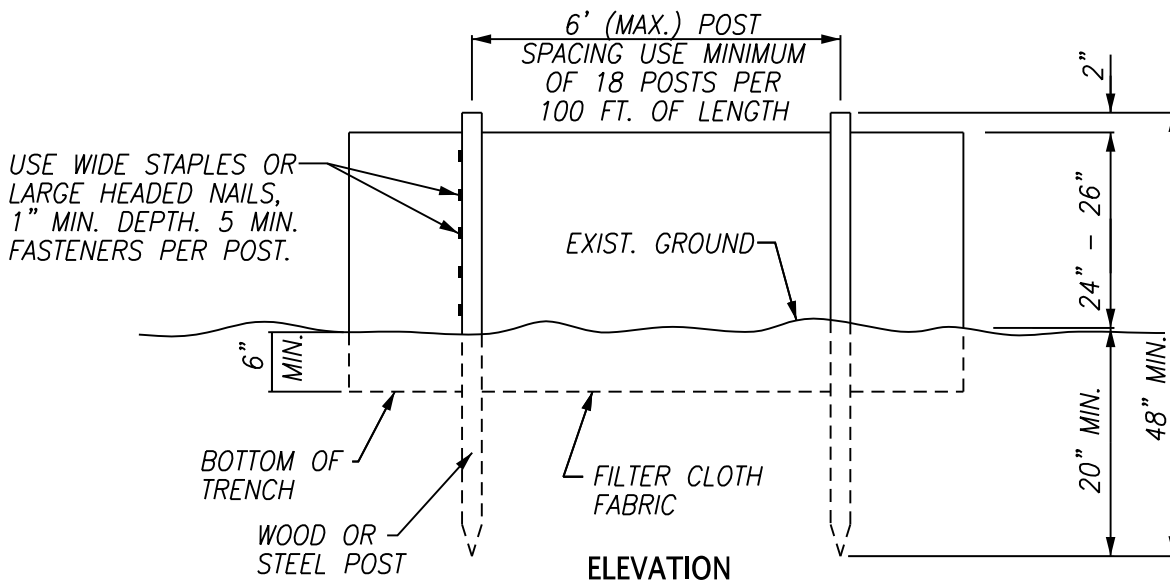
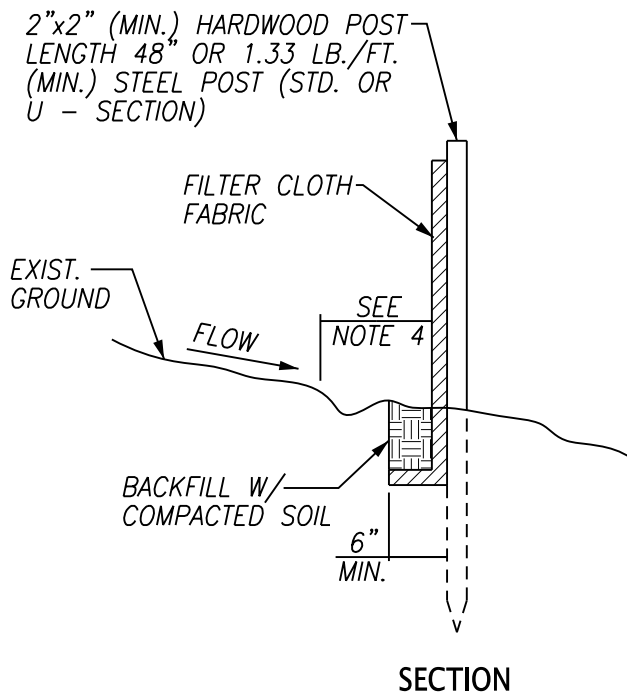




NOTES:

1. SILT FENCE SHALL BE PRE-ASSEMBLED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.
2. SILT FENCE SHALL HAVE AN APPROVED BACKING OR A BUILT-IN REINFORCED STRUCTURE AS RECOMMENDED BY THE MANUFACTURER TO SUPPORT THE GEOTEXTILE FABRIC.
3. ONCE PERMANENT VEGETATION IS ESTABLISHED, REMOVE THE SILT FENCE, BACKFILL TRENCH WITH TOPSOIL, AND APPLY SEED AND MULCH TO ALL DISTURBED AREAS. LEGALLY DISPOSE OF REMOVED FENCE OFF-SITE.
4. PLACE SILT FENCE AT LEAST 5 TO 7 FEET AWAY FROM STEEP OR LONG SLOPES TO IMPOUND STORMWATER RUNOFF.
5. POST SPACING SHALL BE 4 FEET MAXIMUM WITHIN A DRAINAGE CHANNEL.
6. TURN LAST 7 TO 10 FEET OF SILT FENCE UPHILL.



2328 LOVELL ROAD
KNOXVILLE, TN 37932
TELEPHONE 865.690.2521

APPROVED BY:

WKUD

DRAWN BY:

ARDURRA

Scale:

NTS

Date: 04/22/24

SILT FENCE

DRAWING NUMBER:

G1

1/2" x 5" DIA
STEEL PLATE
DRILL FOR
PIPE SADDLE

WELD

PIPE SADDLE, SELECT
TO FIT PIPE/FITTING
TO BE SUPPORTED

4" DIA STEEL PIPE
(ADJUST HEIGHT AS
REQUIRED- MAX. 3
FEET)

BASE PLATE
7"x7"x3/8"
W/(4) 3/4" DIA SS
EXPANSION BOLTS

1" GROUT (MIN)



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KNOXVILLE, TN 37932
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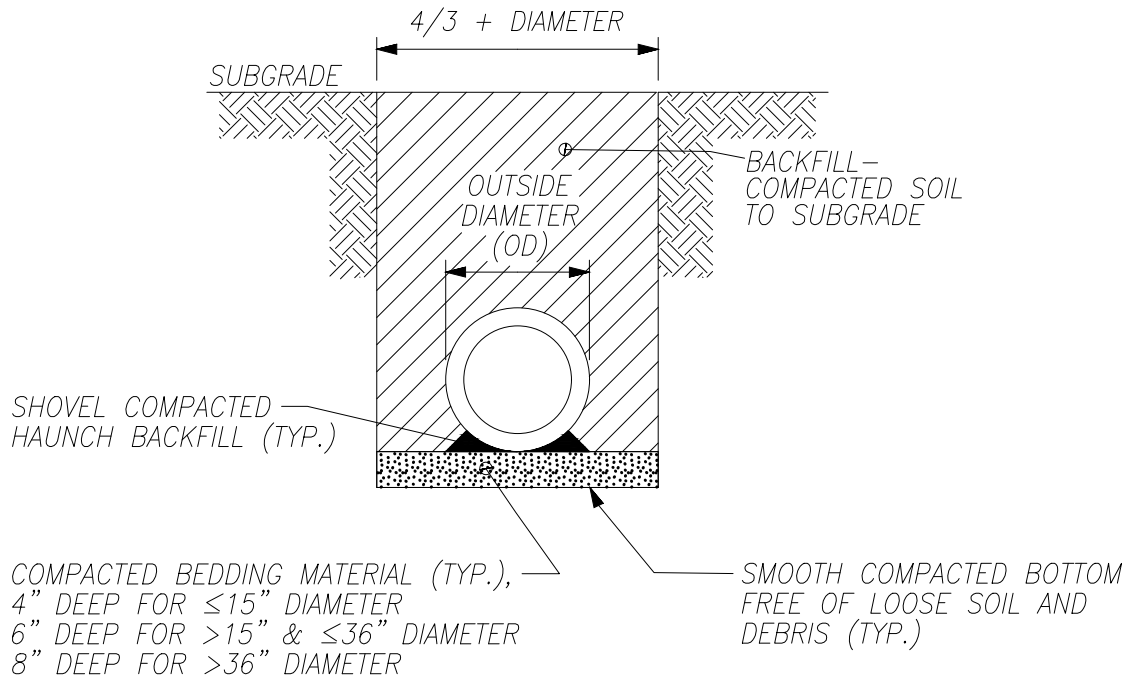
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PIPE SUPPORT DETAIL

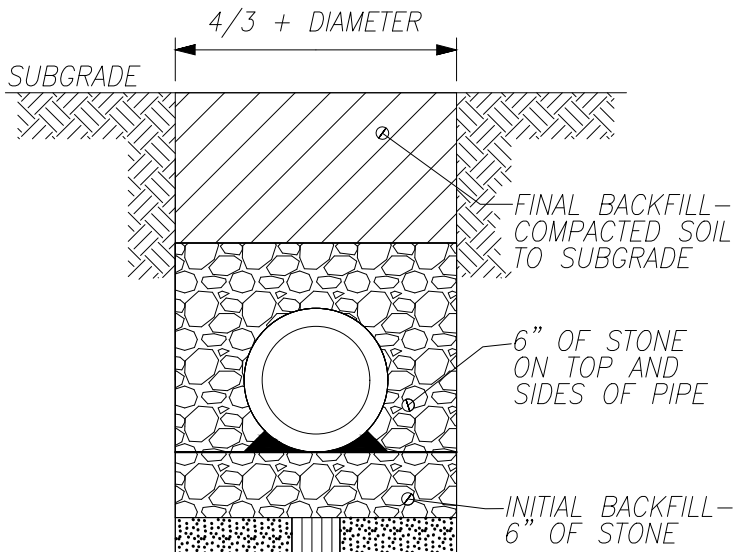
Date: 04/22/24

DRAWING NUMBER:
G2

BACKFILL FOR SEWER FORCE MAINS AND WATER LINES



BACKFILL FOR GRAVITY SEWER LINES



NOTES:

1. TRENCH DESIGN AND SAFETY FOR PIPELINE CONSTRUCTION IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL CONFORM WITH ALL APPLICABLE LOCAL, STATE, AND OSHA REGULATIONS.
2. FOR GRAVITY SEWER, BEDDING MATERIAL AND BACKFILL MATERIAL SHALL BE #57 OR #67 STONE UP TO 6" ABOVE THE PIPE.
3. REGARDLESS OF BACKFILL MATERIAL OR PIPE MATERIAL, PLACE BACKFILL IN 8" LOOSE LIFTS AND COMPACT STONE TO 100% OF THE STANDARD PROCTOR DENSITY AT 2% LESS THAN THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY AASHTO T99 METHOD D. INITIAL BACKFILL SHALL BE #57 OR #67 STONE FOR GRAVITY SEWER ONLY.



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TELEPHONE 865.690.2521

APPROVED BY: WKUD

DRAWN BY:

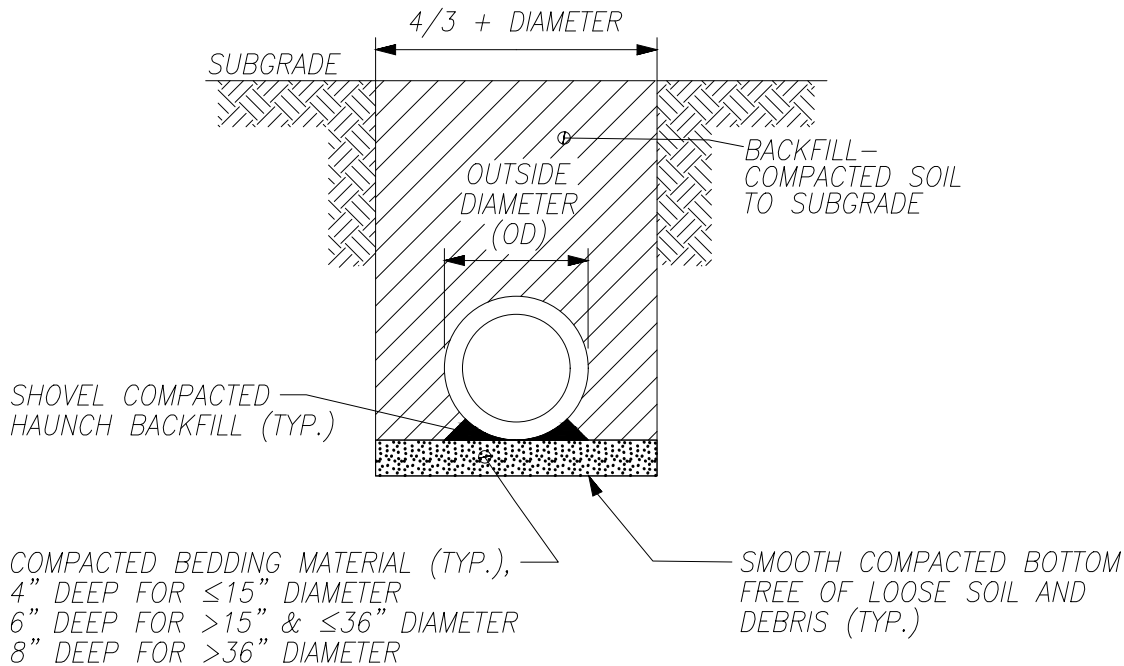
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**PIPE BEDDING AND
BACKFILL FOR SOIL
EXCAVATION**

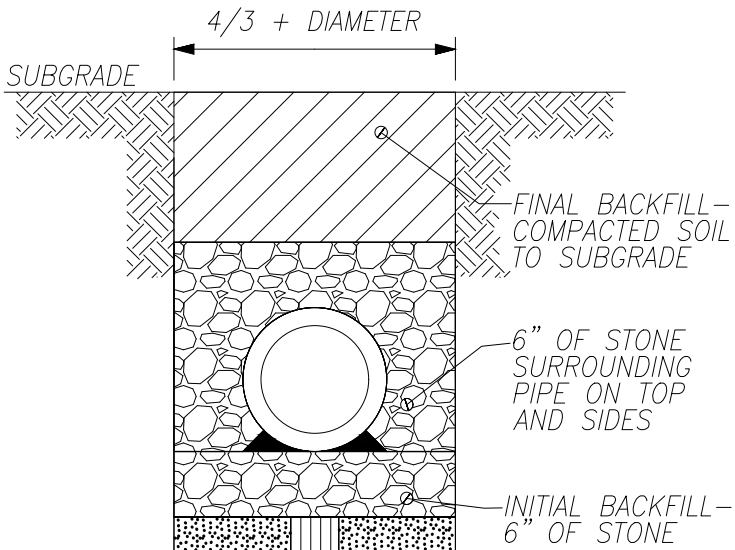
Date: 07/22/26

DRAWING NUMBER:
G3.1

BACKFILL FOR SEWER FORCE MAINS AND WATER LINES



BACKFILL FOR GRAVITY SEWER LINES



NOTES:

1. TRENCH DESIGN AND SAFETY FOR PIPELINE CONSTRUCTION IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL CONFORM WITH ALL APPLICABLE LOCAL, STATE, AND OSHA REGULATIONS.
2. ROCK MUST BE EXCAVATED SO THAT THE RESULTING TRENCH HAS A MINIMUM WIDTH EQUAL TO $4/3 +$ PIPE DIAMETER.
3. FOR GRAVITY SEWER, BEDDING MATERIAL AND BACKFILL MATERIAL SHALL BE #57 OR #67 STONE UP TO 6" ABOVE THE PIPE.
4. REGARDLESS OF BACKFILL MATERIAL OR PIPE MATERIAL, PLACE BACKFILL IN 8" LOOSE LIFTS AND COMPACT STONE TO 100% OF THE STANDARD PROCTOR DENSITY AT 2% LESS THAN THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY AASHTO T99 METHOD D. INITIAL BACKFILL SHALL BE #57 OR #67 STONE FOR GRAVITY SEWER ONLY.



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DRAWN BY:

Scale: NTS

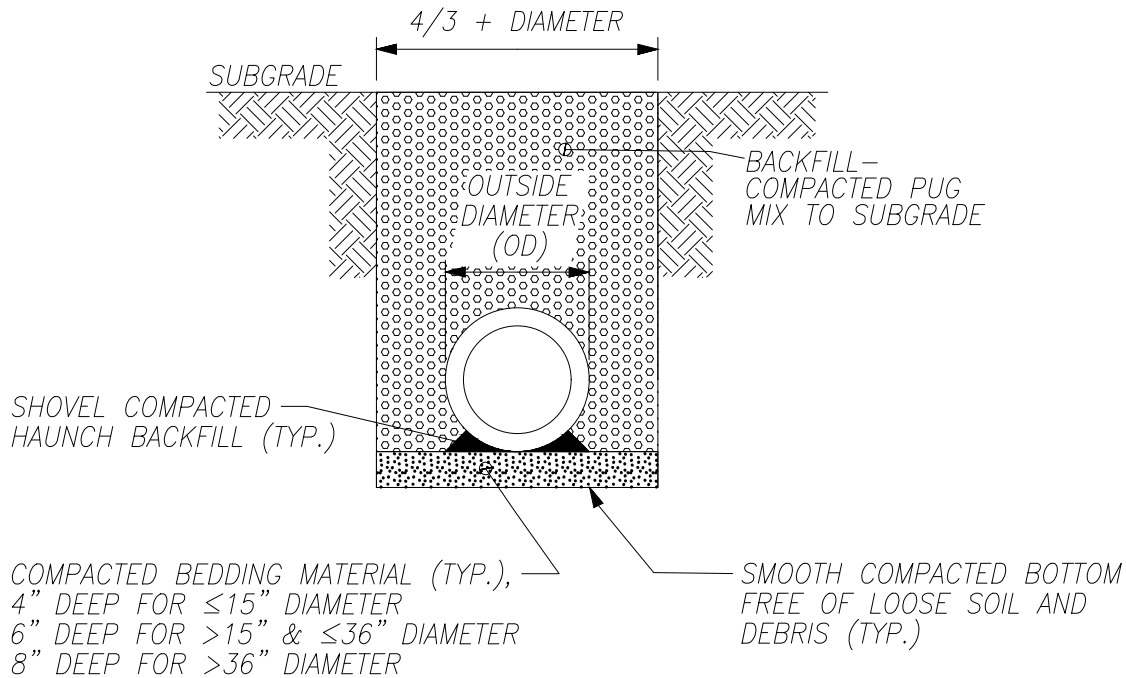
**PIPE BEDDING AND
BACKFILL FOR ROCK
EXCAVATION**

Date: 07/22/26

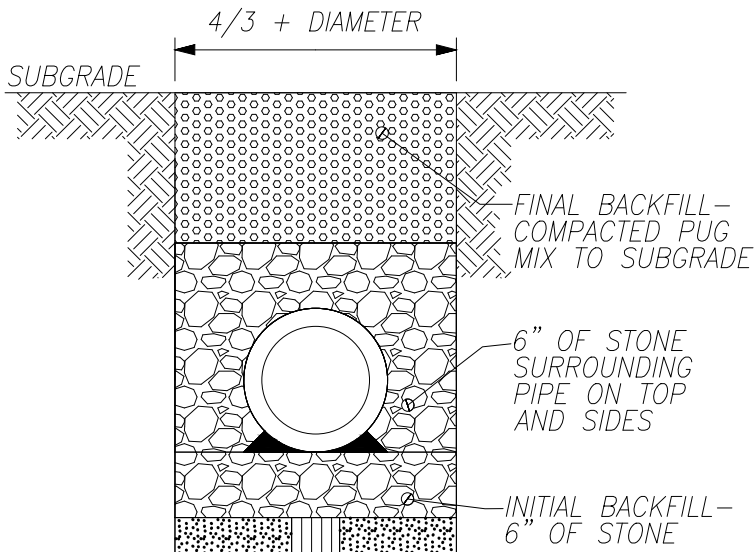
DRAWING NUMBER:

G3.2

BACKFILL FOR SEWER FORCE MAINS AND WATER LINES



BACKFILL FOR GRAVITY SEWER LINES



NOTES:

1. TRENCH DESIGN AND SAFETY FOR PIPELINE CONSTRUCTION IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL CONFORM WITH ALL APPLICABLE LOCAL, STATE, AND OSHA REGULATIONS.
2. FOR GRAVITY SEWER, BEDDING MATERIAL AND BACKFILL MATERIAL SHALL BE #57 OR #67 STONE UP TO 6" ABOVE THE PIPE.
3. REGARDLESS OF BACKFILL MATERIAL OR PIPE MATERIAL, PLACE BACKFILL IN 8" LOOSE LIFTS AND COMPACT STONE TO 100% OF THE STANDARD PROCTOR DENSITY AT 2% LESS THAN THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY AASHTO T99 METHOD D. INITIAL BACKFILL SHALL BE #57 OR #67 STONE FOR GRAVITY SEWER ONLY.
4. FINAL BACKFILL SHALL BE PUG MIX UNDER PAVEMENTS & WITHIN 3' OF PAVEMENT FOR ALL PIPE.
5. FINAL BACKFILL BEYOND 3' OF PAVEMENT SHALL BE COMPACTED SOIL BACKFILL.



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KNOXVILLE, TN 37932
TELEPHONE 865.690.2521

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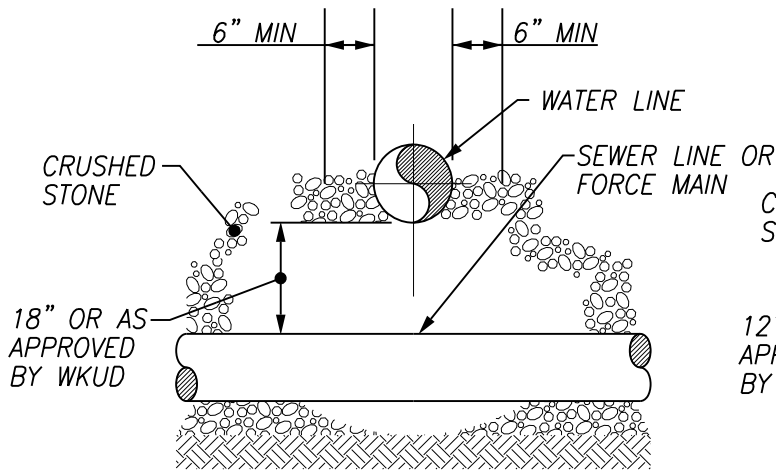
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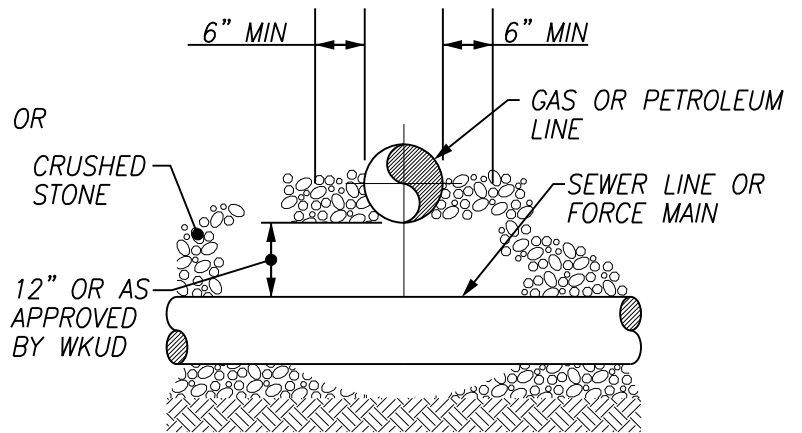
**PIPE BEDDING AND
BACKFILL FOR PAVEMENT
EXCAVATION**

Date: 07/22/26

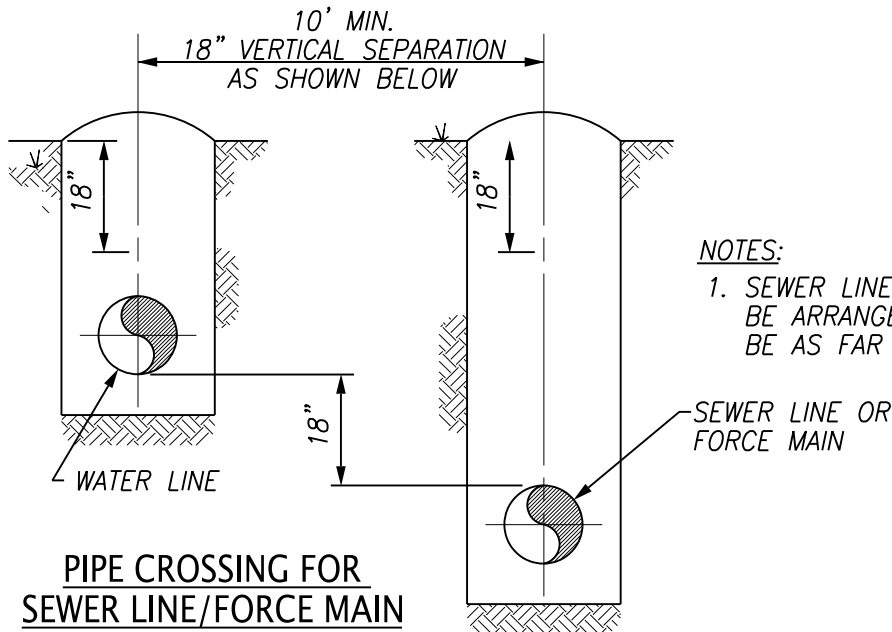
DRAWING NUMBER:
G3.3



SEWER LINE/FORCE MAIN
UNDER WATER LINE



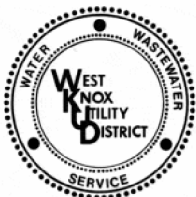
SEWER LINE/FORCE MAIN UNDER
GAS TRANSMISSION LINE



PIPE CROSSING FOR
SEWER LINE/FORCE MAIN

NOTES:

1. SEWER LINES AT WATER MAIN CROSSING SHALL BE ARRANGED SO THAT THE SEWER JOINTS WILL BE AS FAR AS POSSIBLE FROM WATER MAIN JOINTS



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TELEPHONE 865.690.2521

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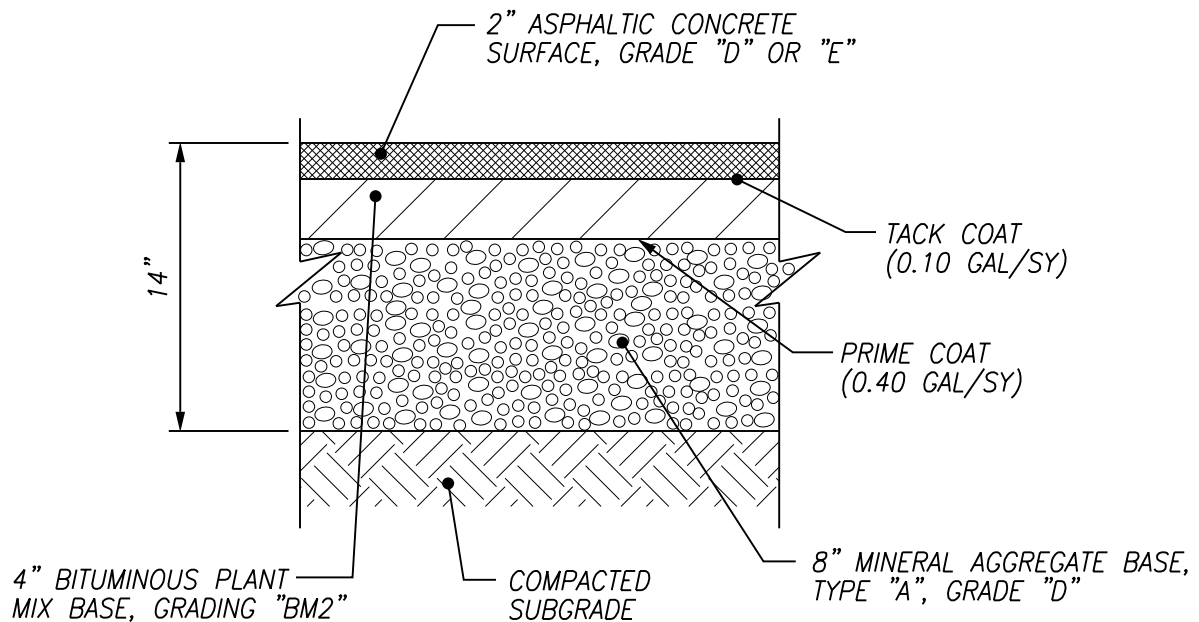
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Date: 04/22/24

PIPE SEPARATION

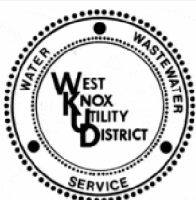
DRAWING NUMBER:

G4



NOTES:

1. PAVEMENT HAS NOT BEEN DESIGNED FOR CONSTRUCTION TRAFFIC/ACTIVITIES. USE OF THESE SURFACES FOR CONSTRUCTION ACTIVITIES SHALL BE DONE AT THE CONTRACTOR'S CONVENIENCE AND RISK. DAMAGE TO PAVEMENT RESULTING FROM THESE ACTIVITIES SHALL BE REPAIRED IN CONFORMANCE WITH THE INITIAL PAVEMENT SPECIFICATIONS.



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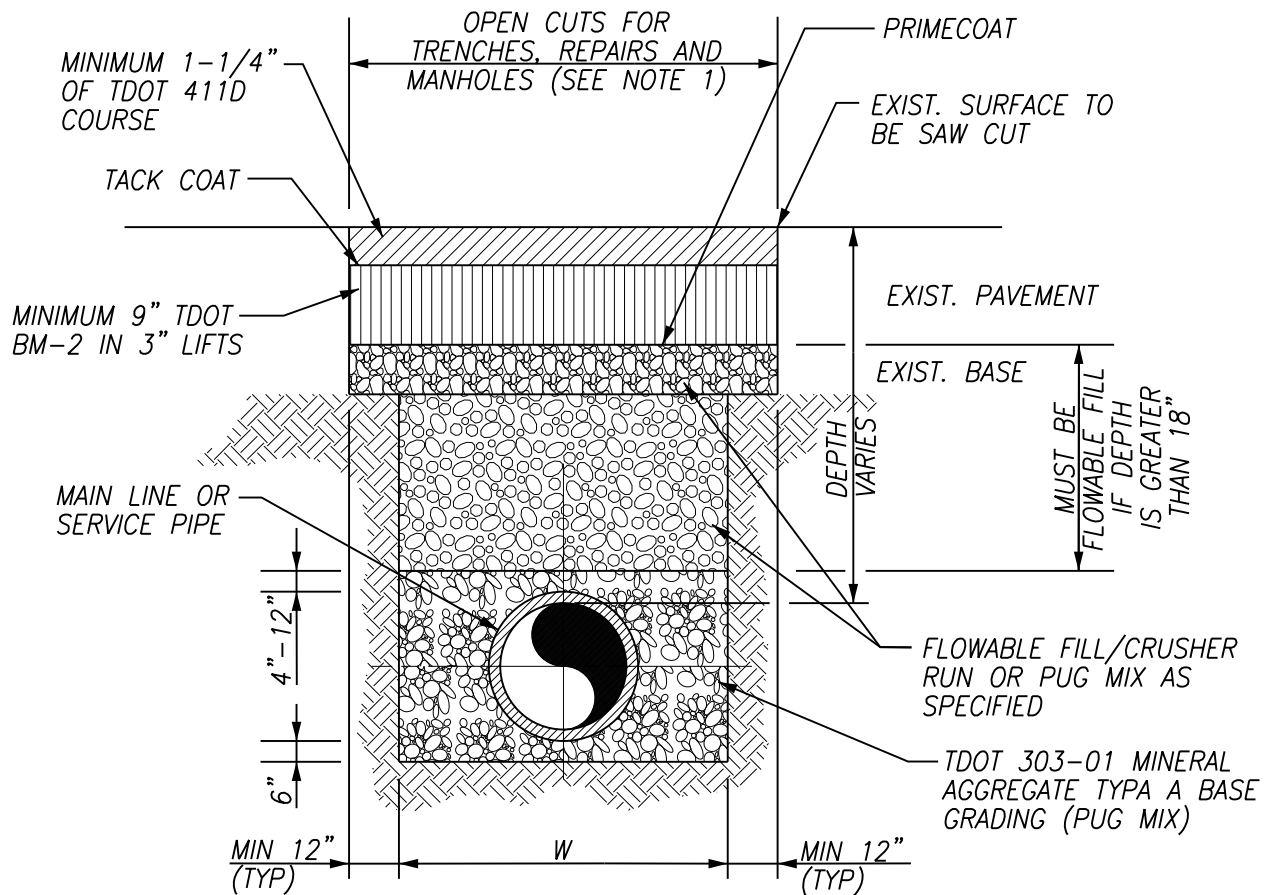
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ASPHALT PAVEMENT SECTION
(KNOX COUNTY ROADWAYS)

Date: 04/22/24

DRAWING NUMBER:

G5



NOTES:

1. AT THE DISCRETION OF THE OWNER, WHEN TRENCH PARALLELS CENTERLINE OF ROADWAY AND WIDTH IS EQUAL TO OR GREATER THAN HALF THE LANE WIDTH, THEN THE PAVEMENT WIDTH FOR THE SURFACE COURSE SHALL BE FOR AN OVERLAY OF THE ROADWAY ENTIRE LANE WIDTH.
2. PAVEMENT REPAIRS/REPLACEMENT SHALL BE THERMALLY BONDED WITH THE EXISTING ASPHALT EDGES.
3. EDGE TO BE SAWED WITH CONCRETE SAW TO A NEAT SQUARED EDGE. BROOM CLEANED BEFORE TACK COAT APPLIED.
4. EDGES TO BE TACKED WITH CRS-1 OR CRS-2.
5. CONTRACTOR/UTILITY RESPONSIBLE FOR REPLACEMENT OF ANY PAVEMENT MARKINGS DISTURBED OR COVERED BY OVERLAY.
6. TO BE REPAIRED IN ACCORDANCE WITH TDOT RULES AND REGULATIONS FOR ACCOMMODATING UTILITIES WITHIN HIGHWAY RIGHTS-OF-WAY, APPENDIX 8.



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TELEPHONE 865.690.2521

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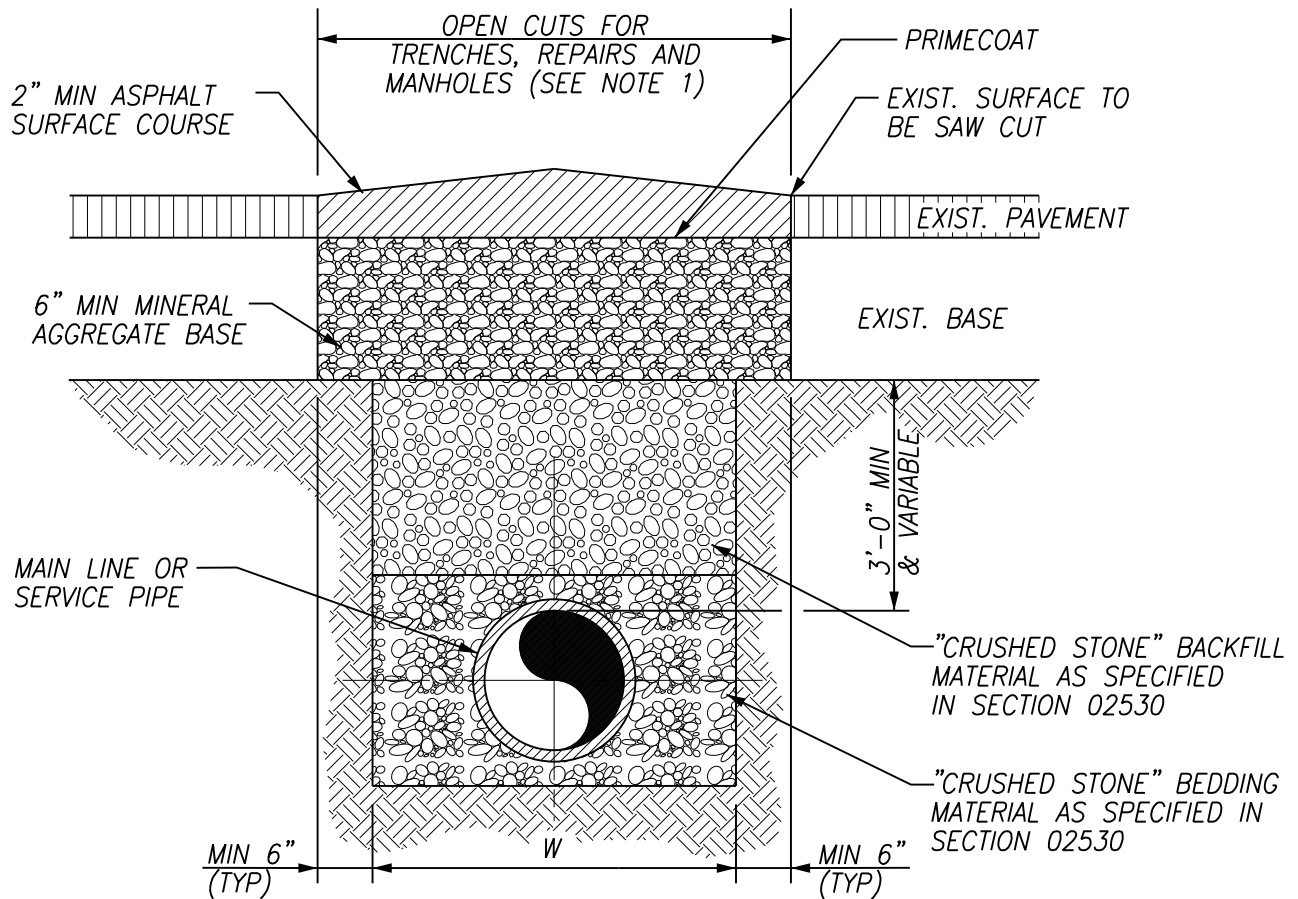
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**TYPICAL ASPHALT PAVEMENT
REPLACEMENT TYPE "I"
STATE HIGHWAYS**

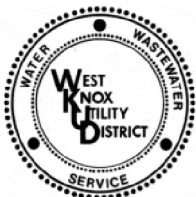
Date: 04/22/24

DRAWING NUMBER:
G6.1



NOTES:

1. AT THE DISCRETION OF THE OWNER, WHEN TRENCH PARALLELS CENTERLINE OF ROADWAY AND WIDTH IS EQUAL TO OR GREATER THAN HALF THE LANE OR ROADWIDTH WIDTH, THEN THE PAVEMENT WIDTH SHALL BE FOR AN OVERLAY OF THE ENTIRE LANE OR ROADWAY WIDTH.
2. PAVEMENT REPAIRS/REPLACEMENT SHALL BE THERMALLY BONDED WITH THE EXISITNG ASPHALT EDGES.



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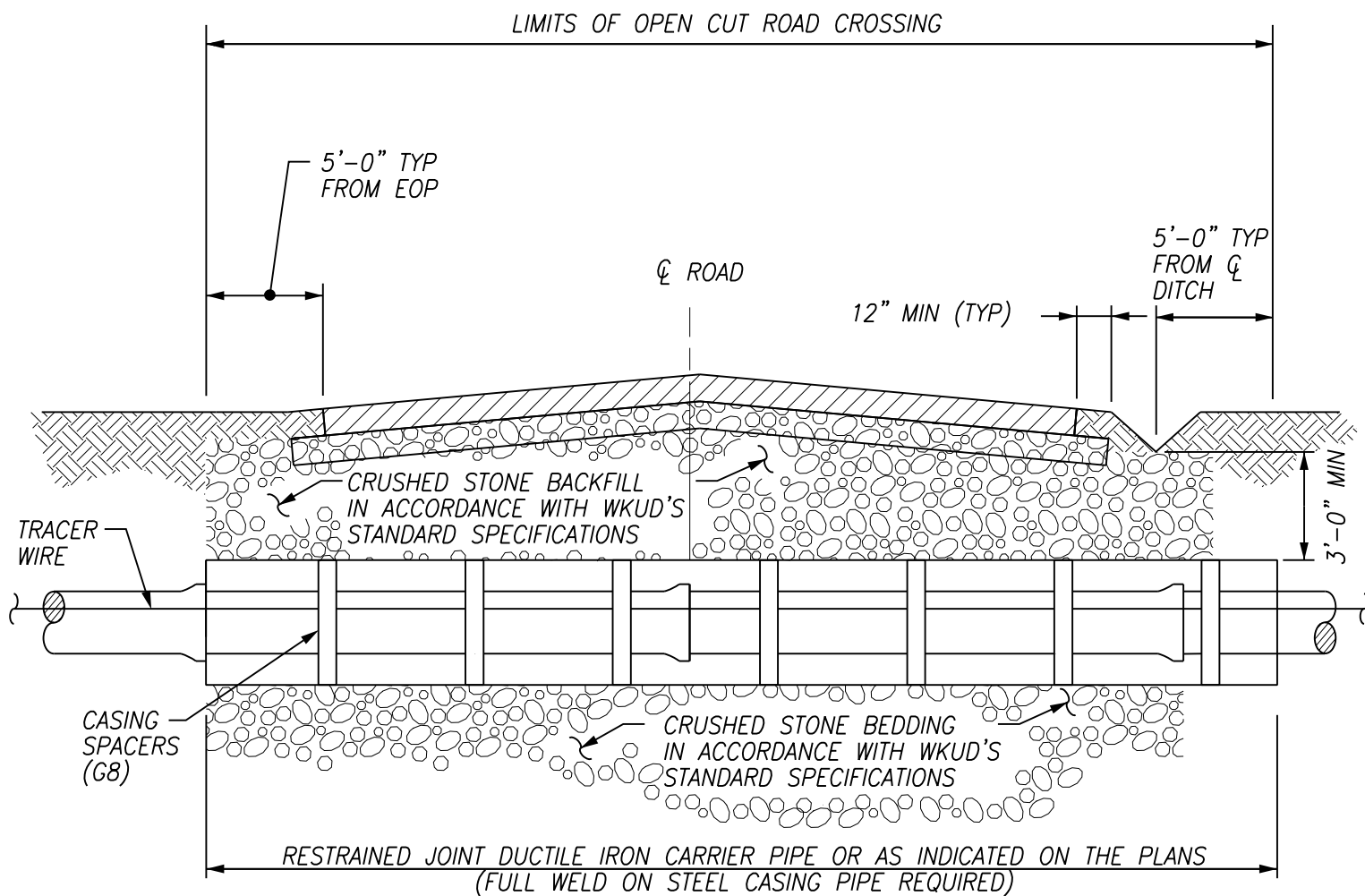
DRAWN BY: ARDURRA

Scale: NTS

TYPICAL ASPHALT PAVEMENT
REPLACEMENT TYPE "II"
OPEN CUT PARKING AREAS
& DRIVEWAY CROSSING

Date: 04/22/24

DRAWING NUMBER:
G6.2



SECTION

NOTES:

1. ALL PIPING WITHIN THE LIMITS OF THE OPEN CUT ROAD CROSSING SHALL BE DIP TO MATCH THE SIZE OF PIPING SHOWN ON THE PLANS.



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KNOXVILLE, TN 37932
TELEPHONE 865.690.2521

APPROVED BY:

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ARDURRA

Scale:

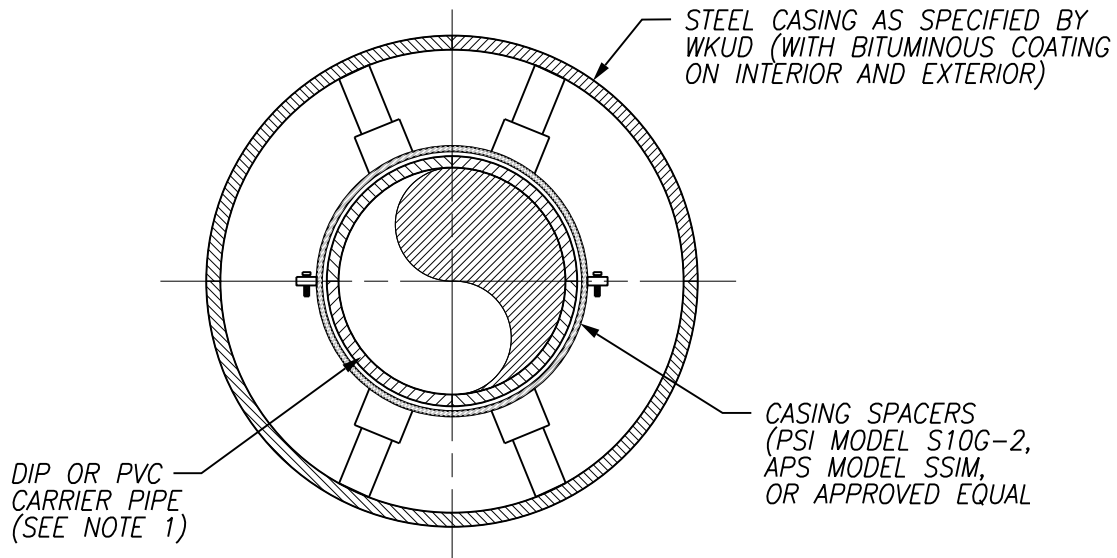
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Date: 04/22/24

DRAWING NUMBER:

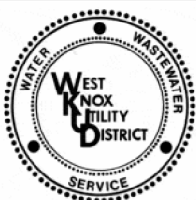
G7

TYPICAL OPEN CUT
ROAD CROSSING



NOTES:

1. CARRIER PIPE SHALL BE CLASS 350 DUCTILE IRON PIPE (WATER) OR RJB CERTA-LOK DR18 PRESSURE PIPE (235 PSI) (SEWER).
2. INSTALL CASING SPACERS IN STRICT COMPLIANCE WITH THE WRITTEN MANUFACTURER'S INSTRUCTIONS.
3. PROVIDE CASING END SEALS IN ACCORDANCE WITH WKUD REQUIREMENTS.
4. CONTRACTOR TO CONFIRM THAT ALL CASING SPACERS WILL FIT INSIDE OF SPECIFIED STEEL CASING AS SHOWN ON THE PLANS PRIOR TO ORDERING MATERIALS.
5. TRACER WIRE SHALL BE INSTALLED WITH CASING PIPE.
6. SPACERS SHALL BE SPACED EVENLY AT NO GREATER THAN 6 FEET APART
7. ENDS OF CASING PIPES MUST BE FULLY ROUND TO ALLOW CONTINUOUS WELDS FOR SMOOTH INSTALLATION OF CASING SPACERS.



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TELEPHONE 865.690.2521

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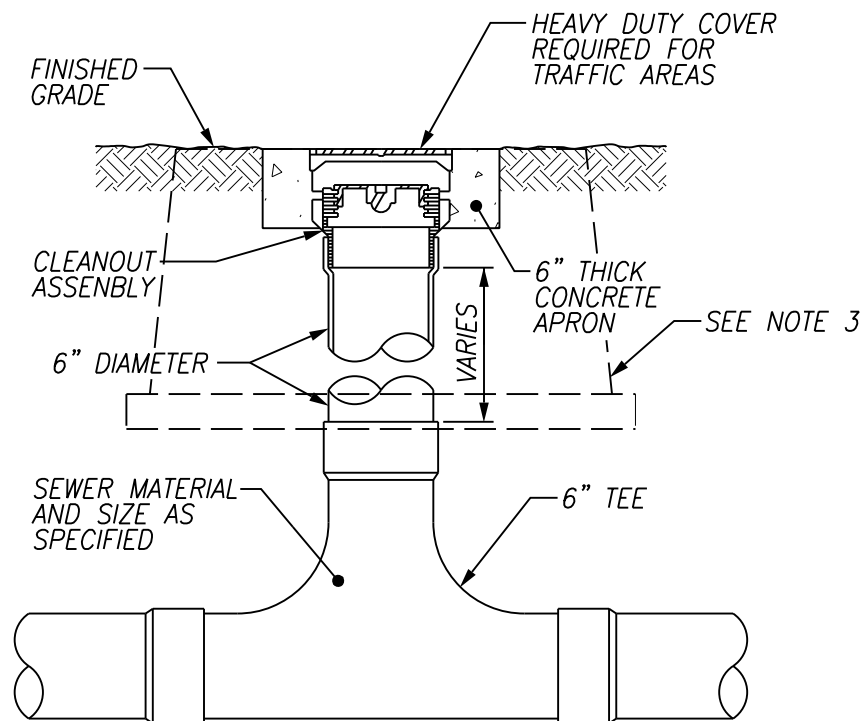
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CASING AND SPACER DETAIL

Date: 04/22/24

DRAWING NUMBER:

G8



NOTES:

1. TRAFFIC RATED CLEANOUTS ARE REQUIRED FOR CLEANOUTS LOCATED WITHIN PAVEMENT, ROADWAYS, DRIVEWAYS OR ANY OTHER AREAS DEEMED NECESSARY BY THE OWNER OR OWNER'S REPRESENTATIVE.
2. PROVIDE CONCRETE APRON AROUND CLEANOUT AS SHOWN IN GRAVEL AREAS ONLY.
3. PROVIDE PLASTIC UTILITY BOX WITH LID MARKED "SEWER" FOR CLEANOUTS IN GRASS AREAS. UTILITY BOX SHALL BE MODEL DFW1300.12.4E AS MANUFACTURED BY "DWF PLASTICS, INC." OR APPROVED EQUAL.



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APPROVED BY:

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Scale:

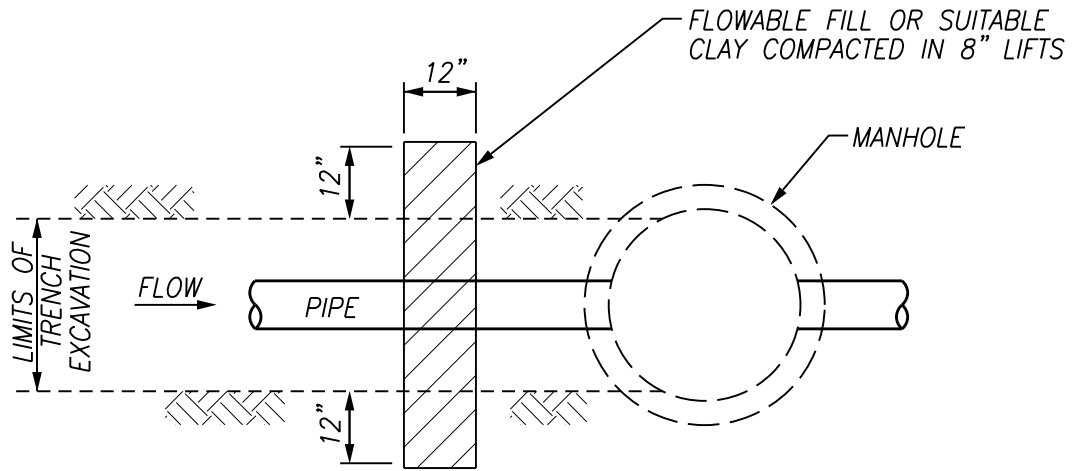
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**2 WAY CLEANOUT
DETAIL**

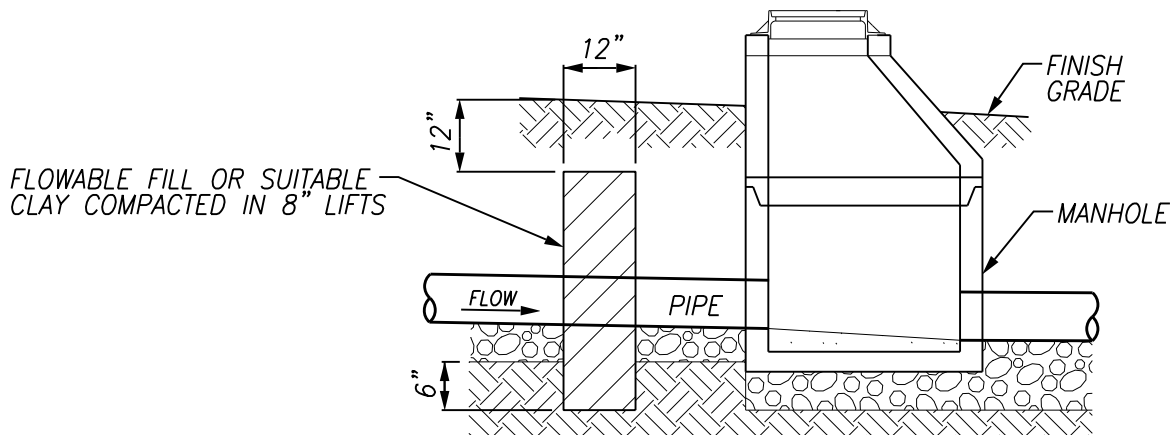
Date: 04/22/24

DRAWING NUMBER:

S1



PLAN



SECTION



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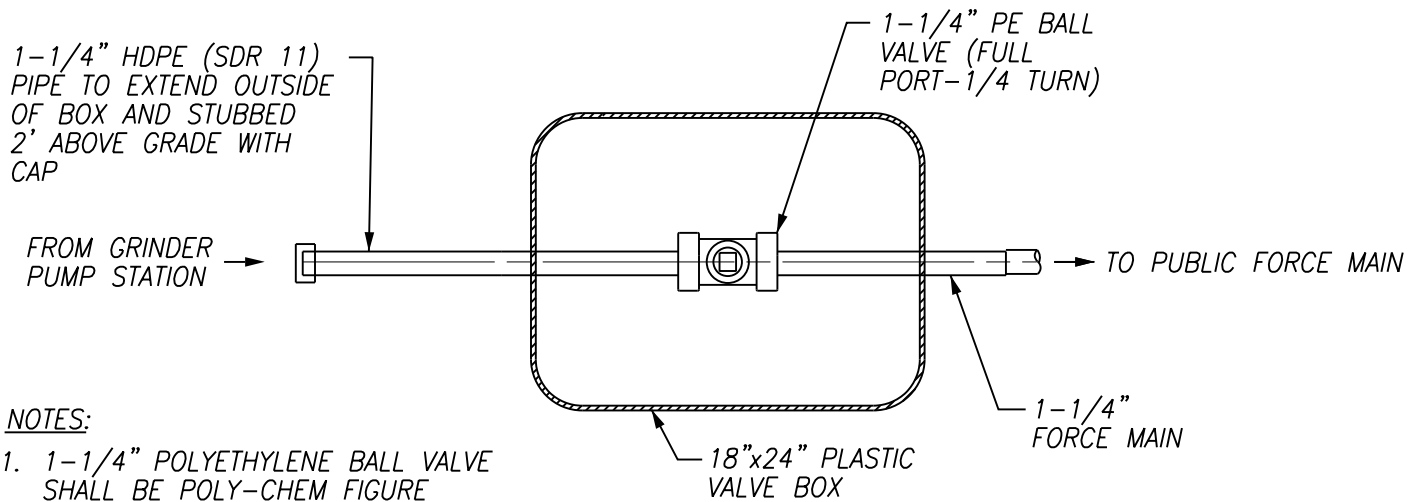
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Date: 04/22/24

SANITARY SEWER WATERSTOP

DRAWING NUMBER:

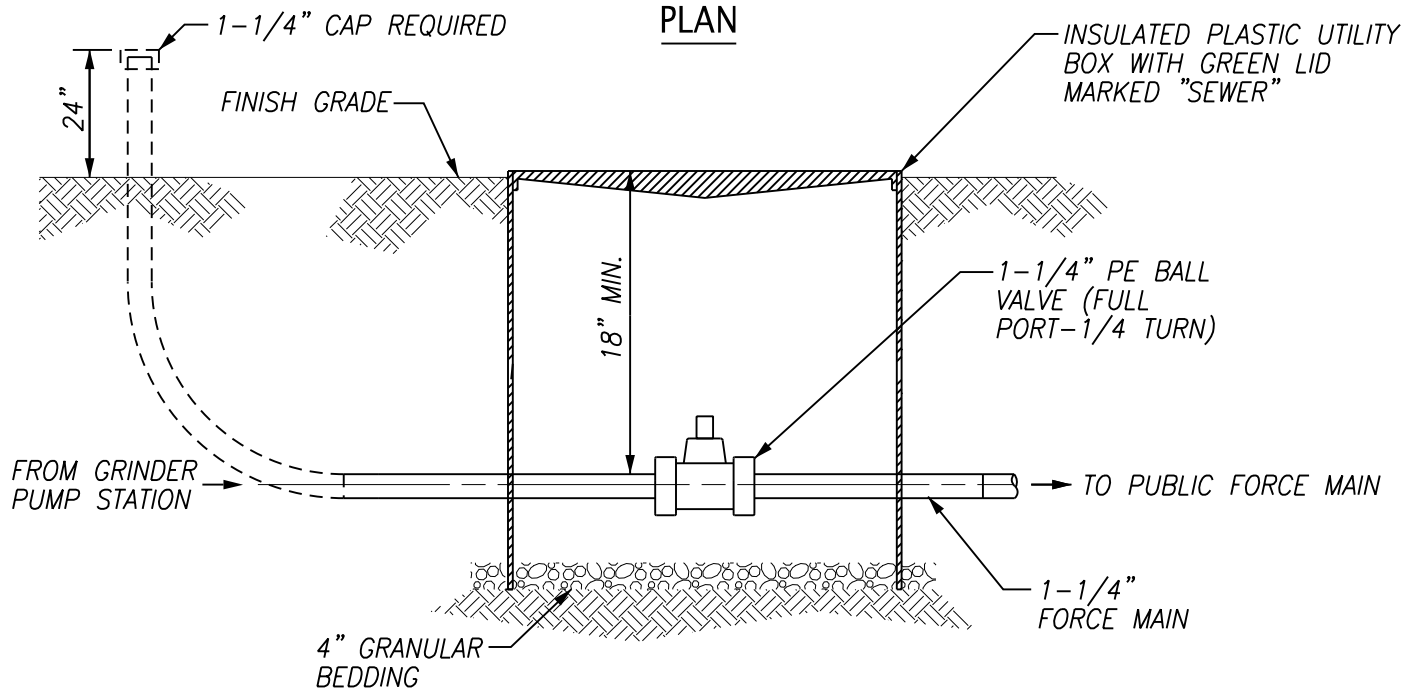
S2



NOTES:

1. 1-1/4" POLYETHYLENE BALL VALVE SHALL BE POLY-CHEM FIGURE 1.25-99111-C AS MANUFACTURED BY "POLYVALVE".

PLAN



SECTION

NOTES:

1. THE PURPOSE OF STUBBING THE 1 1/4-INCH FORCE MAIN OUT OF THE GROUND IS FOR THE HOME BUILDER'S ABILITY TO EASILY FIND AND GAIN ACCESS TO THE SERVICE LATERAL. IT IS INTENDED THAT THE HOME BUILDER SHALL REMOVE THE DASHED PORTION OF THE 1 1/4-INCH FORCE MAIN AND CONNECT THE BUILDING SEWER AT THE LOCATION OUTSIDE OF THE UTILITY BOX.



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TELEPHONE 865.690.2521

APPROVED BY:

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Scale:

NTS

**LOW PRESSURE SEWER
SERVICE BOX**

Date: 04/22/24

DRAWING NUMBER:

S3

INSULATED PLASTIC UTILITY
BOX WITH GREEN LID
MARKED "SEWER"

2" PE BALL VALVE
(FULL PORT-1/4 TURN)
WITH 2" OPERATOR
NUT AND VALVE BOX

FLOW

2" HDPE LOW
PRESSURE
FORCE MAIN

INSULATED PLASTIC UTILITY
BOX WITH GREEN LID
MARKED "SEWER"

PLAN

2" FEMALE CAMLOCK
DUST CAP (HDPE)

FINISH GRADE

2" FEMALE NPT x
2" MALE CAMLOCK
(HDPE)

2" PE BALL VALVE
(FULL PORT-1/4 TURN)

VALVE
BOX

2" PE BALL VALVE
(FULL PORT-1/4 TURN)
WITH 2" OPERATOR NUT

CRUSHED STONE

(2) 2"
45°
BENDS

2" HDPE LOW
PRESSURE
FORCE MAIN

FLOW

NOTES:

1. UTILITY BOXES TO BE LOCATED OUTSIDE OF PAVEMENT.
2. 2" POLYETHYLENE BALL VALVE SHALL BE POLY-CHEM FIGURE 2-99111-C AS MANUFACTURED BY "POLYVALVE".

THRUST
BLOCKS

SECTION

CONCRETE
SUPPORT
BLOCK



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TELEPHONE 865.690.2521

APPROVED BY:

WKUD

DRAWN BY:

ARDURRA

Scale:

NTS

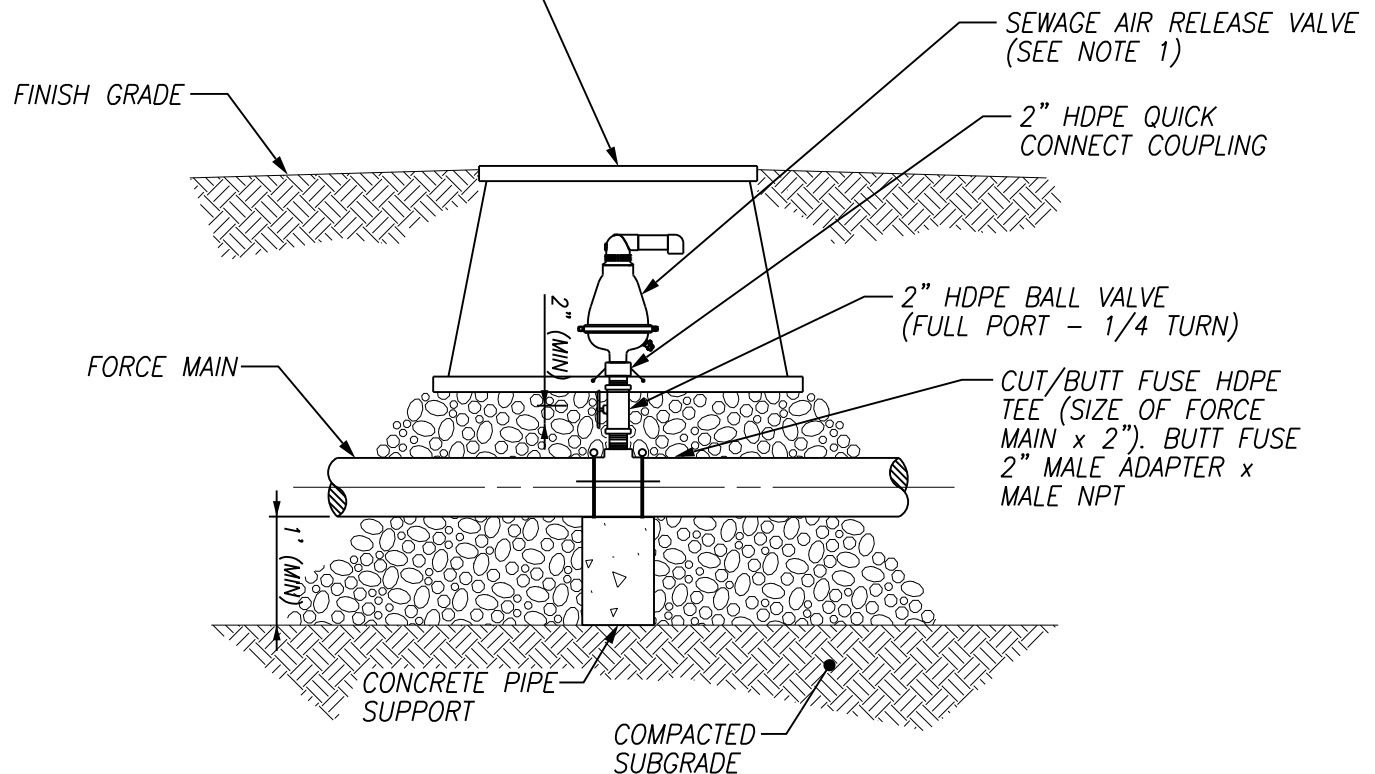
Date: 04/22/24

LOW PRESSURE END-OF-LINE
FLUSHING STATION

DRAWING NUMBER:

S5

MODEL 1730 XLUB SUPERFLEXON
IRRIGATION TURF BOX AS
MANUFACTURED BY "HIGHLINE
PRODUCTS" WITH GREEN LID



NOTES:

1. SARV SHALL BE 2-INCH D-025 COMBINATION SEWAGE AIR VACUUM VALVE AS MANUFACTURED BY A.R.I. OR APPROVED EQUAL.



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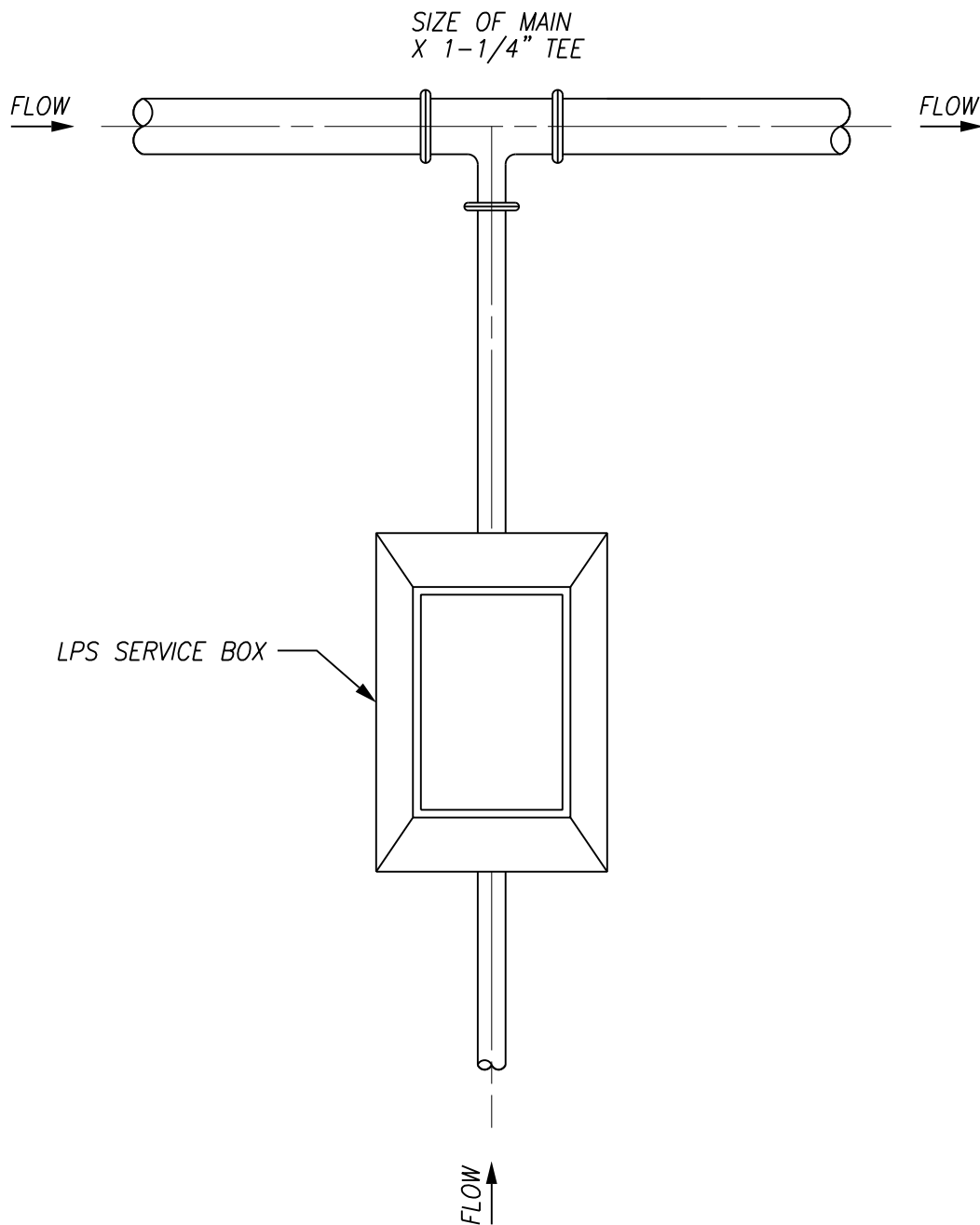
DRAWN BY: ARDURRA

Scale: NTS

LOW PRESSURE SEWER
AIR RELEASE VALVE

Date: 04/22/24

DRAWING NUMBER:
S6



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APPROVED BY:

WKUD

DRAWN BY:

ARDURRA

Scale:

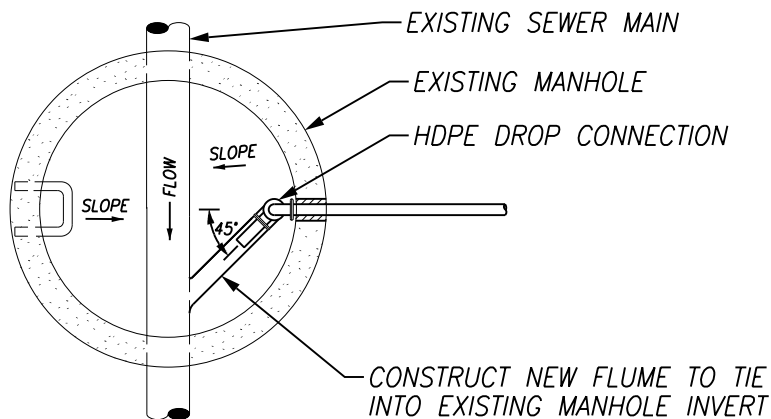
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**LOW PRESSURE SERVICE
LATERAL TO MAIN**

Date: 04/22/24

DRAWING NUMBER:

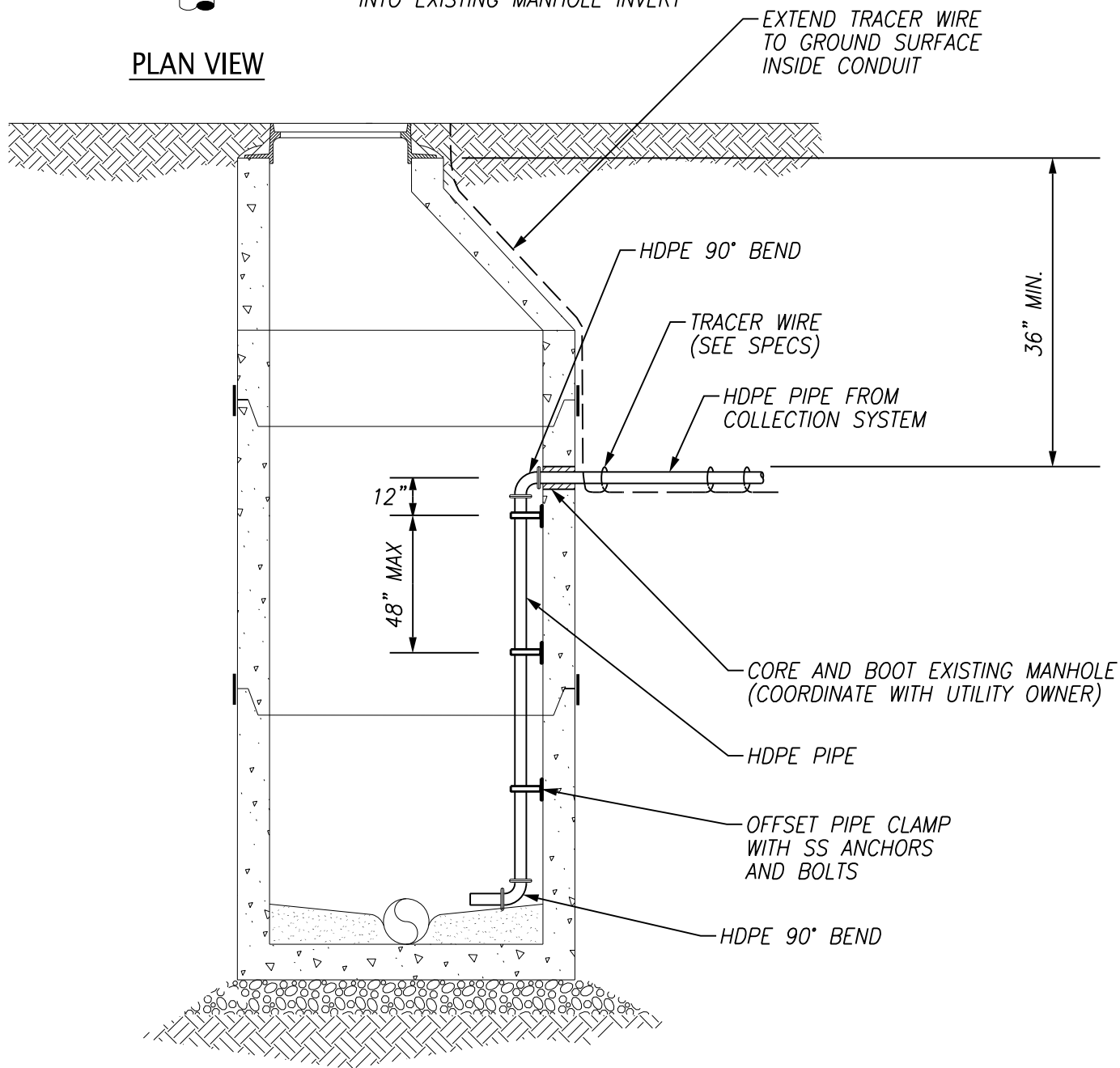
S7



PLAN VIEW

NOTE:

CONNECTION OF LOW PRESSURE SEWER SYSTEM TO GRAVITY SEWER REQUIRES THE APPLICATION OF OBIC MANHOLE COATING AT TIE-IN MANHOLE AND NEXT TWO MANHOLES DOWNSTREAM. APPLICATION TO BE PROVIDED BY A MANUFACTURER-CERTIFIED CONTRACTOR.



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Scale:

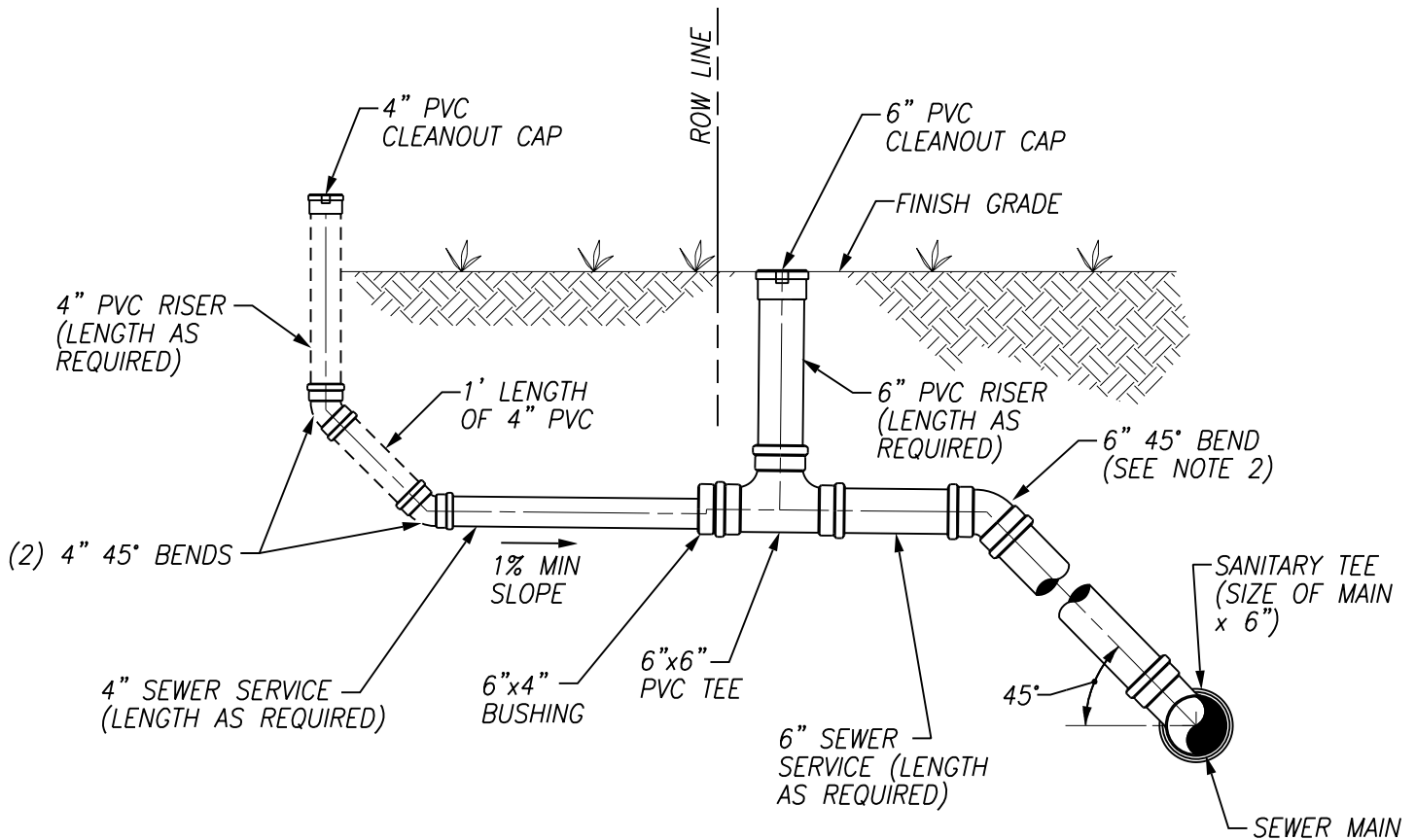
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**LOW PRESSURE SEWER
DROP CONNECTION**

Date: 04/22/24

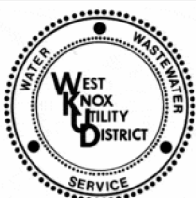
DRAWING NUMBER:

S8



NOTES:

1. THE PURPOSE OF THE ADDITIONAL 4-INCH CLEANOUT IS FOR THE HOME BUILDER'S ABILITY TO EASILY FIND AND GAIN ACCESS TO THE SERVICE LATERAL. IT IS INTENDED THAT THE HOME BUILDER SHALL REMOVE THE DASHED PORTION OF THE 4-INCH SERVICE PIPE AND CONNECT THE BUILDING SEWER AT THE LOCATION OF THE LOWER 45° BEND.
2. 45° BEND ALLOWED FOR SEWER MAINS THAT ARE 6-FEET DEEP OR GREATER. SANITARY SERVICE LINES CONNECTING TO SEWER MAINS THAT ARE LESS THAN 6-FEET DEEP SHALL BE INSTALLED WITHOUT VERTICAL BENDS AT A 1.00% (MINIMUM) SLOPE.



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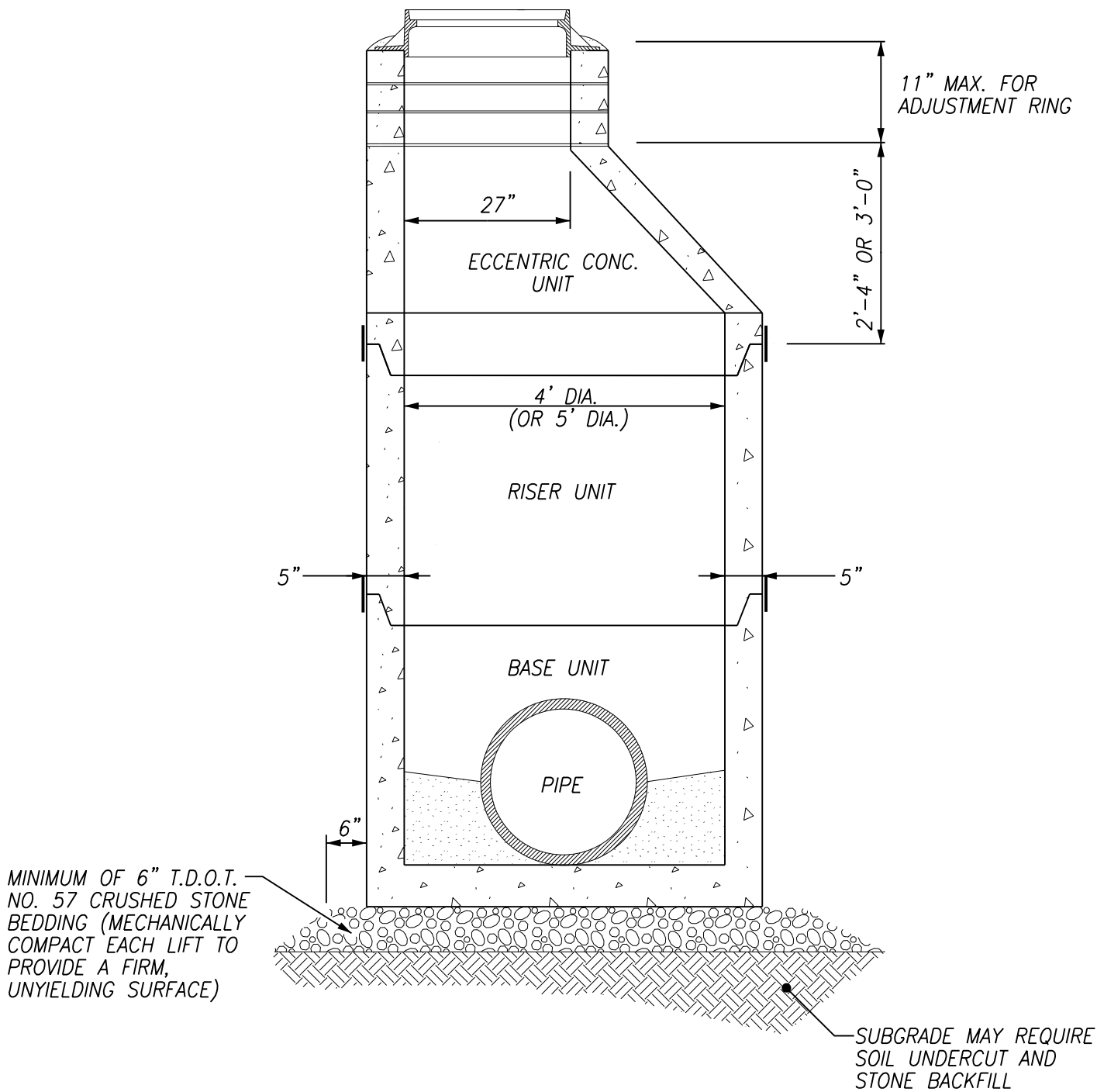
DRAWN BY: ARDURRA

Scale: NTS

**SANITARY SEWER
SERVICE CONNECTION**

Date: 04/22/24

DRAWING NUMBER:
S9



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DRAWN BY: ARDURRA

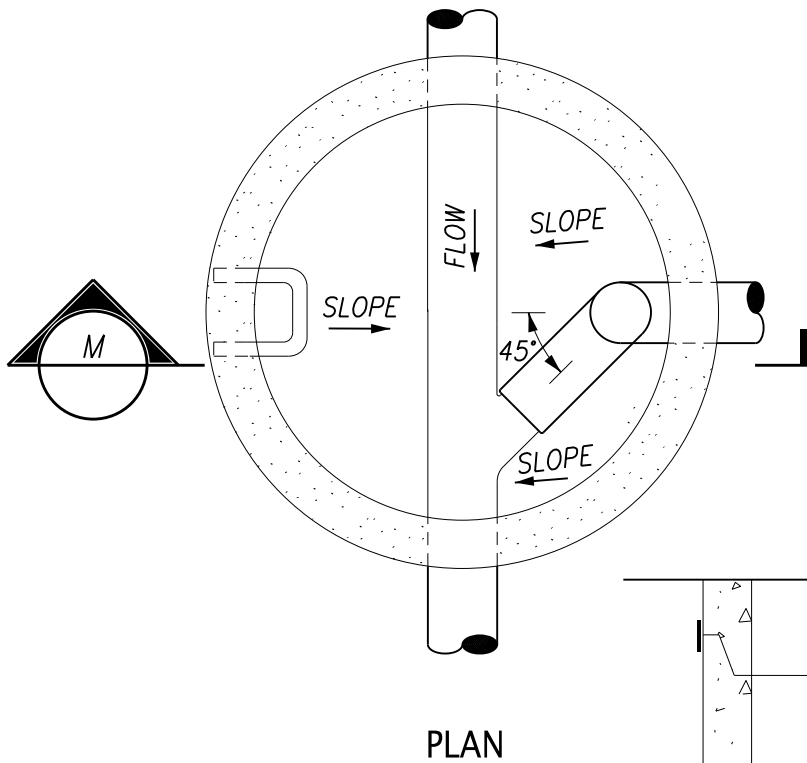
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**PRECAST SANITARY
SEWER MANHOLE**

Date: 04/22/24

DRAWING NUMBER:

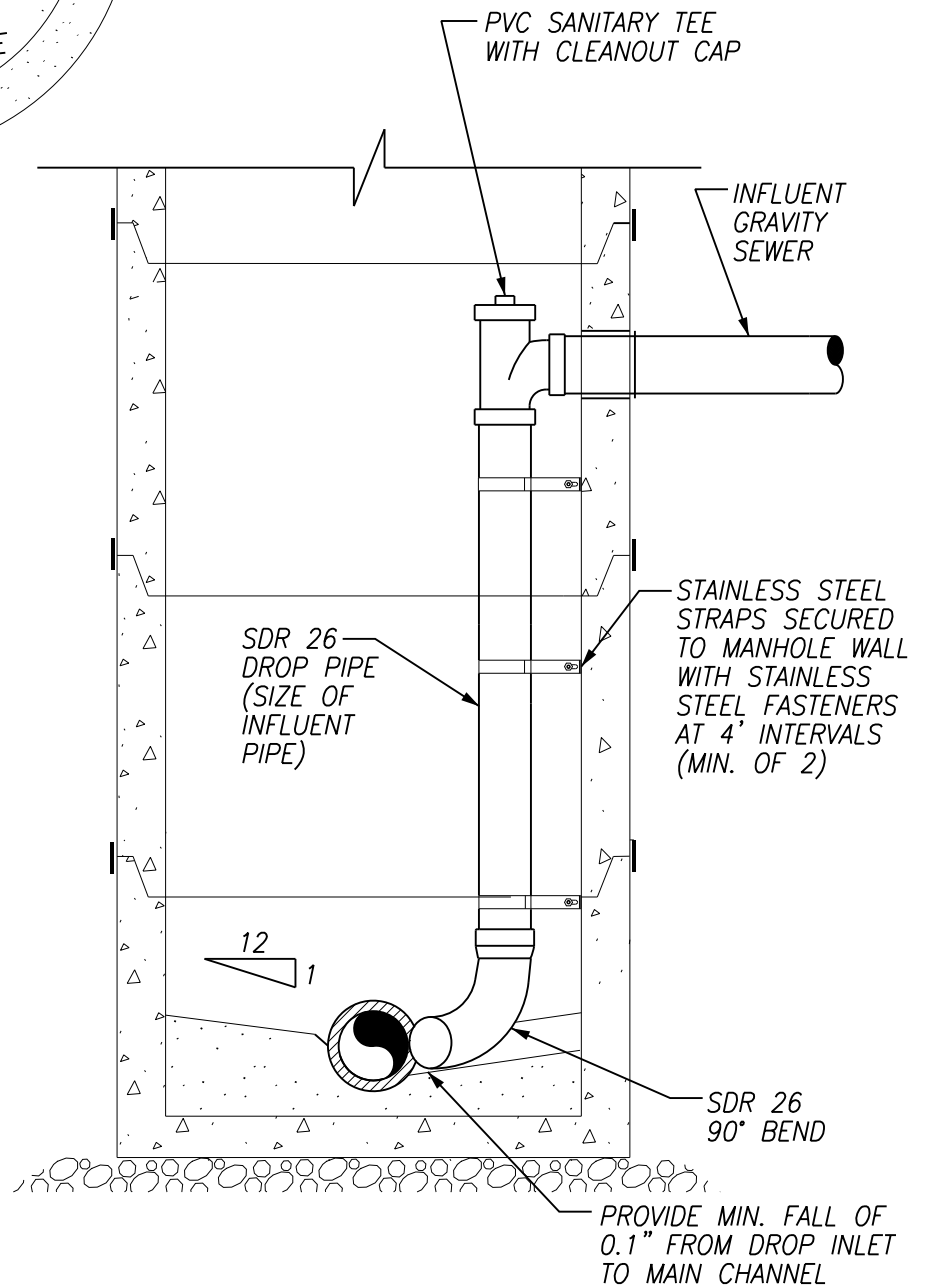
S10



REQUIRED DROP PIPE SIZES	
INFLUENT PIPE	DROP PIPE
8"	6"
10"	8"
12"	10"

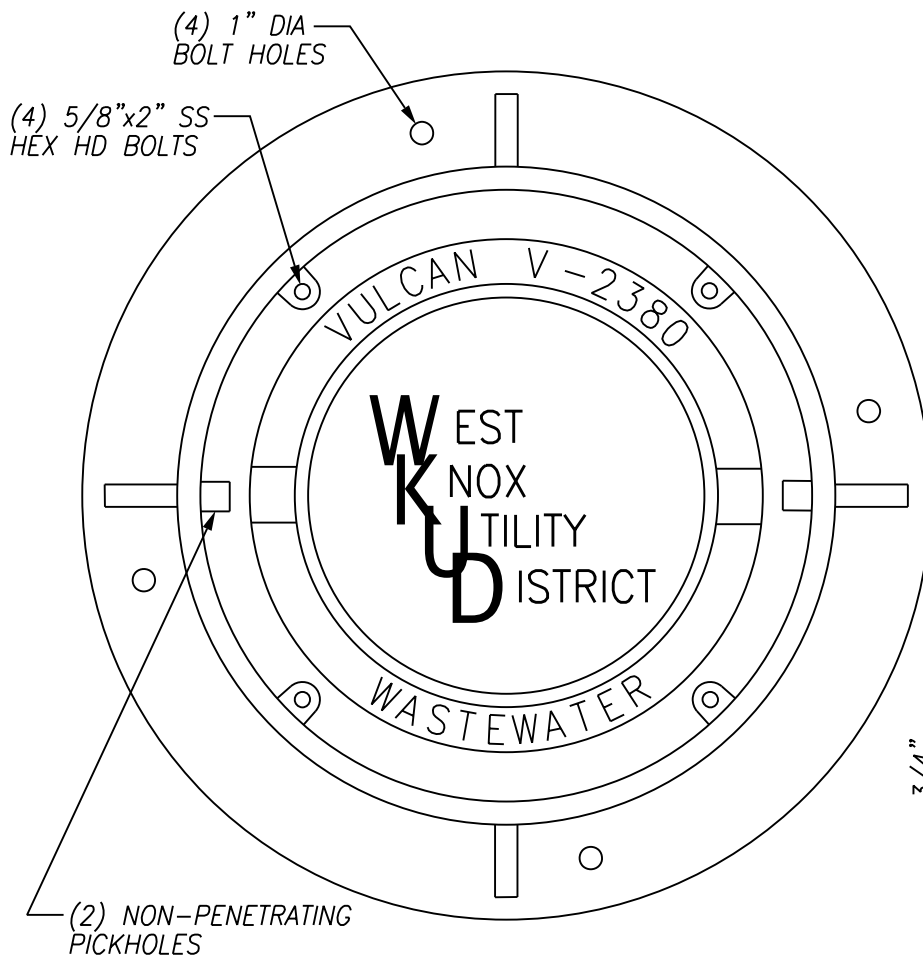
NOTES:

1. INSIDE DROP BOWL ASSEMBLY SHALL BE INSTALLED WITH 304 STAINLESS STEEL BRACKETS AND 18-8 STAINLESS STEEL FASTENERS IN ACCORDANCE WITH THE WRITTEN MANUFACTURER'S RECOMMENDATIONS.

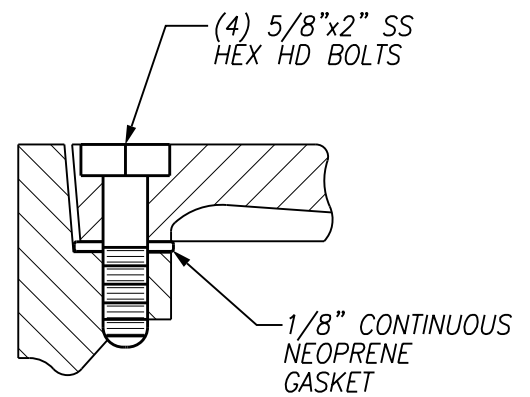


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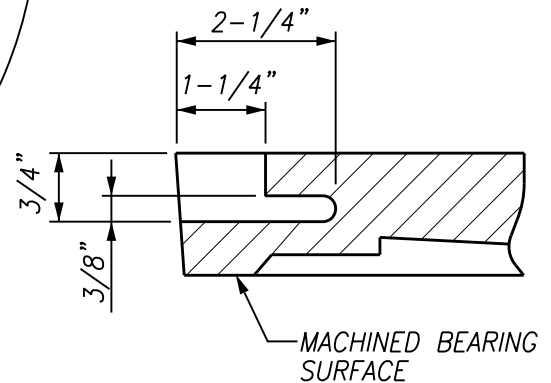
APPROVED BY:	WKUD	DRAWN BY:	ARDURRA	Scale:	NTS
TYPICAL INSIDE DROP ASSEMBLY				Date:	04/22/24
				Drawing Number:	S11



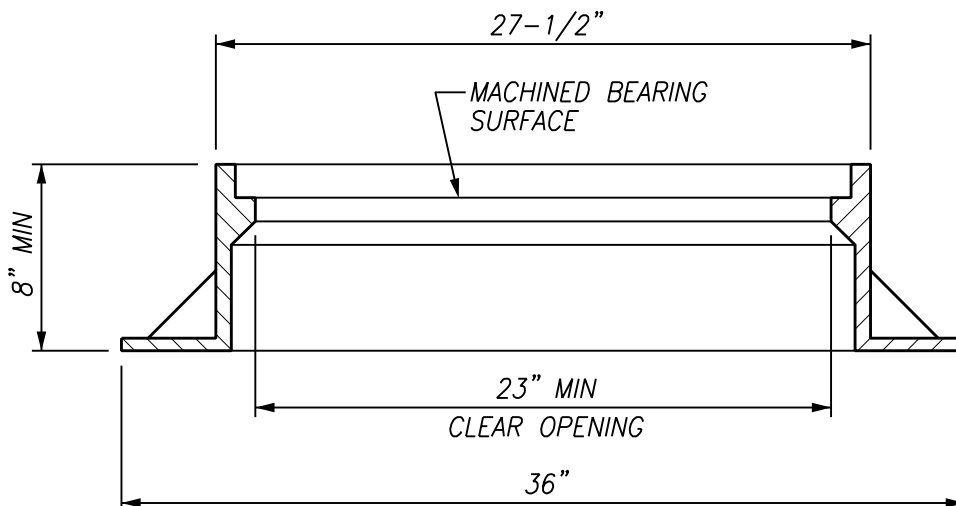
FRAME & COVER PLAN



WATERTIGHT DETAIL



PICKHOLE DETAIL



FRAME SECTION

NOTES:

1. LOAD RATING: HEAVY DUTY.
2. APPROX WEIGHT OF FRAME AND COVER SHALL NOT BE LESS THAN 364 LBS AS SPECIFIED.
3. COVER AND RING SHALL BE VULCAN CATALOG NUMBER V-2380.



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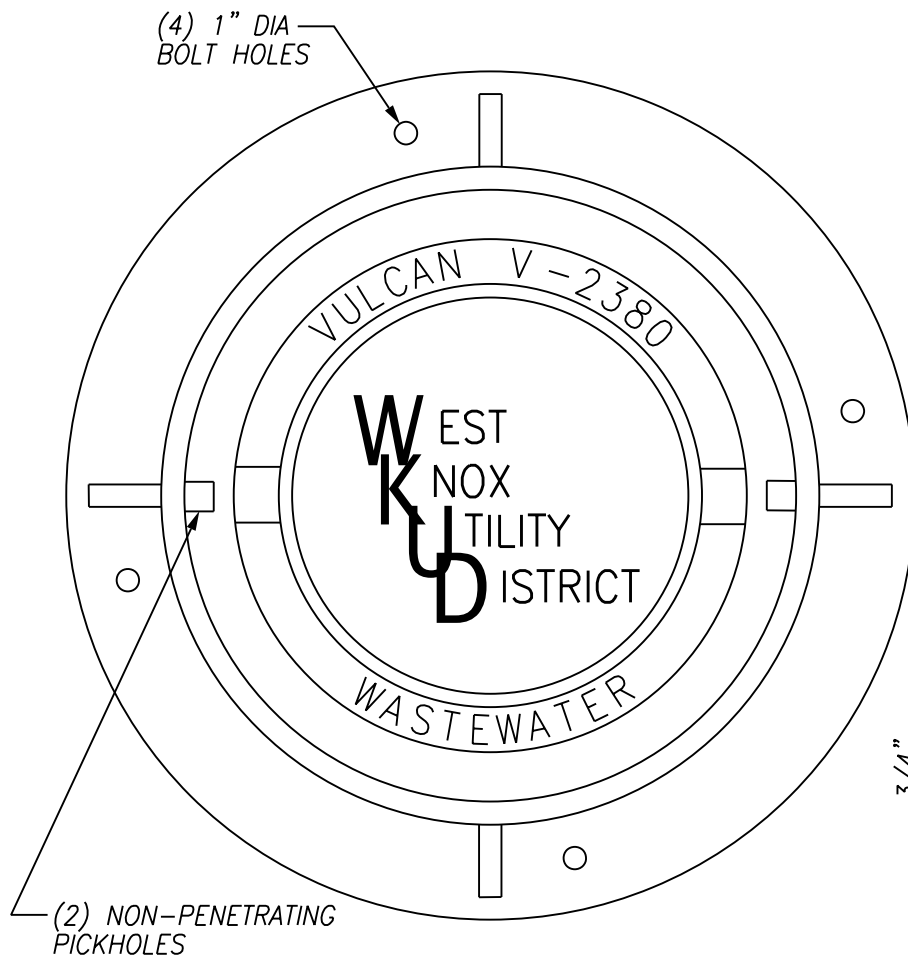
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Scale: NTS

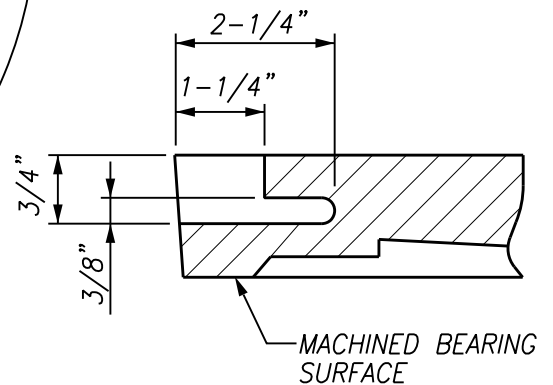
HEAVY-DUTY WATERTIGHT
MANHOLE FRAME & COVER

Date: 04/22/24

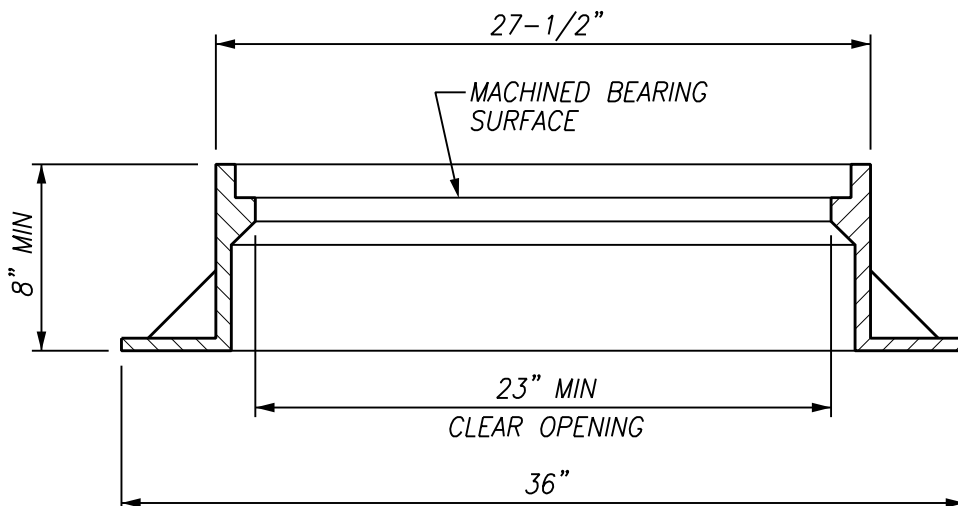
DRAWING NUMBER:
S12



FRAME & COVER PLAN



PICKHOLE DETAIL



FRAME SECTION

NOTES:

1. LOAD RATING: HEAVY DUTY.
2. APPROX WEIGHT OF FRAME AND COVER SHALL NOT BE LESS THAN 364 LBS AS SPECIFIED.
3. COVER AND RING SHALL BE VULCAN CATALOG NUMBER V-2380.



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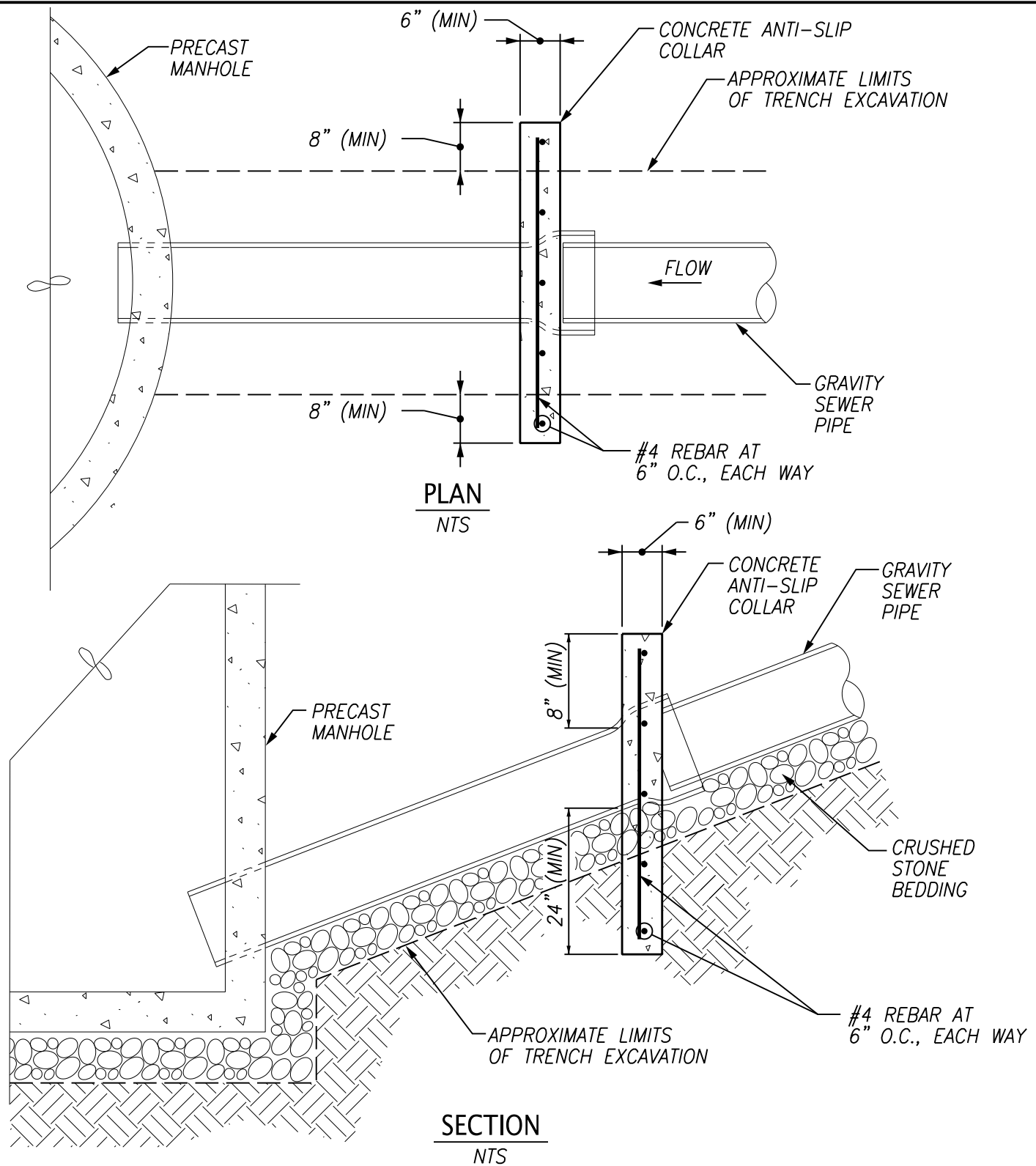
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Scale: NTS

HEAVY-DUTY STANDARD
MANHOLE FRAME & COVER

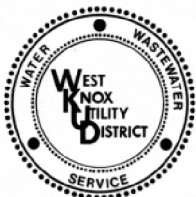
Date: 04/22/24

DRAWING NUMBER:
S13



NOTES :

1. INSTALL CONCRETE ANTI-SLIP COLLARS AS SHOWN FOR SLOPES 18% OR GREATER. MAXIMUM COLLAR SPACING SHALL BE AS FOLLOWS:
 - A. 36 FEET CENTER TO CENTER FOR SLOPES 18%-25%
 - B. 24 FEET CENTER TO CENTER FOR SLOPES 25%-35%
 - C. 16 FEET CENTER TO CENTER FOR SLOPES 35% AND GREATER
2. FIELD LOK GASKETS AT EACH JOINT MAY BE USED IN LIEU OF COLLARS FOR DUCTILE IRON PIPE.
3. WHERE PRACTICAL, INSTALL ANTI-SLIP COLLARS AT THE PIPE JOINT LOCATED DOWNSTREAM OF THE BELL.



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Scale:

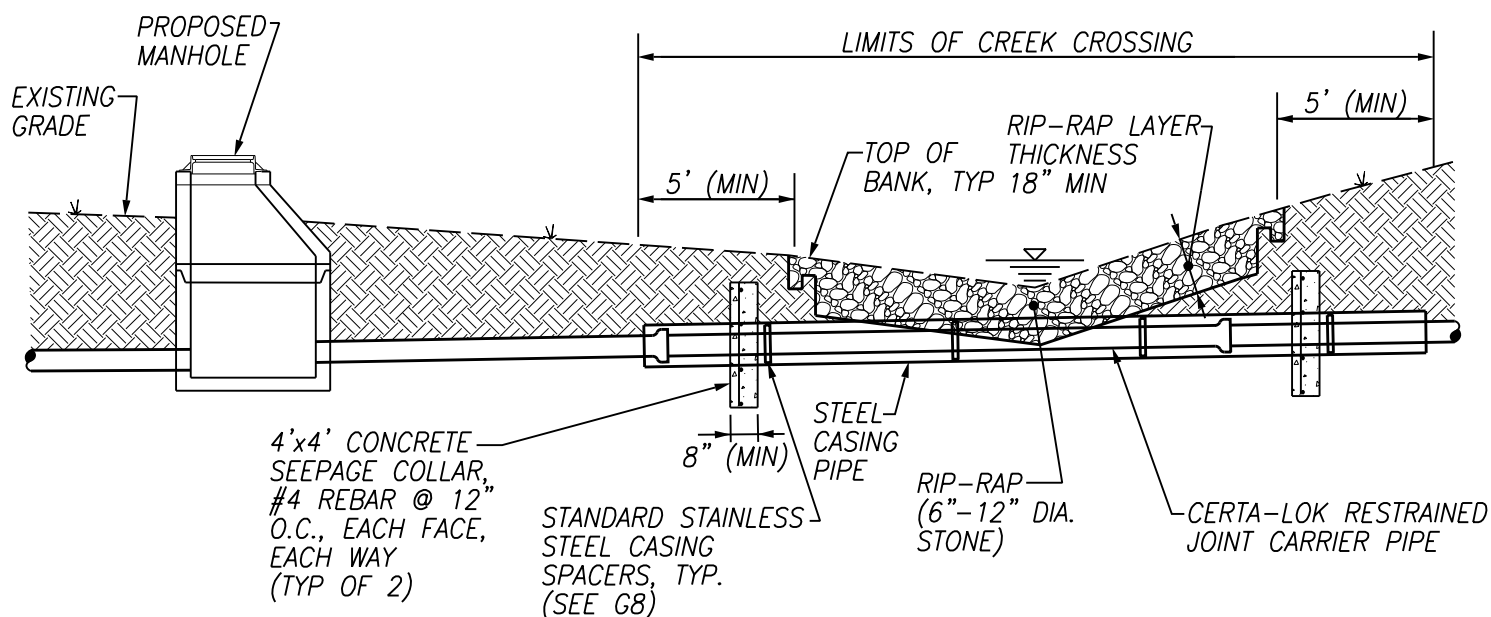
NTS

Date: 04/22/24

DRAWING NUMBER:

S14

**GRAVITY SEWER
ANTI-SLIP COLLAR**



SECTION

NOTES:

1. CONTRACTOR SHALL PERFORM PROPOSED SANITARY SEWER LINE CROSSING OF STREAMS IN STRICT ACCORDANCE WITH THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION AQUATIC RESOURCE ALTERATION (GENERAL) PERMIT FOR UTILITY LINE CROSSINGS OF STREAMS.
2. CONTRACTOR TO INSTALL SAND BAG BERM (OR OTHER METHOD TO DIVERT STREAM FLOW AS APPROVED BY THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION) FOR OPEN CUT INSTALLATION OF PROPOSED SANITARY SEWER LINE ACROSS STREAMS AS SHOWN ON THE PROJECT PLANS. PERFORM ONE-HALF OF CREEK CROSSING, BACKFILL, THEN RE-LOCATE SAND BAG BERM TO OPPOSITE SIDE OF CREEK AND REPEAT.
3. TRENCH BACKFILL SHALL BE CLEAN #57 OR #67 CRUSHED STONE UP TO WITHIN EIGHTEEN (18") INCHES OF CREEK BOTTOM. THE TOP EIGHTEEN (18") INCHES SHALL BE 8-12 INCH NOMINAL SIZE RIP-RAP OR RIVER ROCK.
4. ANY EXCAVATION OF THE STREAM CHANNEL AREA SHALL BE SEPARATED FROM FLOWING WATER, AND ACCOMPLISHED DURING LOW FLOW CONDITIONS. THIS SHALL BE ACCOMPLISHED BY THE USE OF FLUMES, LINED DIVERSION CHANNEL WITH SAND BAG BERM, DIVERSION PIPE INLET, OR IN SOME CASES, COFFER DAMS. COST TO BE INCLUDED IN OTHER ITEMS OF CONSTRUCTION.
5. THE SEEPAGE COLLAR SHALL NOT ENCASE A PIPE JOINT.
6. ALL RIP-RAP SHALL BE HAND PLACED IN A MANNER TO MINIMIZE VOIDS.



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Scale:

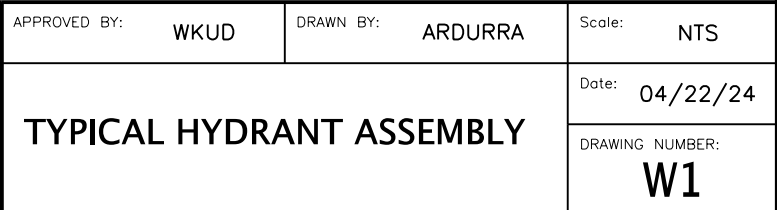
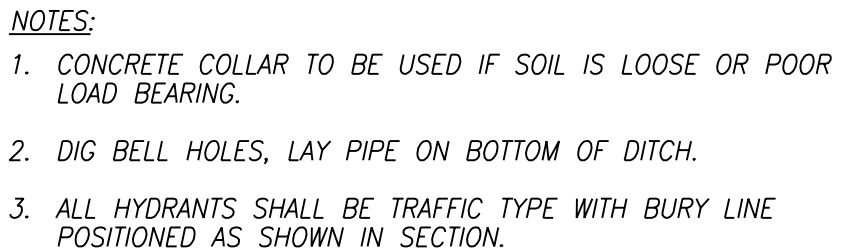
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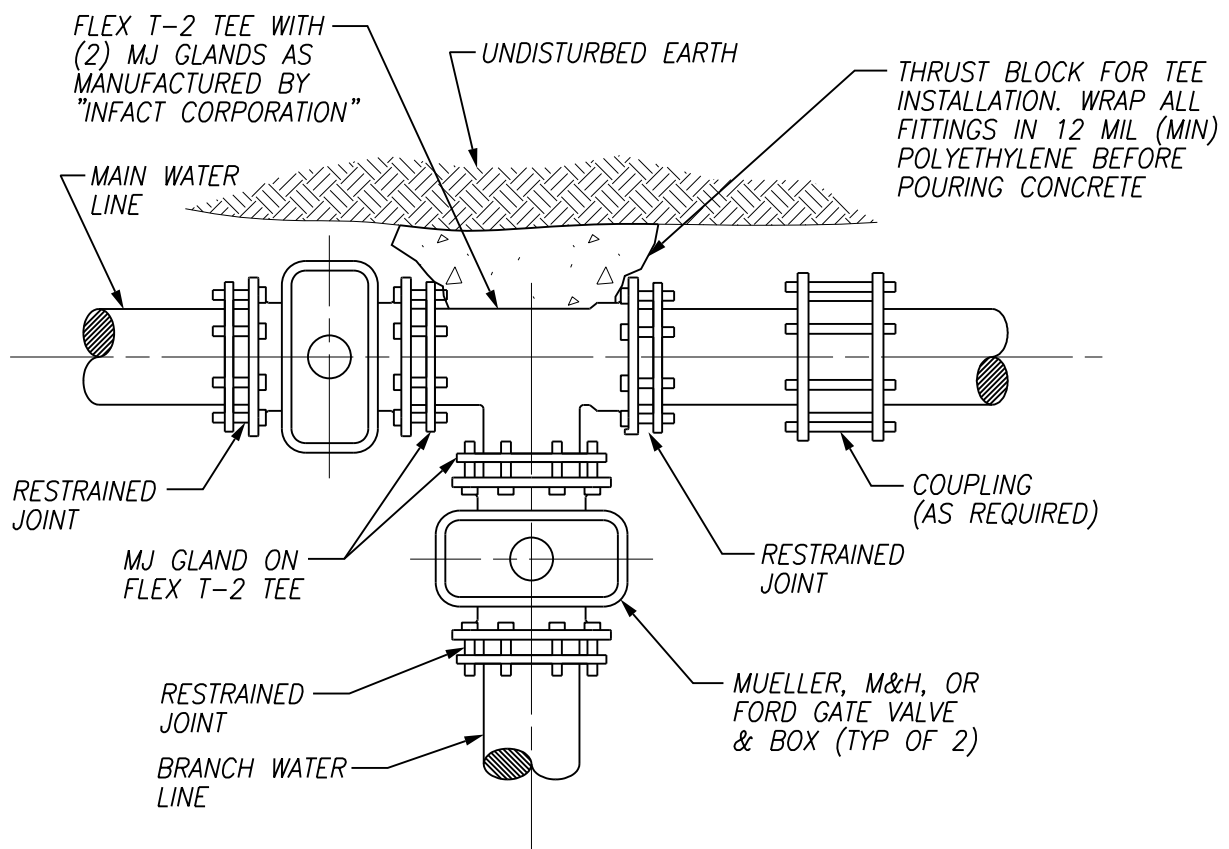
Date: 04/22/24

DRAWING NUMBER:

S15

**TYPICAL OPEN CUT
STREAM CROSSING**





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Scale:

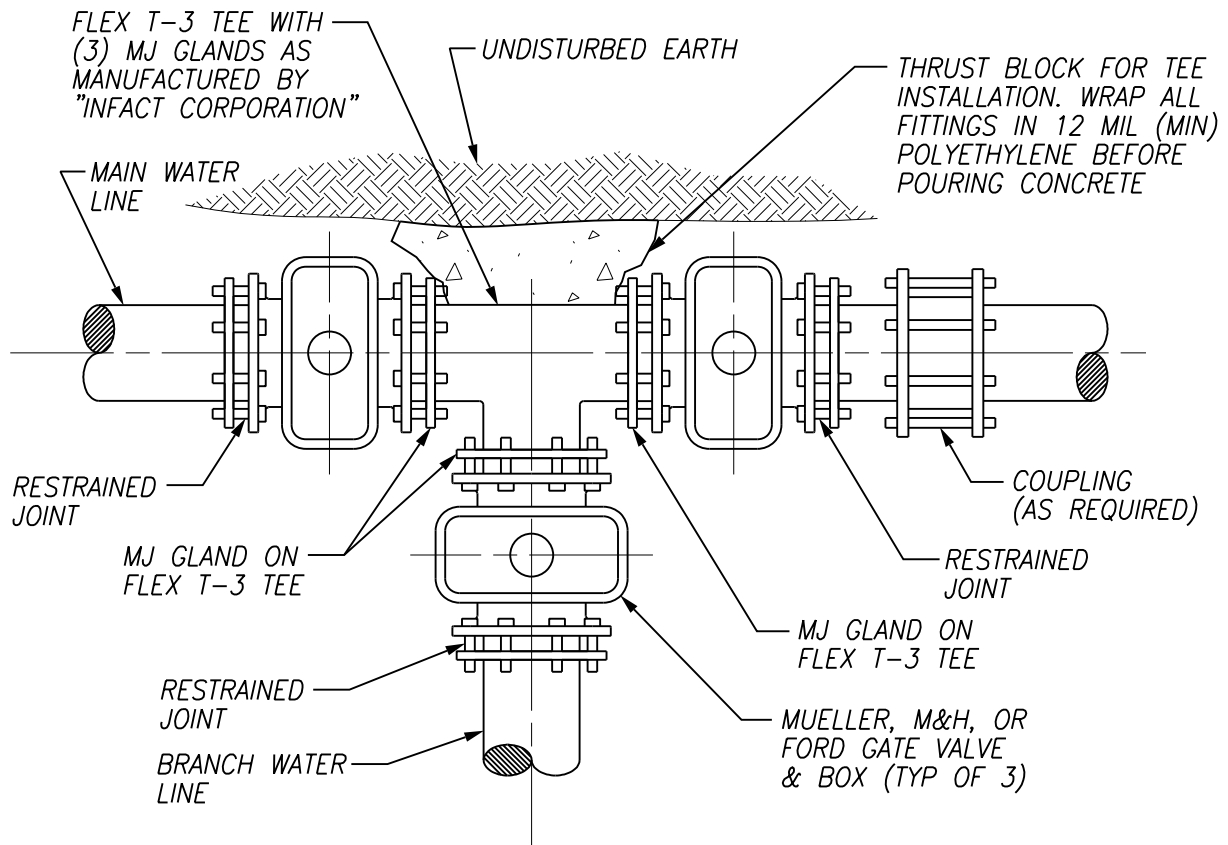
NTS

Date: 04/22/24

DRAWING NUMBER:

W2.1

**TR-2 FLEX (GATE
VALVE CLUSTER)**



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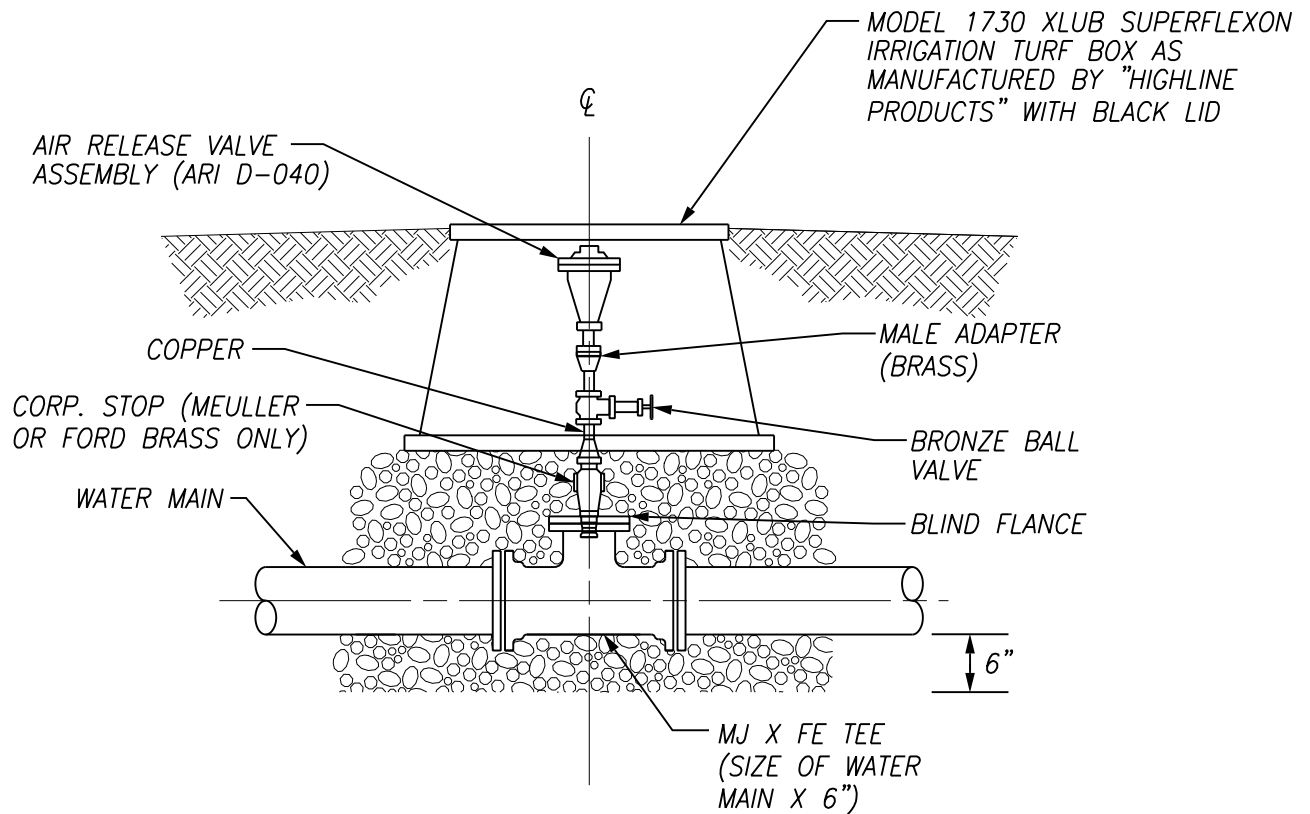
DRAWN BY: ARDURRA

Scale: NTS

TR-3 FLEX (GATE
VALVE CLUSTER)

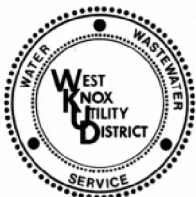
Date: 04/22/24

DRAWING NUMBER:
W2.2



NOTES:

1. AIR RELEASE VALVES SHALL BE INSTALLED AT ALL HIGH POINTS ON WATER MAINS.
2. USE FOR 1" AND 2" AIR RELEASE VALVE INSTALLATIONS.



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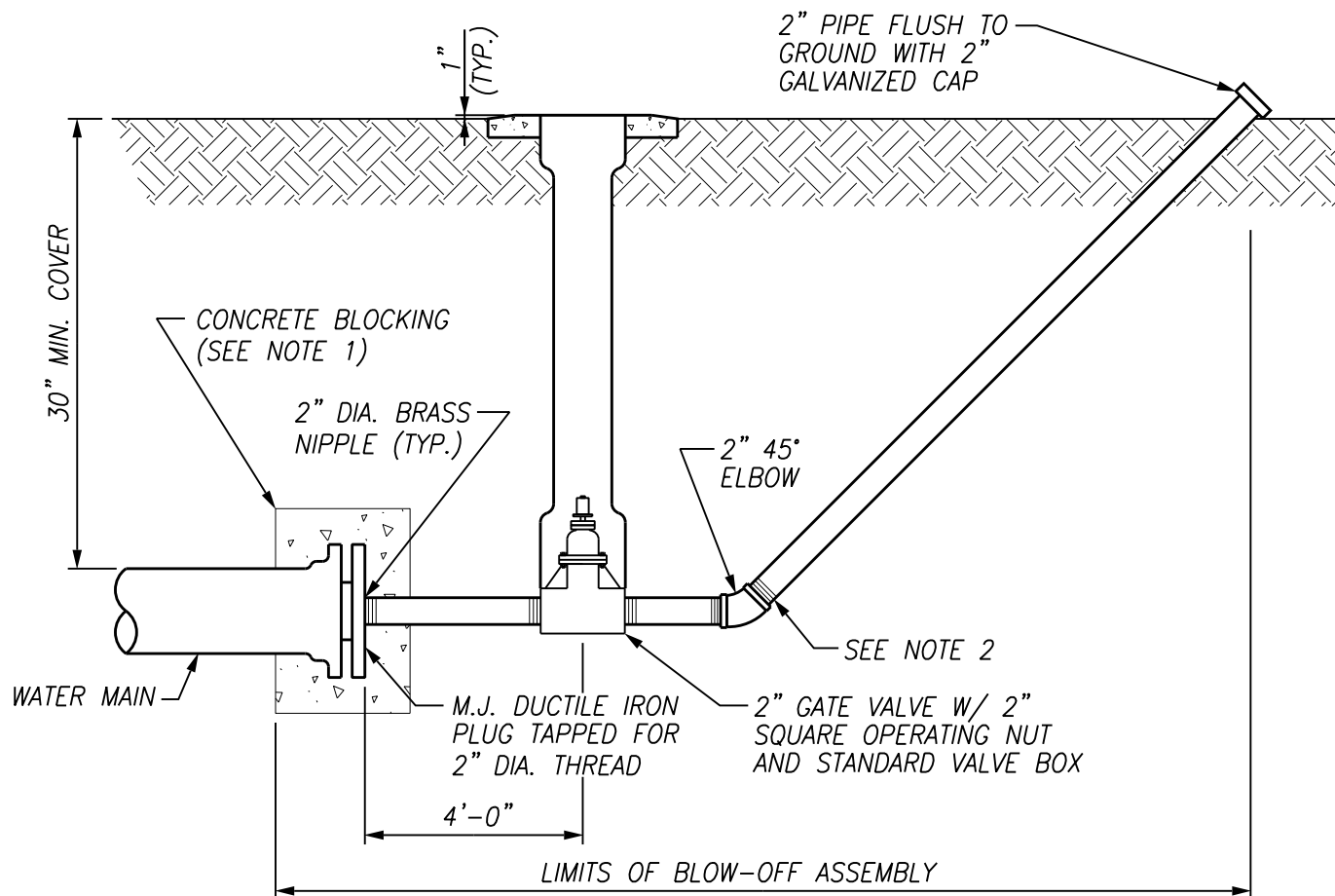
NTS

Date: 04/22/24

DRAWING NUMBER:

W3

AIR RELEASE
VALVE ASSEMBLY



NOTES:

1. CONCRETE BLOCKING AT WATER MAIN PLUG FOR BLOW-OFF PIPE CONNECTION SHALL BE A MINIMUM OF 1'-6" THICK AND BE CUT A MINIMUM OF 1'-0" INTO UNDISTURBED SOIL ON EACH SIDE AND BELOW THE PIPE TRENCH.
2. ALL THREADED PIPE SHALL BE JOINTED USING RECTORSEAL. ALL EXPOSED THREADS AND ALL GALVANIZED IRON PIPE SHALL BE CLEANED OF ALL GREASE, OIL, DEBRIS & OTHER SOILING AND SHALL RECEIVE A HEAVY COAT OF COAL-TAR EPOXY COATING PRIOR TO BACKFILLING.



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Scale:

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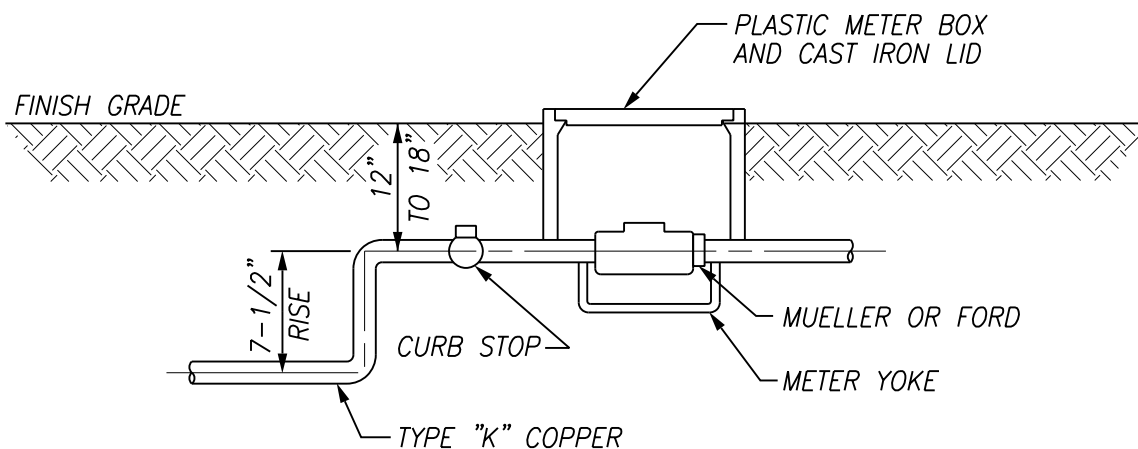
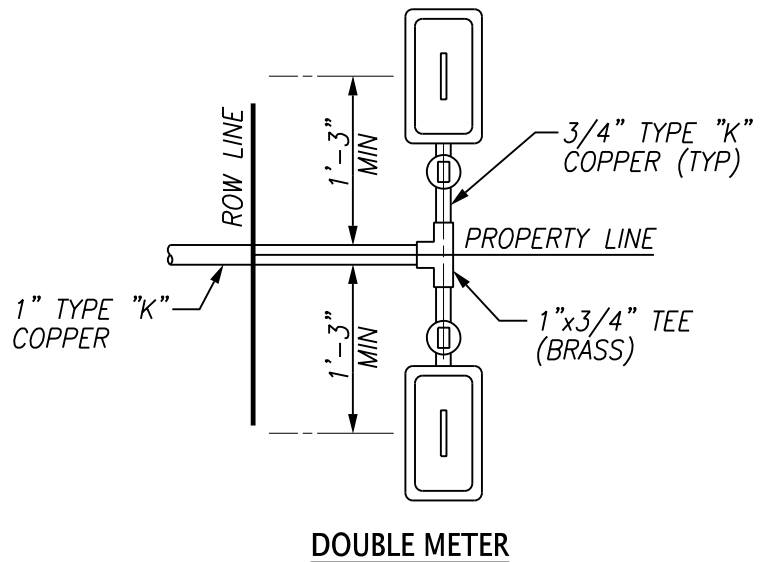
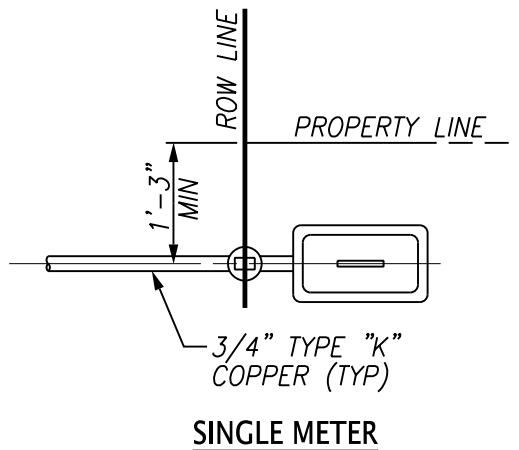
Date:

04/22/24

BLOW-OFF ASSEMBLY

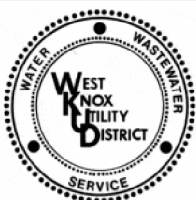
DRAWING NUMBER:

W4



NOTES:

1. CONTRACTOR TO COORDINATE FIELD LOCATION OF PROPOSED WATER METERS WITH WKUD.
2. CONTRACTOR RESPONSIBLE FOR RE-CONNECTING TO EXISTING WATER SERVICE LINE.
3. USE ROLLED COPPER FOR SERVICE LINE DIRECTION CHANGES (NO FITTINGS FOR BENDS).



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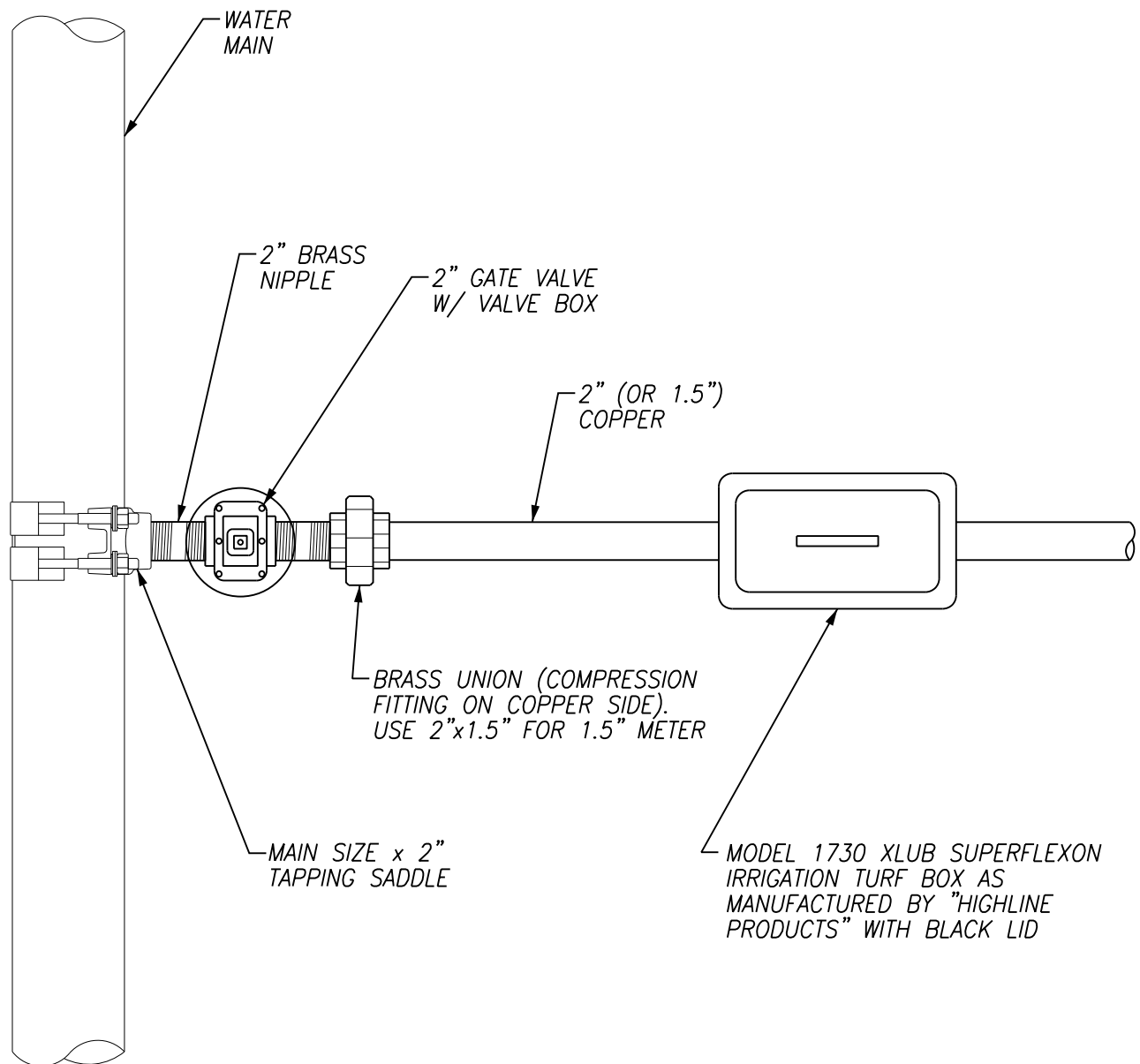
DRAWN BY: ARDURRA

Scale: NTS

**TYPICAL 3/4" METER
SETTING DETAIL**

Date: 04/22/24

DRAWING NUMBER:
W5.1



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Scale: NTS

TYPICAL 2" AND 1.5" METER SETTING DETAIL

Date: 04/22/24

DRAWING NUMBER:
W5.2

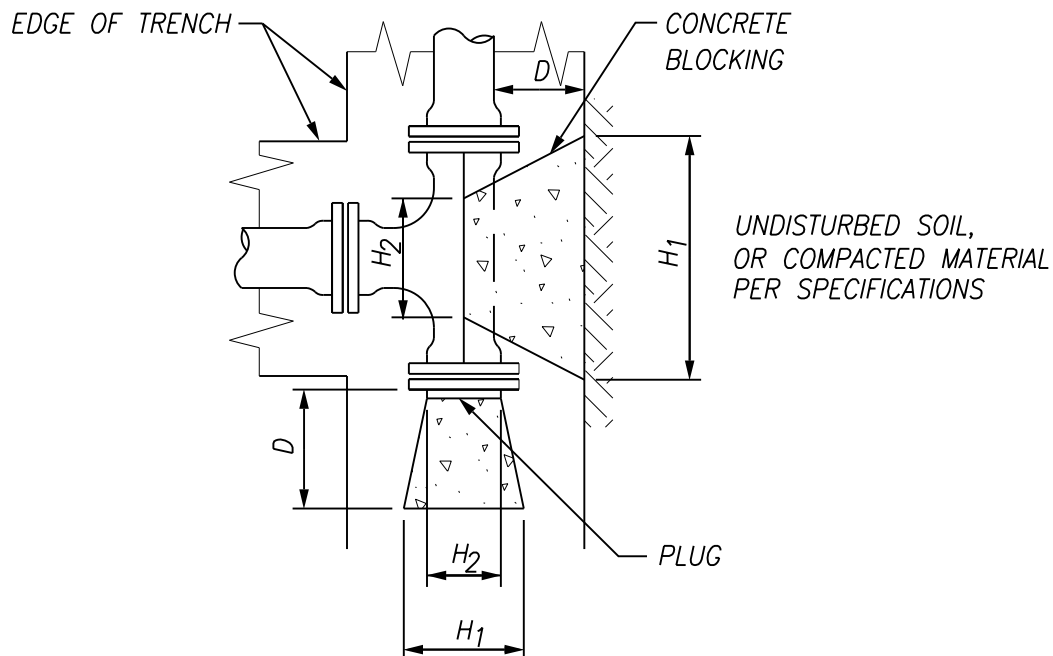


TABLE OF DIMENSIONS FOR CONCRETE BLOCKING

SIZE PIPE (INCHES)	TEES, PLUGS, AND CROSSES				
	H ₁	H ₂	V	D	CU FT.
2&2-1/4	18	10	12	18	1.9
3 & 4	24	12	12	18	2.3
6	24	16	18	18	3.5
8	36	18	18	18	5.1
10	48	24	18	24	7.2
12	54	30	24	24	13.4

NOTES:

1. THRUST BLOCKING BASED UPON AN INTERNAL HYDROSTATIC PRESSURE OF 200 PSI AND AN ALLOWABLE SOIL BEARING CAPACITY OF 4000 POUNDS/SQUARE FOOT. SHOULD HYDROSTATIC PRESSURE BE GREATER AND/OR SOIL BEARING CAPACITY SHOULD BE LESS THAN THAT NOTED ABOVE, CONTRACTOR SHALL INCREASE SIZE AS REQUIRED AND PROVIDE CALCULATIONS TO SUPPORT SAID MODIFICATION.
2. WKUD SHALL APPROVE ALL THRUST BLOCKS.
3. WRAP ALL FITTINGS AND PIPE IN PLASTIC PRIOR TO PLACING CONCRETE.



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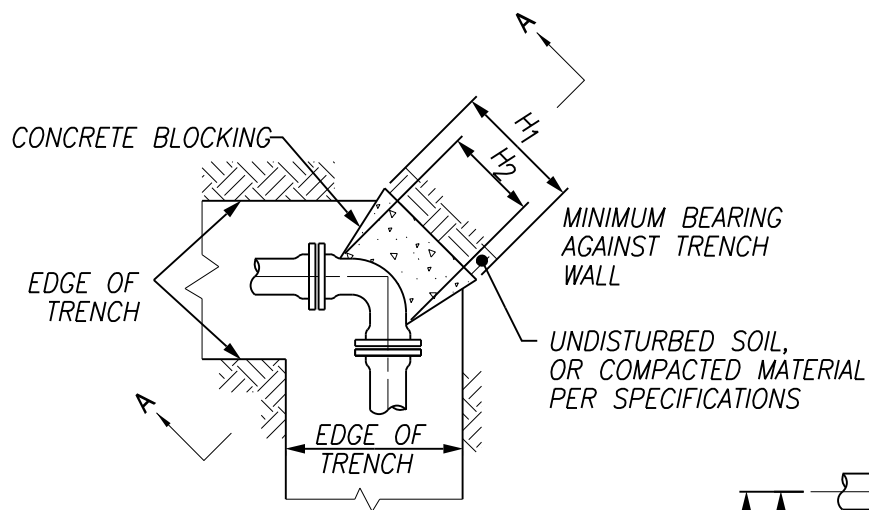
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**TYPICAL THRUST BLOCKS
FOR TEES, PLUGS, AND CROSSES**

Date: 04/22/24

DRAWING NUMBER:

W6.1



HORIZONTAL BENDS

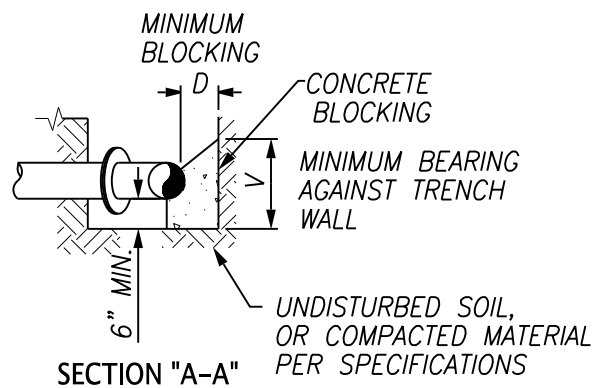
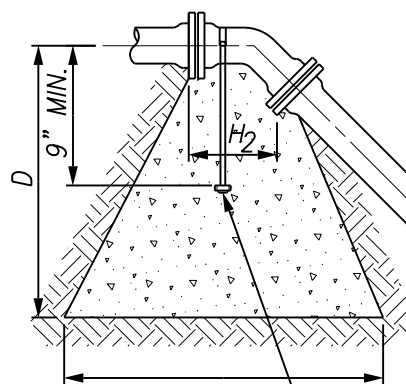
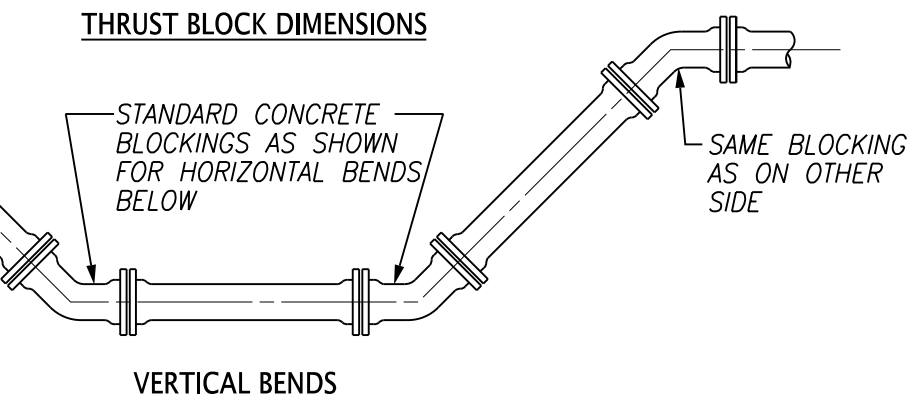


TABLE OF DIMENSIONS FOR CONCRETE BLOCKING																					
SIZE	90° BENDS					45° BENDS					22 1/2° BENDS					11 1/4° BENDS					SIZE
PIPE (INCHES)	H ₁	H ₂	V	D	CU FT.	H ₁	H ₂	V	D	CU FT.	H ₁	H ₂	V	D	CU FT.	H ₁	H ₂	V	D	CU FT.	PIPE
2&2-1/4	18	10	12	18	1.9	18	6	12	18	1.5	18	6	12	18	1.5	18	6	12	18	1.5	2&2-1/4
3 & 4	24	12	12	18	2.3	18	8	12	18	1.6	18	8	12	18	1.6	18	8	12	18	1.6	3 & 4
6	30	16	18	18	4.1	24	10	16	18	3.2	24	10	16	18	3.2	24	10	16	18	3.2	6
8	39	18	24	18	7.3	30	11	18	18	4.0	24	11	18	18	3.5	24	11	16	18	3.4	8
10	54	32	24	18	10.3	24	18	21	18	4.6	24	18	21	18	4.6	24	18	21	18	4.6	10
12	54	32	36	24	18.2	42	18	24	24	9.6	24	18	24	24	6.6	24	18	21	24	6.1	12



THRUST BLOCK DIMENSIONS



VERTICAL BENDS

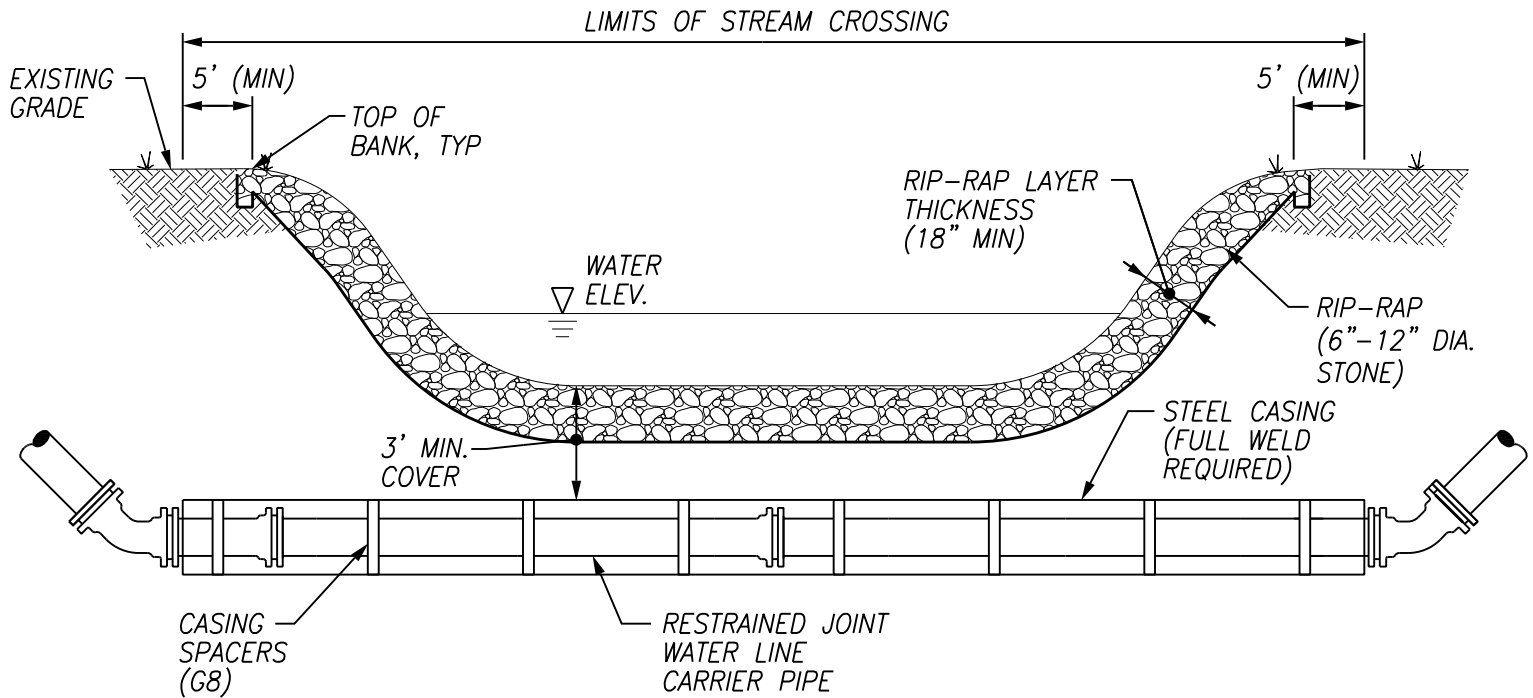
NOTES:

- THRUST BLOCKING BASED UPON AN INTERNAL HYDROSTATIC PRESSURE OF 200 PSI AND AN ALLOWABLE SOIL BEARING CAPACITY OF 4000 POUNDS/SQUARE FOOT. SHOULD HYDROSTATIC PRESSURE BE GREATER AND/OR SOIL BEARING CAPACITY SHOULD BE LESS THAN THAT NOTED ABOVE, CONTRACTOR SHALL INCREASE SIZE AS REQUIRED AND PROVIDE CALCULATIONS TO SUPPORT SAID MODIFICATION.
- WKUD SHALL APPROVE ALL THRUST BLOCKS.
- WRAP ALL FITTINGS AND PIPE IN PLASTIC PRIOR TO PLACING CONCRETE.



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THRUST BLOCK AND ANCHOR BLOCK FOR BENDS		Date: 04/22/24
		DRAWING NUMBER: W6.2



NOTES:

1. ALL PIPE AND FITTINGS SHALL BE RESTRAINED JOINT DUCTILE IRON WITHIN LIMITS OF THE STREAM CROSSING. RESTRAINING GASKETS SHALL BE "FIELD LOK 350" AS MANUFACTURED BY U.S. PIPE OR APPROVED EQUAL. MJ RESTRAINTS SHALL BE MEGALUG BY EBAA IRON, ROMAC INDUSTRIES, OR APPROVED EQUAL.
2. CONTRACTOR SHALL PERFORM PROPOSED WATER LINE CROSSING OF STREAMS IN STRICT ACCORDANCE WITH THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION AQUATIC RESOURCE ALTERATION (GENERAL) PERMIT FOR UTILITY LINE CROSSINGS OF STREAMS
3. CONTRACTOR TO INSTALL SAND BAG BERM (OR OTHER METHOD TO DIVERT STREAM FLOW AS APPROVED BY THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION) FOR OPEN CUT INSTALLATION OF PROPOSED WATER LINE ACROSS STREAMS AS SHOWN ON THE PROJECT PLANS. PERFORM ONE-HALF OF CREEK CROSSING, BACKFILL, THEN RE-LOCATE SAND BAG BERM TO OPPOSITE SIDE OF CREEK AND REPEAT
4. TRENCH BACKFILL SHALL BE CLEAN #57 OR #67 CRUSHED STONE UP TO WITHIN EIGHTEEN (18") INCHES OF CREEK BOTTOM. THE TOP EIGHTEEN (18") INCHES SHALL BE 6-12 INCH NOMINAL SIZE RIP-RAP OR RIVER ROCK.
5. ANY EXCAVATION OF THE STREAM CHANNEL AREA SHALL BE SEPARATED FROM FLOWING WATER, AND ACCOMPLISHED DURING LOW FLOW CONDITIONS. THIS SHALL BE ACCOMPLISHED BY THE USE OF FLUMES, LINED DIVERSION CHANNEL WITH SAND BAG BERM, DIVERSION PIPE INLET, OR IN SOME CASES, COFFER DAMS. COST TO BE INCLUDED IN OTHER ITEMS OF CONSTRUCTION.
6. ALL RIP-RAP SHALL BE HAND PLACED IN A MANNER TO MINIMIZE VOIDS.
7. TWO IN-LINE GATE VALVES (ONE ON EACH SIDE OF THE STREAM) SHALL BE REQUIRED FOR WATER DISTRIBUTION AREAS THAT ARE PART OF A LOOP-FED SYSTEM (COORDINATE WITH WKUD).



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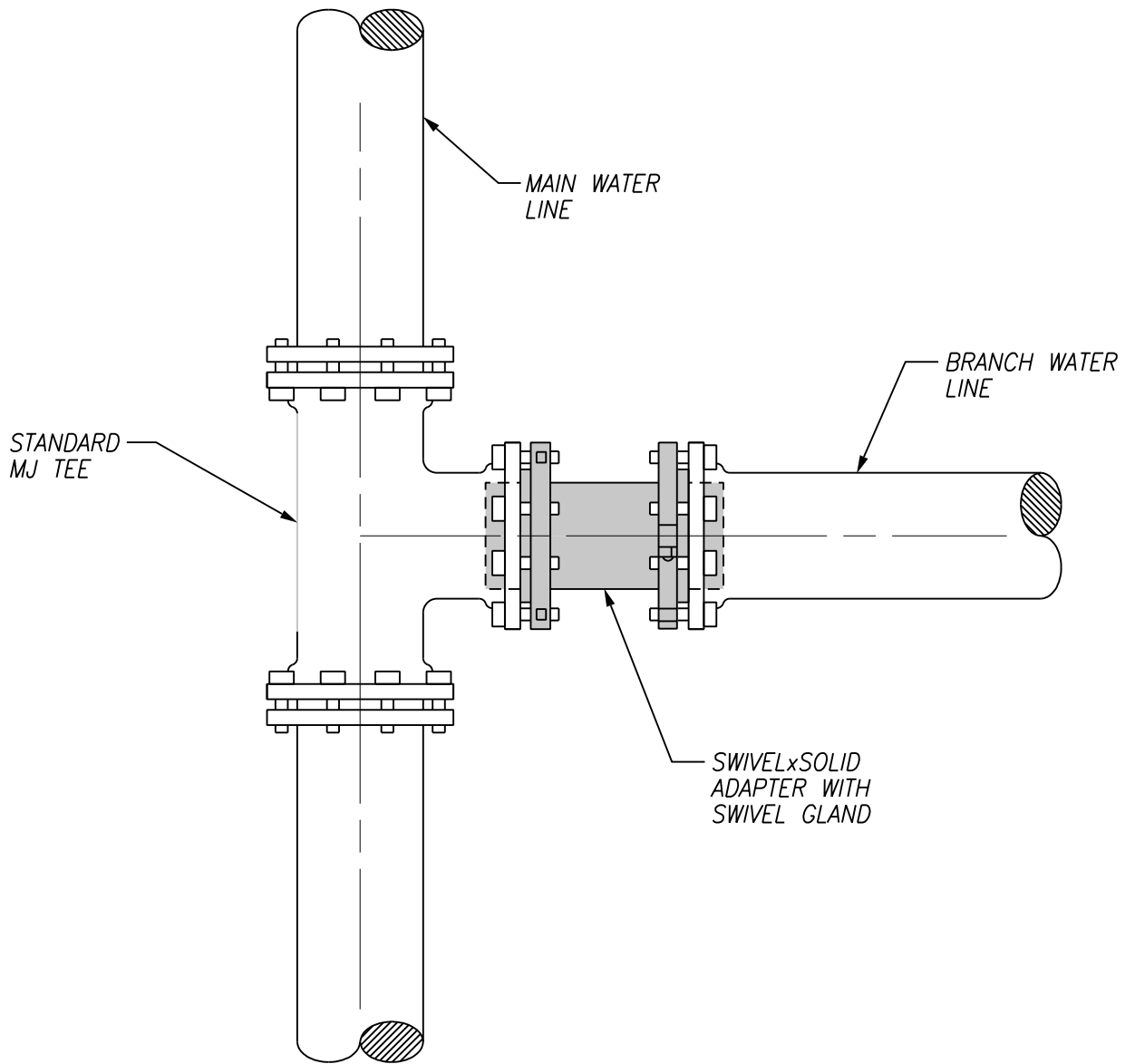
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**TYPICAL OPEN CUT
STREAM CROSSING**

Date: 04/22/24

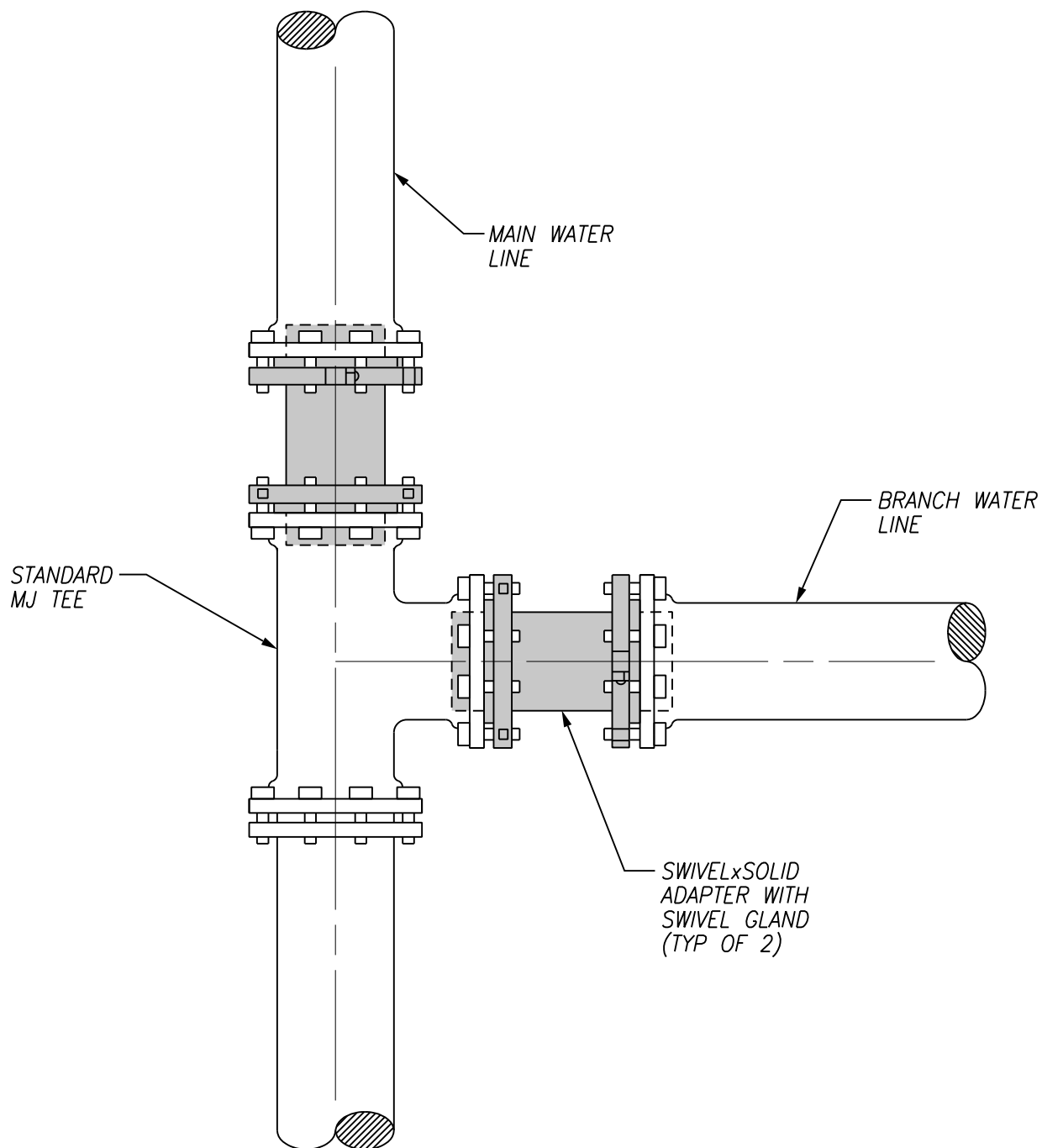
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W7



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SWIVEL X SOLID ADAPTER ON MJ TEE (1-WAY)		Date: 04/22/24
		DRAWING NUMBER: W8.1



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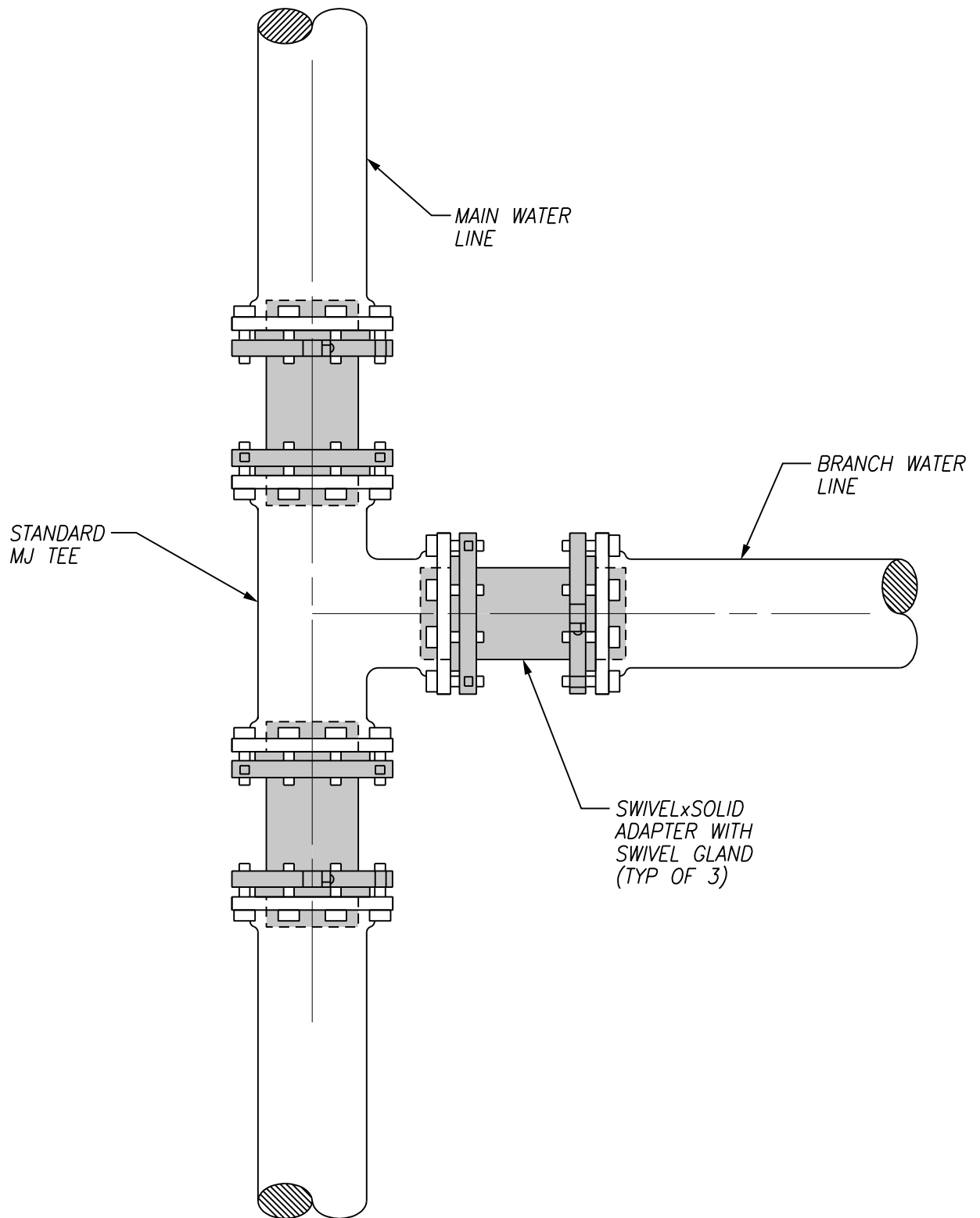
DRAWN BY: ARDURRA

Scale: NTS

**SWIVEL X SOLID ADAPTER
ON MJ TEE
(2-WAY)**

Date: 04/22/24

DRAWING NUMBER:
W8.2



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Scale: NTS

**SWIVEL X SOLID ADAPTER
ON MJ TEE
(3-WAY)**

Date: 04/22/24

DRAWING NUMBER:
W8.3