS SHALL BE PER THE FOLLOWING STANDARDS:

D-256 IMPACT RESISTANCE OF PLASTICS
D-638 TENSILE PROPERTIES OF PLASTICS
D-648 DEFLECTION TEMPERATURE OF PLASTIC UNDER FLEXURAL LOAD
D-790 FLEXURAL PROPERTIES OF PLASTICS
D-1784 PVC AND CPVC COMPOUNDS
D-1785 PVC PIPE, SCHEDULES 40, 80, AND 120
D-2466 PVC PLASTIC PIPE FITTING, SCHEDULE 40
D-2467 PVC PIPE FITTING, SCHEDULE 80
D-2564 SOLVENT CEMENTS FOR PVC PIPE AND FITTINGS.
D-2740 PVC TUBING
D-2855 SOLVENT-CEMENTED JOINTS WITH PVC PIPE AND FITTINGS
F-656 PRIMERS FOR USE IN CEMENT JOINTS AT PVC PIPE AND FITTINGS

ALL JOINTS SHALL BE SOLVENT CEMENTED, SOLVENT CEMENTED JOINTS SHOULD BE MADE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS OR IN ACCORDANCE WITH ASTM D2855. STANDARD RECOMMENDED PRACTICE FOR "MAKING SOLVENT CEMENTED JOINTS WITH PVC PIPE AND FITTINGS.

The use of purple pvc solvent on the pipes can be a source of organic vapors during post-construction monitoring. Since the pipes are not under any pressure, there is no need to use solvent plus cement. Small diameter pvc in a non-pressure application can be glued using quick set clear thin body pvc cement, available from any supply house. Use the cement without any primer. Do not use more cement than necessary. Apply sparingly all around inside of coupling and outside of pvc tubing.

CEMENT: USE RYANHERCO Catalog no. 3475 low V.O.C. cement or equal. No puddling or ponding shall be allowed inside or outside pipes. All joints shall dry 24 hours prior to cover or backfill.

3. PERFORATED PIPING SHALL HAVE FACTORY INSTALLED PERFORATIONS. PIPING HAVING PERFORATIONS INSTALLED IN THE FIELD SHALL NOT BE ALLOWED.

4. PIPING MATERIAL ABOVE GROUND SHALL BE AS REQUIRED BY THE UNIFORM BUILDING CODE.

5. PIPING INSTALLATION OTHER THAN SIZING AND AS MODIFIED HEREIN SHALL COMPLY WITH CHAPTER 12 OF THE PLUMBING CODE.

6. TRANSITION FITTING BETWEEN PLASTIC PIPE AND METAL PIPE SHALL BE APPROVED TYPE AND SHALL BE INSTALLED BELOW SLAB 5-FEET BEFORE PENETRATION THROUGH SLAB. FEMALE PLASTIC SCREWED FITTINGS SHALL NOT BE USED IN THIS INSTALLATION.

7. GAS VENTS INTERNAL TO THE BUILDING SHALL BE TERMINATED ABOVE THE ROOF AT LEAST 3 FT. AWAY FROM ANY ADJACENT PROPERTY LINE AND AT LEAST 10 FT. AWAY OR 3 FT. ABOVE ANY AIR INTAKE INTO THE BUILDING. GAS VENTS FOR COLLECTION SYSTEMS WHICH DO NOT ENTER THE BUILDING SHALL BE TERMINATED BUILDING. 12' ABOVE GRADE AT LEAST 4' FROM ANY ADJACENT PROPERTY LINE AND AT LEAST 10 FT AWAY FROM ANY INTAKE INTO THE BUILDING.

8. ALL PENETRATIONS SHALL BE SEALED WITH APPROVED MATERIAL IN A MANNER TO PREVENT ANY GAS LEAKAGE INTO THE BUILDING.

9. PERFORATED METHANE GAS COLLECTION PIPING SHALL BE SURROUNDED WITH AT LEAST 3" THICK METHANE GRAVEL.

10. PERMEABLE MATERIAL FOR USE IN BACK FILLING TRENCHES, UNDER, AROUND, AND OVER UNDER DRAINS, SHALL CONSIST OF HARD, DURABLE, CLEAN SAND, GRAVEL, OR CRUSHED STONE, AND SHALL BE FREE FROM ORGANIC MATERIAL, CLAY BALLS, OR OTHER DELETERIOUS SUBSTANCES. THE CLASS OR KIND OF PERMEABLE MATERIAL TO BE USED IS SPECIFIED ON THE PLANS. WHEN PERMEABLE MATERIAL IS REQUIRED AND THE CLASS AND KIND IS NOT SPECIFIED ,

VENT PIPE SPECIFICATIONS | E

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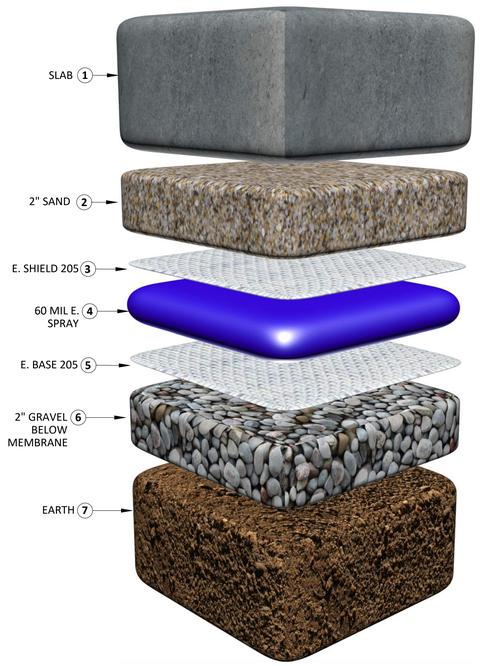

NOTES:
1. THE IMPERVIOUS MEMBRANE SHALL BE PLACED ON THE EXTERIOR SURFACE OF WALLS FROM THE FINISHED GRADE LEVEL TO A MINIMUM OF 6 INCHES BELOW THE BOTTOM OF THE ADJOINING BUILDING SLAB.
2. THE UPPER SURFACE OF THE GAS MEMBRANE BARRIER SHALL BE PROTECTED BY A MINIMUM 2" SAND LAYER OR 1" THICK LEAN CONCRETE PLACED BETWEEN THE FLOOR SLAB AND THE MEMBRANE.
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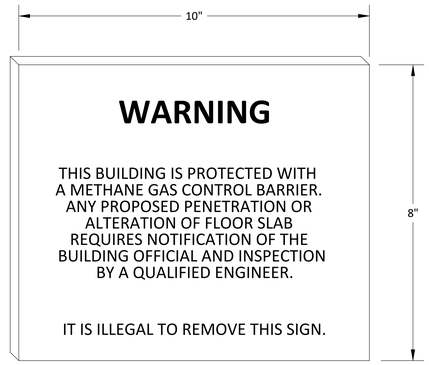
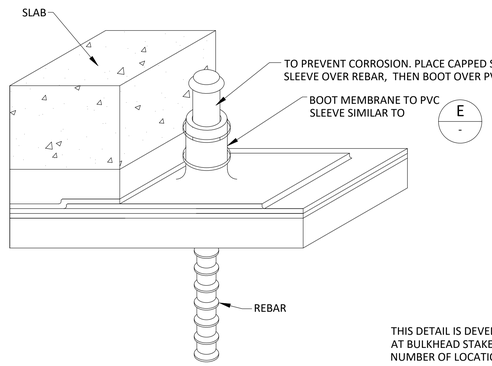
HORIZONTAL MEMBRANE | A



NOTES:
1. ALL LETTERS ½" (MIN.) IN HEIGHT.
2. AT LEAST ONE REQUIRED PER BUILDING.
3. THIS NOTIFICATION SHALL BE POSTED AND MAINTAINED AT THE FRONT ENTRANCE OF THE BUILDING, EXCEPT RESIDENTIAL BUILDINGS.

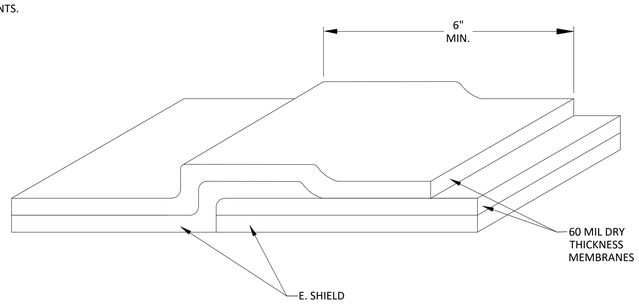
SIGN IN BUILDING | C



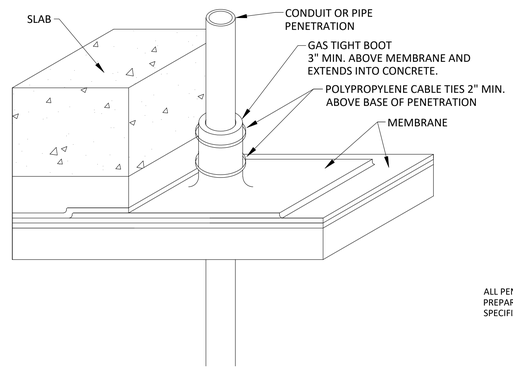
THIS DETAIL IS DEVELOPED TO SATISFY FIELD CONDITIONS AT BULKHEAD STAKES. CONTRACTOR SHALL VERIFY NUMBER OF LOCATIONS PER HOME PAD.

REBAR PENETRATION | D

NOTE: ALL MEMBRANE SHALL BE CLEANED WITH SOFT BRUSH AND WATER PRIOR TO SPRAYING LAP JOINTS.



MEMBRANE LAP | B



ALL PENETRATIONS TO BE BOOTED SHALL BE PREPARED CLEAN PER MANUFACTURER SPECIFICATIONS BEFORE BOOT IS APPLIED.

MEMBRANE BOOT | E

THE MEMBRANE SHIELD MATERIAL SHALL BE A MINIMUM 60 MIL. E. SPRAY.

A. INSTALLATION

THE MEMBRANE SHALL BE PLACED BETWEEN THE BOTTOM OF THE FLOOR SLAB AND THE EARTH, AROUND OR FASTENED TO FOOTINGS AND PITS PER THESE PLANS AND DETAILS. THE SHIELDING SHALL NOT BE PLACED MORE THAN 6-INCHES BELOW THE BOTTOM OF THE FLOOR SLAB. SEAMS SHALL BE LAPPED A MINIMUM OF 6-INCHES AND SEALED IN ACCORDANCE WITH THE MEMBRANE MANUFACTURER'S WRITTEN SPECIFICATIONS.

PRIOR TO PLACING THE FLOOR SLAB OVER THE MEMBRANE, THE METHANE ENGINEER/SPECIAL INSPECTOR SHALL HAVE INSPECTED THE MEMBRANE IN ACCORDANCE WITH THESE SPECIFICATIONS AND ANY REPAIRS SHALL HAVE BEEN MADE BY CONTRACTOR.

B. PENETRATIONS OF THE MEMBRANE

WHERE FOOTINGS, PLUMBING PIPES, ELECTRICAL CONDITIONS, ETC. PENETRATE THE MEMBRANE, SLEEVES OR BOOTS COMPOSED OF THE SAME SHIELDING MATERIAL OR OTHER APPROVED MATERIAL SHALL BE PROVIDED TO SEAL THE SPACE AROUND THE PENETRATIONS. THESE DEVICES ARE TO BE BONDED TO THE MEMBRANE MATERIAL AND SEALED AROUND THE PENETRATION WITH AN APPROVED SEALANT OR OTHER APPROVED METHOD IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

C. PROTECTION OF THE MEMBRANE

THE SUBGRADE UNDER THE MEMBRANE SHALL BE ROLLED SMOOTH AND WELL COMPACTED. ANGULAR MATERIAL SUCH AS ROCKS AND STONES SHALL BE COVERED BY A MINIMUM 2" SAND LAYER, OR ALTERNATE 10 OZ. GEOTEXTILE TO PREVENT PUNCTURE OF THE MEMBRANE.

THE MEMBRANE SHALL BE PROTECTED BY A MINIMUM 2" SAND, OR OTHER APPROVED MATERIAL PLACED BETWEEN THE FLOOR SLAB AND THE MEMBRANE, AS SPECIFIED ON THESE PLANS.

REINFORCING STEEL, PIPING, FORMS, ETC. SHALL NOT BE SUPPORTED DIRECTLY ON THE MEMBRANE ORPROTECTIVE COVERING AND EQUIPMENT SHALL NOT BE DRIVEN OVER THE MEMBRANE OR ITS PROTECTIVE COVERING.

D. SPECIAL INSPECTION

COMPLETE AND COMPREHENSIVE INSPECTION BY METHANE SPECIALISTS INSPECTOR SHALL BE PROVIDED FOR MEMBRANE SHIELD INSTALLATION.

FOUNDATION PROTECTION NOTES | F

JOBS WITH METHANE CONTROL MEMBRANE ARE DIFFERENT THAN OTHER JOBS. THE METHANE CONTROL MEMBRANE IS DIFFERENT FROM SIMPLE WATERPROOFING, IN THAT IT MUST BE INSTALLED WITH SPECIAL INSPECTION AND TESTING. ANY DAMAGE DONE TO THE MEMBRANE AFTER IT HAS INITIALLY PASSED INSPECTION MUST BE REPAIRED, RETESTED, AND INSPECTED AGAIN. OBSERVING THE FOLLOWING PRECAUTIONS SHOULD MINIMIZE REPAIR COSTS.

GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL INSURE THAT NO DAMAGE IS DONE TO MEMBRANE SUBSEQUENT TO INITIAL INSTALLATION, INCLUDING PUNCTURING WITH TOOLS OR OTHERWISE, OR PLACING OR STORING MATERIAL OVER THE MEMBRANE, OR DRIVING EQUIPMENT OVER THE MEMBRANE WITHOUT ADEQUATE PROTECTION & THE APPROVAL OF METHANE SPECIALISTS.

PLUMBERS SHALL INSURE THAT ALL SUBSLAB PIPING AND DRAINS ARE IN PLACE PRIOR TO PLACING MEMBRANE, TO AVOID CUTTING MEMBRANE.

ELECTRICIANS SHALL INSURE THAT ALL SUBSLAB CONDUIT IS IN PLACE PRIOR TO PLACING MEMBRANE, TO AVOID CUTTING MEMBRANE.

CONCRETE WORKERS SHALL NOTE THAT CERTAIN CONCRETE WORKS NEED A SMOOTH TROWEL FINISH IN ORDER TO ALLOW MEMBRANE BATTENING TO THE CONCRETE. COORDINATE WITH THE MEMBRANE CONTRACTOR;

CONCRETE WORKERS SHALL AVOID CHIPPING CONCRETE FROM ABOVE DIRECTLY ONTO INSTALLED MEMBRANE BELOW;

WELDERS SHALL AVOID BURNING MEMBRANE BY PLACING A HEAT RESISTANT PROTECTIVE COVER OVER MEMBRANE MATERIAL.

GRADING OR OTHER SUBCONTRACTORS SHALL AVOID BURYING MEMBRANE TERMINATIONS THAT NEED TO BE ATTACHED TO LATER ON. COORDINATE WITH MEMBRANE CONTRACTOR.

CONCRETE SUBCONTRACTORS SHALL EXERCISE CAUTION IN PLACING REBAR IN MEMBRANED AREAS. REBAR CHAIRS SHALL NEVER BE PLACED DIRECTLY UPON MEMBRANE;

CONCRETE SUBCONTRACTORS SHALL NOT POUR OVER MEMBRANE WITHOUT SPECIFIC APPROVAL OF THE METHANE SPECIAL INSPECTOR, AND A COMPLETED CITY OF LOS ANGELES B94 FORM FOR THE AREA TO BE POURED. COORDINATE WITH MEMBRANE CONTRACTOR AND METHANE SPECIALISTS.

MEMBRANE PROTECTION NOTES | G

OWNER: WISEBURN UNIFIED SCHOOL DISTRICT

PROJECT NAME: DA VINCI HS CAREER TECHNICAL EDUCATION STUDIO & SHOP

PROJECT ADDRESS: 201 N Douglas St, El Segundo, CA 90245

REGISTERED PROFESSIONAL ENGINEER — MICHAEL C. CRAIG — C 75964 — Exp. 06/30/24 — CIVIL — STATE OF CALIFORNIA

REVISIONS:

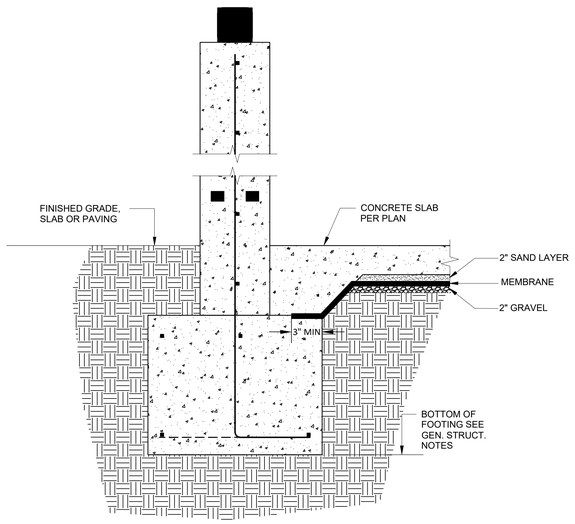
	DESCRIPTION	DATE
1	DTSC COMMENTS	12-28-2022

PROJECT NO: 2020-40150
DATE ISSUED: 2022.07.29
SCALE: As indicated

SHEET NUMBER: GC-5.0

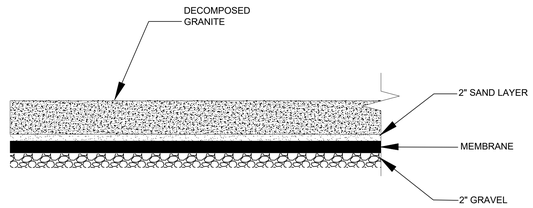
SHEET TITLE:
SUB-SLAB MEMBRANE DETAILS

METHANE SPECIALISTS
5210 LEWIS ROAD
SUITE 1
AGOURA HILLS, CA
91301
TEL: 805.987.5356
www.methanespecialists.com



NOT TO SCALE

MEMBRANE AT EXTERIOR FOOTING | **A**



NOT TO SCALE

MEMBRANE AT DECOMPOSED GRANITE PERIMETER | **B**

NOT TO SCALE

NO DETAIL | **C**

NOT TO SCALE

NO DETAIL | **D**

NOT TO SCALE

NO DETAIL | **E**

NO DETAIL | **F**

OWNER: WISEBURN UNIFIED SCHOOL DISTRICT

PROJECT NAME: DA VINCI HS CAREER TECHNICAL EDUCATION STUDIO & SHOP

PROJECT ADDRESS: 201 N Douglas St, El Segundo, CA 90245

REGISTERED PROFESSIONAL ENGINEER
MICHAEL W
C 75964
Exp. 06/30/24
CIVIL
STATE OF CALIFORNIA

REVISIONS:

	DESCRIPTION	DATE
1	DTSC COMMENTS	12-28-2022

PROJECT NO: 2020-40150

DATE ISSUED: 2022.07.29

SCALE: As indicated

SHEET NUMBER: GC-5.1

SHEET TITLE:

SUB-SLAB MEMBRANE TERMINATION DETAILS

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BOARD OF
BUILDING AND SAFETY
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CITY OF LOS ANGELES

CALIFORNIA

ERIC GARCETTI
MAYOR

DEPARTMENT OF
BUILDING AND SAFETY
201 NORTH FIGUEROA STREET
LOS ANGELES, CA 90012

OSAMA YOUNAN, P.E.
GENERAL MANAGER
SUPERINTENDENT OF BUILDING

JOHN WEIGHT
EXECUTIVE OFFICER

Epro Services, Inc.
P. O. Box 347
Derby, KS 67037

Attn: David M. Polk
(800) 882-1896

RESEARCH REPORT: RR 25478
(CSI #07120)

Expires: March 1, 2023
Issued Date: March 1, 2021
Code: 2020 LABC

GENERAL APPROVAL – Renewal/Clerical Modification - Ecoline-S/E.Spray/ Geo-Seal Core Spray Applied Membrane, Ecoline-R/E.Roll/ Geo-Seal Core Detail Liquid Applied Membrane, Ecoshield E-10/E.Shield 110 and Ecoshield-P/E.Base 205/Geo-Seal Base Sheet Membrane for Below-Grade Waterproofing and Gas Barrier.

DETAILS

Ecoline-S/E.Spray/Geo-Seal Core is a low-viscosity, water-based, anionic bituminous/asphalt emulsion modified with a blend of synthetic polymerized rubbers and special additives.

Ecoline-R/E.Roll/Geo-Seal CoreDetail is a medium viscosity water based polymer-modified anionic bituminous/asphalt emulsion.

Ecoshield- E 10/E.Shield 110 sheet is a high strength geomembrane mache from a custom blend of polyolefin copolymers.

Ecoshield - P/E.Base 205/Geo-Seal Base is a high strength geo-membrane made from reinforce the lamination a polypropylene film and fabric.

INSTALLATION

For Waterproofing Installations:

a. Preparation:

- All surfaces should be free of loose materials, and other contaminants.

- Any cracks, spall or metal protrusion areas should be repaired by brush or trowel application of Ecoline-T. Large cracks may also require a layer of polyester fabric being spanned over crack before Ecoline-T applied over it.

b. Application:

1. Ecoline-S/E.Spray/Geo-Seal Core is to be sprayed applied with catalyst water by appropriate equipment fitted with specific nozzles which forms a monolithic water protection coating. Spray of a minimum 60-mil thickness Ecoline-S/Geo-Seal Core, each spray application produces an approximate 20 mil build on each pass of spray gun; or

2. Ecoline-R/E.Roll/Geo-Seal CoreDetail is to be roller applied with multiple coats of 25-30 mils wet 20-24 mil dry. Millage required based upon specific waterproofing application specification, with minimal vertical is 60-mil dry and horizontal is 80-mil dry.

For Gas Barrier Installation:

- Base Barrier:
  . Lay a minimum 10 mil thickness Ecoshield- E 10/E.Shield 110 or Ecoshield - P/E.Base 205/Geo-Seal Base in one direction with six inch overlaps.
  . Treat both sides of overlap with Ecoline-R/Geo-Seal Core Detail and compress with a roller.
  . Applied Ecoshield Tape along seam over lapping two inches on each side.

- Detailing:
  . Treat all penetrations by applying a base coat of Ecoline-R/E.Roll in a 6" up on the substrate around the penetration and 6" up on the penetrating object. Embed the polyester fabric into the base coat and apply a second coat of Ecoline-R, ensuring the fabric is completely saturated and covered.

- Middle Barrier:
  . Spray application of a minimum 60-mil thickness Ecoline-S/E.Spray from the lowest point on horizontal plane.
  . Spray application pattern should be 4 ft. x 4 ft. passes to a 20-mil build each pass.

- Top Barrier:
  . Lay Ecoshield- E 10/E.Shield 110 or Ecoshield - P/E.Base 205/Geo-Seal Base in opposite direction of the base installation.
  . Treat overlaps in same fashion as base.
  . Terminate to exterior perimeter substrate by turning a six-inch flap up and applying seam sealer to flap and substrate and then attaching a termination bar to the flap and substrate.

This product is approved for below-grade waterproofing and gas barrier subject to the following conditions:

1. Ecoline-S/E.Spray/Geo-Seal Core Ecoline-R/E.Roll/Geo-Seal Coresupplied in clearly marked containers bearing the brand name and product identification Ecoshield- E 10/E.Shield 110 sheet are supplied in 12' x 120', 12' x 150' or 10' x 200' and Ecoshield - P/E.Base 205/Geo-Seal Base is supplied in 10' x 200' rolls, bearing the brand name and product identification.
2. The manufacturer shall provide quality assurance of the materials supplied as to their formulation.
3. Application of the product shall be accomplished by an applicator approved by the manufacturer. A written statement by the manufacturer stating that the applicator is an approved applicator is required prior to use of the product.
4. All surfaces to receive membrane shall be free of laitance, sharp projections, oil, dirt or other contaminants. Prepare surfaces in accordance with the manufacturer's instructions.
5. Installation of the materials shall be in accordance with the manufacturer's instructions, a copy of which shall be kept at the job site.
6. Complete details for the membrane system are submitted for plan check and a building permit is obtained.
7. The following field tests in accordance with the Epro Field Installation and Repair Procedure are required: (A copy of the Installation and Repair Procedures is on file with Engineering Research Section.)
   - Perform Thickness Sample Test at every 500 square feet.
   - For gas barrier application, perform Smoke Test for the entire site at the interval not more than 50,000 sq. ft. each.
8. Protection for the membrane shall be provided in accordance with the written instructions by the engineer of the record.
9. Prior to placing the concrete slab over the membrane, the membrane installer shall certify the membrane to be installed and tested in accordance with the manufacturer's specifications and to be free of leaks.
10. The membrane is not to be placed under the building footings.

11. For gas membrane installation, continuous inspection by a registered deputy inspector certified by Epro Services, Inc., and registered in accordance with the requirements specified in Section 91.1704 of the Los Angeles Municipal Code for special inspections is required.

DISCUSSION

The clerical modification is to update the report to the 2020 City of Los Angeles Building Code.

The report is in compliance with the 2020 City of Los Angeles Building Code.

The use of Epro Ecoline-S/E.Spray, Ecoline-R/E.Roll and Ecoshield- E 10/E.Shield 110, Ecoshield - P/E.Base 205 membrane gas barrier is based on the tests in accordance with the methane barrier test criteria.

The approval is based on tests.

Addressee to whom this Research Report is issued is responsible for providing copies of it, complete with any attachments indicated, to architects, engineers and builders using items approved herein in design or construction which must be approved by Department of Building and Safety Engineers and Inspectors.

This general approval of an equivalent alternate to the Code is only valid where an engineer and/or inspector of this Department has determined that all conditions of this Approval have been met in the project in which it is to be used.

QUAN NGHIEM, Chief
Engineering Research Section
201 N. Figueroa St., Room 880
Los Angeles, CA 90012
Phone - 213-202-9812
Fax - 213-202-9943

DE
RR25478
TLB2100025
R02/27/21
7104/7105/1402

OWNER: WISEBURN UNIFIED SCHOOL DISTRICT

PROJECT NAME: DA VINCI HS CAREER TECHNICAL EDUCATION STUDIO & SHOP

PROJECT ADDRESS: 201 N Douglas St, El Segundo, CA 90245

REGISTERED PROFESSIONAL ENGINEER
MICHAEL WU
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SHEET TITLE:

SUB-SLAB MEMBRANE LARR

METHANE SPECIALISTS

5210 LEWIS ROAD
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AGOURA HILLS, CA
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SPECIFICATIONS / EPRO SPRAY ON MEMBRANE

RESEARCH REPORT NO. RR#25478

MASTER SPEC BENEATH SLAB METHANE BARRIER

SECTION 07125-COLD FLUID APPLIED WATERPROOFING SYSTEM III PLUS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Substrate preparation
2. Waterproofing membrane and methane barrier
3. Seam Sealer and accessories
4. Protection courses and methane barriers

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 2 Section "Earthwork", "Pipe Materials", "Sub-drainage systems".
2. Division 5 Section "Cast-in-Place Concrete" for concrete placement, curing, and finishing.
3. Division 5 Section "Expansion Joint Cover Assemblies", for expansion-joint cover assemblies and installation.

1.3 PERFORMANCE REQUIREMENTS

A. General: Provide a methane barrier system that prevents the passage of methane gas and a waterproofing system that prevents the passage of liquid water under hydrostatic pressure and complies with physical requirements as demonstrated by testing performed by and independent testing agency of manufacturer's current waterproofing formulations and system design.

1.4 SUBMITTALS

A. Submit Product Data for each type of methane barrier and waterproofing specified, including manufacturer's printed instructions for evaluating and preparing the substrate, technical data, and tested physical and performance properties.

B. Project Data - Submit Shop Drawings showing locations and extent of methane barrier and waterproofing, including details for overlaps, sheet flashing, penetrations, and other termination conditions.

C. Samples - Submit representative samples of the following approval:

1. Methane barrier and waterproof membrane material
2. Methane barrier and protection Course Material.

D. Installer Certificates - Submit certificates sign by manufacturer certifying that Installers comply with requirements under the "Quality Assurance" Article.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Engage and experienced Installer who is certified in writing and approved by waterproofing manufacturer EPRO Services, L. C. for the installation of the SYSTEM III Plus Waterproofing System.

B. Manufacturer Qualification: Obtain methane barrier and waterproofing materials and system components from a single manufacturer EPRO Services, L. C.

C. Field Sample: Apply methane barrier and waterproofing system field sample to 100 sq./ft. (9.3 sq./mi.) of field area demonstrate application, detailing, thickness, texture, and standard of workmanship.

1. Notify Architect one week in advance of the dates and times when field sample will be prepared.
2. If Architect determines that field sample, does not meet requirements, reapply field sample until field sample is approved.
3. Retain and maintain approved field sample during construction in an undisturbed condition as a standard for judging the completed methane barrier and waterproofing. An undamaged field sample may be part of the completed work.

D. Pre-installation Conference: A pre-installation conference shall be held prior to application of the methane barrier and waterproofing system to assure proper site and installation conditions, to include contractor, applicator, architect/engineer and special inspector (if any).

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site specified by manufacturer labeled with manufacturer's name, product brand name, and type, date of manufacture, shelf life, and directions for storing and mixing with other components.

B. Store materials as specified by the manufacturer in a clean, dry, protected location and within the temperature range required by manufacturer. Protect stored materials from direct sunlight.

C. Remove and replace material that cannot be applied within its stated shelf life.

1.7 PROJECT CONDITIONS

A. Protect all adjacent areas not to be installed on. Where necessary, apply masking to prevent staining of surfaces to wherever membrane abuts to other finish surfaces.

B. Perform work only when existing and for-cast weather conditions are within manufacturer's recommendations for the material and application method used.

C. Minimum clearance of 24 inches is required for application of product. For areas with less than 24-inch clearance, the membrane may be applied by hand using ECOLINE-R.

D. Ambient temperature shall be within manufacturer's specifications. (greater than +45°F/+7°C.)

E. All plumbing, electrical, mechanical and structural items to be under or passing through the waterproof membrane shall be positively secured in there proper positions an appropriately protected prior to membrane application.

F. Methane barrier and waterproof system shall be installed before placement of fill material and reinforcing steel. When not possible, all exposed reinforcing steel shall be masked by General Contractor prior to membrane application.

1.8 WARRANTY

A. General Warranty: The special warranty specified in this article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents, and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

B. Special Warranty: Submit a written warranty signed by methane barrier manufacturer and Installer agreeing to repair or replace methane barrier/waterproofing that does not meet requirements or that does not remain methane free or watertight within the specified warranty period. Warranty does not include failure of methane barrier/waterproofing due to failure of substrate prepared and treated according to requirements of formation of new joints and cracks in the attached to structures that exceed 1/16 inch in width.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. SYSTEM III Plus; EPRO Services, L. C., Wichita, KS, 800-882-1896

1. Spray-Applied ECOLINE-S or roller-applied ECOLINE-R.
2. Protection ECOSHIELD E-15 and E-10.

2.2 SYSTEM MATERIALS

A. Fluid applied membrane barrier/waterproofing system - ECOLINE-S; a single course, high build, polymer modified asphalt emulsion. Waterborne and spray applied at ambient temperatures. A nominal thickness of 80 dry mils, unless otherwise specified. Non-toxic and odorless. ECOLINE-R has similar properties with greater viscosity and is roller or brush applied. Manufactured by EPRO Services, L. C.

B. Fluid applied methane barrier/waterproofing physical properties.

ECOLINE-S - TYPICAL CURED PROPERTIES (MEMBRANE ONLY)

Tensile Strength	52 psi
Elongation	+1300%
Resistance to Decay	4% Perm Loss
Accelerated Aging	No Effect
Moisture Vapor Transmission	.07 g/sq. ft./hr.
Hydrostatic Water Pressure	26 psi
Perm rating	.17
Methane transmission rate	0
Adhesion to Concrete and Masonry	11 lbf./inch
Hardness	80
Crack Bridging	No Cracking
Low Temp. Flexibility	No Cracking at -20°C
Resistance to Acids:	
Acetic	30%
Sulfuric and Hydrochloric	13%
Temperature Affect:	
Stable	248°F
Flexible	13°F

ECOLINE-R - TYPICAL CURED PROPERTIES

Tensile Strength	65 psi
Elongation	900%
Resistance to Decay	9% Perm Loss
Accelerated Aging	No Effect
Moisture Vapor Transmission	.026 g/sq.. ft./hr.
Hydrostatic Water Pressure	28 psi
Perm rating	.09
Methane transmission rate	0
Adhesion to Concrete and Masonry	7 lbf./inch
Hardness	85
Crack Bridging	No Cracking
Low Temp. Flexibility	No Cracking at -20°C
Resistance to Acids:	
Acetic	30%
Sulfuric and Hydrochloric	13%
Temperature Affect:	
Stable	248°F
Flexible	13°F

2.3 AUXILIARY MATERIALS

A. Sheet Flashing: 60-mil reinforced modified asphalt sheet good with double-sided adhesive.

B. Reinforcing Strip: Manufacturer's recommended polypropylene and polyester fabric.

C. Seam Detailing Sealant Mastic: ECOLINE-T or ECOLINE-R, a high or medium viscosity polymer modified water based asphalt material.

1. Back Rod: Closed-cell polyethylene foam.

2.4 METHANE BARRIER AND PROTECTION COURSE

A. Protection Course Usage

1. On Base layer, use ECOSHIELD-E-15 protection course or other protection as approved by the manufacturer.
2. On Top layer, use ECOSHIELD-E-15 or ECOSHIELD-E10: or other protection as approved by the manufacturer.

B. ECOSHIELD PHYSICAL PROPERTIES

	10-mil	15-mil
Puncture Resistance	151 lbs.	306.1lbs.
Tensile Strength	34.6 lbs @ 653Md	36.7 lbs. @ 997MD
Tear Resistance	5.98 lbs.	8.74 lbs.
Low Temp. Impact	-105°F	-105°F
Water Vapor Trans. Rate	.00621 g./ft./hr.	.00585 g./ft./hr.
Perm Rating	.0133 g./ft./hr.	.0123 g./ft./hr.
Chemical or Environmental Resistance	Indefinite	Indefinite

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions under which waterproofing systems will be applied, with Installer present, for compliance with requirements. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 SURFACE PREPARATION

A. Verify substrate is prepared according to manufacturer's recommendations.

B. Mask off adjoining surfaces not receiving methane barrier/waterproofing to prevent spillage or over spray affecting other construction.

3.3 PREPARATION AND TREATMENT AT TERMINATION AND PENETRATIONS

A. Prepare vertical and horizontal surfaces at termination, ant penetrations through methane barrier/waterproofing materials to ASTM C 898 and manufacturer's recommendations

B. Apply two coats of ECOLINE-T on both sides of top and bottom protection course layers and embed a joint reinforcing strip in preparation coat and apply a second coat over embedded joint reinforcing strip ensuring its complete saturation and covering.

1. Termination's should be treated 6 inches up vertical and 6 inches on horizontal.
2. Penetrations should be treated in a 6-inch radius around penetration and 3 inches onto penetration object.

3.4 METHANE BARRIER/PROTECTION COURSE BOTTOM INSTALLATION

A. Install ECOSHIELD-E15 over substrate material in one direction with six-inch overlaps.

B. Secure ECOSHIELD-R15 seams by applying ECOSEAM-Sealer between the overlapped sheets and ECOSHIELD tape on the seam.

3.5 METHANE BARRIER/WATERPROOFING APPLICATION

A. Set up spray equipment according to manufacturer's instructions and place spray-markers in field of bottom protection course.

B. Mix materials according to manufacturer's technical representative.

C. Start installing waterproofing in presence of manufacturer's representative.

D. Apply methane barrier/waterproofing, according to manufacturer's recommendations, by spray (ECOLINE-S) or roller (ECOLINE-R).

E. Apply one spray coat of ECOLINE-S or four roller coats of ECOLINE-R waterproofing to obtain a seamless membrane free of entrapped gases, with an average dry film thickness of 80 mils and a minimum dry film thickness of 60 mils.

F. Apply methane barrier/waterproofing to prepared wall terminations and to the horizontal surface of the bottom protection course to a thickness indicated by the placed spray-markers and according to manufacturer's recommendations and details.

G. Verify film thickness of waterproofing every 100 sq..ft.

3.6 METHANE BARRIER/PROTECTION COURSE TOP INSTALLATION

A. Install ECOSHIELD-E10 or E-15 protection course perpendicular to the direction of the bottom course with overlapped seams over nominally cured membrane no later than recommended by manufacturer and before starting subsequent construction operations.

B. Secure ECOSHIELD-E10 Protection course seams by applying ECOSEAM-sealer the overlapped sheets and ECOSHIELD Tape on the seam as recommended by manufacturer.

3.8 FIELD QUALITY CONTROL

A. Membrane may be checked for coverage site a lightly oiled, needle nose depth gauge, taking (4) readings over a one square inch area, every 500 square feet. Record the minimum reading, Mark the test area for repair.

B. Test areas are to be patched over with ECOLINE-S to an 80 mil minimum dry thickness, extending a minimum of one inch beyond the test perimeter.

3.9 CURING, PROTECTING, AND CLEANING

A. Cure waterproofing according to manufacturer's recommendations, taking care to prevent contamination and damage during application stages and curing.

B. Clean spillage and silling form adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

City of Los Angeles

Research Report: RR 25478

GENERAL APPROVAL - Renewal/Clerical Modification - Ecoline-S Spray Applied Membrane, Ecoline-R Liquid Applied Membrane, Ecoshield E-10 and Ecoshield-P Sheet - Membrane for Below Grade Waterproofing and Gas Barrier.

DETAIL

Ecoline-S - is a low viscosity, water based, anionic bituminous emulsion modified with a blend of synthetic polymerized rubbers and special additives.

Ecoline-R - is a medium viscosity water based polymer-modified anionic bitumiinous/asphalt emulsion.

Ecoshield-E 10 - sheet is a high strength geomembrane made from a custom blend of polyolefin copolymers.

Ecoshield-P - is a high strength geomembrane made from reinforce the lamination a polypropylene film and fabric.

INSTALLATION

For Waterproofing Membrane:

- Preparation: All surfaces should be free of loose materials, and other contaminants.

- Any cracks, spall or metal protrusion areas should be repaired by brush or trowel application of Ecoline-T. Large cracks may also require a layer of polyester fabric being spanned over crack before Ecoline_T applied over it.

APPLICATION

1. Ecoline-S is to be sprayed applied with catalyst water by appropriate equipment fitted with specific nozzles which forms a monolithic water protection coating. Spray of a minimum 60-mil thickness Ecoline_S, each spray application produces an approximate 20 mil build on each pass of spray gun; or

2. Ecoline-R is to be roller applied with multiple coats of 25-30 mils wet 20-24 mil dry. Millage required based upon specific waterproofing application specification, with minimal vertical is 60-mil dry and horizontal is 80-mil dry.

For Gas Barrier Installation:

- Base Barrier

Lay a minimum 10 mil thickens Ecoshield E-10 or Ecoshield_P in one direction with six inch overlaps.

Treat both sides of overlap with Ecoline-R and compress with a roller.

Applied Ecoshield-Tape along seam over lapping two inches on each side.

- Detailing

Treat all penetrations by applying a base coat of Ecoline-R in a 6" up on the substrate around the penetration and 6" up on the penetrating object. Embed the polyester fabric into the base coat and apply a second coat of Ecoline-R, ensuring the fabric is completely saturated and covered.

- Middle Barrier

Spray application of a minimum 60 mil thickness Ecoline-S from the lowest point on horizontal plane.

Spray application pattern should be 4 ft. x 4 ft. passes to a 20-mil build each pass.

- Top Barrier

Lay Ecoshield E-10 or Ecoshield-P in opposite direction of base installation

Treat overlaps in same fasion as base.

Terminate to exterior perimeter substrate by turning a six-inch flap up and applying seam sealer to flap and substrate and then attaching a termination bar to the flap and substrate.

This product is approved for below-grade waterproofing and gas barrier subject to the following conditions:

1. Ecoline-S or Ecoline_R supplied in clearly marked containers bearing the brand name and product identification Ecoshield-E 10 sheet are supplied in 12' x 120', 12' x 200' and Ecoshield-P is supplied in 10' x 200' rolls, bearing the brand name and product identification

2. The manufacturer shall provide quality assurance of the materials supplied as to their formulation

3. Application of the product shall be accomplished by an applicator approved by the manufacturer. A written statement by the manufacturer stating that the applicator is an approved applicator is required prior to the use of the product.

4. All surfaces to receive membrane shall be free of laitance, sharp projections, oil, dirt, or other contaminates. Prepare surfaces in accordance with the manufacturer's instructions.

5. Installation of the materials shall be in accordance with the manufacturer's instructions.

6. Complete details for the membrane system are submitted for plan check and a building permit is obtained.

7. The following field tests in accordance with the Epro Field installation and Repair Procedure are required: (A copy of the Installation and Repair Procedures is on file with Engineering Research Section.
a. Perform Thickness Sample at every 500 square feet.
b. For gas barrier application, perform smoke test for the entire site ate the interval not more than 50,000 sq.. ft. each.

8. Protection for the membrane shall be provided in accordance with the written instructions by the engineer of the record.

9. Prior to placing the concrete slab over the membrane, the membrane installer shall certify the membrane to be installed and tested in accordance with the manufacturer's specifications and to be free of leaks.

10. The membrane is not to be placed under building footings.

11. For gas membrane installation, continuous inspection by a specially qualified inspector certified by Epro and registered in accordance with the requirements specified in Section 91.1707.17 for controlled activities shall be provided.

OWNER: WISEBURN UNIFIED SCHOOL DISTRICT

PROJECT NAME: DA VINCI HS CAREER TECHNICAL EDUCATION STUDIO & SHOP

PROJECT ADDRESS: 201 N Douglas St, El Segundo, CA 90245

REGISTERED PROFESSIONAL ENGINEER
MICHAEL W. MCCHAE
C 75964
Exp. 06/30/24
CIVIL
STATE OF CALIFORNIA

REVISIONS:

	DESCRIPTION	DATE
1	DTSC COMMENTS	12-28-2022

PROJECT NO: 2020-40150

DATE ISSUED: 2022.07.29

SCALE: As indicated

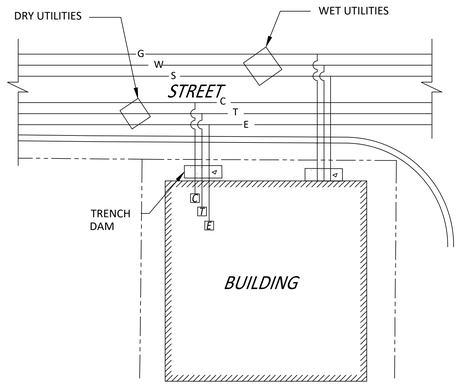
SHEET NUMBER: GC-6.1

SHEET TITLE:

SUB-SLAB MEMBRANE SPECIFICATIONS

METHANE SPECIALISTS

5210 LEWIS ROAD
SUITE 1
AGOURA HILLS, CA
91301
TEL: 805.987.5356
www.methanespecialists.com



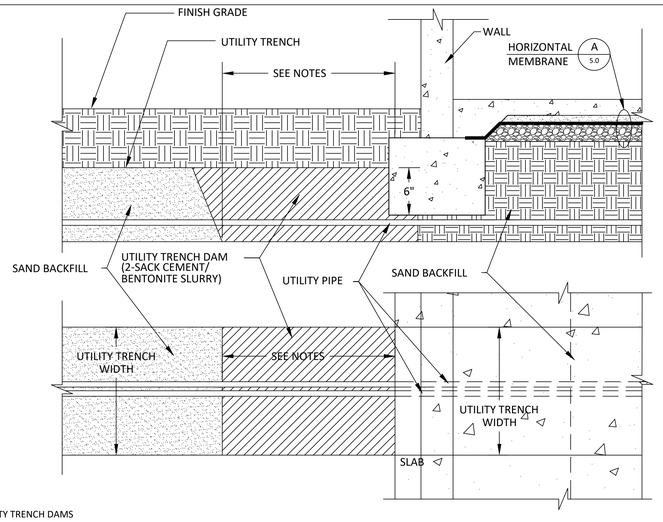
LEGEND

- PROPERTY LINE
- TRENCH DAM

WET UTILITIES
- G — GAS
- W — WATER
- S — SEWER

DRY UTILITIES
- C — CABLE TV
- T — TELEPHONE
- E — ELECTRICAL

UTILITIES-OVERVIEW | A



SECTION

PLAN VIEW

UTILITY TRENCH DAMS

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 A MINIMUM 5-FOOT CONTINUOUS LENGTH OF NATIVE SOIL BACKFILL COMPACTED TO AT LEAST 90% RELATIVE COMPACTION IN ACCORDANCE WITH ASTM D-1557 TESTING PROCEDURES. THE COMPACTED SOIL BACKFILL SHALL EXTEND FROM THE BOTTOM OF THE TRENCH TO A LEVEL AT LEAST 6" ABOVE THE BASE OF THE ADJACENT FOOTING.
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 PREVENTATIVE TAPE.
5. WHEN A CONCRETE MIX, OTHER THAN BENTONITE CEMENT SLURRY IS USED FOR TRENCH DAM MATERIAL; THEN A HIGH DENSITY PVC FOAM TAPE, CLOSED CELLS, ADHESIVE BACKED, 1/4" THICK BY 1/2" WIDE SHALL BE APPLIED TO CLEAR SURFACE WITH ENDS BUFFED TOGETHER AT MOST VISIBLE LOCATIONS IN TRENCH DAM.
6. A GAS MIGRATION BARRIER (TRENCH DAM) SHALL BE INSTALLED IN ALL UTILITY TRENCHES THAT EXTEND BENEATH THE FOUNDATION FROM AREAS OUTSIDE THE PERIMETER OF HTE BUILDING.
7. THE GAS MIGRATION BARRIER (TRENCH DAM) SHALL BE INSTALLED IN THE UTILITY TRENCH IMMEDIATELY ADJACENT TO THE EXTERIOR OF THE BUILDING FOUNDATION.

TRENCH DAM SECTION | B

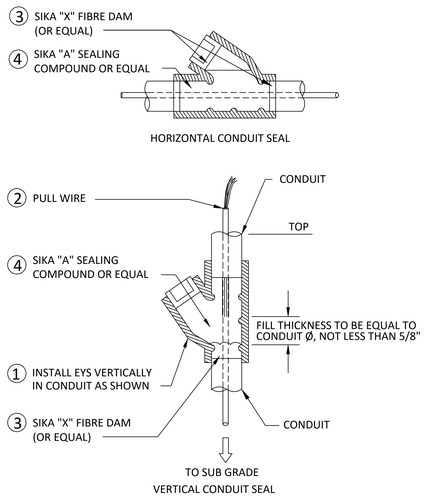
NOTES:
1. THE GAS MIGRATION BARRIER (TRENCH DAM) SHALL BE INSTALLED IN THE UTILITY TRENCH IMMEDIATELY ADJACENT TO THE EXTERIOR OF THE BUILDING FOUNDATION.
2. THE GAS MIGRATION BARRIER (TRENCH DAM) SHALL CONSIST OF ONE OF THE FOLLOWING:
   A) A MINIMUM OF 2-FOOT CONTINUOUS LENGTH OF SAND SLURRY CONSISTING OF A MIXTURE OF 4% TYPE II CEMENT, AND 2% POWDERED BENTONITE BY WEIGHT. THE SLURRY SHALL EXTEND FROM THE BOTTOM OF THE TRENCH TO A LEVEL OF 6-INCHES ABOVE THE BASE OF THE ADJACENT FOOTING.
   B) A MINIMUM OF 5-FOOT CONTINUOUS LENGTH OF NATIVE SOIL BACKFILL COMPACTED TO AT LEAST 90% RELATIVE COMPACTION IN ACCORDANCE WITH ASTM D-1557 TESTING PROCEDURES. THE COMPACTED SOIL BACKFILL SHALL EXTEND FROM THE BOTTOM OF THE TRENCH TO A LEVEL AT LEAST 6" ABOVE THE BASE OF THE ADJACENT FOOTING.

NFPA CODE:

APPLICATION OF SEAL-OFFS AT THIS PROJECT

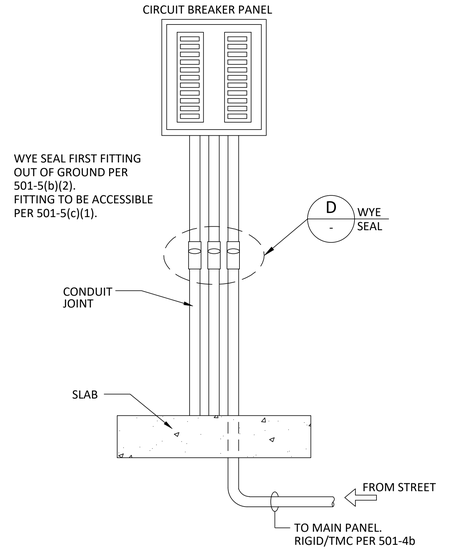
EYS FITTINGS ARE REQUIRED FOR ANY ELECTRICAL CONDUIT COMING FROM OUTSIDE OF THE MEMBRANE, THROUGH THE MEMBRANE TO THE STRUCTURE, OR DIRECTLY FROM THE SOIL OUTSIDE OF THE BUILDING FOOTPRINT INTO THE STRUCTURE. THIS CLASSIFICATION IS FOR 120 VAC OR GREATER, ONLY. FOR COMMUNICATIONS, CABLES, OR OTHER LOW VOLTAGE CIRCUITS, IT IS STILL RECOMMENDED THAT ALL OF THESE RUNS BE MADE ABOVE THE MEMBRANE.

NOTES | C



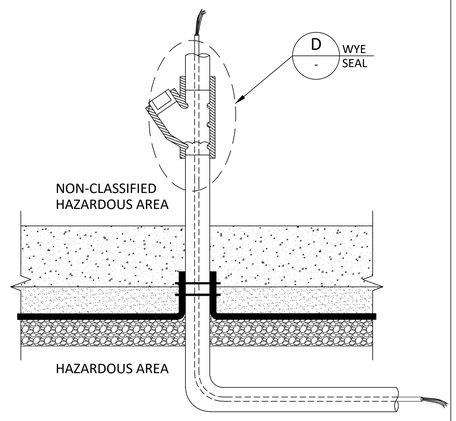
THIS DETAIL IS FOR ELECTRICAL ONLY

SEAL OFF DETAILS | D



UTILITY POWER FEED SEAL | E

NOTE:
WYE SEAL CAN NOT BE USED ON THE MAIN ELECTRIC FEED.



CONDUIT SEAL | F

"NOTE: THIS DETAIL IS INTENDED FOR ALL HIGH AND LOW VOLTAGE CONDUITS COMING FROM A CLASSIFIED HAZARDOUS AREA AND ENTERING A NON-CLASSIFIED HAZARDOUS AREA"

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PROJECT ADDRESS: 201 N Douglas St, El Segundo, CA 90245

REGISTERED PROFESSIONAL ENGINEER — MICHAEL W. — C 75964 Exp. 06/30/24 — CIVIL — STATE OF CALIFORNIA

REVISIONS:

	DESCRIPTION	DATE
1	DTSC COMMENTS	12-28-2022

PROJECT NO:	2020-40150
DATE ISSUED:	2022.07.29
SCALE:	As indicated
SHEET NUMBER:	GC-7.0

SHEET TITLE:

TRENCH DAM AND SEAL-OFF DETAILS

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