

NOTES:

1. MANHOLES SHALL BE WATERTIGHT. GROUT PICK HOLES INSIDE AND OUT WITH NON-SHRINK GROUT.
2. SURFACE RESTORATION IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND LOCAL REGULATORY AUTHORITY.
3. IN NON-PAVED AREAS, INSTALL 6 FT. DIAMETER CONCRETE PAD 6 INCHES THICK AROUND FRAME AND COVER — UNLESS OTHERWISE DIRECTED BY THE DISTRICT.

**CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS**

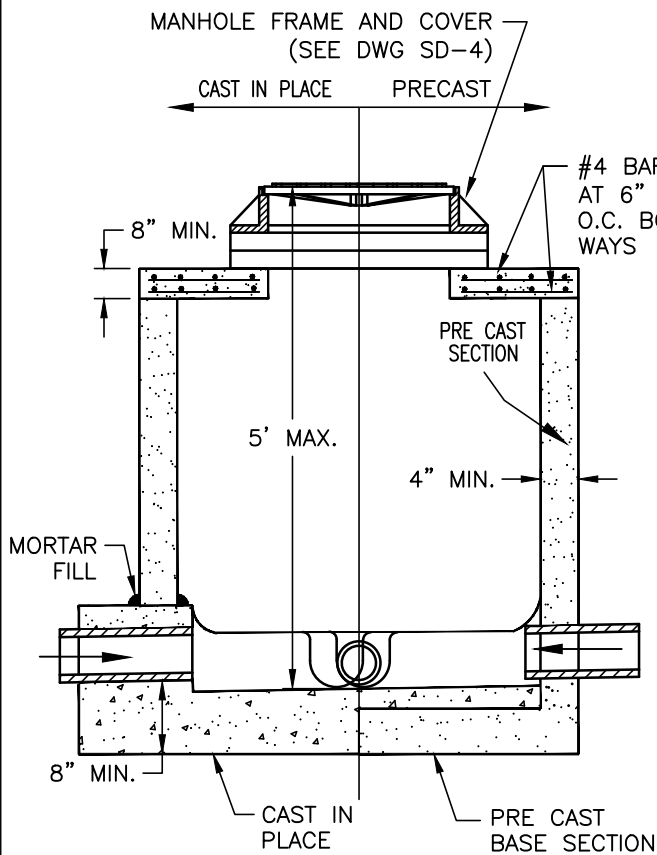
STANDARD PRECAST MANHOLE

SD-1

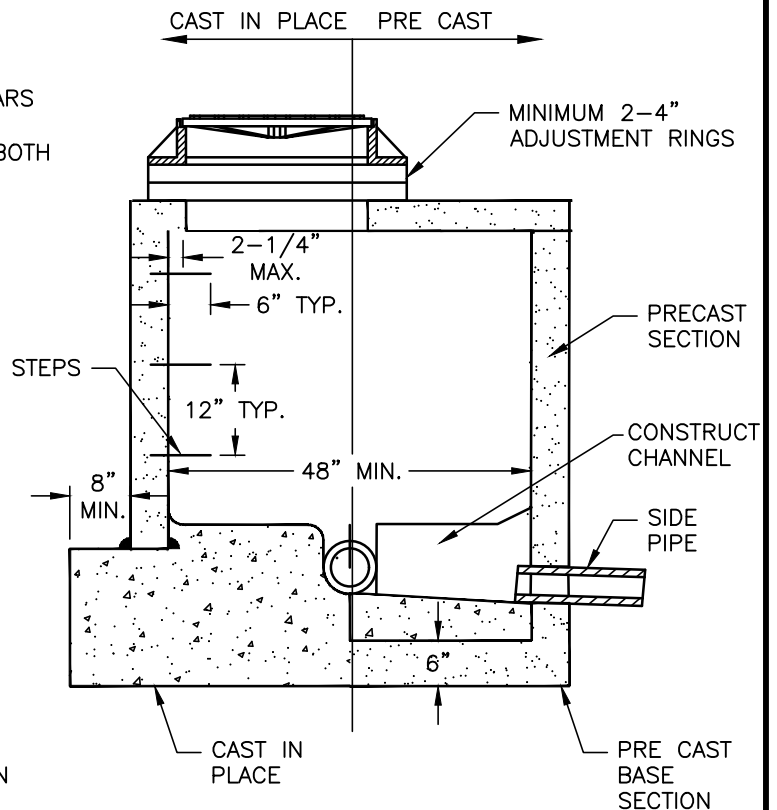
NOT TO SCALE

FEB 2022

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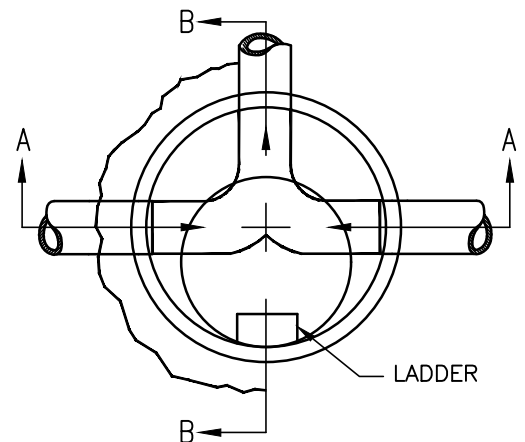
SECTION A-A



SECTION B-B

NOTES:

1. ONLY USED WITH SPECIAL WRITTEN APPROVAL FROM THE DISTRICT.
2. PRE CAST MANHOLE SECTION AND FLAT SLAB COVER SHALL CONFORM TO WSDOT STD DWG B-15.60-02.
3. ALL MANHOLE JOINTS AND PICK HOLES SHALL BE GROUTED WITH NON-SHRINK GROUT TO ENSURE A WATER TIGHT SEAL. GROUTS SHALL BE TRAWLED TO A BROOM FINISH INSIDE AND OUT.
4. ALL CHANNELIZATION OF MANHOLE BASES SHALL BE COVERED BY A RIGID MATERIAL DURING CONSTRUCTION OF ROAD SURFACES TO PREVENT FOREIGN MATERIALS FROM ENTERING SYSTEM.
5. MANHOLE ADAPTORS SHALL BE KOR-N-SEAL BOOTS OR APPROVED EQUAL.



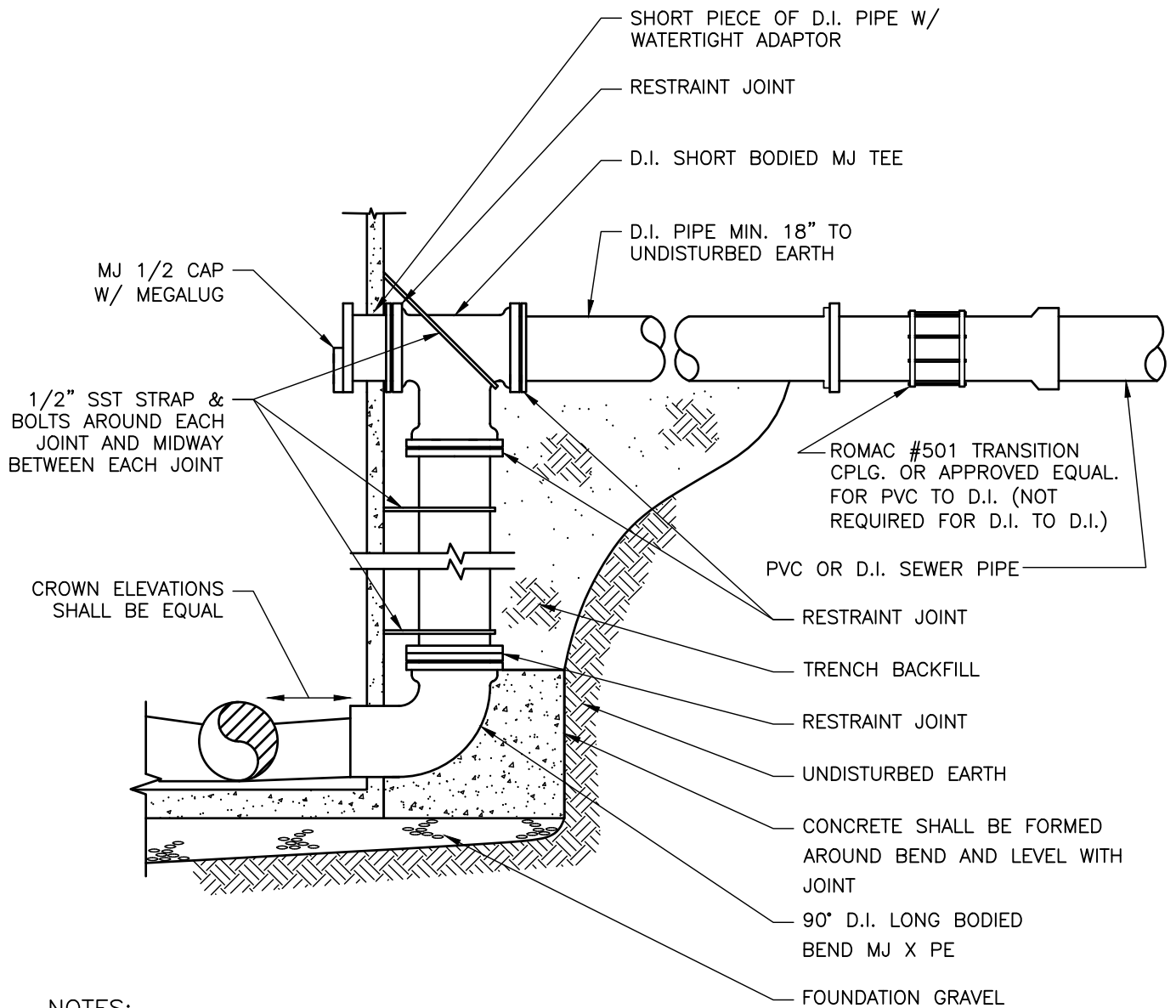
**CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS**

SHALLOW MANHOLE

SD-2

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NOTES:

1. ALL D.I. JOINTS TO BE RESTRAINED WITH MEGALUG TYPE DEVICES OR APPROVED EQUAL.
2. ALL D.I. PIPE AND FITTINGS TO BE EPOXY LINED.
3. ENTIRE MANHOLE INTERIOR TO BE COATED WITH RAVEN 400 OR EQUAL, UNLESS APPROVED OTHERWISE BY THE DISTRICT.

**CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS**

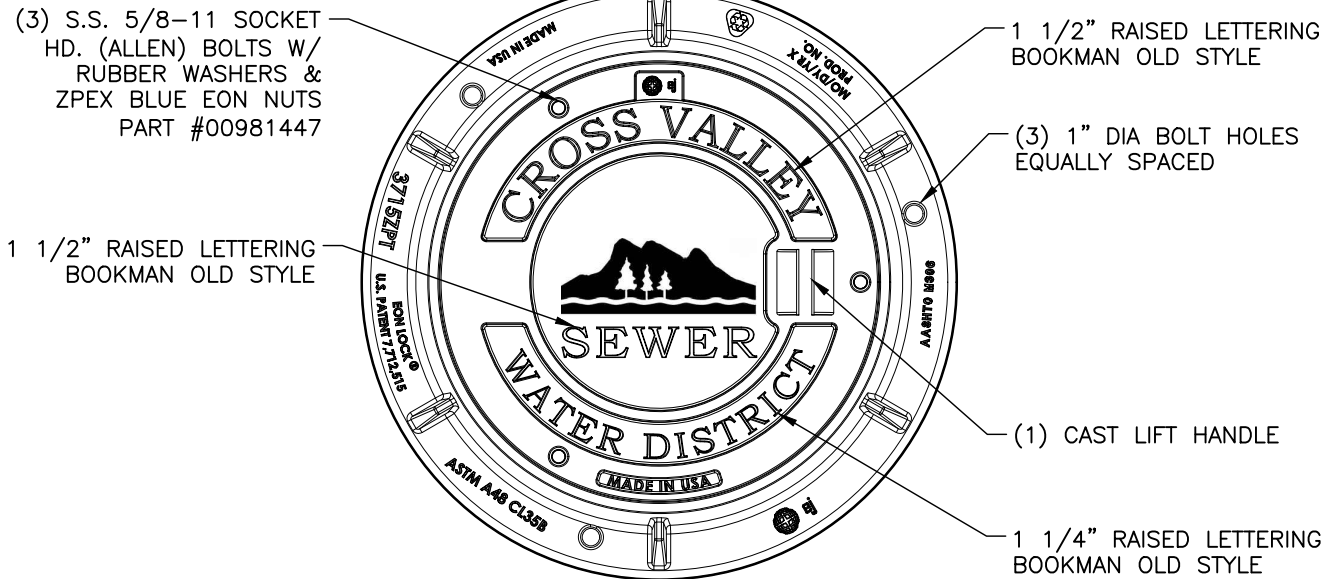
DROP MANHOLE CONNECTION

SD-3

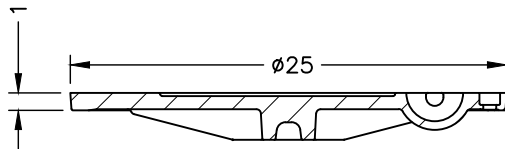
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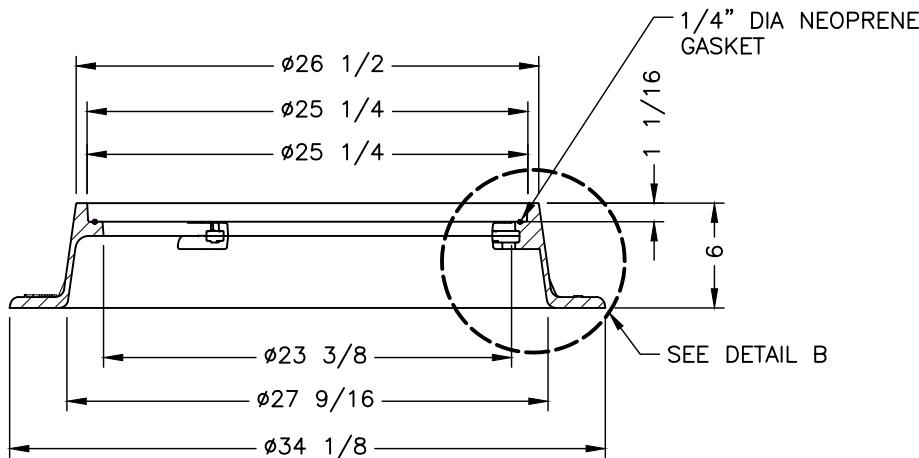
DI Assembly - EJIW PRODUCT NO. 003705017W01



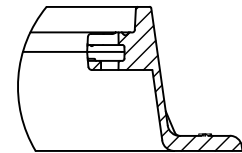
PLAN VIEW



COVER SECTION



FRAME SECTION



EON LOCK®

DETAIL B

NOTES:

1. PROVIDE 3 EACH 5/8", 11N.C. SOCKET HEAD SCREWS 1-1/4" LONG.
2. ALL HOLES FOR LOCKING COVER SHALL BE IN ALIGNMENT AND INTERCHANGEABLE.
3. TOTAL WEIGHT OF FRAME AND COVER SHALL BE 380 LBS. MINIMUM.
4. COVER SHALL BE AS PER STANDARD DETAIL AND PROVIDED WITH 3 HOLES FOR LOCK DOWN PURPOSE.

CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS

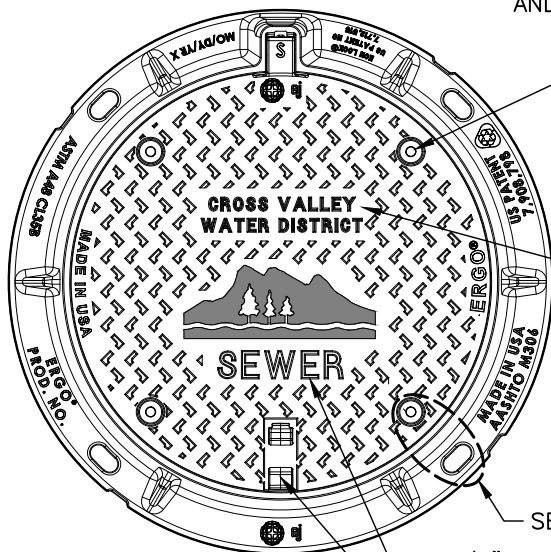
WATERTIGHT LOCKING FRAME AND
COVER

SD-4

NOT TO SCALE

JULY 2023

ERGO Assembly



LIFT COVER SLIGHTLY AT 90 DEG
AND GENTLY ROLL FORWARD TO
RELEASE SAFETY LOCK

(4) 5/8" DIA.
THRU HOLES FOR
1/2"-13 SS BOLTS
ON A 23.00 DIA
B.C. WITH SS AND
RUBBER WASHERS

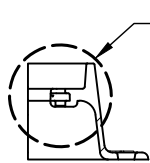
- 3/4" FLAT
FACE GOTHIC

- SEE DETAIL B

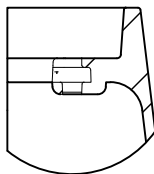
1 1/2" FLAT FACE GOTHIC

MPIC®MULTI-TOOL PICKBAR

PLAN VIEW



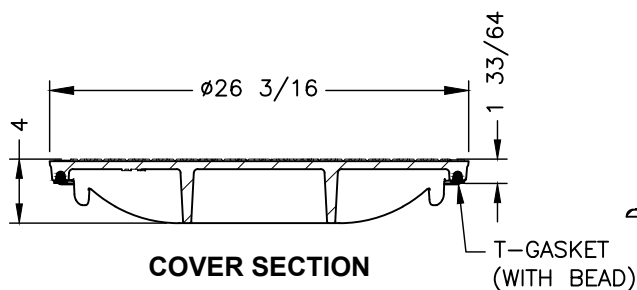
DETAIL B
EON



DETAIL E
EON

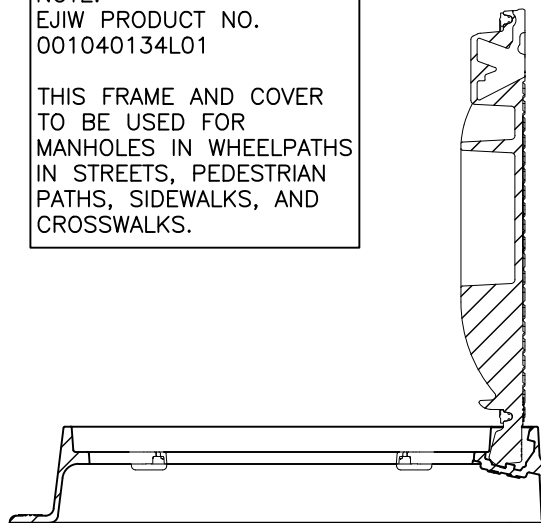
NOTE:
EJIW PRODUCT NO.
001040134L01

THIS FRAME AND COVER
TO BE USED FOR
MANHOLES IN WHEELPATHS
IN STREETS, PEDESTRIAN
PATHS, SIDEWALKS, AND
CROSSWALKS.

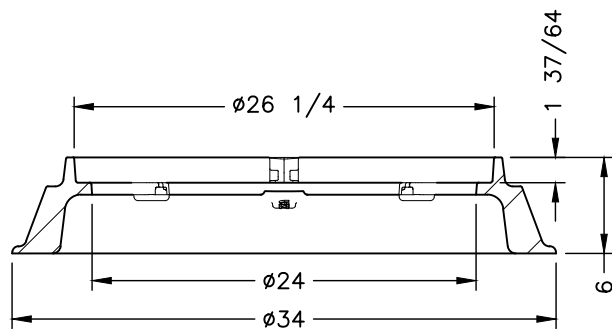


COVER SECTION

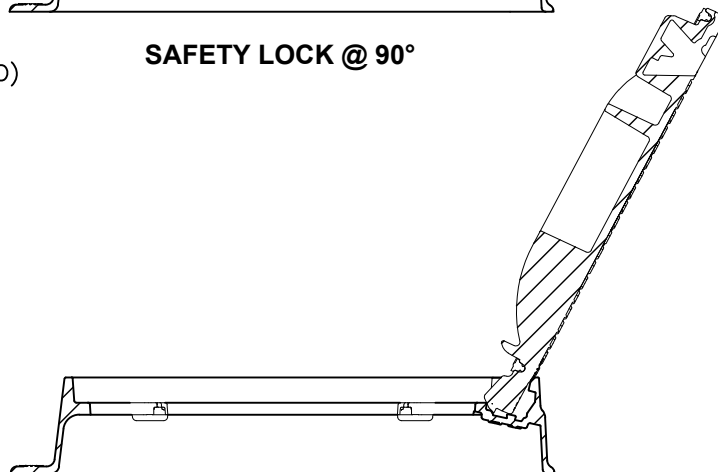
T-GASKET
(WITH BEAD)



SAFETY LOCK @ 90°



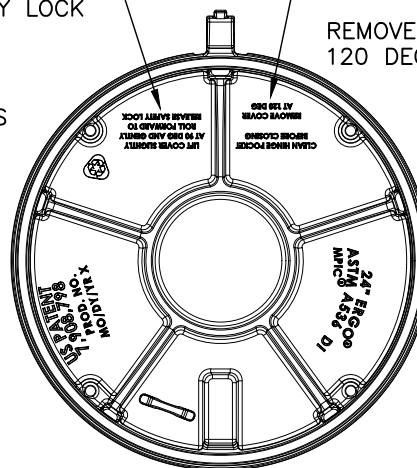
FRAME SECTION



FULLY OPENED @ 120°

- CLEAN HINGE POCKET
BEFORE CLOSING

REMOVE COVER AT
120 DEGREES



COVER BOTTOM VIEW

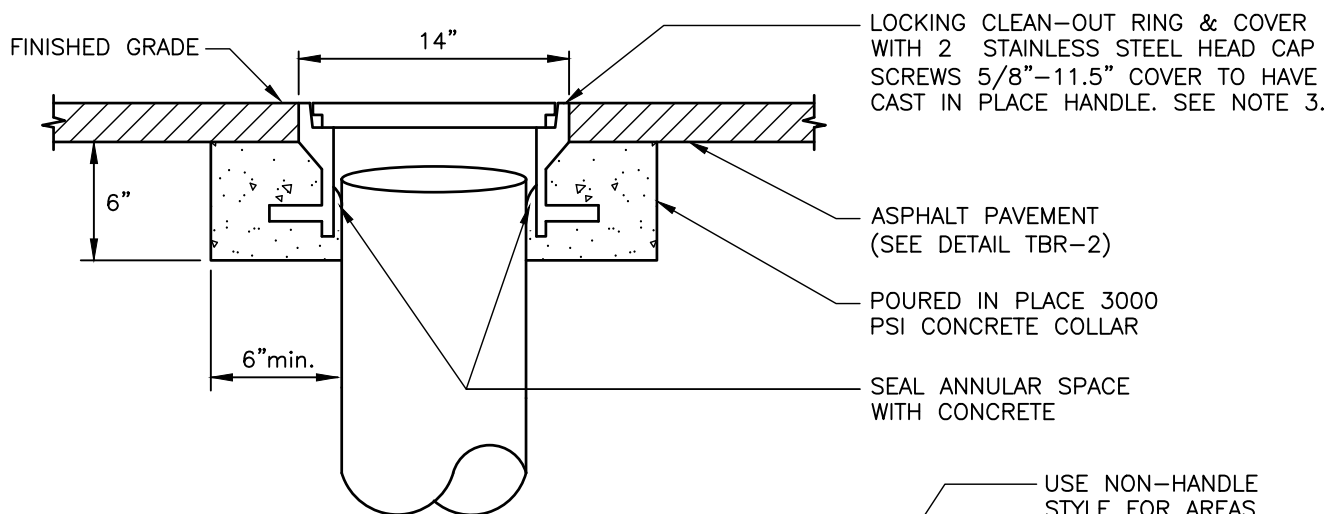
CROSS VALLEY WATER DISTRICT STANDARD SEWER DETAILS

WATERTIGHT HEAVY DUTY LOCKING
MANHOLE FRAME AND COVER

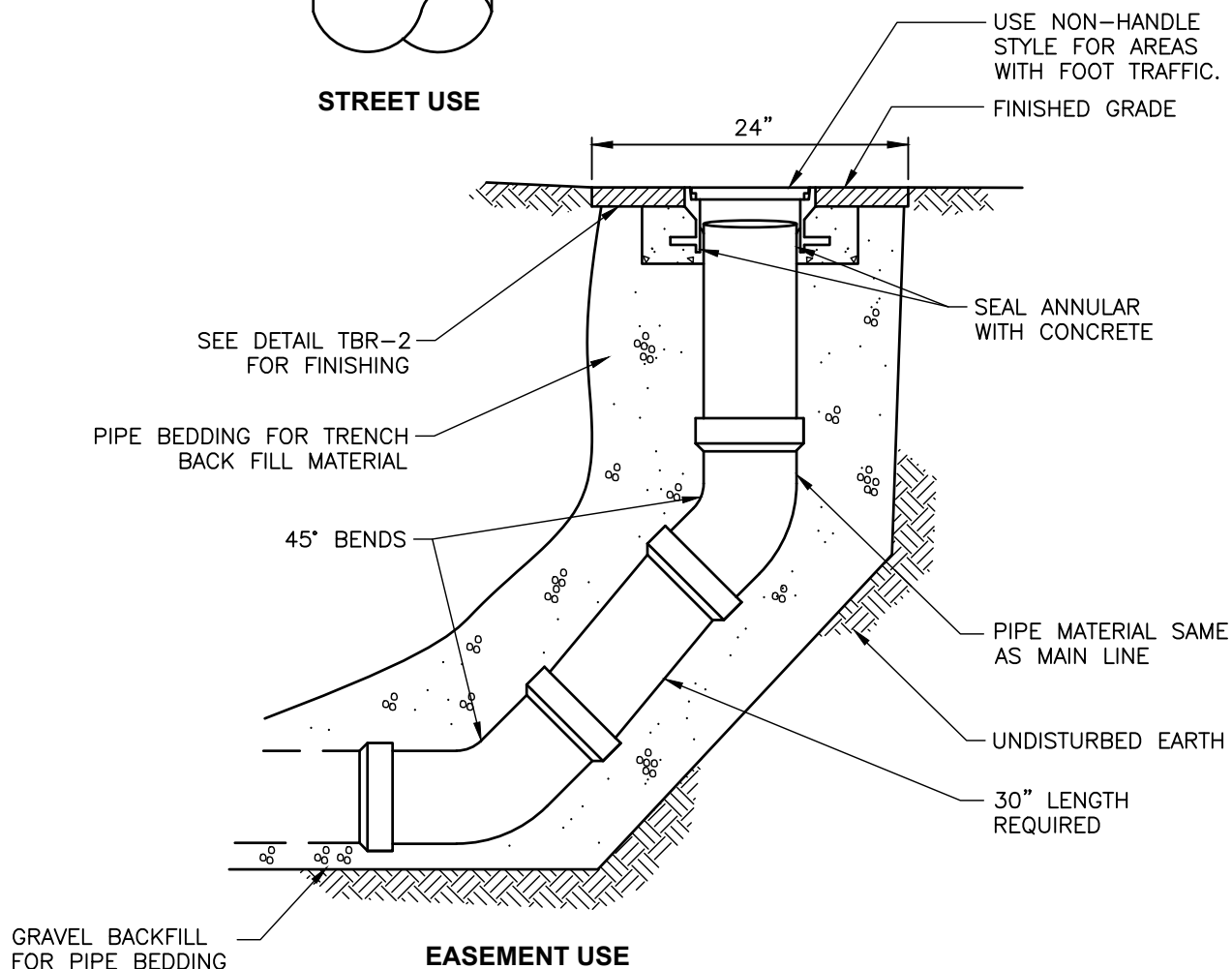
SD-4A

NOT TO SCALE

JULY 2023



STREET USE



EASEMENT USE

NOTES:

1. RESTORATION SHALL BE IN ACCORDANCE WITH DETAIL TBR-2.
2. TRENCH BACKFILL SHALL BE COMPACTED AND TESTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND LOCAL REGULATORY REQUIREMENTS.
3. RING AND COVER SHALL BE EJIW MFG. CO. MODEL NO. 00366107.

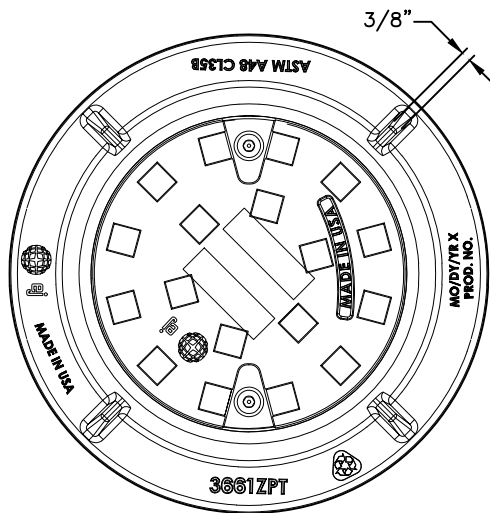
CROSS VALLEY WATER DISTRICT STANDARD SEWER DETAILS

LAMP HOLE / CLEANOUT

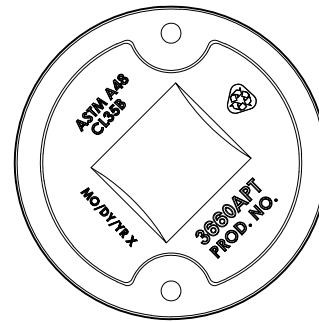
SD-5

NOT TO SCALE

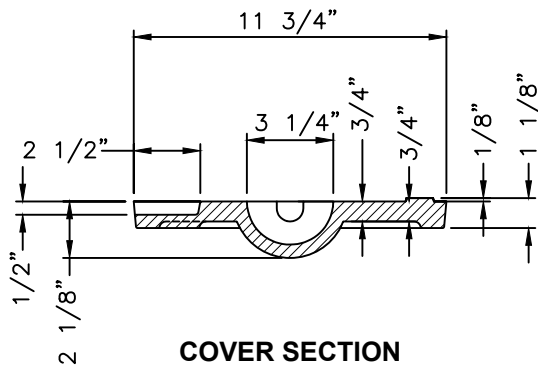
JULY 2023



PLAN VIEW

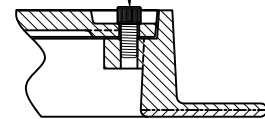


COVER BACK

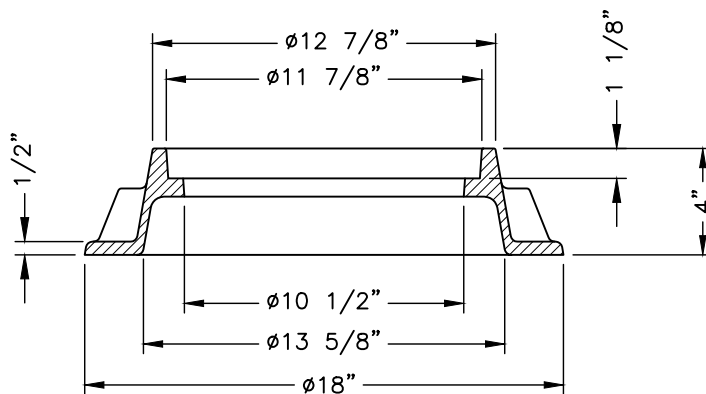


COVER SECTION

- (2) BLT SOC. (ALLEN HEAD)
5/8"-11 x 1-1/2" SS
(PART #00981177)



BOLTING DETAIL



FRAME SECTION

CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS

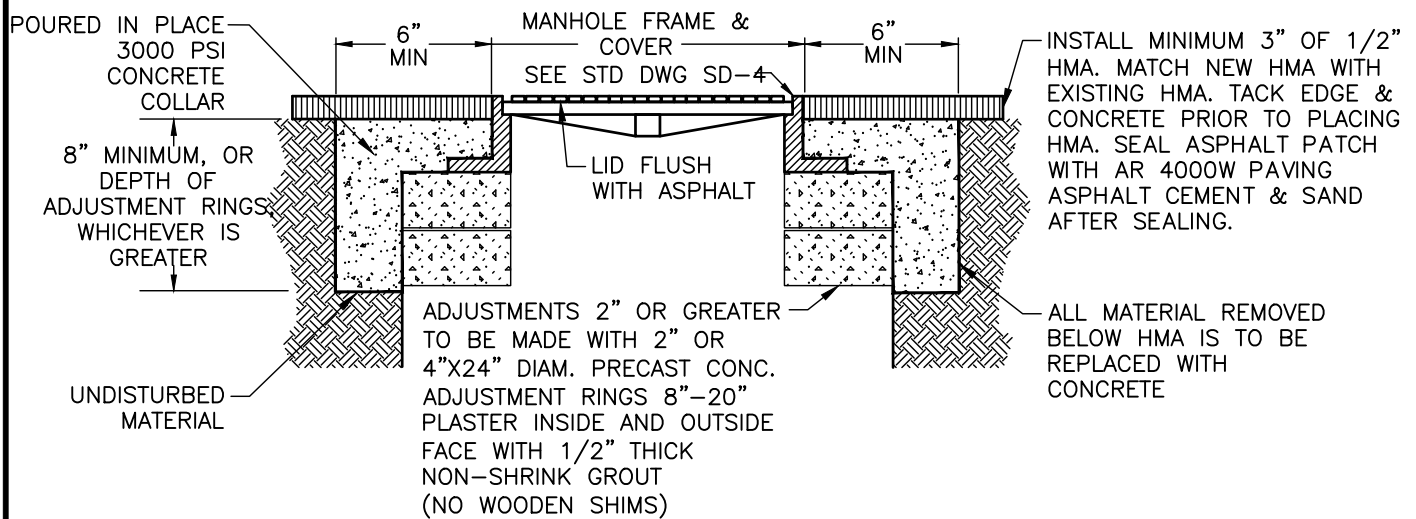
LOCKING C.O. FRAME & COVER

SD-6

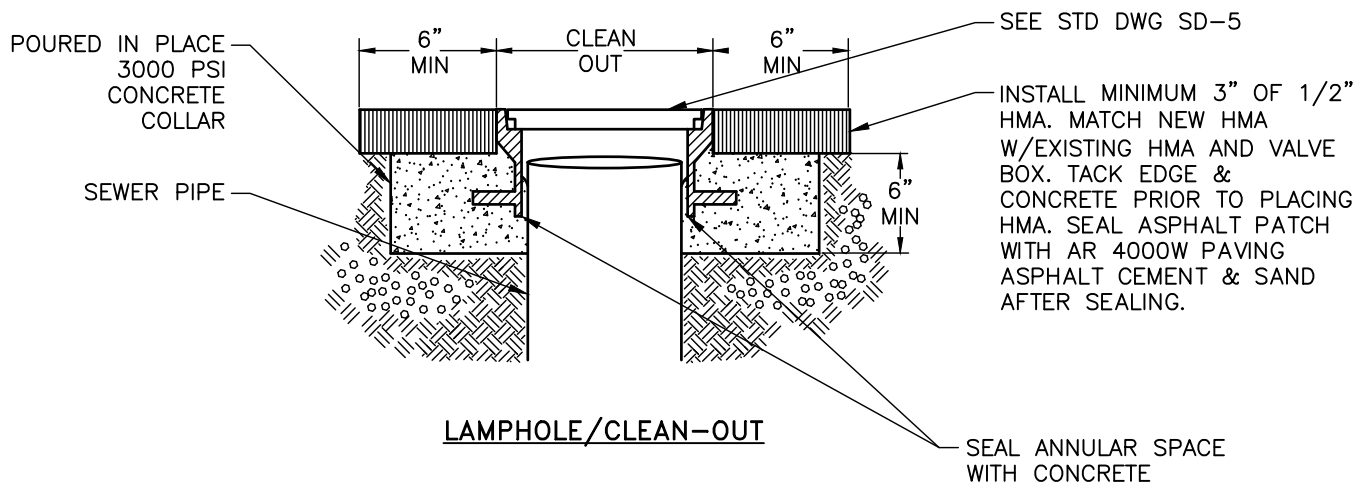
NOT TO SCALE

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MANHOLE FRAME & COVER



LAMPHOLE/CLEAN-OUT

NOTES:

1. A CONCRETE COLLAR IS REQUIRED ON ALL INSTALLATIONS. IN UNIMPROVED OR UNPAVED AREAS, INSTALL THE CONCRETE COLLAR TO FINISH GRADE AS FOLLOWS:

MANHOLE: 6 FT DIA. 6 IN THICK
WATER VALVE BOX: SEE DETAIL WD-11A
LAMPHOLE/CLEAN-OUT: 2 FT DIA. 6 IN THICK

UNLESS OTHERWISE DIRECTED BY THE DISTRICT.

2. IF MARKER POST IS REQUIRED, SEE DETAIL WD-11C.

**CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS**

CASTING ADJUSTMENTS

SD-7

NOT TO SCALE

JULY 2023

WRAP METALLIC MARKER TAPE AROUND SERVICE MARKER BOARD. 4 WRAPS MINIMUM. RUN UP BOARD TO SURFACE. MIN 4 WRAPS AT TOP ALSO.

INSTALL BURIED METALLIC MARKER TAPE 3' ABOVE PIPE. TAPE SHOULD READ "CAUTION BURIED SEWER BELOW". CARLTON IND., BLACKBURN MFG. CO. OR EQUAL.

6" SEWER LATERAL SHALL BE THE SAME MATERIAL AS THE MAIN LINE (PVC, EPOXY LINED D.I., C900 OR HDPE)

6" TEE ON SEWER MAIN

SEWER MAIN

FINISHED GRADE

PROPERTY LINE
PERMANENT EASEMENT LINE

2" X 4" BOARD SERVICE MARKER

4' MIN.

6' MINIMUM
VARIES

APPROVED WATERTIGHT PLUG ON CAP WITH "SEWER" IN BLACK PERMANENT MARKER

MINIMUM SLOPE 2% OR 0.02 FT./FT.

45 DEGREES (100%) MAXIMUM SLOPE FOR PVC (2% MINIMUM SLOPE)

CONCRETE POURED IN PLACE FOR SEWER LATERAL OVER 15% SLOPE

NOTES:

1. 2" X 4" BOARD – LENGTH AS REQUIRED IN EVEN FOOT INCREMENTS. PAINT TOP 4' ABOVE GROUND WITH WHITE PAINT. STENCIL IN BLOCK LETTERS THE WORD "SEWER" & TOTAL LENGTH OF THE 2" X 4" BOARD. LETTERING TO BE 3" IN HEIGHT. TOP OF 2" X 4" SHALL BE 4' ABOVE GROUND LEVEL.
2. FOR DUCTILE IRON PIPE IN RIGHT-OF-WAY & EASEMENTS, USE RESTRAINING DEVICE AS SPECIFIED BY THE DISTRICT.
3. PROVIDE DISTANCE IN FEET FROM TEE TO DOWNSTREAM MANHOLE TO THE DISTRICT.

**CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS**

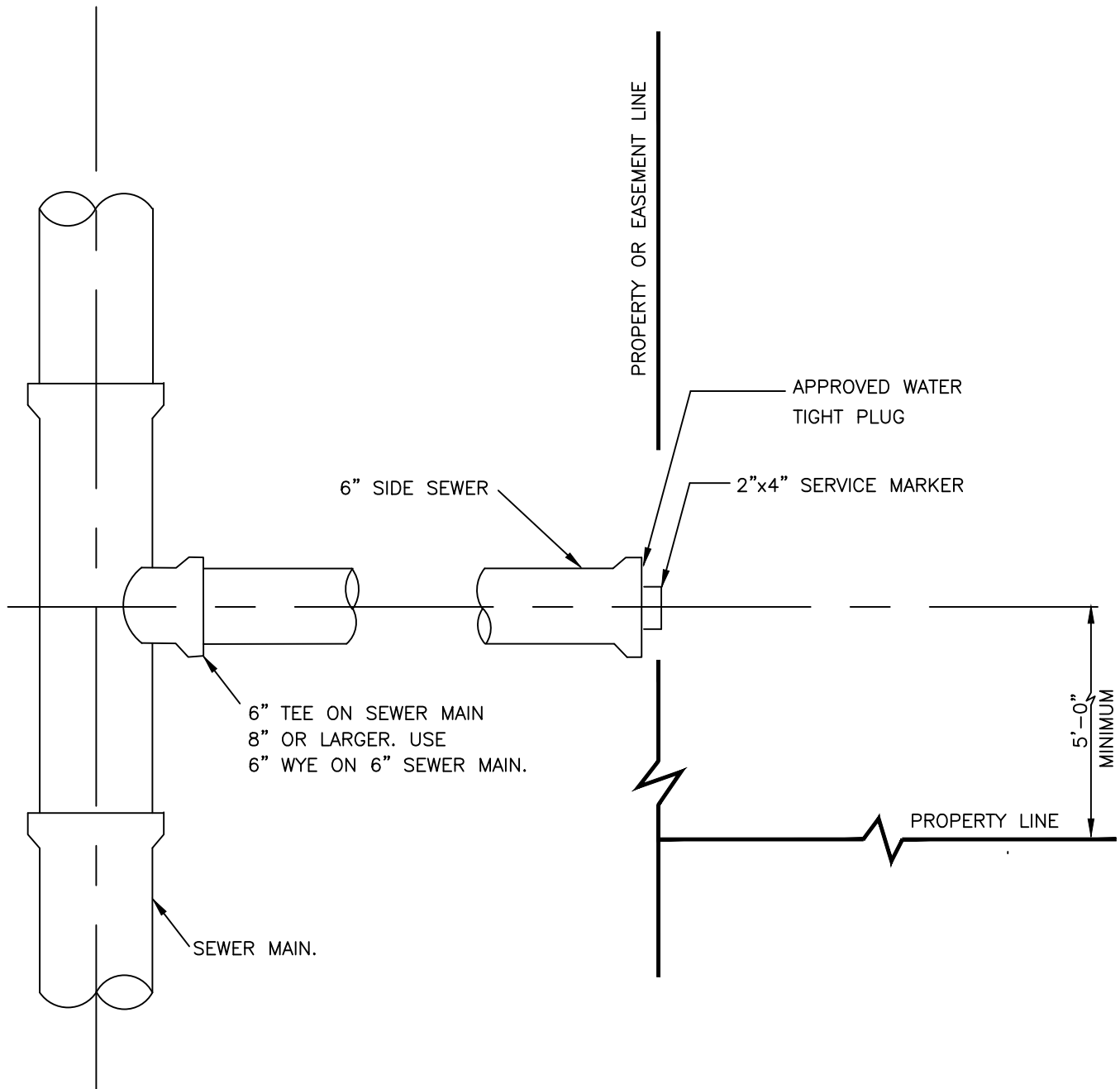
SEWER LATERAL NEW CONSTRUCTION

SD-8

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FEB 2022

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PLAN

SEE STANDARD DETAIL SD-8

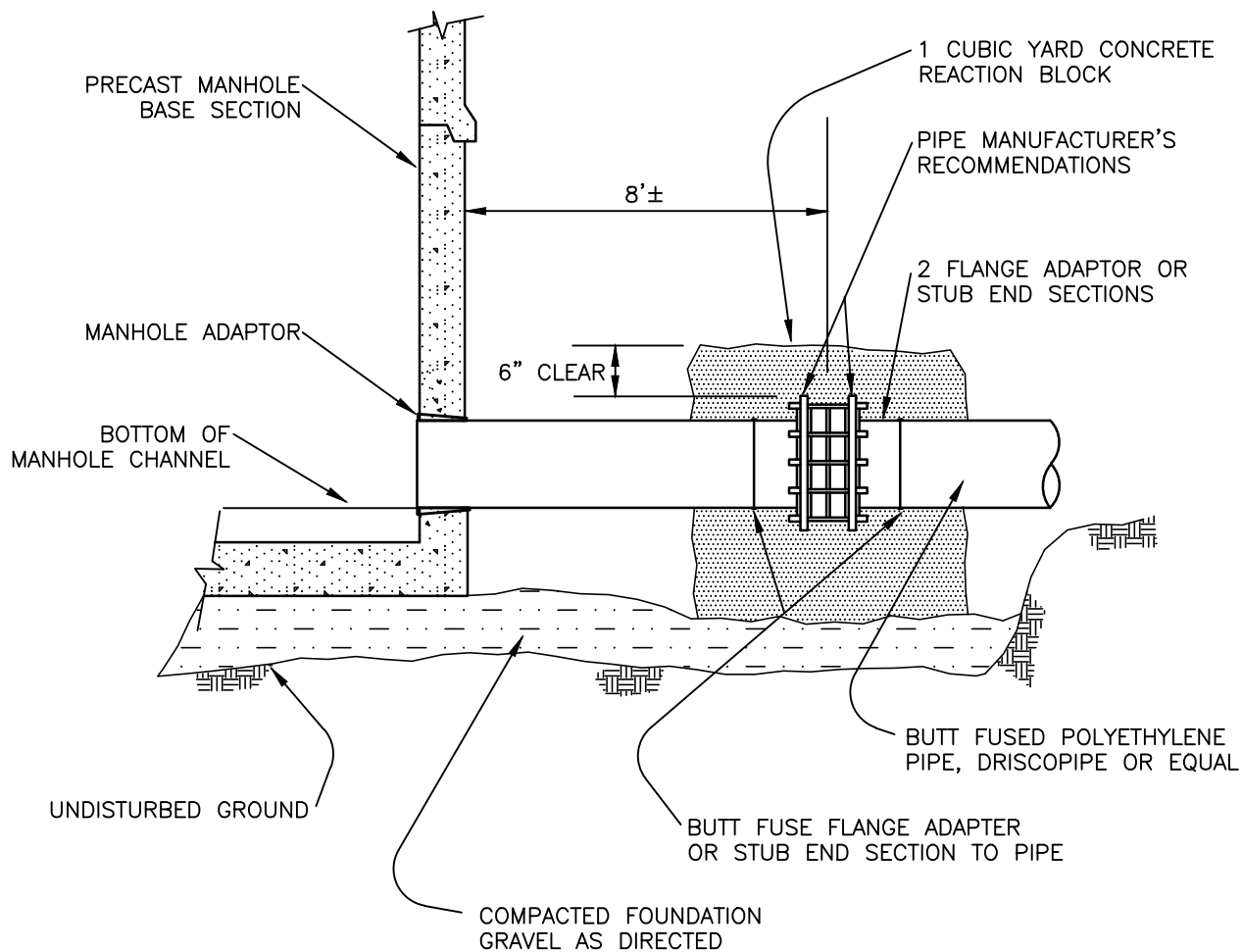
**CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS**

SEWER LATERAL PLAN VIEW

SD-8B

NOT TO SCALE

FEB 2022



NOTES:

1. ANCHOR BLOCKS REQUIRED AT OUTLET OF UP-STREAM MANHOLE AND INLET OF DOWN-STREAM MANHOLE.
2. MANHOLE ADAPTORS ARE TO BE KOR-N-SEAL BOOTS OR APPROVED EQUAL.

**CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS**

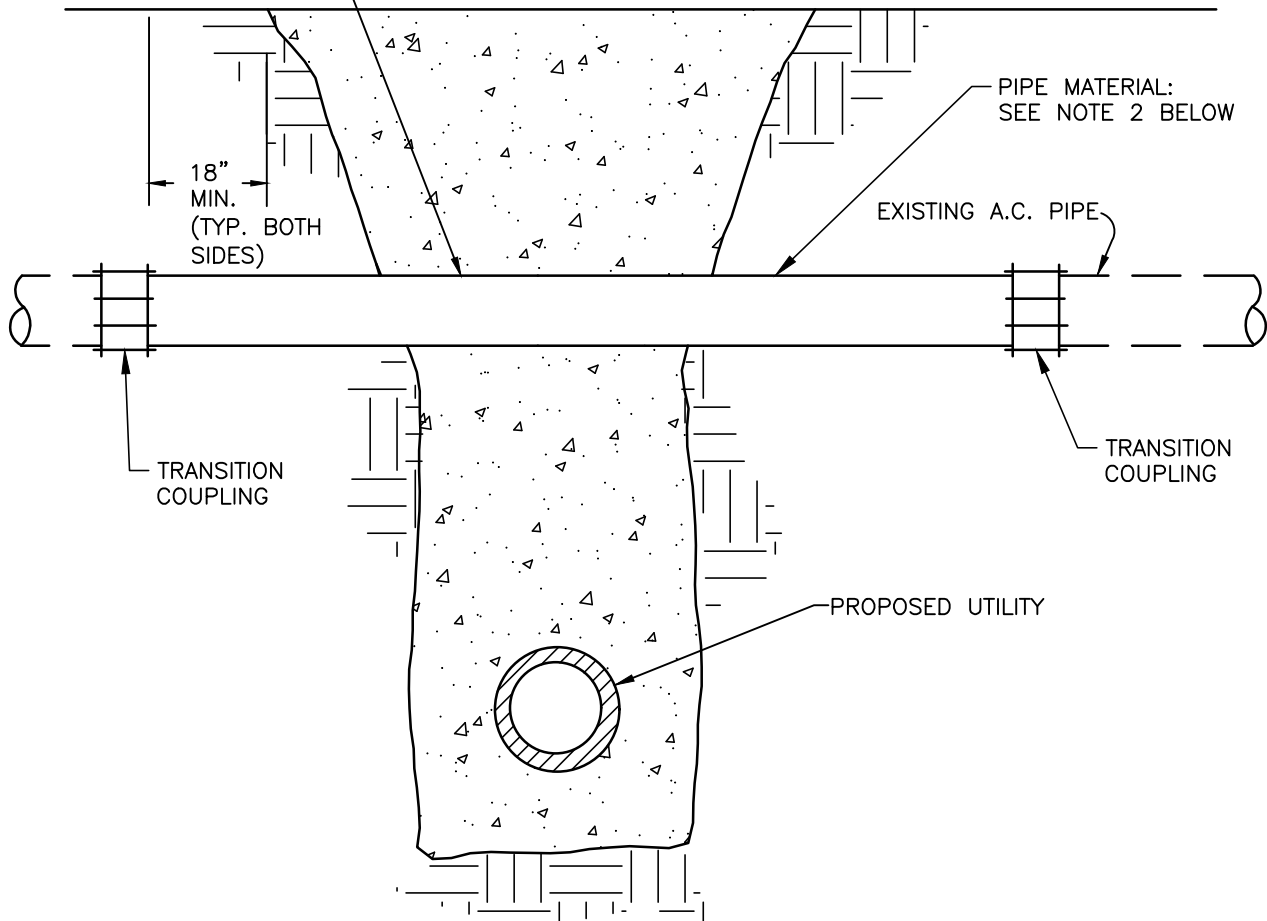
**POLYETHYLENE PIPE – MANHOLE
CONNECTION AND ANCHORAGE
DETAIL**

SD-9

NOT TO SCALE

FEB 2022

WHERE PROPOSED UTILITY LINE CROSSES UNDER A.C. PIPE, A SECTION OR SECTIONS OF A.C. PIPE MUST BE REPLACED WITH A SINGLE SECTION OF DUCTILE IRON PIPE, CEMENT LINED, CLASS 52, OR C-900 DR 18, OF SIZE REMOVED.
PIPE TO BE P.E. x P.E. WITH TRANSITION COUPLINGS ON EACH END. DUCTILE IRON OR C-900 PIPE AND COUPLINGS TO BE POLY-WRAPPED.



CROSSING A.C. PIPE

NOTES:

1. IF A.C. PIPE IS TO BE SAWCUT OR REMOVED, THE CONTRACTOR SHALL ADHERE TO ALL REGULATIONS OF THE ENVIRONMENTAL PROTECTION AGENCY, PUGET SOUND AIR POLLUTION CONTROL AGENCY, LABOR AND INDUSTRY AND ANY OTHER AGENCY WITH JURISDICTION.
2. PIPE MATERIAL SHALL BE DUCTILE IRON CL. 52 IF COVER IS 2 FEET OR LESS, OR IF VERTICAL SEPARATION FROM PROPOSED UTILITY BENEATH IT IS LESS THAN 18 INCHES. IN ALL OTHER SITUATIONS, C-900, DR 18 MAY BE USED.

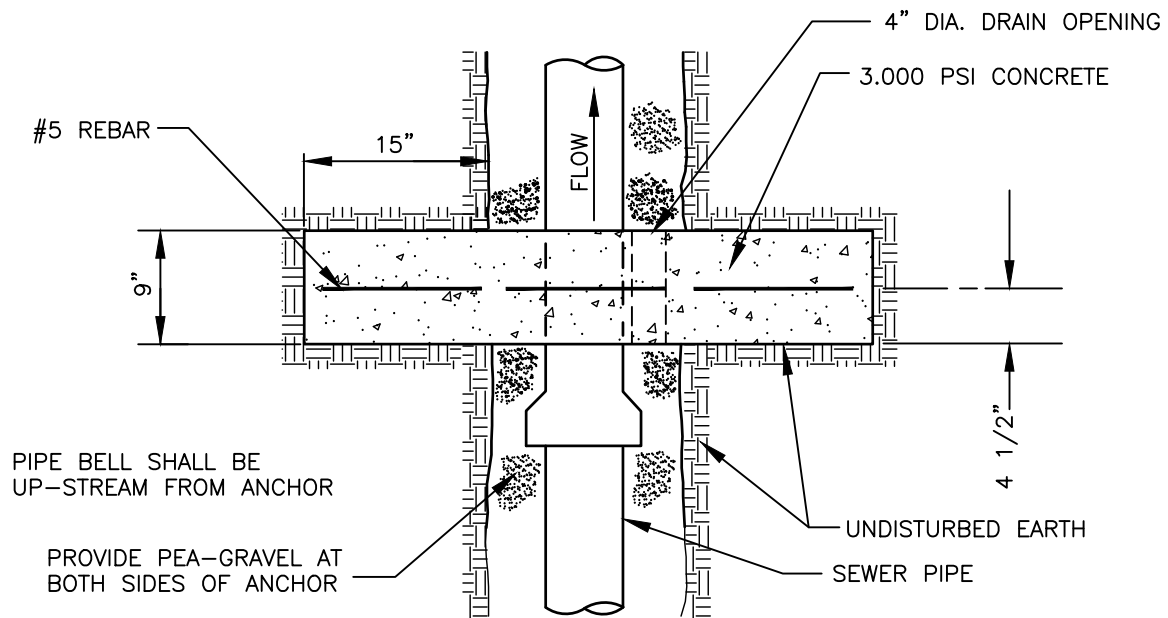
**CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS**

CROSSING AC PIPE

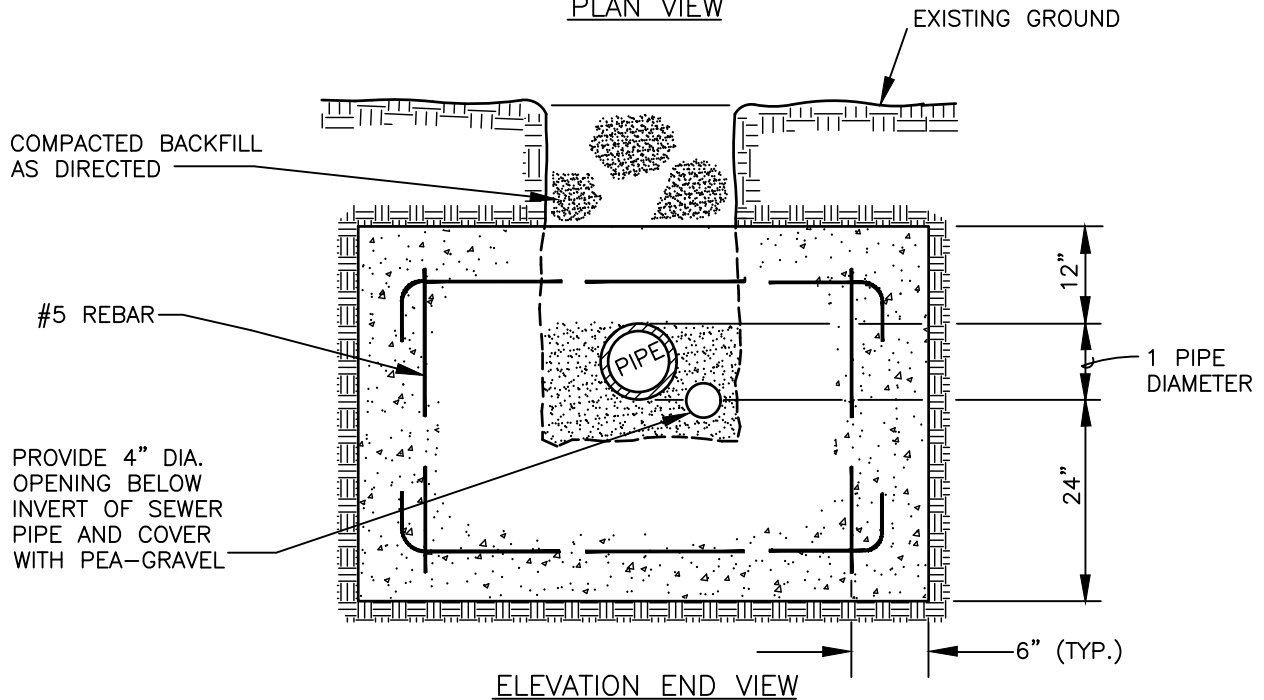
SD-10

NOT TO SCALE

JULY 2023



PLAN VIEW



ELEVATION END VIEW

MINIMUM ANCHORAGE SPACING

PIPE ANCHORS ARE TO BE INSTALLED ON ALL SLOPES GREATER THAN 20% AS FOLLOWS:

1. NOT OVER 36 FEET CENTER TO CENTER ON GRADES 20% & UP TO 35%.
2. NOT OVER 24 FEET CENTER TO CENTER ON GRADES 35% & UP TO 50%.
3. NOT OVER 16 FEET CENTER TO CENTER ON GRADES 50% & OVER.

THIS ANCHOR BLOCK DETAIL REPRESENTS MINIMUM REQUIREMENTS FOR MATERIALS AND INSTALLATION.

GENERAL NOTES:

1. PROVIDE EROSION CONTROL AS REQUIRED BY JURISDICTIONAL AUTHORITY.
2. DO NOT USE ANCHORS IN SANDY MATERIAL UNLESS DIRECTED OTHERWISE BY THE DISTRICT.
3. TIGHT WRAP PIPE WITH 8 MIL. PLASTIC ON DI.
4. ANCHOR PLACED ON THE LOWER SIDE OF THE BELL.
5. FOR HDPE, BUTT FUSE RING TO OUTSIDE OF PIPE DIRECTLY ABOVE ANCHOR LOCATION. FOR C-900, INSTALL A UNIFLANGE DIRECTLY ABOVE OR IN ANCHOR.

CROSS VALLEY WATER DISTRICT STANDARD SEWER DETAILS

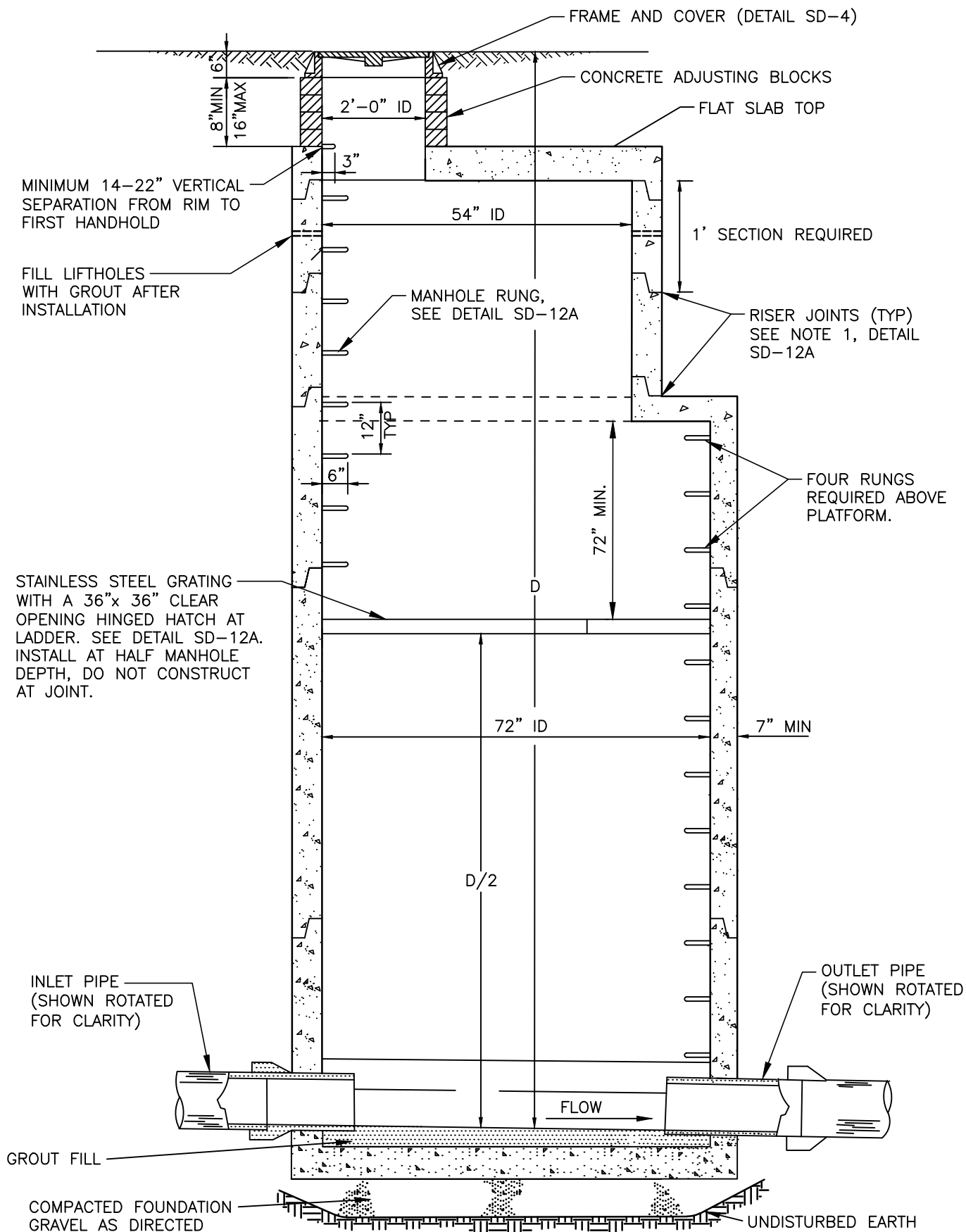
PIPE ANCHOR

SD-11

NOT TO SCALE

FEB 2022

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NOTE: THIS CONFIGURATION REQUIRED FOR
MANHOLES GREATER THAN 20 FEET DEEP

CROSS VALLEY WATER DISTRICT STANDARD SEWER DETAILS

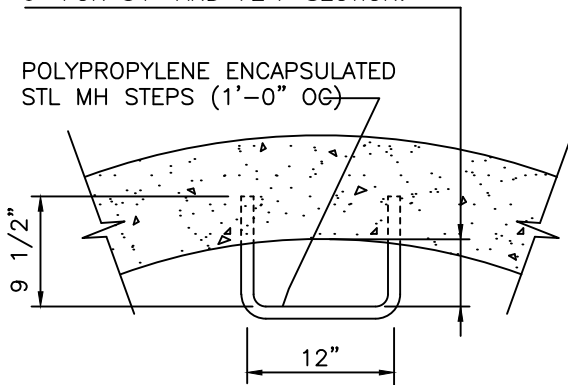
DEEP MANHOLE DETAIL

SD-12

NOT TO SCALE

MARCH 2023

3" FOR 24"Ø SECTION
6" FOR 54" AND 72"Ø SECTION.



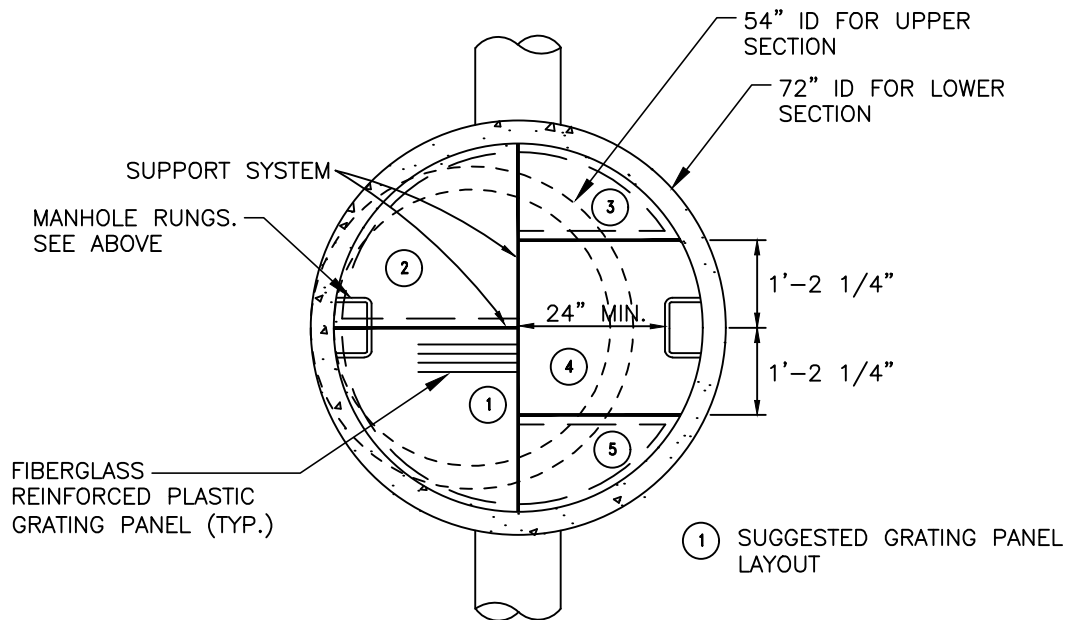
NOTE:

TOP RUNG SHALL BE INSTALLED BETWEEN TOP AND SECOND COURSE OF ADJUSTING BLOCKS AND EXTEND 3" INTO RISER.

TYPICAL MANHOLE RUNG DETAIL
NOT TO SCALE

STANDARD MANHOLE NOTES:

1. ALL MANHOLE RISER JOINTS SHALL BE A RUBBER GASKET TYPE, CONFORMING WITH ASTM C-443. DETAILS OF JOINTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
2. CONCRETE FOR MANHOLE CHANNELS SHALL BE 4000 PSI, 1"-2" SLUMP, 2.5" MAXIMUM AGGREGATE SIZE, 445 POUNDS PER CUBIC YARD MINIMUM.
3. PER CVWD STANDARD SPECIFICATIONS, THE MINIMUM DROP ACROSS THE MANHOLE IS ONE-TENTH (0.1) FOOT IN DIRECTION OF FLOW. THE MAXIMUM ALLOWABLE DROP SHALL BE ONE (1.0) FOOT.
4. AN EXTERIOR WATERPROOF MANHOLE LINER SHALL BE INSTALLED TO PROTECT FROM GROUNDWATER FLOWS ON AN AS-NEEDED BASIS AS DETERMINED BY CVWD.



SAFETY PLATFORM
NOT TO SCALE

NOTES:

1. MAXIMUM LENGTH OF PANEL SHALL BE 36"
2. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR GRATING, PANEL LAYOUT AND SUPPORT SYSTEM FOR APPROVAL PRIOR TO FABRICATION.
3. STAINLESS STEEL FOR THE GRATING AND ALL ASSOCIATED HARDWARE SHALL BE A316.

CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS

DEEP MANHOLE DETAIL

SD-12A

NOT TO SCALE

MARCH 2023