



February 13, 2026
Ref. No. 217-03-063

Mr. Joseph Galbraith, P.E.
The Gateway Engineers, Inc.
100 McMorris Road
Pittsburgh, PA 15205

Dear Mr. Galbraith:

**Municipal Authority of the Township of South Fayette
Lafayette 180
Sanitary Sewer Plan Review**

As requested by the Municipal Authority of the Township of South Fayette (MATSF), KLH Engineers, Inc. (KLH) has completed a review of the sanitary sewer plans for the proposed Lafayette 180 planned shopping center. The plans are dated August 2025 with the latest revision being a January 14, 2026, submission to the Township. The plans were prepared by The Gateway Engineers, Inc. and received by our office on January 19, 2026. KLH reviewed the plans for compliance with MATSF standards and regulations. We offer the following comments:

1. All sewers shall be designed and constructed in accordance with MATSF standards and regulations, including Appendix A, Basic Design and Construction Parameter Checklist, which can be obtained from MATSF.
2. A Developer's Sewage Service Agreement is required. The standard agreement can be obtained from MATSF. The Developer shall provide escrowed funds/bonding with MATSF for the construction of the proposed sanitary sewers.
3. In advance of obtaining a Township building permit, a sanitary sewer connection fee must be paid to MATSF. The developer shall contact MATSF for the appropriate forms and fees. Payment of the sanitary sewer connection fee, however, is not required for construction of the proposed sanitary sewers.
4. Due to the proximity of the proposed sewer to the building, it does not appear the required easements will be available. Therefore, MATSF will not take ownership of the proposed sewers and they will remain private. Therefore, no easements are necessary on behalf of MATSF. If it is the developer's intent to turn the sewers over to MATSF, please shift the proposed sewer to provide a 20' sanitary sewer easement.
5. Acquisition of all permits shall be the responsibility of the Developer should they be required. The Developer shall follow all regulatory requirements including but not limited to preparation and implementation of an Erosion & Sedimentation Pollution Control Plan.
6. The Developer shall follow the PA One Call law during design and construction. If present, all existing utilities shall be shown on the plans. All utilities crossing the proposed sanitary sewers need to be shown in the profiles.

7. MATSF Standard Detail Drawings were updated in February 2025 and shall be included on the plans. The February 2025 Standard Detail Drawings are attached.
8. Per MATSF specifications, 100% stone backfill is required under all improved surfaces including private roads, Township Streets, State Highways, driveways, parking areas, and sidewalks. This backfill shall consist of (for the entire trench width and depth) 2A limestone mechanically compacted in 6" lifts.
9. Sanitary sewer pipes located in fill areas require at least 95% compaction density and evidence of test results per MATSF specifications.
10. It appears the horizontal distances between manholes shown on the plans are centerline to centerline measurements. These measurements were used to calculate the slopes shown for each pipe run on the profile drawings. The design engineer has included a note on the sanitary sewer profile drawings so that it does not get missed by the contractor as the slopes and distances shown do not reflect actual proposed pipe lengths and slopes. As-built drawings should reflect actual pipe lengths and slopes.
11. The plans must show influent and effluent inverts for all manholes. Provide a minimum 0.10 feet difference in elevation between the influent and effluent pipes in all manholes.
12. Please note, all manhole joints, with the exception of the frame to the cone, must be wrapped with "Wrapidseal" or approved equal. Refer to MATSF Standard Detail Drawings.
13. Provide proposed sanitary service lateral wye stations based on stationing as measured from the downstream manhole and show on the plan and/or profile drawings in tabular form.
14. The plans indicate an outside drop connection for connection of the proposed 8" sewer to the existing manhole. Please revise to indicate an inside drop connection and include the applicable Standard Detail Drawings.
15. A final "Issued for Construction" set of plans shall be provided to MATSF.
16. The developer shall provide final as-built record drawings after completion of construction. As-built drawings should reflect actual pipe lengths and slopes installed.

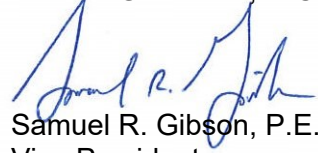
The Gateway Engineers, Inc.
February 13, 2026
-Page three-

Based on the foregoing, KLH recommends the above revisions prior to approval. Additional comments may follow after review of subsequent submissions. Final approval by MATSF occurs when the Developer's Agreement is approved and signed.

Should you have any questions, please feel free to contact our office.

Very truly yours,

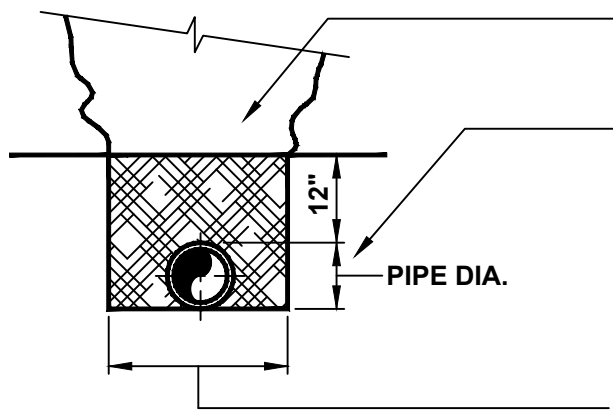
KLH ENGINEERS, INC.

A handwritten signature in blue ink, appearing to read "Samuel R. Gibson".

Samuel R. Gibson, P.E.
Vice President

Enclosures

cc: Nick Goettman, Operations Manager, MATSF

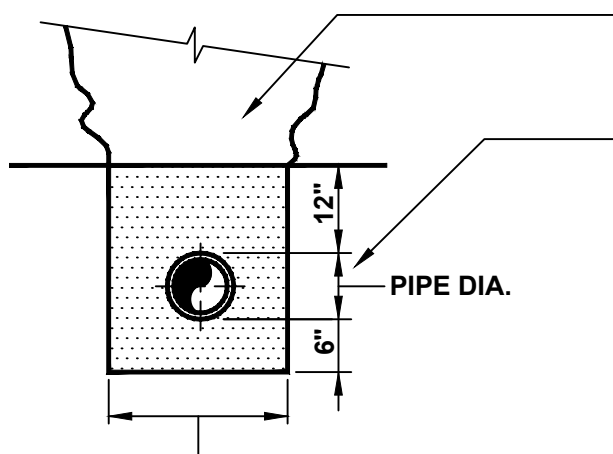


MECHANICALLY COMPACTED BACKFILL MATERIAL IN ACCORDANCE WITH MATSF CONSTRUCTION SPECIFICATIONS

DUCTILE IRON AND REINFORCED CONCRETE CULVERT PIPE ON NON-ROCK TRENCH BOTTOMS. BELL HOLES SHALL BE EXCAVATED TO ASSURE CONTINUOUS PIPE BARREL SUPPORT FOR FULL LENGTH OF PIPE SECTIONS. TRENCH SIDEWALLS SHALL BE PLUMB WITHIN PIPE ZONE.

PIPE DIA. PLUS 2' MAX.
PIPE DIA. PLUS 1' MIN.

DETAIL A

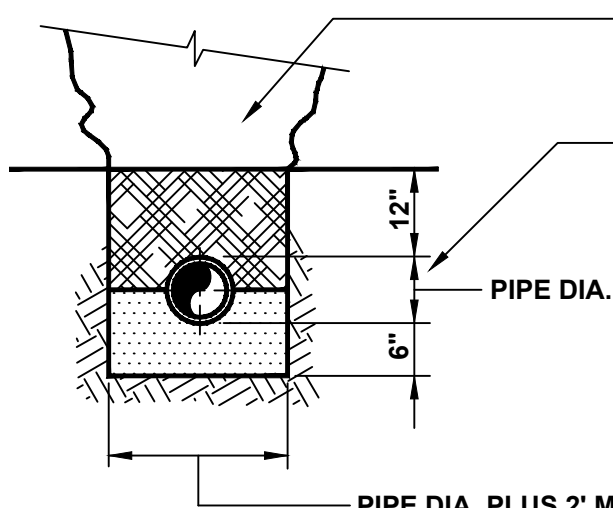


MECHANICALLY COMPACTED BACKFILL MATERIAL IN ACCORDANCE WITH MATSF CONSTRUCTION SPECIFICATIONS

PVC PIPE AT ALL LOCATIONS. TRENCH SIDEWALLS SHALL BE PLUMB WITHIN PIPE ZONE

PIPE DIA. PLUS 2' MAX.
PIPE DIA. PLUS 1' MIN.

DETAIL B



MECHANICALLY COMPACTED BACKFILL MATERIAL IN ACCORDANCE WITH THE MATSF CONSTRUCTION SPECIFICATIONS

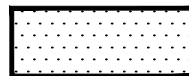
DUCTILE IRON PIPE AND REINFORCED CONCRETE CULVERT PIPE ON ROCK TRENCH BOTTOM. TRENCH SIDEWALLS SHALL BE PLUMB WITHIN PIPE ZONE.

PIPE DIA. PLUS 2' MAX.
PIPE DIA. PLUS 1' MIN.

DETAIL C



SELECTED EXCAVATED MATERIAL MECHANICALLY COMPACTED MAXIMUM SIZE ROCKS- 3"



2B CRUSHED STONE OR CRUSHED GRAVEL

Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		TRENCH PIPE ZONE DETAILS
Not to scale	February 2025	Standard Detail SD-001

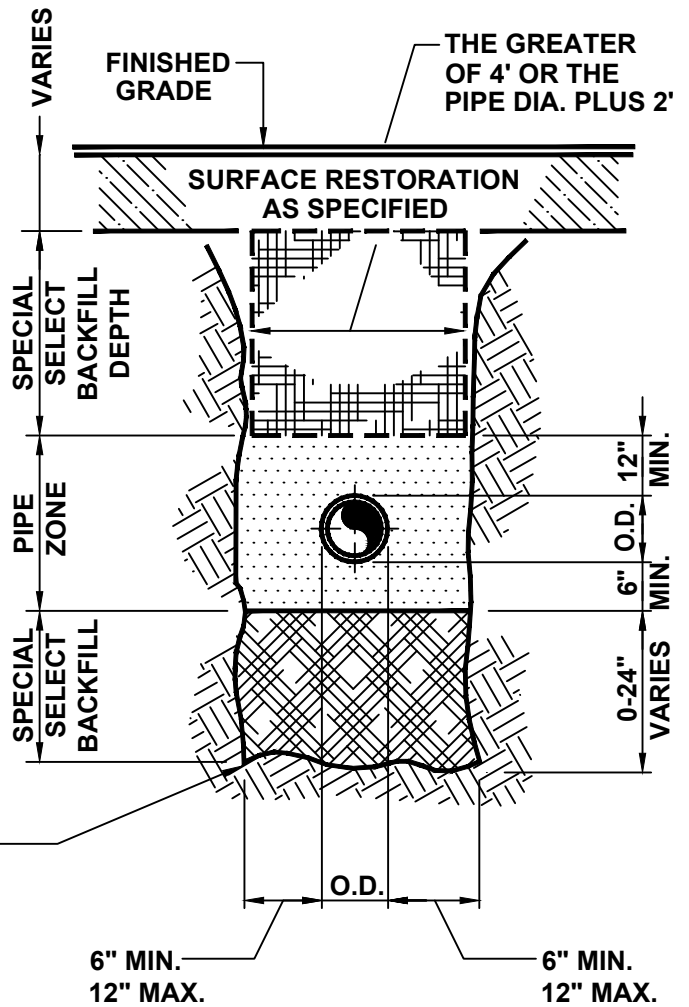
NOTE:

WHERE SPECIAL SELECT BACKFILL IS REQUIRED BETWEEN THE PIPE ZONE AND THE SURFACE MATERIAL, THE PIPE ZONE SHALL EXTEND 12" ABOVE THE PIPE REGARDLESS OF PIPE MATERIAL

 SELECTED EXCAVATED MATERIAL MECHANICALLY COMPACTED
MAXIMUM SIZE ROCKS- 3"

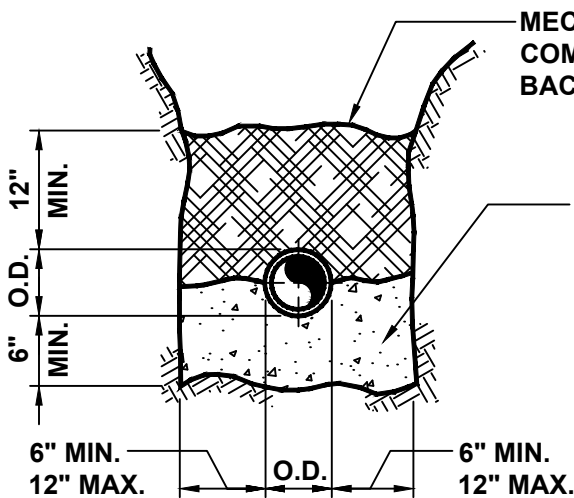
 2B CRUSHED STONE OR CRUSHED GRAVEL

 CLASS "C" CONCRETE OR BETTER

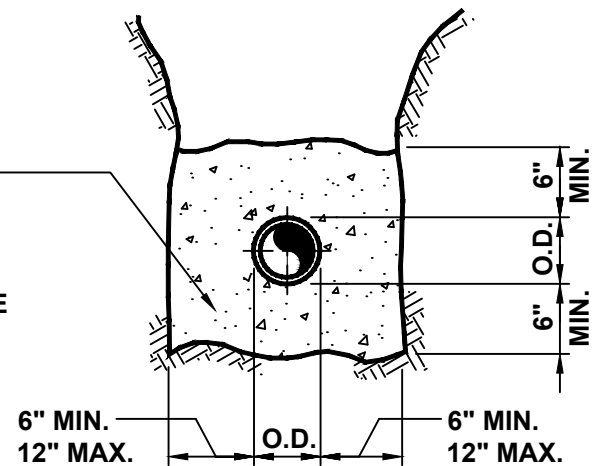


**SPECIAL BACKFILL
DETAIL A**

WHERE EXCAVATION EXPOSES THE BOTTOM OF PROPOSED TRENCHES WHERE VERY SOFT OR OTHER UNSTABLE PIPE FOUNDATION MATERIALS EXIST, THE CONTRACTOR WILL BE DIRECTED TO OVERCUT OR STABILIZE / OVERCUT AND REPLACE WITH R4 RIP RAP CHOCKED WITH AASHTO #57 STONE. THE CONTRACTOR SHALL BE COMPENSATED FOR THE ADDITIONAL EXCAVATION IN ACCORDANCE WITH THE PROVISIONS SPECIFIED IN THE GENERAL CONDITIONS.

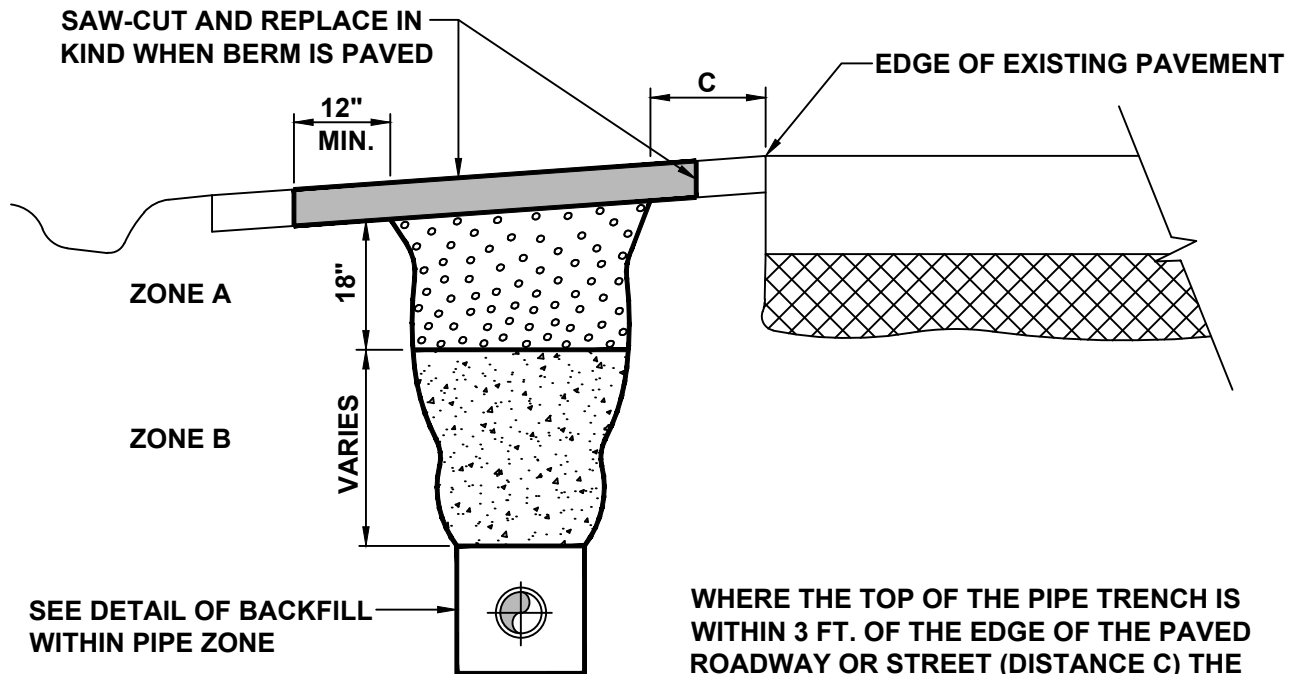


**TYPICAL CONCRETE CRADLE
DETAIL B**



**TYPICAL CONCRETE ENCASEMENT
DETAIL C**

Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		PIPE BEDDING DETAILS
Not to scale	February 2025	Standard Detail SD-002

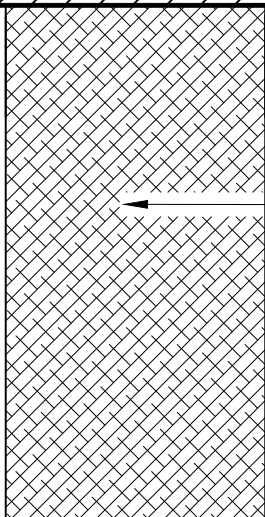


WHERE THE TOP OF THE PIPE TRENCH IS WITHIN 3 FT. OF THE EDGE OF THE PAVED ROADWAY OR STREET (DISTANCE C) THE ENTIRE TRENCH BACKFILL ABOVE THE PIPE ZONE, THAT IS THE BACKFILL PLACED IN ZONES A AND B SHALL CONSIST OF 2-A LIMESTONE MATERIAL MECHANICALLY COMPACTED IN 6" LAYERS.

WHERE THE TOP OF THE PIPE TRENCH IS GREATER THAN 3 FT. FROM THE EDGE OF THE PAVED ROADWAY (DISTANCE C) BACKFILL PLACED IN ZONE B SHALL BE EXCAVATED MATERIAL FROM THE TRENCH, FREE OF ROCKS LARGER THAN 3" AND MECHANICALLY COMPACTED IN 6" LAYERS. BACKFILL MATERIAL PLACED IN ZONE A (THE TOP 18" OF THE TRENCH) SHALL BE 2-A LIMESTONE MATERIAL MECHANICALLY COMPACTED IN 6" LAYERS.

WHERE THE BERM IS NOT PLANTED OR PAVED IT SHALL BE RESTORED FOR ITS ENTIRE WIDTH BY APPLICATION OF RT-2W BITUMINOUS MATERIAL AT A RATE OF 0.2 TO 0.5 GALLONS PER SQUARE YARD DEPENDING UPON LOCATION AND PREVAILING TEMPERATURES AT TIME OF APPLICATION.

<p>Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017</p>		<p>TRENCH BACKFILL WITHIN ROADWAY OR STREET BERMS</p>
<p>Not to scale</p>	<p>February 2025</p>	<p>Standard Detail SD-004</p>

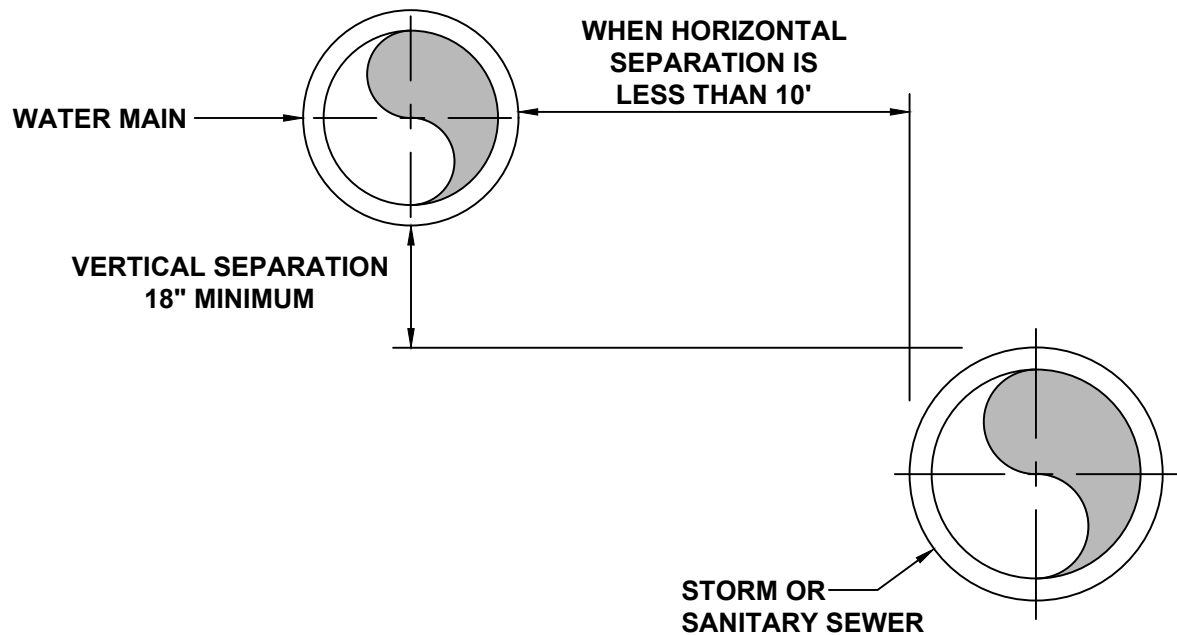


BACKFILLING REQUIREMENTS
 REMOVE ALL MATERIAL EXCAVATED FROM TRENCH AND REPLACE WITH 2A SELECT MATERIAL OR APPROVED EQUAL UNDER ALL TRAVELED OR IMPROVED SURFACES INCLUDING PRIVATE ROADS, TOWNSHIP STREETS, STATE HIGHWAYS, DRIVEWAYS, PARKING AREAS, AND SIDEWALKS.

12" MIN.

PIPE ZONE BACKFILL & CONFIGURATION PER STANDARD DETAIL SD-001

Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		TRENCH BACKFILL REQUIREMENTS FOR TRAVELED OR IMPROVED SURFACES
Not to scale	February 2025	Standard Detail SD-005

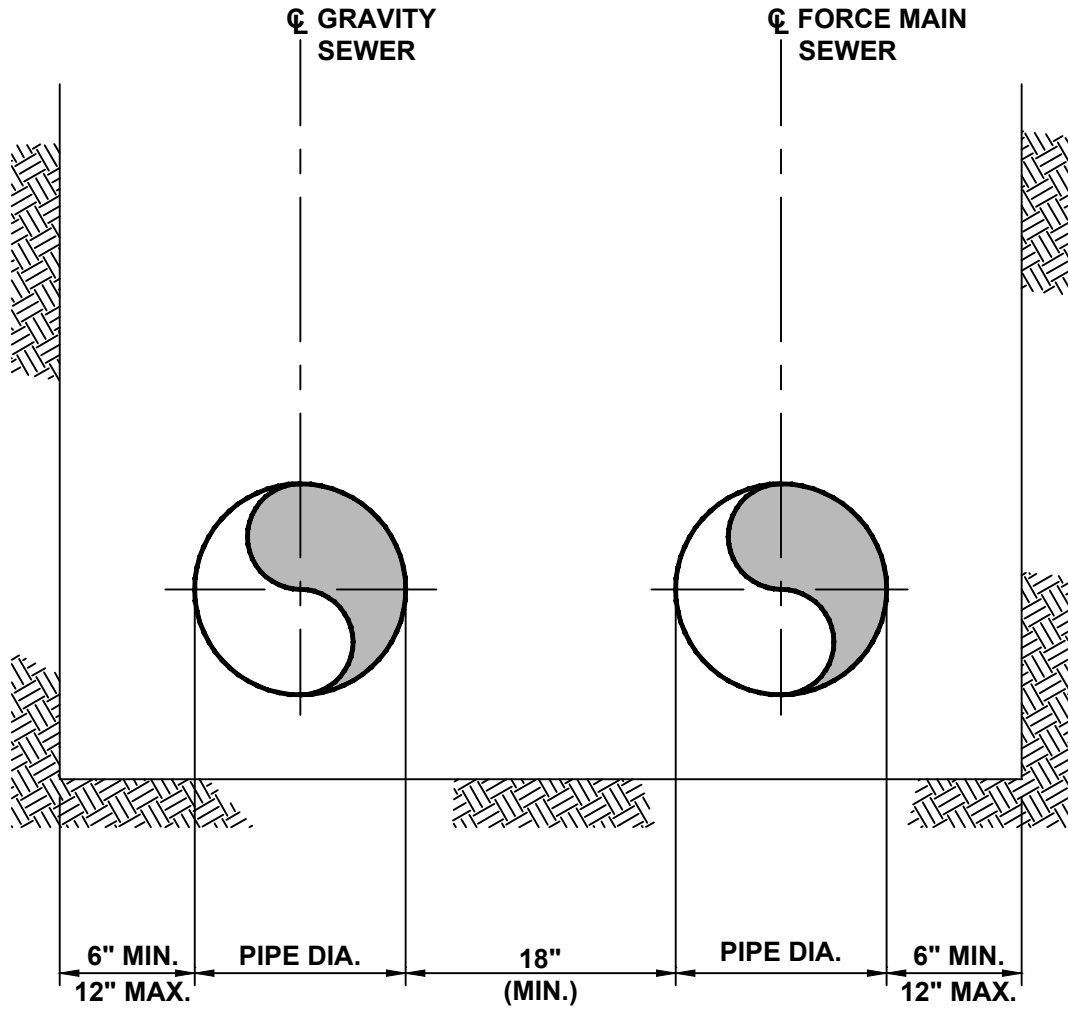


NOTES:

1. WHEN THE HORIZONTAL SEPARATION OF THE WATER MAIN AND SEWER LINE IS LESS THAN 10', THE VERTICAL SEPARATION BETWEEN THE TOP (CROWN) OF THE SEWER LINE AND THE BOTTOM (INVERT) OF THE WATER MAIN SHALL BE AT LEAST 18". SEWER LINE SHALL BE ENCASED IN CONCRETE FOR 10' ON EITHER SIDE OF THE WATER MAIN WHERE SEWER / WATER LINE CROSSINGS OCCUR AND WHERE CONDITIONS PREVENT AN 18" VERTICAL SEPARATION.
2. THERE SHALL BE AT LEAST A 10' HORIZONTAL SEPARATION BETWEEN WATER MAINS AND SANITARY SEWER FORCE MAINS. FORCE MAINS CROSSING WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18" BETWEEN THE OUTSIDE OF THE FORCE MAIN AND THE OUTSIDE OF THE WATER MAIN.

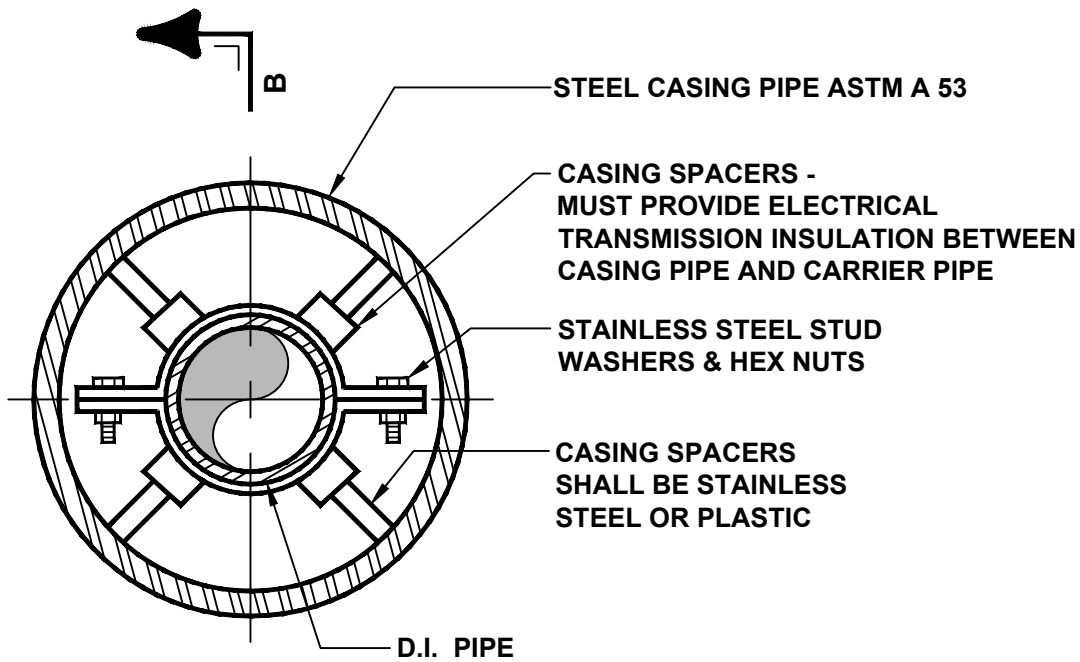
Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		DESIRED DISTANCES BETWEEN WATER AND SEWER PIPES
Not to scale	February 2025	Standard Detail SD-006

REFERENCE TRENCH ZONE DETAILS SD-001 AND PIPE BEDDING SD-002



NOTE:
FORCE MAIN TO BE INSTALLED
ON RISING GRADIENT

Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		GRAVITY SEWER AND FORCE MAIN CONSTRUCTED PARALLEL IN COMMON TRENCH
Not to scale	February 2025	Standard Detail SD-007



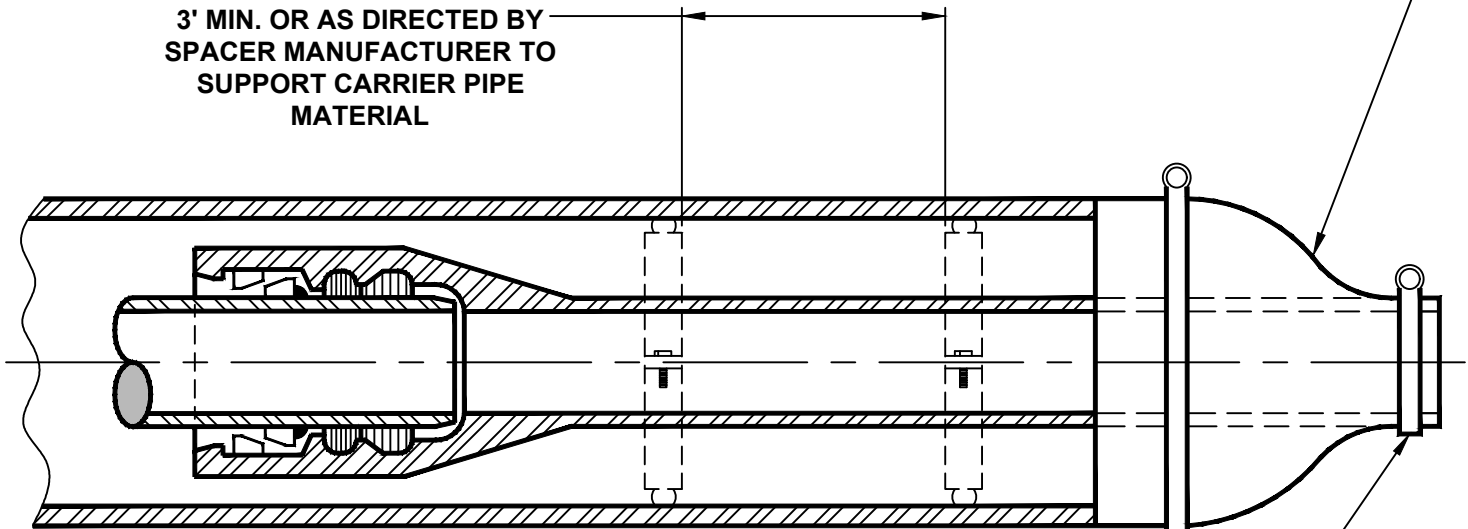
SECTIONAL PLAN A

WALL THICKNESS OF CASING PIPE

<u>DIAMETER (IN.)</u>	<u>THICKNESS (IN.)</u>
24" OR LESS	1/4"
28" AND 32"	3/8"
42" AND LARGER	1/2"

3' MIN. OR AS DIRECTED BY
SPACER MANUFACTURER TO
SUPPORT CARRIER PIPE
MATERIAL

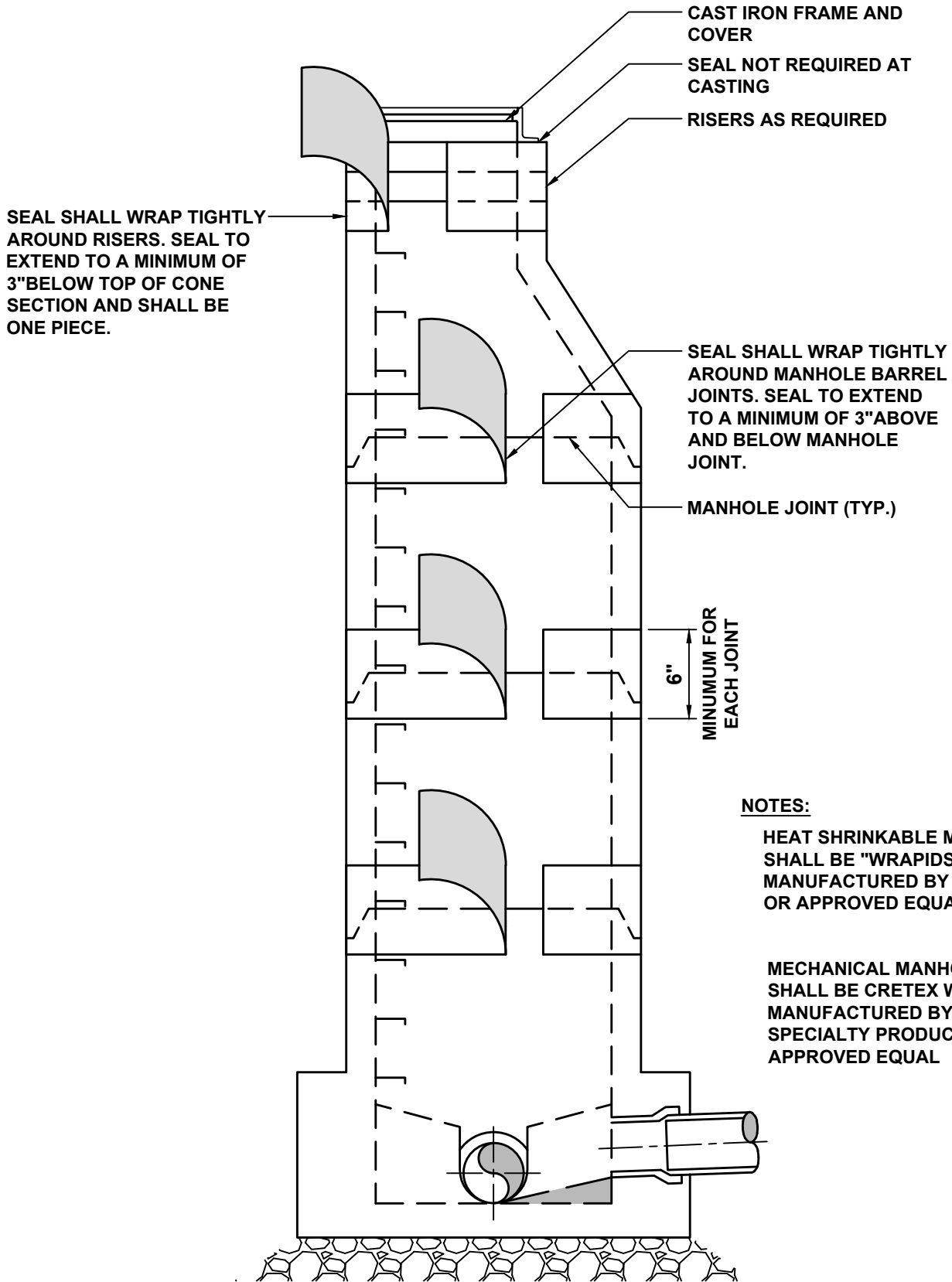
RUBBER BOOT



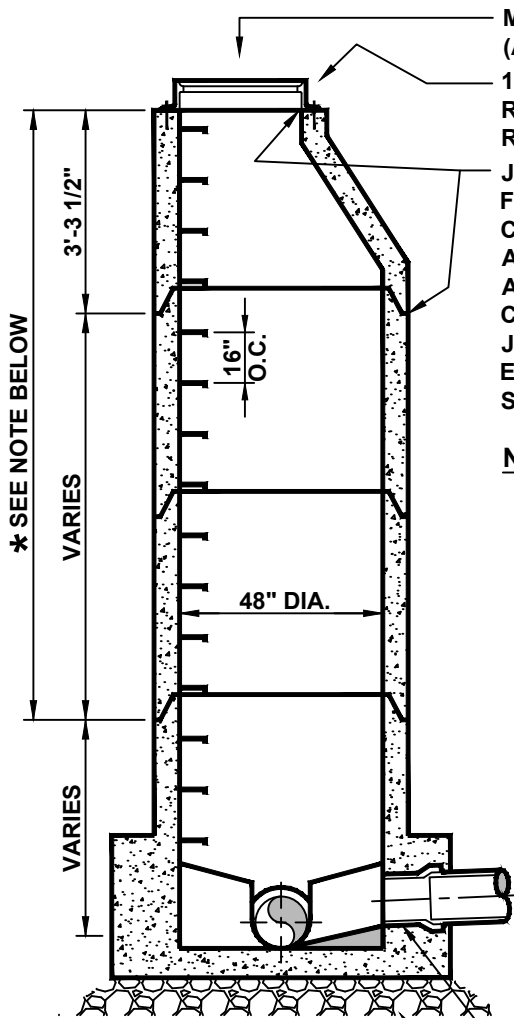
SECTION B

STAINLESS STEEL BAND

Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		STEEL CASING AND D.I. OR PVC CARRIER PIPES INSTALLED BY BORING
Not to scale	February 2025	Standard Detail SD-008



Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		MANHOLE JOINT ENCAPSULATION SYSTEM
Not to scale	February 2025	Standard Detail SD-010-A



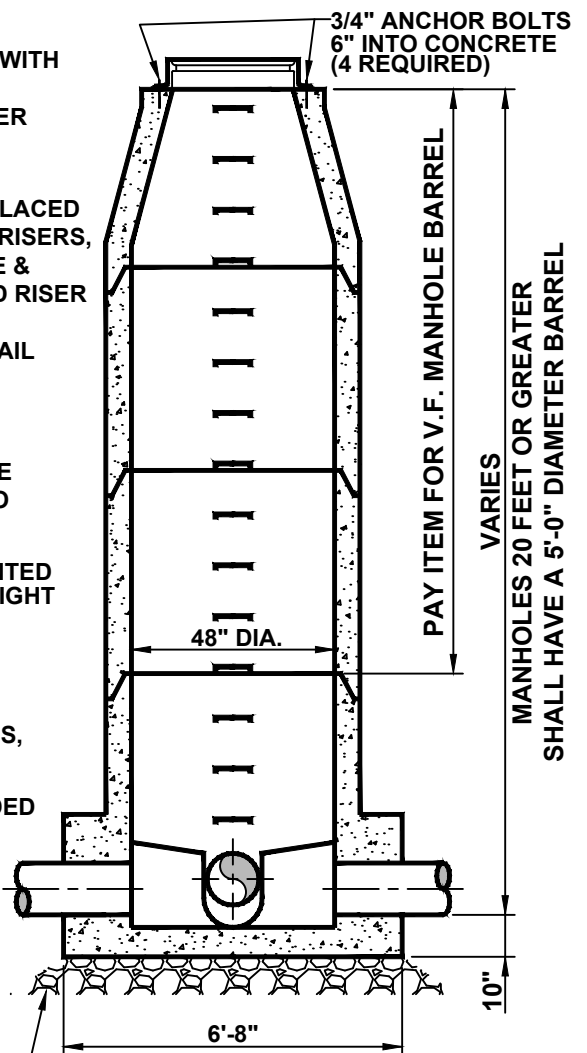
MANHOLE FRAME & COVER
(AS SPECIFIED)

1'-0" MAX. ADJUSTMENT TO GRADE WITH RUBBER OR PRECAST CONCRETE RISERS APPROVED BY THE ENGINEER

JOINTS SHALL BE EQUIPPED WITH FLEXIBLE BUTYL RESIN SEALANT, CON-SEAL OR APPROVED EQUAL PLACED AT ALL MANHOLE BARREL JOINTS, RISERS, AND ONE RING AT MANHOLE FRAME & COVER. ALL MANHOLE BARREL AND RISER JOINTS SHALL BE WRAPPED WITH ENCAPSULATION SYSTEM, SEE DETAIL SD-010-A.

NOTES:

1. PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO ASTM-C478, LATEST REVISION.
2. LIFTING HOLES SHALL BE POINTED WITH MORTAR, MADE WATERTIGHT & LEFT NEAT & SMOOTH.
3. LADDER BARS (AS SPECIFIED) SEE DETAIL SD-021
4. ALL MANHOLE SLAB TOPS, LIDS, AND CASTINGS SHALL MEET AASHTO H20 STANDARD SPECIFICATION FOR UNINTENDED VEHICULAR TRAFFIC, UNLESS OTHERWISE APPROVED.
5. WATERPROOF EXTERIOR SURFACE WITH 2 COATS BITUMASTIC MATERIAL OR COAL TAR SOLUTION, 8 MILS PER COAT.



MANHOLES 20 FEET OR GREATER SHALL HAVE A 5'-0" DIAMETER BARREL

* SEE NOTE BELOW

VARIES

VARIES

PAY ITEM FOR V.F. MANHOLE BARREL

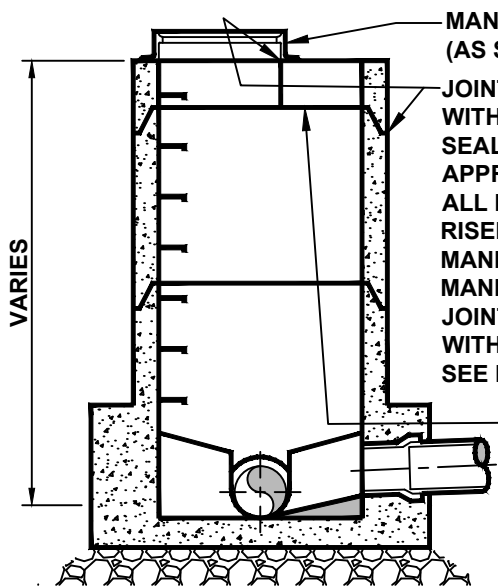
VARIES

*** NOTE:**
IF THIS DIMENSION IS LESS THAN 5'-0" USE A PRECAST CONCRETE SLAB ON TOP AS SHOWN BELOW

SEE PIPE CONNECTION DETAIL
MINIMUM 6" CRUSHED STONE (TYP.)

SECTION A

SECTION B

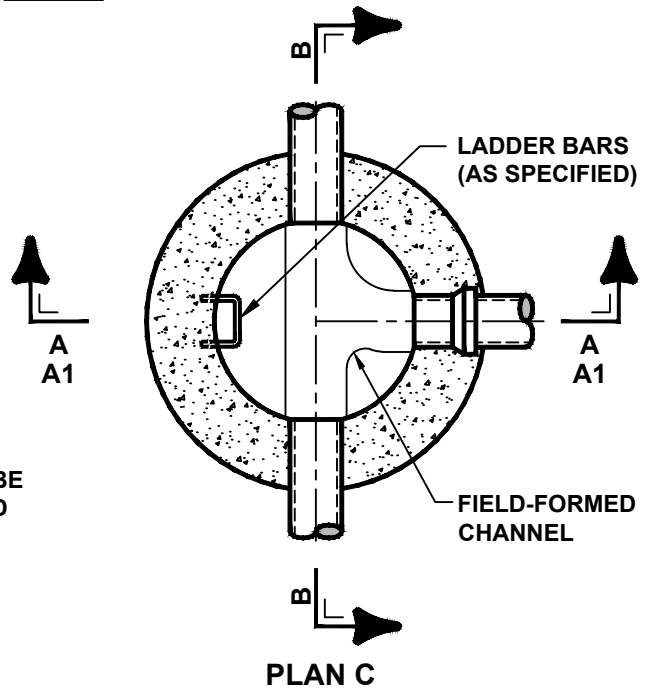


MANHOLE FRAME & COVER
(AS SPECIFIED)

JOINTS SHALL BE EQUIPPED WITH FLEXIBLE BUTYL RESIN SEALANT, CON-SEAL OR APPROVED EQUAL PLACED AT ALL MANHOLE BARREL JOINTS, RISERS, AND ONE RING AT MANHOLE FRAME & COVER. ALL MANHOLE BARREL AND RISER JOINTS SHALL BE WRAPPED WITH ENCAPSULATION SYSTEM, SEE DETAIL SD-010-A.

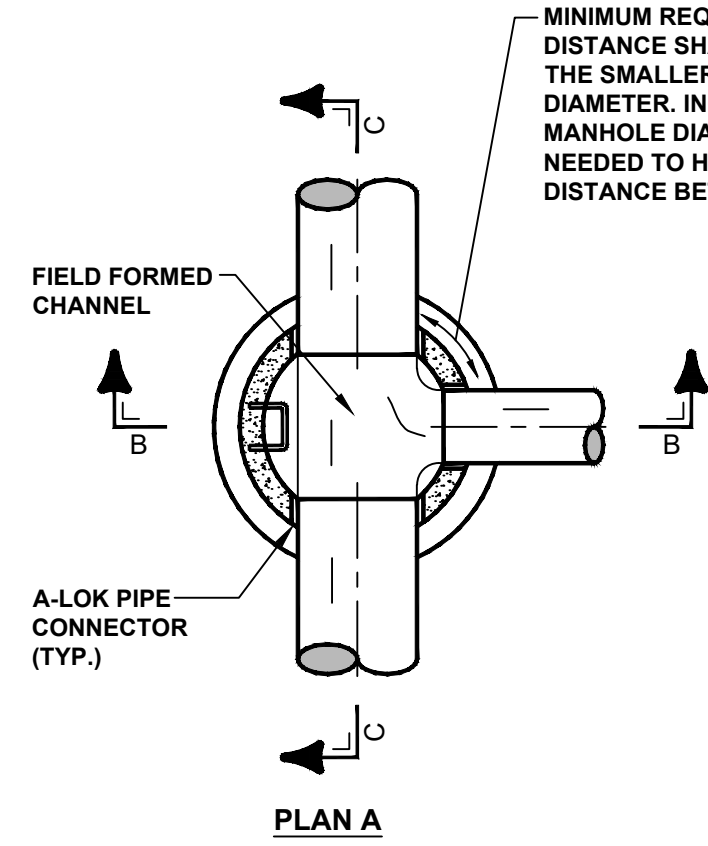
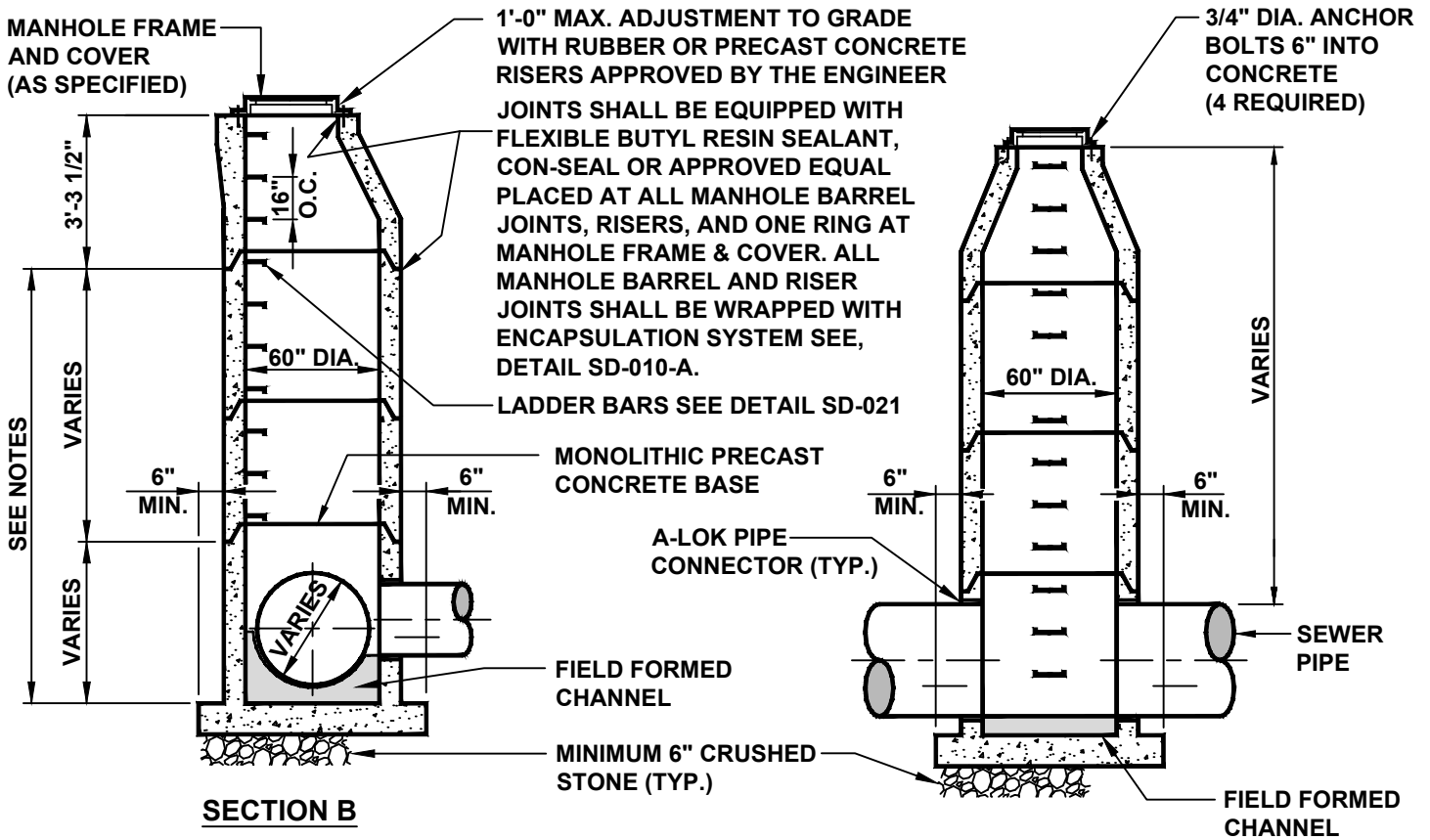
MANHOLE SLAB TOP TO BE DESIGNED TO MEET LOAD CONDITIONS

SECTION A1



PLAN C

Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		PRECAST CONCRETE MANHOLE FOR SEWERS 8" TO 18"
Not to scale	February 2025	Standard Detail SD-010

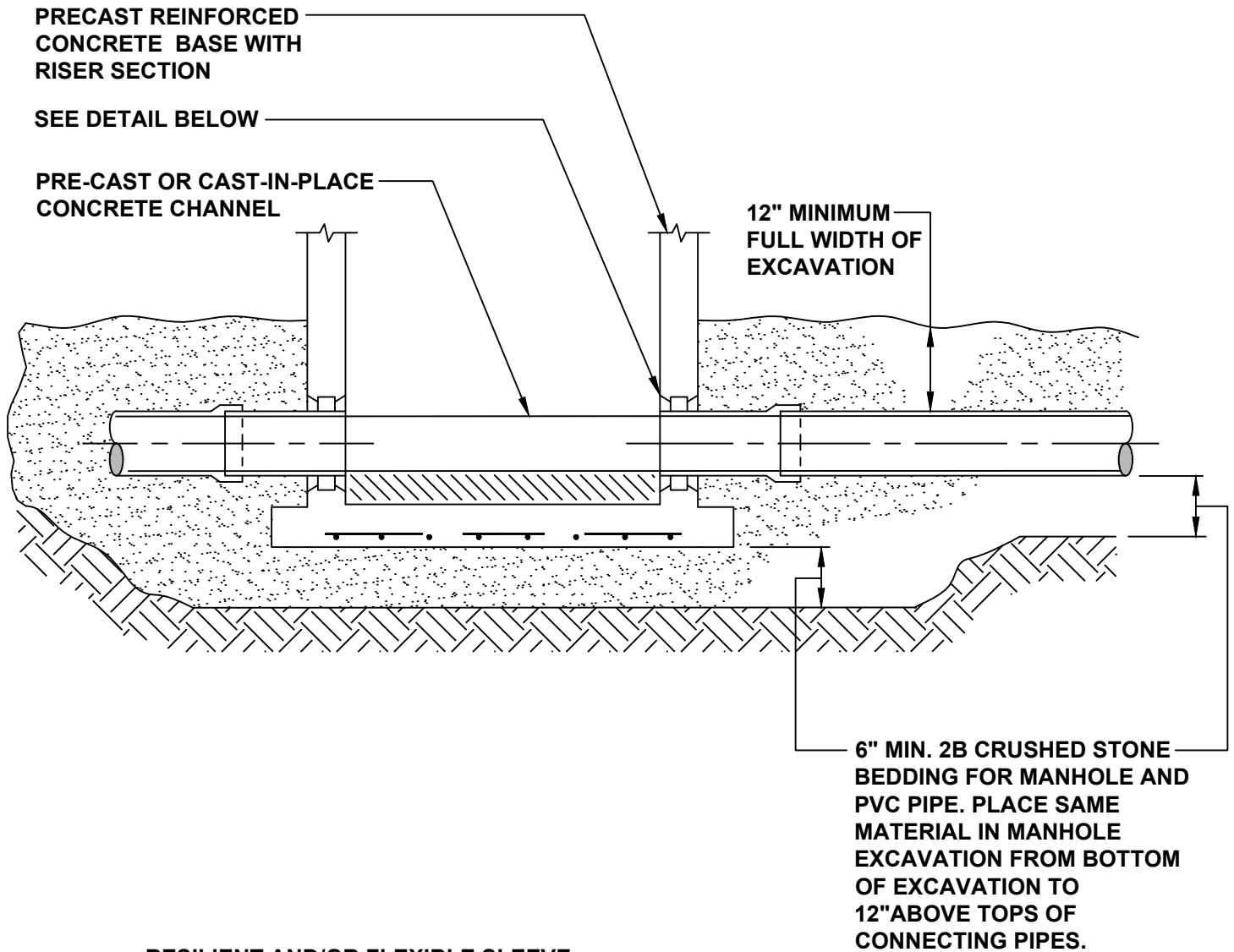


MINIMUM REQUIRED DISTANCE SHALL BE 1/2 OF THE SMALLER PIPE DIAMETER. INCREASE MANHOLE DIAMETER AS NEEDED TO HAVE MINIMUM DISTANCE BETWEEN PIPES

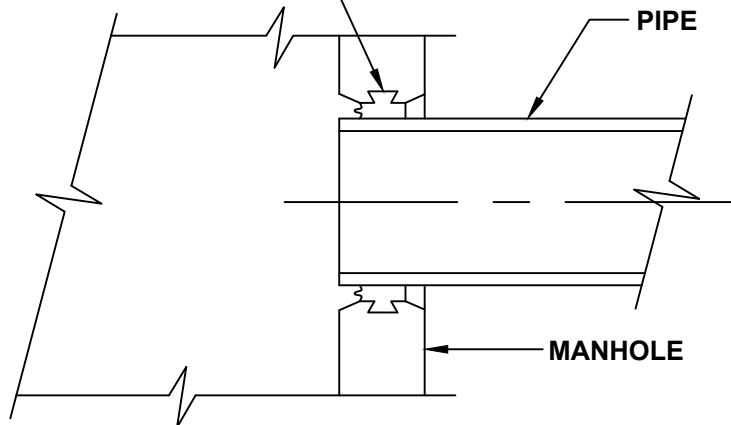
NOTES:

1. PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO ASTM C478, LATEST REVISION.
2. WATERPROOF EXTERIOR SURFACE WITH TWO COATS BITUMASTIC MATERIAL OR COAL TAR SOLUTION, 8 MILS PER COAT.
3. DROP CONNECTIONS ARE NOT PERMITTED FOR PIPES LARGER THAN 30" DIA.
4. LIFTING HOLES SHALL BE POINTED WITH MORTAR, MADE WATERTIGHT & LEFT NEAT & SMOOTH.
5. FOR DEPTHS LESS THAN 5'-0", INSTALL PRECAST CONCRETE SLAB TOP DESIGNED TO MEET LOAD CONDITIONS. MANHOLE TO BE 60" DIA. FULL DEPTH.
6. ALL JOINTS TO RECEIVE CON-SEAL SEALER, OR APPROVED EQUAL. ALL MANHOLE BARREL AND RISER JOINTS SHALL BE WRAPPED WITH ENCAPSULATION SYSTEM, SEE DETAIL SD-010-A.
7. ALL MANHOLE SLAB TOPS, LIDS, AND CASTINGS SHALL MEET AASHTO H20 STANDARD SPECIFICATION FOR UNINTENDED VEHICULAR TRAFFIC, UNLESS OTHERWISE APPROVED.

Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		PRECAST CONCRETE MANHOLE FOR SEWERS 24" - 48"
Not to scale	February 2025	Standard Detail SD-011



RESILIENT AND/OR FLEXIBLE SLEEVE (WITH ADJUSTABLE STAINLESS STEEL STRAPS) MANHOLE TO PIPE CONNECTOR (Z-LOK OR EQUAL)



Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		PRECAST MANHOLE BASE DETAIL
Not to scale	February 2025	Standard Detail SD-012

MANHOLE BARREL SHALL BE PRE-CAST CONCRETE ASTM C478 OR GLASS FIBER REINFORCED ASTM D3753. FOR CONNECTING PIPES 18" DIAMETER OR LESS, THE MANHOLE BARREL SHALL BE 4' DIAMETER; WHERE THERE ARE LARGER CONNECTING PIPES OR MORE THAN ONE INSIDE DROP CONNECTIONS, THE DIAMETER SHALL BE 5'.

NOTE:
TYPICAL DROP CONNECTION SHALL BE OF THE INSIDE DROP TYPE. OUTSIDE DROP CONNECTIONS MUST BE SPECIFICALLY APPROVED BY THE AUTHORITY ENGINEER

3/4" ANCHOR BOLTS
6" INTO CONCRETE
(4 REQUIRED)

JOINTS SHALL BE EQUIPPED WITH FLEXIBLE BUTYL RESIN SEALANT, CON-SEAL OR APPROVED EQUAL PLACED AT ALL MANHOLE BARREL JOINTS, RISERS, AND ONE RING AT MANHOLE FRAME & COVER. ALL MANHOLE BARREL AND RISER JOINTS SHALL BE WRAPPED WITH ENCAPSULATION SYSTEM, SEE DETAIL SD-010-A.

4' DIAMETER FOR CONNECTING SEWERS TO 18" DIAMETER; 5' DIAMETER FOR CONNECTING SEWERS LARGER THAN 18" DIAMETER AND FOR ALL INSIDE DROP CONNECTIONS AND AT ALL MANHOLES 20 VERTICAL FEET OR GREATER.

1'-0" MAX. RUBBER OR PRE-CAST CONCRETE RISERS

NOTE:
DROP CONNECTIONS ARE TO BE USED ONLY WITH PVC OR DUCTILE IRON PIPE SEWERS AND ONLY WHERE ABSOLUTELY NECESSARY. DROP CONNECTIONS ARE NOT PERMITTED ON SEWERS WHICH ARE GREATER THAN 15" DIAMETER.

WATERPROOF EXTERIOR SURFACE WITH TWO COATS BITUMASTIC MATERIAL OR COAL TAR SOLUTION, MINIMUM DRY FILM THICKNESS 8 MILS PER COAT.

POLYPROPYLENE PLASTIC MANHOLE STEPS (SEE DETAIL SD-021)

12" MINIMUM

6" MINIMUM

2'-0" MAXIMUM WITHOUT DROP CONNECTION

FIELD FORMED CHANNEL

6" MINIMUM 2B CRUSHED STONE OR CRUSHED GRAVEL

SEE DETAIL SD-016 OUTSIDE MANHOLE DROP CONNECTION OR DETAIL SD-017 INSIDE MANHOLE DROP CONNECTION.

NOTE:
SUPPORT MANHOLE STRUCTURE AND ALL PIPING CONNECTIONS ON A MINIMUM OF 6" THICKNESS 2B BEDDING MATERIAL. ENCAPSULATE ALL PIPES WITHIN MANHOLE EXCAVATION IN THE SAME MATERIAL TO AN ELEVATION OF 12" ABOVE THE TOP OF PIPES. OUTSIDE MANHOLE DROP CONNECTIONS SHALL BE ENCASED WITH CONCRETE.

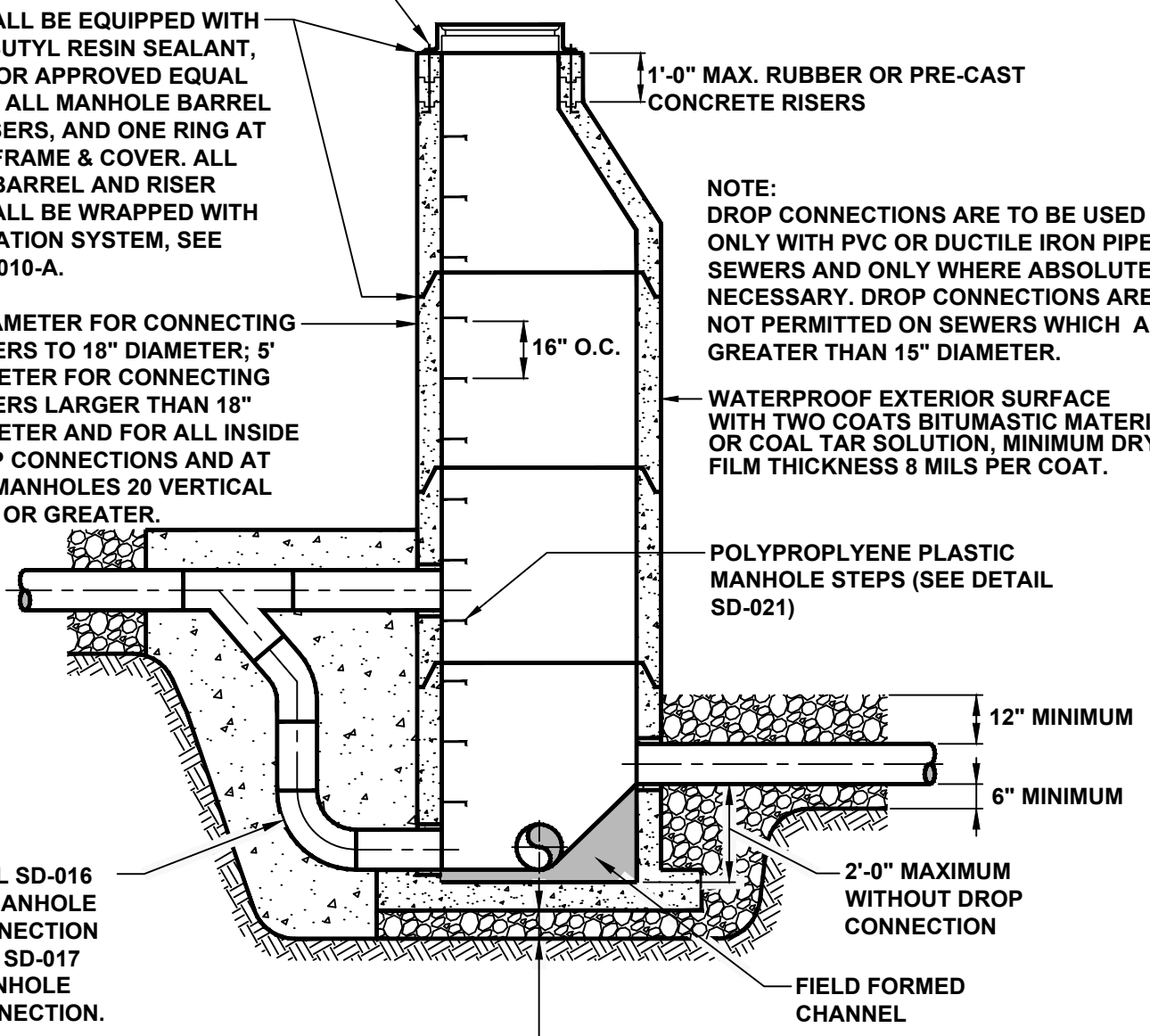
Municipal Authority Of The
Township Of South Fayette
700 Holland Street
Bridgeville, Pa 15017

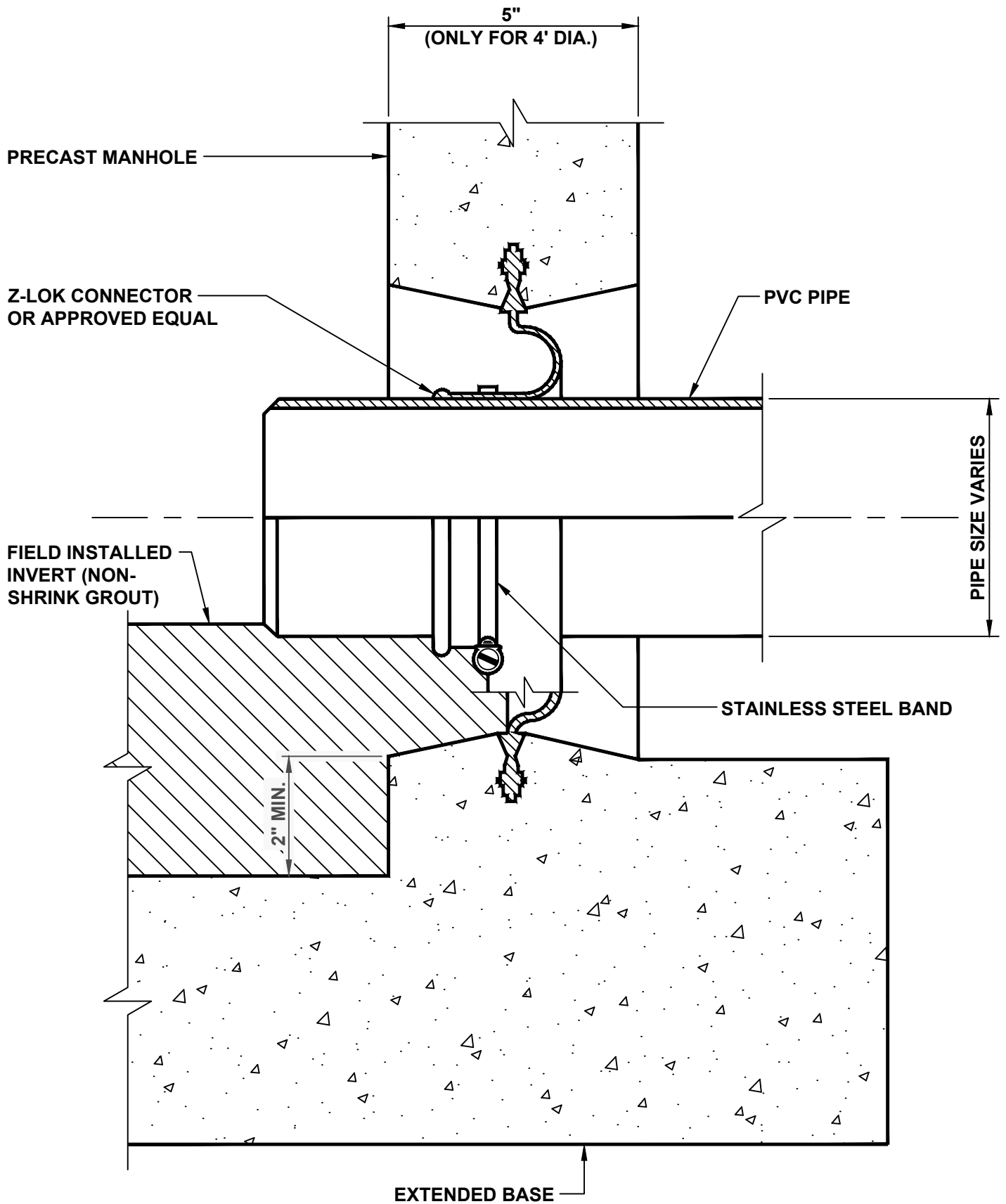
MANHOLE FOR SEWERS FOR DEPTHS
GREATER THAN 5 FEET

Not to scale

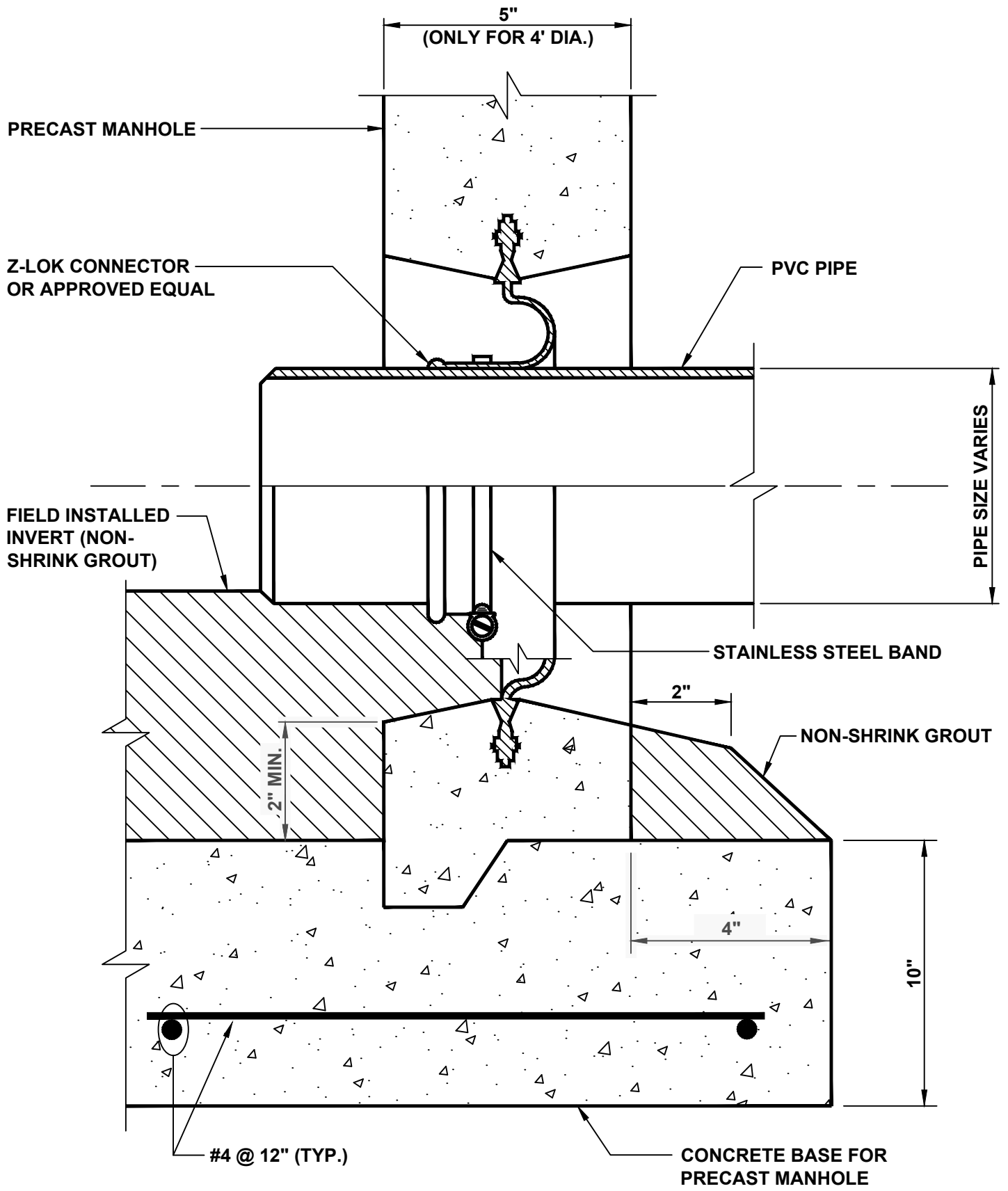
February 2025

Standard Detail SD-013

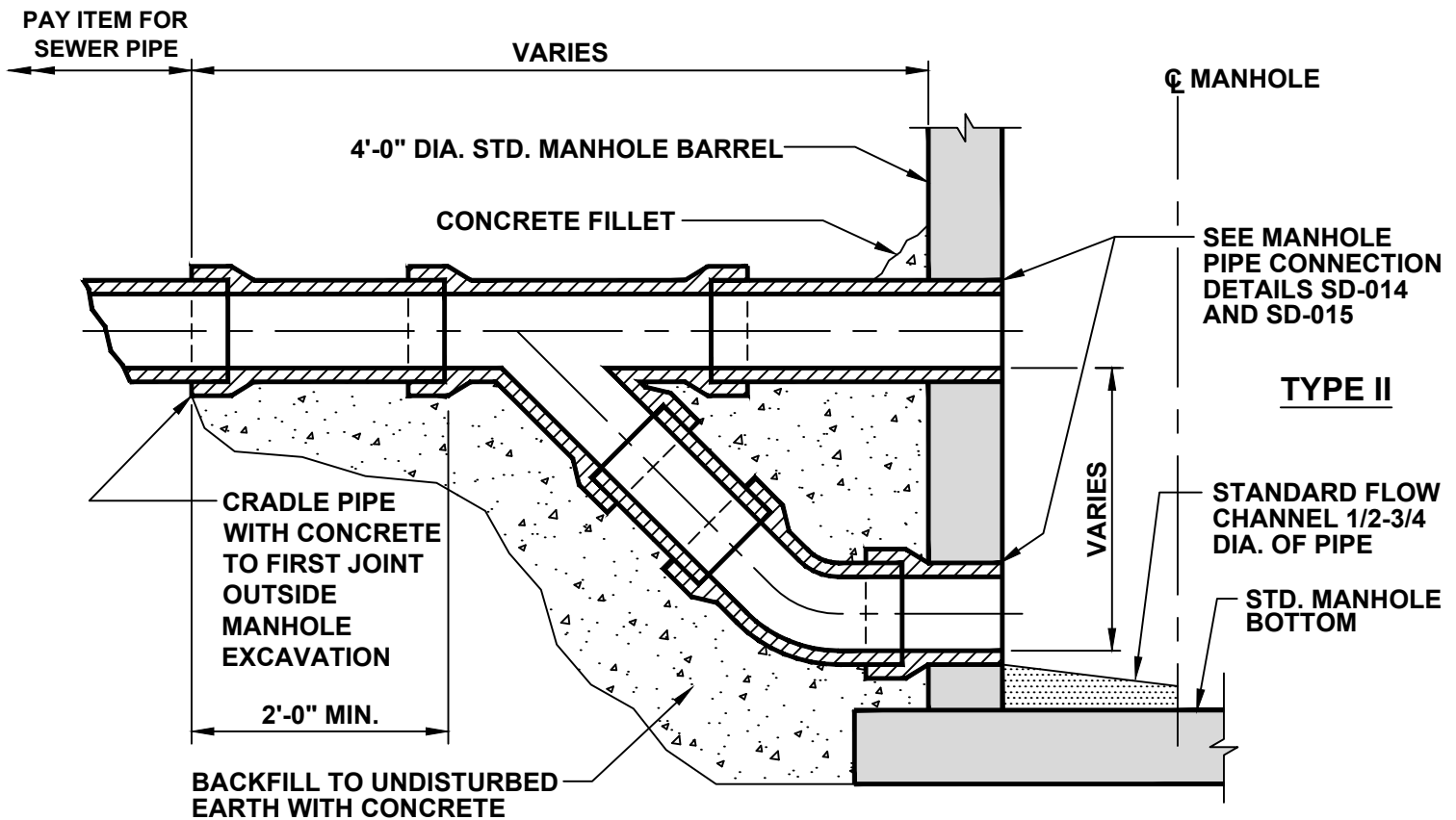
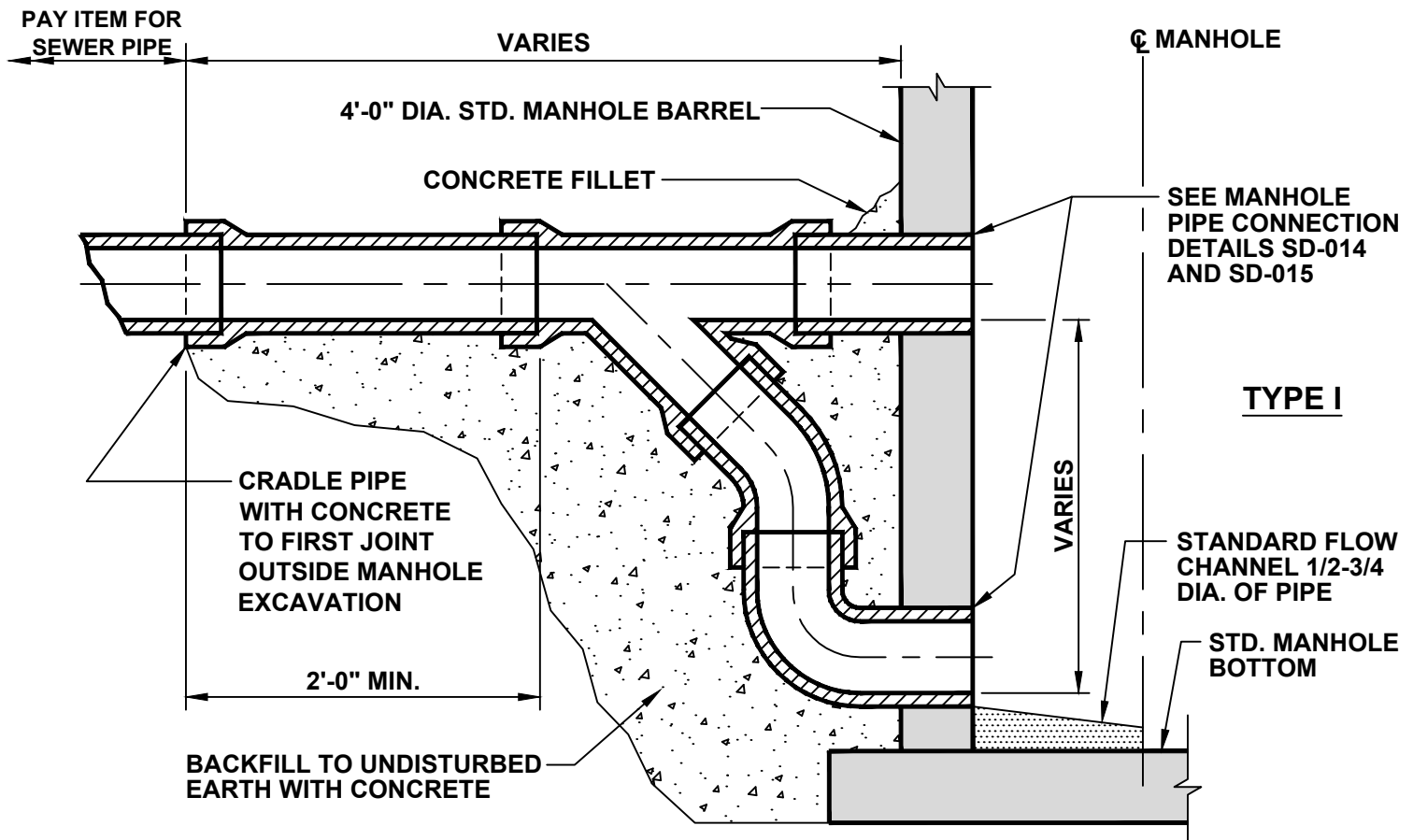




Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		MANHOLE CONNECTION FOR PVC PIPE (PRE-CAST BASE)
Not to scale	February 2025	Standard Detail SD-014



Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		MANHOLE CONNECTION FOR PVC PIPE (CAST-IN-PLACE BASE)
Not to scale	February 2025	Standard Detail SD-015

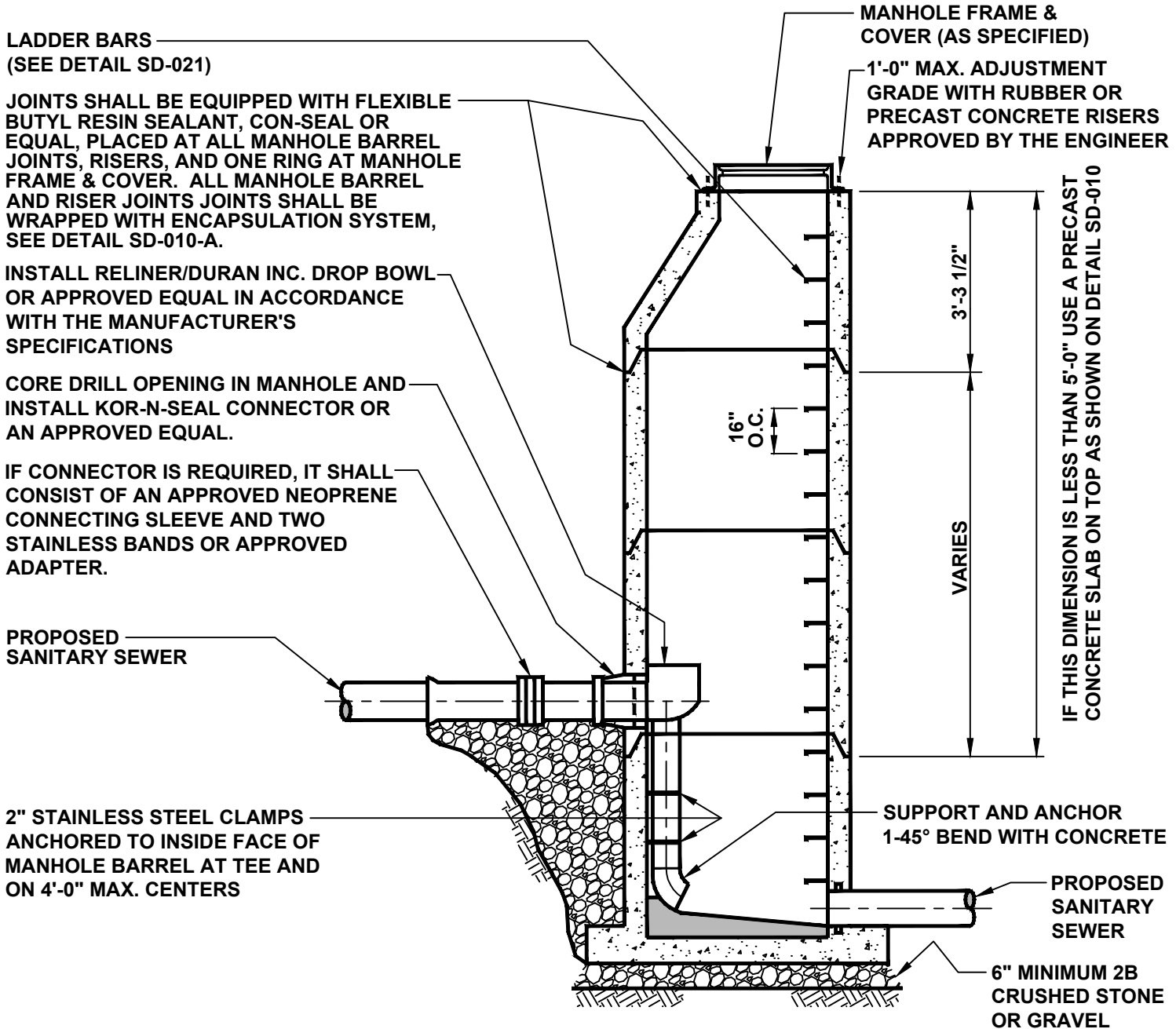


Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		OUTSIDE MANHOLE DROP CONNECTION
Not to scale	February 2025	Standard Detail SD-016

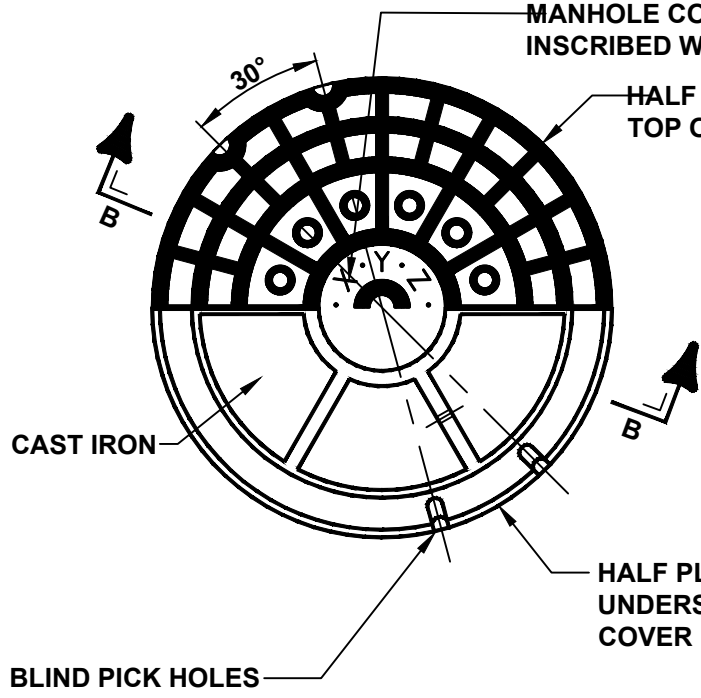
NOTES:

1. PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO ASTM C478, LATEST REVISION.
2. LIFTING HOLES SHALL BE PAINTED WITH MORTAR, MADE WATERTIGHT AND LEFT NEAT.
3. DROP CONNECTION INLET PIPE TEE AND BENDS SHALL BE PVC PIPE CONFORMING TO ASTM D3034, SDR-35.
4. FOR FORCE MAINS, INSTALL RUN OF TEE IN VERTICAL POSITION.
5. ALL OTHER MANHOLE STANDARD DETAIL REQUIREMENTS APPLY. SEE SD-2-010

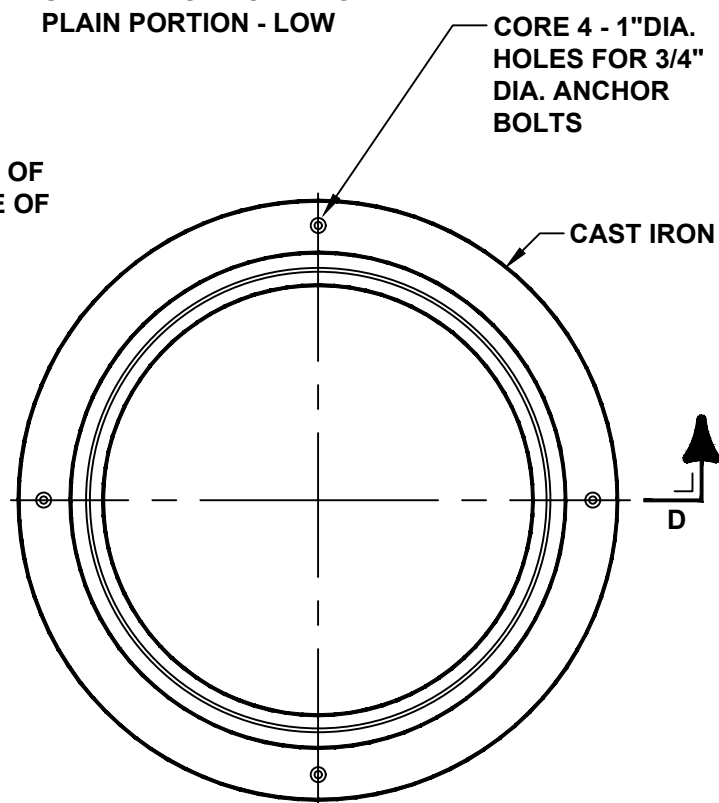
6. ALL JOINTS TO RECEIVE CON-SEAL SEALER OR APPROVED EQUAL. ALL MANHOLE BARREL AND RISER JOINTS SHALL BE WRAPPED WITH ENCAPSULATION SYSTEM, SEE DETAIL SD-010-A.
7. ALL MANHOLE SLABTOPS, LIDS, AND CASTINGS SHALL MEET AASHTO H20 STANDARD SPECIFICATION FOR UNINTENDED VEHICULAR TRAFFIC, UNLESS OTHERWISE APPROVED.
8. ONLY ONE (1) INSIDE DROP CONNECTION WILL BE PERMITTED FOR MANHOLES OF 4'-0" DIAMETER AND ONLY TWO (2) DROP CONNECTIONS FOR MANHOLES 5'-0" IN DIAMETER. MORE THAN TWO (2) DROP CONNECTIONS IN THE SAME MANHOLE SHALL BE OUTSIDE DROP TYPE CONNECTIONS.



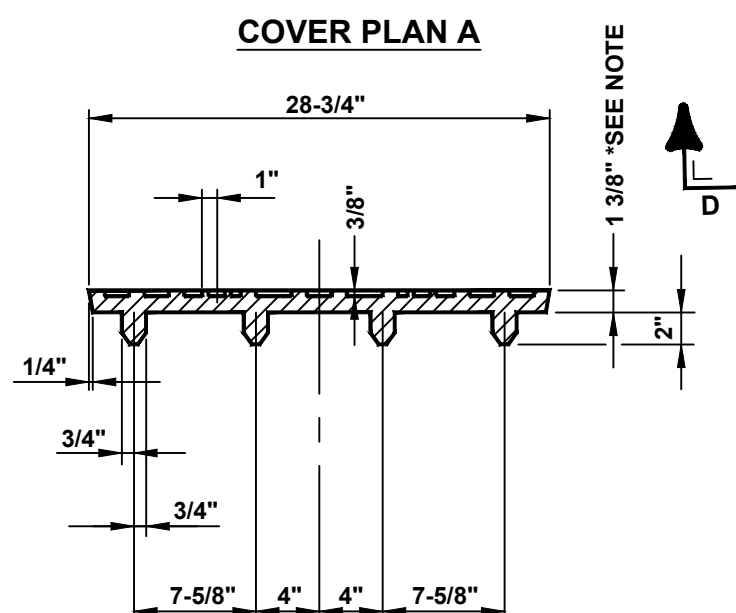
<p>Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017</p>		<p>INSIDE MANHOLE BOWL DROP CONNECTION</p>
<p>Not to scale</p>	<p>February 2025</p>	<p>Standard Detail SD-017</p>



NOTE:
 SHADED PORTION - HIGH
 PLAIN PORTION - LOW

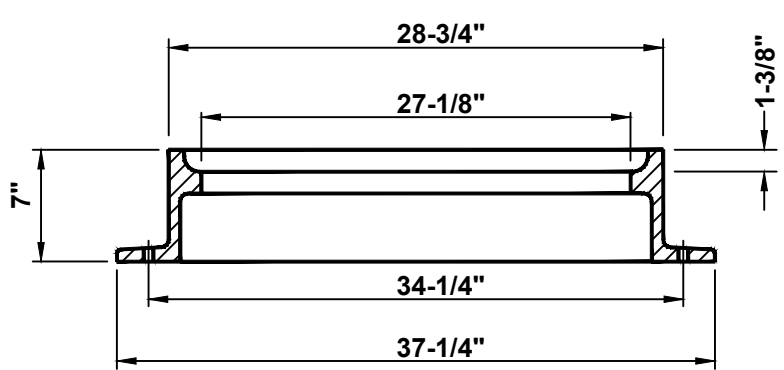


FRAME PLAN C



SECTION B

NOTE:
 MANHOLE COVERS SHALL BE MACHINED TO $1 \frac{3}{16}$ " THICKNESS TO ACCOMODATE MANHOLE INFLOW PROTECTOR (MANPAN OR EQUAL) WHERE MANHOLE IS INSTALLED IN IMPERVIOUS AREA.



BOTTOM FLANGE - SECTION D

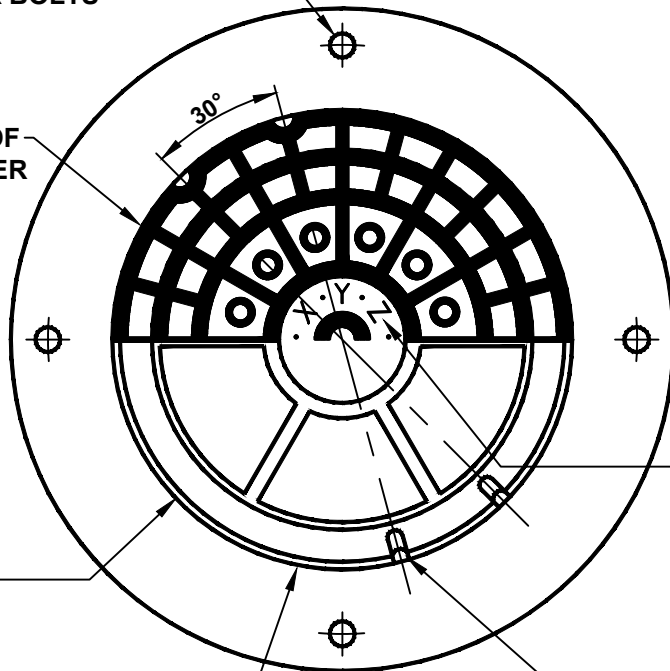
Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		STANDARD CAST IRON MANHOLE FRAME AND COVER
Not to scale	February 2025	Standard Detail SD-018

FOUR 1" DIA.
HOLES FOR 3/4"
DIA. ANCHOR BOLTS

NOTE:

SHADED PORTION - HIGH
UNSHADED PORTION - LOW

HALF PLAN OF
TOP OF COVER



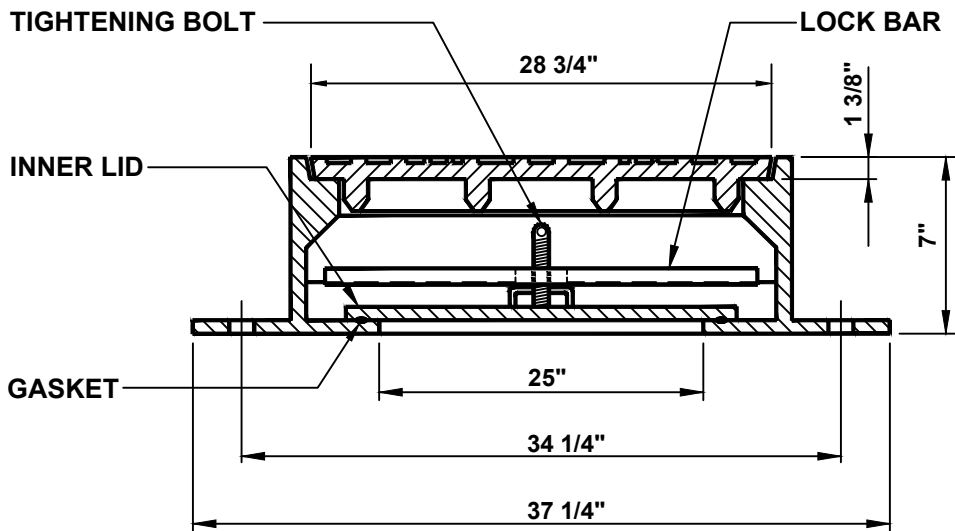
MANHOLE COVERS SHALL BE
INSCRIBED WITH "MATSF SEWERS"

CAST IRON

HALF PLAN OF
UNDERSIDE OF
COVER

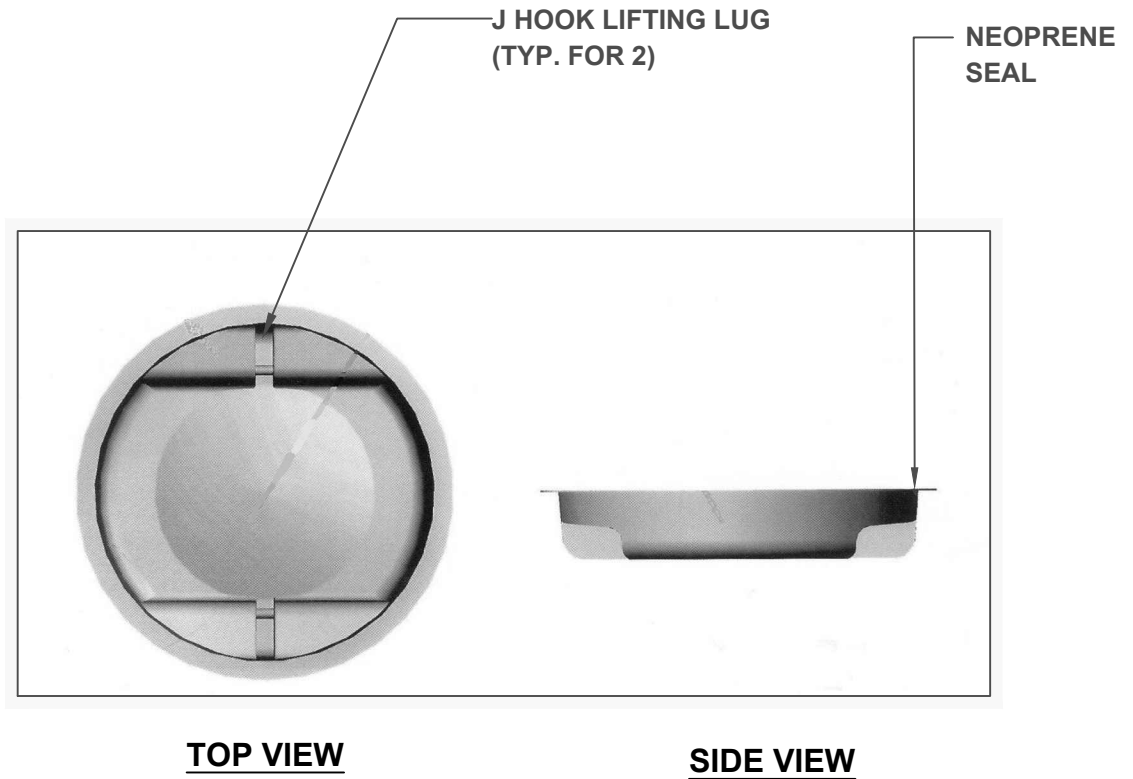
BLIND PICK HOLES

PLAN A



SECTION B

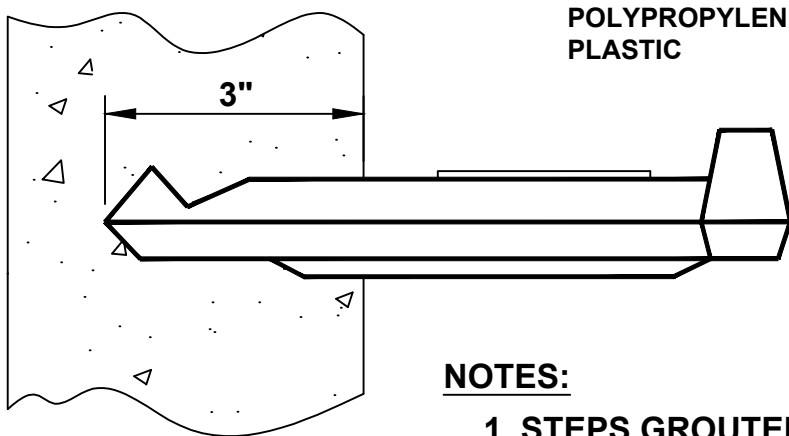
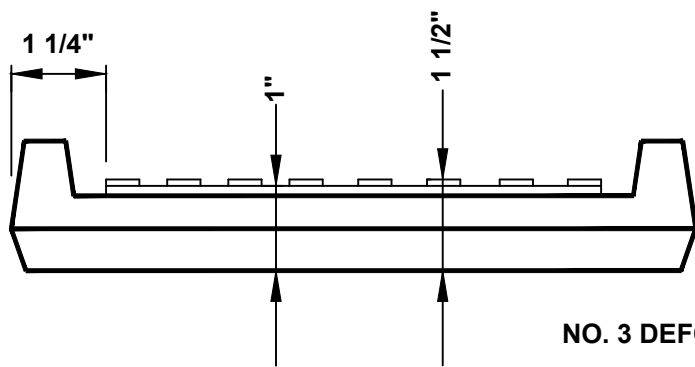
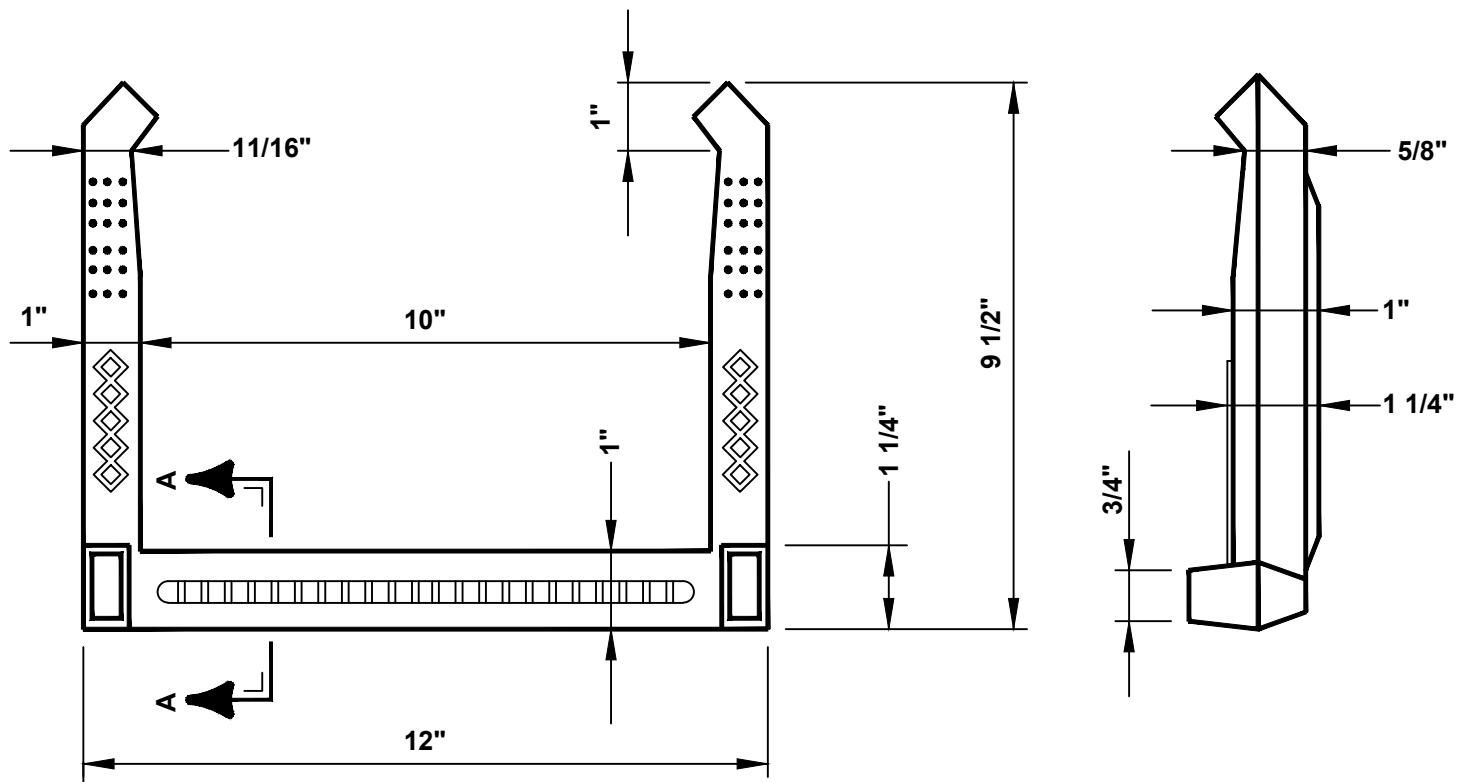
<p>Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017</p>		<p>WATERTIGHT MANHOLE FRAME AND COVER</p>
<p>Not to scale</p>	<p>February 2025</p>	<p>Standard Detail SD-019</p>



NOTES:

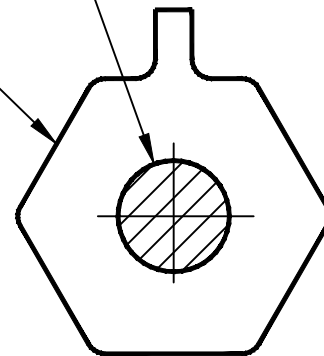
1. INFLOW PROTECTOR SHALL BE MAN-PAN OR APPROVED EQUAL AND SHALL BE INSTALLED WITH ALL NON-WATER TIGHT MANHOLE COVERS IN IMPERVIOUS AREAS ONLY.
2. INFLOW PROTECTORS SHALL BE FABRICATED AND SIZED TO FIT PROPOSED MANHOLE FRAMES.
3. MANHOLE COVERS SHALL BE MACHINED TO ACCOMODATE MANHOLE INFLOW PROTECTORS.

Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		MANHOLE INFLOW PROTECTOR
Not to scale	February 2025	Standard Detail SD-020



NO. 3 DEFORMED BAR

POLYPROPYLENE PLASTIC

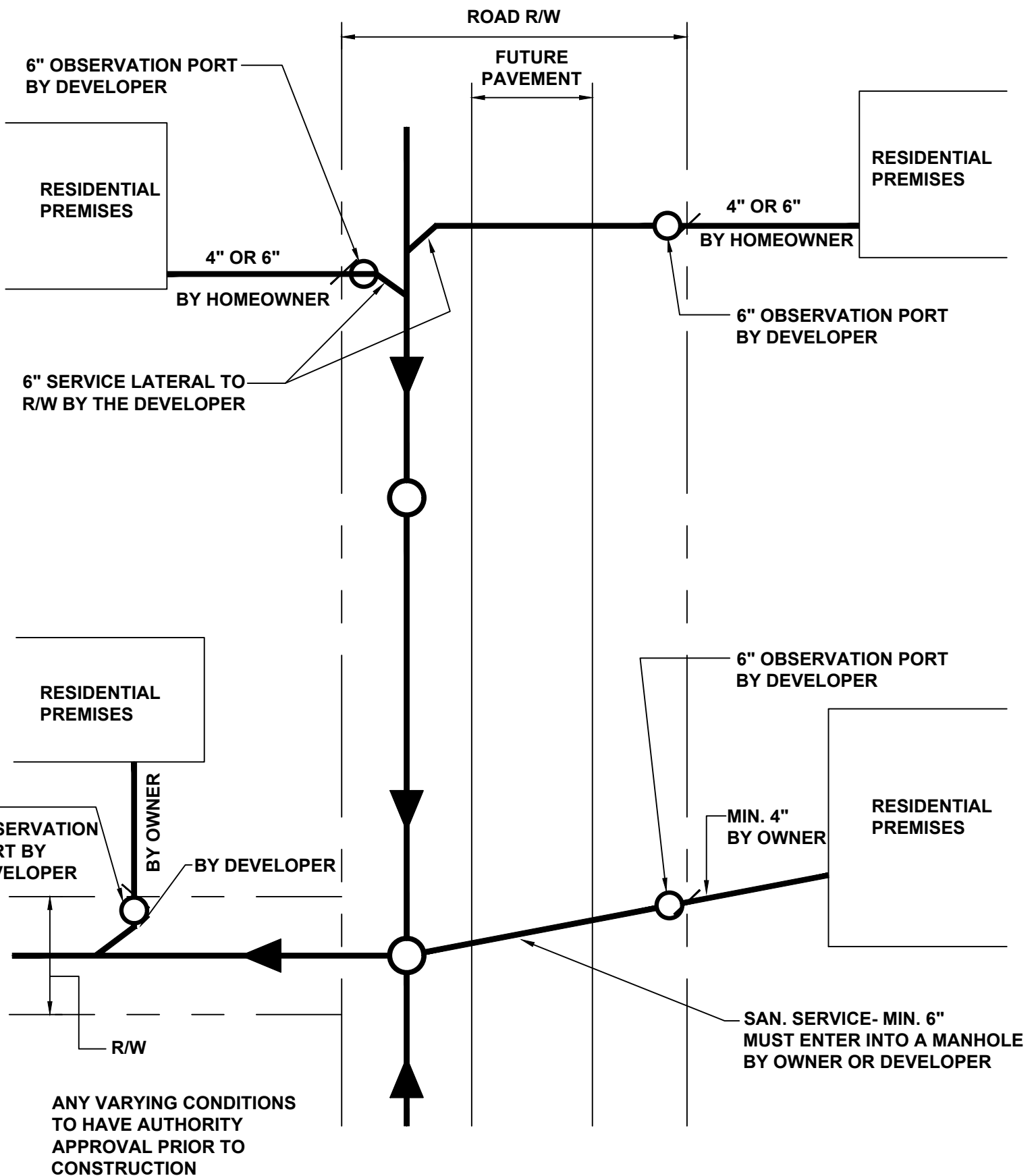


NOTES:

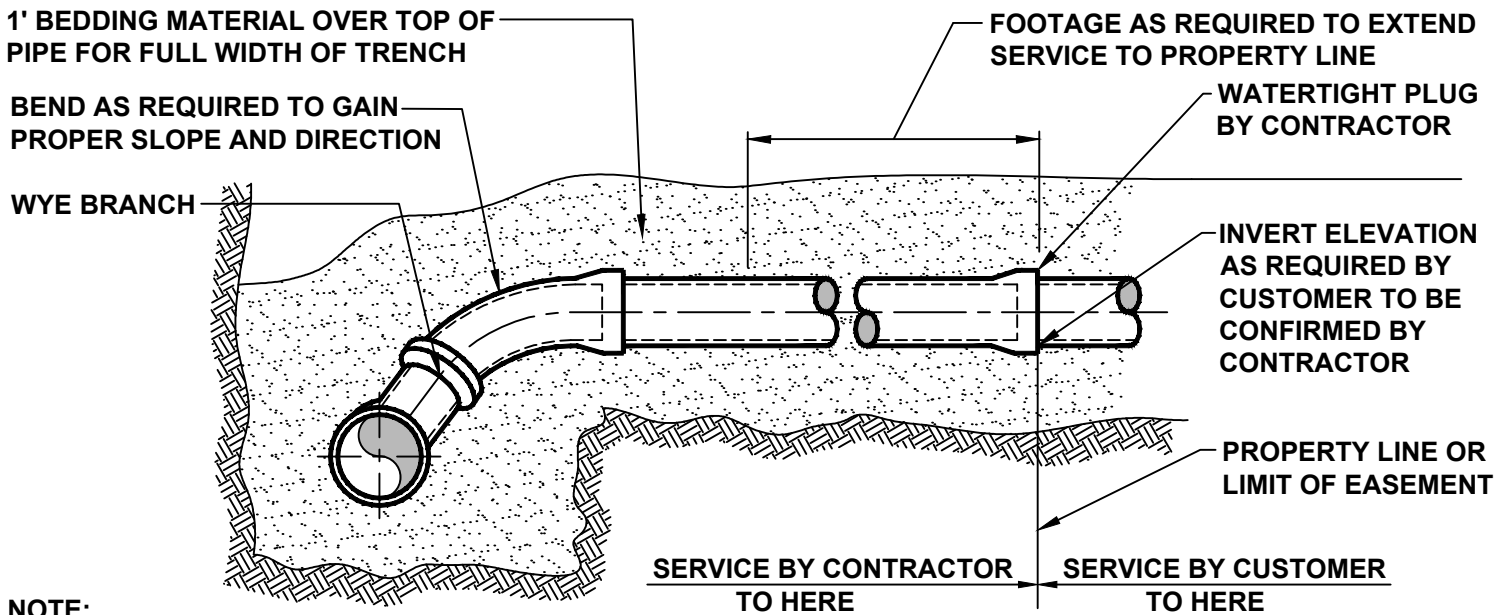
1. STEPS GROUTED IN PLACE
2. INSTALL STEPS ON 16" C:C

SECTION A

<p>Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017</p>		<p>POLYPROPYLENE PLASTIC MANHOLE STEP</p>
<p>Not to scale</p>	<p>February 2025</p>	<p>Standard Detail SD-021</p>

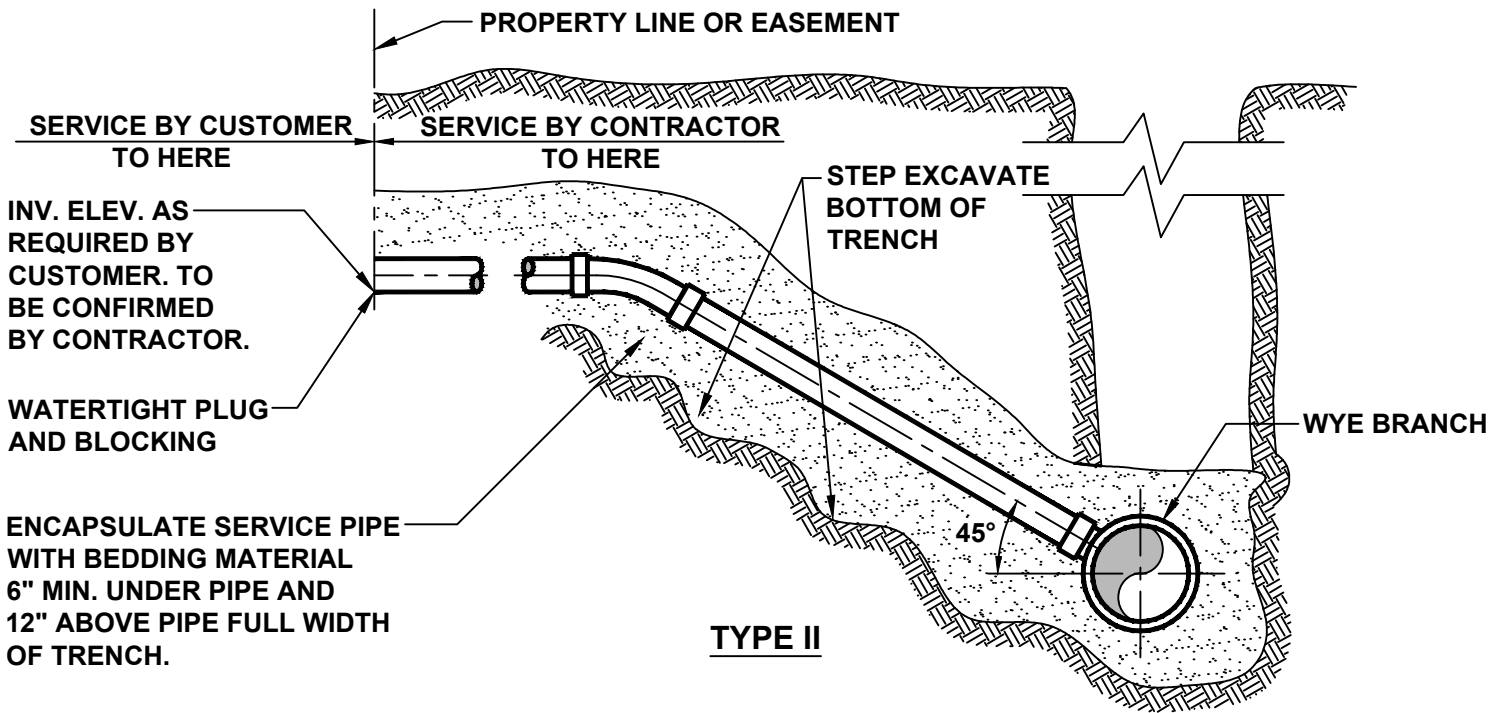


Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		SERVICE LINE CONNECTIONS
Not to scale	February 2025	Standard Detail SD-022



NOTE:
 WHERE MAIN SEWER IS IN PRIVATE PROPERTY, FOOTAGE OF LATERAL PIPE WILL EXTEND TO THE EDGE OF SEWER RIGHT-OF-WAY.

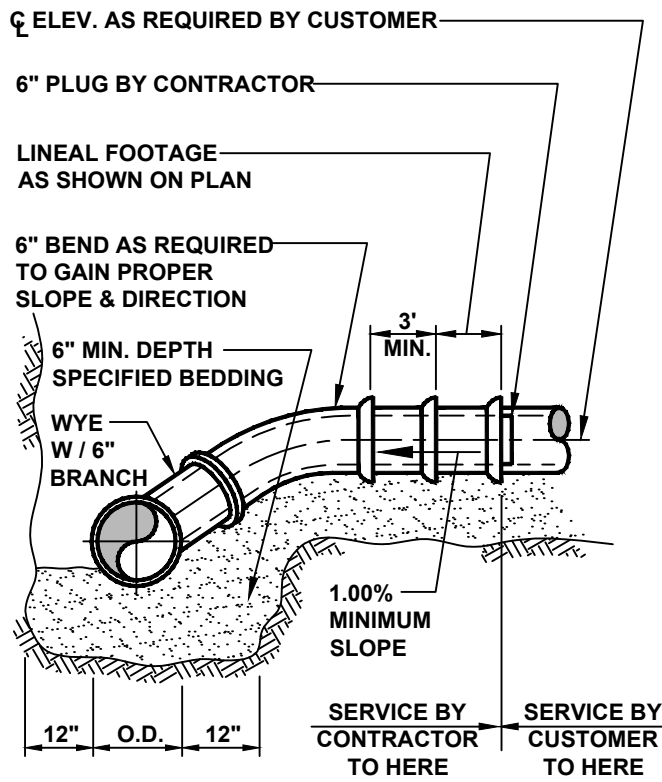
TYPE I



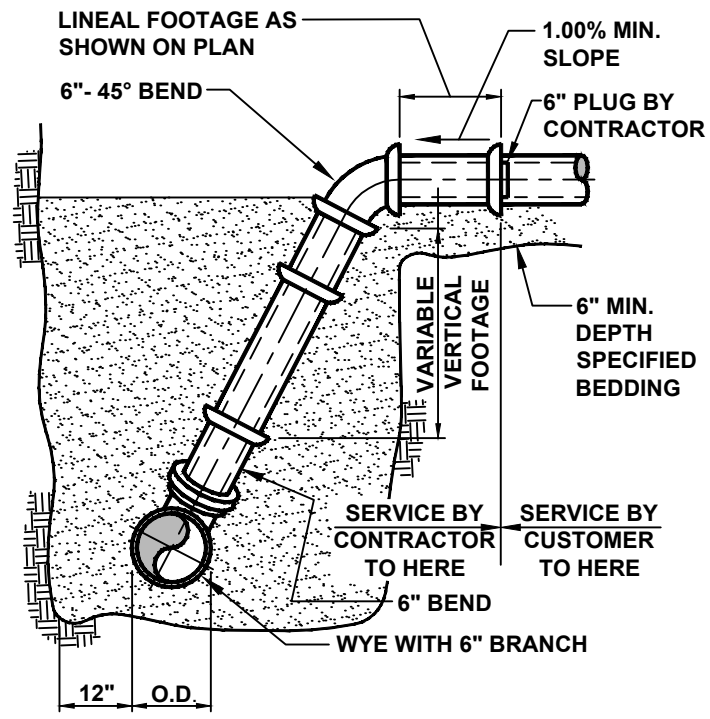
TYPE II

NOTE:
 ALL SERVICE SEWERS SHALL BE 6" DIAMETER AND SHALL BE PVC PIPE. CHANGES IN ALIGNMENT AND CONNECTIONS TO MAIN SEWER SHALL BE ACCOMPLISHED WITH PREFABRICATED FITTINGS.

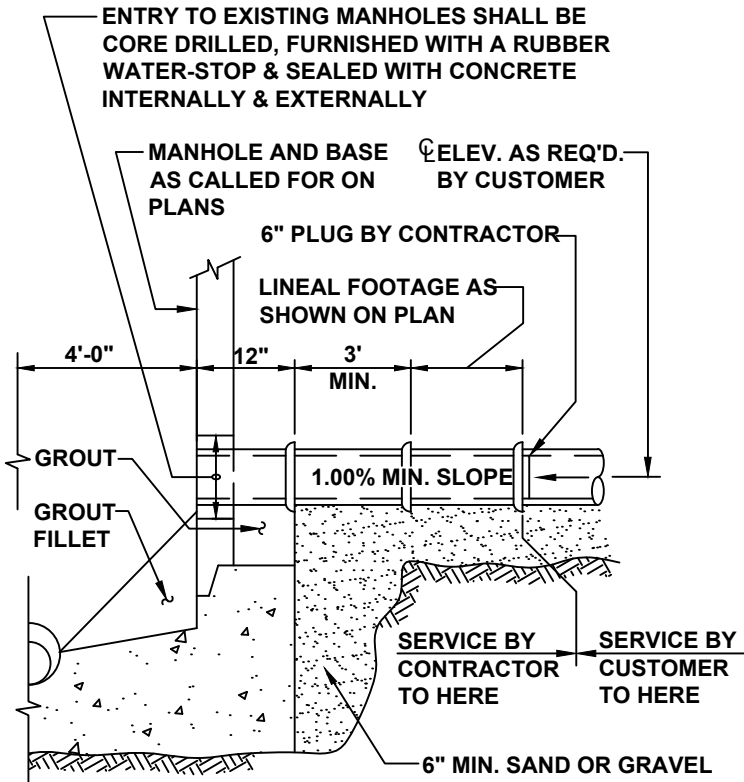
Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		TYPICAL SERVICE LATERAL CONNECTIONS
Not to scale	February 2025	Standard Detail SD-023



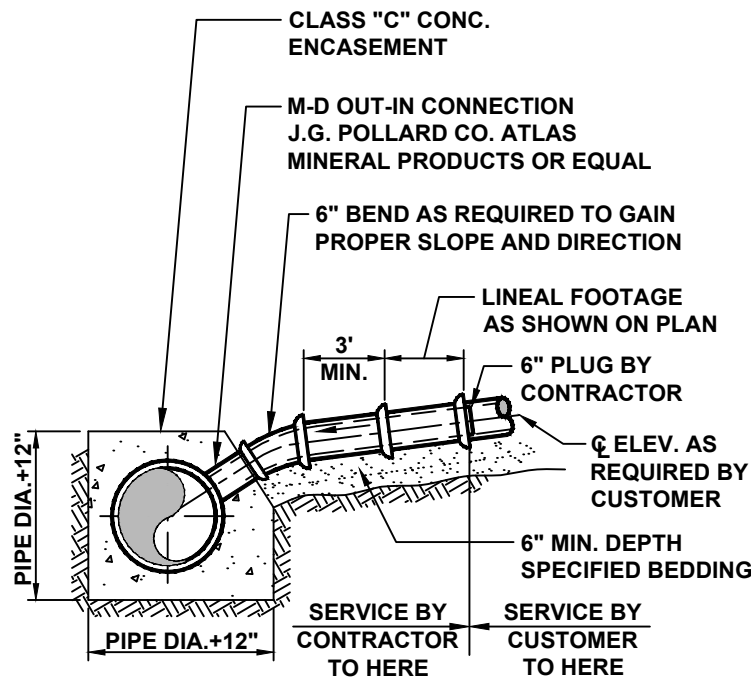
TYPE I



TYPE II

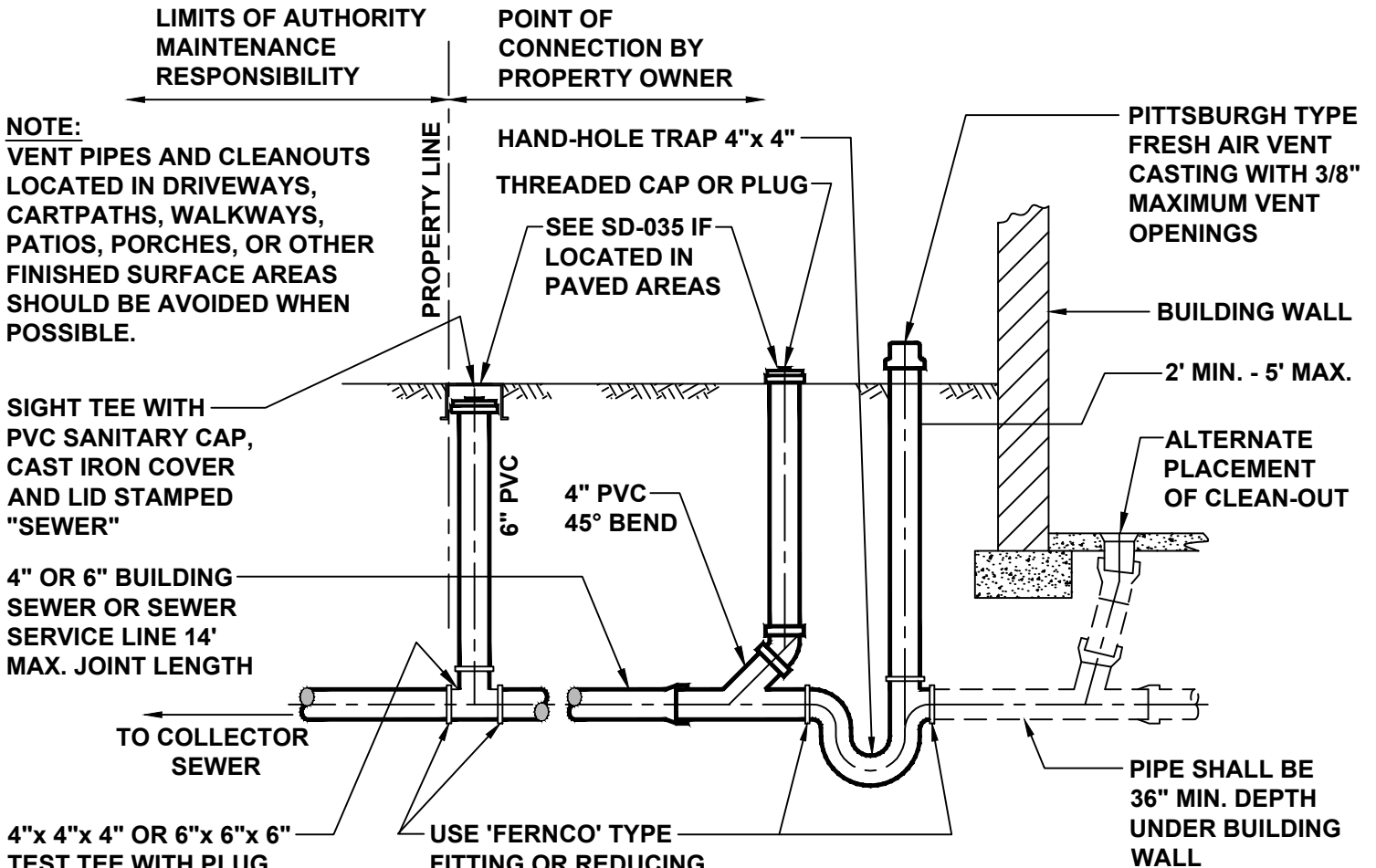


TYPE III



TYPE IV

Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		SERVICE CONNECTIONS
Not to scale	February 2025	Standard Detail SD-024



NOTE:

VENT PIPES AND CLEANOUTS LOCATED IN DRIVEWAYS, CARPATHS, WALKWAYS, PATIOS, PORCHES, OR OTHER FINISHED SURFACE AREAS SHOULD BE AVOIDED WHEN POSSIBLE.

SIGHT TEE WITH PVC SANITARY CAP, CAST IRON COVER AND LID STAMPED "SEWER"

4" OR 6" BUILDING SEWER OR SEWER SERVICE LINE 14' MAX. JOINT LENGTH

TO COLLECTOR SEWER

4"x 4"x 4" OR 6"x 6"x 6" TEST TEE WITH PLUG. EXTEND TO SURFACE FOR INSPECTION TEE AS REQUIRED.

USE 'FERNCO' TYPE FITTING OR REDUCING COUPLING TO ADAPT VARIOUS MATERIALS AND SIZES OF PIPE AS REQUIRED

NOTE:

1. ALL PIPE SHALL BE 4" OR 6" SCH. 40 PVC OR ABS. SLOPE SHALL BE MIN. 1/4" PER FOOT FOR 4" LINE AND 1/8" PER FOOT SLOPE FOR 6" LINE.

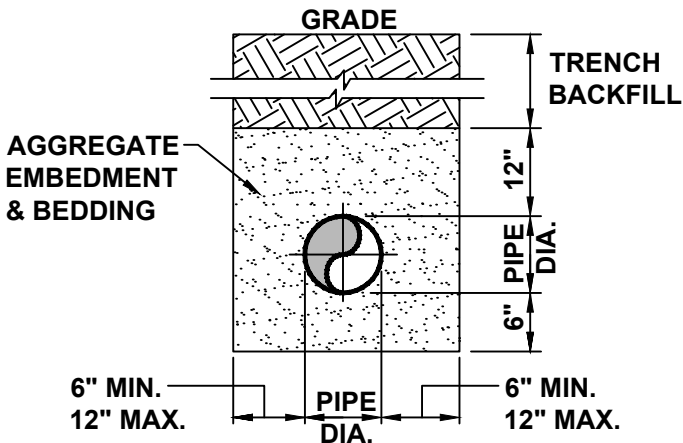
2. CLEAN-OUTS SHALL BE INSTALLED AT 50 FOOT INTERVALS FOR 4" PIPE AND 100 FOOT INTERVALS FOR 6" PIPE.

3. SDR 35 PVC MAY BE USED FROM THE DOWNSTREAM SIDE OF THE TRAP TO THE MAIN.

4. ABS PIPE SHOULD NOT BE GLUED TO PVC PIPE.

5. ALL FERNCO CONNECTIONS WHERE PERMITTED SHALL BE BANDED TYPE.

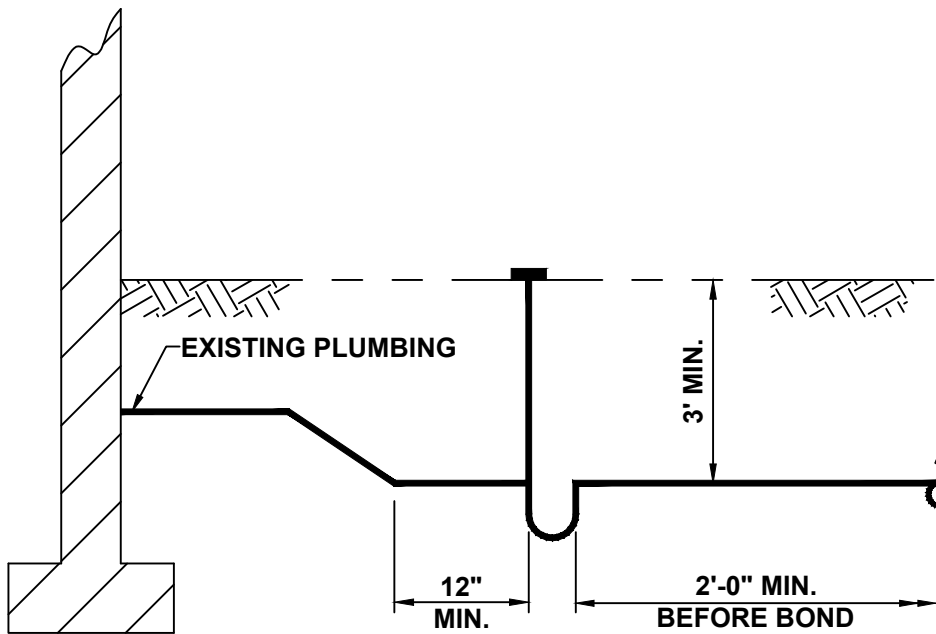
CONDENSED INSTALLATION SPECIFICATIONS
SEWER SERVICE LINE AND SEWER SERVICE CONNECTIONS SHALL BE INSTALLED BY REGISTERED MASTER PLUMBER AT THE COST OF THE CUSTOMER IN ACCORDANCE WITH APPENDIX C OF THE RULES AND REGULATIONS AND DETAILED SPECIFICATIONS OF THE AUTHORITY AND MUST MEET ALL CURRENT ACHD STANDARDS.



SEWER SERVICE LINE PIPE:

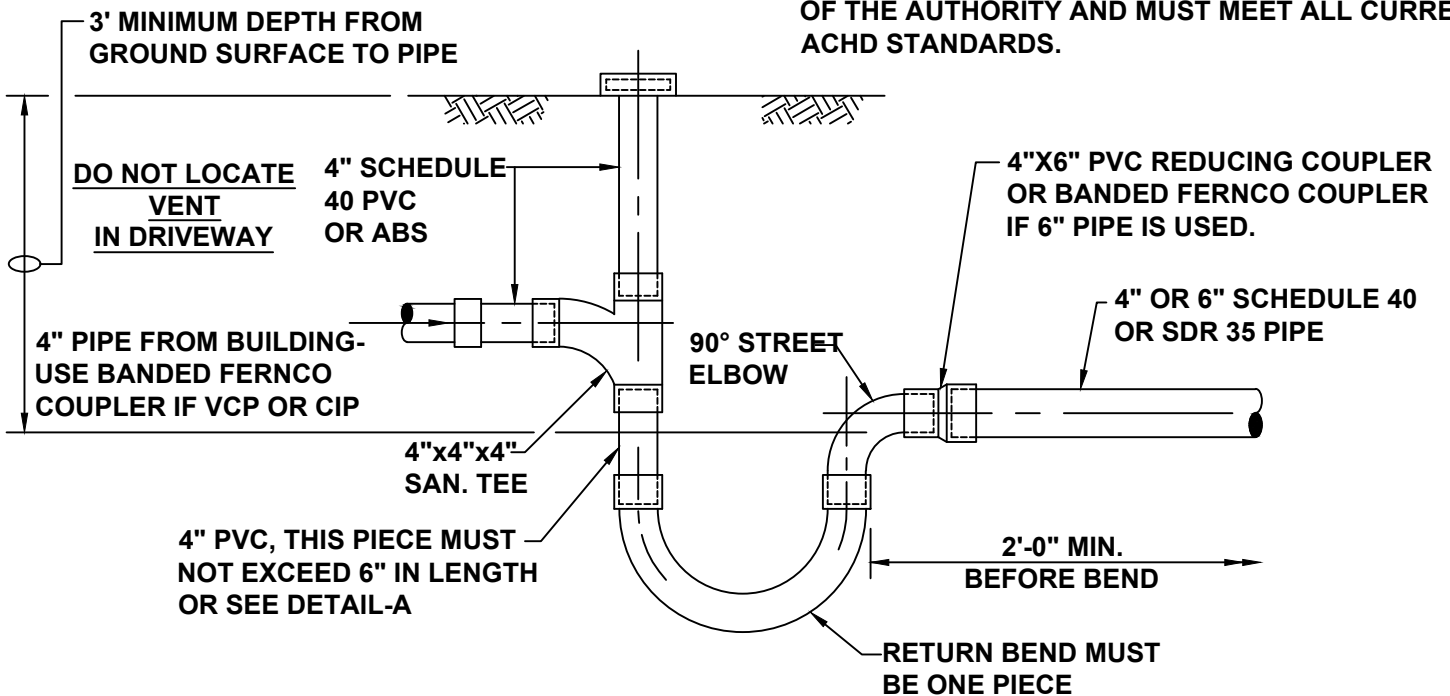
MATERIAL	ASTM SPECIFICATIONS	JOINT	ASTM SPEC.
ABS	D-2751 SCH-40	SOLVENT WELD	D-2751
PVC	D-3034 SDR-35	ELASTOMERIC	D-3212
PVC	D-1875 SCH-40	SOLVENT WELD	D-2564

Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		SERVICE CONNECTION TO SANITARY SEWER FROM A NEW INSTALLATION
Not to scale	February 2025	Standard Detail SD-025



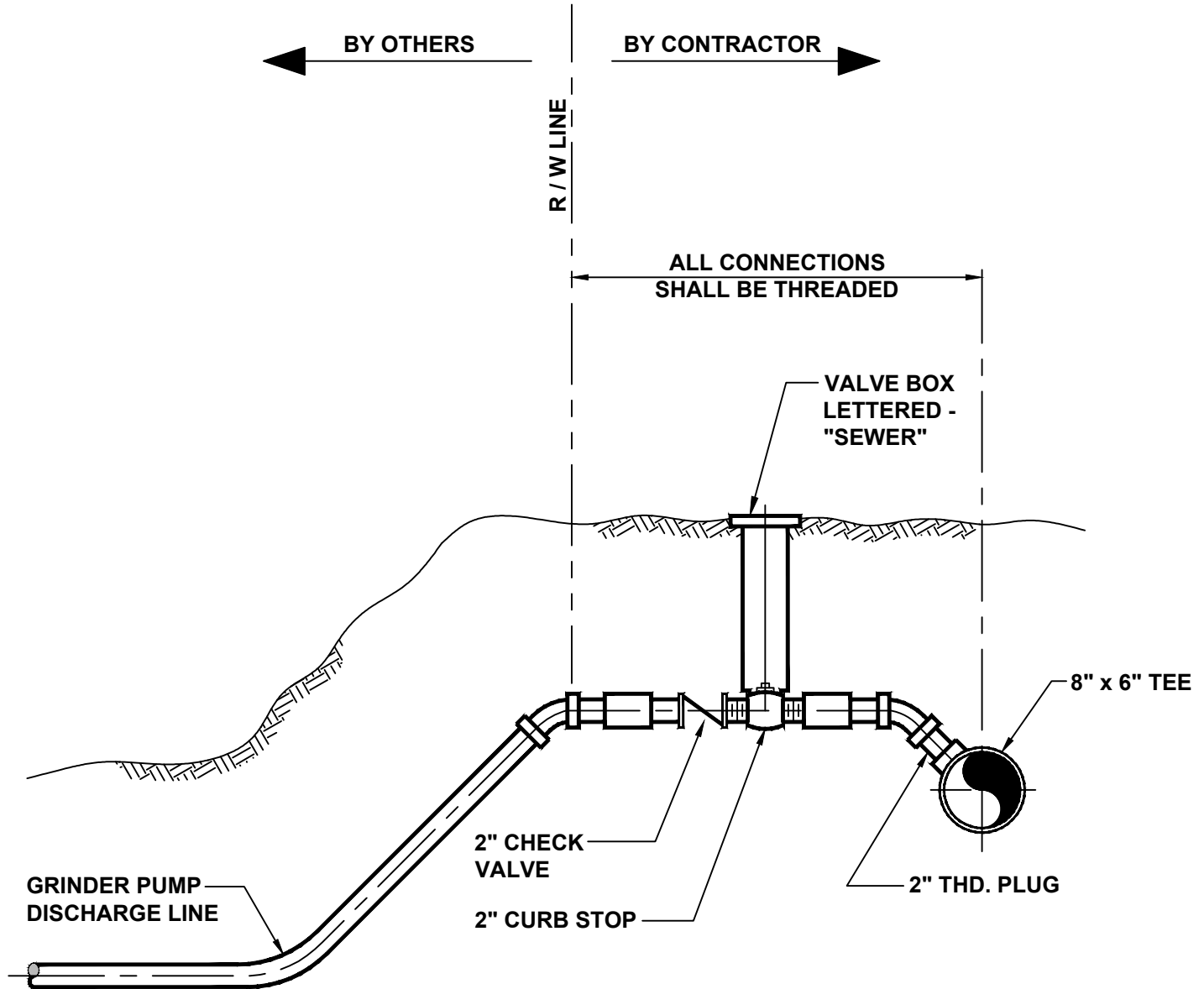
SHALLOW BUILDING SEWER TRAP DETAIL

CONDENSED INSTALLATION SPECIFICATIONS
SEWER SERVICE LINE AND SEWER SERVICE
CONNECTIONS SHALL BE INSTALLED BY REGISTERED
MASTER PLUMBER AT THE COST OF THE CUSTOMER
IN ACCORDANCE WITH APPENDIX C OF THE RULES
AND REGULATIONS AND DETAILED SPECIFICATIONS
OF THE AUTHORITY AND MUST MEET ALL CURRENT
ACHD STANDARDS.

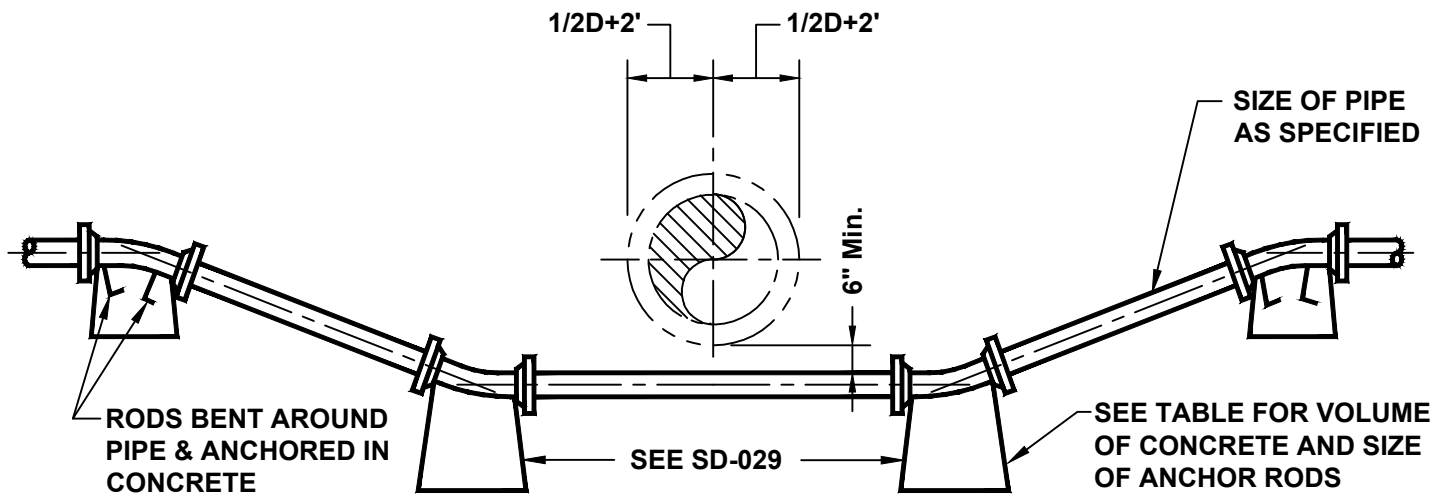


TYPICAL FABRICATED PVC VENT/ TRAP ASSEMBLY

Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		BUILDING SEWER TRAP DETAILS
Not to scale	February 2025	Standard Detail SD-026



<p>Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017</p>		<p>SMALL DIAMETER FORCE MAIN CONNECTION</p>
<p>Not to scale</p>	<p>February 2025</p>	<p>Standard Detail SD-027</p>



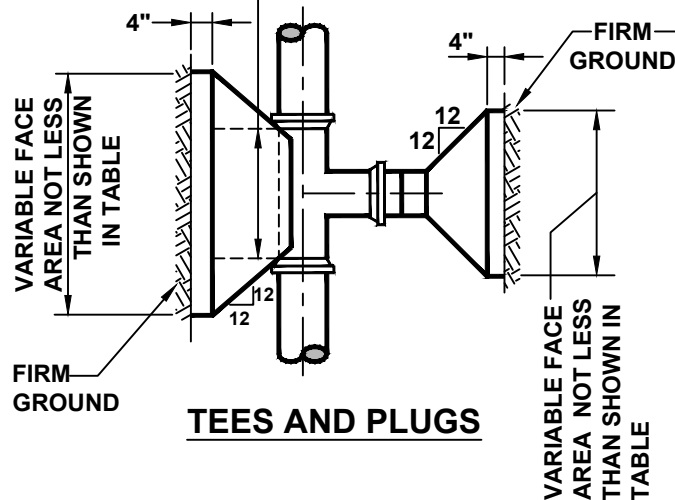
NOTE:
 THE TABLE IS BASED ON 225 PSI TEST PRESSURE. ALL BLOCKS HAVING LENGTH OF 3'-0" OR MORE TO BE REINFORCED WITH #4 @ 6" PLACED 3" FROM TOP OF BLOCK.

NOTE:
 ALL FITTINGS SHALL BE WRAPPED IN PLASTIC PRIOR TO POURING CONCRETE ANCHORS.

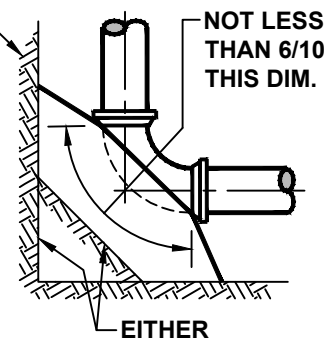
PIPE SIZE	TOTAL FORCE (lbs)	VOLUME IN CUBIC FEET			SIZE AND NO. OF ANCHOR RODS		
		45 DEGREE BENDS	22 1/2 DEGREE BENDS	11 1/4 DEGREE BENDS	45 DEGREE BENDS	22 1/2 DEGREE BENDS	11 1/4 DEGREE BENDS
4	4275	22.7	11.6	5.9	1-#4	1-#4	1-#4
6	8550	45.5	23.3	11.9	2-#4	1-#4	1-#4
8	14625	77.8	39.6	20.3	2-#4	2-#4	1-#4
10	21825	116.1	59.1	30.3	2-#4	2-#4	2-#4
12	30825	164.0	83.5	42.8	2-#5	2-#4	2-#4
14	41400	220.2	112.1	57.5	2-#6	2-#4	2-#4
16	53550	284.9	145.0	73.4	2-#7	2-#5	2-#4
18	67275	357.9	182.2	93.4	2-#7	2-#5	2-#4
20	82575	439.2	223.6	114.7	2-#8	2-#6	2-#4
24	117675	626.0	318.7	183.4	2-#9	2-#7	2-#5

Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		CONCRETE ANCHORS AND METHOD OF LAYING FORCE MAINS UNDER OBSTRUCTIONS
Not to scale	February 2025	Standard Detail SD-028

NOT LESS THAN
6/10 THIS DIM.

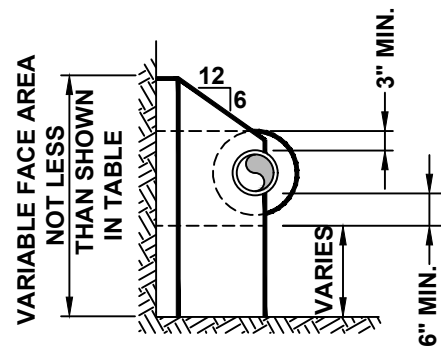


TEES AND PLUGS



NOTE:
OUTSIDE FACE AREA NOT
LESS THAN SHOWN IN TABLE

BENDS



**TEES, WYES,
AND BENDS**

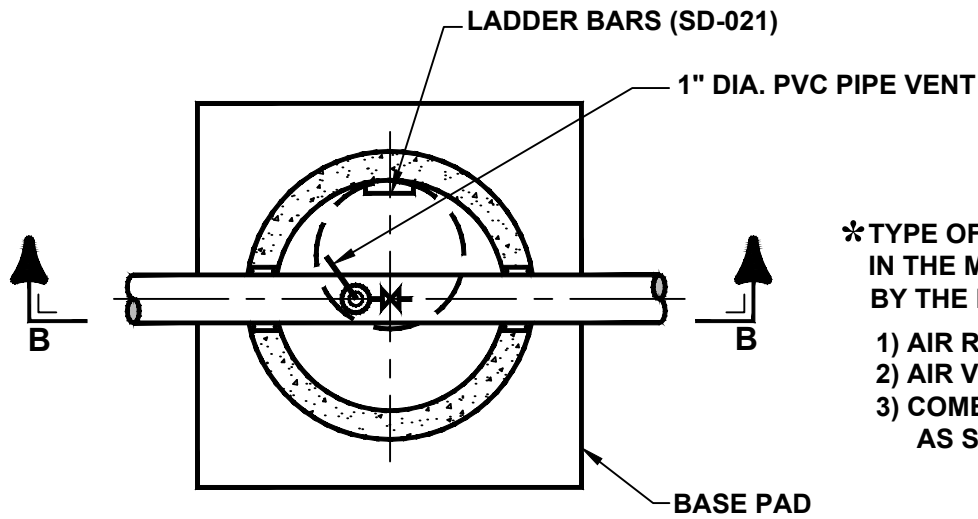
NOTES:

1. ALL TEES, WYES, CROSSES, PLUGS AND BENDS OF 10° OR MORE SHALL BE BLOCKED AGAINST FIRM EARTH WITH CONCRETE.
2. EARTH PRESSURE FIGURED AT 4000 PSF. IF EARTH ENCOUNTERED WILL NOT WITHSTAND THIS PRESSURE, THE AREA OF THE BLOCK MUST BE INCREASED PROPORTIONATELY.
3. ALL FITTINGS SHALL BE WRAPPED IN PLASTIC PRIOR TO POURING CONCRETE BLOCKING.

PIPE SIZE (in)	AREA* (sq in)	TOTAL FORCE (lbs)	AREA OF BLOCK IN SQUARE FEET				
			TEES & PLUGS	90 DEGREE BENDS	45 DEGREE BENDS	22 1/2 DEGREE BENDS	11 1/4 DEGREE BENDS
4	19	4,275	1.1	1.5	1.0	1.0	1.0
6	38	8,550	2.2	3.0	1.6	1.0	1.0
8	65	14,625	3.7	5.2	2.8	1.4	1.0
10	97	21,825	5.5	7.7	4.2	2.1	1.1
12	137	30,825	7.7	10.9	5.9	3.0	1.5
14	184	41,400	10.4	14.6	7.9	4.0	2.1
16	238	53,550	13.4	18.9	10.3	5.2	2.7
18	299	67,275	16.8	23.8	12.9	6.6	3.4
20	367	82,575	20.7	29.2	15.8	8.1	4.1
24	523	117,675	29.4	41.6	22.5	11.5	5.9
30	805	96,600	24.2	34.2	18.5	9.4	4.8
36	1152	138,240	34.6	48.9	26.5	13.5	6.9

CALCULATIONS ARE BASED ON 225 PSI PRESSURE OR 150 PSI WORKING PRESSURE PLUS 50% INCREASE FOR WATER HAMMER FOR SIZES 4" TO 24" INCLUSIVE. FOR SIZES 30" & 36" THE TABLE IS BASED ON 120 PSI PRESSURE OR 75 PSI WORKING PRESSURE PLUS 50% WATER HAMMER.

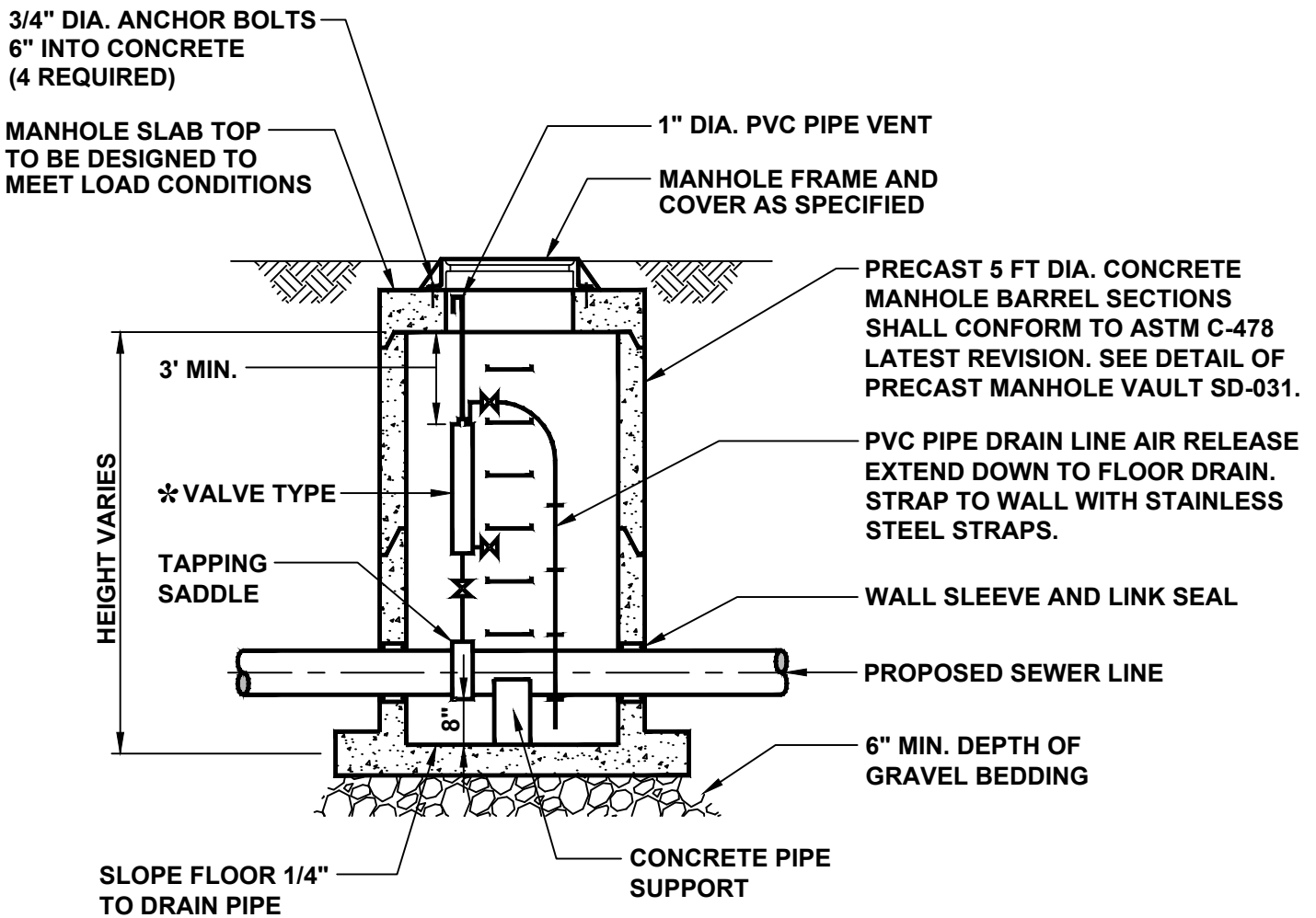
<p>Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017</p>		<p>CONCRETE THRUST BLOCKING</p>
<p>Not to scale</p>	<p>February 2025</p>	<p>Standard Detail SD-029</p>



*TYPE OF VALVE INSTALLED IN THE MANHOLE AS REQUIRED BY THE ENGINEER

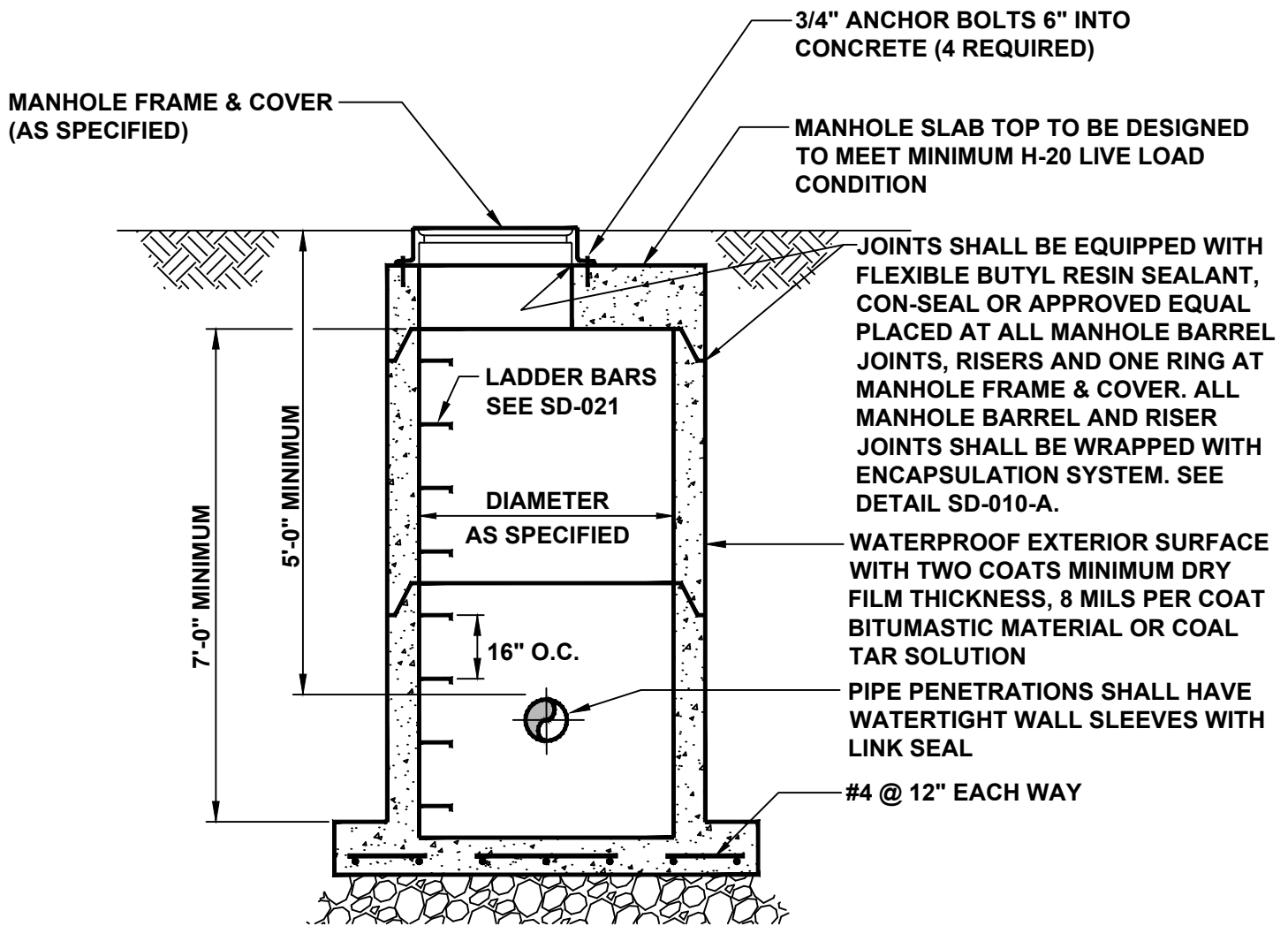
- 1) AIR RELEASE VALVE
- 2) AIR VACUUM VALVE
- 3) COMBINATION AIR VALVE AS SPECIFIED

PLAN 2-040-A



SECTION B

Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		SEWAGE AIR AND VACUUM RELEASE VALVE AND MANHOLE
Not to scale	February 2025	Standard Detail SD-030

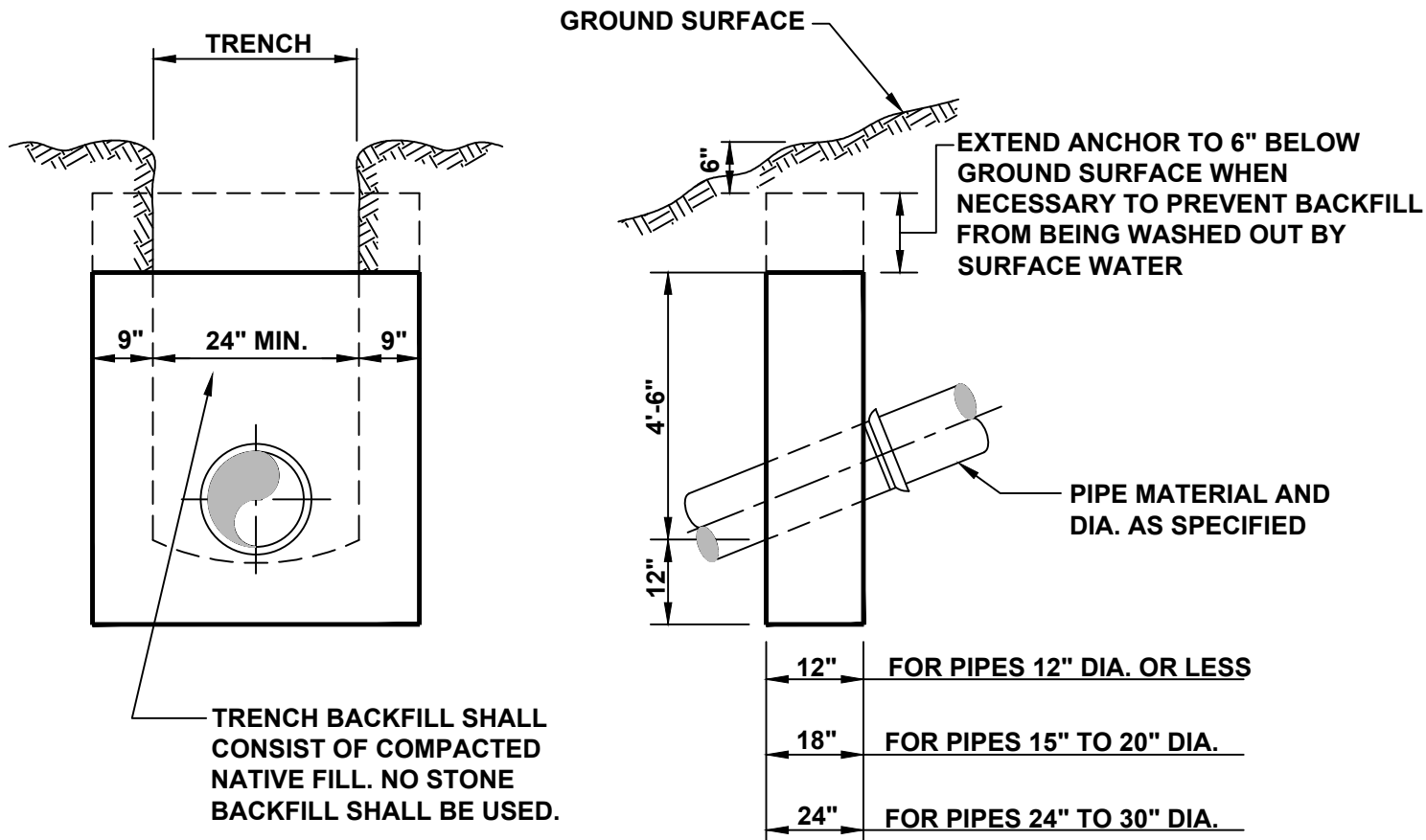


SECTION A-A

NOTES:

1. PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO ASTM-C478, LATEST REVISION.
2. WHERE MANHOLE FOUNDATION IS IN ROCK, REINFORCEMENT WILL NOT BE REQUIRED.
3. LIFTING HOLES SHALL BE PAINTED WITH MORTAR, MADE WATERTIGHT AND LEFT NEAT & SMOOTH.
4. SUPPORT MANHOLE STRUCTURE AND ALL PIPING CONNECTIONS ON A MINIMUM OF 6" THICKNESS 2B BEDDING MATERIAL. ENCAPSILATE ALL PIPES WITHIN MANHOLE EXCAVATION IN THE SAME MATERIAL TO AN ELEVATION OF 12" ABOVE THE TOPS OF PIPES.

Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		PRECAST CONCRETE MANHOLE VAULT
Not to scale	February 2025	Standard Detail SD-031



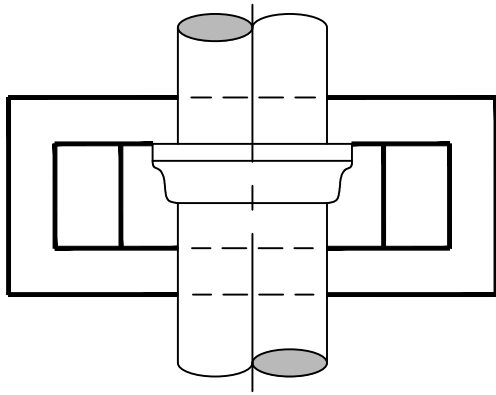
CONCRETE ANCHORS FOR PIPES ON STEEP GRADES

PROVIDE NO ANCHORS ON GRADES LESS THAN 20% UNLESS NOTED
PROVIDE ANCHORS 36' C-C ON GRADES BETWEEN 20% AND 34%
PROVIDE ANCHORS 24' C-C ON GRADES BETWEEN 34% AND 50%
PROVIDE ANCHORS 16' C-C ON GRADES BETWEEN 50% AND 70%

NOTE:

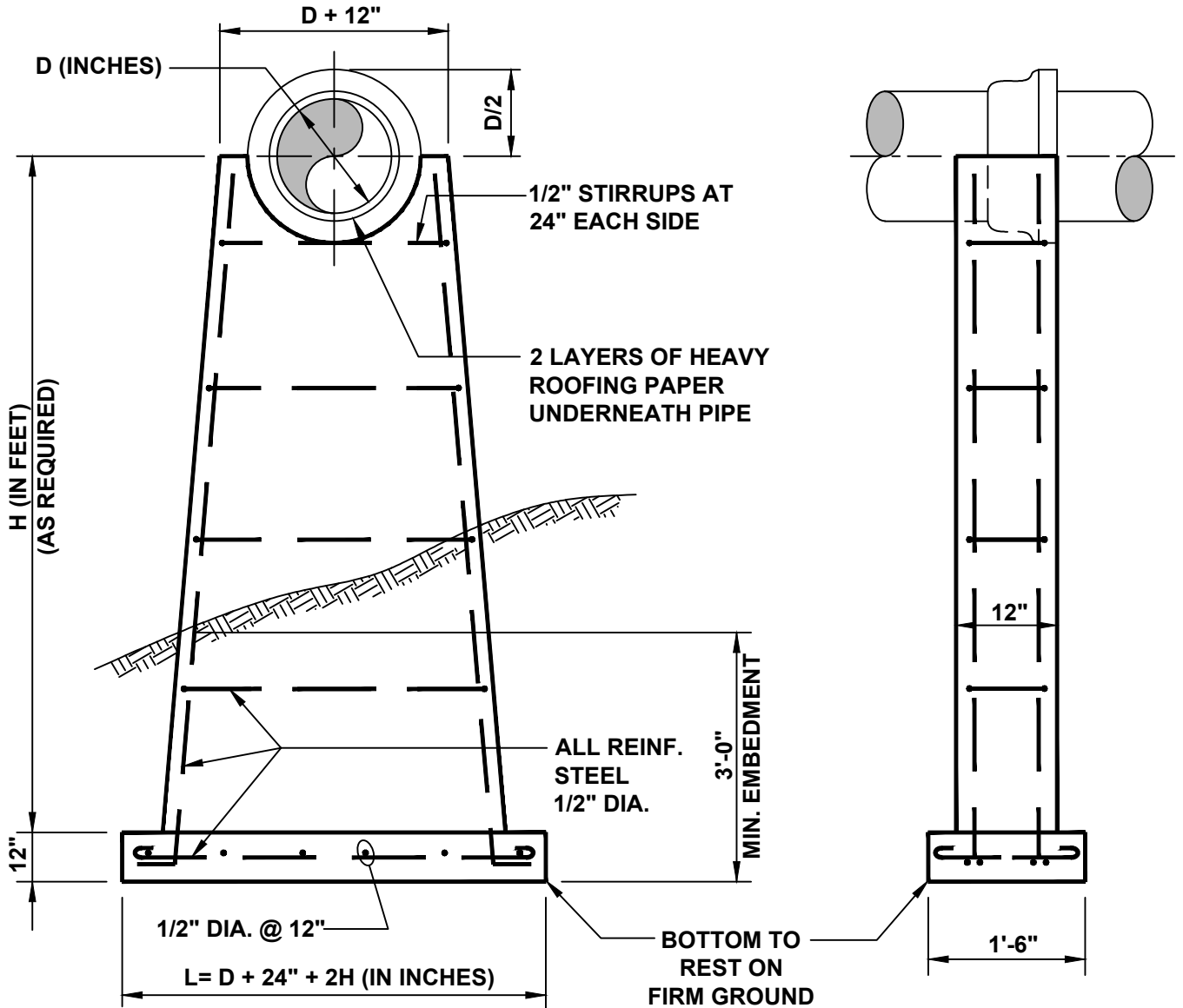
- 1. FOR CONDITIONS OTHER THAN SHOWN HEREON ANCHORS SHALL BE PROVIDED AS REQUIRED BY THE CONTRACT PLANS OR ORDERED IN THE FIELD BY THE OWNER'S REPRESENTATIVE.**
- 2. ALL PIPE ON SLOPES GREATER THAN 30% SHALL BE DUCTILE IRON WITH FIELD LOK GASKETS.**
- 3. WHERE PIPES ARE INSTALLED ON STEEP GRADES, CONTRACTOR SHALL INSTALL CONCRETE THRUST BLOCKING AT THE BOTTOM OF THE PIPE RUN AT THE MANHOLE CONNECTION.**

Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		CONCRETE ANCHORS FOR PIPELINES
Not to scale	February 2025	Standard Detail SD-032



NOTE:

THESE PIERS SHALL BE CONSTRUCTED AT ALL LOCATIONS WHERE PIPE ALIGNMENT OR PROFILE PROHIBITS PIPE SUPPORT ON ORIGINAL UNDISTURBED GROUND. SPACING BETWEEN PIERS SHALL ACCOMODATE PIPE JOINTS UNLESS OTHERWISE SHOWN ON THE THE PLANS OR DIRECTED IN THE FIELD



EXAMPLE: $D=12"$
 $H=10'-0"$
 $L=12"+24+(2 \times 10)=56"$

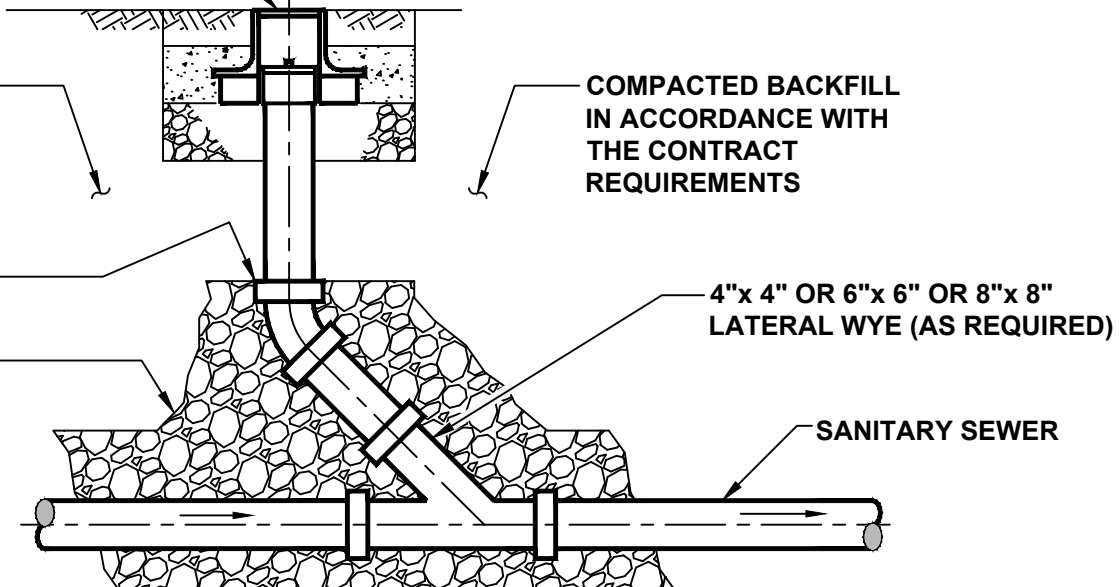
Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		PIPE SUPPORT PIERS FOR ALIGNEMENTS ABOVE ORIGINAL UNDISTURBED GROUND
Not to scale	February 2025	Standard Detail SD-033

TAMPER RESISTANT CAP
SEE 34-C & 34-D

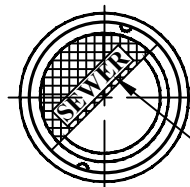
COMPACTED BACKFILL
IN ACCORDANCE WITH
THE CONTRACT
REQUIREMENTS

45° BEND

EXTEND PIPE BEDDING
MATERIAL TO TOP OF
45° BEND



IN-LINE CLEANOUT DETAIL A



LOCKING COVER
LETTERED- 'SEWER'

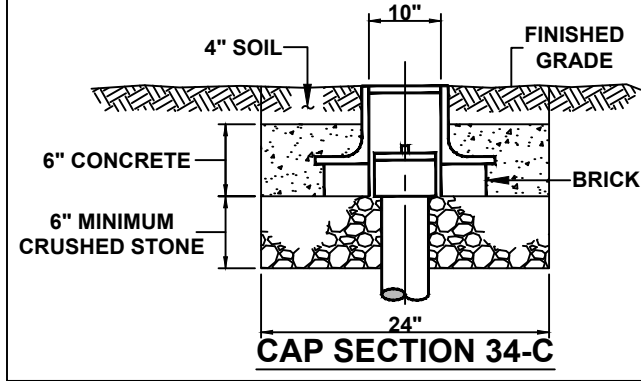
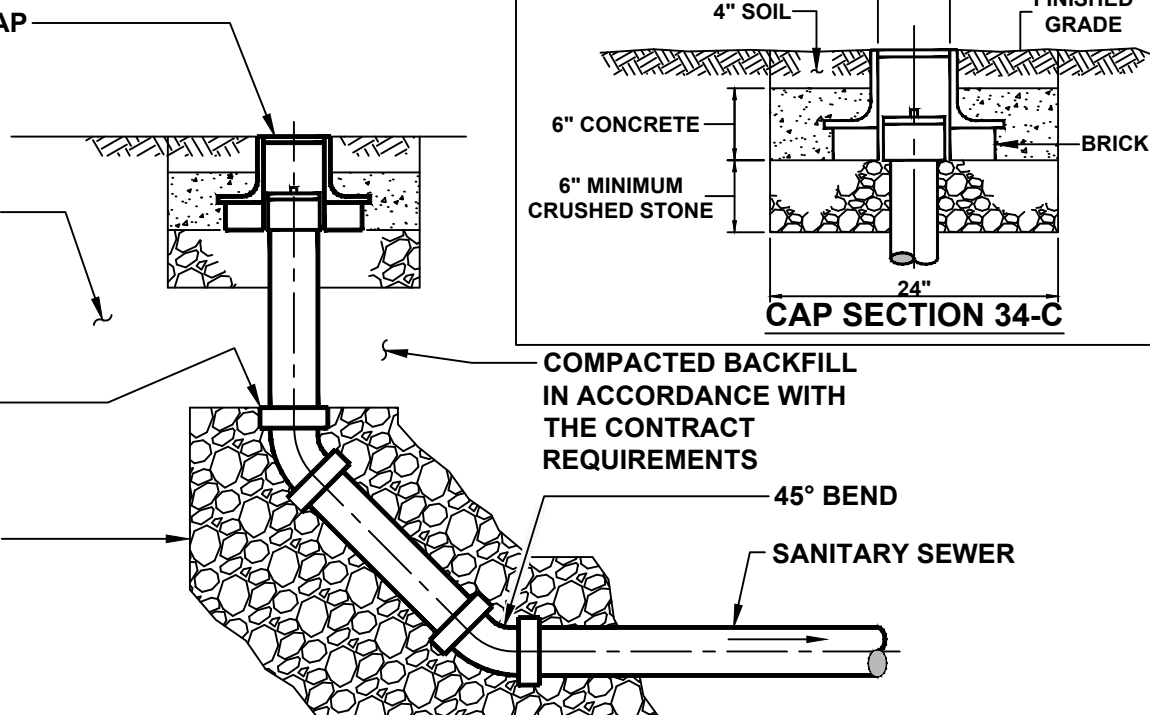
CAP COVER 34-D

TAMPER RESISTANT CAP
SEE 34-C & 34-D

COMPACTED BACKFILL
IN ACCORDANCE WITH
THE CONTRACT
REQUIREMENTS

45° BEND

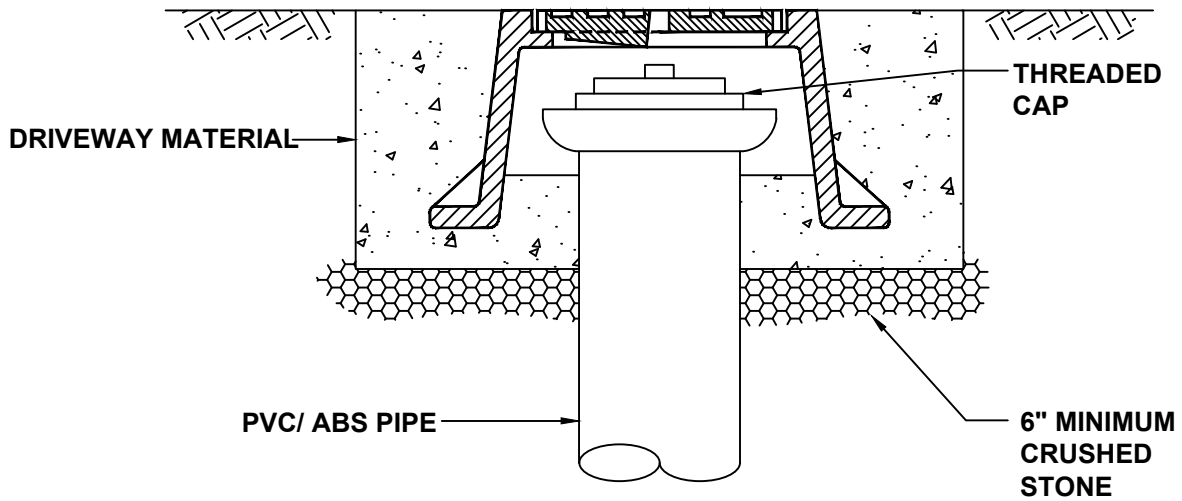
EXTEND PIPE BEDDING
MATERIAL TO TOP OF
45° BEND



CAP SECTION 34-C

END-LINE CLEANOUT DETAIL B

<p>Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017</p>		<p>MAIN LINE, IN-LINE, AND END LINE CLEANOUT FOR 6" AND 8" PVC SEWER</p>
<p>Not to scale</p>	<p>February 2025</p>	<p>Standard Detail SD-034</p>



**NOTE:
 FRAME & COVER SHALL BE VALVCO
 INC. #668 OR APPROVED EQUAL.**

Municipal Authority Of The Township Of South Fayette 700 Holland Street Bridgeville, Pa 15017		LATERAL SITE TEE/ CLEANOUT IN PAVED AREAS
Not to scale	February 2025	Standard Detail SD-035