

LEGEND

	INITIAL BACKFILL
	SIDE BACKFILL
	TRENCH BACKFILL
	MAIN BACKFILL
	BEDDING
	AGGREGATE BASE
	SAND BACKFILL
	AC PAVEMENT
	FINAL BACKFILL
	EXISTING GROUND
	CONCRETE

SCALE: NOT TO SCALE



APPROVED BY:

JASON MARSEILLES, P.E.
MANAGER OF ENGINEERING

JULY 2025
DATE

DESIGN BY: GHD, INC.

APPROVED BY:
CHRIS BARTLEMAN, P.E.
C81075

JULY 2025
DATE

Inland Empire Utilities Agency

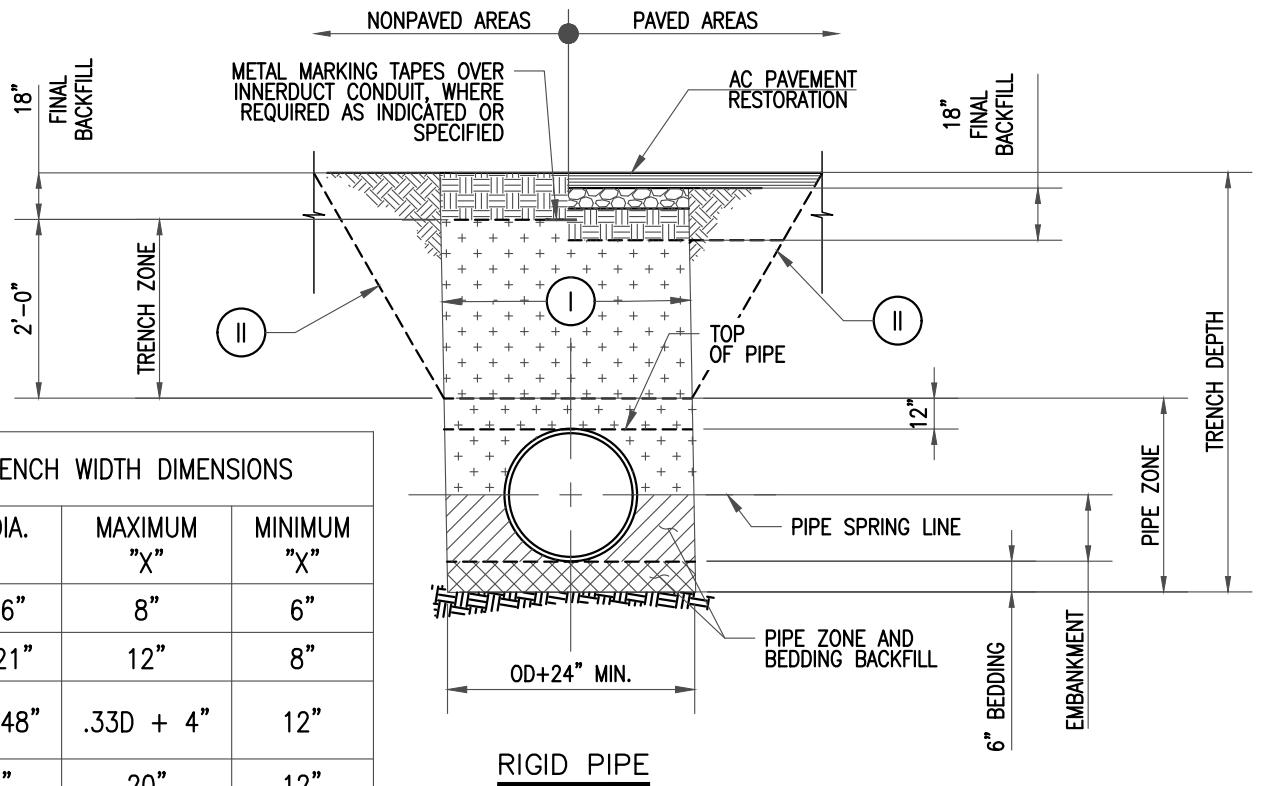
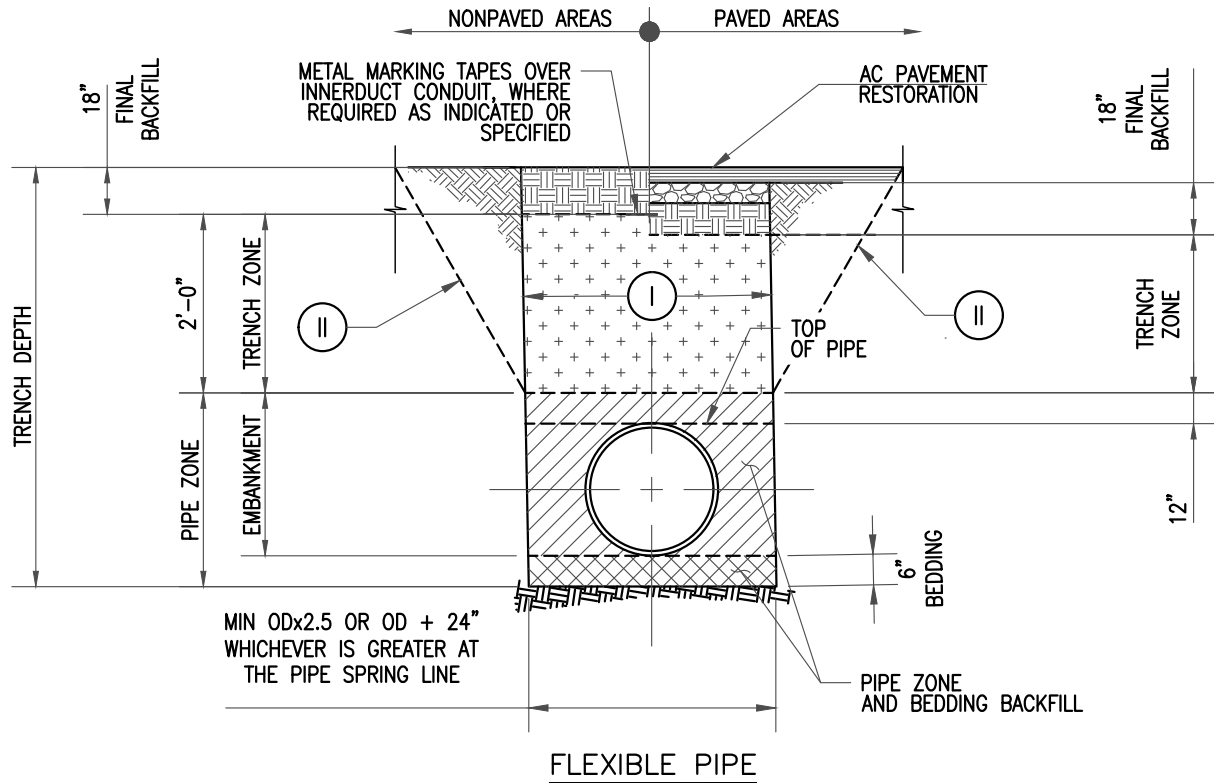
LEGEND AND SYMBOLS

REVISION

NO.	BY	DATE	APPROVED

C-EW-000

SHEET 1 OF 1



TRENCH WIDTH DIMENSIONS		
PIPE DIA. "D"	MAXIMUM "X"	MINIMUM "X"
4" - 6"	8"	6"
8" - 21"	12"	8"
24" - 48"	.33D + 4"	12"
> 48"	20"	12"

SCALE: NOT TO SCALE



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TYPICAL TRENCH DETAIL
FLEXIBLE AND RIGID PIPE

REVISION

NO.	BY	DATE	APPROVED

C-EW-001

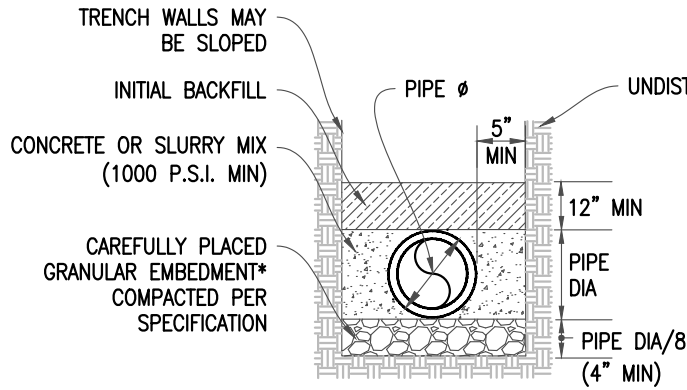
SHEET 1 OF 2

NOTES:

1. FLEXIBLE PIPE REFERS TO ALL STEEL, DUCTILE IRON, AND PLASTIC PIPES. RIGID PIPE REFERS TO ALL TYPES OF REINFORCED AND NON-REINFORCED CONCRETE PIPE AND CLAY PIPE.
2. DEFINITIONS OF FINAL BACKFILL, BEDDING, EMBEDMENT, PIPE AND TRENCH ZONES AND PIPE AND UTILITY BACKFILL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND GEOTECHNICAL REPORT.
3. TYPICAL TRENCH SECTIONS, (I) VERTICAL TRENCH WALLS, (II) COMBINATION OF VERTICAL AND SLOPING TRENCH WALLS.
4. TRENCH SECTIONS OTHER THAN THE TYPICAL SECTIONS SHOWN MAY BE UTILIZED PROVIDED THAT THEY COMPLY WITH APPLICABLE LOCAL, STATE (CAL-OSHA), AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS. DOCUMENTATION SUPPORTING THIS COMPLIANCE AND THE PIPE DESIGN CALCULATIONS PREPARED BY A PROFESSIONAL ENGINEER SHALL BE SUBMITTED TO THE ENGINEER.
5. THE NEED FOR TRENCH PROTECTIVE SYSTEMS SHALL BE DETERMINED IN CONSIDERATION OF APPLICABLE LOCAL, (CAL-OSHA), AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS AND GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
6. UNSUPPORTED VERTICAL AND/OR SLOPING TRENCH WALLS SHALL NOT BE STEEPER THAN ALLOWED BY APPLICABLE LOCAL, (CAL-OSHA), AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS UNLESS SUPPORTING DOCUMENTATION IS SUBMITTED ACCORDING TO AFOREMENTIONED SAFETY STANDARDS.
7. PROTECTION SYSTEMS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE LOCAL, (CAL-OSHA), AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS. SUPPORTING DOCUMENTATION SHALL BE SUBMITTED TO THE ENGINEER REGARDING THE DESIGN OF SHORING, BRACING, SLOPING OF OTHER PROTECTION SYSTEMS AND THEIR COMPLIANCE WITH APPLICABLE LOCAL, (CAL-OSHA), AND FEDERAL (OSHA) SAFETY STANDARDS.
8. A STAIRWAY, LADDER, RAMP OR OTHER SAFE MEANS OF EGRESS SHALL BE LOCATED IN TRENCH EXCAVATIONS 4.0 FEET OR MORE IN DEPTH SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL FOR EMPLOYEES/WORKERS PER CCR, TITLE 8 SECTION 1541.
9. VOIDS LEFT WHEN REMOVING SHEETING AND SHORING SHALL BE FILLED WITH CONTROLLED LOW STRENGTH MATERIAL IN ACCORDANCE WITH THE SPECIFICATIONS.
10. DETECTABLE METALLIC LOCATING TAPE SHALL BE PLACED ABOVE ALL BURIED PLASTIC PIPELINES AND OTHER PIPELINES THAT ARE NOT COMPRISED AT LEAST IN PART OF MAGNETIC COMPONENTS IN ACCORDANCE WITH THE EARTHWORK AND RESPECTIVE PIPING SECTIONS OF THE SPECIFICATIONS.
11. IF OVER-EXCAVATION DUE TO POOR FOUNDATION MATERIAL IS ORDERED BY THE ENGINEER, THE BACKFILL MATERIAL SHALL BE PROVIDED IN ACCORDANCE WITH THE EARTHWORK SECTION OF THE SPECIFICATIONS.
12. IF DURING CONSTRUCTION, THE WATER TABLE IS DISCOVERED TO BE ABOVE THE TRENCH BOTTOM, THE ENGINEER SHALL BE NOTIFIED, AND APPROPRIATE DEWATERING SHALL BE IMPLEMENTED TO LOWER THE WATER LEVEL BELOW THE TRENCH BOTTOM IN ACCORDANCE WITH THE DEWATERING REQUIREMENTS PROVIDED IN THE SPECIFICATIONS. BACKFILL MATERIAL SHALL BE PROVIDED IN ACCORDANCE WITH THE EARTHWORK SECTION OF THE SPECIFICATIONS OR AS ORDERED BY THE ENGINEER.
13. TRENCH SHALL BE BACKFILLED AT 90% RELATIVE COMPACTION FOR PIPE ZONE AND AT 95% RELATIVE COMPACTION FOR TRENCH ZONE, UNLESS APPROVED BY IEUA.
14. IN PUBLIC RIGHT-OF-WAY, FINAL BACKFILL SHALL COMPLY WITH LOCAL JURISDICTION REQUIREMENTS UNLESS OTHERWISE NOTED BY IEUA.

SCALE: NOT TO SCALE

 Inland Empire Utilities Agency A MUNICIPAL WATER DISTRICT	APPROVED BY: JASON MARSEILLES, P.E. MANAGER OF ENGINEERING JULY 2025 DATE	Inland Empire Utilities Agency TYPICAL TRENCH DETAIL FLEXIBLE AND RIGID PIPE																			
	DESIGN BY: GHD, INC. APPROVED BY: CHRIS BARTLEMAN, P.E. CB1075	REVISION <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">NO.</th> <th style="width: 10%;">BY</th> <th style="width: 10%;">DATE</th> <th style="width: 10%;">APPROVED</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>			NO.	BY	DATE	APPROVED													C-EW-001 SHEET 2 OF 2
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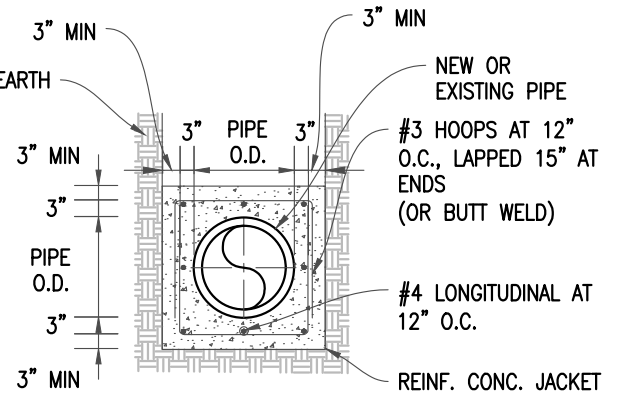


NOTE: THIS TYPE OF CONSTRUCTION REQUIRES THE CONCRETE TO EXTEND FROM THE PIPE TO THE TRENCH WALL.

CAUTION: NOT RECOMMENDED WHERE NATIVE SOILS ARE EXPANSIVE.

LOAD FACTOR: 2.7

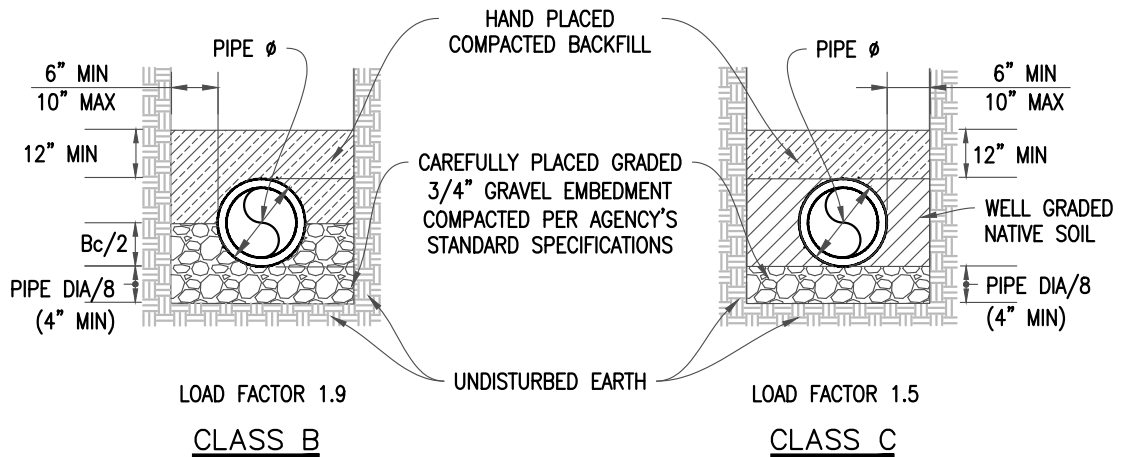
**CLASS A-III —
SIDECRADLING**



NOTE: DETAIL SHALL BE USED FOR MINIMUM DIMENSIONS ONLY. TOTAL SIZE OF CONCRETE ENCASEMENT IS DEPENDENT ON PIPE SIZE (WEIGHT) AND SOIL BEARING PRESSURE PER PROJECT GEOTECHNICAL REPORT.

LOAD FACTOR: 4.5

**CLASS A-IV —
CONCRETE ENCASEMENT**



LOAD FACTOR 1.9

CLASS B

LOAD FACTOR 1.5

CLASS C

***GRANULAR EMBEDMENT:**

COARSE GRAINED NATIVE SOILS OR IMPORTED SAND WITH A MINIMUM SAND EQUIVALENCE OF 30 AND OF SUCH SIZE THAT 90 TO 100 PERCENT WILL PASS A NO.4 SIEVE AND NO MORE THAN 5 PERCENT WILL PASS A NO. 200 SIEVE.

1. SLAG, PEA GRAVEL, OR OTHER ALTERNATIVE MATERIALS WILL NOT BE ACCEPTABLE IN LIEU OF GRANULAR EMBEDMENT.
2. TRENCH SHORING & TRENCH WALL SLOPING SHALL BE IN CONFORMANCE WITH C-EW-001.
3. MATERIALS, EMBEDMENT, PLACEMENT AND COMPACTION OF GRANULAR EMBEDMENT* AND COMPACTED BACKFILL WILL CONFORM TO THE AGENCY'S STANDARD SPECIFICATION FOR PIPE BEDDING AND TRENCH BACKFILL.
4. CAREFULLY PLACED PIPE BEDDING MATERIAL SHALL BE VIBRATED.

SCALE: NOT TO SCALE



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MANAGER OF ENGINEERING

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C81075

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Inland Empire Utilities Agency

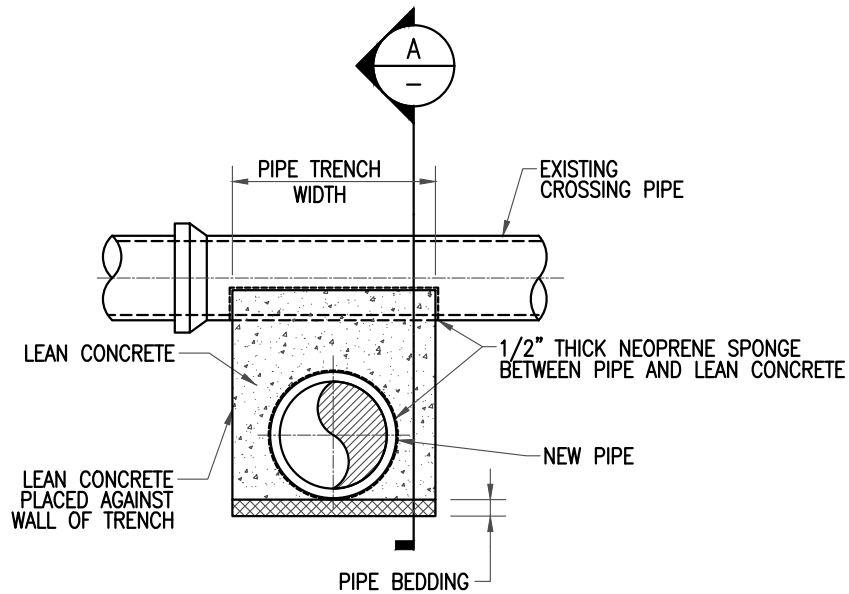
**ALTERNATIVE PIPE
BEDDING DETAILS**

REVISION

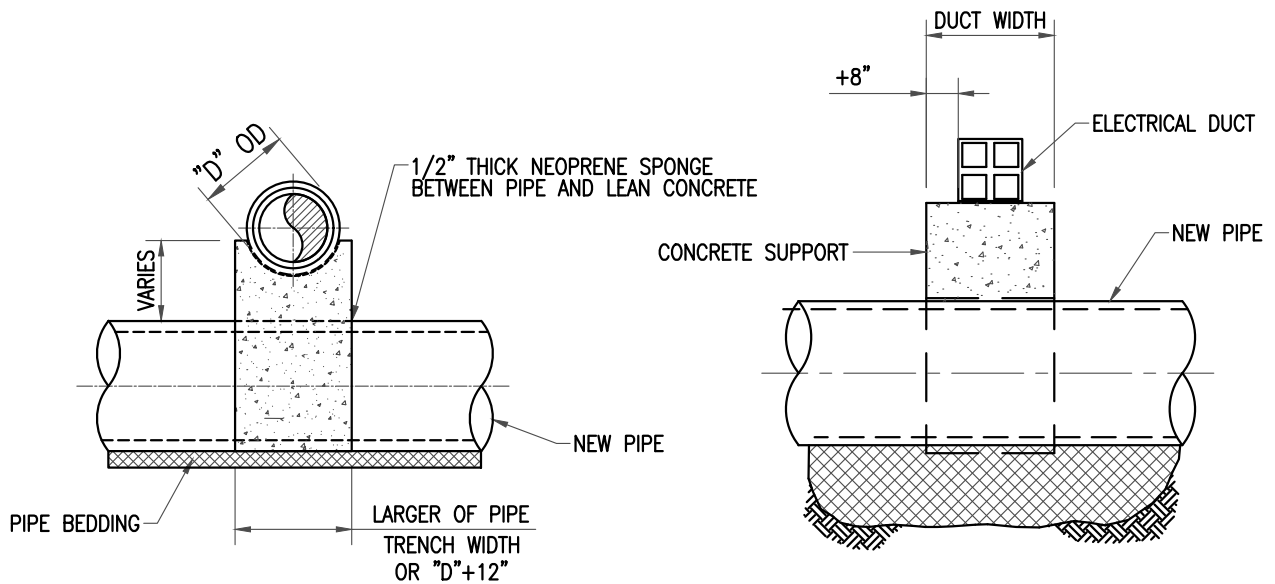
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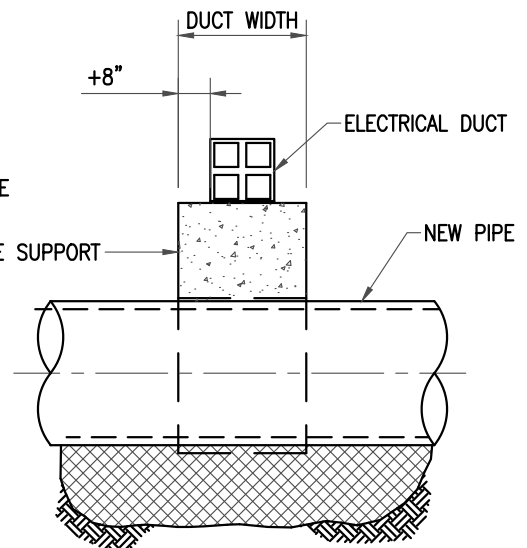
SHEET 1 OF 1



SECTION THRU NEW PIPE TRENCH



EXISTING PIPE CROSSING SECTION



ALTERNATIVE ELECTRICAL DUCT CROSSING SECTION

NOTES:

1. UNDERGROUND UTILITY SUPPORTS SHALL BE PROVIDED WHEN MINIMUM CLEARANCE OF 12 INCHES CANNOT BE PROVIDED.
2. EXISTING PIPE OR DUCT SHALL BE FIRMLY SUPPORTED DURING INSTALLATION OF NEW PIPE AND SUPPORT.

SCALE: NOT TO SCALE



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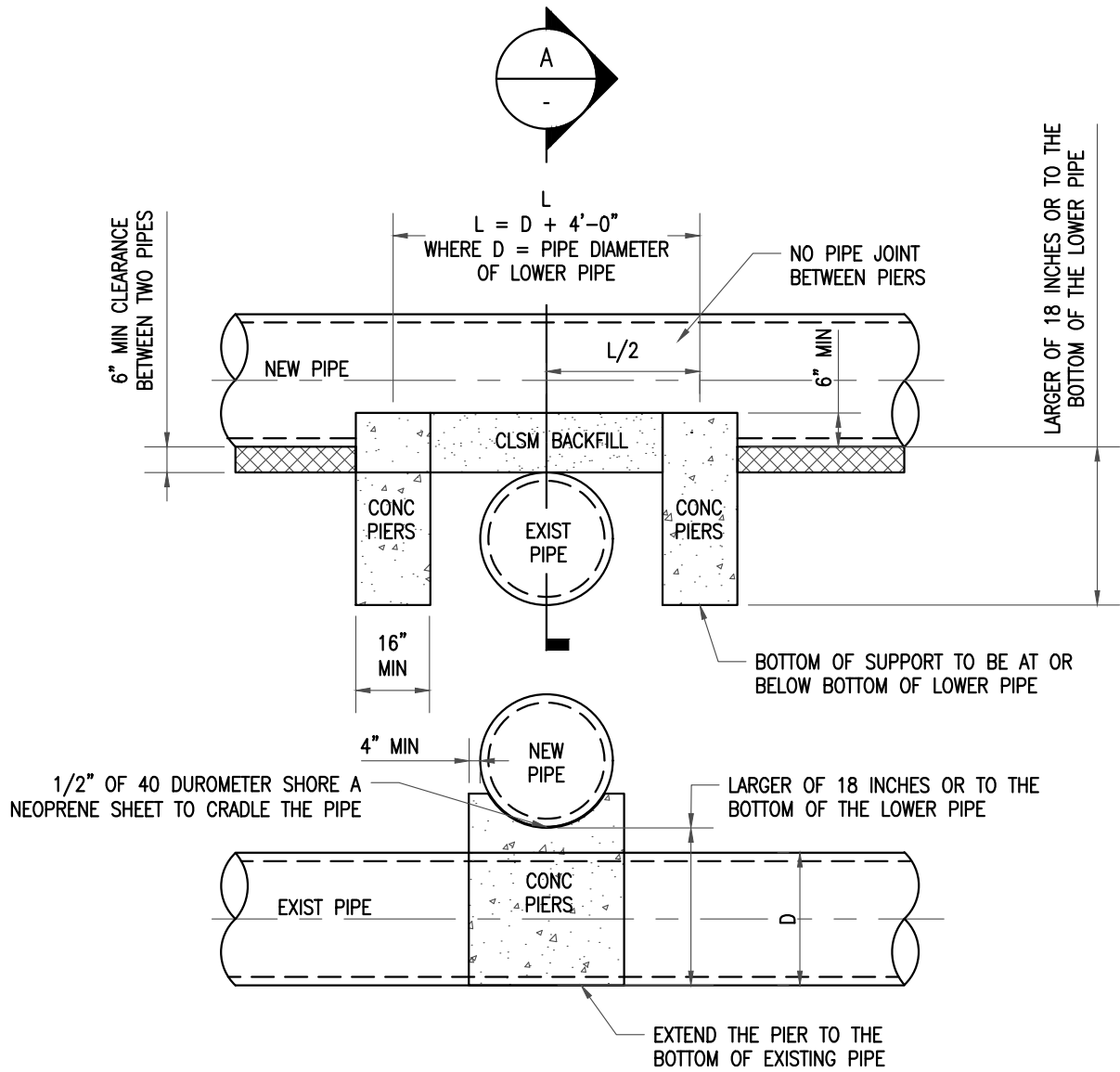
**UNDERGROUND UTILITY SUPPORT
ACROSS TRENCH**

REVISION

NO.	BY	DATE	APPROVED

C-EW-007

SHEET 1 OF 1



SECTION A

NOTES:

1. PROVIDE PIERS ONLY WHEN LARGE DIAMETER PIPE (15" OR LARGER) CROSSES OVER EXISTING PIPELINE WITH VERTICAL CLEARANCE LESS THAN 12".
2. PIERS SHALL BE CONSTRUCTED ON UNDISTURBED EARTH. CONCRETE SHALL BE LEAN CONCRETE PER ENGINEERING DESIGN GUIDELINES.

SCALE: NOT TO SCALE



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MANAGER OF ENGINEERING

JULY 2025
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APPROVED BY:
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JULY 2025
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Inland Empire Utilities Agency

**UNDERGROUND UTILITY SUPPORT
CONCRETE PIERS**

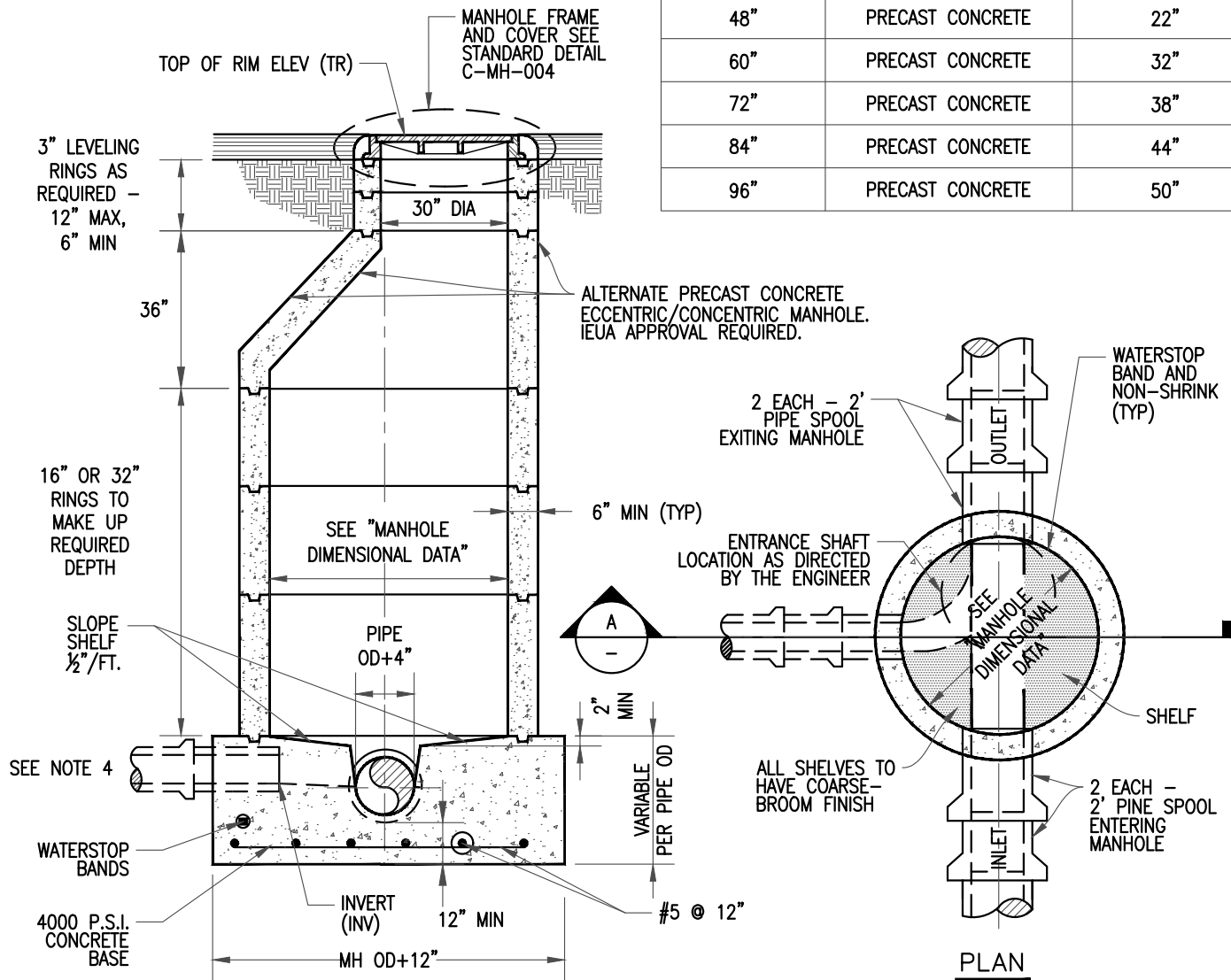
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C-EW-008

SHEET 1 OF 1

MANHOLE DIMENSIONAL DATA		
MANHOLE DIAMETER	TYPE	MAX PIPE OUTSIDE DIAMETER
48"	PRECAST CONCRETE	22"
60"	PRECAST CONCRETE	32"
72"	PRECAST CONCRETE	38"
84"	PRECAST CONCRETE	44"
96"	PRECAST CONCRETE	50"



SECTION A-A

NOTES:

1. PRECAST MANHOLE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO MINIMUM H-20 LOADING, OR AS DIRECTED BY IEUA.
2. MATERIALS, EMBEDMENT, PLACEMENT, AND COMPACTION OF GRANULAR EMBEDMENT AND COMPACTED BACKFILL WILL CONFORM TO THE AGENCY'S STANDARD SPECIFICATIONS FOR PIPE BEDDING AND TRENCH BACKFILL.
3. LINE INTERIOR SURFACES OF MANHOLE AND MANHOLE BASE WITH POLYURETHANE (RAVEN 405 OR APPROVED EQUAL). APPLY NON-SKID SURFACE ON TOTAL SHELF AREA.
4. SOFFIT OF INCOMING PIPE SHALL MATCH OUTLET PIPE SOFFIT.
5. IEUA APPROVAL REQUIRED PRIOR TO CONNECTING AT MANHOLE.

SCALE: NOT TO SCALE



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MANAGER OF ENGINEERING

JULY 2025
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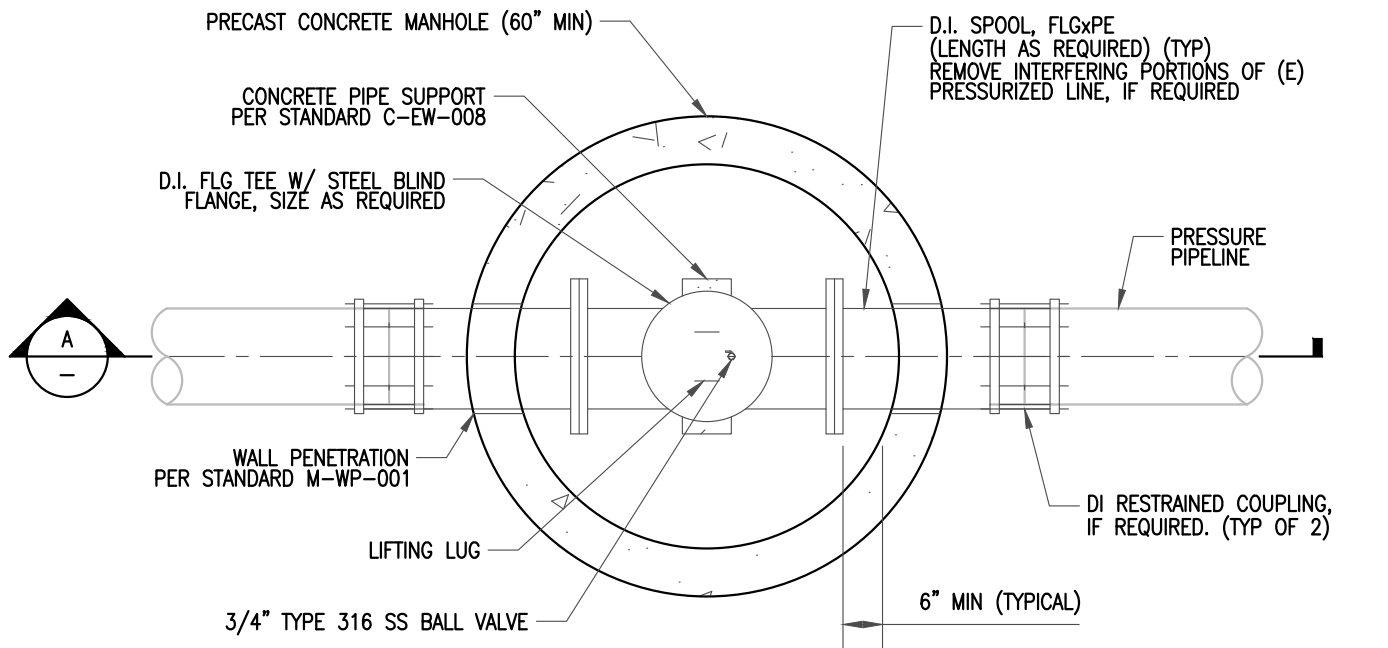
TYPICAL SEWER
MANHOLE DETAIL

REVISION

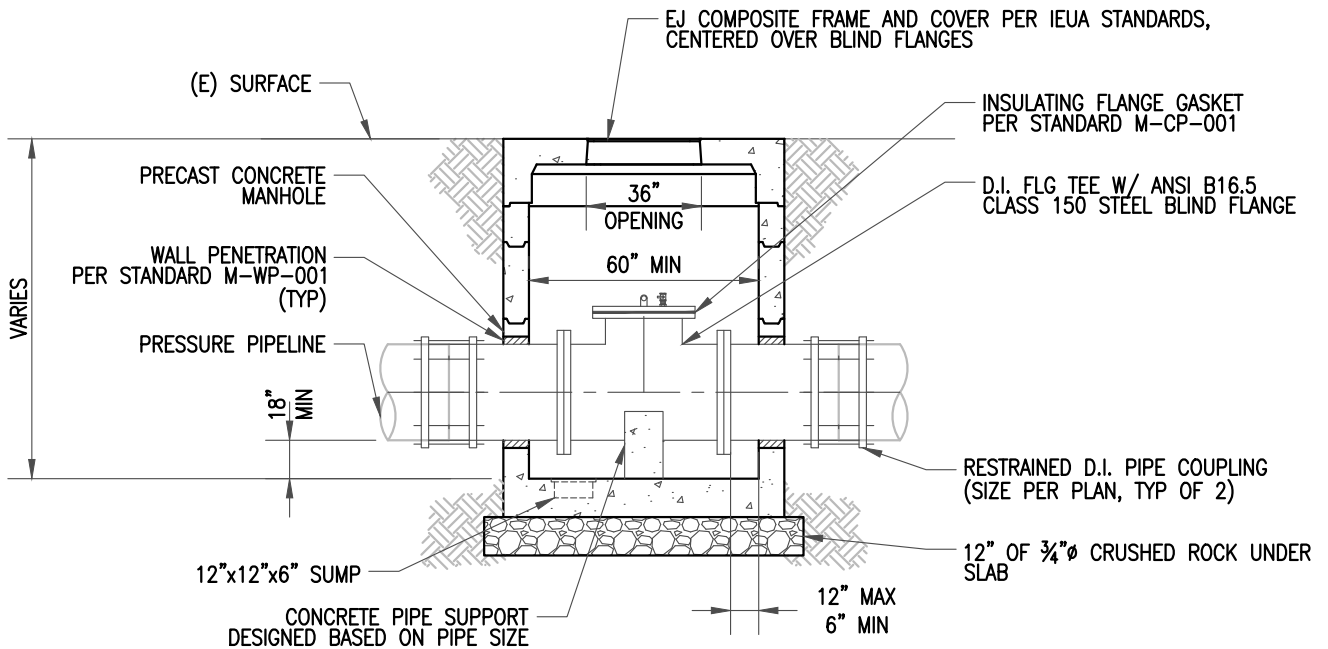
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C-MH-001

SHEET 1 OF 1



PLAN



**ACCESS VAULT
SECTION A**

SCALE: NOT TO SCALE



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MANAGER OF ENGINEERING

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Inland Empire Utilities Agency

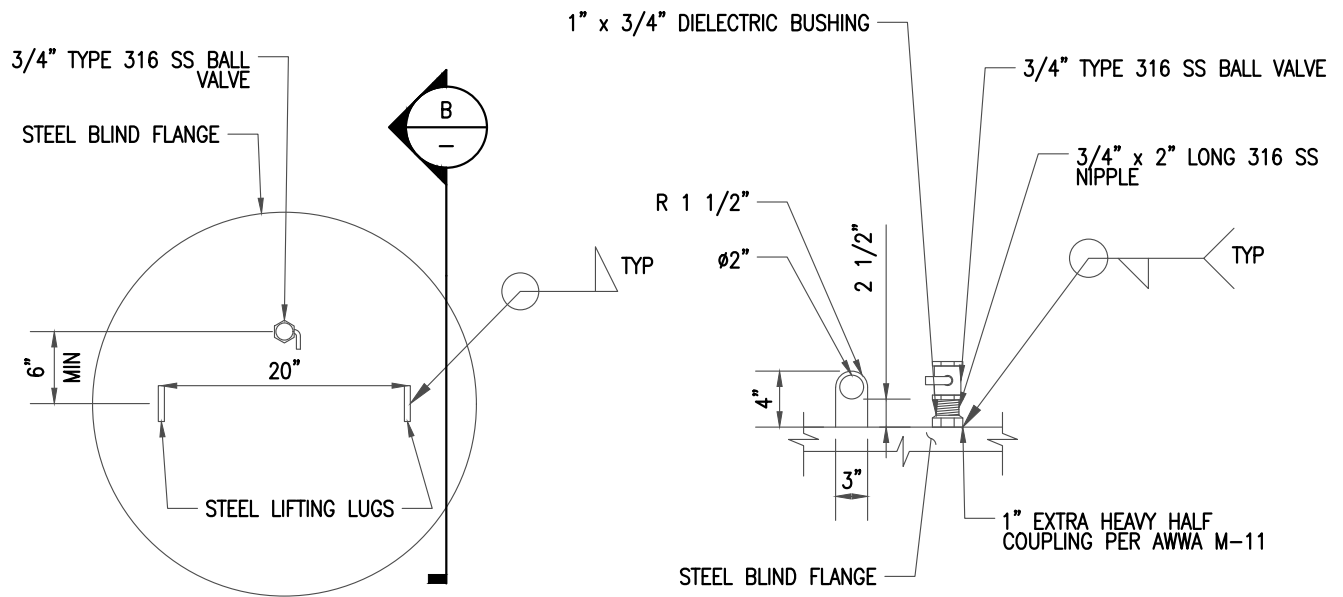
**PRESSURE PIPE
ACCESS DETAIL**

REVISION

NO.	BY	DATE	APPROVED

C-MH-002

SHEET 1 OF 2



PLAN

SECTION B

LIFTING LUG AND PRESSURE GAUGE DETAIL

NOTES:

1. ALL DI PIPING SHALL BE THICKNESS CLASS 52 OR PRESSURE CLASS 250, UNLESS NOTED OTHERWISE BY IEUA, AND SHALL BE LINED WITH PROTECTO 401 AND COATED.
2. DI FLANGES SHALL ANSI B16.1 CLASS 125.
3. COVER ON PLAN VIEW NOT SHOWN FOR CLARITY.
4. SLOPE CONCRETE FLOOR 0.50% TO SUMP.
5. FRAME AND COVER SHALL BE TRAFFIC-RATED TO AASHTO H-20 AND H-25 LOADING.

SCALE: NOT TO SCALE



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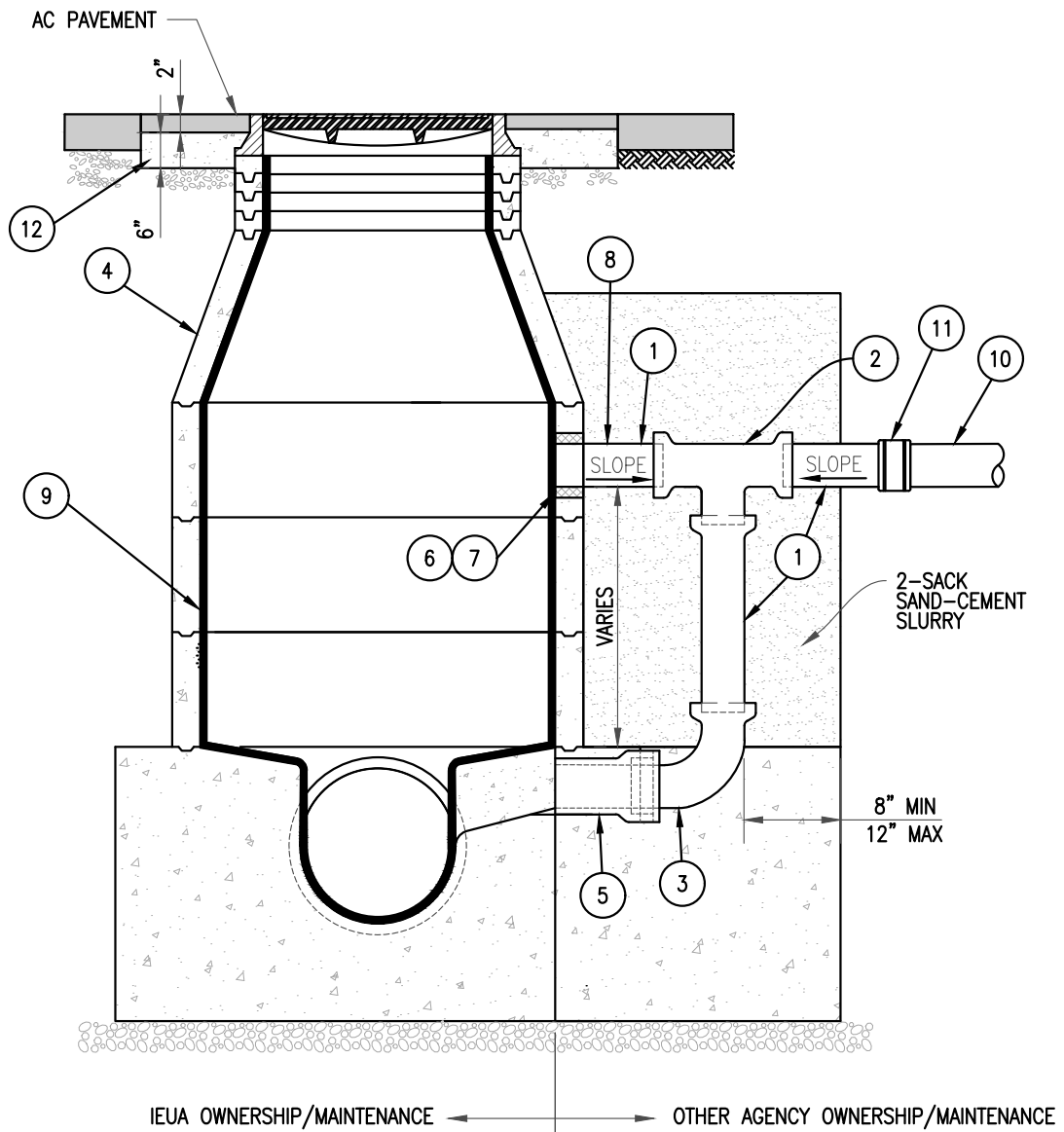
**PRESSURE PIPE
ACCESS DETAIL**

REVISION

NO.	BY	DATE	APPROVED

C-MH-002

SHEET 2 OF 2



SCALE: NOT TO SCALE



APPROVED BY:

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APPROVED BY:
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C81075

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DATE

Inland Empire Utilities Agency

**DROP
MANHOLE**

REVISION

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C-MH-003

SHEET 1 OF 2

ITEM MATERIALS

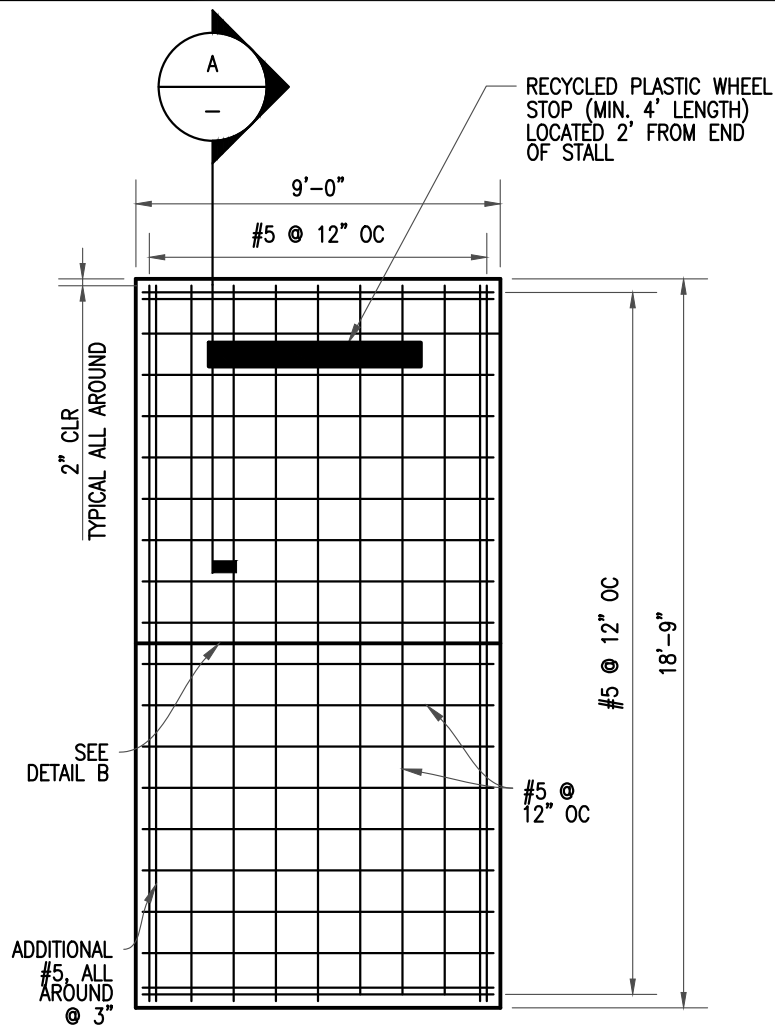
- ① — SDR-26 PVC PIPE. SIZE AS REQUIRED.
- ② — SDR-26 PVC TEE, BELL X BELL. SIZE AS REQUIRED.
- ③ — SDR-26 PVC LONG RADIUS 90-DEGREE BEND BELL x SPIGOT END. SIZE AS REQUIRED.
- ④ — STANDARD MANHOLE PER IEUA STANDARD C-MH-001.
- ⑤ — INSTALL SDR-26 PVC PIPE CONNECTION TO MANHOLE BASE PER IEUA STANDARD C-MH-001.
- ⑥ — CORE DRILL MANHOLE SHAFT. FILL ANNULAR SPACE WITH DRY PACK GROUT.
- ⑦ — REPAIR MANHOLE LINING TO THE SATISFACTION OF IEUA.
- ⑧ — SLOPE PIPE TO FALL 1/2" TOWARD TEE.
- ⑨ — LINE INTERIOR SURFACES OF MANHOLE AND MANHOLE BASE WITH POLYURETHANE (RAVEN 405 OR APPROVED EQUAL). APPLY NON-SKID SURFACE ON TOTAL SHELF AREA.
- ⑩ — EXTRA-STRENGTH VCP
- ⑪ — TRANSITION BAND SEAL COUPLING.
- ⑫ — 560-C-3250 CONCRETE COLLAR (ROUND). SEE NOTE 5.

NOTES:

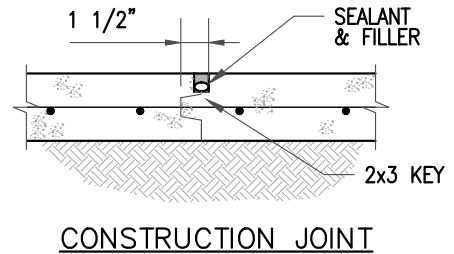
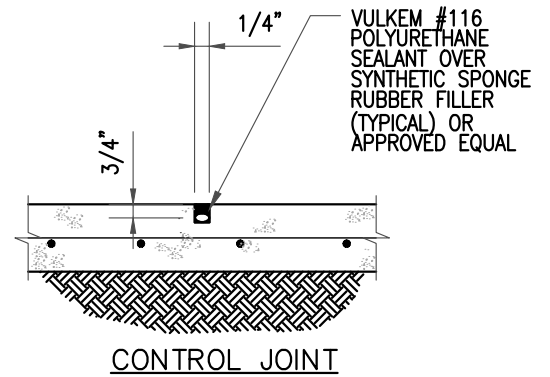
1. DROP MANHOLE SHALL BE APPROVED BY IEUA WHEN JUSTIFICATION IS PROVIDED SHOWING NO ALTERNATIVES ARE AVAILABLE.
2. FOR MANHOLE CONSTRUCTION NOTES AND DETAILS NOT SHOWN, SEE IEUA STANDARD C-MH-001.
3. CONSTRUCT CLEANOUTS OF THE SAME DIAMETER (4", 6" OR 8") AND MATERIAL AS THE SEWER LATERAL.
4. USE SDR 35 PIPE AND FITTINGS WHERE COVER OVER PIPE EXCEEDS 5-FT AND SDR 26 WHERE COVER IS 5-FT OR LESS.
5. IF LOCATED IN CONCRETE PAVEMENT, CONSTRUCT 6" THICK ROUND COLLAR FLUSH WITH PAVEMENT.
6. PIPE CONNECTIONS USED FOR DROP MANHOLES INTO IEUA FACILITIES SHALL BE MAINTAINED BY THE CONNECTING AGENCY. IEUA DOES NOT TAKE OWNERSHIP OR MAINTENANCE RESPONSIBILITY OUTSIDE OF THE MANHOLE.

SCALE: NOT TO SCALE

 Inland Empire Utilities Agency A MUNICIPAL WATER DISTRICT	APPROVED BY: JASON MARSEILLES, P.E. JULY 2025 MANAGER OF ENGINEERING DATE	Inland Empire Utilities Agency																		
	DROP MANHOLE																			
	DESIGN BY: GHD, INC.				REVISION															
	APPROVED BY: CHRIS BARTLEMAN, P.E. JULY 2025 CB1075 DATE				<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">NO.</th> <th style="width: 10%;">BY</th> <th style="width: 10%;">DATE</th> <th style="width: 10%;">APPROVED</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	NO.	BY	DATE	APPROVED											
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C-MH-003 SHEET 2 OF 2																				



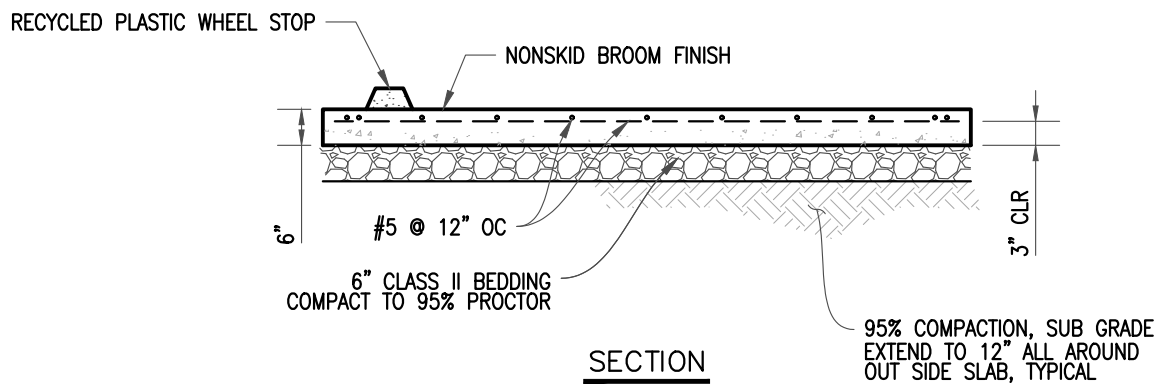
PLAN - 1 STALL



NOTES:

1. PROVIDE CONSTRUCTION OR CONTROL JOINT @ 13'-6" O.C. MAX. CONSTRUCTION JOINTS SHALL BE INSTALLED AS INDICATED.

**JOINTS IN REINFORCED CONCRETE
EXTERIOR PAVEMENTS & SIDEWALKS
DETAIL B**



**SECTION
DETAIL A**

SCALE: NOT TO SCALE



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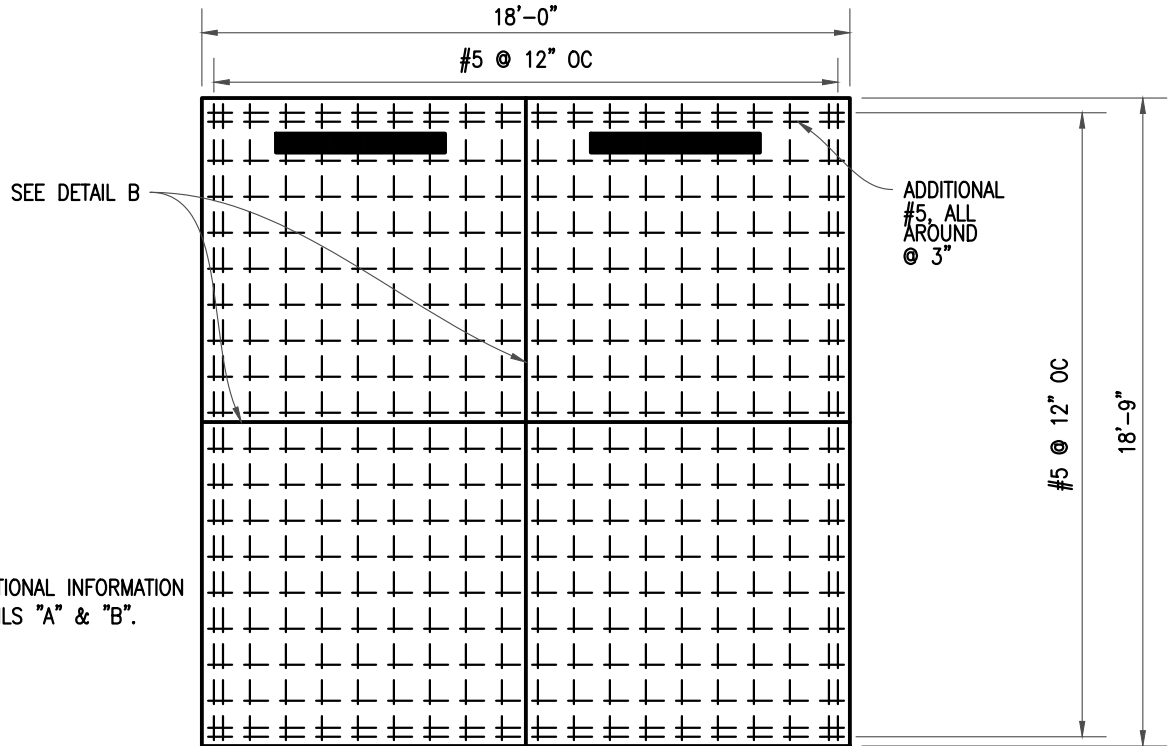
**PARKING STALL
AND SLAB**

REVISION

NO.	BY	DATE	APPROVED

C-PS-001

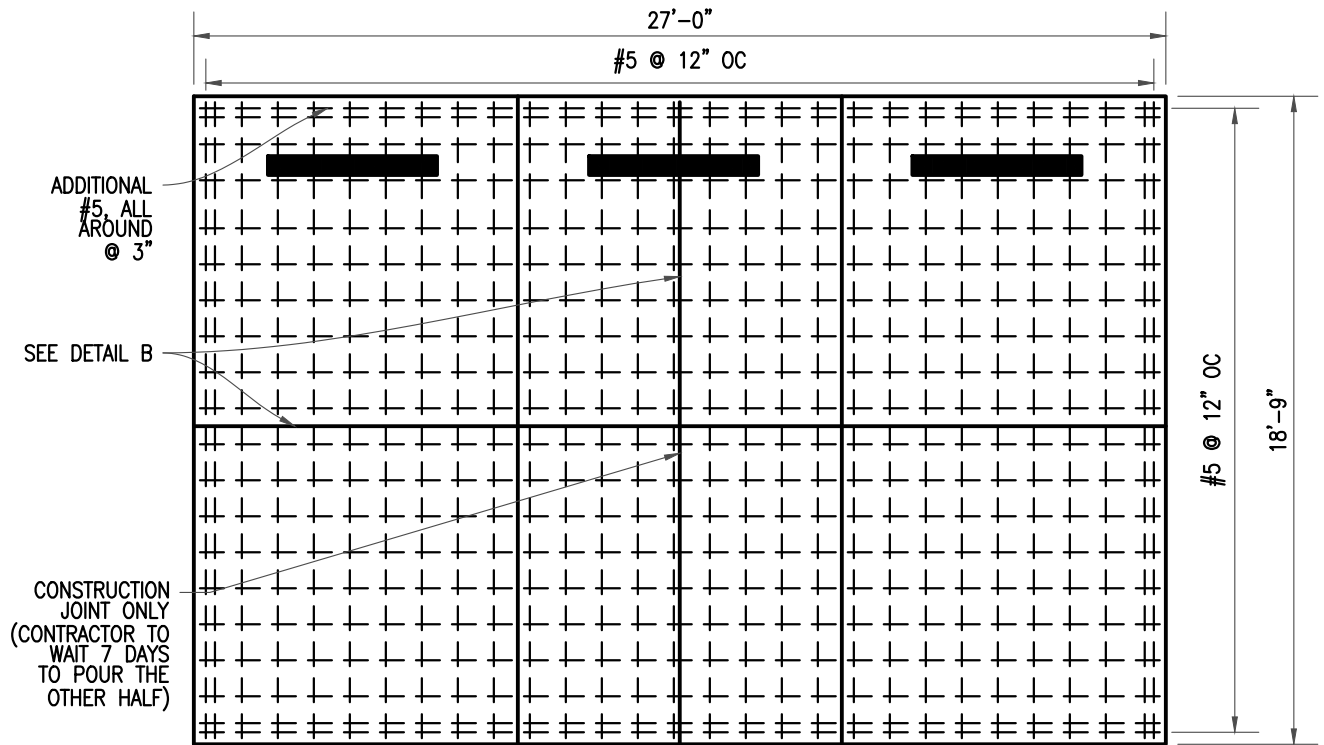
SHEET 1 OF 3



NOTES:

1. FOR ADDITIONAL INFORMATION SEE DETAILS "A" & "B".

PLAN - 2 STALL



PLAN - 3 STALL

SCALE: NOT TO SCALE



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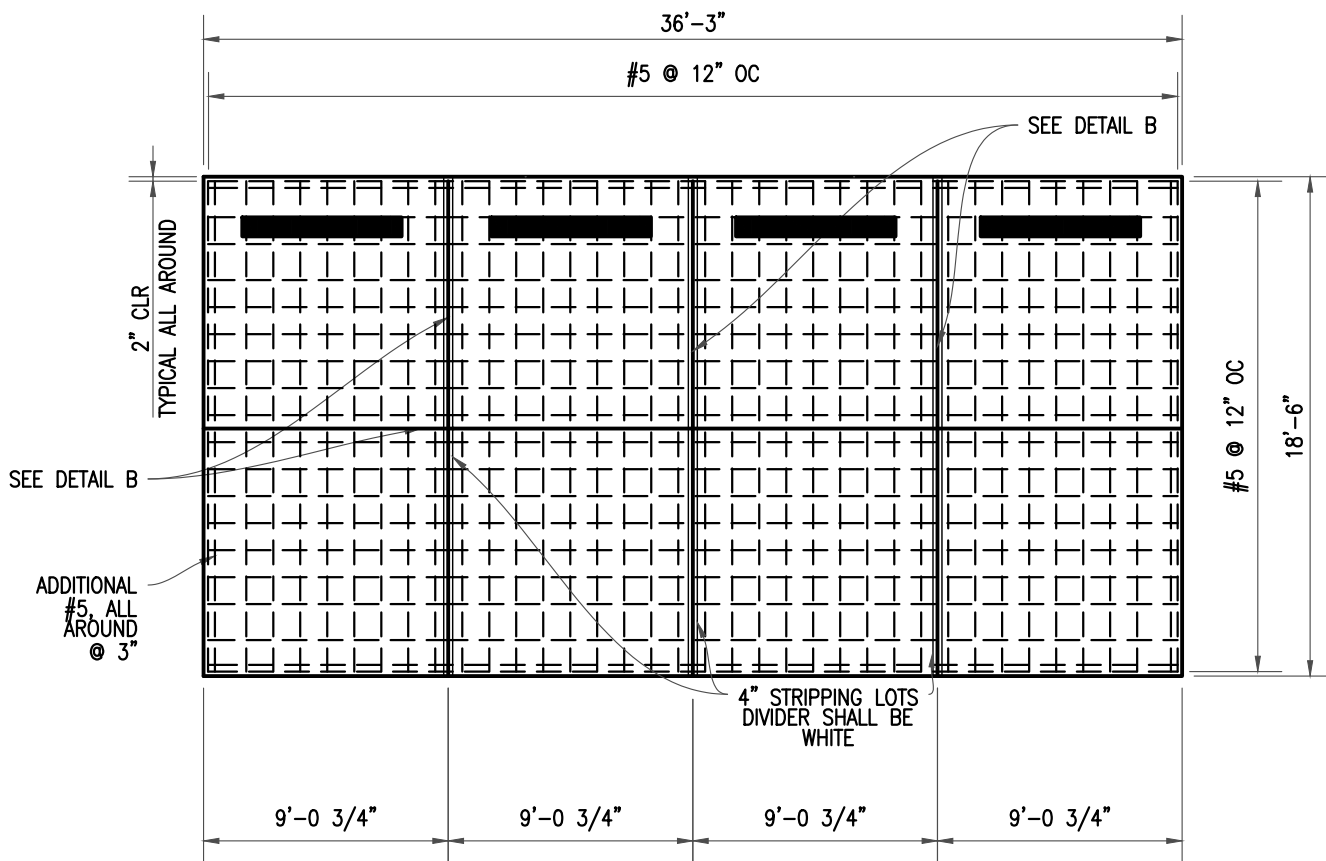
**PARKING STALL
AND SLAB**

REVISION

NO.	BY	DATE	APPROVED

C-PS-001

SHEET 2 OF 3



PLAN - 4 STALL

NOTES:

1. DATE STAMP EACH CONCRETE SLAB, TO MATCH SIZE/STYLE OF EXISTING.
2. STRIPE PARKING STALL USING WHITE WITH REFLECTIVE GLASS BEADS PAINT. PER SECTION 214 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AND PROJECT SPECIFICATIONS.
3. REMOVE AND REINSTALL WHEEL STOPS. COORDINATE INSTALLATION WITH AGENCY.
4. CONTRACTOR SHALL REMOVE TREE ROOTS (12" CLEARANCE FROM SLAB) THAT MAY EXIST IN THE AREA AND ADD ROOT BARRIERS.

SCALE: NOT TO SCALE



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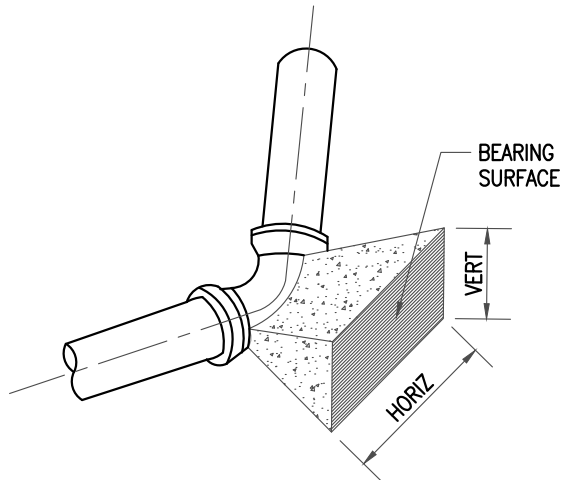
**PARKING STALL
AND SLAB**

REVISION

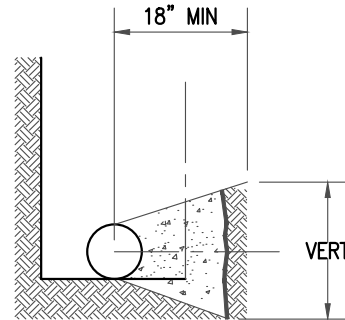
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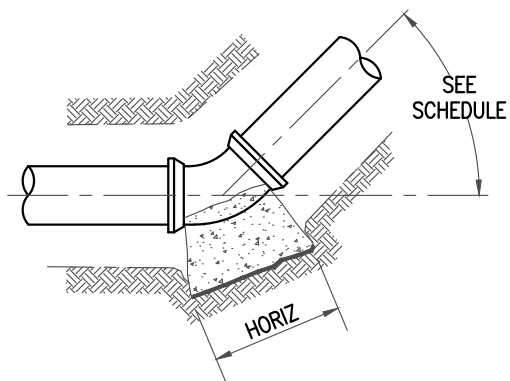
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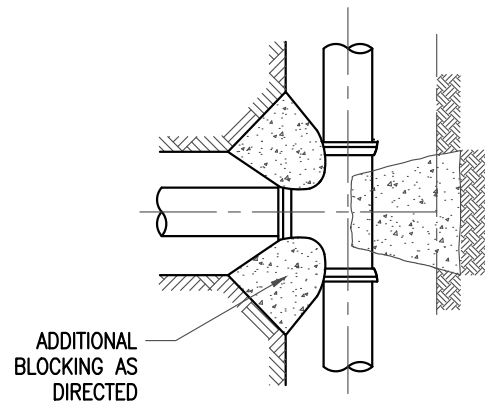
TYPICAL BEARING SURFACE



TYPICAL PROFILE



TYPICAL BEND



TEE OR VALVE

FOR MINIMUM SIZE OF THRUST BLOCK BEARING SURFACE AND ADDITIONAL NOTES – SEE SHEET 3

SCALE: NOT TO SCALE



APPROVED BY:

JASON MARSEILLES, P.E.
MANAGER OF ENGINEERING

JULY 2025
DATE

DESIGN BY: GHD, INC.

APPROVED BY:
CHRIS BARTLEMAN, P.E.
C81075

JULY 2025
DATE

Inland Empire Utilities Agency

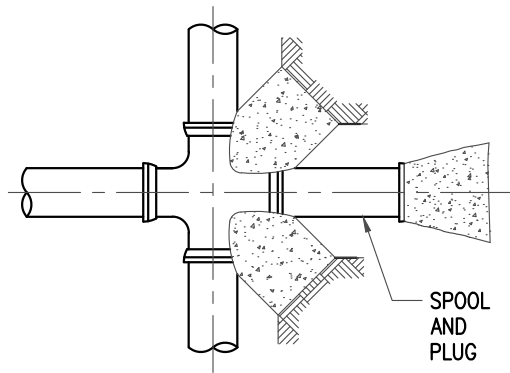
**THRUST BLOCK
DETAILS**

REVISION

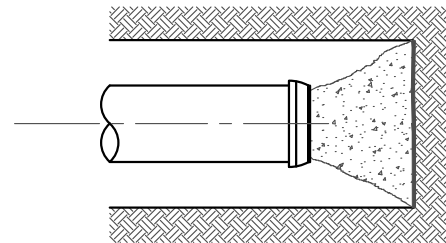
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C-RS-001

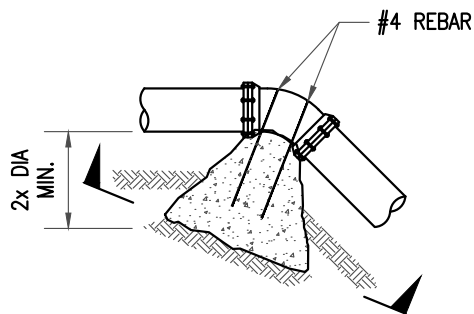
SHEET 1 OF 4



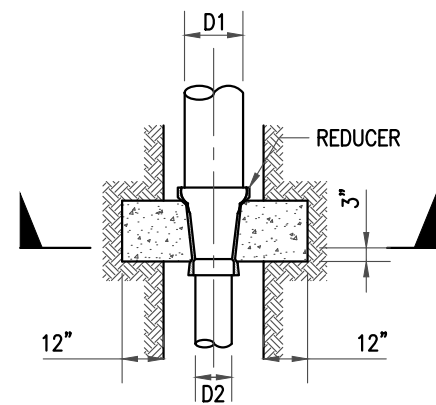
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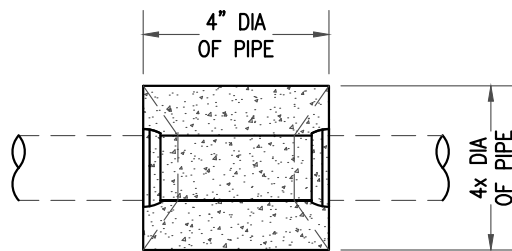
END CAP



ELEVATION

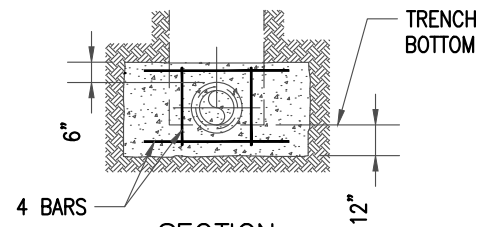


PLAN



SECTION

VERTICAL BEND



SECTION

REDUCER

FOR MINIMUM SIZE OF THRUST BLOCK BEARING SURFACE AND ADDITIONAL NOTES – SEE SHEET 3

SCALE: NOT TO SCALE



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**THRUST BLOCK
DETAILS**

REVISION

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SHEET 2 OF 4

NOTES:

- THRUST BLOCK BEARING AREA BASED ON ALLOWABLE SOIL BEARING VALUE OF 1500 psf AND 225 psi LINE PRESSURE WITH 3'-0" COVER MINIMUM.
FOR SOIL BEARING VALUE = 1000 psf, 1.5 X AREA SHOWN
FOR SOIL BEARING VALUE = 500 psf, 3.0 X AREA SHOWN
- ALL THRUST BLOCKS SHALL BE CLASS "B" CONCRETE AND PLACED AGAINST UNDISTURBED SOIL. DESIGN ENGINEER SHALL DETERMINE SIZES NOT SHOWN.
- THRUST BLOCKS ON CROSSES SHALL BE USED ONLY WHEN THERE IS A STUB-OUT ON ONE OR MORE SIDES.
- REINFORCING STEEL SHALL CONFORM TO ASTM A15 AND A305 INTERMEDIATE GRADE.
- CONCRETE SHALL NOT EXTEND ONTO FLANGE OR ADJOINING PIPE.
- REBAR TIES AROUND PIPE SHALL BE EPOXY COATED.
- PIPE SIZES LARGER THAN 16" SHALL REQUIRE ENGINEERING CALCULATIONS.
- H = HORIZONTAL
V = VERTICAL

MINIMUM SIZE OF THRUST BLOCK BEARING SURFACE

PIPE SIZE	11 1/4" BEND		22 1/2" BEND		45° BEND		90° BEND		TEE AND PLUGGED END	
	H	V	H	V	H	V	H	V	H	V
4"	1'-1"	0'-9"	1'-7"	1'-0"	2'-2"	1'-5"	3'-0"	1'-11"	2'-6"	1'-7"
6"	1'-7"	1'-0"	2'-3"	1'-5"	3'-2"	2'-0"	4'-4"	2'-9"	3'-8"	2'-4"
8"	2'-1"	1'-4"	3'-0"	1'-11"	4'-2"	2'-8"	5'-8"	3'-7"	4'-9"	3'-1"
10"	2'-7"	1'-8"	3'-8"	2'-4"	5'-1"	3'-3"	6'-11"	4'-5"	5'-10"	3'-9"
12"	3'-1"	2'-0"	4'-4"	2'-9"	6'-1"	3'-11"	8'-3"	5'-3"	6'-11"	4'-5"
16"	4'-1"	2'-7"	5'-9"	3'-8"	8'-0"	5'-1"	10'-10"	7'-0"	9'-2"	5'-10"

SCALE: NOT TO SCALE



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**THRUST BLOCK
DETAILS**

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SHEET 3 OF 4

MINIMUM SIZE OF THRUST BLOCK BEARING SURFACE

D1 x D2 (IN)	TRENCH WIDTH* (IN)	H (IN)	V (IN)	MIN. BEARING AREA (FT ²)
6x4	24	27	41	4.3
8x4	24	37	55	10.4
8x6	24	31	46	6.1
10x4	30	47	70	17.7
10x6	30	42	63	13.4
10x8	30	34	52	7.3
12x4	30	56	83	26.7
12x6	30	52	77	22.4
12x8	30	46	69	16.3
12x10	30	37	56	9.0
16x8	36	67	100	39.0
16x10	36	61	92	31.7
16x12	36	54	81	22.7

*IF A DIFFERENT TRENCH WIDTH IS USED, THE THRUST BLOCK SHALL MAINTAIN THE MINIMUM BEARING AREA SHOWN.

SCALE: NOT TO SCALE



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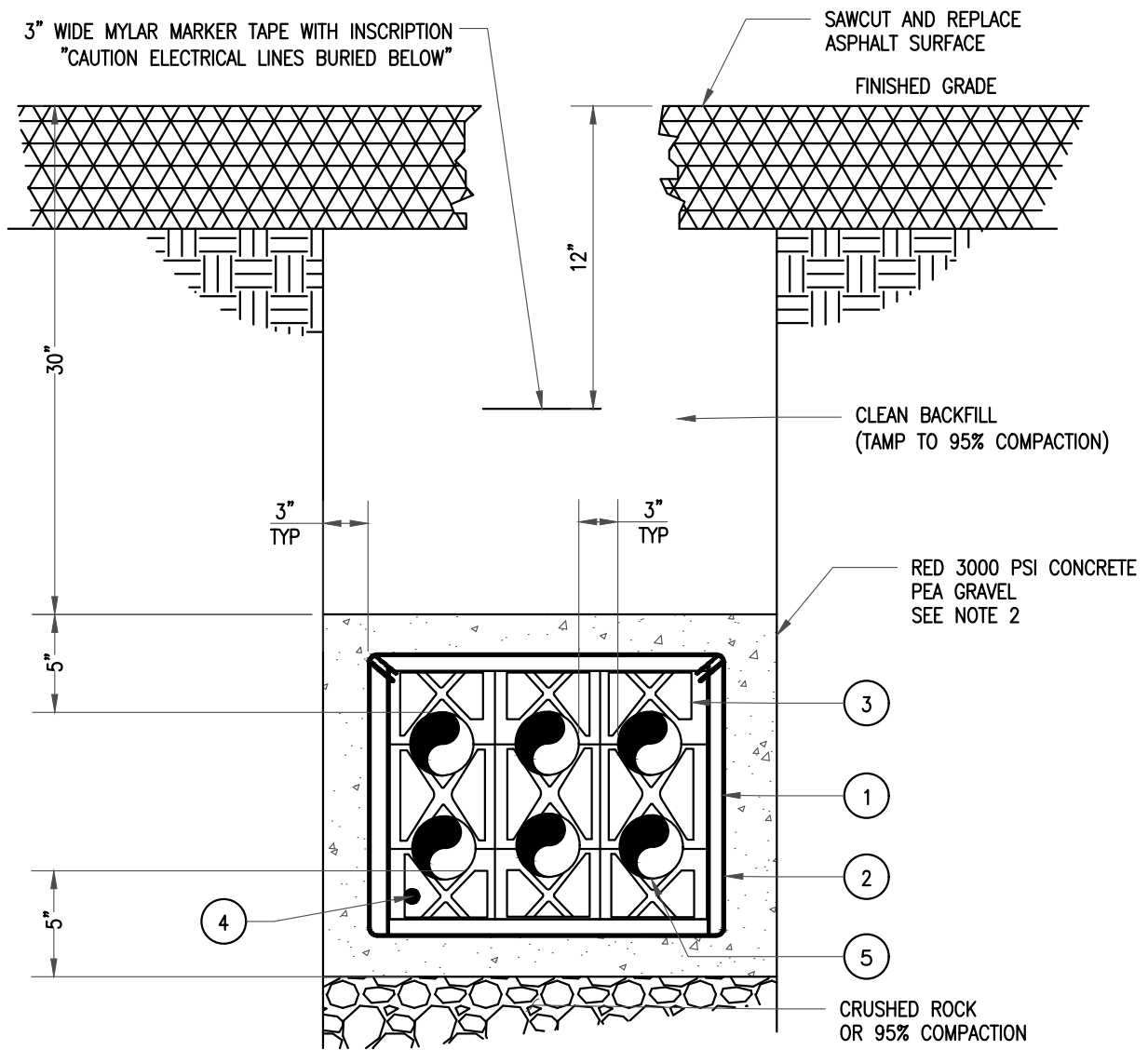
**THRUST BLOCK
DETAILS**

REVISION

NO.	BY	DATE	APPROVED

C-RS-001

SHEET 4 OF 4



NOTES:

- DIMENSIONS SHOWN ARE MINIMUM.
- RED CONCRETE COLOR ADDITIVE SHALL BE: BRICK RED "COLORFUL" BY OWL MFG., ARCADIA, CA OR CORAL RED "CHROMIX C-22" BY L.M. SCOFIELD CO, LOS ANGELES, CA OR APPROVED EQUAL.

KEY NOTES:

- CONSULTANT SHALL CONFIRM THAT REINFORCEMENT REQUIREMENTS SATISFY PROJECT CONDITIONS. PROVIDE MINIMUM #4 REINFORCING STEEL 12" MAXIMUM ON CENTER AROUND ENTIRE PERIMETER OF DUCT BANK (MIN. 12" OVERLAP).
- #4 REINFORCING STEEL HOOPS 36" MAXIMUM ON CENTER ALONG LENGTH OF DUCT BANK (MIN. 12" OVERLAP).
- PVC CONDUIT SPACERS ON 5' CENTERS (MAXIMUM) LOCATE 12" FROM HOOPS.
- GROUND CONDUCTOR SHALL RUN CONTINUOUSLY THROUGH MANHOLES AND SHALL CONTINUE FROM DUCT BANK INTO SWITCHGEAR OR BUILDING GROUNDING SYSTEM AND SHALL BE BONDED TO EACH RIGID METAL CONDUIT. SIZE TO BE #2/0 MINIMUM.
- REFER TO DUCT BANK AND CONDUIT SCHEDULES FOR CONDUIT REQUIREMENTS.

SCALE: NOT TO SCALE



Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

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MANAGER OF ENGINEERING

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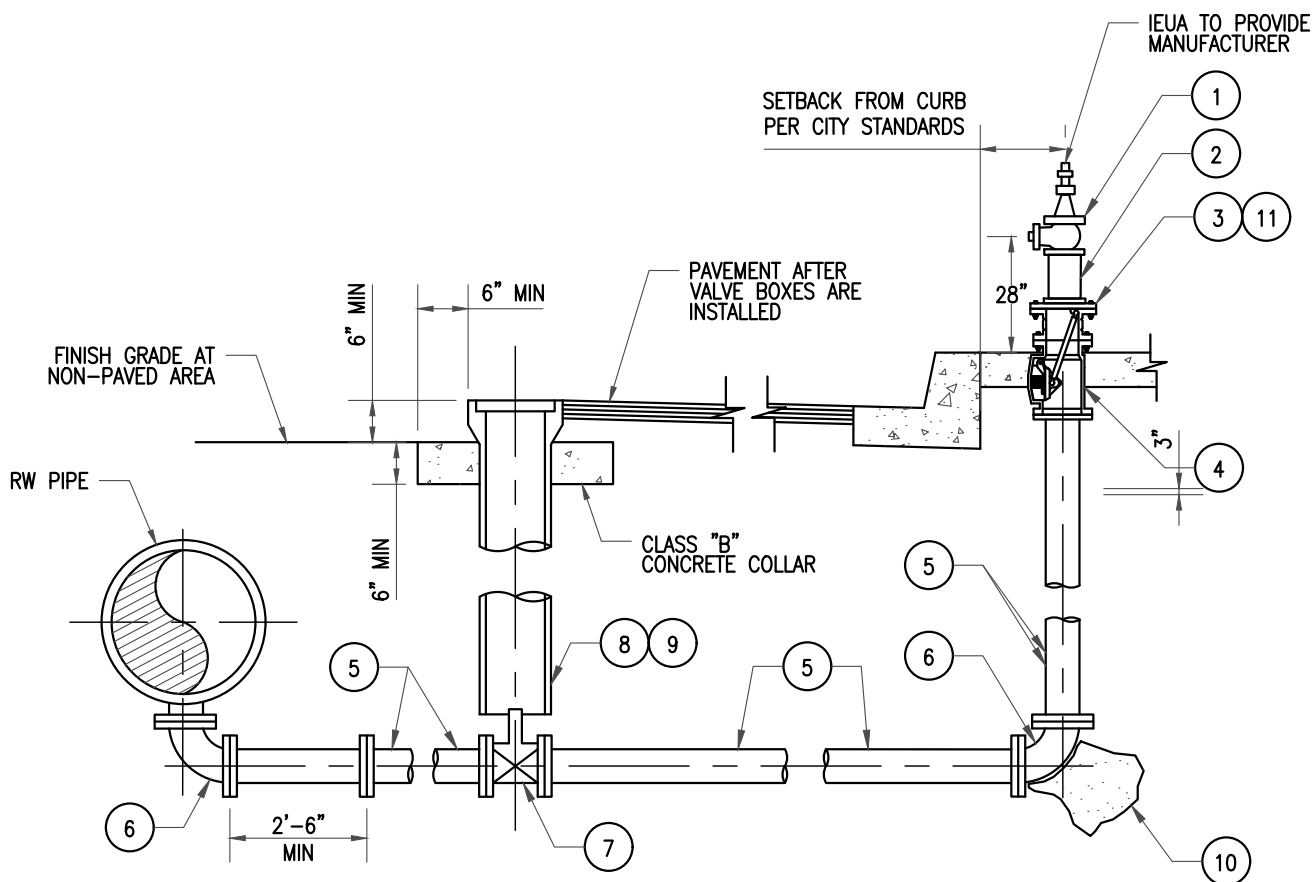
**ELECTRICAL DUCT BANK
CONCRETE ENCASED AND REINFORCED**

REVISION

NO.	BY	DATE	APPROVED

E-DB-001

SHEET 1 OF 1



NOTES:

- HYDRANT TO BE LOCATED DIRECTLY BEHIND CURB CLOSEST TO THE REGIONAL MANHOLE.
- PROVIDE VALVE STEM EXTENSION IF DEPTH TO VALVE NUT EXCEEDS 4 FEET.
- PIPING AND FITTINGS SHALL BE FLANGED.
- HYDRANT SHALL BE MARKED "IEUA RW" OR PAINTED PURPLE LABEL "IEUA".
- BACKFILL CLASS SHALL BE EQUAL TO THE ADJACENT RECYCLED WATER PIPELINE UNLESS OTHERWISE SHOWN.
- ALL BURIED BOLTS SHALL BE 316 STAINLESS STEEL. COAT WITH WAX TAPE. THE WAX TAPE COATING SHALL CONSIST OF THREE PARTS: SURFACE PRIMER, WAX TAPE AND OUTER COVERING. THE PRIMER SHALL BE A BLEND OF PETROLEUM, PLASTICIZER AND CORROSION INHIBITORS THAT IS EASILY FORMABLE OVER IRREGULAR SURFACES SUCH AS TRENTON #1 WAX-TAPE OR APPROVED EQUAL. THE OUTER COVERING SHALL BE A PLASTIC WRAPPER CONSISTING OF THREE (3), EACH 50 GAUGE, CLEAR PVC, HIGH CLING MEMBRANES WOUND TOGETHER AS A SINGLE SHEET SUCH AS TRENTON POLY-PLY OR APPROVED EQUAL.

SCALE: NOT TO SCALE



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APPROVED BY:
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CB1075

JULY 2025
DATE

Inland Empire Utilities Agency

**6" BLOW-OFF
ASSEMBLY**

REVISION

NO.	BY	DATE	APPROVED

RW-BO-002

SHEET 1 OF 2

CONSTRUCTION ITEMS / MATERIALS LIST

<u>ITEM NO.</u>	<u>SIZE AND DESCRIPTION</u>
①	4" X 2 1/2" BRONZE WHARF HEAD HYDRANT. (JONES MODEL NO.J-344 H.P. OR APPROVED EQUAL)
②	4" NIPPLE
③	6" X 4" COMPANION FLANGE.
④	BREAK OFF CHECK VALVE (LONG BEACH IRON WORKS LB400 OR APPROVED EQUAL)
⑤	6" STEEL SCH. 40 PIPE, CML & CMC
⑥	6" STEEL 90° ELBOW, CML & CMC (LONG RADIUS)
⑦	6" GATE VALVE FLANGED
⑧	VALVE BOX ASSEMBLY PER DRAWING RW-VB-001
⑨	VALVE STEM EXTENSION IF REQUIRED PER DRAWING RW-VE-001
⑩	CONCRETE THRUST BLOCK PER DRAWING C-RS-001
⑪	BREAK AWAY BOLTS

SCALE: NOT TO SCALE



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DESIGN BY: GHD, INC.

APPROVED BY:
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CB1075

JULY 2025
DATE

Inland Empire Utilities Agency

**6" BLOW-OFF
ASSEMBLY**

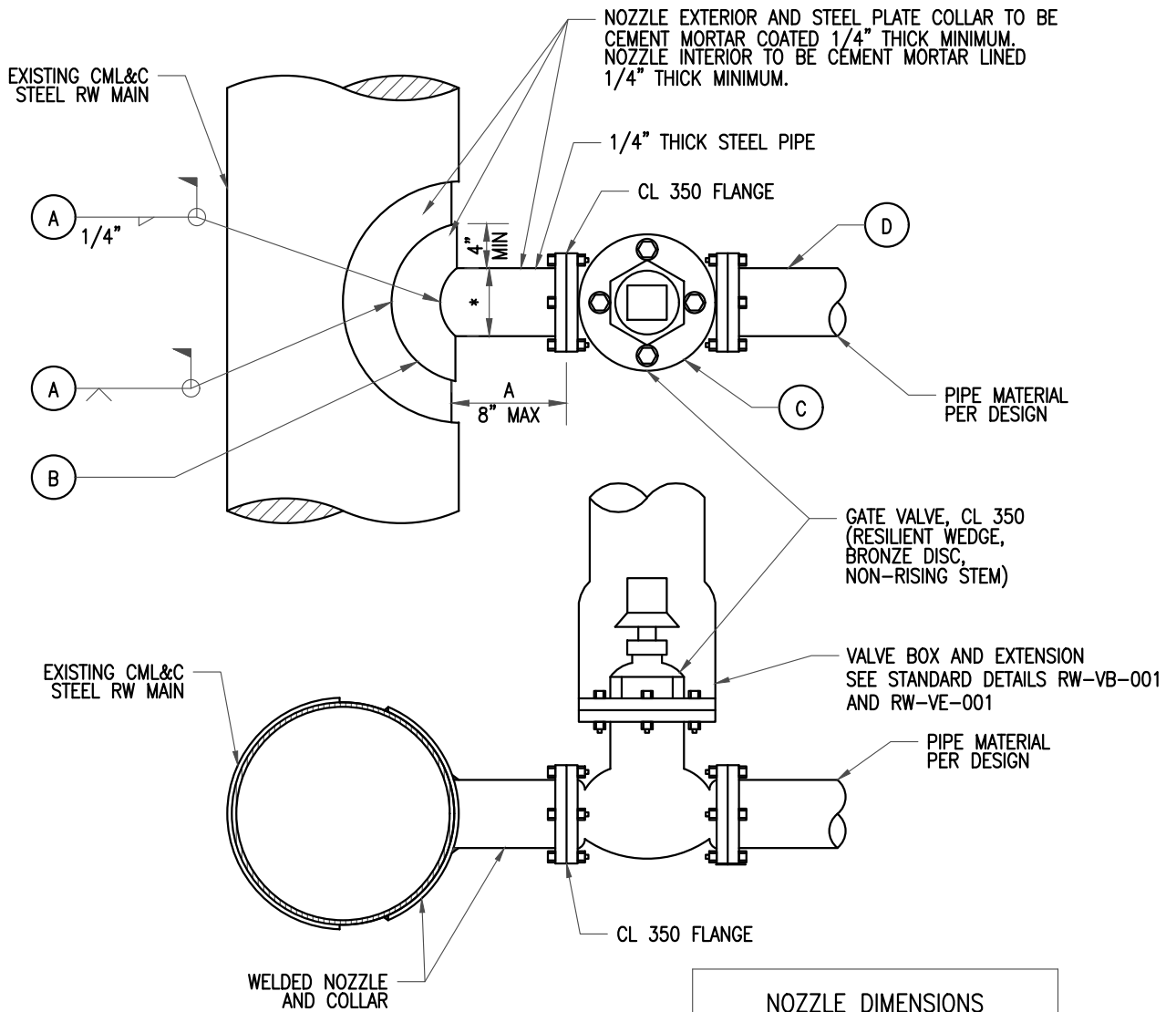
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RW-B0-002

SHEET 2 OF 2

\\gdnrnet\gdnr\US\Inrme\Projects\111\1181240 IEUA On Call Engineering Serv\Phase 08 - IEUA Standard Details\4- Delivery Documents\1- CAD\Sheets\Civil Standard Details\RW-LC-001.dwg May 30, 2025 - 2:35pm



CONSTRUCTION NOTES:

- A FILLET WELD NOZZLE AND COLLAR TO PIPE WALL
- B AIR TEST NOZZLE AND COLLAR
- C INSTALL VALVE
- D INSTALL PIPE

NOZZLE DIMENSIONS	
* TAP SIZE	DIMENSION "A"
4 IN	5 3/4 IN
6 IN	6 IN
8 IN	6 3/4 IN
10 IN	7 IN
12 IN	7 1/2 IN

CML&C STEEL PIPE CONNECTION

SCALE: NOT TO SCALE



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MANAGER OF ENGINEERING

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LATERAL CONNECTION OF
4" AND LARGER

REVISION

NO.

BY

DATE

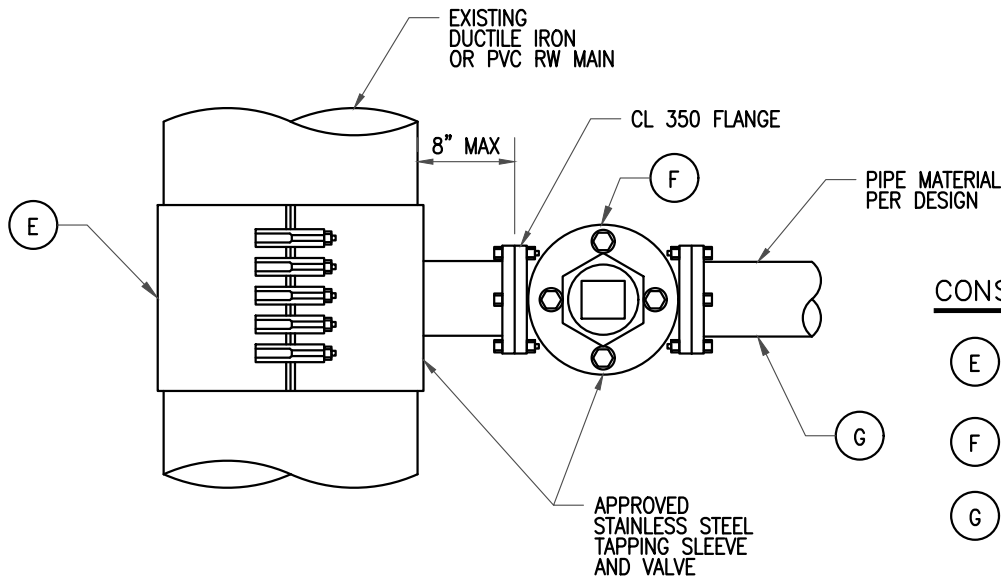
APPROVED

RW-LC-001

SHEET 1 OF 2

KEYWORDS:

RECYCLED WATER SERVICE, LATERAL CONNECTION



CONSTRUCTION NOTES:

- (E) INSTALL TAPPING SLEEVE
- (F) INSTALL TAPPING VALVE
- (G) INSTALL PIPE

DUCTILE IRON OR PVC PIPE CONNECTION

GENERAL NOTES:

1. "HOT-TAPS" LESS THAN 1/2 THE SIZE OF THE TRANSMISSION MAIN REQUIRE A STAINLESS STEEL TAPPING SLEEVE AND VALVE ON A DIP/PVC PIPE OR A WELDED STEEL OUTLET AND COLLAR ON STEEL PIPE. THE STEEL COLLAR PLATE AND OUTLET PIPE THICKNESS SHALL BE 1/4" MINIMUM OR AS DETERMINED BY IEUA.
2. FILLET WELDS SHALL BE PER AWWA C-206, "FIELD WELDING OF STEEL WATER PIPE."
3. CONNECTIONS LARGER THAN 1/2 SIZE OF THE MAIN LINES REQUIRE THE INSTALLATION OF A TEE AND VALVE ASSEMBLY OF THE SAME MATERIAL AS THE MAIN. THE CONNECTION SIZE MAY BE EXCEPTIONALLY INCREASED TO MAXIMUM 3/4 SIZE OF THE MAIN LINE, BY SPECIAL APPROVAL OF IEUA.
4. CONNECTIONS SMALLER THAN 4" REQUIRE THE REVIEW AND APPROVAL BY IEUA.

SCALE: NOT TO SCALE



Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

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JULY 2025
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C81075

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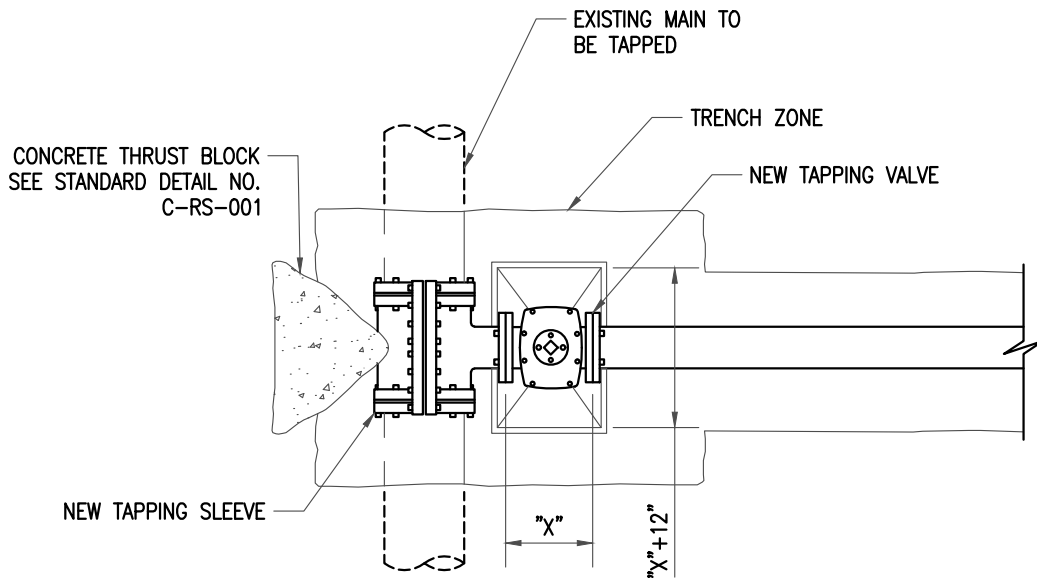
**LATERAL CONNECTION OF
4" AND LARGER**

REVISION

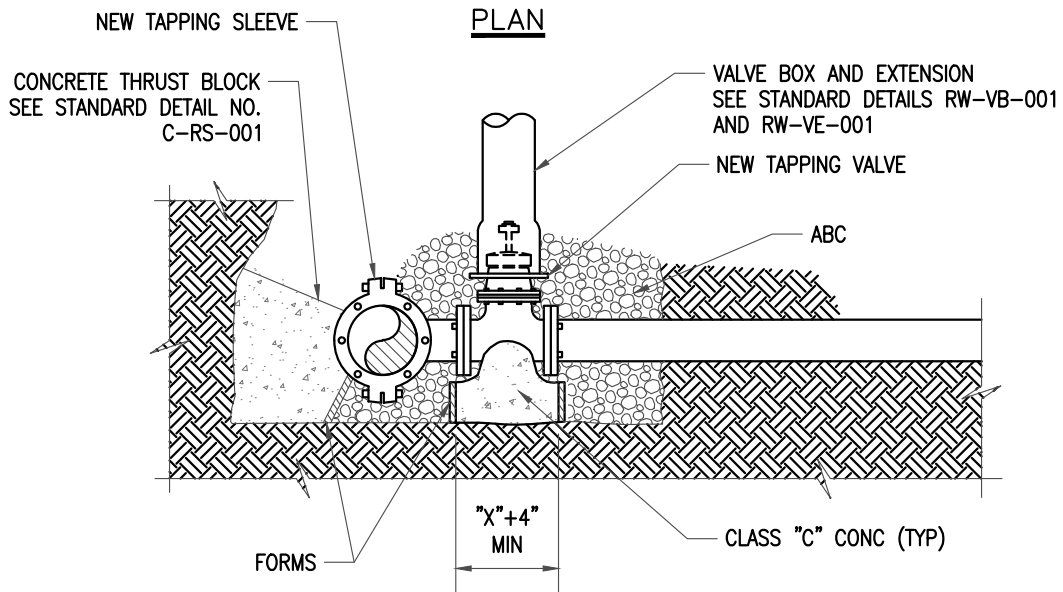
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RW-LC-001

SHEET 2 OF 2



PLAN



ELEVATION

NOTES:

1. INSTALL PERMANENT THRUST BLOCKING UNDER VALVE BEFORE TAP IS MADE. JOINTS AND BOLTS SHALL BE CLEAR OF CONCRETE.
2. TAPPING SLEEVE TO BE PLACED 18" MIN FROM ANY BELL, COUPLING, VALVE, OR FITTING.

SCALE: NOT TO SCALE



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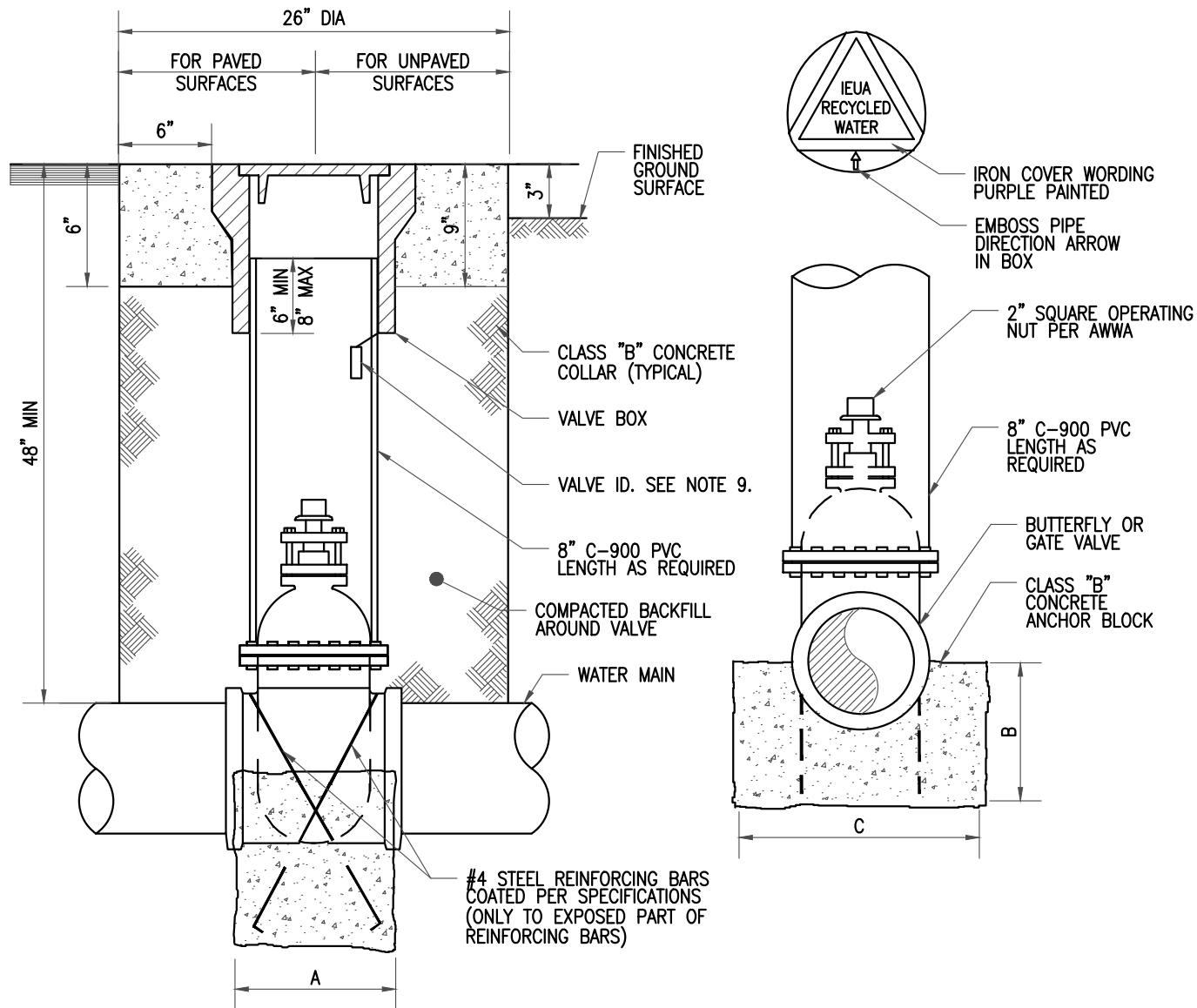
**TAPPING
SLEEVE**

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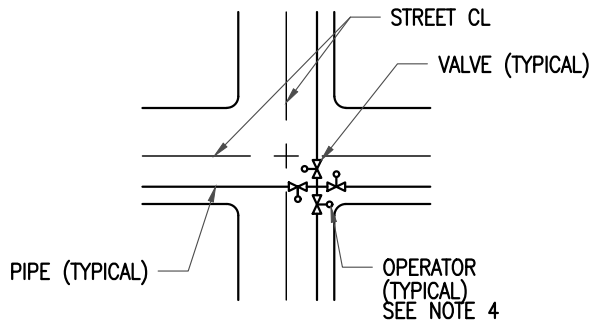
RW-TS-001

SHEET 1 OF 1



SCALE: NOT TO SCALE

SHEET 1 OF 2



**TYPICAL BUTTERFLY VALVE
OPERATOR POSITION**

VALVE SIZE	DIMENSION	
	A	B
6" OR SMALLER	12"	12"
8"	13"	14"
10"	14"	16"
12"	14"	18"
18"	22"	24"
30"	34"	36"

DIMENSION "C" = TRENCH WIDTH PLUS 2X PIPE DIAMETER

NOTES:

1. PROVIDE VALVE STEM EXTENSION IF DEPTH TO VALVE NUT EXCEEDS 4 FEET.
2. BUTTERFLY VALVE OPERATORS SHALL BE LOCATED ON THE LEFT-HAND SIDE OF THE VALVE (AT THE TEE OR CROSS), LOOKING THROUGH THE VALVE TOWARD THE PIPE END.
3. VALVES TO BE LOCATED ADJACENT TO FITTINGS WHEREVER POSSIBLE.
4. VALVES BOLTED TO FITTINGS WILL NOT REQUIRE ANCHOR BLOCKS.
5. PROVIDE HEAVY DUTY CAST-IRON VALVE CAP, MARKED AS INDICATED, PAINTED PURPLE. VALVE LID SHALL BE TRIANGULAR SHAPED, TRAFFIC RATED VALVE BOX COVER SHALL HAVE A CIRCULAR ADAPTER CHRISTY CONCRETE PRODUCTS G4 BOX/G4C OR APPROVED EQUAL.
6. STAMP INTERIOR OF VALVE LID SKIRT WITH VALVE SIZE AND TYPE (G.V. FOR GATE VALVES, B.F.V. FOR BUTTERFLY VALVES). LETTERING SHALL BE BLACK AND A MINIMUM OF 3" IN HEIGHT.
7. STAMP CONCRETE COLLAR WITH DIRECTION ARROW, VALVE TYPE (SEE NOTE 6), RW, VALVE SIZE AND DEPTH.
8. PROVIDE VALVE STEM EXTENSIONS TO 18" BELOW GRADE AND BONNET DUST COVERS.
9. VALVE NUMBER PER STANDARD RW-VI-001. VALVE NUMBER SHALL BE PLACED ON THE PVC STEM.

SCALE: NOT TO SCALE



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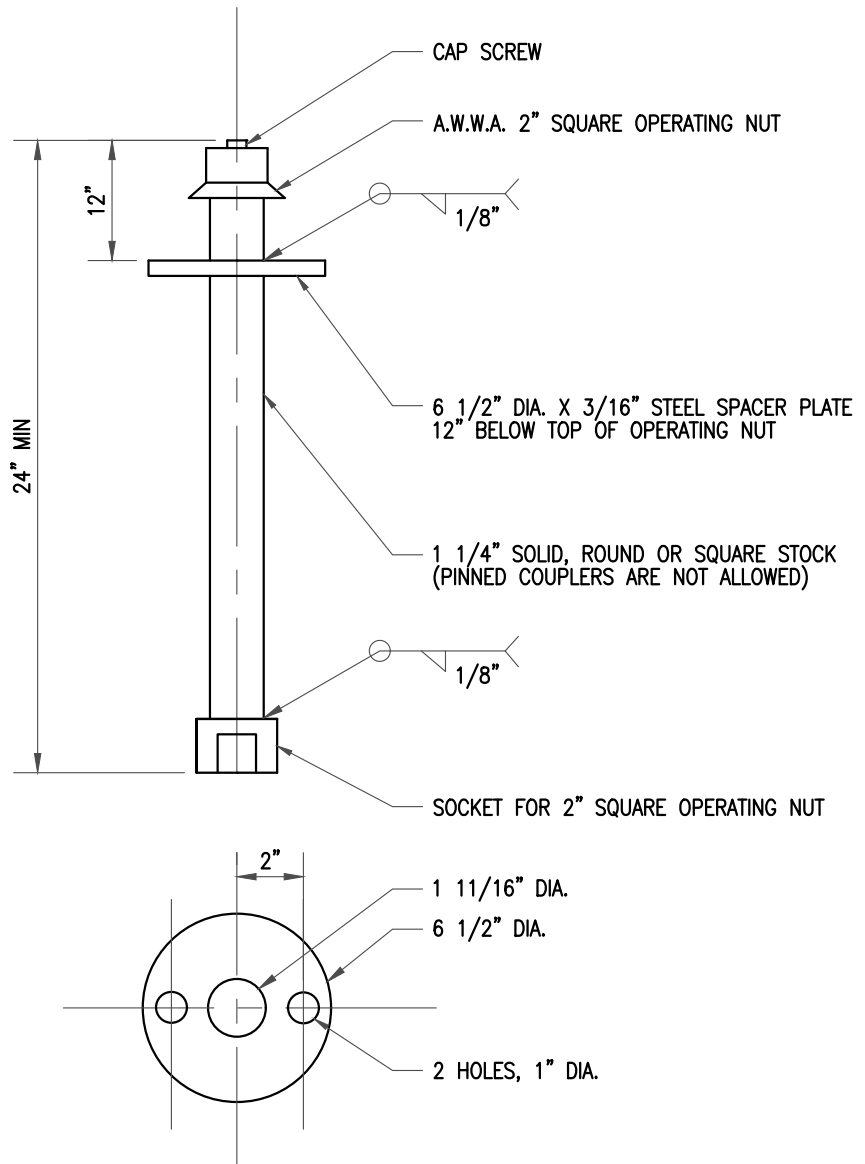
**VALVE BOX
DETAIL**

REVISION

NO.	BY	DATE	APPROVED

RW-VB-001

SHEET 2 OF 2



**SPACER PLATE
PLAN**

NOTES:

1. PROVIDE VALVE STEM EXTENSION WHEN DEPTH TO OPERATING NUT EXCEEDS 48" (FABRICATE EXTENSION TO FIELD MEASUREMENT – SEE NOTE 2.
2. NO VALVE STEM EXTENSION SHALL BE LESS THAN 2 FEET IN LENGTH. TERMINATE EXTENSION 24" FROM FINISHED GRADE.
3. PROVIDE ADDITIONAL SPACER PLATE WHEN DISTANCE TO BOTTOM SOCKET EXCEEDS 5 FEET.

SCALE: NOT TO SCALE



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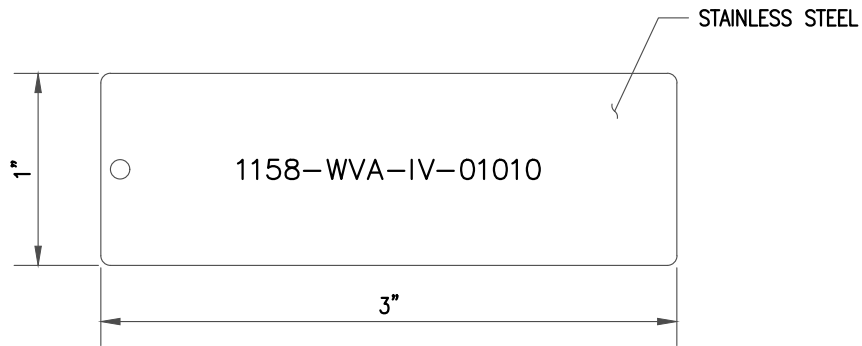
**VALVE
STEM EXTENSION**

REVISION

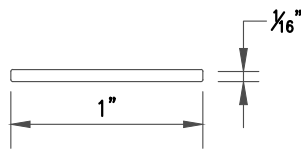
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RW-VE-001

SHEET 1 OF 1



PLAN



ELEVATION

NAMING CONVENTION EXAMPLE

1158-WVA-AR-00000
 1158-WVA-BO-00000
 1158-WVA-CP-00000
 1158-WVA-MW-00000
 1158-WVA-IV-00000
 1158-WVA-MV-00000
 1158-WVA-LV-00000
 1158-WVA-PV-00000

(1) (2) (3) (4)
 1158-WVA-IV-00000
 A B C

NOTES:

- (1) 1158 IDENTIFIES PRESSURE ZONE
- (2) WVA WINEVILLE PIPELINE SEGMENT A OR B
- (3) ASSET/APPURTENANCE IDENTIFICATION
- (4) (A) IDENTIFIES WHAT PAGE THE ASSET CAN BE FOUND IN
 (B) WHAT NUMBER THE ASSET IS IN SEQUENTIAL ORDER
 (C) USED FOR FUTURE IF NEEDED

SCALE: NOT TO SCALE



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**STAINLESS STEEL
 VALVE ID TAGS**

REVISION

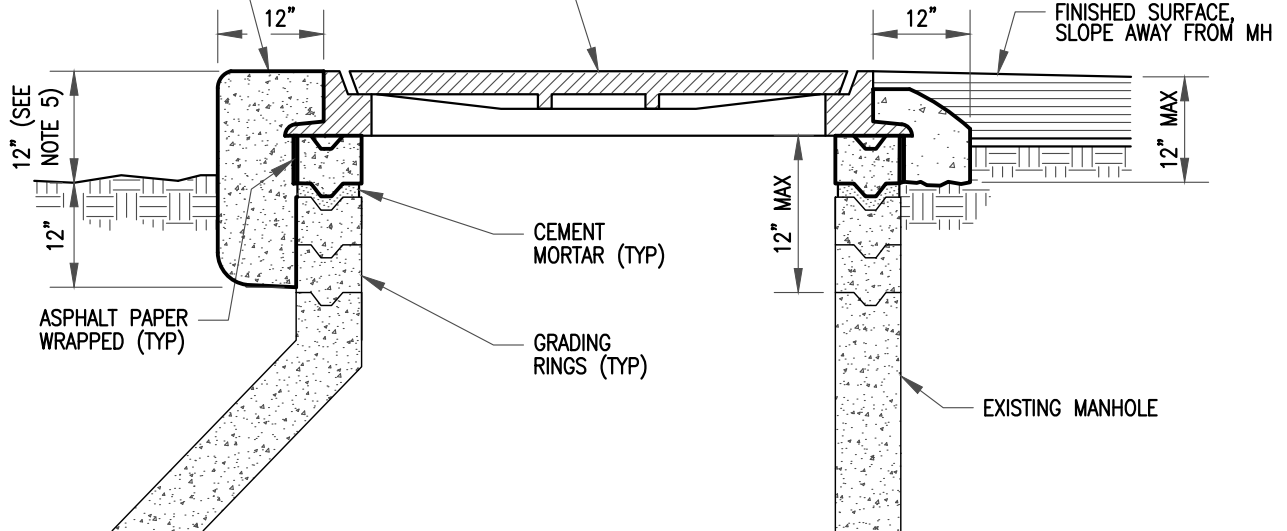
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RW-VI-001

SHEET 1 OF 1

REPLACE CONCRETE
COLLAR PER STANDARD
DETAIL C-MH-004 (TYP)

REUSE EXISTING
FRAME AND COVER



NOTES:

1. SALVAGE EXISTING FRAME AND COVER FOR REUSE IF COMPOSITE. IF NOT COMPOSITE, REPLACE PER STANDARD DETAIL C-MH-004.
2. PROVIDE ADDITIONAL GRADE RINGS AS REQUIRED, NOT EXCEEDING 12" HIGH PER STANDARD DETAIL C-MH-001. WHERE GRADE ADJUSTMENT EXCEEDS THE 12" MAX GRADE RING HEIGHT, THE EXISTING GRADE RINGS AND CONE SHALL BE REPLACED WITH NEW BARRELS, CONE, AND GRADE RINGS AS REQUIRED TO ACHIEVE THE NEW GRADE, OR AS DIRECTED BY IEUA.
3. WHEN ADDITIONAL GRADE RINGS ARE USED, CHIP OUT LEVELING MORTAR ON EXISTING GRADE RING WHERE PRESENT AND RESET WITH FLEXIBLE JOINT SEALANT. CEMENT MORTAR GROUT NEW UPPER GRADE RING AS REQUIRED TO LEVEL FRAME AND COVER WITH FINISH SURFACE GRADE PER STANDARD DETAIL C-MH-004.
4. 3000 P.S.I. CAST-IN-PLACE CONCRETE MAY BE USED IN LIEU OF THE UPPER GRADE RING WHEN AN ADDITIONAL GRADE RING WILL NOT FIT. THE MINIMUM CAST-IN-PLACE GRADE RING HEIGHT SHALL BE 1 INCH. WHEN A CAST-IN-PLACE GRADE RING IS USED IT SHALL BE POURED MONOLITHICALLY WITH THE CONCRETE COLLAR.
5. IF WITHIN A PLANTER, 12" DIMENSION CAN BE REDUCED TO 6".

SCALE: NOT TO SCALE



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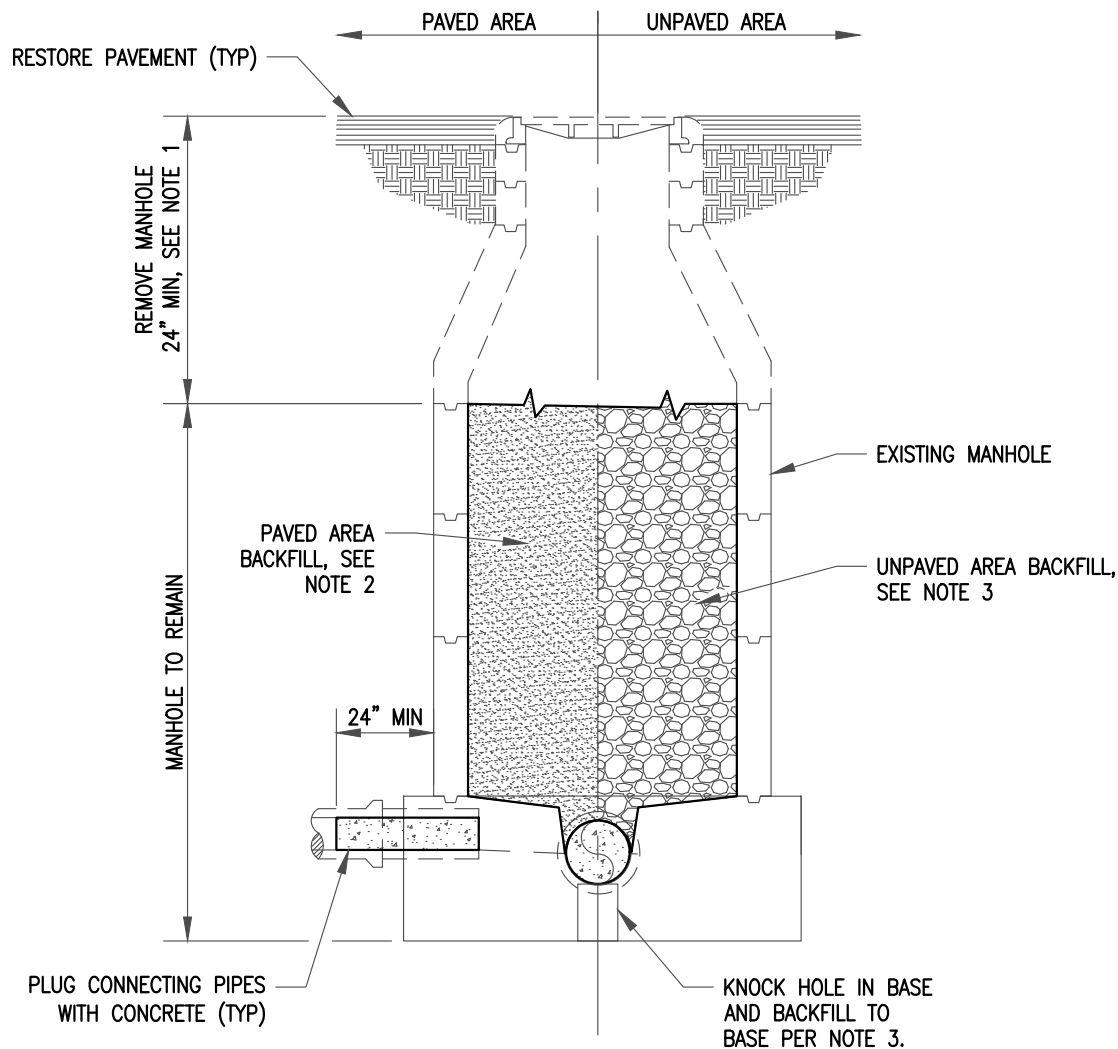
**MANHOLE ADJUSTMENT
TO GRADE**

REVISION

NO.	BY	DATE	APPROVED

C-MH-005

SHEET 1 OF 1



NOTES:

1. REMOVE MANHOLE CONE, GRADE RINGS, AND FRAME AND COVER AS REQUIRED TO MIN 24" BELOW FINISHED GRADE. SALVAGE FRAME, COVER, AND GRADE RINGS AND DELIVERY TO IEUA BACKFILL TO GRADE PER NOTES 2 OR 3.
2. IN PAVED AREAS, BACKFILL WITH 1-SACK SLURRY AND RESTORE EXISTING PAVEMENT.
3. IN UNPAVED AREAS, BACKFILL WITH COARSE AGGREGATE BASE OR RIVER RUN GRAVEL COMPACTED TO 90% RELATIVE COMPACTION. KNOCK 6" MIN HOLE IN BASE.

SCALE: NOT TO SCALE



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CHRIS BARTLEMAN, P.E.
C81075

JULY 2025
DATE

Inland Empire Utilities Agency

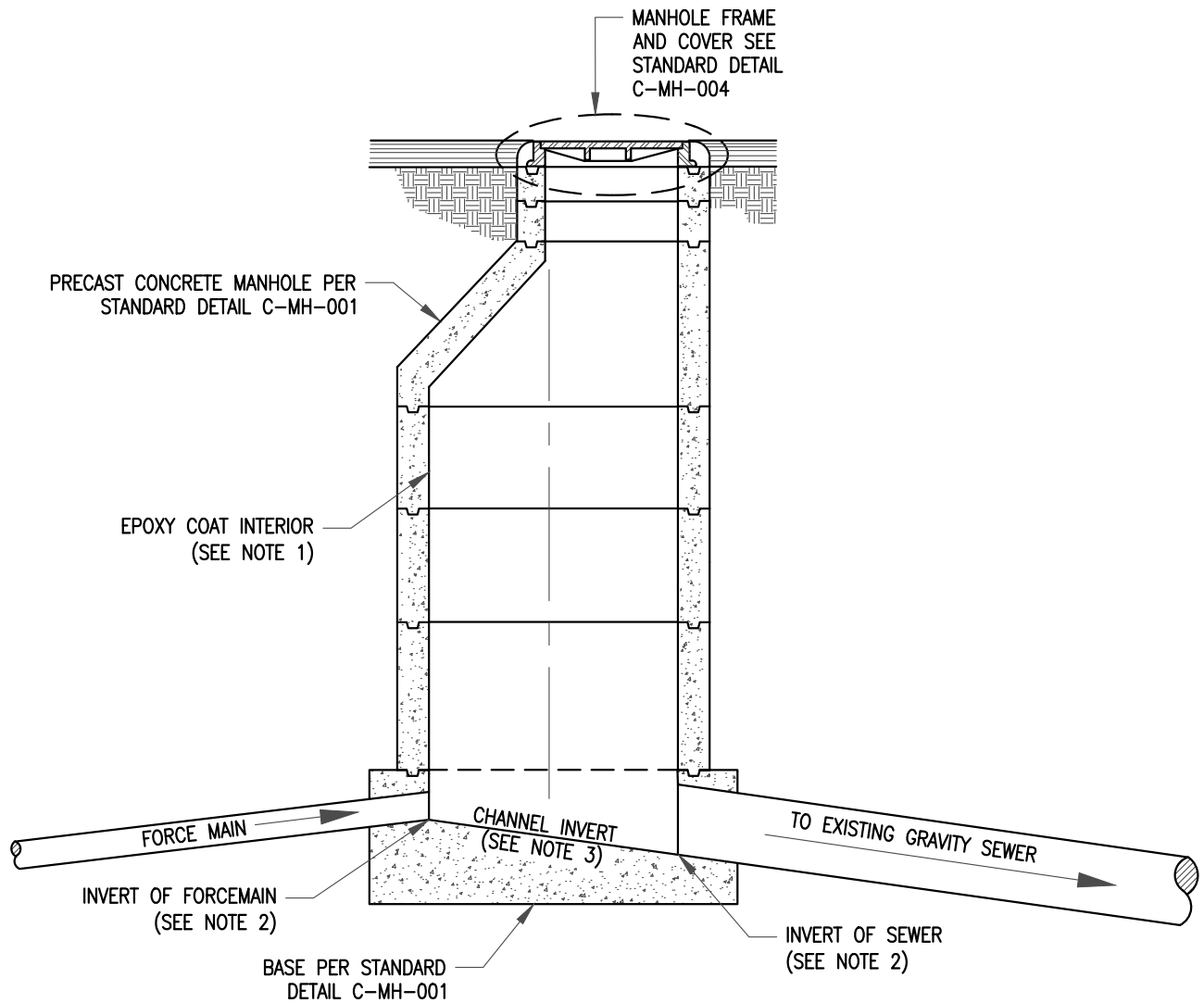
**MANHOLE
ABANDONMENT**

REVISION

NO.	BY	DATE	APPROVED

C-MH-006

SHEET 1 OF 1



NOTES:

1. COAT INTERIOR OF MANHOLE WITH APPROVED EPOXY COATING AT MINIMUM 80 MILS. IN LIEU OF EPOXY COATED MANHOLE, A H2S RESISTANT MANHOLE OR POLYMER CONCRETE MANHOLE MAY BE INSTALLED.
2. ELEVATION OF GRAVITY SEWER INVERT SHALL BE MINIMUM 1" BELOW ELEVATION OF FORCE MAIN INVERT.
3. PROVIDE SMOOTH DOWNWARD SLOPING CHANNEL FROM FORCE MAIN TO GRAVITY SEWER.
4. FORCE MAIN SHALL NOT CONNECT WITH EXISTING GRAVITY SEWER MANHOLES.
5. INSTALL APPROVED ODOR CONTROL AT DISCHARGE MANHOLE.
6. FORCEMAIN DROP CONNECTIONS ARE NOT PERMITTED.
7. MAXIMUM OF ONE FORCEMAIN CONNECTION PER MANHOLE; MULTIPLE CONNECTIONS NOT ALLOWED.

SCALE: NOT TO SCALE



Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

APPROVED BY:

JASON MARSEILLES, P.E.
MANAGER OF ENGINEERING

JULY 2025
DATE

DESIGN BY: GHD, INC.

APPROVED BY:
CHRIS BARTLEMAN, P.E.
C81075

JULY 2025
DATE

Inland Empire Utilities Agency

**DISCHARGE
MANHOLE**

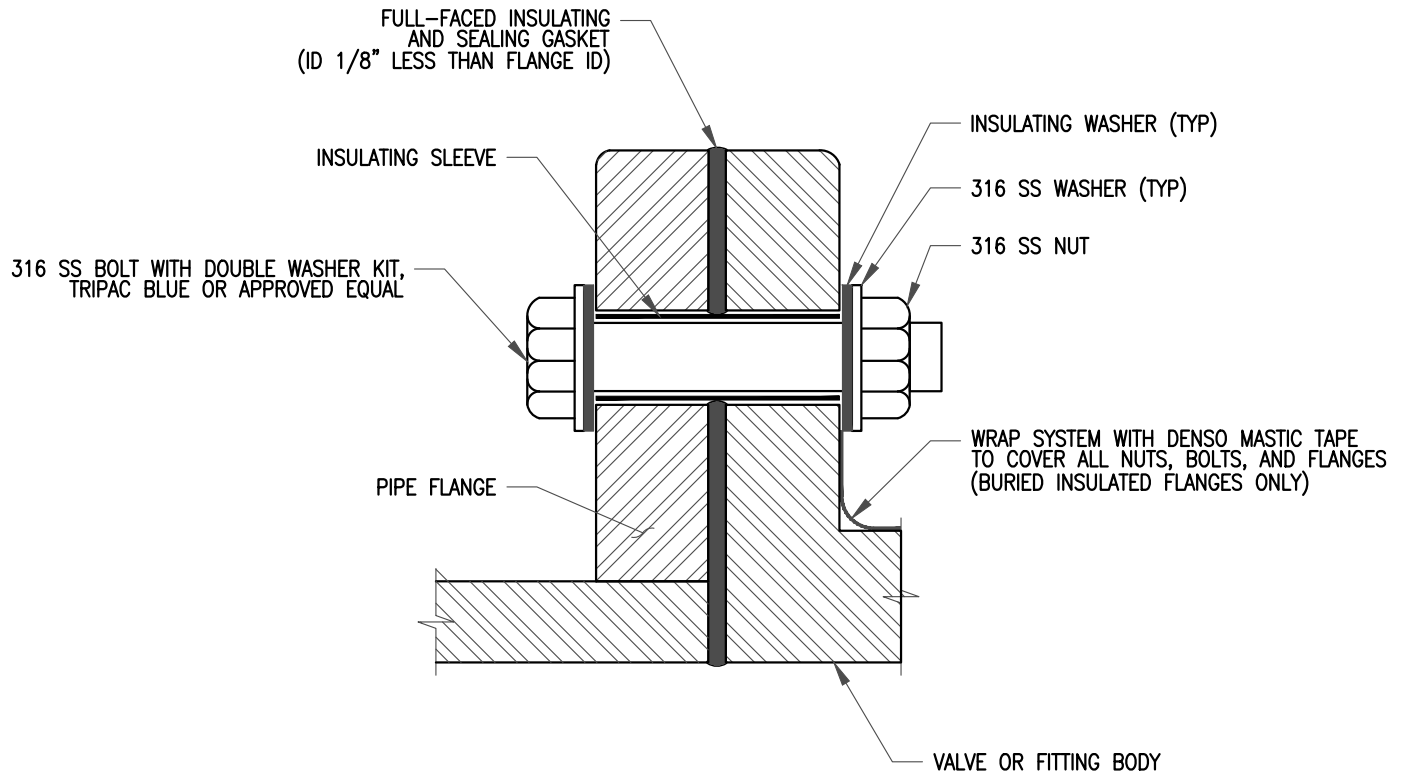
REVISION

NO.	BY	DATE	APPROVED

C-MH-007

SHEET 1 OF 1

\\gdn\et\gdn\US\Voice\Projects\11\11181240 IEUA On Call Engineering Serv\Phase 08 - IEUA Standard Details\4- Delivery Documents\1- CAD Sheets\Mechanical Standard Details\M-CP-001.dwg May 30, 2025 - 2:39pm



NOTES:

1. INSULATING FLANGE KIT TO BE USED FOR ALL DISSIMILAR METALS UNLESS INDICATED OTHERWISE.
2. FOR TAPPED BOLTS, INSTALL INSULATING SLEEVE WHICH IS CUT TO FIT LENGTH OF BOLT HOLE FOR FLANGE.
3. INSULATED FLANGE KIT MATERIALS, INSTALLATION, AND TESTING PROCEDURES PER MANUFACTURER'S RECOMMENDATIONS.

SCALE: NOT TO SCALE



Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

APPROVED BY:

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MANAGER OF ENGINEERING

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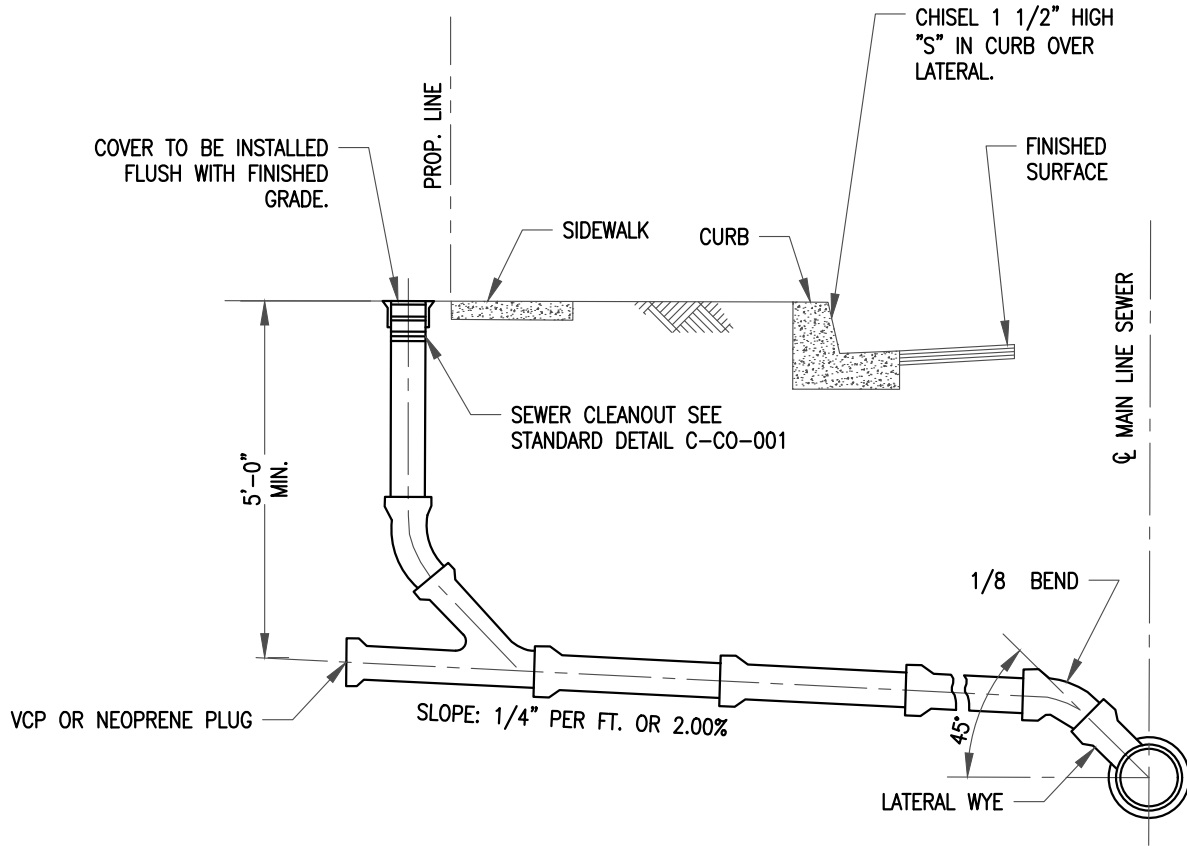
INSULATING FLANGE

REVISION

NO.	BY	DATE	APPROVED

M-CP-001

SHEET 1 OF 1



NOTES:

1. FOR SLOPES LESS THAN 1/4" PER FOOT, APPROVAL IS REQUIRED BY ENGINEER.
2. THE LATERAL SHALL BE BEDDED PER STANDARD DRAWING C-EW-006, CLASS B, UNLESS NOTED OTHERWISE.
3. FOR SEWER CLEANOUT RISER, USE PIPE OF THE SAME DIAMETER AND MATERIAL USED IN THE ADJOINING SEWER LINE.
4. SINGLE FAMILY RESIDENCES SHALL HAVE 4" DIAMETER VITRIFIED CLAY PIPE (VCP) SEWER LATERALS. ALL OTHERS SHALL BE 6" OR GREATER.
5. WHERE DIRECTED BY THE ENGINEER, THE CLEANOUT SHALL BE INSTALLED ON THE PUBLIC PROPERTY SIDE OF THE PROPERTY LINE.

SCALE: NOT TO SCALE



Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

APPROVED BY:

JASON MARSEILLES, P.E.
MANAGER OF ENGINEERING

JULY 2025
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CB1075

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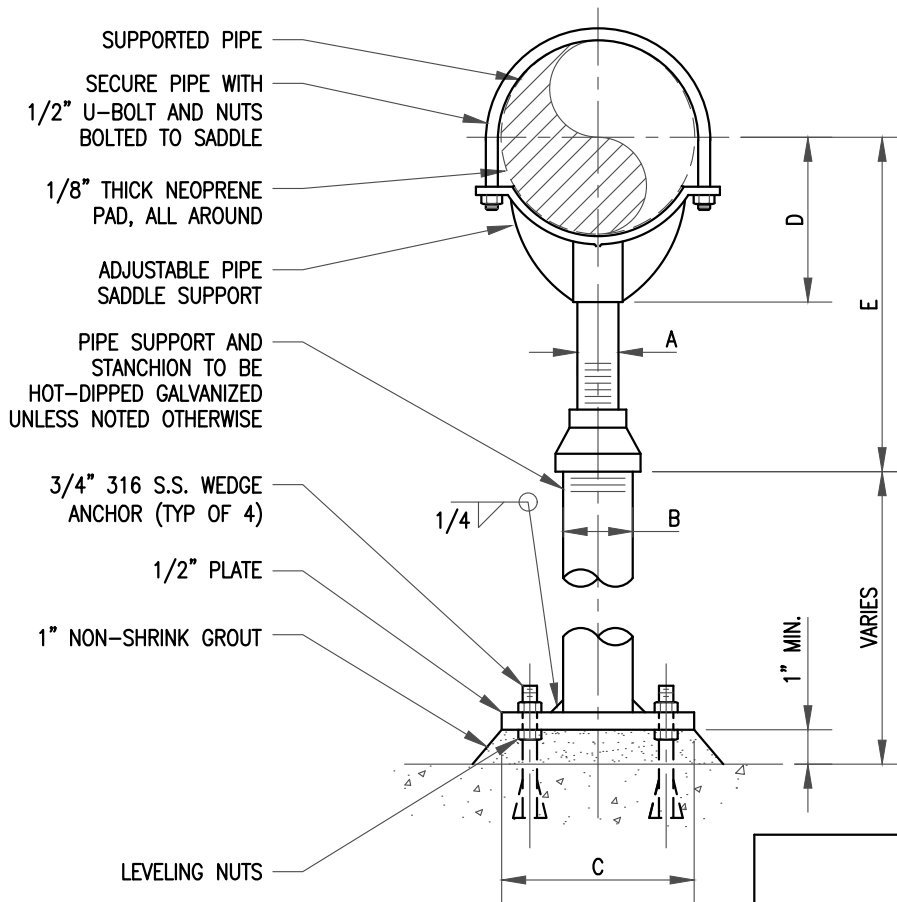
**SEWER LATERAL CONNECTION
ON NEW SEWER**

REVISION

NO.	BY	DATE	APPROVED

C-LC-003

SHEET 1 OF 1



NOTES:

1. ADJUSTABLE PIPE SADDLE SUPPORT GRINNELL FIG. 265 WITH THREADED PIPE STANCHION GRINNELL FIG. 63T OR APPROVED EQUIVALENT.
2. PIPE STANCHION SADDLE DESIGNED FOR PIPE 4"-36". PIPE LARGER THAN 36" SHALL BE SUPPORTED BY A STANCHION SADDLE DESIGNED BY THE MANUFACTURER.
3. ENGINEER TO EVALUATE USE OF SUPPORTS FOR SEISMIC LOADING, THERMAL EXPANSION, AND THRUST, AND SHALL SPECIFY SUPPORT SPACING.

DIMENSION TABLE (INCHES)

PIPE SIZE	A	B	C	D	E	
					MIN	MAX
2 1/2	1 1/2	2 1/2	9	3 1/2	8	13
3	1 1/2	2 1/2	9	3 3/4	8 1/4	13 1/4
3 1/2	1 1/2	2 1/2	9	4	8 1/2	13 1/2
4	2 1/2	3	9	4 1/4	9 1/4	14
5	2 1/2	3	9	4 7/8	10	14 3/4
6	2 1/2	3	9	5 1/2	10 1/2	15 1/4
8	2 1/2	3	9	6 7/8	11 3/4	16 1/2
10	2 1/2	3	9	8 1/2	13 1/2	18 1/4
12	2 1/2	3	9	9 15/16	15	19 3/4
14	3	4	11	10 15/16	16 1/4	20 3/4
16	3	4	11	12 3/8	17 3/4	22 1/4
18	3 1/2	6	13 1/2	13 7/8	19 1/2	24
20	3 1/2	6	13 1/2	15 3/8	21	25 1/2
24	4	6	13 1/2	17 15/16	23 3/4	28 1/4
30	4	6	15	21 5/16	27	31 1/2
32	4	6	18	22 1/2	28 1/4	32 3/4
36	4	6	18	24 1/2	30 1/4	34 3/4

SCALE: NOT TO SCALE



Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

APPROVED BY:

JASON MARSEILLES, P.E.
MANAGER OF ENGINEERING

JULY 2025
DATE

DESIGN BY: GHD, INC.

APPROVED BY:
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JULY 2025
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Inland Empire Utilities Agency
ADJUSTABLE PIPE SUPPORT

REVISION

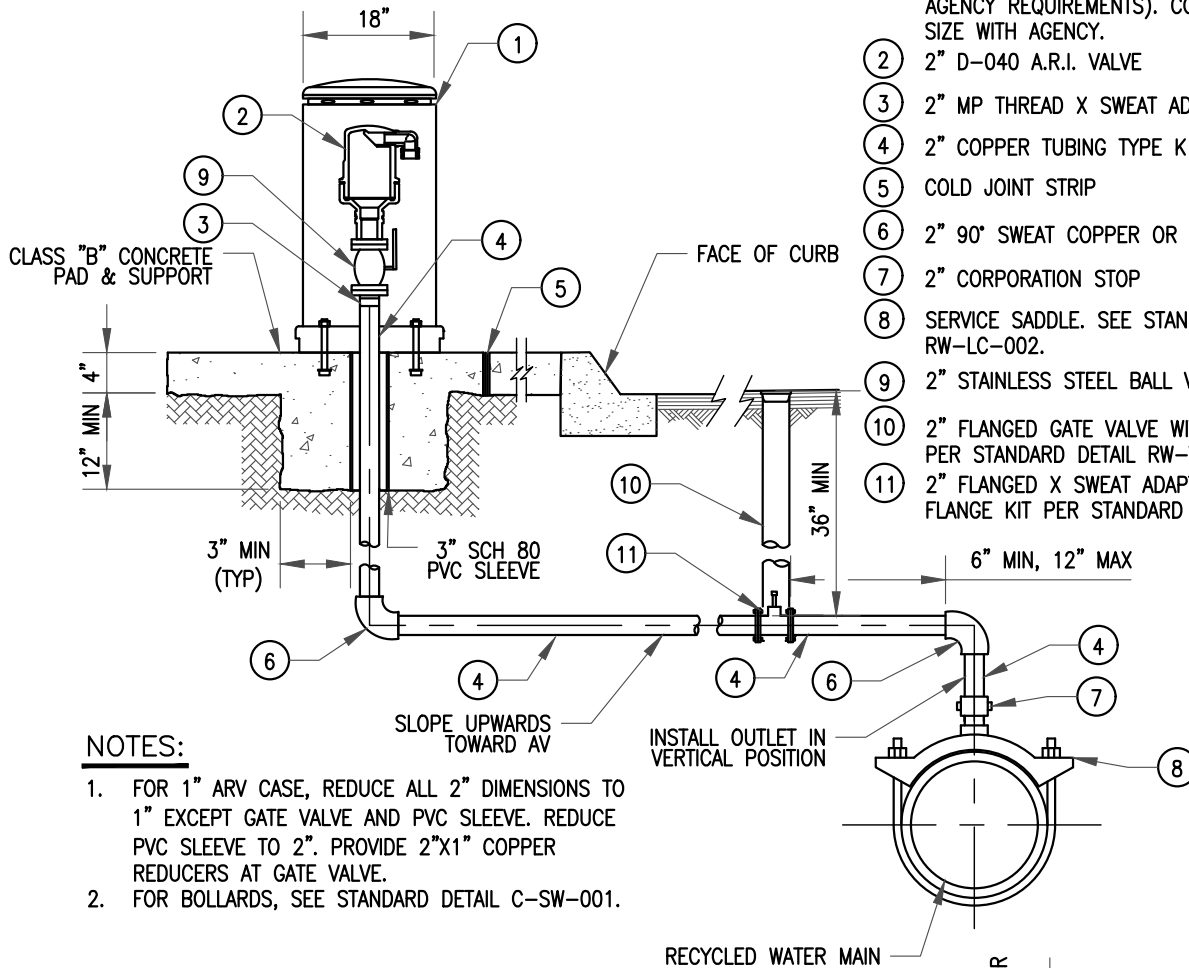
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M-PS-001

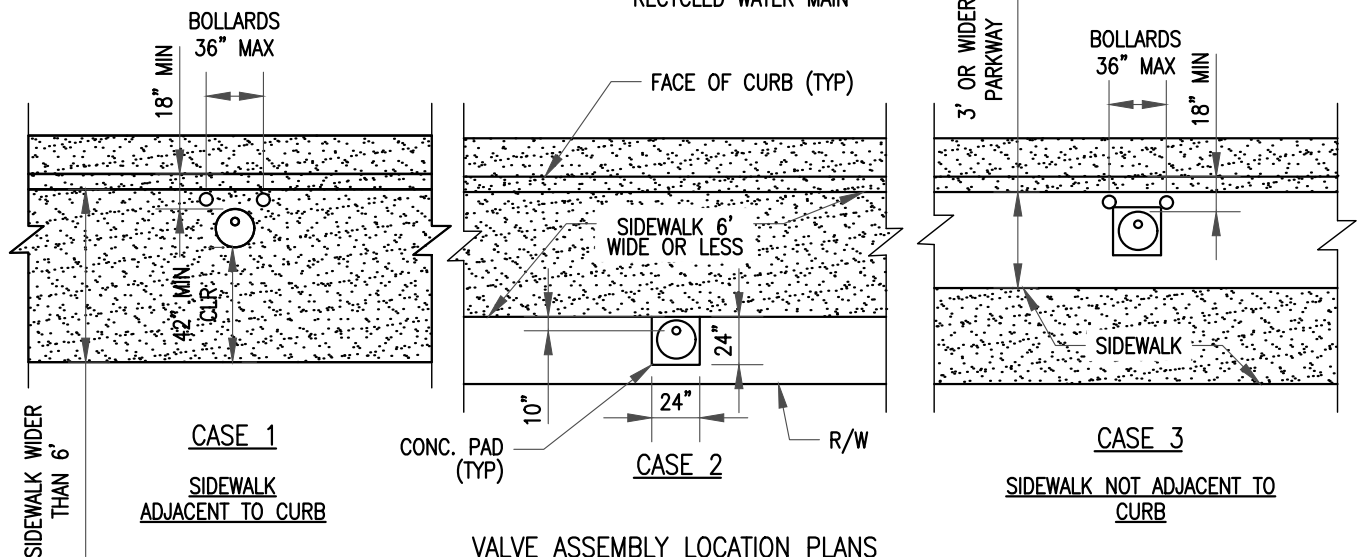
SHEET 1 OF 1

ITEM
NOMATERIALS

- ① LDPE ADVANTAGE SERIES AIR AND VACUUM VALVE ENCLOSURE (COLOR: PURPLE OR PER MEMBER AGENCY REQUIREMENTS). COORDINATE ENCLOSURE SIZE WITH AGENCY.
- ② 2" D-040 A.R.I. VALVE
- ③ 2" MP THREAD X SWEAT ADAPTER
- ④ 2" COPPER TUBING TYPE K RIGID
- ⑤ COLD JOINT STRIP
- ⑥ 2" 90° SWEAT COPPER OR BRASS ELBOW
- ⑦ 2" CORPORATION STOP
- ⑧ SERVICE SADDLE. SEE STANDARD DETAIL RW-LC-002.
- ⑨ 2" STAINLESS STEEL BALL VALVE
- ⑩ 2" FLANGED GATE VALVE WITH VALVE BOX PER STANDARD DETAIL RW-VB-001.
- ⑪ 2" FLANGED X SWEAT ADAPTER. PROVIDE INSULATING FLANGE KIT PER STANDARD DETAIL M-CP-001.

NOTES:

1. FOR 1" ARV CASE, REDUCE ALL 2" DIMENSIONS TO 1" EXCEPT GATE VALVE AND PVC SLEEVE. REDUCE PVC SLEEVE TO 2". PROVIDE 2"x1" COPPER REDUCERS AT GATE VALVE.
2. FOR BOLLARDS, SEE STANDARD DETAIL C-SW-001.



VALVE ASSEMBLY LOCATION PLANS

SCALE: NOT TO SCALE



Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

APPROVED BY:

JASON MARSEILLES, P.E.
MANAGER OF ENGINEERING

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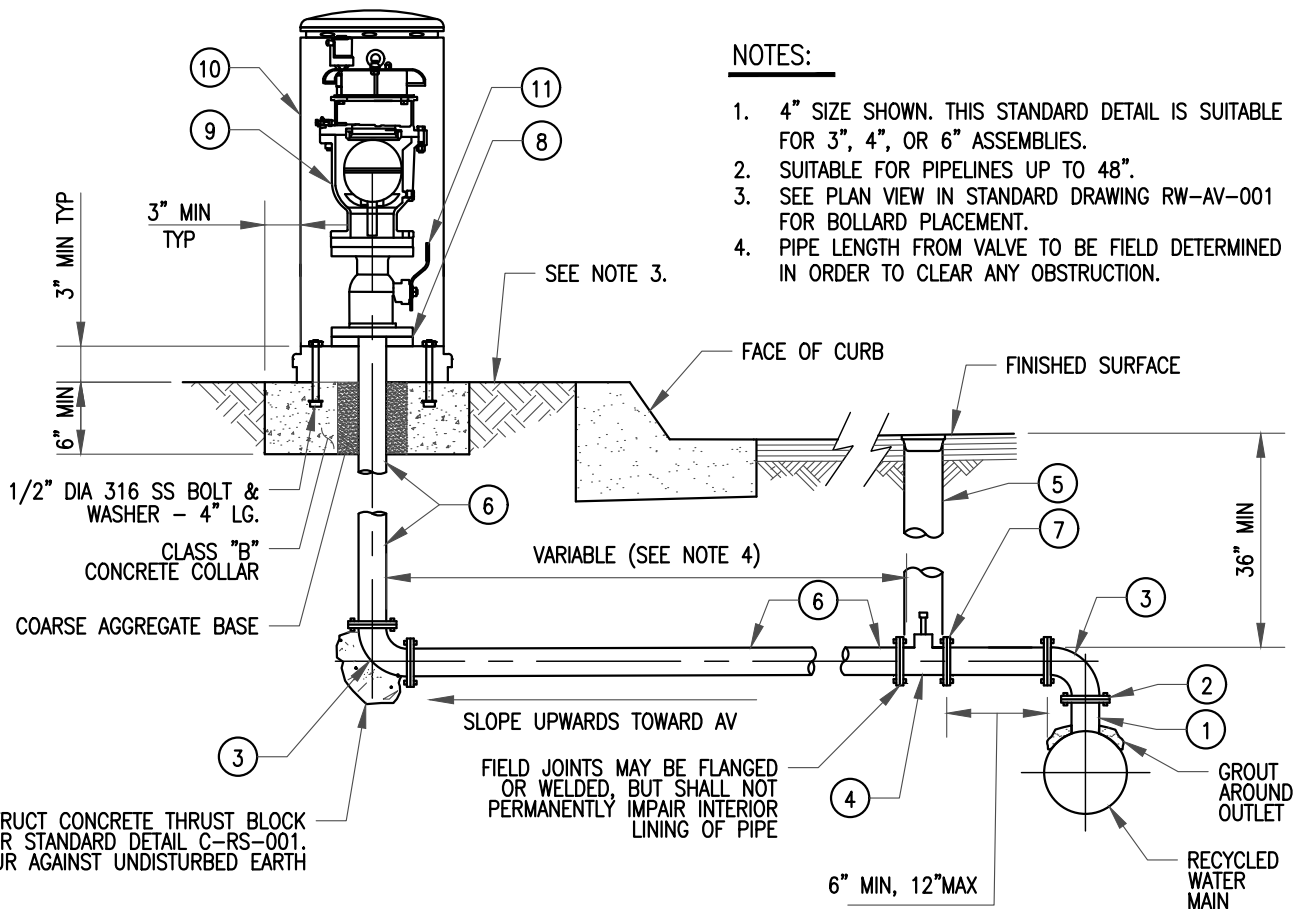
**1" OR 2" AIR RELEASE & VACUUM
RELIEF VALVE ASSEMBLY**

REVISION

NO.	BY	DATE	APPROVED

RW-AV-001

SHEET 1 OF 1



MATERIAL LIST FOR 4" ARV

ITEM	NO. REQ'D.	DESCRIPTION
①	1	4" FLANGED CONNECTION PER STANDARD DETAIL RW-LC-001.
②	1	4" A.S.A. 250 LB. SLIP-ON FLANGE (SHIP LOOSE FOR FIELD WELDING)
③	2	4" STEEL 90° FLANGED ELBOW, CML&C (STD. RADIUS)
④	1	4" AWWA FLANGED RESILIENT SEAT GATE VALVE WITH 2" SQ. OPERATING NUT. 250 LB. RATING.
⑤	1	VALVE BOX PER STANDARD DETAIL RW-VB-001.
⑥	AS NEEDED	4" STEEL SCH. 40 PIPE, CML&C
⑦	2	4" 250 LB. SLIP-ON FLANGE TO MATCH FLANGE ON GATE VALVE (SHIP LOOSE FOR FIELD WELDING)
⑧	1	4" 250 LB. SLIP-ON FLANGE TO MATCH FLANGE ON AIR VALVE
⑨	1	4" D-060-C HF A.R.I. VALVE
⑩	1	LDPE ADVANTAGE SERIES AIR AND VACUUM VALVE ENCLOSURE (COLOR: PURPLE OR PER MEMBER AGENCY REQUIREMENTS). COORDINATE ENCLOSURE SIZE WITH AGENCY.
⑪	1	4" FLANGED STAINLESS STEEL BALL VALVE. INCLUDE INSULATING FLANGE KIT. SEE STANDARD DETAIL M-CP-001

SCALE: NOT TO SCALE



Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

APPROVED BY:

JASON MARSEILLES, P.E.
MANAGER OF ENGINEERING

JULY 2025
DATE

DESIGN BY: GHD, INC.

APPROVED BY:
CHRIS BARTLEMAN, P.E.
C81075

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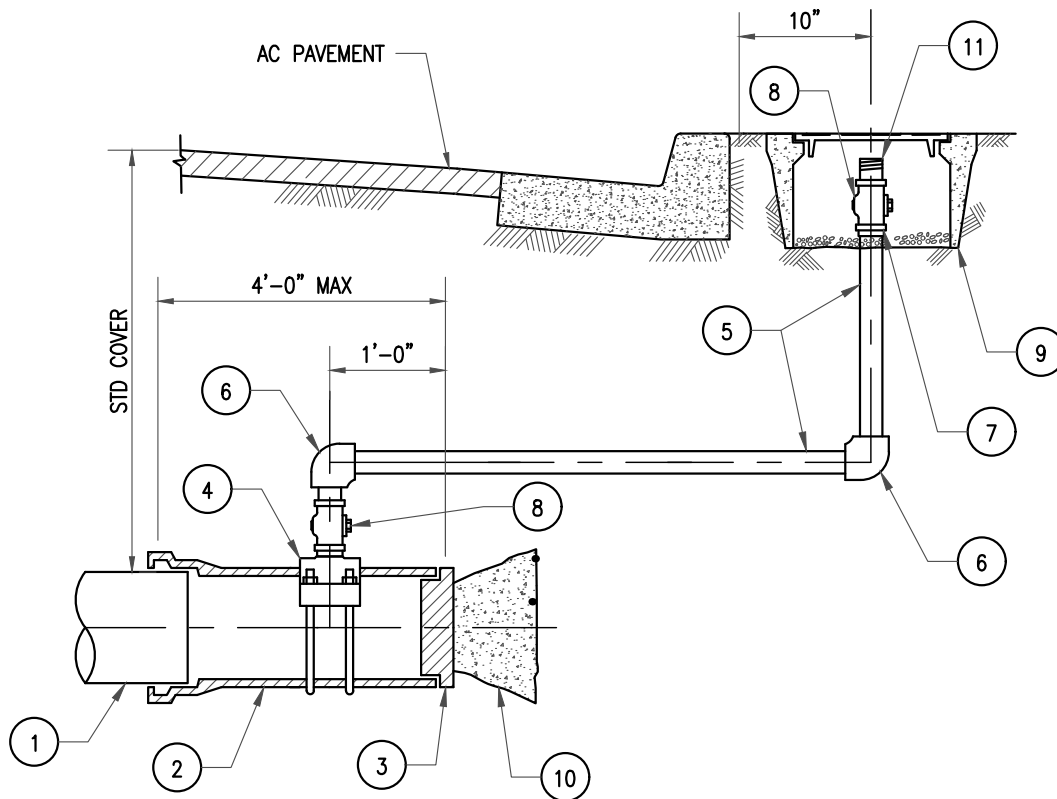
**3", 4", OR 6" AIR RELEASE
& VACUUM RELIEF VALVE ASSEMBLY**

REVISION

NO.	BY	DATE	APPROVED

RW-AV-002

SHEET 1 OF 1



MATERIALS:

- ① 4", 6", 8", 10" OR 12" PVC OR DUCTILE IRON PIPE
- ② D.I. OR PVC SPOOL
- ③ D.I.P. PLUG
- ④ 2" SERVICE SADDLE
- ⑤ 2" BRASS OR COPPER TUBING (LENGTH AS NEEDED)
- ⑥ 2" BRASS OR COPPER 90 ELBOW
- ⑦ 2" M.I.P. X SWEAT COPPER ADAPTER, AS NEEDED
- ⑧ 2" BRASS BALL CORP. STOP, FIP X FIP
- ⑨ METER BOX, SIMILAR TO DWG. RW-CS-001, WITH NO READING LID
- ⑩ THRUST BLOCK PER DWG. C-RS-001
- ⑪ 2" BRASS NIPPLE WITH THREAD PROTECTOR

SCALE: NOT TO SCALE



APPROVED BY:

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MANAGER OF ENGINEERING

JULY 2025
DATE

DESIGN BY: GHD, INC.

APPROVED BY:
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CB1075

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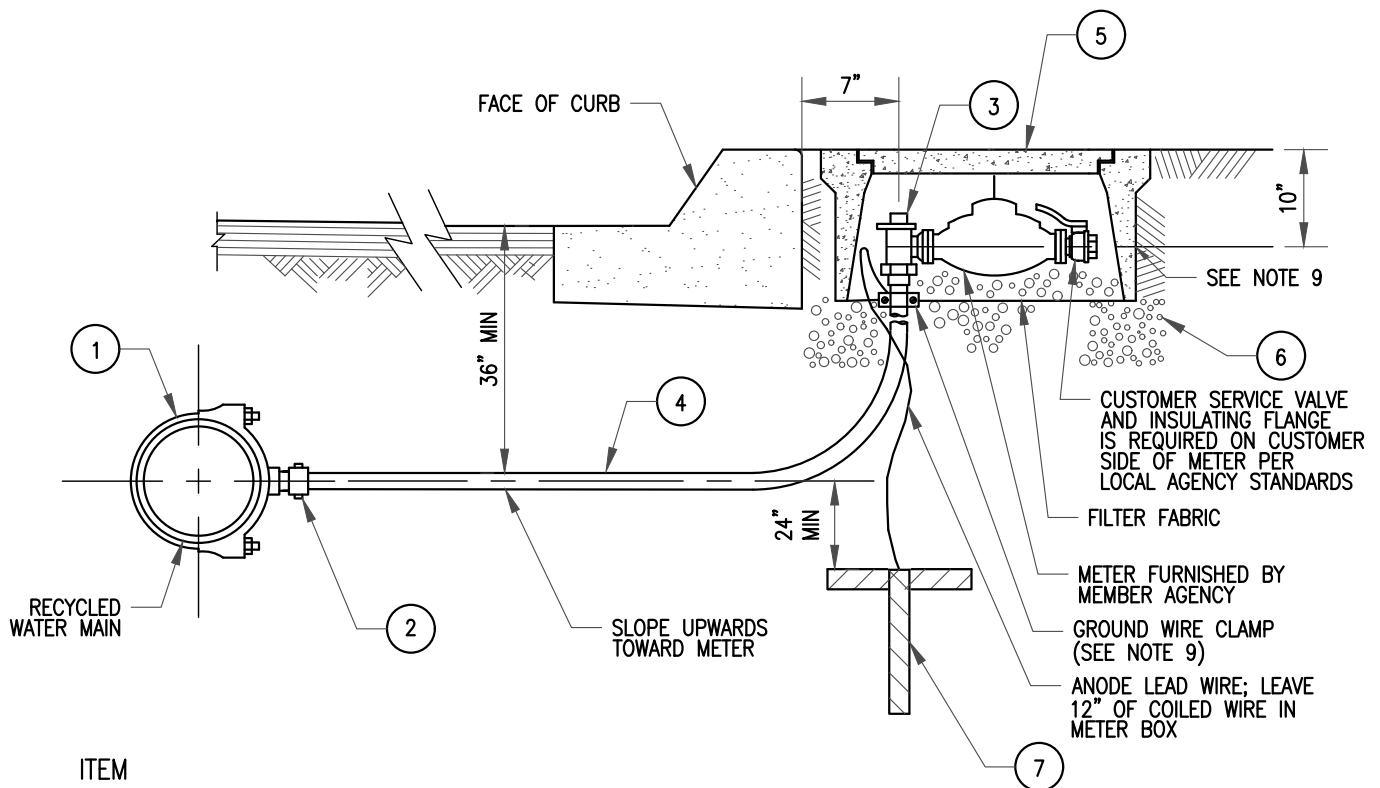
**PERMANENT END OF LINE BLOW-OFF
& CHLORINATION ASSEMBLY**

REVISION

NO.	BY	DATE	APPROVED

RW-B0-003

SHEET 1 OF 1



ITEM
NO.

MATERIALS:

- ① — SERVICE SADDLE PER STANDARD DETAIL RW-LC-002.
- ② — CORPORATION STOP
- ③ — 1" X 3/4" BRONZE ANGLE METER STOP W/LOCKWING (COMPRESSION TYPE) (JONES J-4201, MUELLER H-14258, FORD KV43-342-W OR APPROVED EQUAL)
- ④ — 1" COPPER TUBING TYPE K SOFT (MUELLER, HALSTEAD, OR APPROVED EQUAL).
- ⑤ — METER BOX W/ READING LID FOR 1" METERS (BROOKS 38-S, EISEL 438, J&R 5 1/2, QUAZITE PC1342 BA, ARMORCAST A6001946 AD PC, OR APPROVED EQUAL).
- ⑥ — 3/8" ROCK, 6" MIN THICKNESS
- ⑦ — ZINC ANODE AND LEAD WIRE.
ANODE TO BE PLACED VERTICALLY OR HORIZONTALLY AT A MINIMUM SEPARATION OF 2 FEET FROM THE COPPER SERVICE.

SCALE: NOT TO SCALE



Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

APPROVED BY:

JASON MARSEILLES, P.E.
MANAGER OF ENGINEERING

JULY 2025
DATE

DESIGN BY: GHD, INC.

APPROVED BY:
CHRIS BARTLEMAN, P.E.
CB1075

JULY 2025
DATE

Inland Empire Utilities Agency

**1" COPPER RECYCLED
WATER SERVICE INSTALLATION**

REVISION

NO.	BY	DATE	APPROVED

RW-CS-001

SHEET 1 OF 2

NOTES:

1. SERVICE SADDLE SHALL NOT BE INSTALLED WITHIN 18" OF VALVE, COUPLING, JOINT OR FITTING. TAPPED COUPLINGS ARE NOT PERMITTED.
2. SET TOP OF METER BOX PER THE LOCAL AGENCY STANDARD REQUIREMENTS.
3. THE RECYCLED WATER SERVICE SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE METER STOP.
4. ALL SPLICES OF COPPER TUBING SHALL BE SILVER SOLDER CONNECTIONS.
5. METER BOX READING LID FOR ALL RECYCLED WATER SERVICES SHALL BE PAINTED PER THE LOCAL AGENCY STANDARD SPECIFICATIONS.
6. FOR END OF LINE SERVICE INSTALLATION SEE STANDARD DETAIL RW-B0-002.
7. ANODE LEAD WIRE SHALL BE CLAMPED TO COPPER TUBING. CLAMP SHALL BE DIRECT BURIAL TYPE OF RED BRASS WITH BRASS SCREWS AS MANUFACTURED BY DOTTIE, OR APPROVED EQUAL.
8. THIS DETAIL IS A TYPICAL INSTALLATION. SERVICE INSTALLATION SHALL CONFORM TO THE LOCAL AGENCY STANDARDS.
9. CHECK WITH LOCAL AGENCIES/JURISDICTIONS FOR THE DEPTH AND FOOTPRINT OF METER BOX.

SCALE: NOT TO SCALE



APPROVED BY:

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MANAGER OF ENGINEERING

JULY 2025
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DESIGN BY: GHD, INC.

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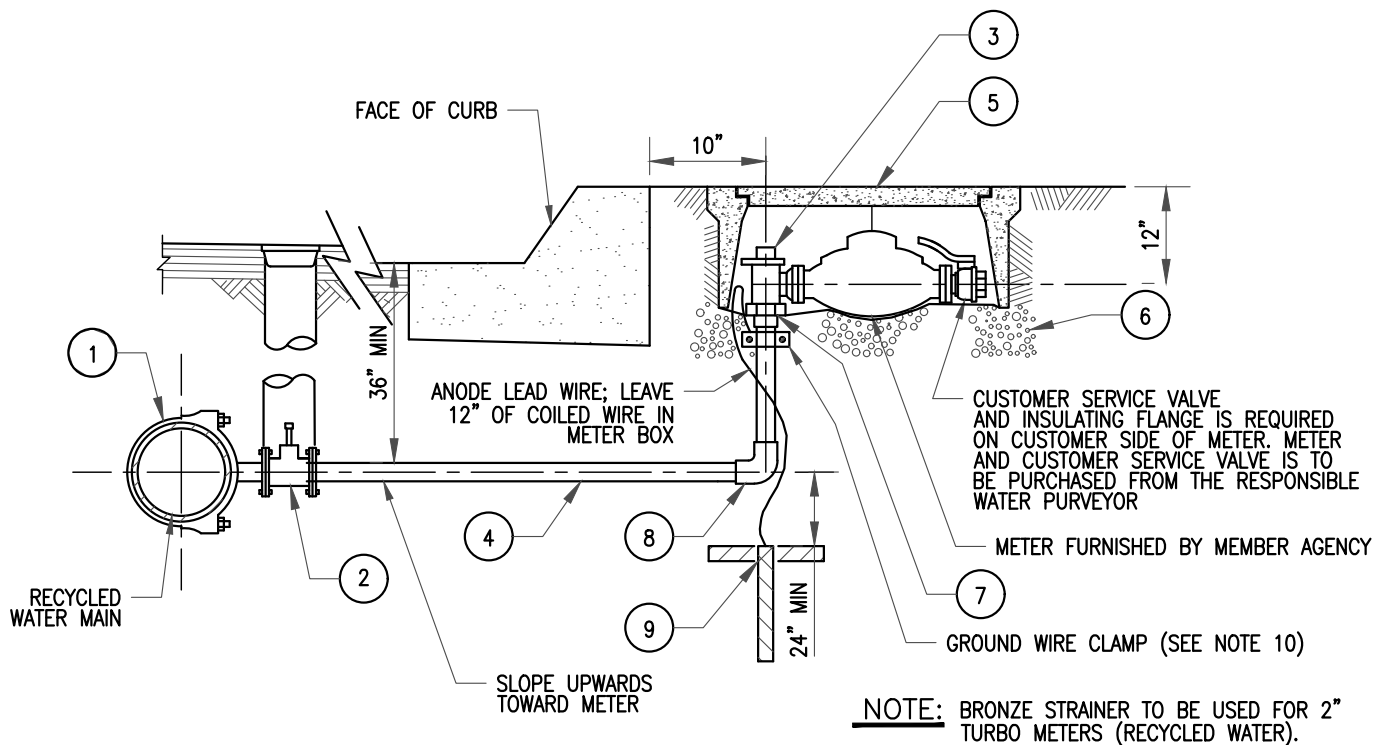
**1" COPPER RECYCLED
WATER SERVICE INSTALLATION**

REVISION

NO.	BY	DATE	APPROVED

RW-CS-001

SHEET 2 OF 2



NOTES:

1. SERVICE SADDLE SHALL NOT BE INSTALLED WITHIN 18" OF VALVE, COUPLING, JOINT OR FITTING. TAPPED COUPLINGS ARE NOT PERMITTED.
2. SET TOP OF METER BOX PER THE LOCAL AGENCY STANDARD REQUIREMENTS.
3. THE RECYCLED WATER SERVICE SHOULD EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE METER STOP.
4. ALL SPLICES OF COPPER TUBING SHALL BE SILVER SOLDER CONNECTIONS.
5. METER BOX READING LID FOR ALL RECYCLED WATER SERVICES SHALL BE PAINTED PER THE LOCAL AGENCY STANDARD SPECIFICATIONS.
6. ANGLE METER STOP MAY BE SUBSTITUTED FOR THE FEMALE IRON PIPE STYLE WITH MALE IRON BY SWEAT ADAPTERS AS SHOWN.
7. ALL SWEAT JOINTS SHALL BE SILVER SOLDER (EXCEPT AS NOTED).
8. A 1" BYPASS LINE WITH LOCKING CURB STOP MAY BE REQUIRED FOR INSTALLATIONS NEEDING A CONTINUOUS SERVICE.
9. FOR END OF LINE SERVICE INSTALLATION SEE STANDARD DETAIL RW-B0-002.
10. ANODE LEAD WIRE SHALL BE CLAMPED TO COPPER TUBING. CLAMP SHALL BE DIRECT BURIAL TYPE OF RED BRASS WITH BRASS SCREWS AS MANUFACTURED BY DOTTIE, OR APPROVED EQUAL.
11. THIS DETAIL IS A TYPICAL INSTALLATION. SERVICE INSTALLATION SHALL CONFORM TO THE LOCAL AGENCY STANDARDS.
12. CHECK WITH LOCAL AGENCIES/JURISDICTIONS FOR THE DEPTH AND FOOTPRINT OF METER BOX.

SCALE: NOT TO SCALE



APPROVED BY:

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JULY 2025
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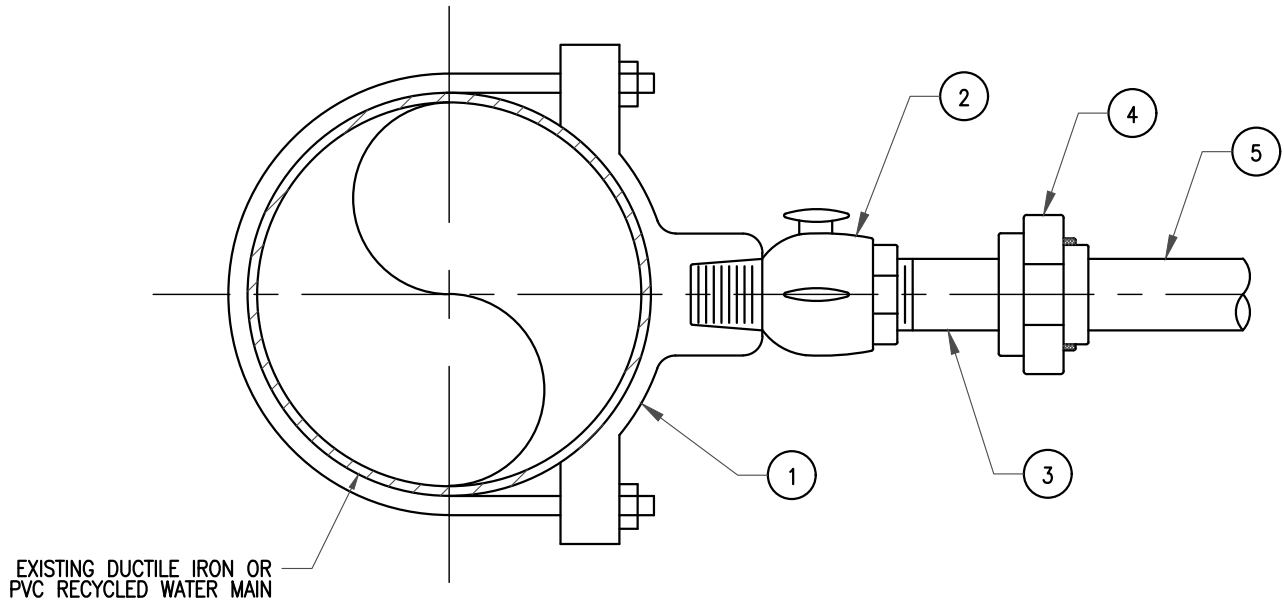
**2" COPPER RECYCLED WATER
SERVICE INSTALLATION**

REVISION

NO.	BY	DATE	APPROVED

RW-CS-002

SHEET 2 OF 2



MATERIALS:

- ① SERVICE SADDLE WITH F.I.P. OUTLET,
SINGLE STRAP BRONZE FOR DUCTILE IRON PIPE MAINS,
CAST BRONZE FOR PVC MAINS
(JONES MUELLER, FORD, OR APPROVED EQUAL)
- ② BRONZE CORPORATION STOP MALE I.P. X F.I.P.
- ③ NIPPLE MALE I.P. X MALE I.P., BRONZE, FOR DUCTILE IRON PIPE MAINS ONLY (OR APPROVED EQUAL)
- ④ DIELECTRIC UNION F.I.P. X SWEAT (EPCO, CENTRAL, OR APPROVED EQUAL), FOR DUCTILE IRON PIPE MAINS ONLY
- ⑤ COPPER SERVICE TUBING

DUCTILE IRON OR PVC PIPE CONNECTION

SCALE: NOT TO SCALE



APPROVED BY:

JASON MARSEILLES, P.E.
MANAGER OF ENGINEERING

JULY 2025
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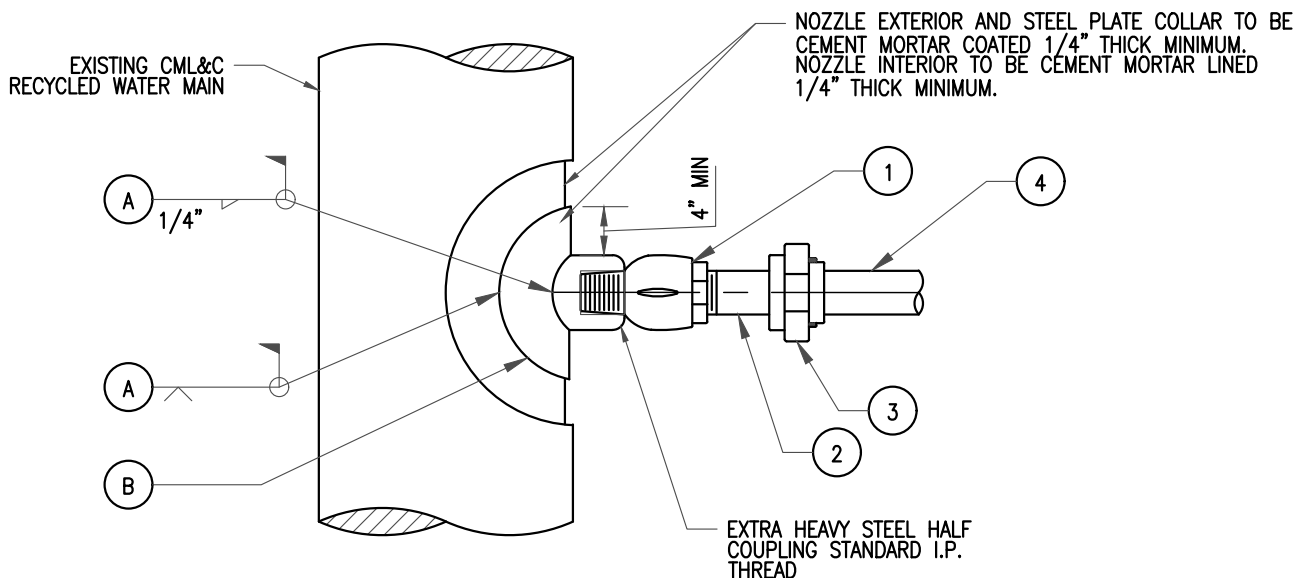
**LATERAL CONNECTION FOR
2" AND SMALLER COPPER SERVICE**

REVISION

NO.	BY	DATE	APPROVED

RW-LC-002

SHEET 1 OF 2



MATERIALS:

- 1 BRONZE CORPORATION STOP MALE I.P. X F.I.P. (OR APPROVED EQUAL)
- 2 NIPPLE MALE I.P. X MALE I.P., BRONZE.
- 3 DIELECTRIC UNION F.I.P. X SWEAT (EPCO, CENTRAL, OR APPROVED EQUAL)
- 4 COPPER SERVICE TUBING

CONSTRUCTION NOTES:

- A FILLET WELD NOZZLE AND COLLAR TO PIPE WALL
- B AIR TEST NOZZLE AND COLLAR

CML&C STEEL PIPE CONNECTION

SCALE: NOT TO SCALE



APPROVED BY:

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MANAGER OF ENGINEERING

JULY 2025
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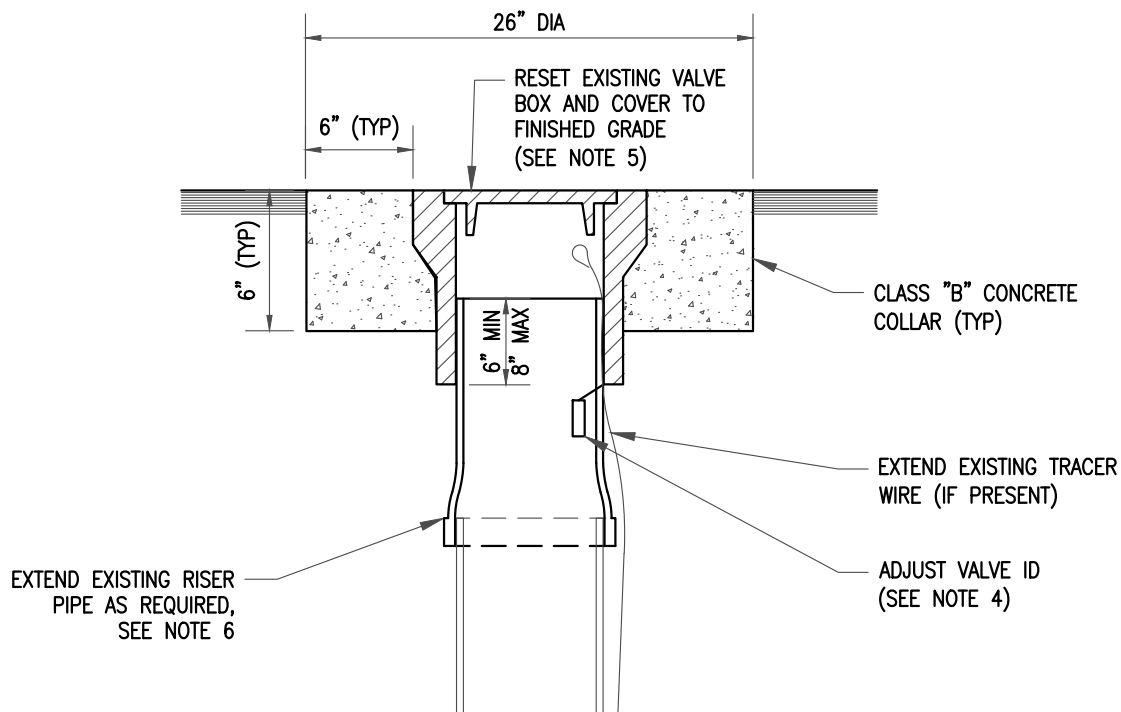
**LATERAL CONNECTION FOR
2" AND SMALLER COPPER SERVICE**

REVISION

NO.	BY	DATE	APPROVED

RW-LC-002

SHEET 2 OF 2



NOTES:

1. THE CONTRACTOR SHALL COMPLETELY DEMOLISH EXISTING CONCRETE COLLAR TO DEPTH OF 6".
2. IN VEHICULAR AREA, EXISTING NON-TRAFFIC RATED UTILITY BOXES AND COVERS SHALL BE REPLACED WITH TRAFFIC RATED BOXES AND COVERS PER STANDARD RW-VB-001.
3. ADJUSTED CONCRETE COLLAR MAY BE POURED MONOLITHICALLY WITH NEW CONCRETE PAVING.
4. PROVIDE VALVE ID PER STANDARD RW-VI-001 IF NOT PRESENT. VALVE NUMBER PROVIDED BY IEUA.
5. VALVE BOX AND COVER TO BE REPLACED IF NOT PER STANDARD RW-VB-001.
6. RISER PIPE SHALL BE COLORED BASED ON CONVEYANCE PIPE FLUID AS FOLLOWS:
 PURPLE = RECYCLED WATER
 BLUE = WATER
 GREEN = SEWER
 WHITE = OTHERS

SCALE: NOT TO SCALE



APPROVED BY:

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MANAGER OF ENGINEERING

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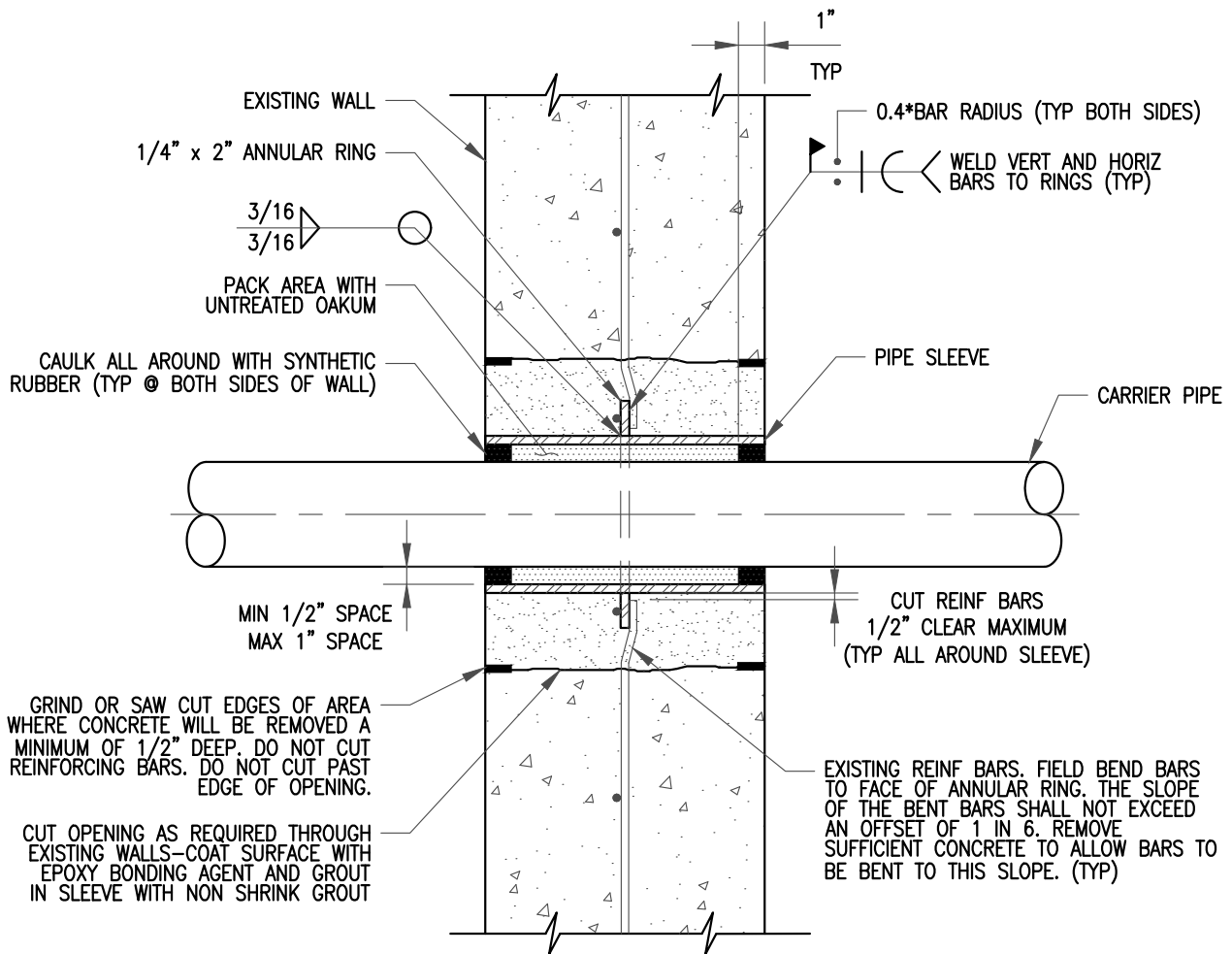
**VALVE BOX
ADJUSTMENT TO GRADE**

REVISION

NO.	BY	DATE	APPROVED

RW-VB-002

SHEET 1 OF 1



NOTES:

1. THIS DETAIL APPLIES TO ABOVE GROUND APPLICATIONS.
2. FOR NEW CONSTRUCTION, SLEEVES SHALL BE CAST INTO WALL. BLOCKOUTS AND SUBSEQUENT GROUTING IN SLEEVES SHALL NOT BE PERMITTED UNTIL A KEYED WATERSTOP JOINT IS PROVIDED.
3. 6" DIA SLEEVES AND SMALLER SHALL BE SCHEDULE 40 MIN STEEL PIPE.
4. 8" DIA SLEEVES AND LARGER SHALL BE 1/4" THICK STEEL PIPE.
5. NEOPRENE LINK SEALS WITH STAINLESS STEEL BOLTS MAY BE SUBSTITUTED FOR OAKUM AND RUBBER SEAL. SLEEVE DIAMETER SHALL BE PER LINK SEAL MANUFACTURER'S RECOMMENDATION.
6. SLEEVE SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION.

SCALE: NOT TO SCALE



Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

APPROVED BY:

JASON MARSEILLES, P.E.
MANAGER OF ENGINEERING

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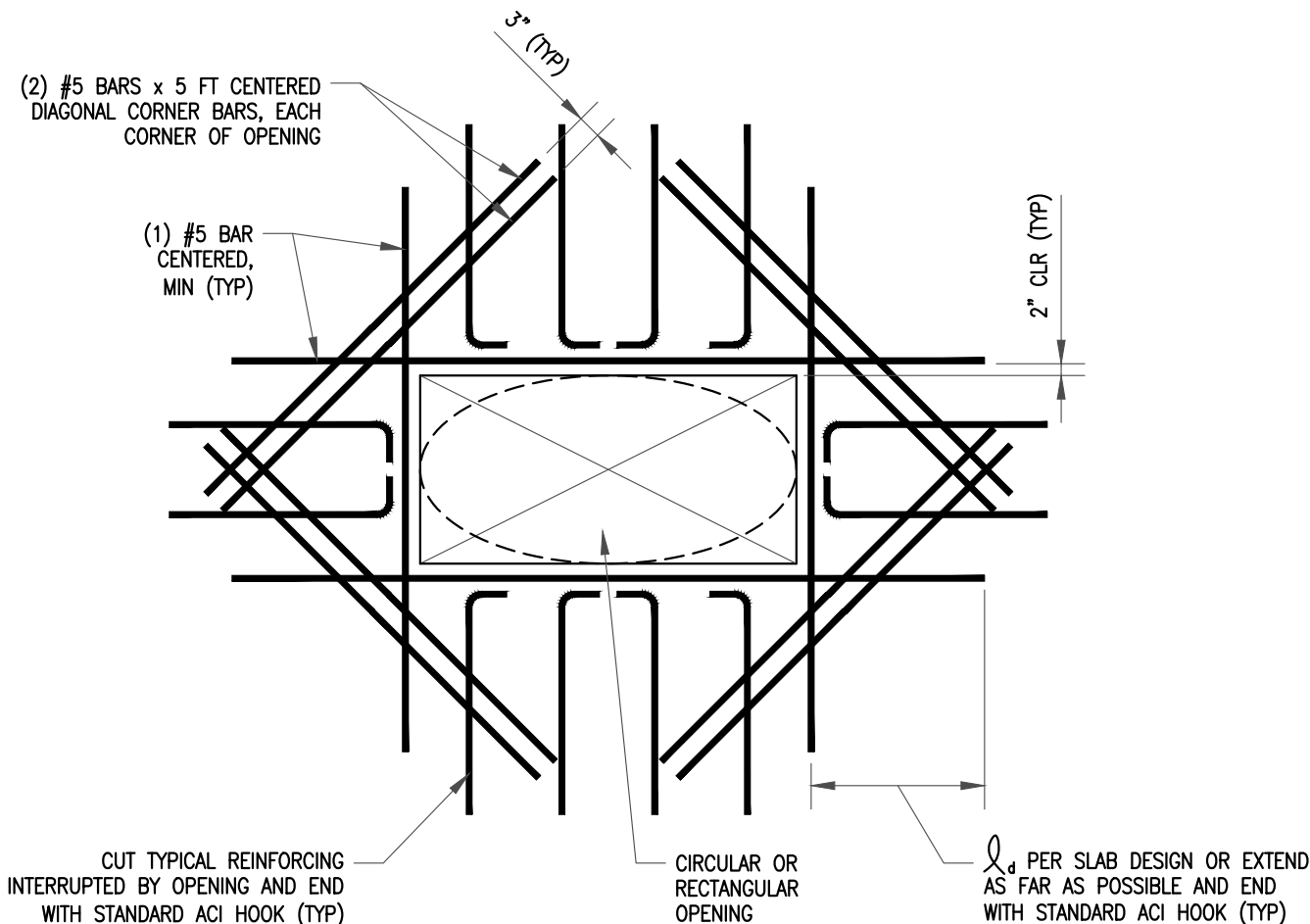
WALL PENETRATION

REVISION

NO.	BY	DATE	APPROVED

M-WP-001

SHEET 1 OF 1



NOTES:

1. FOR ROUND OPENING USE CIRCUMSCRIBING RECTANGLE FOR REINFORCING APPLICATION.
2. PROVIDE EXTRA BARS (NOT SHOWN) PARALLEL TO SIDES OF OPENINGS EQUAL TO AREAS OF INTERRUPTED SLAB BARS. EXTEND FULL LENGTH OF SPAN AND/OR LENGTH OF INTERRUPTED BARS AS APPLICABLE.
3. PLACE ADDITIONAL REINFORCING IN SAME PLANE AS INTERRUPTED REINFORCING FOR EACH MAT OF REINFORCING.
4. TYPICAL AT OPENINGS UP TO 4'-0" MAXIMUM, UNLESS NOTED OTHERWISE.
5. ℓ_d = DEVELOPMENT LENGTH PER ACI STANDARDS.
6. WALL OR SLAB SUPPORT PIPE THROUGH OPENING TO BE DESIGNED PER ACI STANDARD TO SUPPORT MAXIMUM LOAD OF PIPE.

SCALE: NOT TO SCALE



APPROVED BY:

JASON MARSEILLES, P.E.
MANAGER OF ENGINEERING

JULY 2025
DATE

DESIGN BY: GHD, INC.

APPROVED BY:
CHRIS BARTLEMAN, P.E.
CB1075

JULY 2025
DATE

Inland Empire Utilities Agency REINFORCING AT OPENINGS

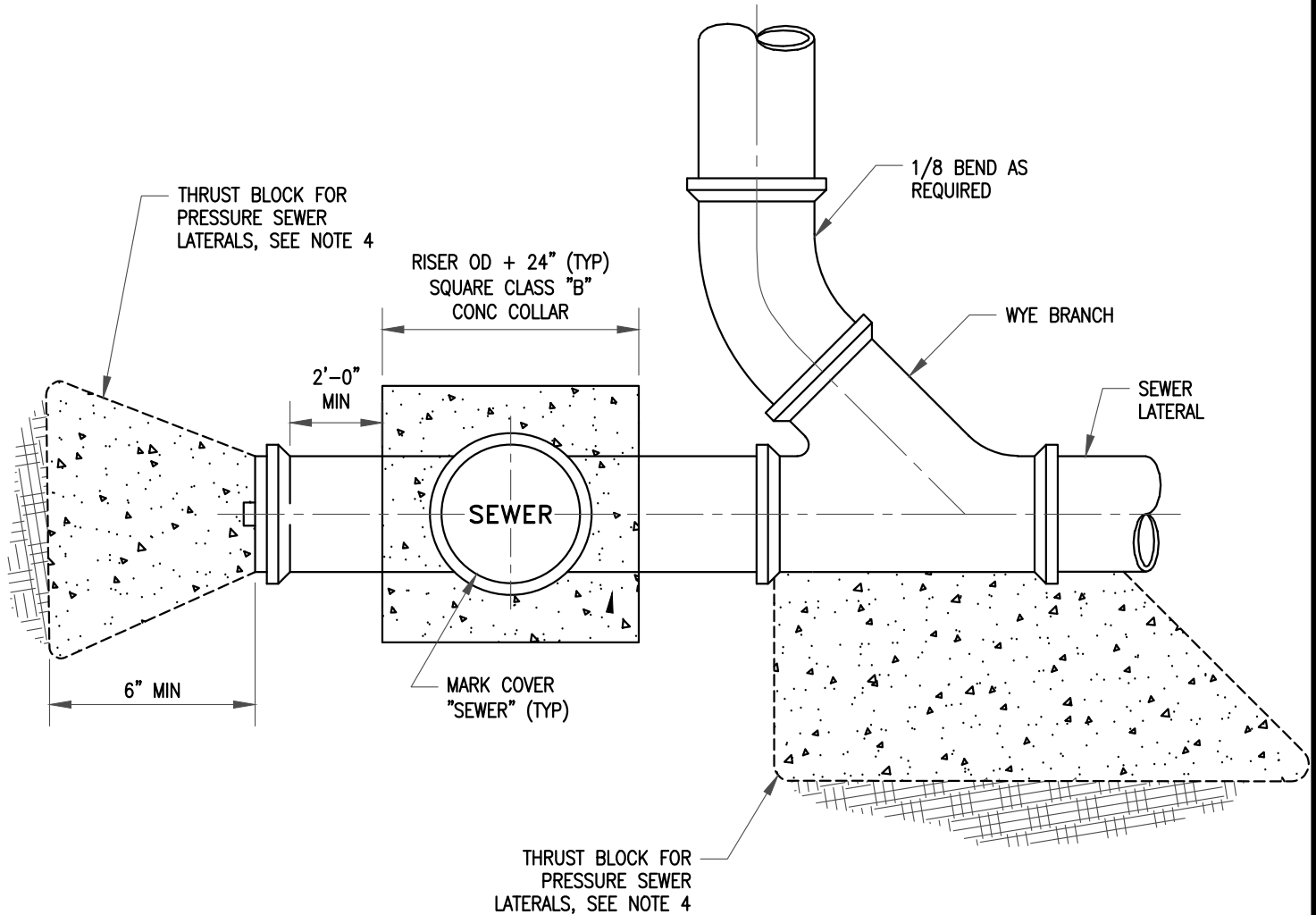
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M-WP-002

SHEET 1 OF 1

NOTES

1. CLEANOUT DETAIL FOR 4" AND 6" GRAVITY AND PRESSURE SEWER SERVICE LATERALS. CLEANOUTS FOR SEWER FORCE MAINS SHALL BE PER STANDARD DETAIL C-MH-002.
2. CLEANOUT RISER PIPE SIZE TO MATCH SEWER PIPE SIZE.
3. INSTALL FITTINGS AND REDUCERS AS REQUIRED.
4. FOR CLEANOUTS ON PRESSURE SEWER LATERALS, PROVIDE CONCRETE THRUST BLOCKS, JOINTS AND FITTINGS, SCREW ON BRASS PLUG OR FLANGED END PIPE WITH BLIND FLANGE CAP TO WITHSTAND THE FIELD TEST PRESSURE. SEE SHEET 3 FOR CLEANOUT BOX ON PRESSURE SEWER LATERALS. PROVIDE THRUST BLOCKS PER STANDARD DETAIL C-RS-001.



PLAN

SCALE: NOT TO SCALE



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SEWER CLEANOUT
GRAVITY AND PRESSURE LATERAL

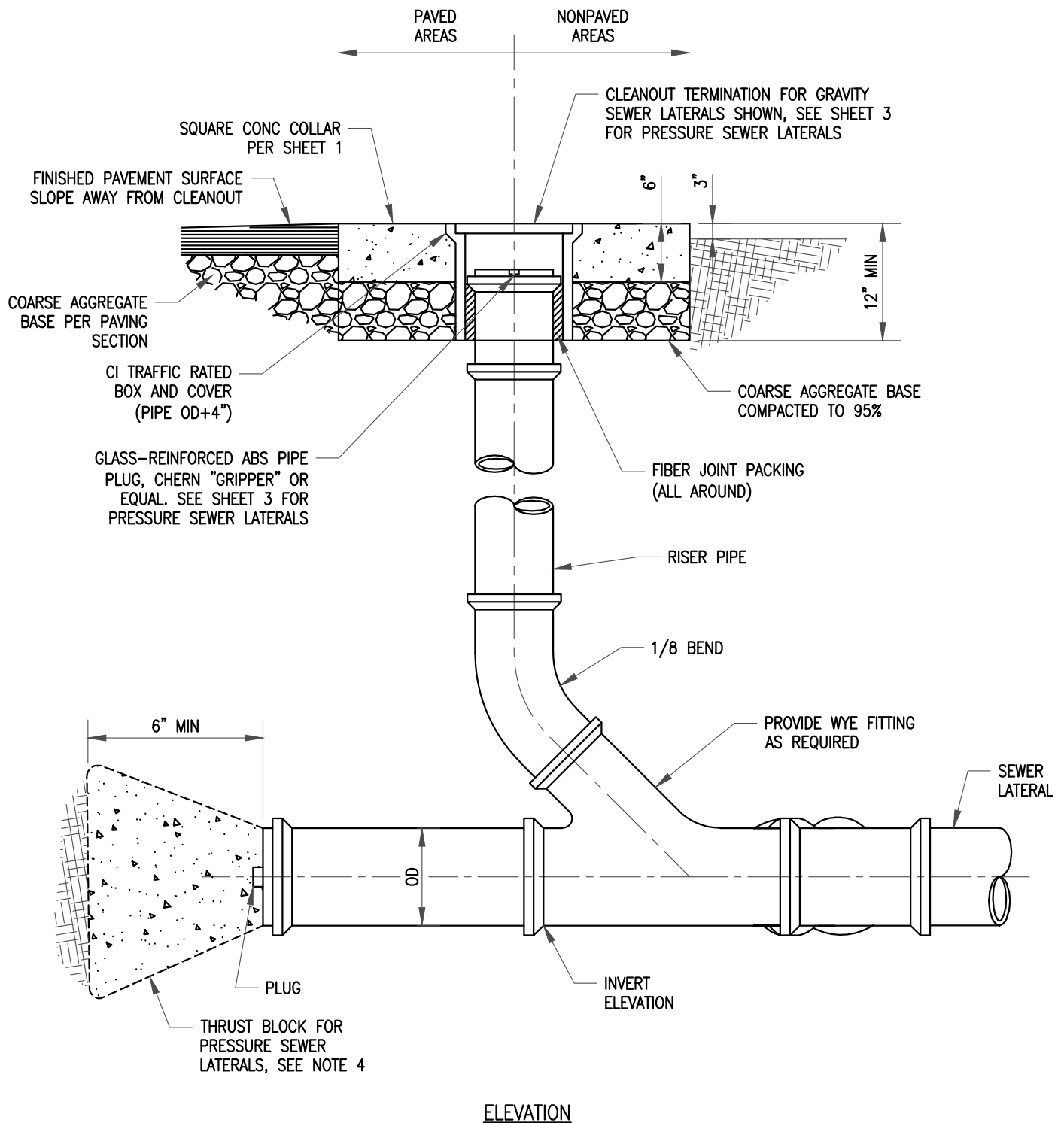
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C-CO-001

SHEET 1 OF 3

\\gdnnet\gdn\US\Voice\Projects\11\11181240 IEUA On Call Engineering Serv\Phase 08 - IEUA Standard Details\4- Delivery Documents\1- CCO Sheets\Call Standard Details\C-CO-001.dwg May 30, 2025 - 2:41pm



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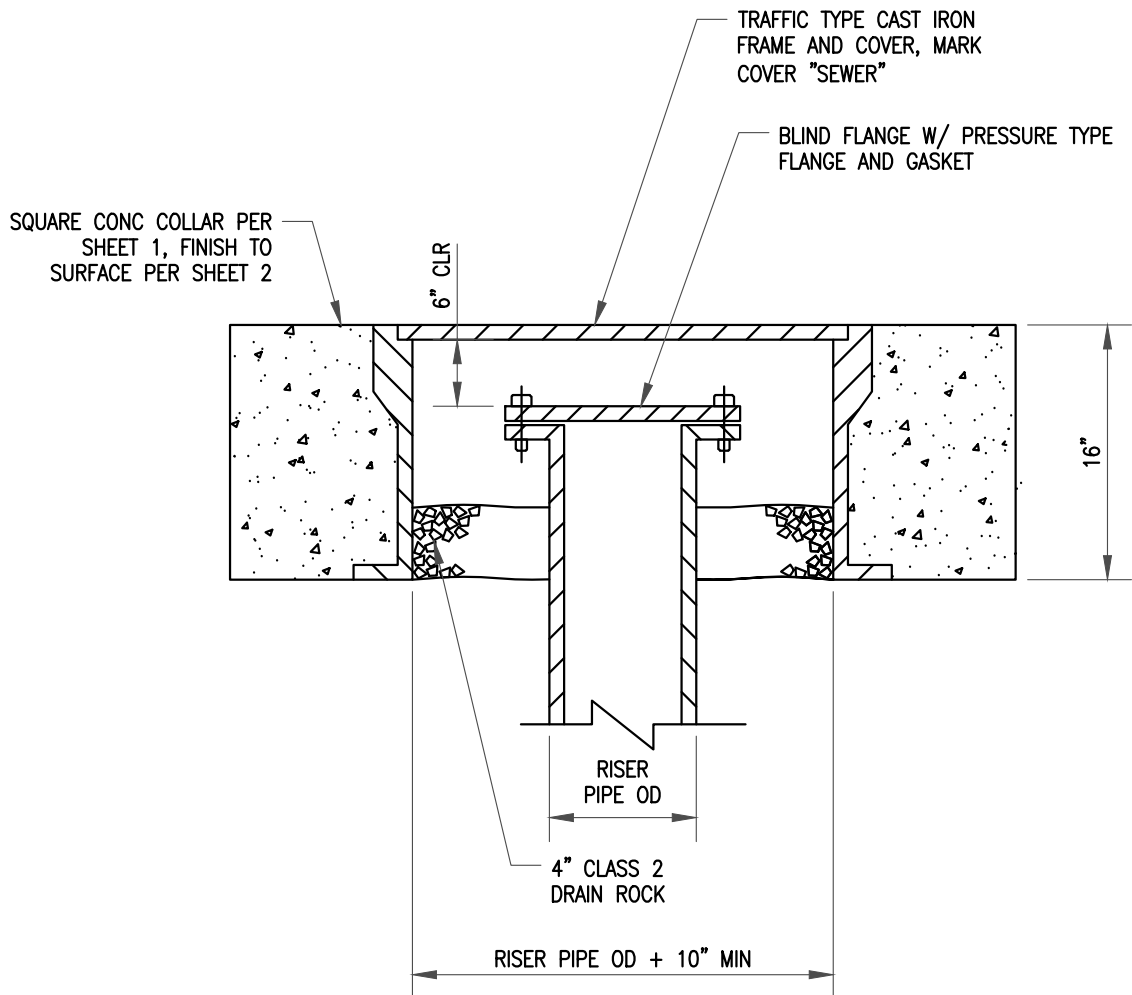
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**SEWER CLEANOUT
GRAVITY AND PRESSURE LATERAL**

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NO.	BY	DATE	APPROVED

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SHEET 2 OF 3



CLEANOUT BOX FOR PRESSURE SEWER LATERALS

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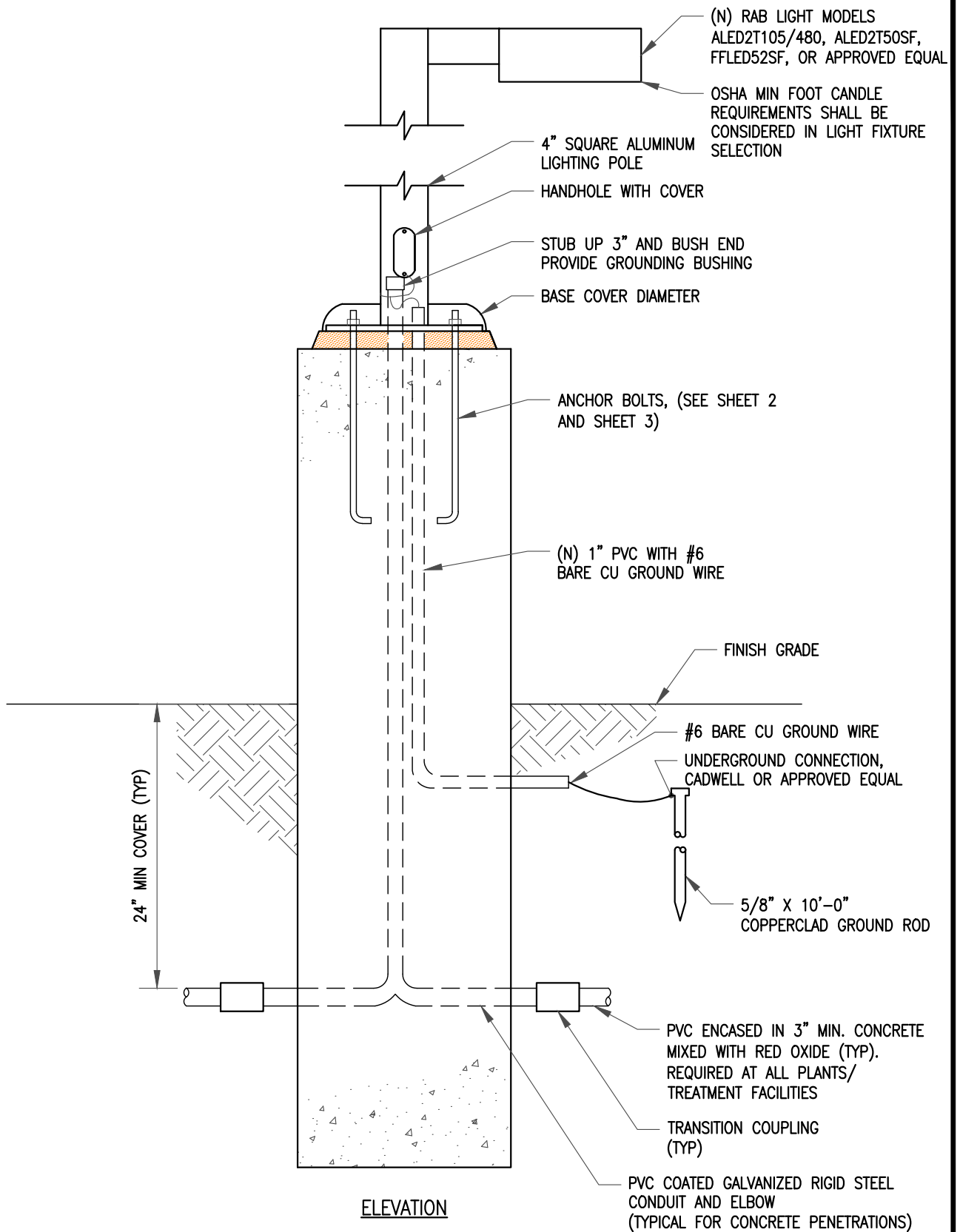
**SEWER CLEANOUT
GRAVITY AND PRESSURE LATERAL**

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SHEET 3 OF 3



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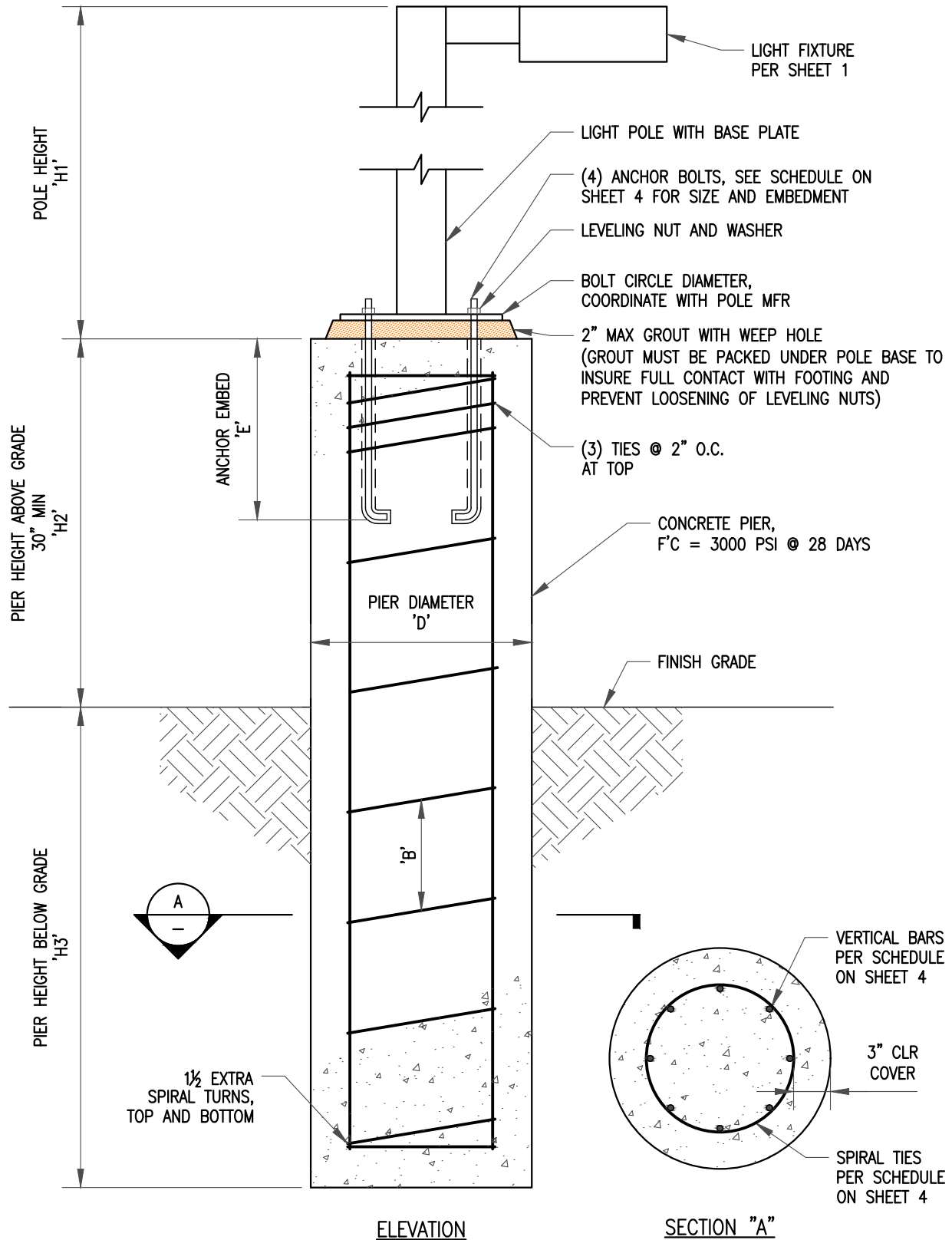
**LIGHTING POLE
ELECTRICAL**

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S-LP-001

SHEET 1 OF 4



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**LIGHTING POLE
ELECTRICAL**

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SHEET 2 OF 4

POST BASE SCHEDULE

NEW/EXISTING CONCRETE BASE	POLE HEIGHT 'H1' (FT)	PIER DIAMETER 'D' (IN)	PIER HEIGHT ABOVE GRADE 'H2' (IN)	PIER EMBEDMENT 'H3' (FT)	VERTICAL BARS	SPIRAL BAR SIZE	SPIRAL BAR SPACING 'B' (IN)	ANCHOR DIAMETER (IN)	ANCHOR EMBED 'E' (IN)
NEW	25	30	30	6	8 #6	#4	12	1	36
NEW	10	24	30	4	6 #6	#4	12	3/4	18 3/4
NEW	25	18*	30	7	4 #5	#3	9	1	36
NEW	10	16*	30	4	4 #5	#3	8	3/4	18 3/4

*REDUCED PIER DIAMETER WITH IEUA APPROVAL, IF REQUIRED DUE TO SITE CONSTRAINTS.

SEISMIC DESIGN CRITERIA

- SITE CLASS: D
- OCCUPANCY CATEGORY: II
- IMPORTANCE FACTOR: 1.0
- STRUCTURE TYPE: STEEL ORDINARY CANTILEVER COLUMN

WIND DESIGN CRITERIA:

- BASIC WIND SPEED: 110 MPH
- OCCUPANCY CATEGORY: II
- EXPOSURE CATEGORY: C
- IMPORTANCE FACTOR: 1.0
- WIND DIRECTIONALITY FACTOR: 0.9-0.95

SCALE: NOT TO SCALE



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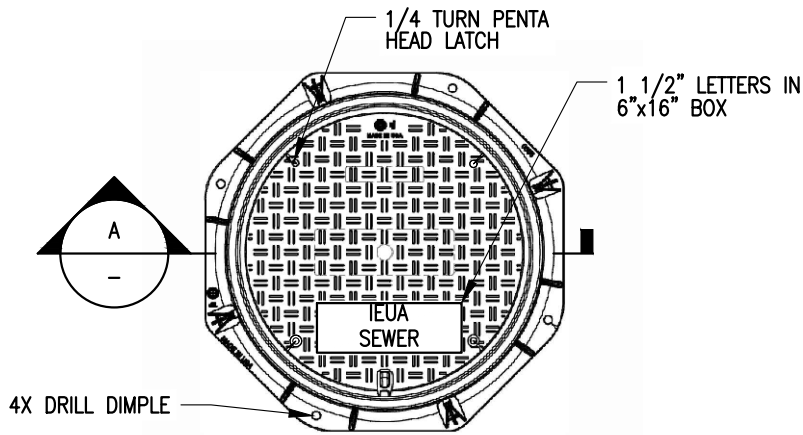
**LIGHTING POLE
ELECTRICAL**

REVISION

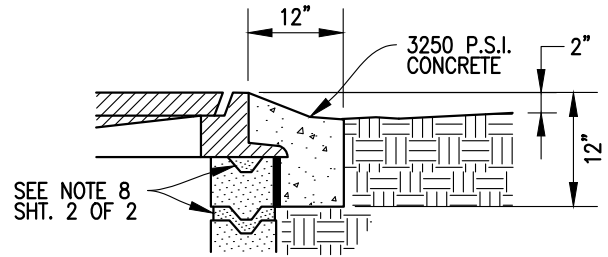
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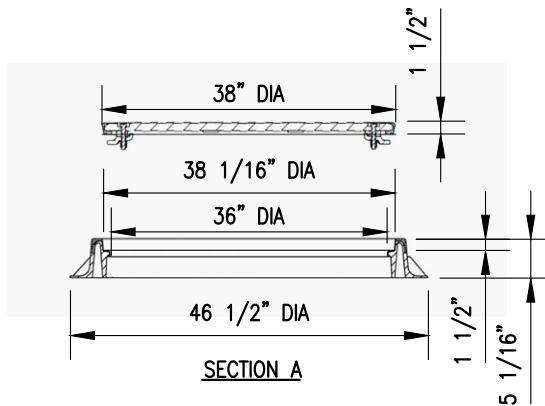
SHEET 4 OF 4



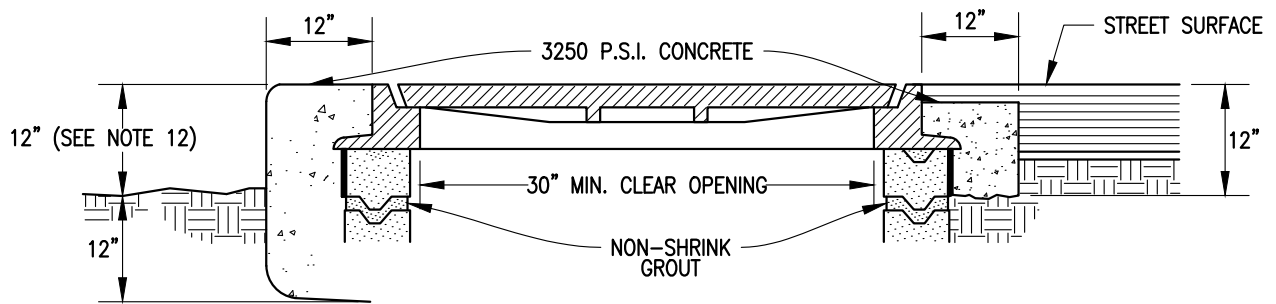
PLAN



ROADWAY SHOULDER



TYP. TOP VIEW COVER
DETAIL FOR 36" MANHOLE



UNFINISHED SURFACE

SCALE: NOT TO SCALE



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MANAGER OF ENGINEERING

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MANHOLE
FRAME AND COVER

REVISION

NO.	BY	DATE	APPROVED

C-MH-004

SHEET 1 OF 2

NOTES:

1. MANHOLE FRAME AND COVER SHALL BE EJ WATER-RESISTANT BLACK COMPOSITE WITH GASKET AND "IEUA SEWER" CUSTOM CENTER INSERT.
2. MANHOLE FRAME AND COVER SHALL BE HEAVY DUTY TRAFFIC RATED, U.S. LOAD SPECIFICATION, MEETS H-25 TRAFFIC REQUIREMENTS.
3. (4) TITUS TWISTLIFT SECURITY LOCK SYSTEMS BOLT SHALL BE MACHINED FROM 17-4PH H900 HARDENED STAINLESS STEEL WITH TITUS 4-TWISTLIFT SECURITY LOCKS.
4. CONTRACTOR SHALL PROVIDE ONE (1) COMPOSITE COVER TWISTLIFT OPENING TOOL WITH LOCK SOCKET, 30" LONG AND POWDER COATED BLACK.
5. COVER SHALL BE FURNISHED WITH STAINLESS STEEL BOLTS WITH CAPTIVE WASHERS AND "T" STYLE GASKET. STAINLESS STEEL BOLTS WITH CAPTIVE WASHERS FROM INWESCO CO., AZUSA, CA (CAT. #85A84). "T" STYLE GASKET (R&D CO. #TG101) IS AVAILABLE FROM MAYDWELL & HARTZELL CO. LOS ANGELES, CA.
6. MANHOLE FRAME & COVER COLOR SHALL BE BLACK.
7. AREA AROUND PERIMETER ON BOTTOM SIDE OF COVER SHALL BE SMOOTH, FLAT, AND FREE OF ANY POCKETS OR IMPERFECTIONS.
8. THE MANHOLE FRAME SHALL BE SECURED TO THE GRADE RING WITH HIGH STRONG NON-SHRINK GROUT. AFTER THE FRAME IS SECURELY SET, THE FRAME AND THE COVER SHALL BE CLEANED AND SCRAPPED FREE OF FOREIGN MATERIALS AND SHALL BE FLUSH WITH THE FRAME."
9. THE RELIEF DEPTH OF THE CAST LETTERS SHALL BE AT LEAST 3/16". TOP SURFACE OF THE LETTERS AND TOP FINISH SHALL BE FLUSH WITH THE OUTER RING EDGE AND THE FRAME TOP SURFACES.
10. PRECAST SECTIONS SHALL BE ASSEMBLED SUCH THAT THE MANHOLE COVER IS FLUSH WITH THE PAVING SURFACE.
11. THE CONTRACTOR SHALL REPLACE THE COVER AT THEIR OWN EXPENSE IF CRACKS DEVELOP, REGARDLESS OF SIZE, THAT RUN FROM ONE EDGE TO ANOTHER EDGE OR TO THE MANHOLE OPENING.
12. IF WITHIN A PLANTER, 12" DIMENSION CAN BE REDUCED TO 6".
13. CONCRETE COLLAR SHALL BE HIGH EARLY STRENGTH CONCRETE 3250 PSI MINIMUM. COLOR CONCRETE PER GOVERNING AGENCY STANDARD.
14. FOR NEW CONSTRUCTION MANHOLE FRAME AND COVER SHALL BE DETERMINED BY THE ABILITY TO INSTALL AN EXTENSION LADDER TO THE SHELF WITH SUFFICIENT CLEARANCE FOR ENTRANCE

SCALE: NOT TO SCALE



APPROVED BY:

JASON MARSEILLES, P.E.
MANAGER OF ENGINEERING

JULY 2025
DATE

DESIGN BY: GHD, INC.

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CB1075

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**MAHOLE
FRAME AND COVER**

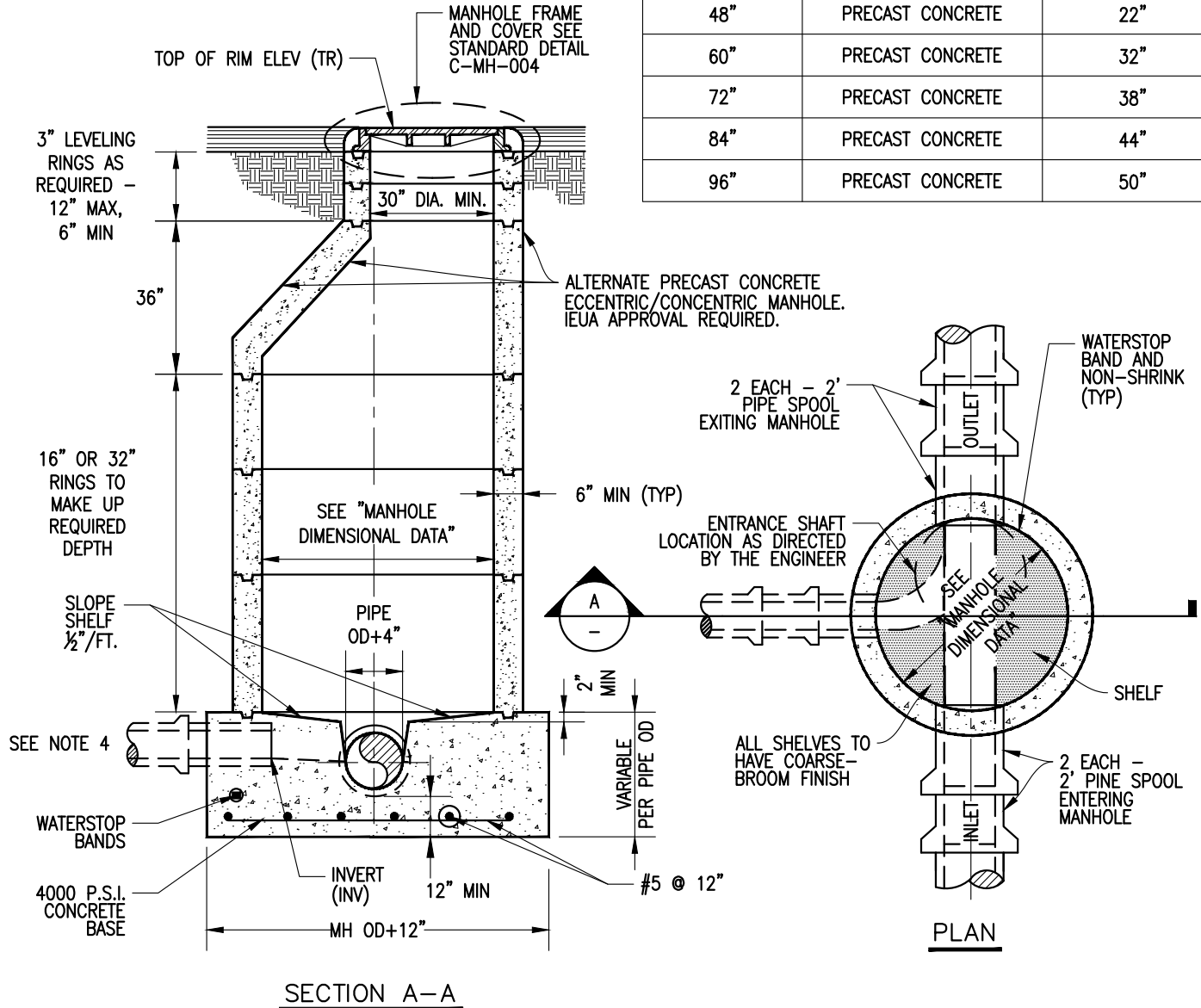
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MANHOLE

SHEET 2 OF 2

MANHOLE DIMENSIONAL DATA		
MANHOLE DIAMETER	TYPE	MAX PIPE OUTSIDE DIAMETER
48"	PRECAST CONCRETE	22"
60"	PRECAST CONCRETE	32"
72"	PRECAST CONCRETE	38"
84"	PRECAST CONCRETE	44"
96"	PRECAST CONCRETE	50"



NOTES:

1. PRECAST MANHOLE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO MINIMUM H-20 LOADING, OR AS DIRECTED BY IEUA.
2. MATERIALS, EMBEDMENT, PLACEMENT, AND COMPACTION OF GRANULAR EMBEDMENT AND COMPACTED BACKFILL WILL CONFORM TO THE AGENCY'S STANDARD SPECIFICATIONS FOR PIPE BEDDING AND TRENCH BACKFILL.
3. LINE INTERIOR SURFACES OF MANHOLE AND MANHOLE BASE WITH POLYURETHANE (RAVEN 405 OR APPROVED EQUAL). APPLY NON-SKID SURFACE ON TOTAL SHELF AREA.
4. SOFFIT OF INCOMING PIPE SHALL MATCH OUTLET PIPE SOFFIT.
5. IEUA APPROVAL REQUIRED PRIOR TO CONNECTING AT MANHOLE.

SCALE: NOT TO SCALE



Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

APPROVED BY:

JASON MARSEILLES, P.E.
MANAGER OF ENGINEERING

JULY 2025
DATE

DESIGN BY: GHD, INC.

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Inland Empire Utilities Agency

**TYPICAL SEWER
MANHOLE DETAIL**

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C-MH-001

SHEET 1 OF 1

\\ghndnet\ghnd\US\Irvine\Projects\111\11181240 ieuo on call engineering serv\phase 08 - ieuo standard details\4- delivery documents\1- CAD\Sheets\Civil Standard Details\C-MH-002 Pressure Pipe Maintenance Hole Detail.dwg May 30, 2025 - 3:30pm



Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

APPROVED BY:

JASON MARSEILLES, P.E.
MANAGER OF ENGINEERING

JULY 2025
DATE

DESIGN BY: GHD, INC.

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CHRIS BARTLEMAN, P.E.
C81075

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DATE

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PRESSURE PIPE MAINTENANCE HOLE DETAIL

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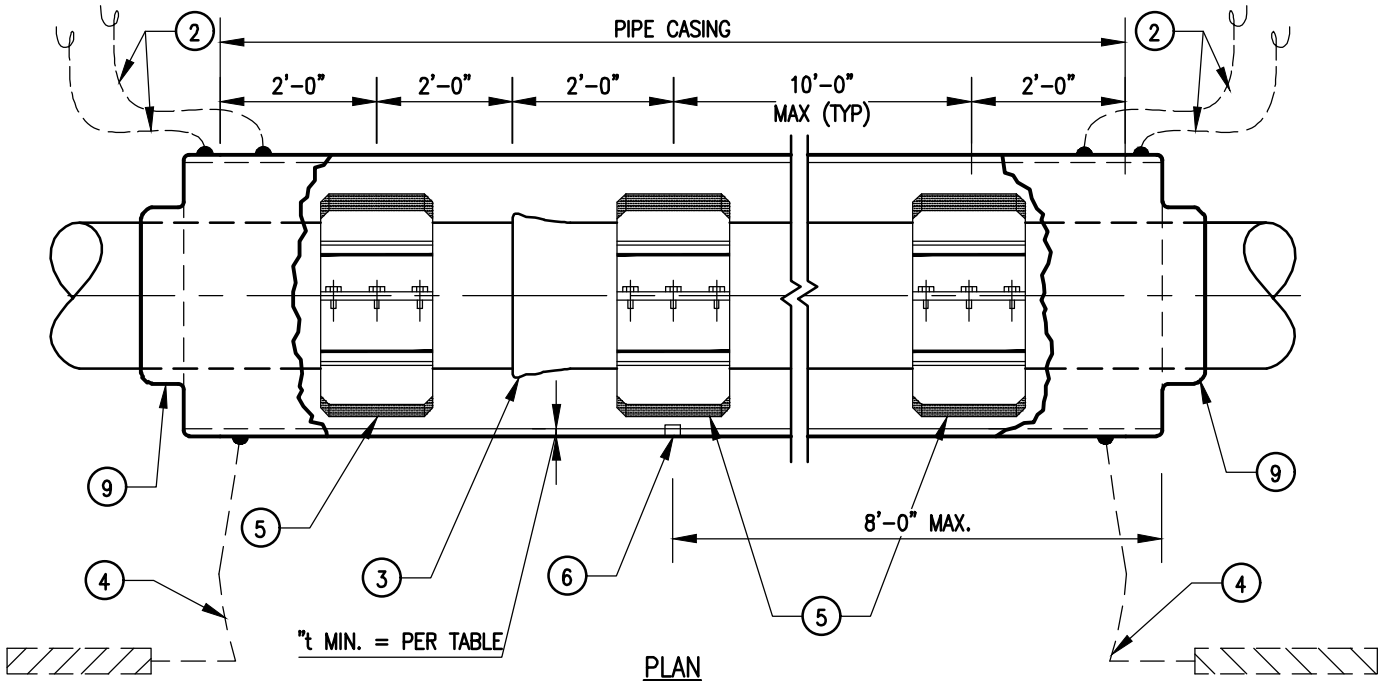
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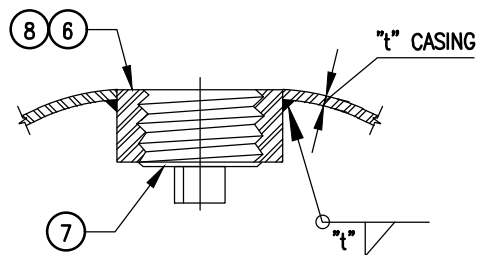
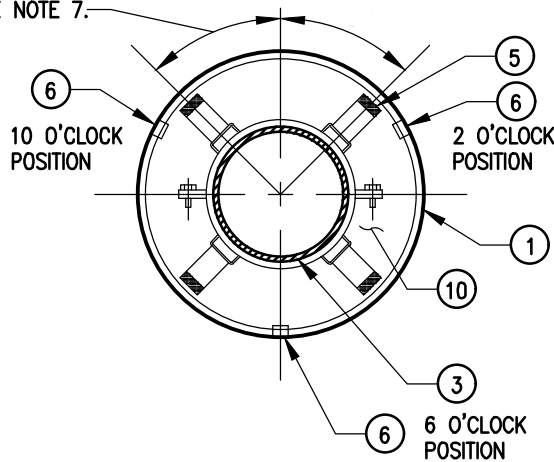
SHEET 1 OF 1

NOTES:

1. CASING SHALL BE A MINIMUM OF 4 INCHES GREATER THAN THE BELL DIAMETER.
2. SIZE AND THICKNESS OF CASING SHALL BE SHOWN IN SCHEDULE. FOR LONG BORES OR SPECIAL SITUATION GREATER WALL THICKNESS THAN SHOWN IN SCHEDULE MAY BE REQUIRED.
3. WELD FULL-CIRCUMFERENCE ALL STEEL CASING PIPE FIELD JOINTS.
4. PRESSURE TEST CARRIER PIPE PRIOR TO FILLING CASING.
5. SEAL EACH END OF CASING WITH CASING END SEALS.
6. BACKFILL CASING IN OPEN CUT PER DWG. C-EW-001.
7. NUMBER AND PLACEMENT OF SPACER ON CARRIER PIPE PER MANUFACTURER'S SPECIFICATIONS.
8. INSTALLATION OF 30-INCH DIAMETER OR LARGER CASING BY BORE, JACK AND/OR TUNNEL METHOD REQUIRES A TUNNEL CLASSIFICATION FROM THE CALIFORNIA DIVISION OF OCCUPATIONAL SAFETY AND HEALTH, MINING AND TUNNELING UNIT.
9. ANNULAR BACKFILL MATERIAL MAY BE SUPERSEDED BY JURISDICTIONAL REQUIREMENTS.
10. FLEXIBLE PIPE (PVC, HDPE, ETC.) SHALL HAVE SPACER GUIDE ALONG ON THE TOP TO PREVENT PIPE FROM FLOATING. PIPE WITHIN CASING TO BE BONDED TOGETHER AT THE JOINTS FOR AN INTEGRAL UNIT PER MANUFACTURER'S RECOMMENDATIONS. TWO (2) APPROVED FLEXIBLE COUPLINGS SHALL BE USED AT EACH END OF CASING.



SEE NOTE 7.



SCALE: NOT TO SCALE



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CASING FOR PIPELINES
DETAIL

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C-PC-002

SHEET 1 OF 2

TABLE "A"			
CASING O.D. "D"	STREETS & HWYS THICKNESS "t" MIN		RAILROADS
DIAMETER (INCHES)	UP TO 150' LENGTH	OVER 150' LENGTH	STEEL THICKNESS "t" (MINIMUM)
4"-10" ID	1/4"	1/4"	4"-12" : 1/4"
12"-16" OD	1/4"	1/4"	14"-16" : 9/32"
18"-20" OD	1/4"	1/4"	18" : 5/16" 20" : 11/32"
22" OD	1/4"	1/4"	3/8"
24" OD	1/4"	1/4"	13/32"
26" OD	1/4"	1/4"	7/16"
28" OD	1/4"	1/4"	15/32"
30" OD	3/8"	1/2"	15/32"
32" OD	3/8"	1/2"	1/2"
34"-36" OD	3/8"	1/2"	17/32"
38" OD	3/8"	1/2"	9/16"
40" OD	1/2"	3/4"	9/16"
42" OD	1/2"	3/4"	9/16"
48"-60" OD	1/2"	3/4"	AS REQUIRED
62"-72" OD	3/4"	3/4"	AS REQUIRED

MATERIAL LIST FOR STEEL CASING

ITEM	DESCRIPTION
①	STEEL CASING.
②	INSTALL CASING TEST STATION PER CM-TS-001.
③	CARRIER PIPE CENTERED IN CASING WITH ALL JOINTS RESTRAINED.
④	INSTALL 60 LB. ANODE.
⑤	STAINLESS STEEL CASING SPACERS WITH HEAVY-DUTY 2-INCH WIDE ANTI-FRICTION RUNNERS.
⑥	GROUT FITTING @ 8-FOOT O.C. PER DETAIL HEREON. FOR ALL CASINGS 24-INCH IN DIAMETER AND LARGER, INSTALL ONE COUPLING IN 6 O'CLOCK POSITION @ 8-FOOT O.C.; STAGGER COUPLINGS BETWEEN 10 O'CLOCK AND 2 O'CLOCK POSITIONS EVERY 4 LINEAR FEET ALONG CASING AXIS.
⑦	2-INCH NPT THREADED STEEL PLUG WITH RAISED HEAD.
⑧	2-INCH NPT. STD. WT. STL. PIPE HALF COUPLING.
⑨	EDPM CASING END SEAL. INSTALL WITH STAINLESS STEEL WORM-SCREW BAND CLAMPS.
⑩	BACKFILL ANNULAR SPACE PER JURISDICTIONAL REQUIREMENTS AND PROJECT SPECIFICATIONS.

SCALE: NOT TO SCALE



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C81075

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CASING FOR PIPELINES DETAIL

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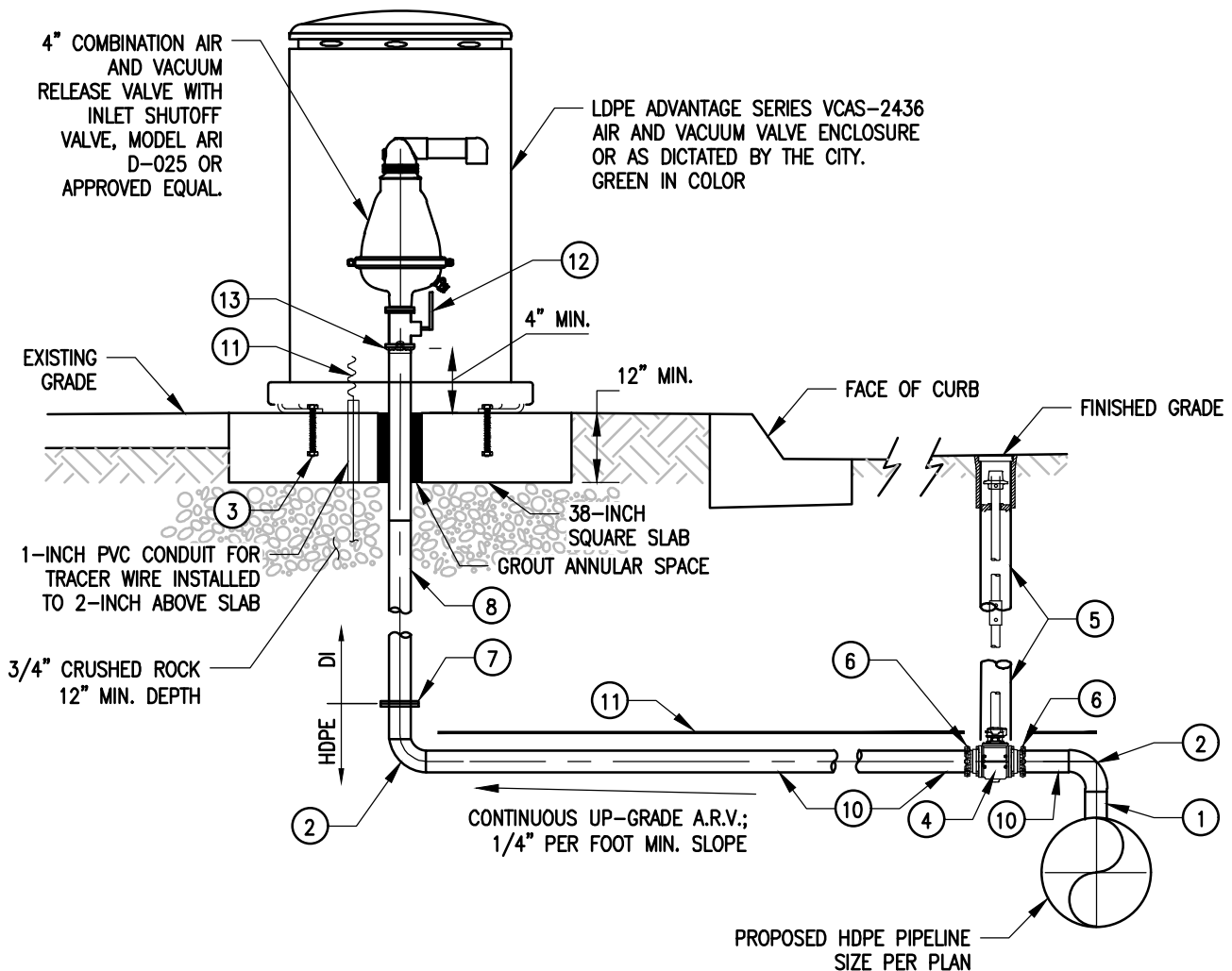
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C-PC-002

SHEET 2 OF 2

NOTES:

1. PROVIDE VALVE STEM EXTENSION IF DEPTH TO VALVE NUT EXCEEDS 4 FEET.
2. VALVE BOX AND COVER SHALL BE MARKED "IEUA SEWER".
3. ALL BURIED BOLTS SHALL BE TYPE 316 STAINLESS STEEL.
4. HDPE SHALL BE DR 9 MINIMUM DUCTILE IRON PIPE SIZE.
5. RESTORE CURB, GUTTER, SIDEWALK AND CURB RAMPS PER CONTRACT DOCUMENTS.
6. FOR AIR RELEASE & VACUUM VALVES LOCATED IN UNPAVED AREAS, CONSTRUCT PROTECTION POSTS AROUND THE VALVE ENCLOSURE.
7. NUTS, BOLTS, DUCTILE IRON PIPE, FLANGES, VALVES, FITTINGS, AND COUPLINGS SHALL BE WRAPPED WITH WAX TAPE (TRENTON #1 OR EQUAL) AND POLYETHYLENE ENCASEMENT (TWO LAYERS OF 8-MIL THICK POLYETHYLENE).
8. ADJACENT AIR VALVE TO BE OFFSET BY 5 FEET MINIMUM.
9. 4" SIZE SHOWN. THIS STANDARD DETAIL IS SUITABLE FOR 3" OR 4" ASSEMBLY. DESIGN ENGINEER IS REQUIRED TO SIZE AIR VALVE.
10. SUITABLE FOR PIPELINES UP TO 30". MODEL AND SIZE OF AIR VAC SHALL BE CONFIRMED WITH PROJECT REQUIREMENTS FOR SURGE AND POTENTIAL FOR REPTURE.
11. SEE PLAN VIEW STANDARD DRAWING RW-AV-001 FOR BOLLARD PLACEMENT.
12. PIPE SHALL BE INSTALLED UNDER EXISTING POTABLE WATER PIPELINES WITH MINIMUM 1 FT CLEARANCE.



SCALE: NOT TO SCALE



APPROVED BY:

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MANAGER OF ENGINEERING

JULY 2025
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DESIGN BY: GHD, INC.

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CB1075

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3" AND 4" SEWER FORCE MAIN
COMBINATION AIR VACUUM VALVE

REVISION

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SS-AR-001

SHEET 1 OF 2

MATERIAL LIST FOR COMBINATION AIR VACUUM VALVE

ITEM	DESCRIPTION
①	ELECTROFUSION BRANCH SADDLE WITH OUTLET
②	HDPE 90° ELBOW
③	1/2" SST BOLT AND WASHER, 4" MINIMUM EMBEDMENT, TYP OF 3
④	FLANGED PLUG VALVE WITH 2" SQ. OPERATING NUT
⑤	STANDARD VALVE BOX INSTALLATION PER STANDARD DRAWING RW-VB-001. AMEND COVER STENCILING PER NOTE 2.
⑥	RESTRAINED FLANGE COUPLING ADAPTER, EBAA IRON SERIES 2100 OR EQUAL WITH PIPE STIFFENERS
⑦	BUTT FUSION FLANGE ADAPTER WITH DI BACKING RING
⑧	DI SPOOL, PE X FLG; LENGTH AS REQUIRED
⑨	COMBINATION AIR AND VACUUM RELEASE VALVE, MODEL ARI D-025 OR APPROVED EQUAL.
⑩	HDPE PIPE; LENGTH AS REQUIRED
⑪	WARNING TAPE AND TRACER WIRE PER SPECIFICATIONS
⑫	FLANGED PLUG VALVE WITH HANDEL
⑬	FLANGE ADAPTER, EBAA IRON SERIES 1000 OR EQUAL WITH PIPE STIFFENERS

SCALE: NOT TO SCALE



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**3" AND 4" SEWER FORCE MAIN
COMBINATION AIR VACUUM VALVE**

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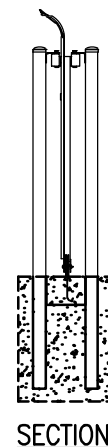
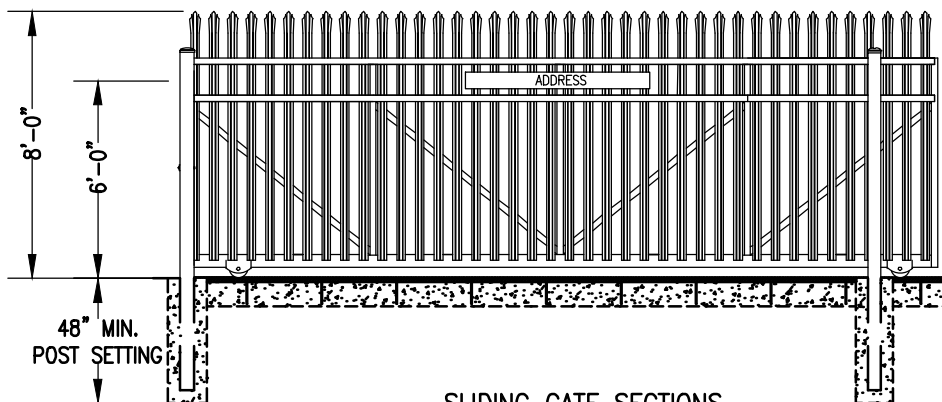
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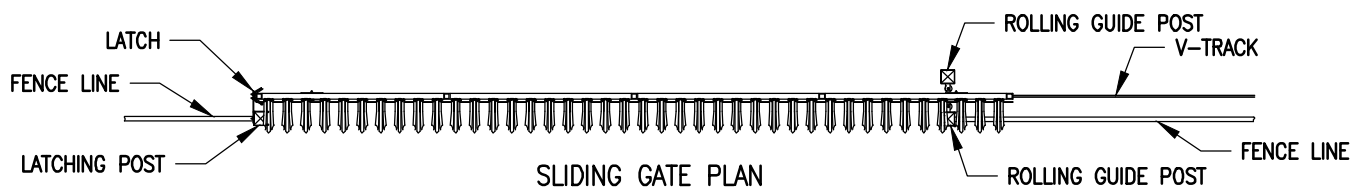
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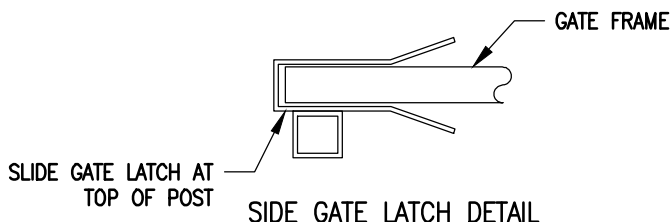
1. MANUFACTURER: AMERISTAR OR APPROVED EQUAL.
2. MAKE: PASSPORT IS GAUNTLET HIGH SECURITY SLIDING GATE AND IMPASSE II GAUNTLET FENCE.
3. STRUCTURAL CALCULATIONS SHALL BE SIGNED AND STAMPED BY A STRUCTURAL ENGINEER LICENSED IN CALIFORNIA.
4. REINFORCING OF CONCRETE TO BE DETERMINED BY A STRUCTURAL ENGINEER LICENSED IN CALIFORNIA.
5. DESIGN ENGINEER SHALL PROVIDE A TURNING ANALYSIS TO CONFIRM 20' WIDE GATE IS SUFFICIENT FOR SITE ACCESS.
6. DETAIL APPLIES TO BOTH MOTORIZED OR MANUAL GATE OPERATORS.
7. CONCRETE FOOTING SHALL BE 2500 PSI MIN. @ 28 DAYS, FOOTINGS TO DRAIN AWAY FROM POST.
8. REFER TO PROJECT SPECIFICATIONS FOR ADDITIONAL DETAIL.
9. COORDINATE WITH FACILITIES/IT FOR ACCESS CONTROL. COORDINATE WITH FIRE JURISDICTION FOR APPROVAL.



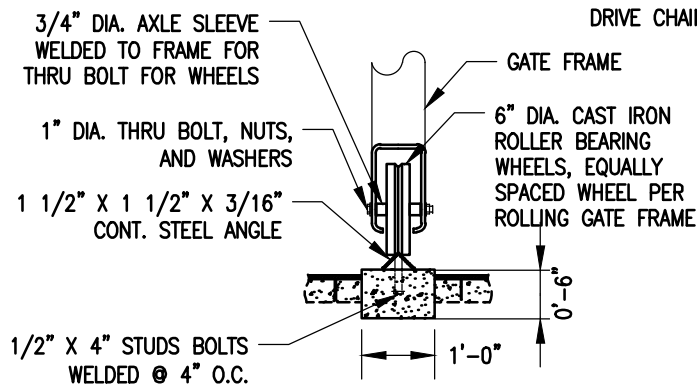
SLIDING GATE SECTIONS



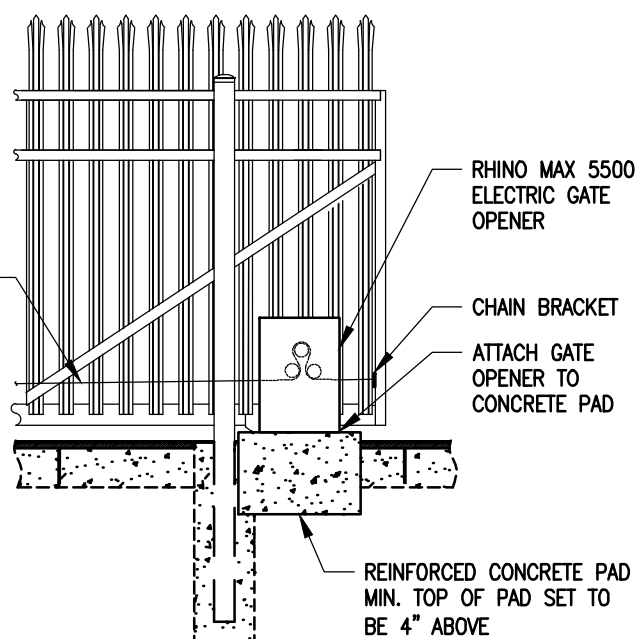
SLIDING GATE PLAN



SIDE GATE LATCH DETAIL



WHEEL AND ANGLE DETAIL



MOTORIZED GATE OPERATOR

SCALE: NOT TO SCALE



APPROVED BY:

JASON MARSEILLES, P.E.
MANAGER OF ENGINEERING

JULY 2025
DATE

DESIGN BY: GHD, INC.

APPROVED BY:
CHRIS BARTLEMAN, P.E.
CB1075

JULY 2025
DATE

Inland Empire Utilities Agency

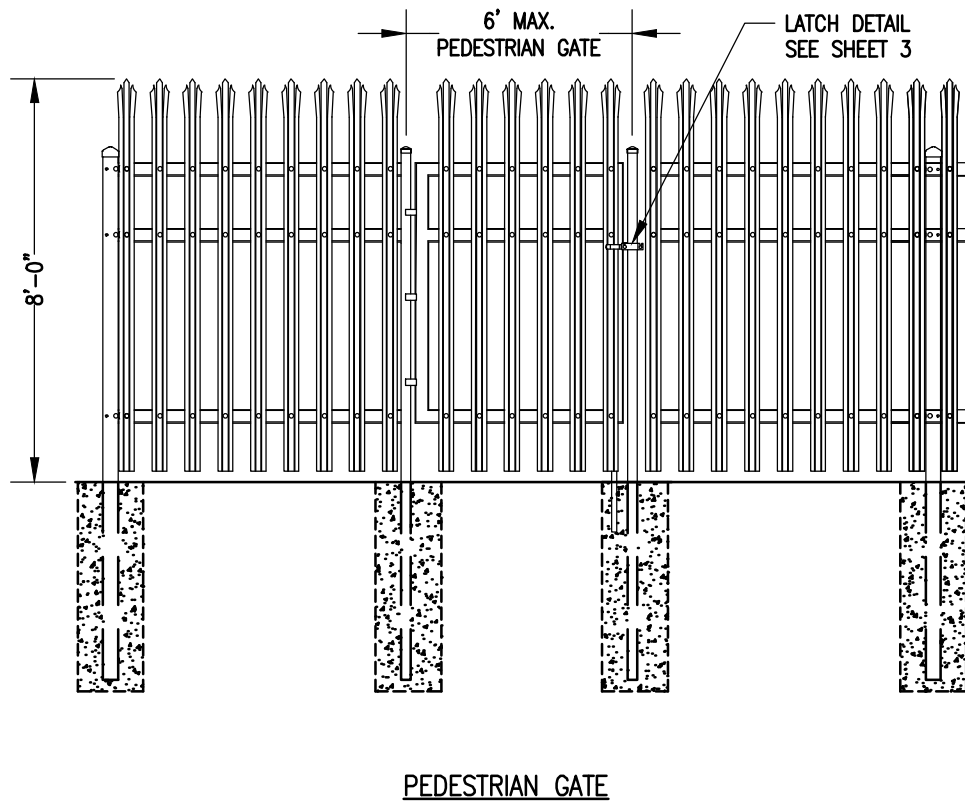
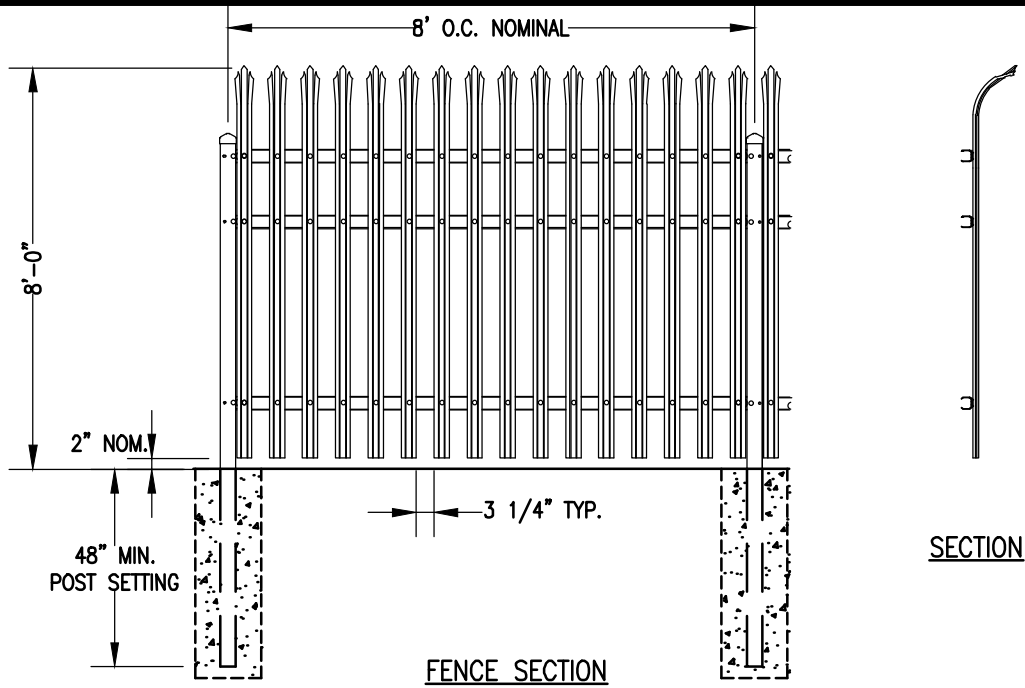
TUBULAR STEEL FENCE &
ROLLING AND SWING GATE DETAIL

REVISION

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C-EW-009

SHEET 1 OF 3



SCALE: NOT TO SCALE



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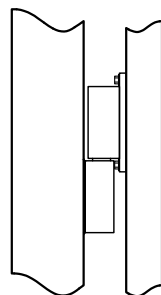
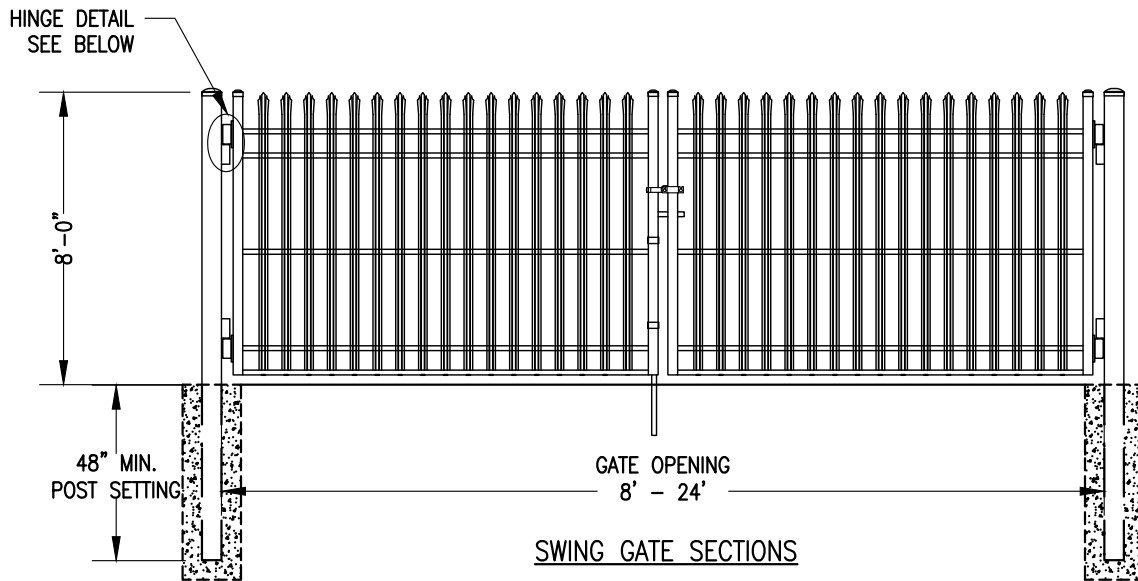
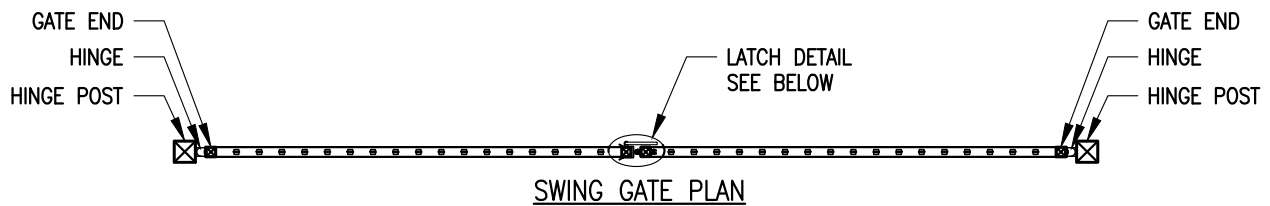
**TUBULAR STEEL FENCE &
ROLLING AND SWING GATE DETAIL**

REVISION

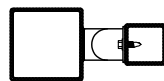
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SHEET 2 OF 3

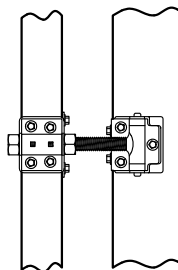


FRONT VIEW

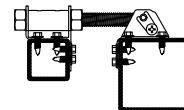


TOP VIEW

HINGE DETAIL



FRONT VIEW



TOP VIEW

LATCH DETAIL

SCALE: NOT TO SCALE



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JULY 2025
DATE

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**TUBULAR STEEL FENCE &
ROLLING AND SWING GATE DETAIL**

REVISION

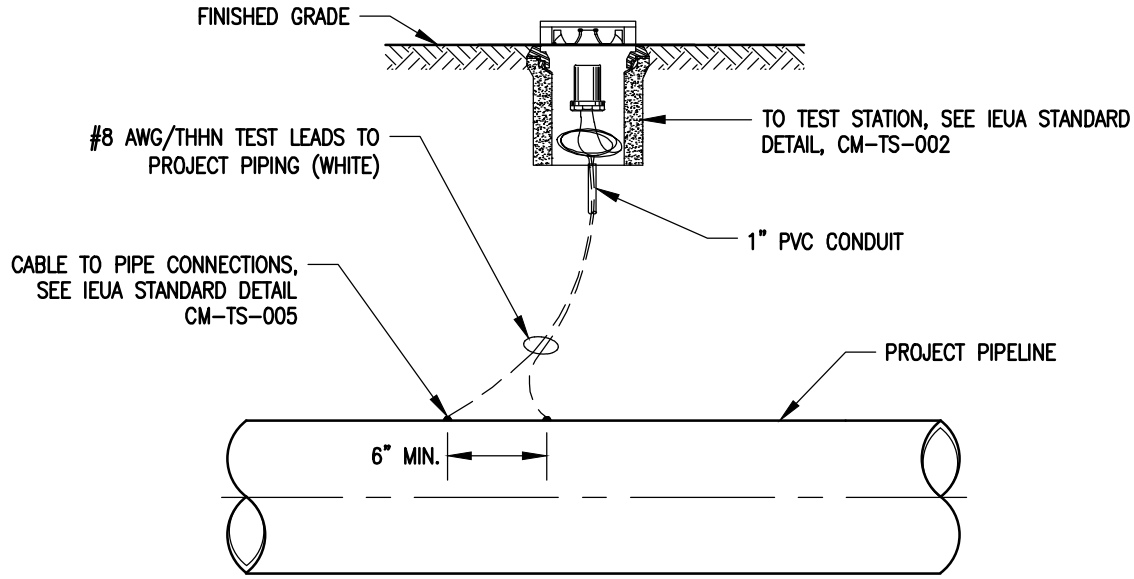
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C-EW-009

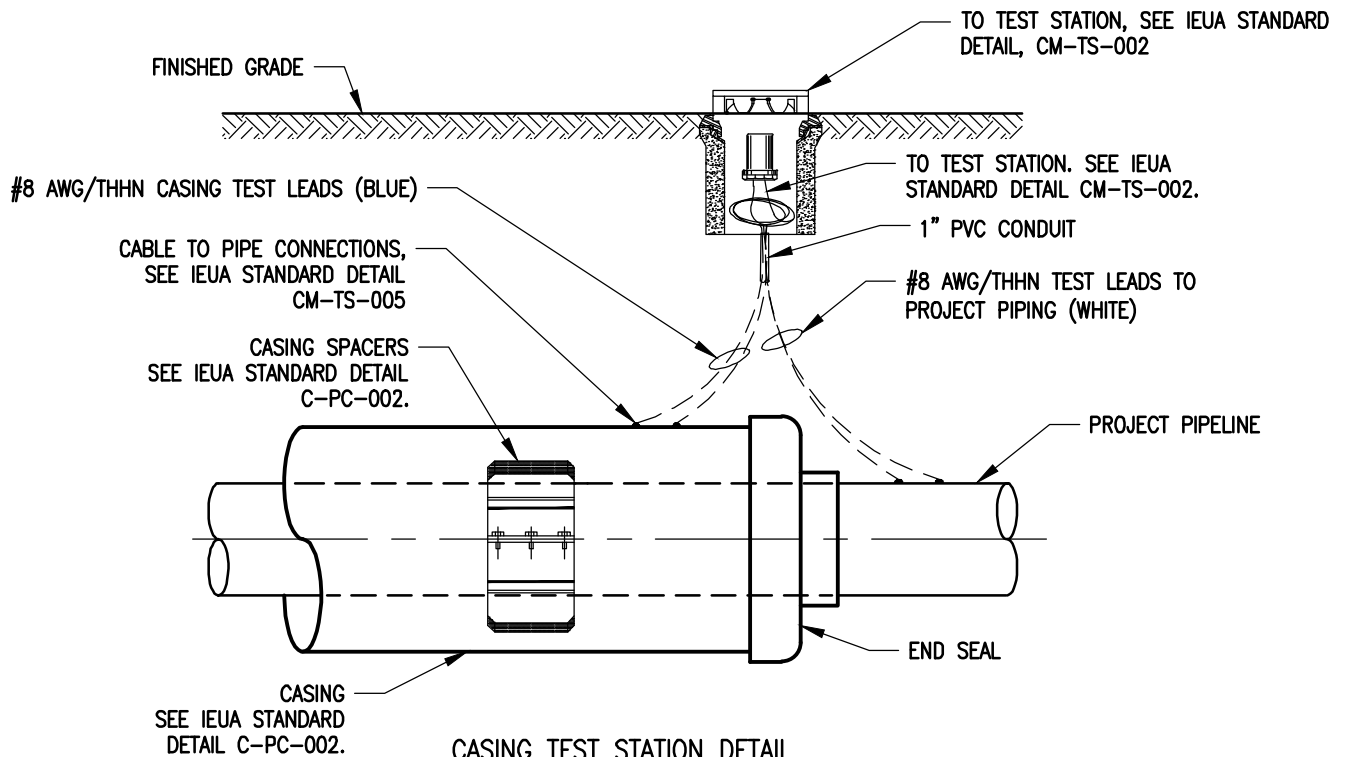
SHEET 3 OF 3

NOTES:

1. WIRES SHALL BE WELDED TO TOP (HORIZONTAL) SURFACE OF PIPE.
2. ALL TEST LEADS ARE CONTAINED IN 1 INCH SCHEDULE 40 PVC PIPE.



MONITORING TEST STATION DETAIL



CASING TEST STATION DETAIL

SCALE: NOT TO SCALE



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JULY 2025
DATE

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CB1075

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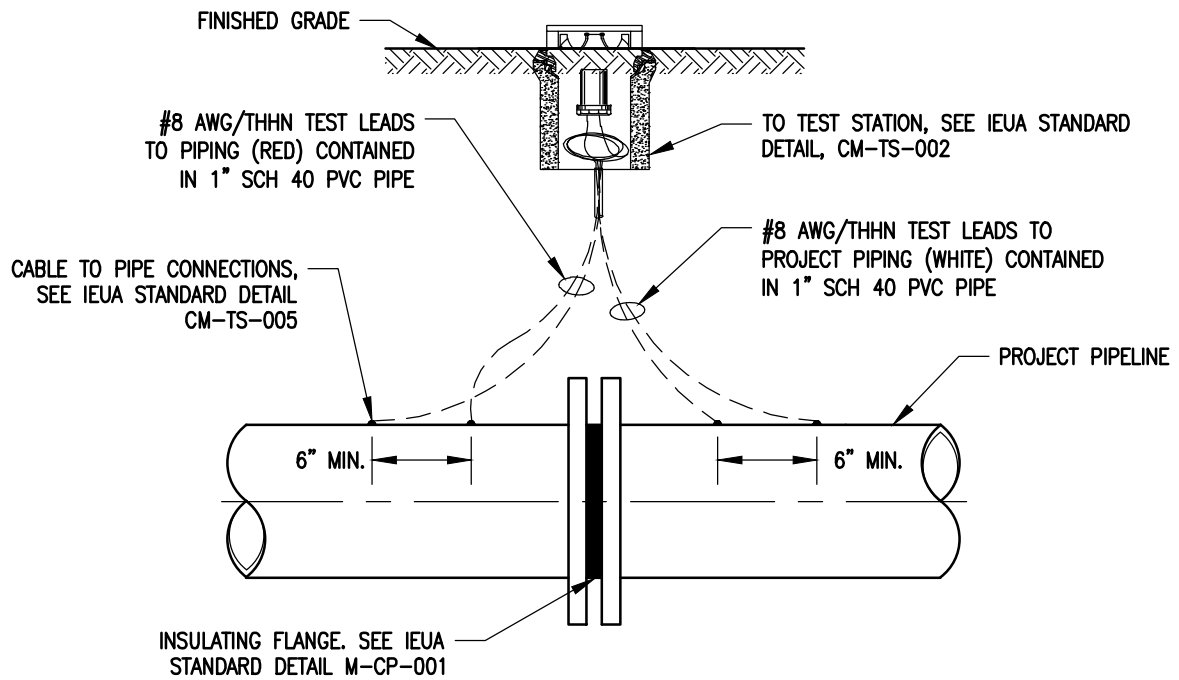
**TEST STATION
DETAILS**

REVISION

NO.	BY	DATE	APPROVED

CM-TS-001

SHEET 1 OF 2



INSULATING TEST STATION DETAIL

SCALE: NOT TO SCALE



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**TEST STATION
DETAILS**

REVISION

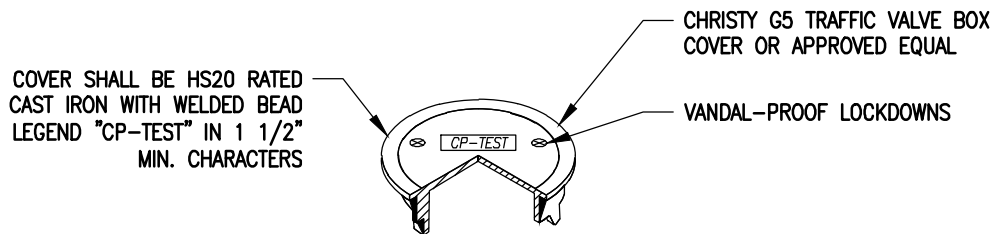
NO.	BY	DATE	APPROVED

CM-TS-001

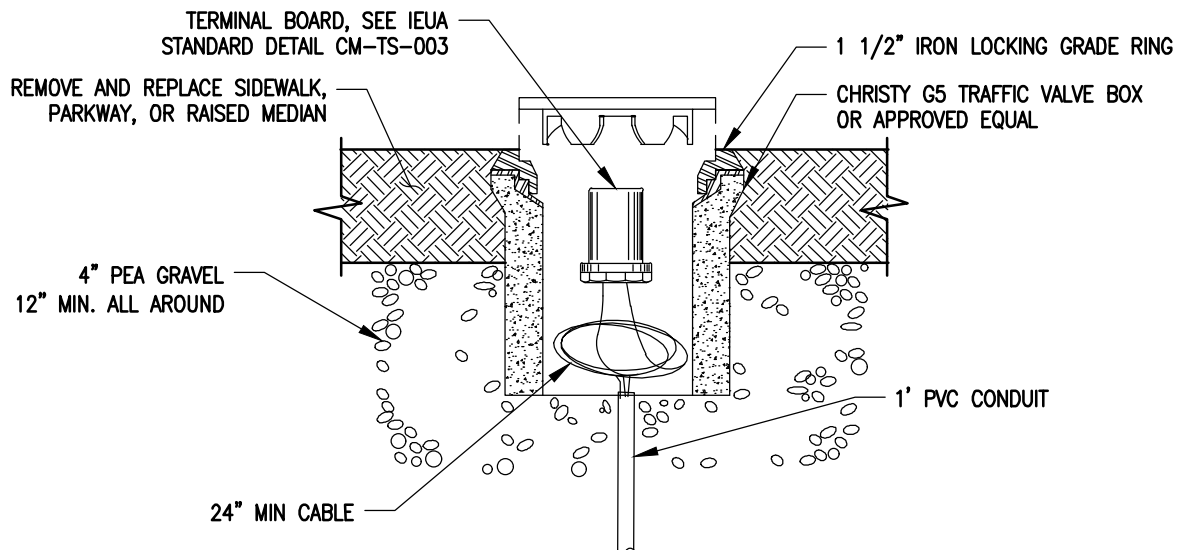
SHEET 2 OF 2

NOTES:

1. FOR TEST STATIONS INSTALLED CROSS COUNTRY OR IN UNPAVED AREAS, A UTILITY MARKER SHALL BE INSTALLED ADJACENT TO TEST STATION AND APPURTENANCES.
2. FOR TEST STATION LOCATION, REFER TO SHEET 2.
3. INSTALL REINFORCED CONCRETE AROUND BOX WHEN IN PARKWAY.
4. MINIMUM OF 18" SLACK IN CABLES SHALL BE PROVIDED TO ALLOW REMOVAL OR TERMINAL BOX.
5. SEAL THE END OF THE LOWER PIECE OF THE TERMINAL BOX WITH SEALING PUTTY.
6. INSTALL TAG WITH PIPELINE STATION AND TERMINAL BOARD ID



CONCRETE TEST BOX LID



FLUSH MOUNTED TEST STATION CONCRETE TEST BOX

SCALE: NOT TO SCALE



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**CONCRETE TEST BOX
TEST STATION DETAIL**

REVISION

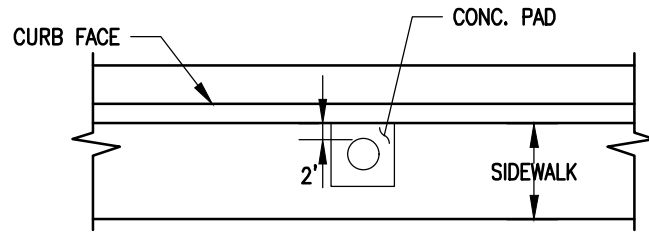
NO.	BY	DATE	APPROVED

CM-TS-002

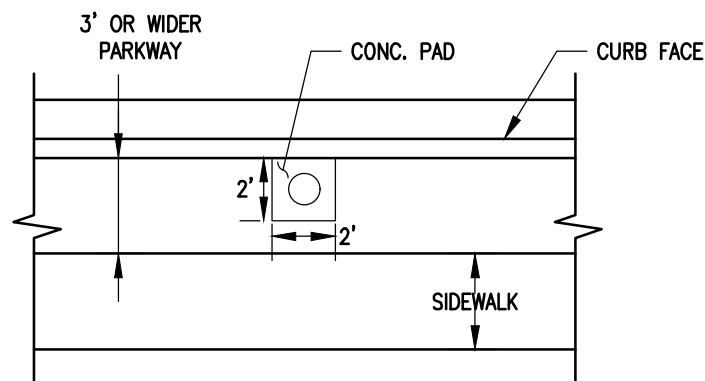
SHEET 1 OF 2

NOTES:

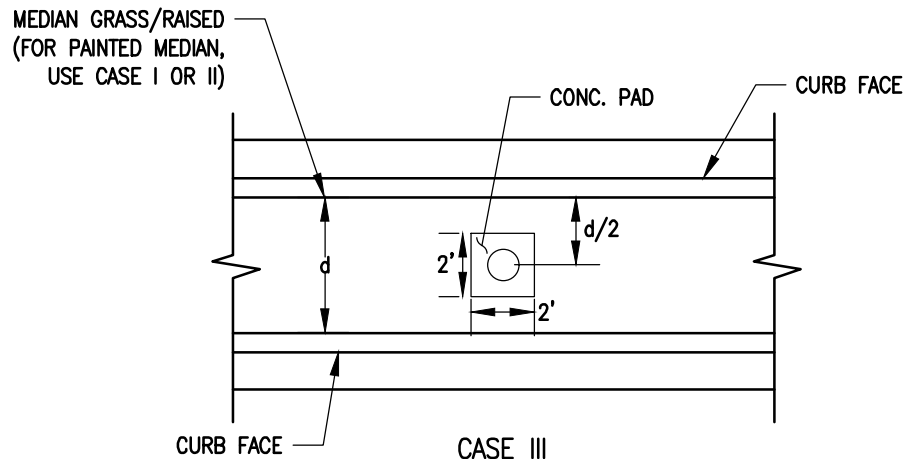
1. USE CASE I OR CASE II FOR PIPE CLOSEST TO THE CURB.
2. USE CASE III FOR PIPE CLOSE TO THE CENTER MEDIAN WHERE MEDIAN IS RAISED AND DISTANCE OF GREATER THAN 10'.
3. FOR CASE IV (UNIMPROVED AREAS), USE CARSONITE CTS TEST STATIONS AND INSTALL POST 5' MINIMUM FROM PIPELINE, APPROX. 3' BELOW GRADE.
4. IF DIFFERENT FROM THESE FOUR CASES, IEUA SHALL DETERMINE THE TEST STATION LOCATION.



CASE I



CASE II



CASE III

SCALE: NOT TO SCALE



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**CONCRETE TEST BOX
TEST STATION DETAIL**

REVISION

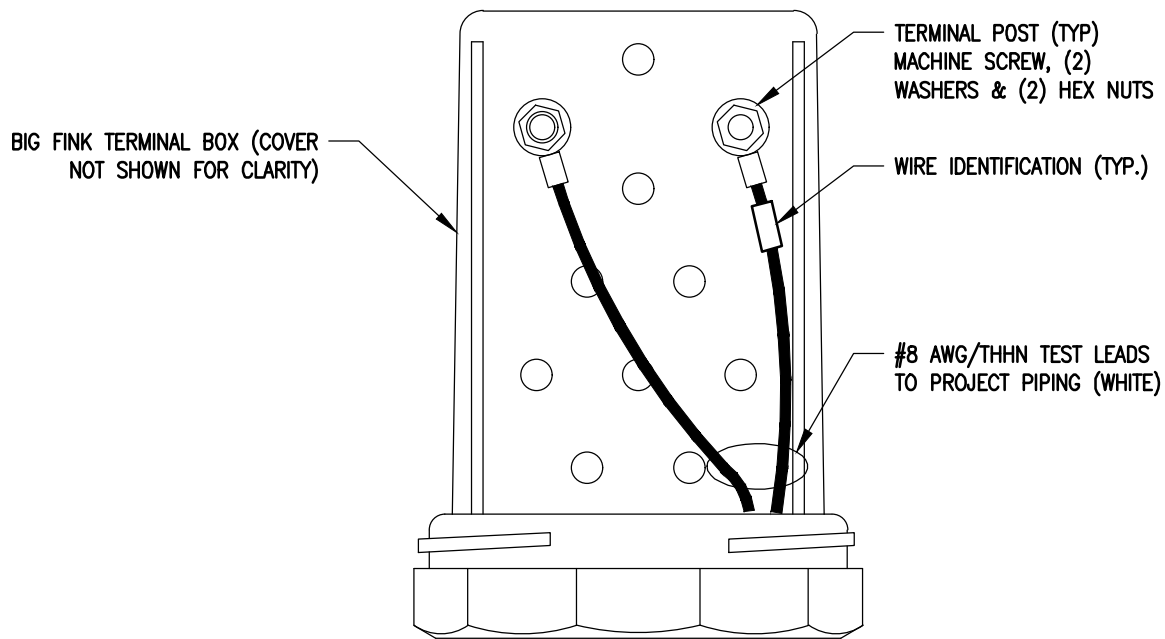
NO.	BY	DATE	APPROVED

CM-TS-002

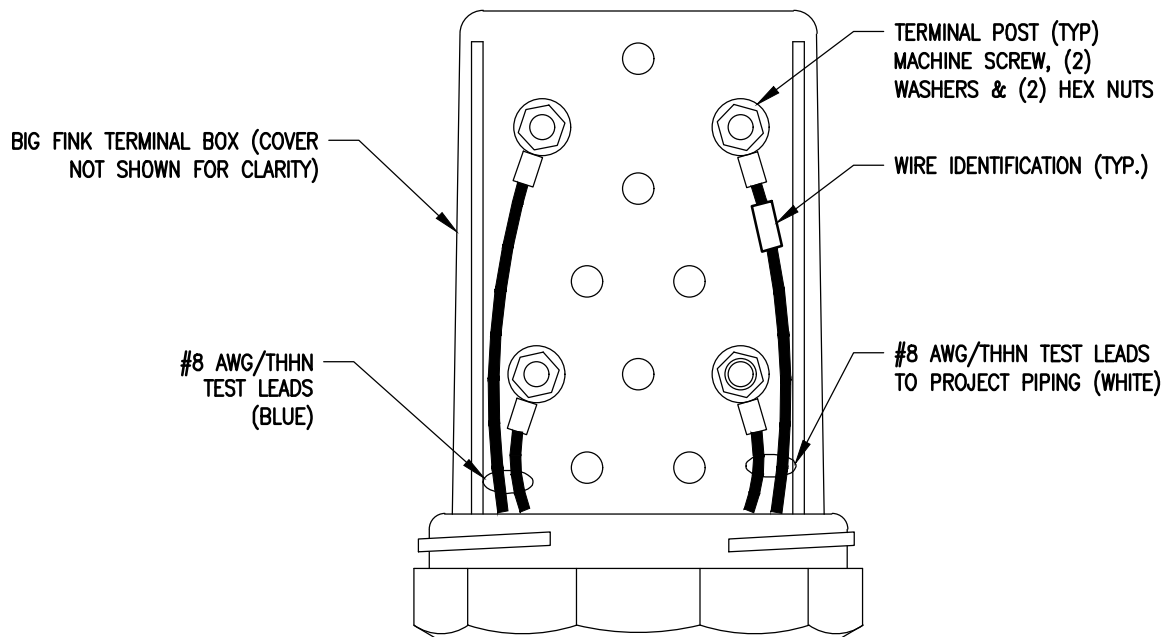
SHEET 2 OF 2

NOTES:

1. LEAVE SUFFICIENT SLACK (3 FEET MIN.) IN LEAD WIRE COILED WITHIN TEST BOX.



MONITORING TEST STATION TERMINAL BOARD



CASING TEST STATION TERMINAL BOARD

SCALE: NOT TO SCALE



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MANAGER OF ENGINEERING

JULY 2025
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Inland Empire Utilities Agency

**TERMINAL BOARD
DETAILS**

REVISION

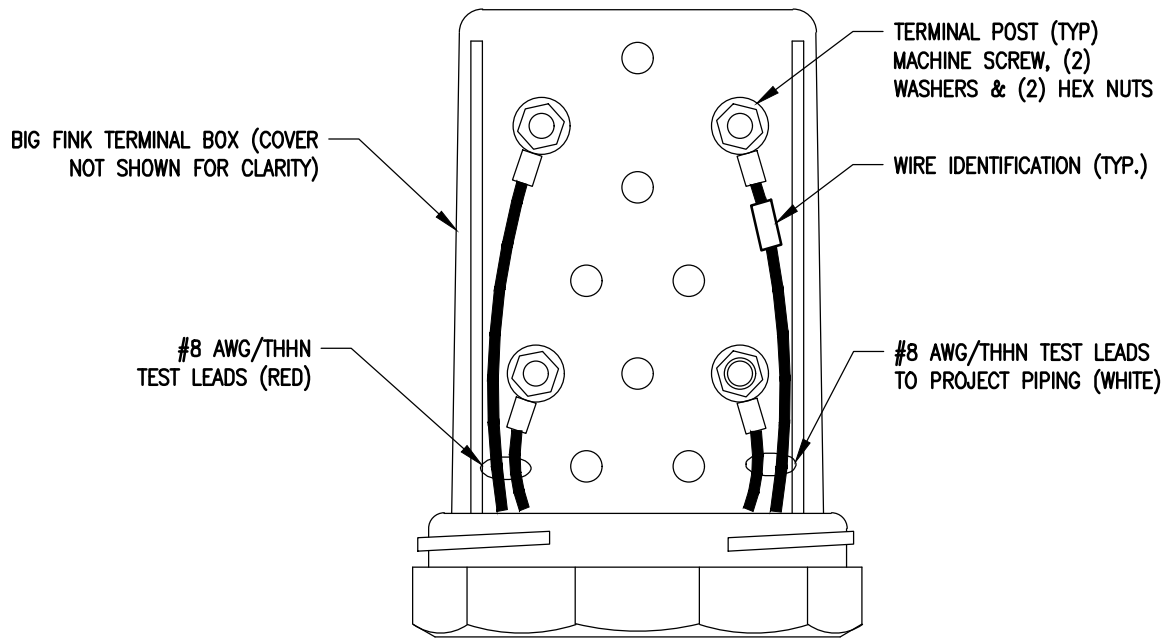
NO.	BY	DATE	APPROVED

CM-TS-003

SHEET 1 OF 2

NOTES:

1. LEAVE SUFFICIENT SLACK (3 FEET MIN.) IN LEAD WIRE COILED WITHIN TEST BOX.



INSULATING TEST STATION TERMINAL BOARD

SCALE: NOT TO SCALE



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JULY 2025
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CB1075

JULY 2025
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**TERMINAL BOARD
DETAILS**

REVISION

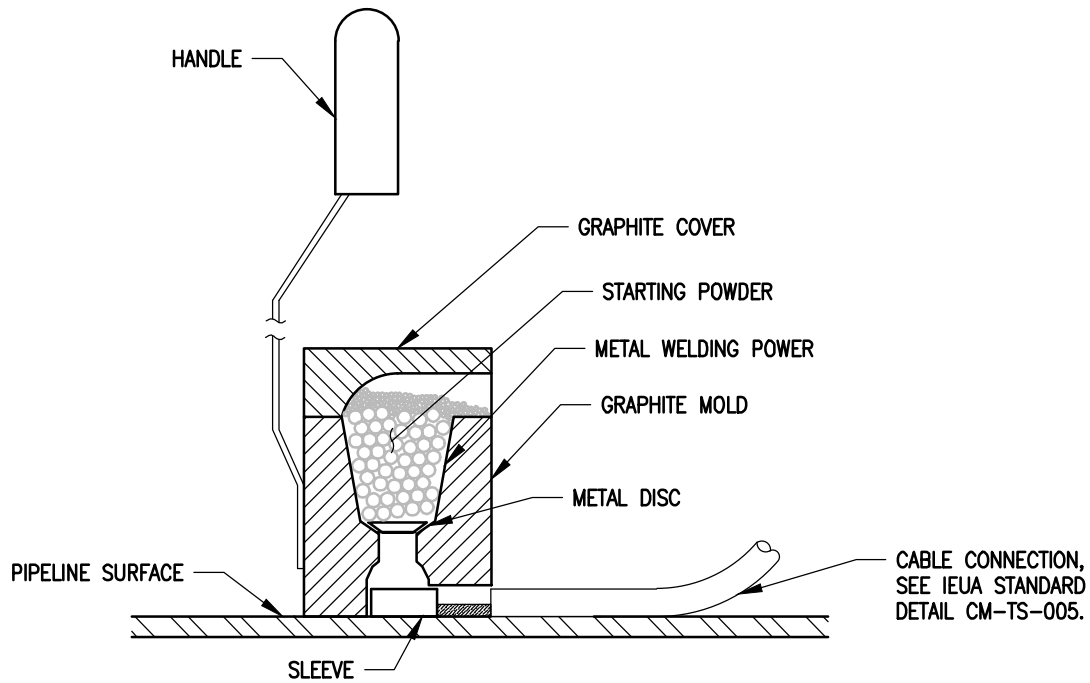
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CM-TS-003

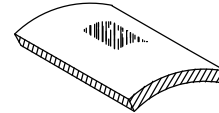
SHEET 2 OF 2

NOTES:

1. PROCEDURE SHOWN IS TO BE USED AS A GENERAL GUIDE ONLY.
2. CONSULT MANUFACTURER'S LITERATURE FOR SPECIFIC INSTALLATION INSTRUCTIONS.



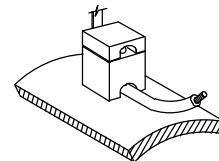
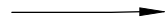
STEP 1. FILE STRUCTURE CONNECTION AREA (3" + 3" MIN.) TO BARE SHINY METAL AND CLEAN.



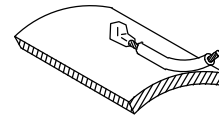
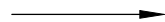
STEP 2. STRIP INSULATION FROM WIRE. ATTACH SLEEVE REQUIRED ON #6 AWG WIRE OR SMALLER.



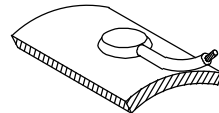
STEP 3. HOLD MOLD FIRMLY WITH OPENING AWAY FROM OPERATOR AND IGNITE WITH FLINT GUN.



STEP 4. REMOVE SLAG FROM CONNECTION AND PEEN WELD FOR SOUNDNESS.



STEP 5. COVER CONNECTION AND EXPOSED STRUCTURE SURFACE WITH EPOXY COATING COMPOUND.



SCALE: NOT TO SCALE



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CB1075

JULY 2025
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**EXOTHERMIC WELD
DETAIL**

REVISION

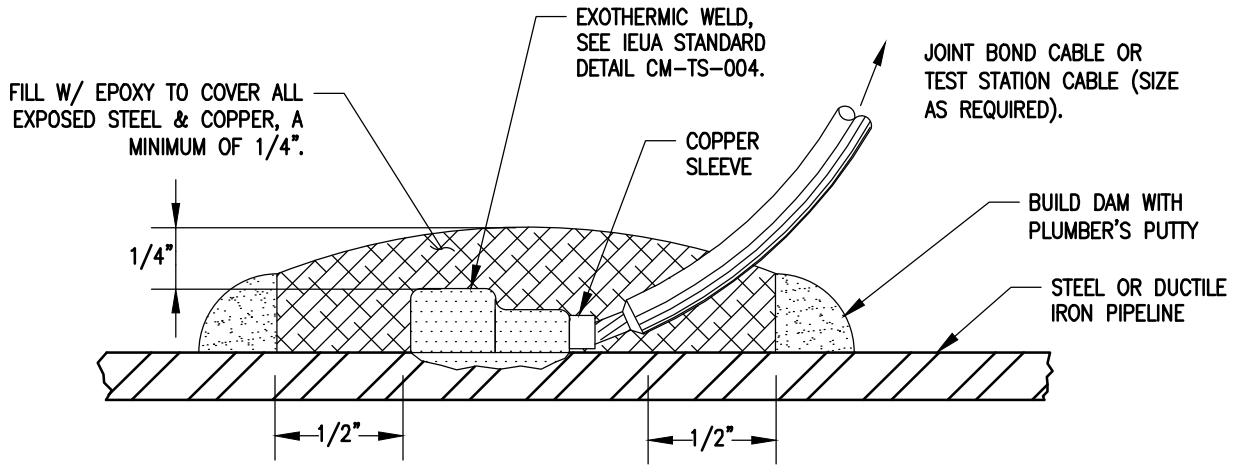
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CM-TS-004

SHEET 1 OF 1

NOTES:

1.



SCALE: NOT TO SCALE



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**CABLE CONNECTION
DETAIL**

REVISION

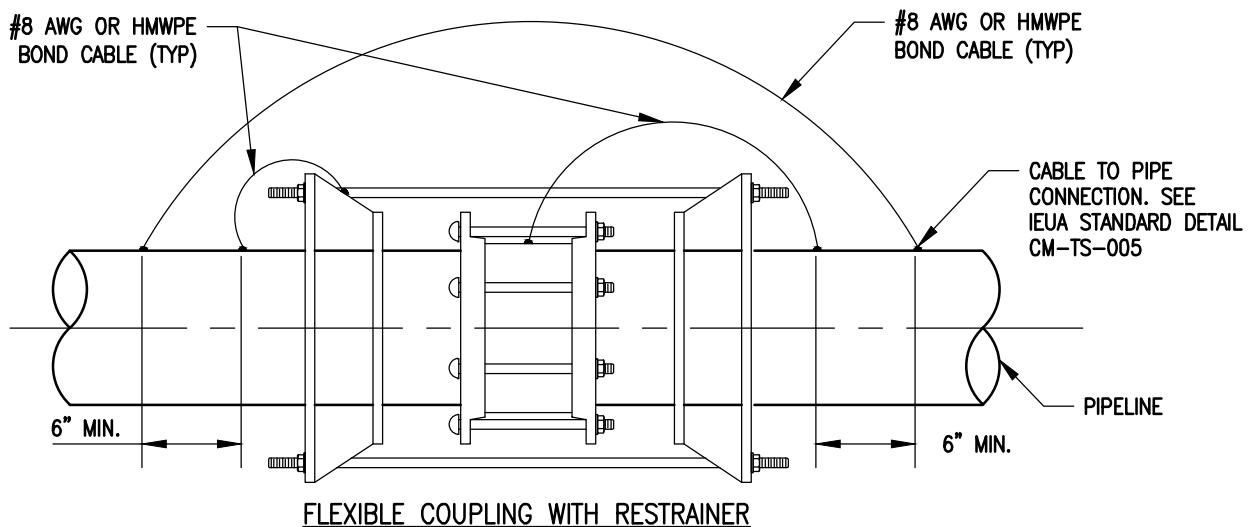
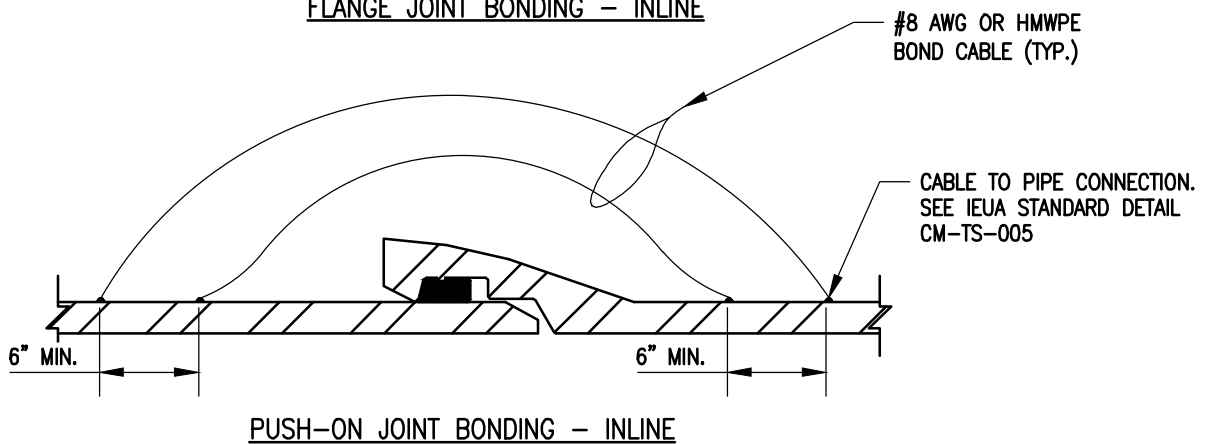
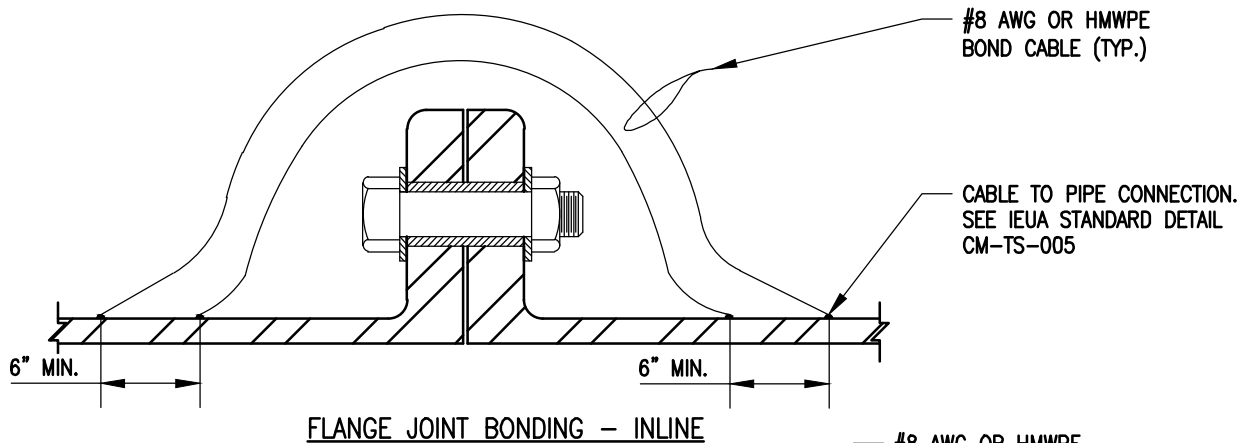
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CM-TS-005

SHEET 1 OF 1

NOTES:

1. ALL MECHANICAL JOINTS, EXCEPT IFJ, SHALL BE BONDED TO PROVIDE CONTINUITY.
2. PROVIDE ENOUGH SLACK IN THE BOND CABLES FOR JOINT MOVEMENT.
3. THIS DETAIL IS APPLICABLE TO DUCTILE IRON PIPING ONLY.



SCALE: NOT TO SCALE



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JOINT BONDING
INLINE DETAIL

REVISION

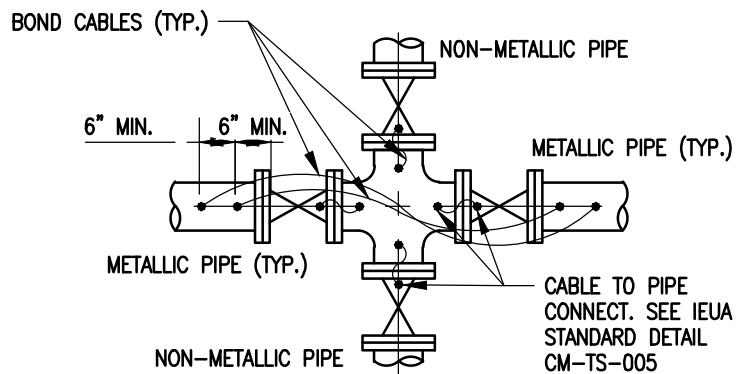
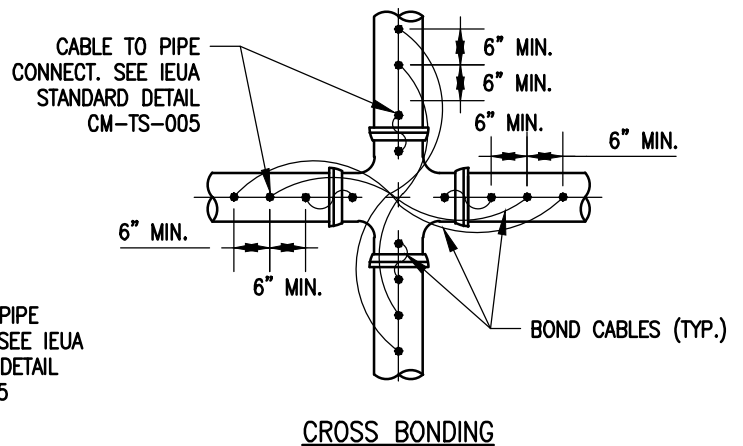
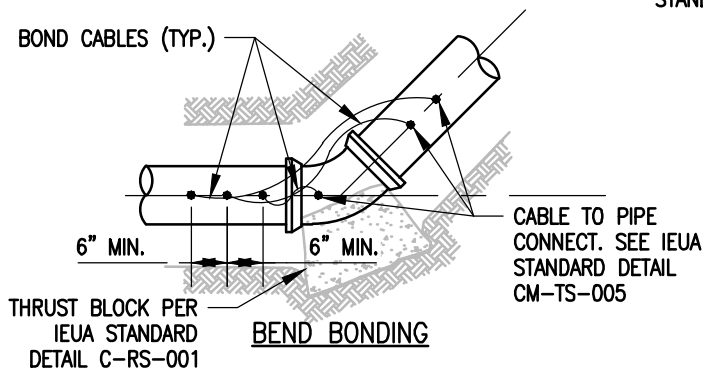
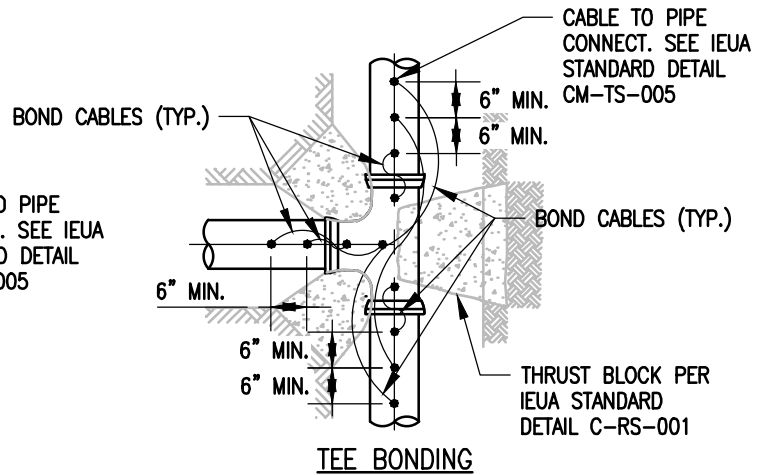
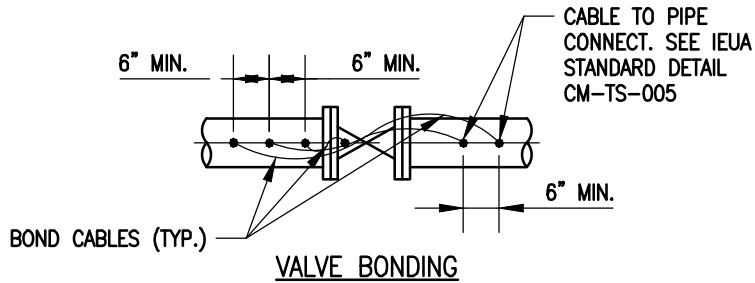
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CM-TS-006

SHEET 1 OF 1

NOTES:

1. ALL BOND WIRES SHALL BE MIN. #8 AWG. STANDARD COPPER WIRE WITH HMWPE INSULATION.
2. PROVIDE ENOUGH SLACK IN THE BOND CABLES FOR JOINT MOVEMENT.
3. MINIMUM WELD SPACING SHALL BE 6" AND OUTSIDE OF THRUST BLOCKS.



VALVE CROSS BONDING
METALLIC PIPE TO NON-METALLIC PIPE

SCALE: NOT TO SCALE



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JULY 2025
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CB1075

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**JOINT BONDING
PIPE FITTINGS DETAIL**

REVISION

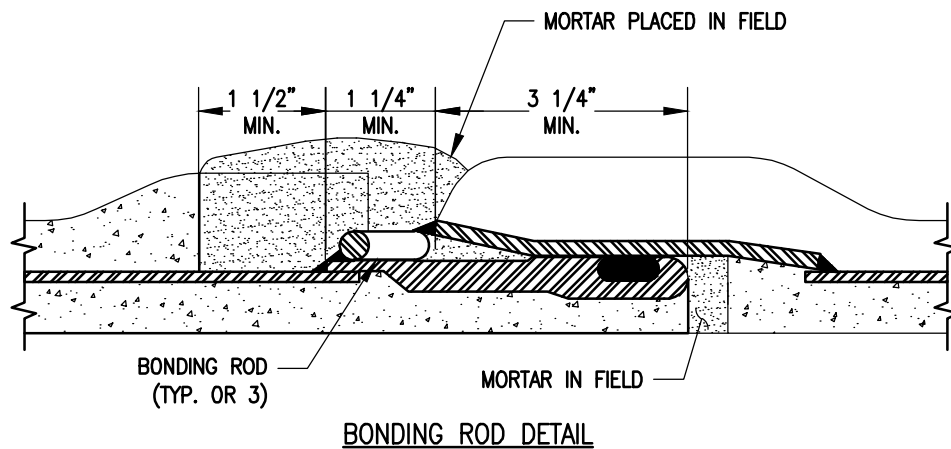
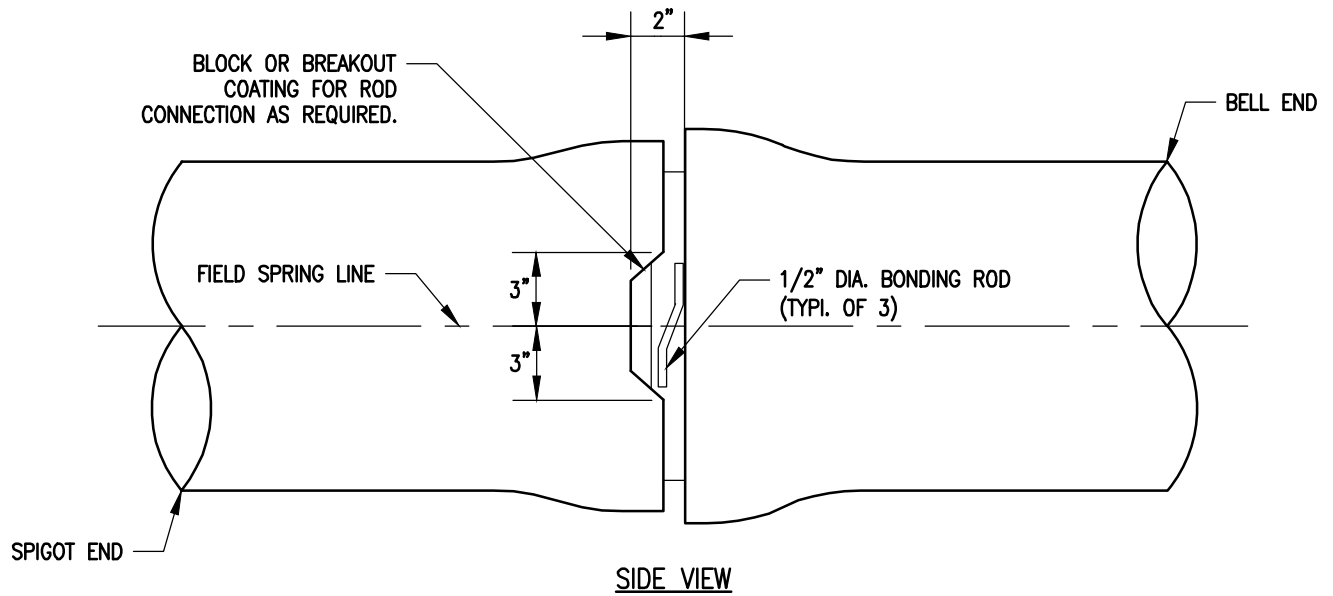
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CM-TS-007

SHEET 1 OF 1

NOTES:

1. INSTALL THREE (3) BONDING RODS PER JOINT INSTALLED AT 120° SPACING.



SCALE: NOT TO SCALE



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JOINT BONDING
CML&C STEEL PIPE DETAIL

REVISION

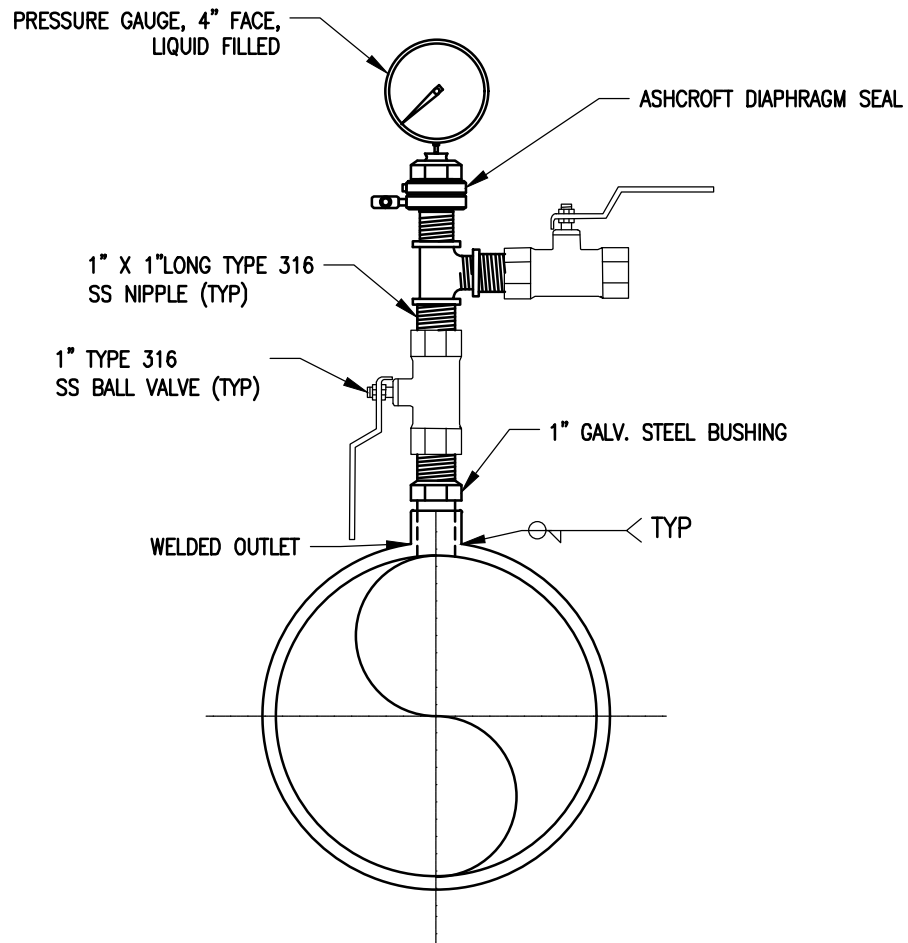
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CM-TS-008

SHEET 1 OF 1

NOTES:

1. NOT FOR CHEMICAL USE.
2. INSTALL WELDED OUTLET FOR STEEL PIPE APPLICATIONS.
3. INSTALL A DIAPHRAGM SEAL IN WASTEWATER APPLICATIONS.
4. SPECIFIC APPLICATIONS SUCH AS SLUDGE REQUIRE A MINIMUM OF 0.5 INCH PIPING AND VALVES.



SCALE: NOT TO SCALE



APPROVED BY:

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MANAGER OF ENGINEERING

JULY 2025
DATE

DESIGN BY: GHD, INC.

APPROVED BY:
CHRIS BARTLEMAN, P.E.
CB1075

JULY 2025
DATE

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**PRESSURE GAUGE
DETAIL**

REVISION

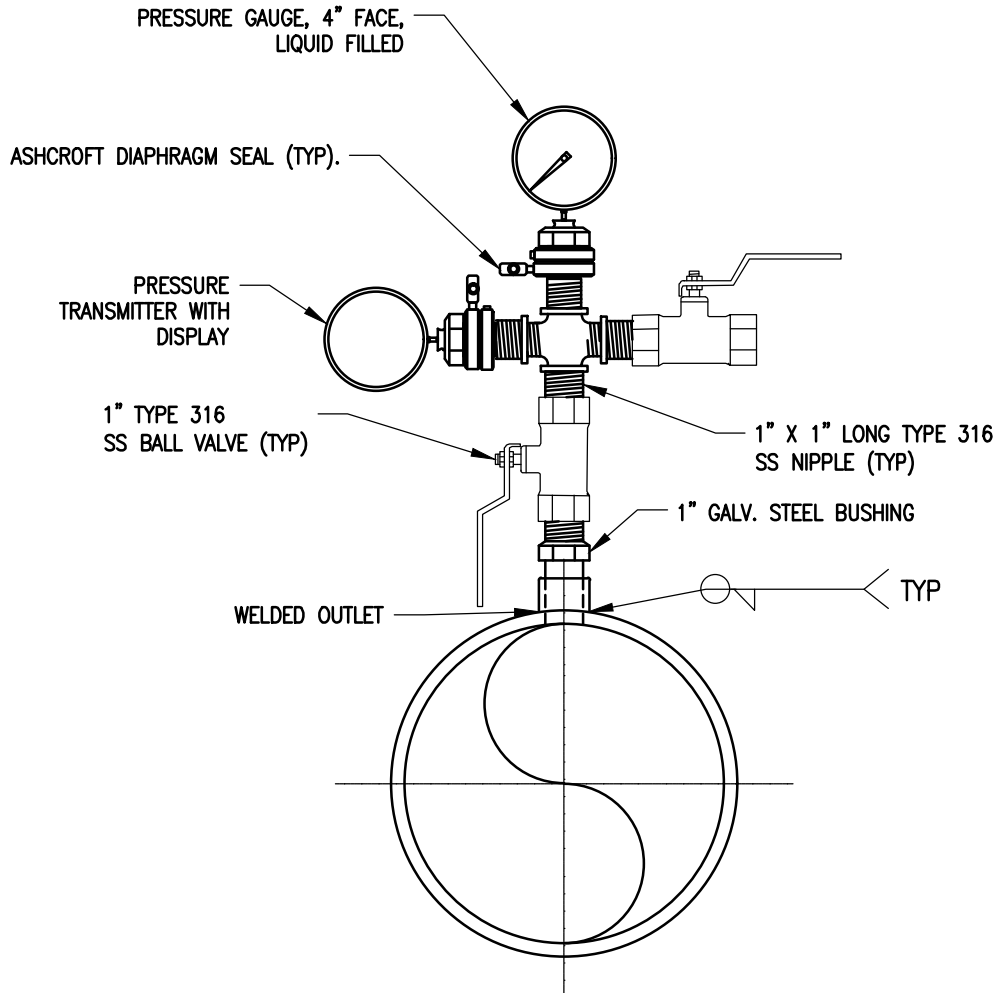
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E-PG-001

SHEET 1 OF 1

NOTES:

1. NOT FOR CHEMICAL USE.
2. INSTALL WELDED OUTLET FOR STEEL PIPE APPLICATIONS.
3. INSTALL A DIAPHRAGM SEAL IN WASTEWATER APPLICATIONS.
4. SPECIFIC APPLICATIONS SUCH AS SLUDGE REQUIRE A MINIMUM OF 0.5 INCH PIPING AND VALVES.



SCALE: NOT TO SCALE



APPROVED BY:

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JULY 2025
DATE

DESIGN BY: GHD, INC.

APPROVED BY:
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CB1075

JULY 2025
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**PRESSURE GAUGE & TRANSMITTER
DETAIL**

REVISION			
NO.	BY	DATE	APPROVED

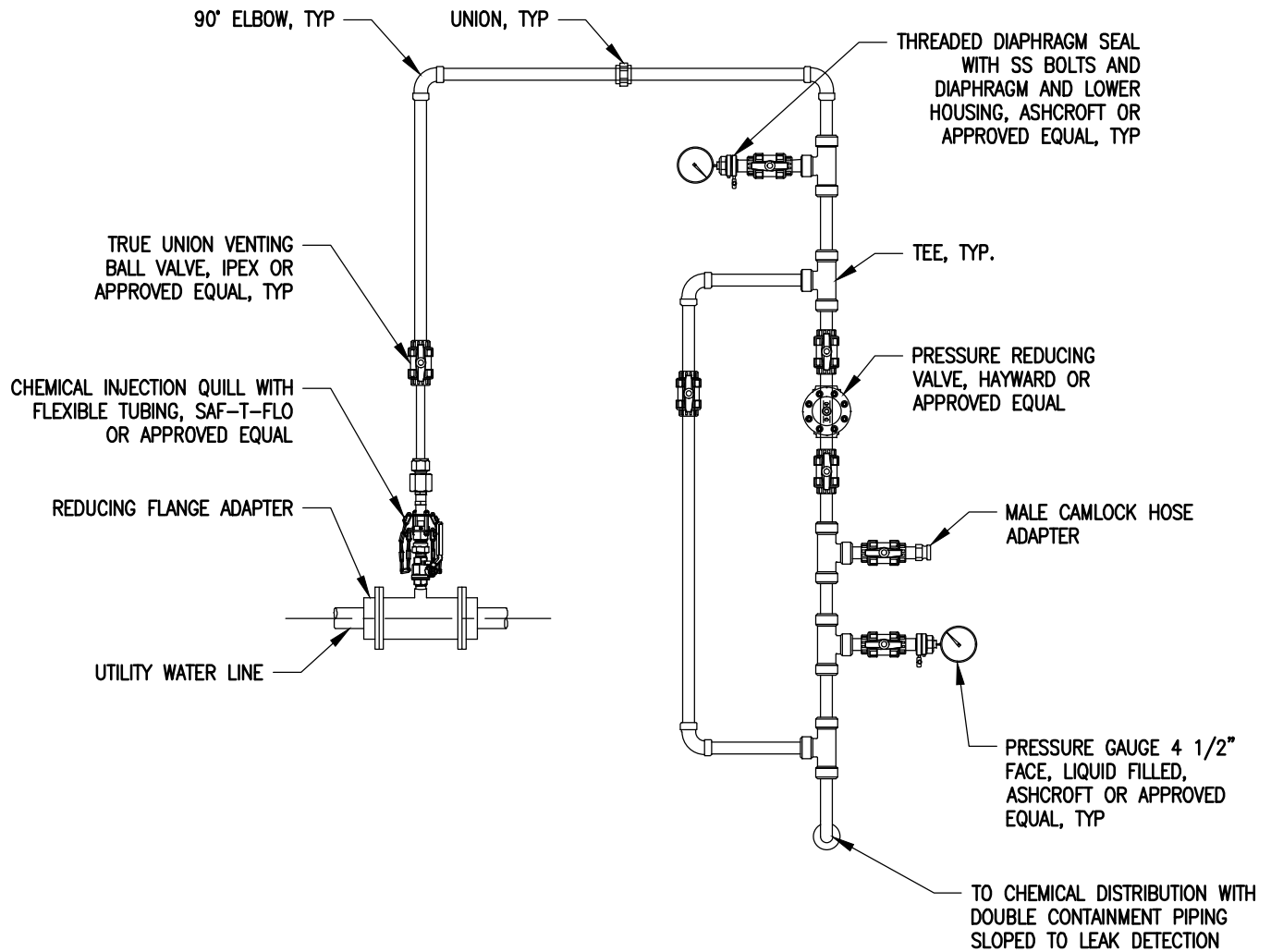
SHEET 1 OF 1

E-PG-002

SHEET 1 OF 1

NOTES:

1. SUITABLE FOR 1-2" CHEMICAL INJECTION PIPELINES.
2. THIS CONFIGURATION IS TYPICAL OF DUTY AND STANDBY.
3. ALL PIPE AND FITTINGS SHALL BE CPVC WITH SOLVENT WELDS.
4. SEALS TO BE EDPM.
5. PIPE SUPPORTS WILL BE STAINLESS STEEL UNISTRUT AND BRACKETS.
6. RECOMMENDED TO BE LOCATED OUT OF DIRECT SUNLIGHT OR COATED WITH YELLOW PAINT PER SPECIFICATIONS.



SCALE: NOT TO SCALE



Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

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JULY 2025
DATE

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CB1075

JULY 2025
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**SODIUM HYPOCHLORITE
INJECTION PIPING DETAIL**

REVISION

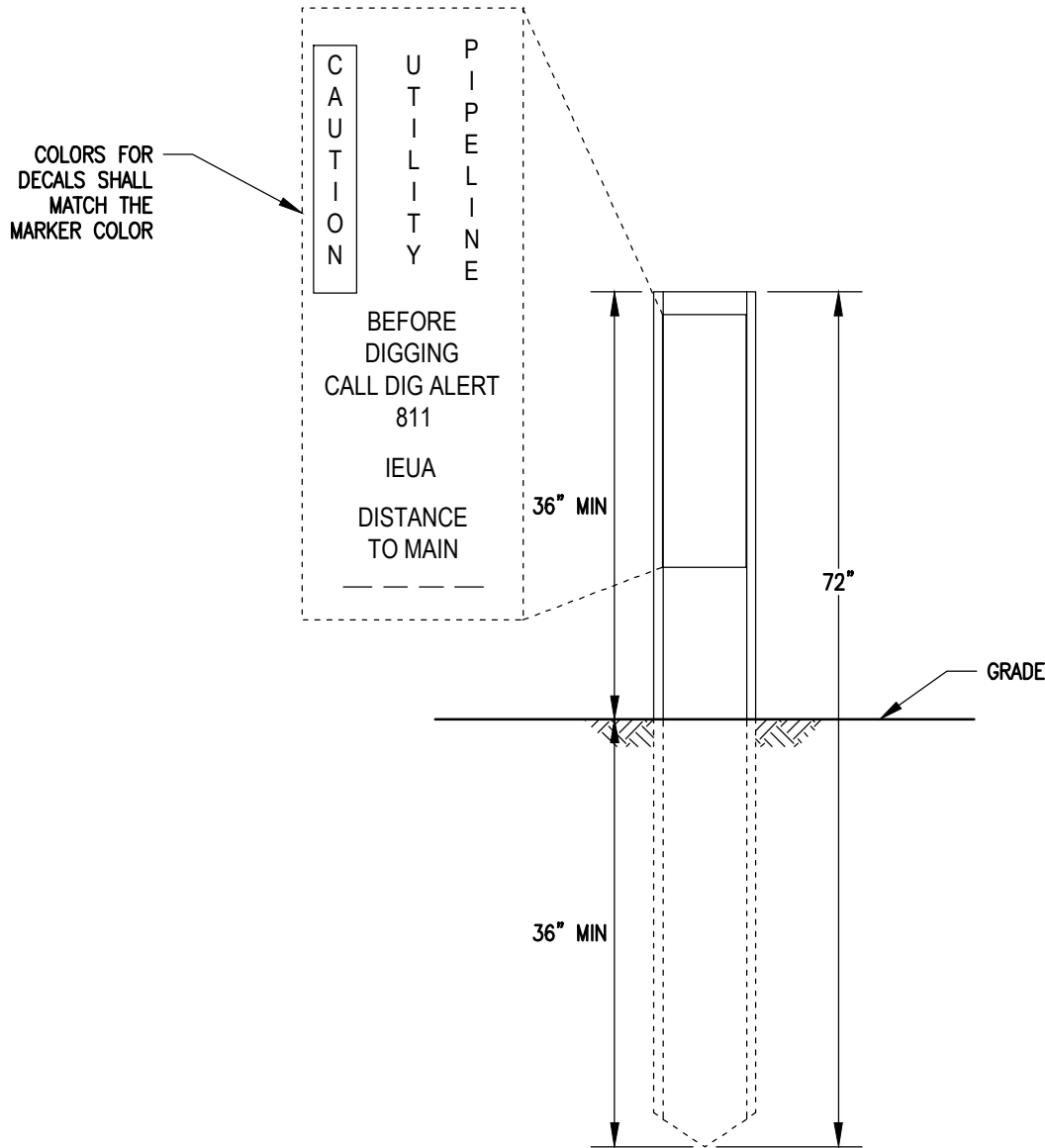
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C-PC-003

SHEET 1 OF 1

NOTES:

1. MARKERS ARE REQUIRED WHEN UTILITY VALVES LOCATED OUTSIDE OF PAVEMENT OR IN AN EASEMENT NOT ADJACENT TO THE RIGHT-OF-WAY.
2. MARKERS SHALL BE CARSONITE HIGH PERFORMANCE UTILITY MARKER MADE OF FIBERGLASS COMPOSITE.
3. MARKERS SHALL BE GREEN FOR WASTEWATER AND PURPLE FOR RECLAIMED WATER.
4. ADDITIONAL MARKERS SHALL BE INSTALLED AS NEEDED SO THAT THE DISTANCE BETWEEN MARKERS DOES NOT EXCEED 1000 FEET.



SCALE: NOT TO SCALE



APPROVED BY:

JASON MARSEILLES, P.E.
MANAGER OF ENGINEERING

JULY 2025
DATE

DESIGN BY: GHD, INC.

APPROVED BY:
CHRIS BARTLEMAN, P.E.
CB1075

JULY 2025
DATE

Inland Empire Utilities Agency

UTILITY MARKER POST
DETAIL

REVISION

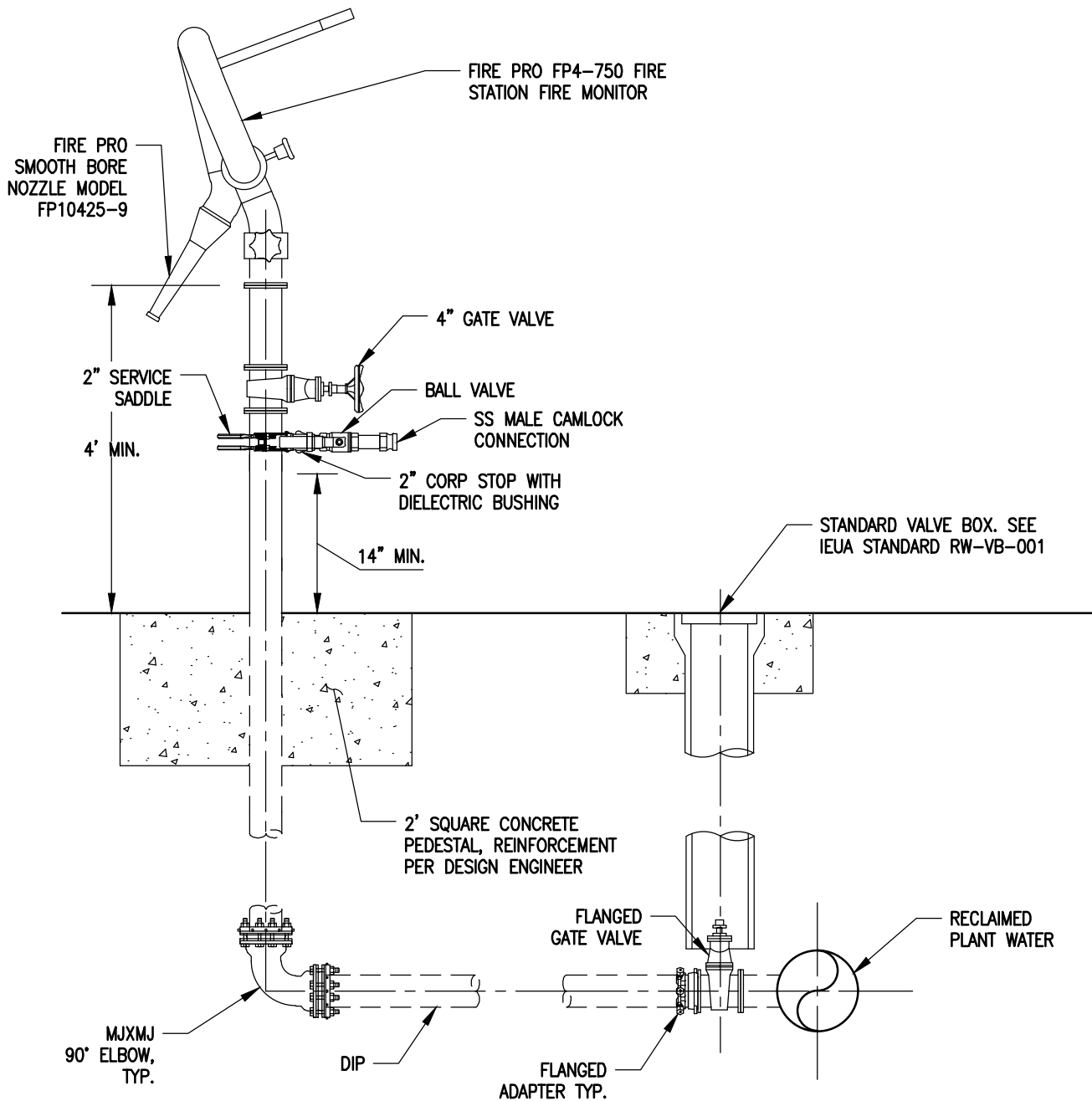
NO.	BY	DATE	APPROVED

C-SW-001

SHEET 1 OF 1

NOTES:

1. COAT ALL ABOVE GRADE PIPE AND APPURTENANCES PER PROJECT SPECIFICATIONS.



SCALE: NOT TO SCALE



APPROVED BY:

JASON MARSEILLES, P.E.
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JULY 2025
DATE

Inland Empire Utilities Agency

**WATER CANNON
DETAIL**

REVISION

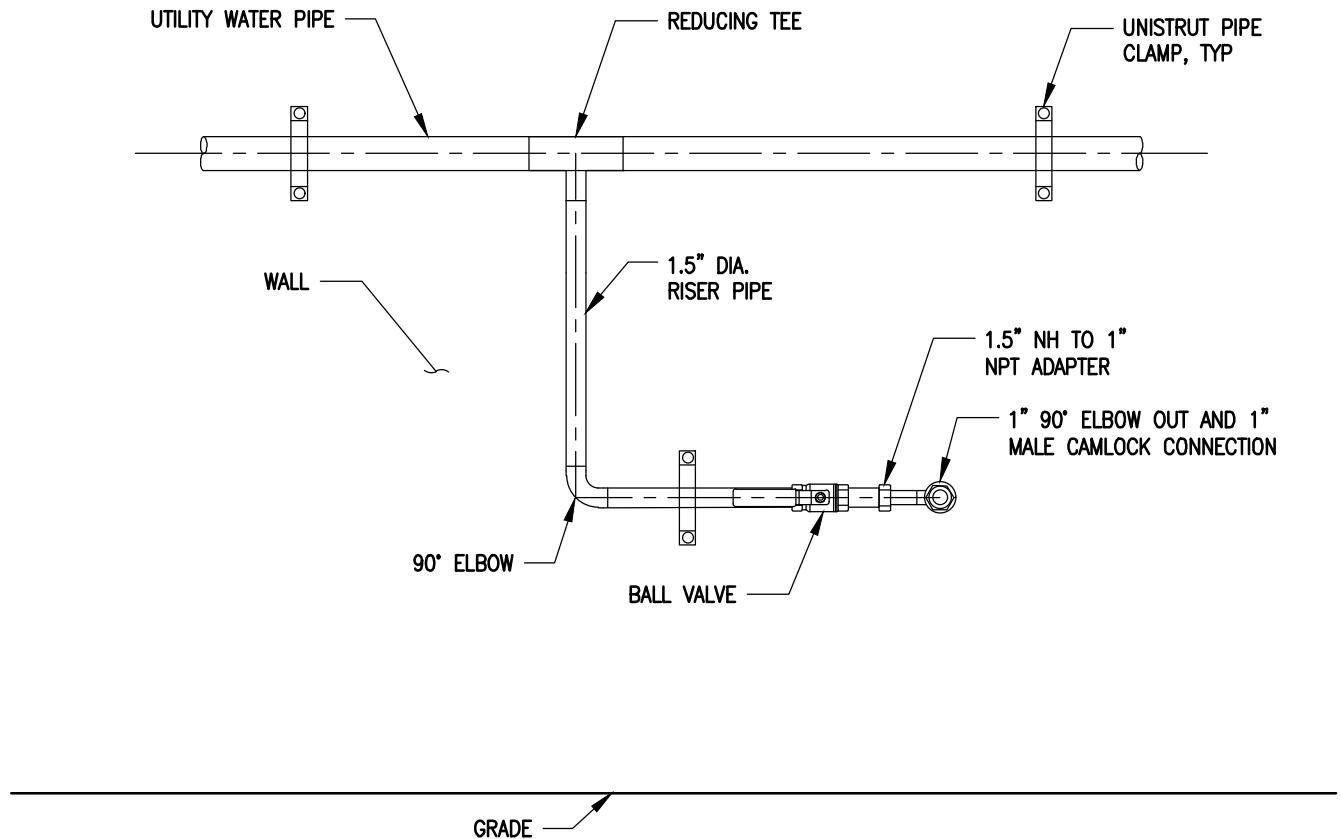
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C-CW-002

SHEET 1 OF 1

NOTES:

1. SUITABLE FOR 1" TO 2" APPLICATIONS.
2. PIPE SHALL BE STAINLESS STEEL, COPPER, BRONZE, OR BRASS AND PIPE APPURTENANCES SHALL BE BRASS, BRONZE, OR STAINLESS STEEL.
3. MOUNTING BRACKET AND PIPE SHALL BE COATED WITH EPOXY PAINT PER SPECIFICATIONS.
4. INSTALL DIELECTRIC COUPLINGS AND PROPER ISOLATION BETWEEN DISSIMILAR METALS.



SCALE: NOT TO SCALE



APPROVED BY:

JASON MARSEILLES, P.E.
MANAGER OF ENGINEERING

JULY 2025
DATE

DESIGN BY: GHD, INC.

APPROVED BY:
CHRIS BARTLEMAN, P.E.
CB1075

JULY 2025
DATE

Inland Empire Utilities Agency

UTILITY WALL MOUNTED
WATER HOSE BIBB DETAIL

REVISION

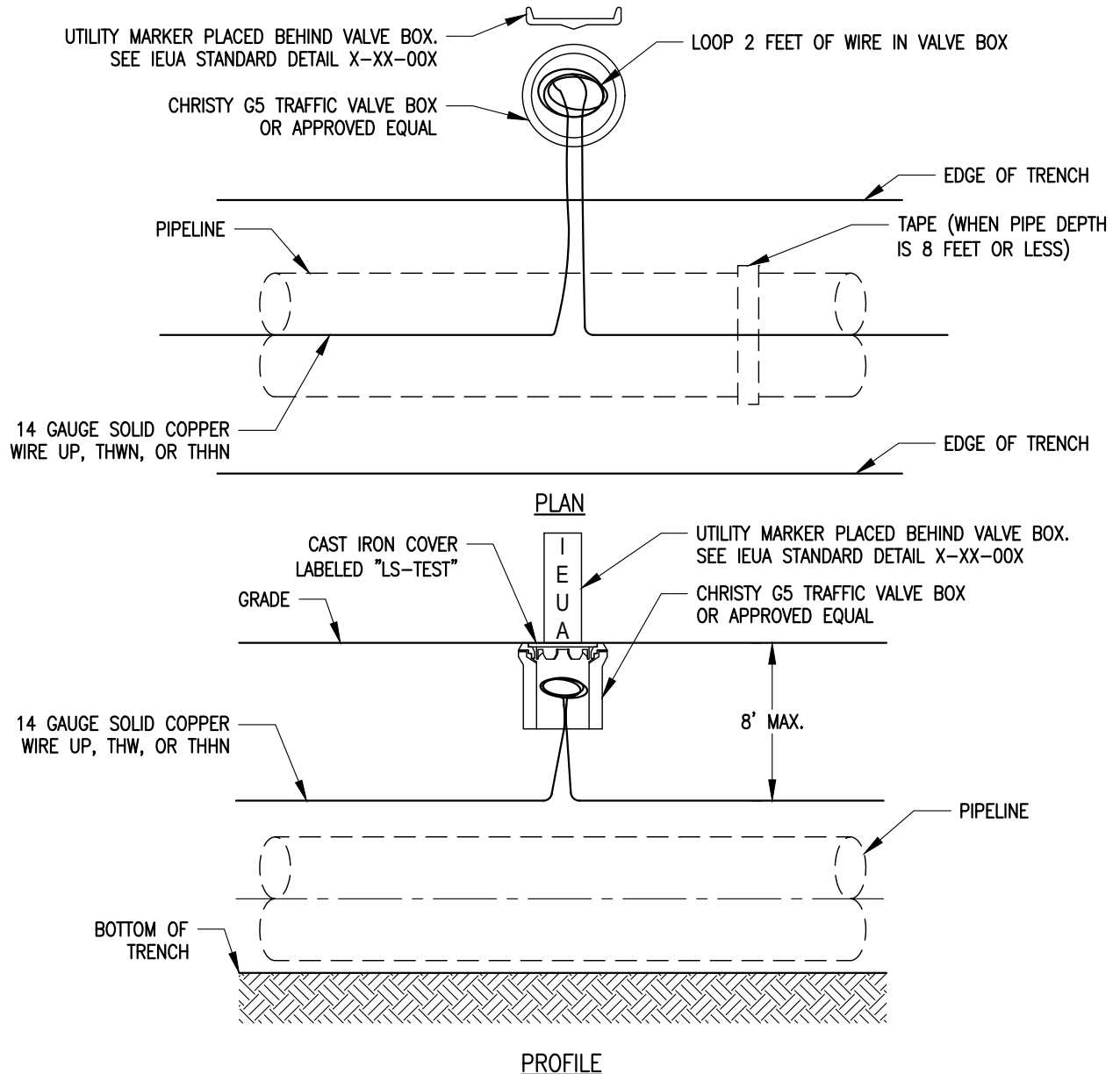
NO.	BY	DATE	APPROVED

C-SW-003

SHEET 1 OF 1

NOTES:

1. LOCATOR WIRE SHALL BE BROUGHT TO THE SURFACE AT 660 FEET OC MAXIMUM. LOCATOR WIRE SHALL TERMINATE AT EACH VALVE BOX AND BE CAPABLE OF EXTENDING 12" ABOVE TOP OF BOX.
2. LOCATOR WIRE SHALL BE INSTALLED OVER ALL NON-METALLIC RECLAIMED WATERLINES AND FORCE MAINS LOCATED WITH THE RIGHT-OF-WAY.
3. LOCATION OF VALVE BOX SHALL BE PER STANDARD CM-TS-002.
4. USE CAST IRON COVER LABELED "LS-TEST".
5. USE DUCT TAPE AS NECESSARY TO HOLD WIRE DIRECTLY ON THE TOP OF PIPE.
6. LOCATOR WIRE TO BE CONTINUOUS STRAND.
7. SPLICES TO BE DONE WITH A CRIMPABLE BUTT CONNECTOR.
8. FOR PIPE DEPTHS GREATER THAN 8 FEET, LOCATOR WIRE SHALL BE PLACED ABOVE PIPE AT A MAXIMUM 8 FEET DEPTH. UTILITY MARKER TAPE SHALL BE PLACED 1 FOOT ABOVE THE LOCATOR WIRE.
9. LOCATABILITY TEST SHALL BE PERFORMED ON ALL LOCATOR WIRES.



SCALE: NOT TO SCALE



APPROVED BY:

JASON MARSEILLES, P.E.
MANAGER OF ENGINEERING

JULY 2025
DATE

DESIGN BY: GHD, INC.

APPROVED BY:
CHRIS BARTLEMAN, P.E.
CB1075

JULY 2025
DATE

Inland Empire Utilities Agency

**PIPE LOCATOR WIRE
DETAIL**

REVISION

NO.	BY	DATE	APPROVED

C-PC-004

SHEET 1 OF 1