

NOTE:
 ROCK DITCH CHECK SHALL BE REMOVED FROM THE CLEAR ZONE AFTER SEEDING OR TURF IS ESTABLISHED AND PRIOR TO FINAL ACCEPTANCE

POINT 'A' MUST BE 1'-0" MINIMUM HIGHER THAN POINT 'B' TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

CROSS SECTION



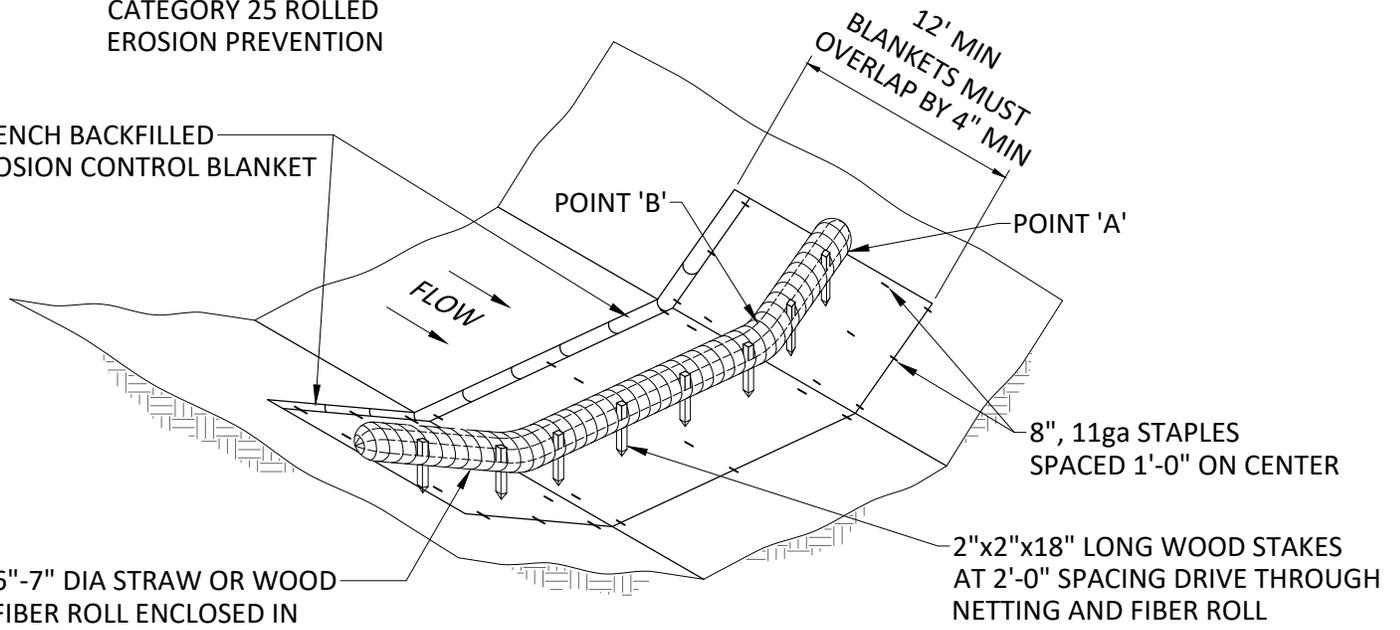
DITCH CHECK - RIP RAP

REVISION
 PUBLISHED
 02/2026

PLATE NO.
 EROS-01

CATEGORY 25 ROLLED
EROSION PREVENTION

4"x4" TRENCH BACKFILLED
OVER EROSION CONTROL BLANKET



6"-7" DIA STRAW OR WOOD
FIBER ROLL ENCLOSED IN
PLASTIC OR POLYESTER NETTING

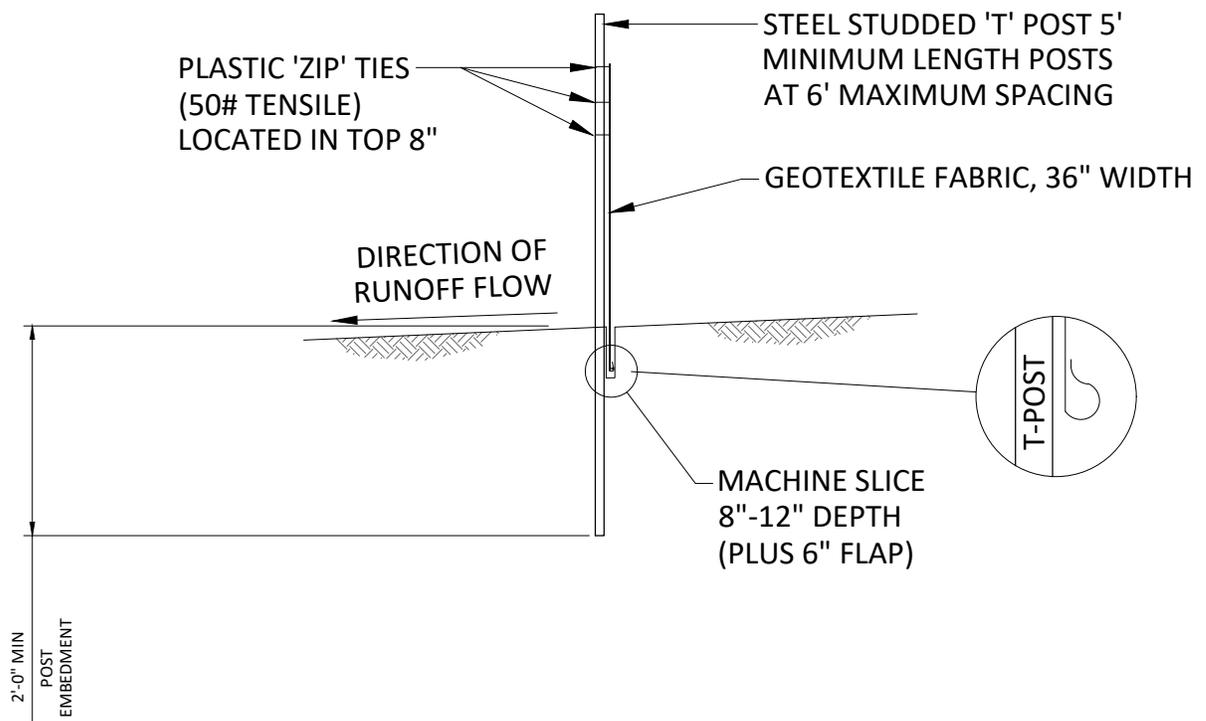
NOTE:
POINT 'A' MUST BE 1'-0" MIN HIGHER
THAN POINT 'B' TO ENSURE THAT WATER
FLOWS OVER THE DITCH CHECK AND NOT
AROUND THE ENDS



DITCH CHECK - BIOROLL

REVISION
PUBLISHED
02/2026

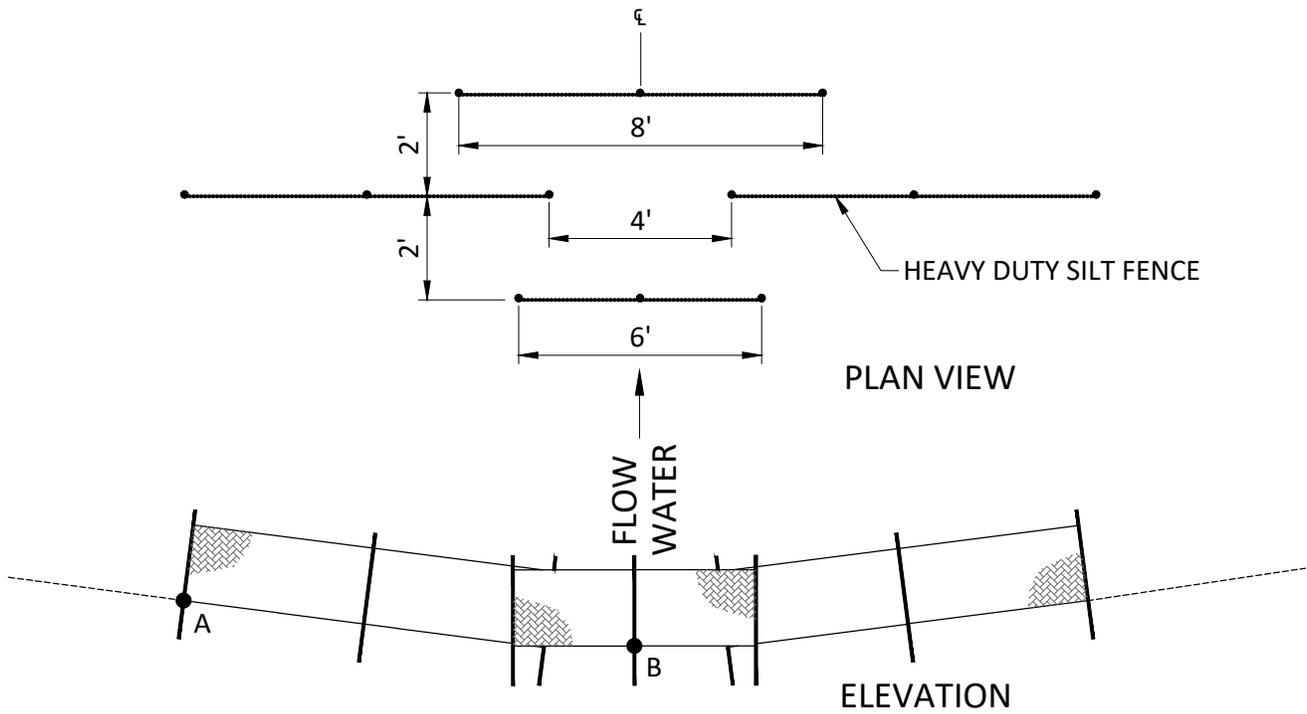
PLATE NO.
EROS-02



MACHINE SLICED SILT FENCE

REVISION
PUBLISHED
02/2026

PLATE NO.
EROS-03



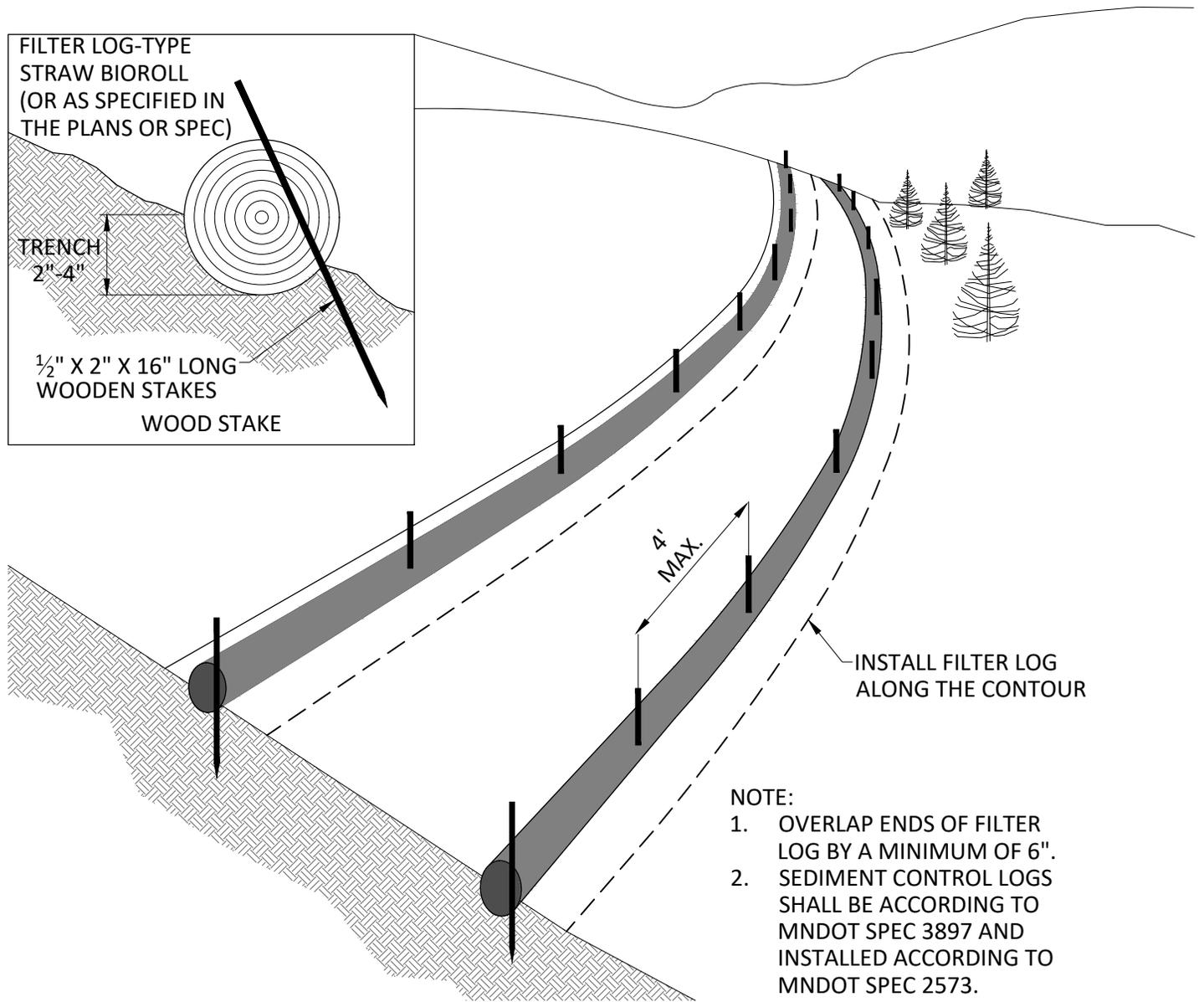
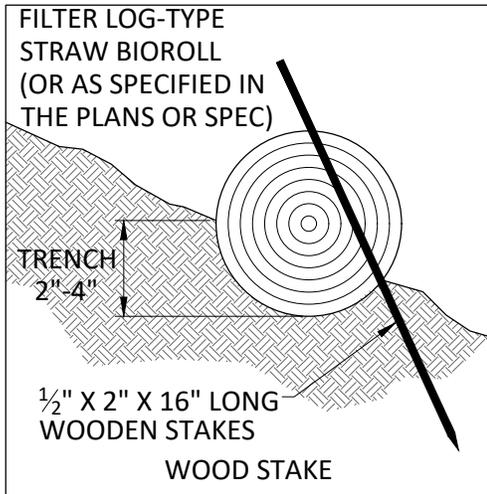
NOTES:

1. POINT A MUST BE A MIN OF 12 INCHES HIGHER THAN POINT B.
2. HEAVY DUTY SILT FENCE SHALL CONFORM TO THE REQUIREMENTS OF MnDOT SPECIFICATION 3886.
3. DIMENSIONS SHOWN ARE FOR TYPICAL 8' DITCH BOTTOM, MODIFICATIONS MAY BE NECESSARY FOR VARYING SLOPES AND DITCH WIDTHS.
4. REFER TO PLAN OR MnDOT EROSION CONTROL MANUAL FOR SPACING INTERVALS OF CHECKS.



**VELOCITY CHECK
HEAVY DUTY SILT FENCE**

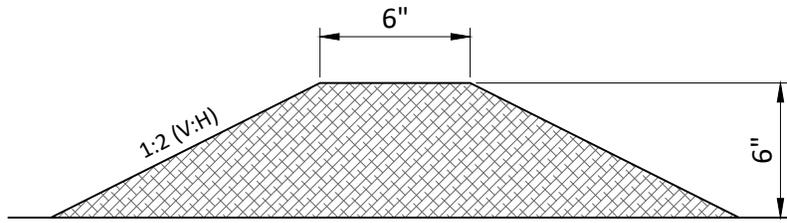
REVISION PUBLISHED 02/2026
PLATE NO. EROS-04



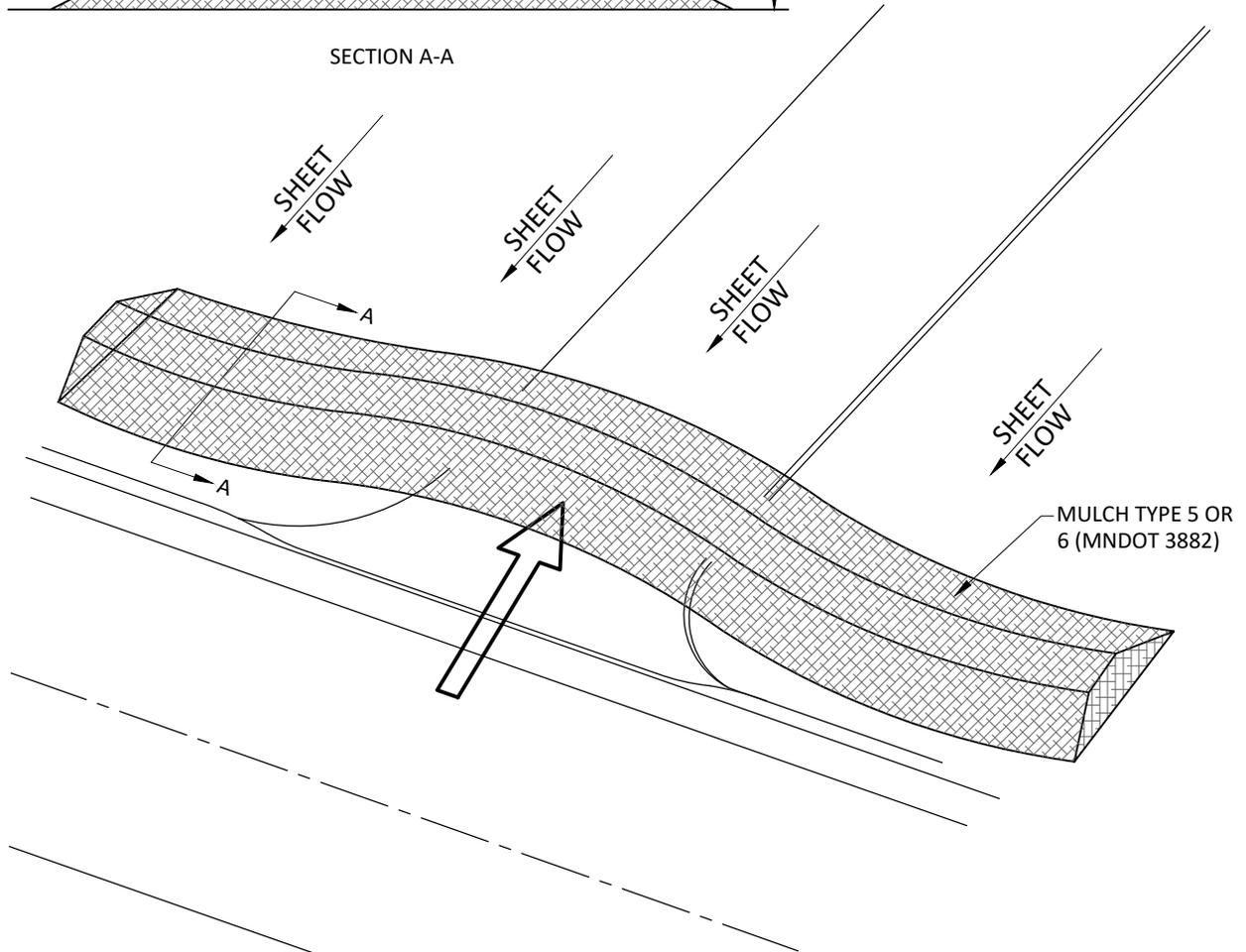
PERIMETER PROTECTION
FILTER LOG

REVISION
PUBLISHED
02/2026

PLATE NO.
EROS-05



SECTION A-A



CONSTRUCTION VEHICLES
ALLOWED
TO DRIVE OVER WOOD MULCH
BERM. MAINTENANCE REQUIRED
DAILY.



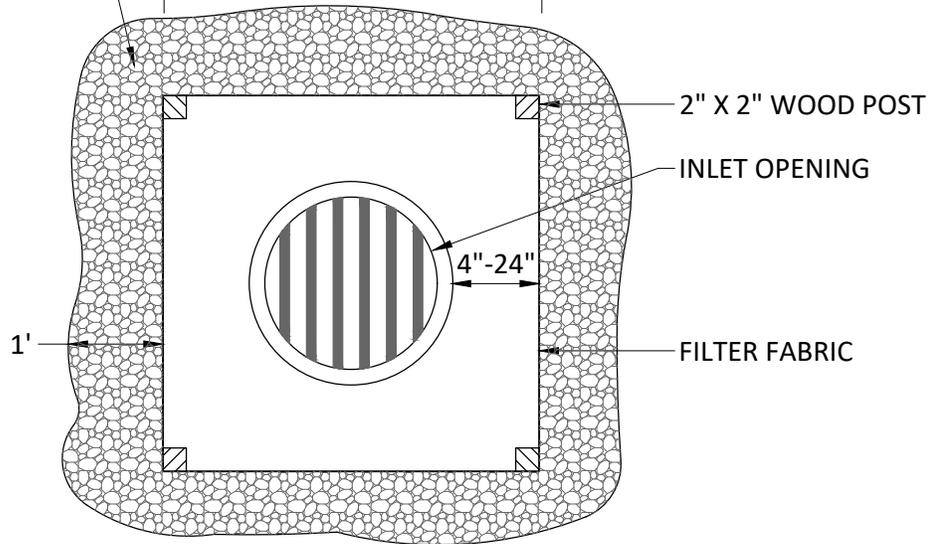
PERIMETER PROTECTION
WOOD MULCH BERM

REVISION
PUBLISHED
02/2026

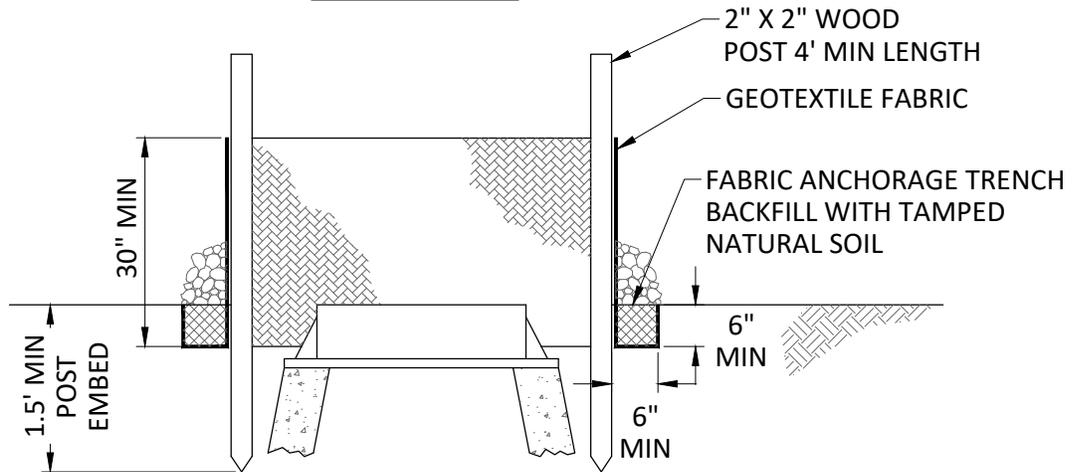
PLATE NO.
EROS-06

3/4" WASHED ROCK
1' DEEP X 1' WIDE
AROUND PERIMETER

4' MAX
POST SPACING



PLAN VIEW



SECTION

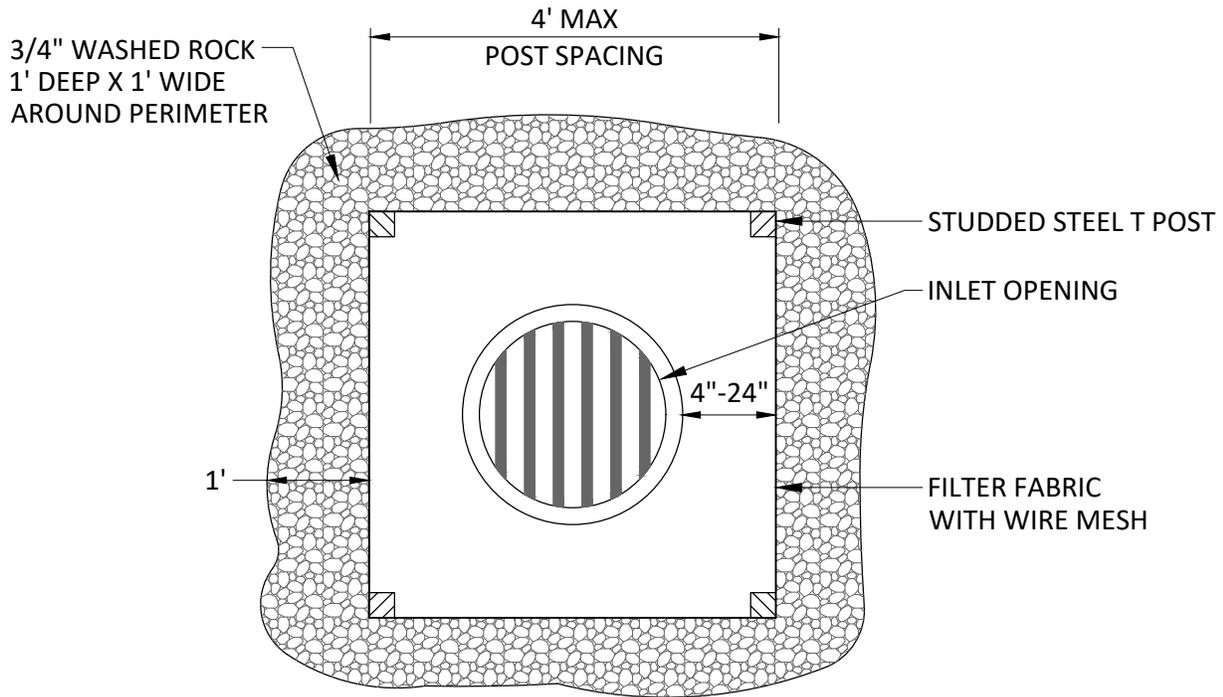
NOTE:
SILT FENCE SHALL CONFORM TO
THE REQUIREMENTS OF MnDOT
SPECIFICATION 3886.



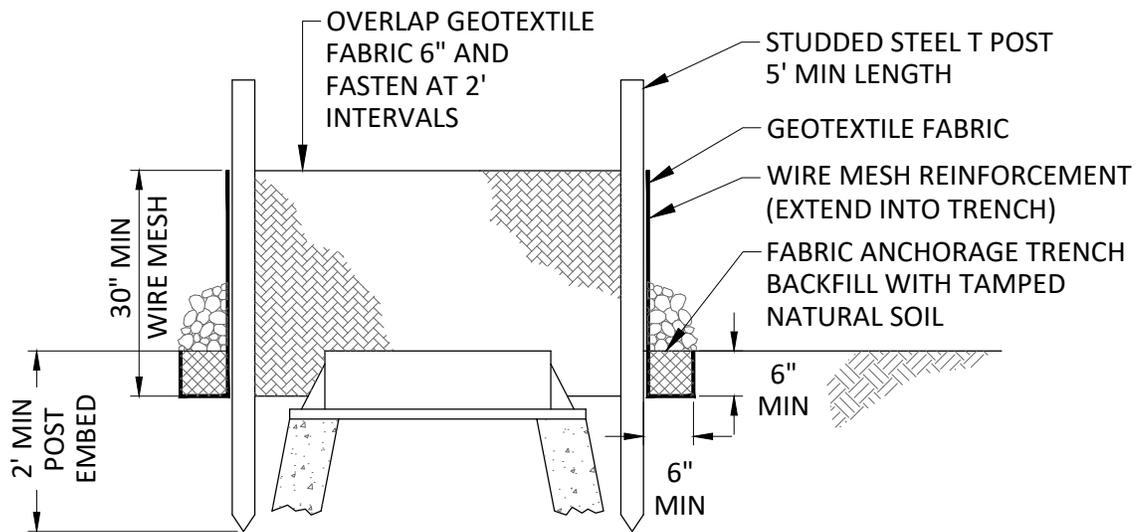
INLET PROTECTION
PREASSEMBLED SILT FENCE

REVISION
PUBLISHED
02/2026

PLATE NO.
EROS-07



PLAN VIEW



SECTION

NOTE:
SILT FENCE SHALL CONFORM TO
THE REQUIREMENTS OF MnDOT
SPECIFICATION 3886



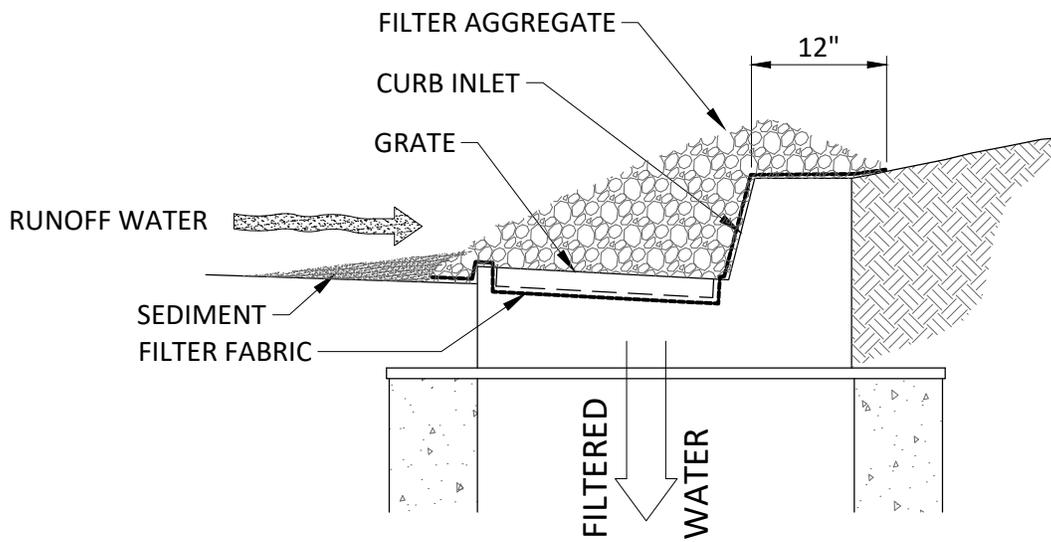
**INLET PROTECTION
HEAVY DUTY SILT FENCE**

REVISION
PUBLISHED
02/2026

PLATE NO.
EROS-08

NOTES:

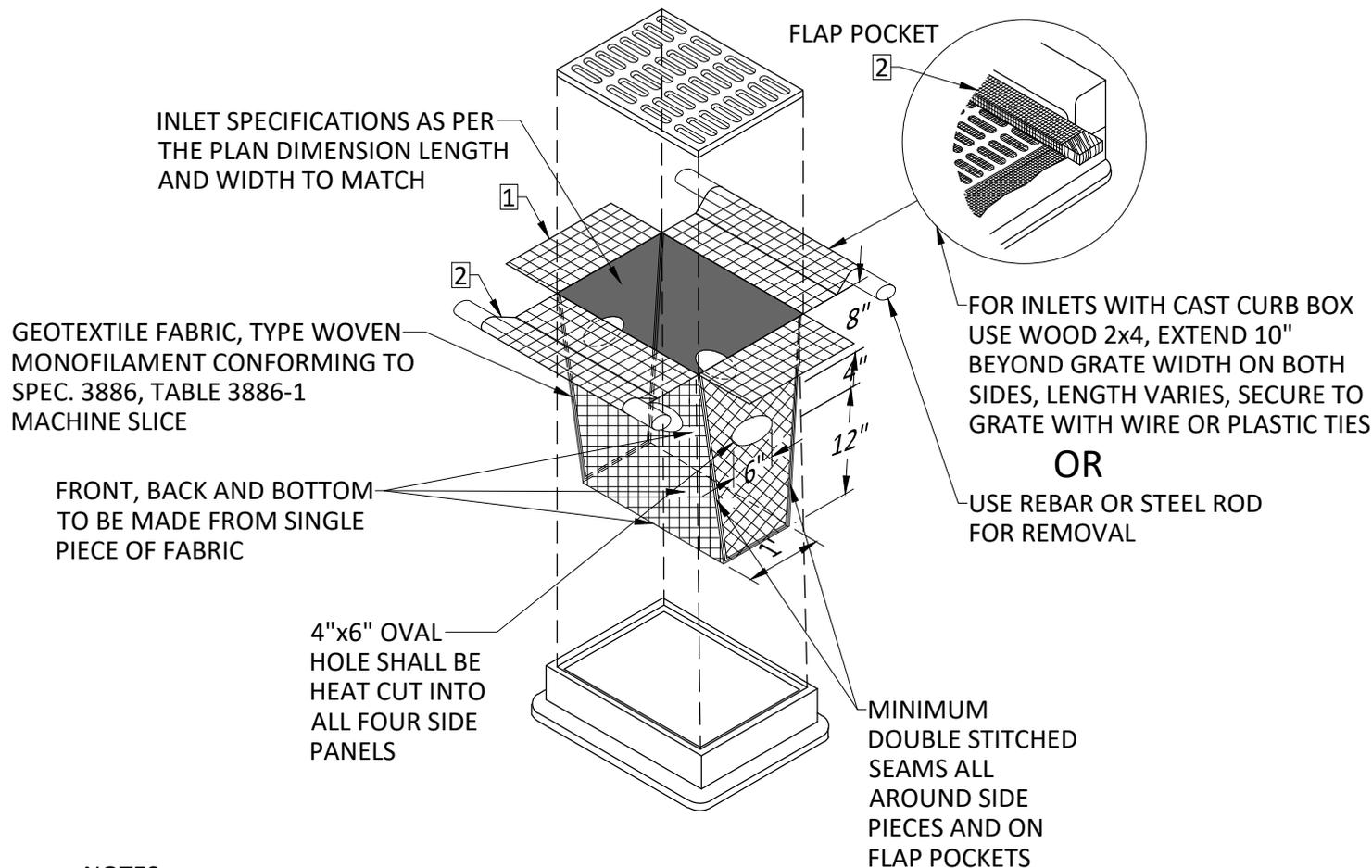
1. FILTER AGGREGATE TO BE 1 TO 2 INCH CLEAN ROCK.
2. FILTER FABRIC SHALL MEET MnDOT SPECIFICATION 3733 GEOTEXTILE FABRIC TYPE 3.



INLET PROTECTION
FILTER AGGREGATE

REVISION
PUBLISHED
02/2026

PLATE NO.
EROS-09



NOTES:

- 1 INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER. MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENTS EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED. WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL IN THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.
- 2 FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2x4.

INSTALLATION NOTES:

DO NOT INSTALL PROTECTION IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

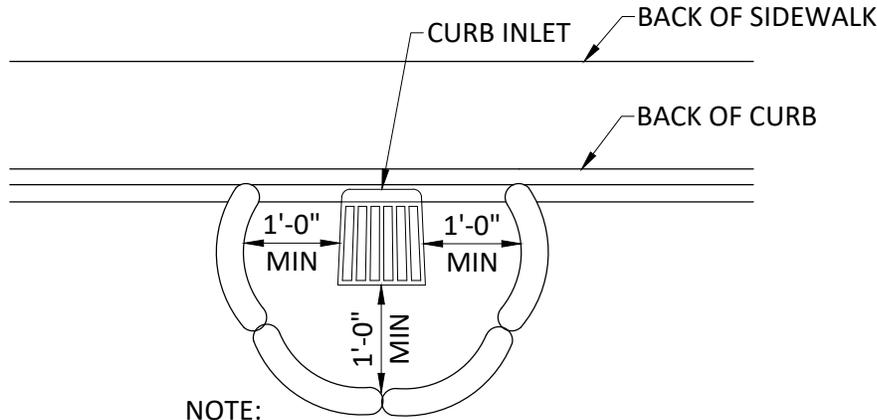
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



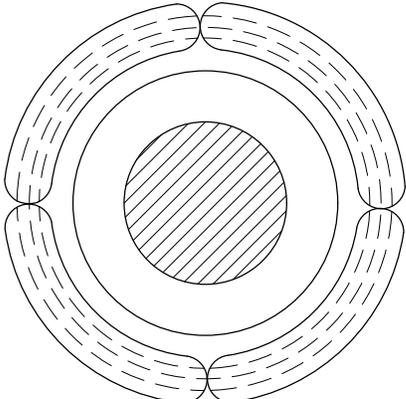
**INLET PROTECTION
GEOTEXTILE BAG**

REVISION PUBLISHED 02/2026
PLATE NO. EROS-10

PAYMENT SHALL INCLUDE ALL MATERIALS, FILLING OF LOG, PLACEMENT, MAINTENANCE & REMOVAL;
 80% OF BID PRICE SHALL BE PAID UPON PROPER PLACEMENT WITH THE FINAL 20% PAID UPON REMOVAL



NOTE:
 THIS INLET PROTECTION IS USED DURING ROUGH GRADING ONLY, USE BEFORE ROAD IS OPEN TO TRAFFIC OR IS PAVED

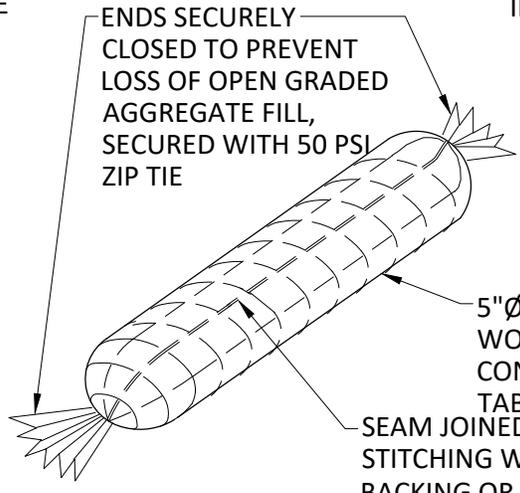


FILL ROCK LOG WITH 45 LBS. OF OPEN GRADED AGGREGATE CONSISTING OF SOUND, DURABLE PARTICLES OF CRUSHED QUARRY ROCK OR GRAVEL CONFORMING TO THE FOLLOWING GRADATION.

GRADATION	
SIEVE SIZE	PERCENT PASSING
1 1/2"	100
1"	95-100
3/4"	65-95
3/8"	30-65
NO 4	10-35
NO 10	3-20
NO 40	0-8
NO 200	0-3

NOTE:
 CRUSHED CONCRETE OR BITUMINOUS SHALL NOT BE USED FOR OPEN GRADED AGGREGATE.

ENDS SECURELY CLOSED TO PREVENT LOSS OF OPEN GRADED AGGREGATE FILL, SECURED WITH 50 PSI ZIP TIE



INLET PROTECTION WITH ROCK LOG

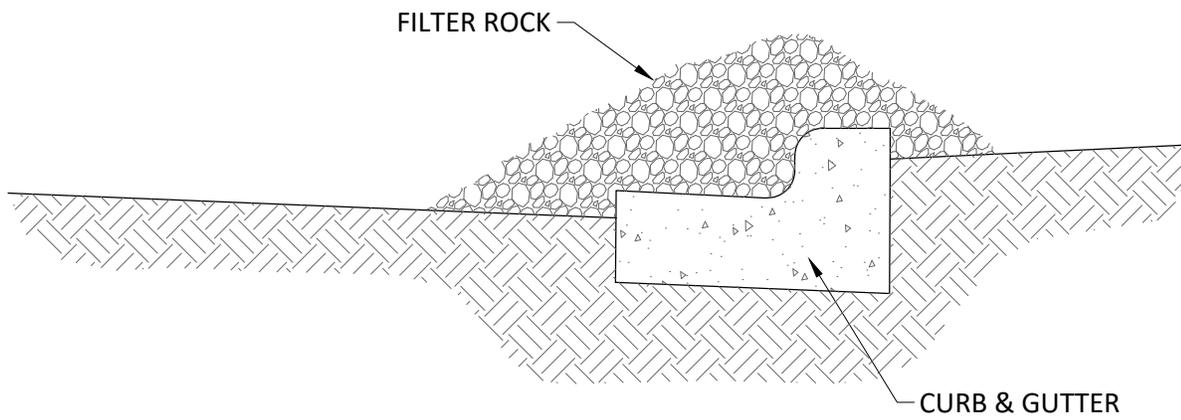
5"Ø GEOTEXTILE SOCK, TYPE WOVEN MONOFILAMENT CONFORMING TO SPEC. 3886 TABLE 3886-1. MACHINE SLICE SEAM JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR HEAT BONDED (OR APPROVED EQUAL)



INLET PROTECTION
 ROCK BAG

REVISION
 PUBLISHED
 02/2026
 PLATE NO.
 EROS-11

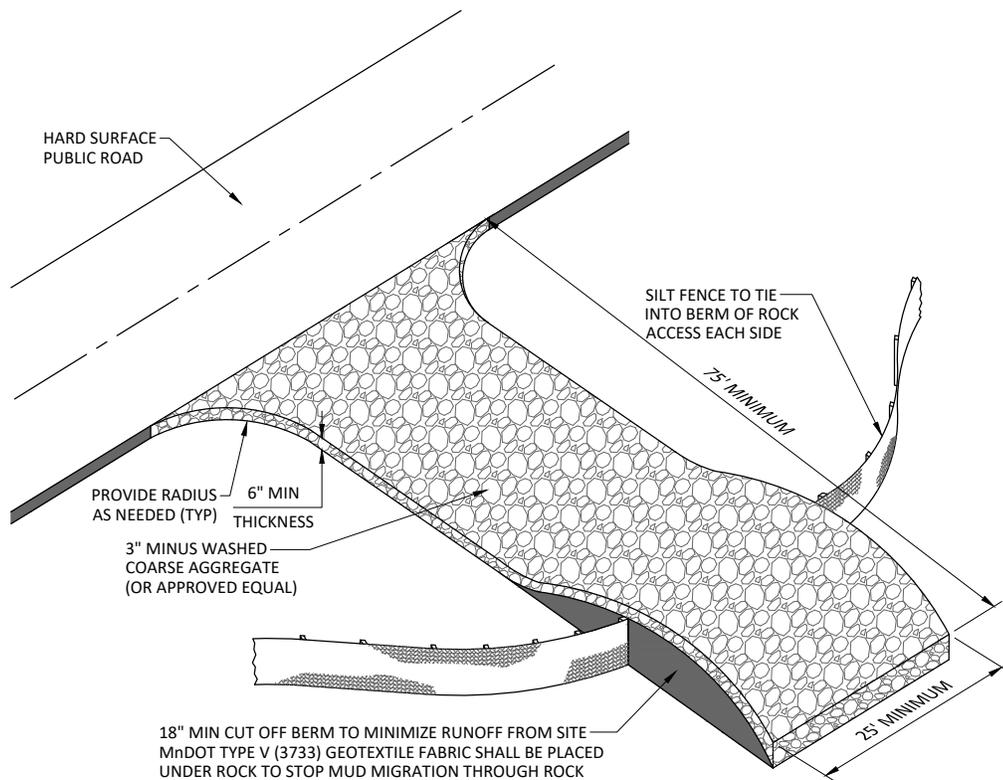
NOTE: FILTER AGGREGATE TO BE 1 TO 2 INCH CLEAN ROCK



INLET PROTECTION
1-1/2" ROCK WEIR

REVISION
PUBLISHED
02/2026

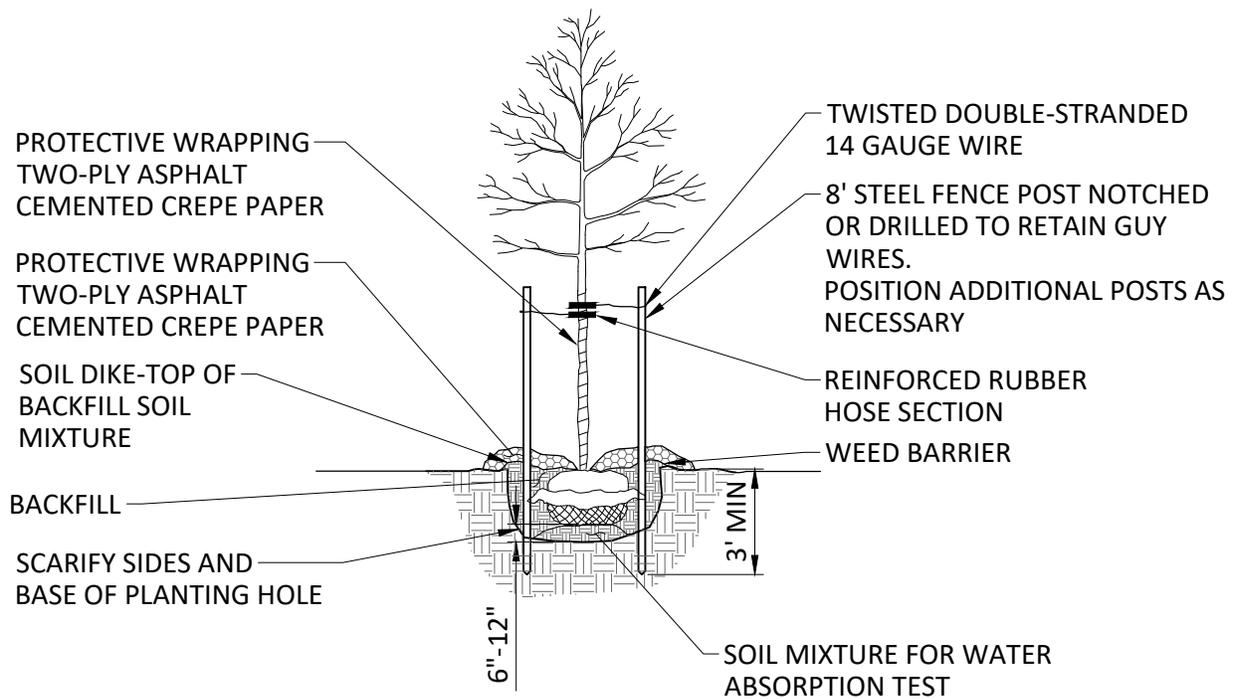
PLATE NO.
EROS-12



ROCK CONSTRUCTION ENTRANCE

REVISION
PUBLISHED
02/2026

PLATE NO.
EROS-13



DECIDUOUS TREE PLANTING

NOT TO SCALE

BAG & BALL PLANTING NOTE:

1. REMOVE WRAPPING AND ALL TIES OR STRAPS. IF ROOT BALL IS WRAPPED IN BURLAP THE LOWER $\frac{1}{2}$ PORTION OF THE FABRIC MAY BE LEFT AT THE BOTTOM OF THE HOLE. SYNTHETIC WRAP MUST BE REMOVED AND PROPERLY DISPOSED.
2. LOOSEN ROOTS TO ENSURE THEY ARE NOT GIRDLING THE ROOT BALL.
3. SALVAGE AND REUSE ALL SOIL THAT CAME WITH THE ROOT BALL.
4. IF ROOT BALL IS EXTREMELY DRY WATER IT PRIOR TO PLACING IT IN THE HOLE.
5. IF TREE IS CONTAINER GROWN, SALVAGE ALL SOIL AND MIX WITH SUPPLEMENTED SOIL FOR BACK FILL.

BARE ROOT PLANTING NOTE:

IF BARE ROOT MATERIAL IS SPECIFIED THESE ADDITIONAL REQUIREMENTS MUST BE MET:

1. ROOTS MUST BE SOAKED OVERNIGHT THE NIGHT BEFORE PLANTING.
2. ROOTS MUST BE PROTECTED FROM DRYING OUT DURING THE INSTALLATION PROCESS.
3. ALL DAMAGED, DISEASED OR DESIGNATED ROOTS AND ROOT ENDS MUST BE CLEANLY PRUNED. TREE SHALL NOT HAVE GIRDLING ROOTS.

1. PROVIDE AND INSTALL HEALTHY PLANT MATERIALS THAT MEET ALL SPECIFICATIONS AND ARE OF THE SIZE, TYPE AND SPECIES NAMED ON THE PLANT SCHEDULE AND SHOWN ON THE PLANS.
2. DIG PLANT HOLE 1'-0" MINIMUM LARGER ON ALL SIDES THAN ROOT BALL.
3. PRIOR TO PLACING TREE, SCARIFY BOTTOM AND SIDES OF THE PLANTING HOLE.
4. TEST SOIL ABSORPTION. FILL HOLE PARTIALLY WITH SUPPLEMENTED SOIL MIXTURE, ADD WATER AND ALLOW TO PUDDLE AND SETTLE PRIOR TO SETTING TREE.
5. AFTER PUDDLING HAS SETTLED, SET TREE AND BACK FILL WITH SUPPLEMENTED SOIL MIXTURE.
6. WATER THOROUGHLY AND ADD BACK FILL AS NEEDED AFTER MOISTURE IS ABSORBED.
7. BUILD SOIL DIKE AROUND PERIPHERY OF TREE TO HOLD WATER.
8. AFTER SETTLEMENT, MULCH WITH MINIMUM 4" LAYER SHREDDED BARK, WOOD CHIPS OR AS OTHERWISE SPECIFIED. DO NOT MULCH UP AGAINST THE TRUNK.
9. REMOVE DEAD OR DAMAGED BRANCHES. RETAIN THE NATURAL FORM OF THE TREE.



DECIDUOUS TREE PLANTING

REVISION
PUBLISHED
02/2026

PLATE NO.
MISC-01

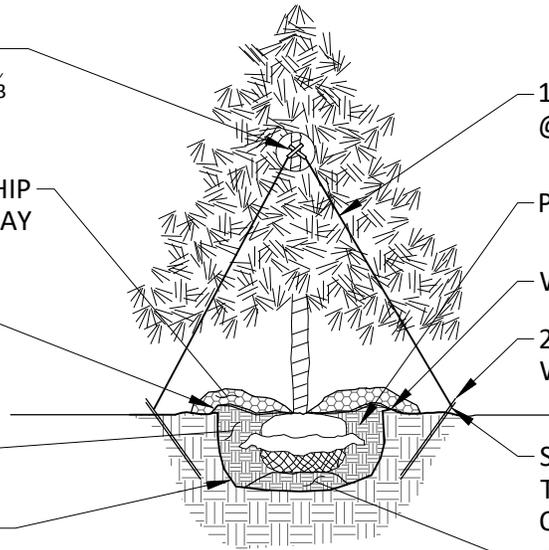
RUBBER HOSE COLLARS
TO BE PLACED APPROX. $\frac{2}{3}$
HIGH ON THE TRUNK

4" COMPACTED WOODCHIP
MULCH-KEEP MULCH AWAY
FROM ROOT COLLAR

SOIL DIKE-TOP OF
BACKFILL SOIL MIXTURE

BACKFILL

SCARIFY SIDES AND
BASE OF PLANTING HOLE



12 GA WIRE-3
@ 120° INTERVAL

PLANTING SOIL

WEED BARRIER

2"x4"x24"
WOOD STAKE

STAKES, WIRE & COLLARS
TO BE REMOVED AFTER
ONE GROWING SEASON

SOIL MIXTURE FOR WATER
ABSORPTION TEST

CONIFEROUS TREE PLANTING

NOT TO SCALE

BAG & BALL PLANTING NOTE:

1. REMOVE WRAPPING AND ALL TIES OR STRAPS. IF ROOT BALL IS WRAPPED IN BURLAP THE LOWER $\frac{1}{2}$ PORTION OF THE FABRIC MAY BE LEFT AT THE BOTTOM OF THE HOLE. SYNTHETIC WRAP MUST BE REMOVED AND PROPERLY DISPOSED.
2. LOOSEN ROOTS TO ENSURE THEY ARE NOT GIRDLING THE ROOT BALL.
3. SALVAGE AND REUSE ALL SOIL THAT CAME WITH THE ROOT BALL.
4. IF ROOT BALL IS EXTREMELY DRY WATER IT PRIOR TO PLACING IT IN THE HOLE.
5. IF TREE IS CONTAINER GROWN, SALVAGE ALL SOIL AND MIX WITH SUPPLEMENTED SOIL FOR BACK FILL.

BARE ROOT PLANTING NOTE:

IF BARE ROOT MATERIAL IS SPECIFIED THESE ADDITIONAL REQUIREMENTS MUST BE MET:

1. ROOTS MUST BE SOAKED OVERNIGHT THE NIGHT BEFORE PLANTING.
2. ROOTS MUST BE PROTECTED FROM DRYING OUT DURING THE INSTALLATION PROCESS.
3. ALL DAMAGED, DISEASED OR DESIGNATED ROOTS AND ROOT ENDS MUST BE CLEANLY PRUNED. TREE SHALL NOT HAVE GIRDLING ROOTS.

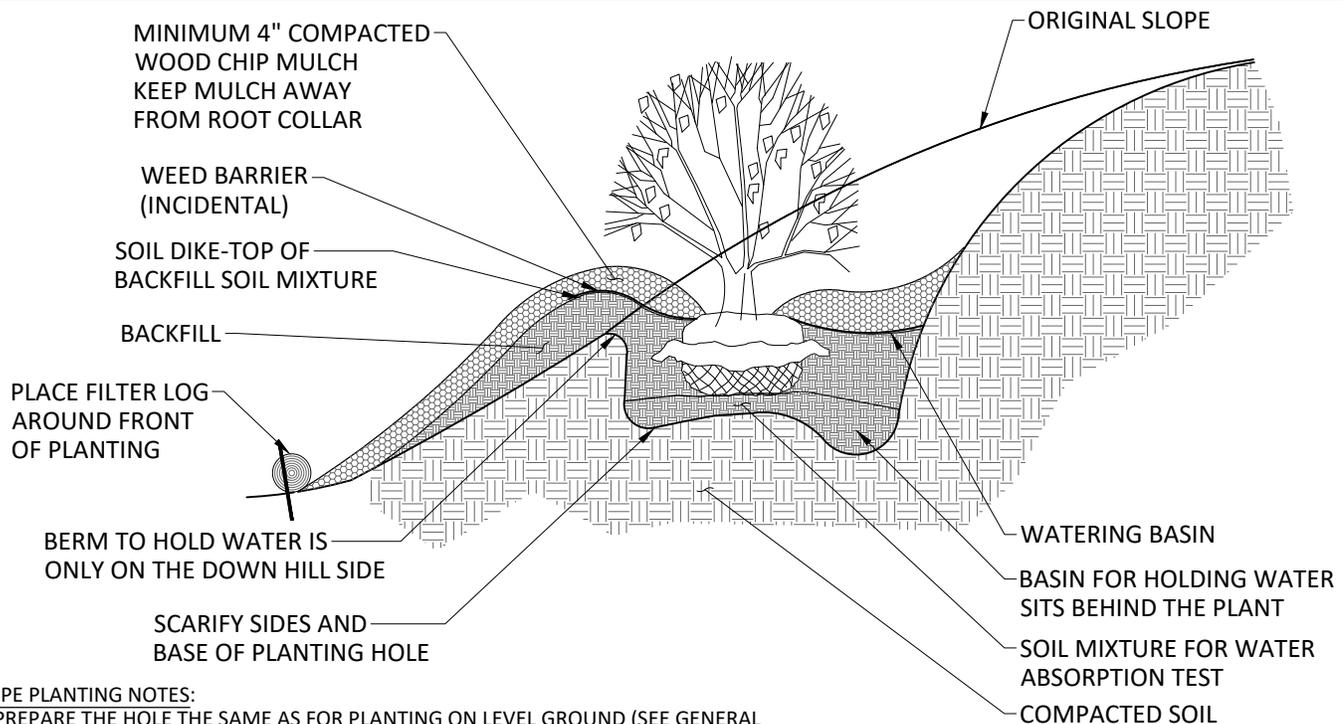
1. PROVIDE AND INSTALL HEALTHY PLANT MATERIALS THAT MEET ALL SPECIFICATIONS AND ARE OF THE SIZE, TYPE AND SPECIES NAMED ON THE PLANT SCHEDULE AND SHOWN ON THE PLANS.
2. DIG PLANT HOLE 1'-0" MINIMUM LARGER ON ALL SIDES THAN ROOT BALL.
3. PRIOR TO PLACING TREE, SCARIFY BOTTOM AND SIDES OF THE PLANTING HOLE.
4. TEST SOIL ABSORPTION. FILL HOLE PARTIALLY WITH SUPPLEMENTED SOIL MIXTURE, ADD WATER AND ALLOW TO PUDDLE AND SETTLE PRIOR TO SETTING TREE.
5. AFTER PUDDLING HAS SETTLED, SET TREE AND BACK FILL WITH SUPPLEMENTED SOIL MIXTURE.
6. WATER THOROUGHLY AND ADD BACK FILL AS NEEDED AFTER MOISTURE IS ABSORBED.
7. BUILD SOIL DIKE AROUND PERIPHERY OF TREE TO HOLD WATER.
8. AFTER SETTLEMENT, MULCH WITH MINIMUM 4" LAYER SHREDDED BARK, WOOD CHIPS OR AS OTHERWISE SPECIFIED. DO NOT MULCH UP AGAINST THE TRUNK.
9. REMOVE DEAD OR DAMAGED BRANCHES. RETAIN THE NATURAL FORM OF THE TREE.



CONIFEROUS TREE PLANTING

REVISION
PUBLISHED
02/2026

MISC-02



SLOPE PLANTING NOTES:

1. PREPARE THE HOLE THE SAME AS FOR PLANTING ON LEVEL GROUND (SEE GENERAL PLANTING NOTES). INSTEAD OF A BERM SURROUNDING THE PLANTING HOLE, THE BERM WILL BE ONLY ON THE DOWNHILL SIDE OF THE HOLE AND A BASIN FOR HOLDING WATER WILL SIT BEHIND THE PLANT ON THE HILL.
2. LEVEL A TERRACE IN THE HILLSIDE. CARVE AWAY THE SLOPE ABOVE THE PLANTING HOLE AND USE THE DISPLACED SOIL TO BUILD THE TERRACE AREA LEVEL FOR THE PLANTING HOLE. THE TERRACE SHOULD BE AT LEAST TWICE AS WIDE AS THE ROOT BALL. IF A CONIFEROUS TREE IS BEING PLANTED CONSIDER THE MATURE SIZE OF THE SPREAD WHEN BUILDING THE HILLSIDE TERRACE. COMPACT THE WORKING AREA.
3. DIG THE HOLE FOR THE ROOT BALL AND THE WATERING BASIN AND BUILD THE BERM ON THE DOWNHILL SIDE OF THE HOLE. COMPACT THE BERM AND THE SLOPE SIDE OF THE HOLE.
4. TEST SOIL ABSORPTION (SEE NO. 4 GENERAL PLANTING NOTES).
5. SET THE ROOT BALL SLIGHTLY FORWARD IN THE HOLE. POSITION THE PLANT SO EROSION OVER TIME NEITHER EXPOSES THE ROOT BALL NOR COVERS THE ROOT COLLAR.
6. BACKFILL AND COMPACT. USE ADDITIONAL AMENDED SOIL TO STRENGTHEN AND ENLARGE THE EARTH BERM IN FRONT OF THE PLANT. SMOOTH INTO SURROUNDING SLOPE.
7. MULCH WITH WOOD CHIPS TO KEEP SOIL BERM FROM ERODING. KEEP MULCH A MINIMUM OF 3" FROM THE ROOT COLLAR. FOLLOW INSTRUCTIONS FOR STAKING. FILTER LOG SHALL BE INSTALLED ON THE FRONT OF THE PLANTING TO SECURE THE WOOD CHIPS IF SLOPE IS STEEP.
8. MONITOR CONDITION OF THE PLANTS SET IN SLOPE FOR A MINIMUM OF 2 MONTHS AFTER PLANTING TO INSURE THAT THE CONTOUR OF THE LAND IS CAPTURING THE RAINWATER AND THE SLOPE IS NOT ERODING ONTO THE BASE OF THE PLANT. PLANTINGS SHOULD BE CHECKED AFTER HEAVY RAINS THE FIRST SEASON AND AFTER THE FIRST WINTER IN PLACE.

GENERAL PLANTING NOTES:

1. PROVIDE AND INSTALL HEALTHY PLANT MATERIALS THAT MEET ALL SPECIFICATIONS AND ARE OF THE SIZE, TYPE AND SPECIES NAMED ON THE PLANT SCHEDULE AND SHOWN ON THE PLANS.
2. DIG PLANT HOLE 1'-0" MINIMUM LARGER ON ALL SIDES THAN ROOT BALL.
3. PRIOR TO PLACING TREE, SCARIFY BOTTOM AND SIDES OF THE PLANTING HOLE.
4. TEST SOIL ABSORPTION. FILL HOLE PARTIALLY WITH SUPPLEMENTED SOIL MIXTURE, ADD WATER AND ALLOW TO PUDDLE AND SETTLE PRIOR TO SETTING TREE.
5. AFTER PUDDLING HAS SETTLED, SET TREE AND BACK FILL WITH SUPPLEMENTED SOIL MIXTURE.
6. WATER THOROUGHLY AND ADD BACK FILL AS NEEDED AFTER MOISTURE IS ABSORBED.
7. BUILD SOIL DIKE AROUND PERIPHERY OF TREE TO HOLD WATER.
8. AFTER SETTLEMENT, MULCH WITH MINIMUM 4" LAYER SHREDDED BARK, WOOD CHIPS OR AS OTHERWISE SPECIFIED. DO NOT MULCH UP AGAINST THE TRUNK.
9. REMOVE DEAD OR DAMAGED BRANCHES. RETAIN THE NATURAL FORM OF THE TREE.

BAG & BALL PLANTING NOTE:

1. REMOVE WRAPPING AND ALL TIES OR STRAPS. IF ROOT BALL IS WRAPPED IN BURLAP THE LOWER 1/2 PORTION OF THE FABRIC MAY BE LEFT AT THE BOTTOM OF THE HOLE. SYNTHETIC WRAP MUST BE REMOVED AND PROPERLY DISPOSED.
2. LOOSEN ROOTS TO ENSURE THEY ARE NOT GIRDLING THE ROOT BALL.
3. SALVAGE AND REUSE ALL SOIL THAT CAME WITH THE ROOT BALL.
4. IF ROOT BALL IS EXTREMELY DRY WATER IT PRIOR TO PLACING IT IN THE HOLE.
5. IF TREE IS CONTAINER GROWN, SALVAGE ALL SOIL AND MIX WITH SUPPLEMENTED SOIL FOR BACK FILL.

BARE ROOT PLANTING NOTE:

IF BARE ROOT MATERIAL IS SPECIFIED THESE ADDITIONAL REQUIREMENTS MUST BE MET:

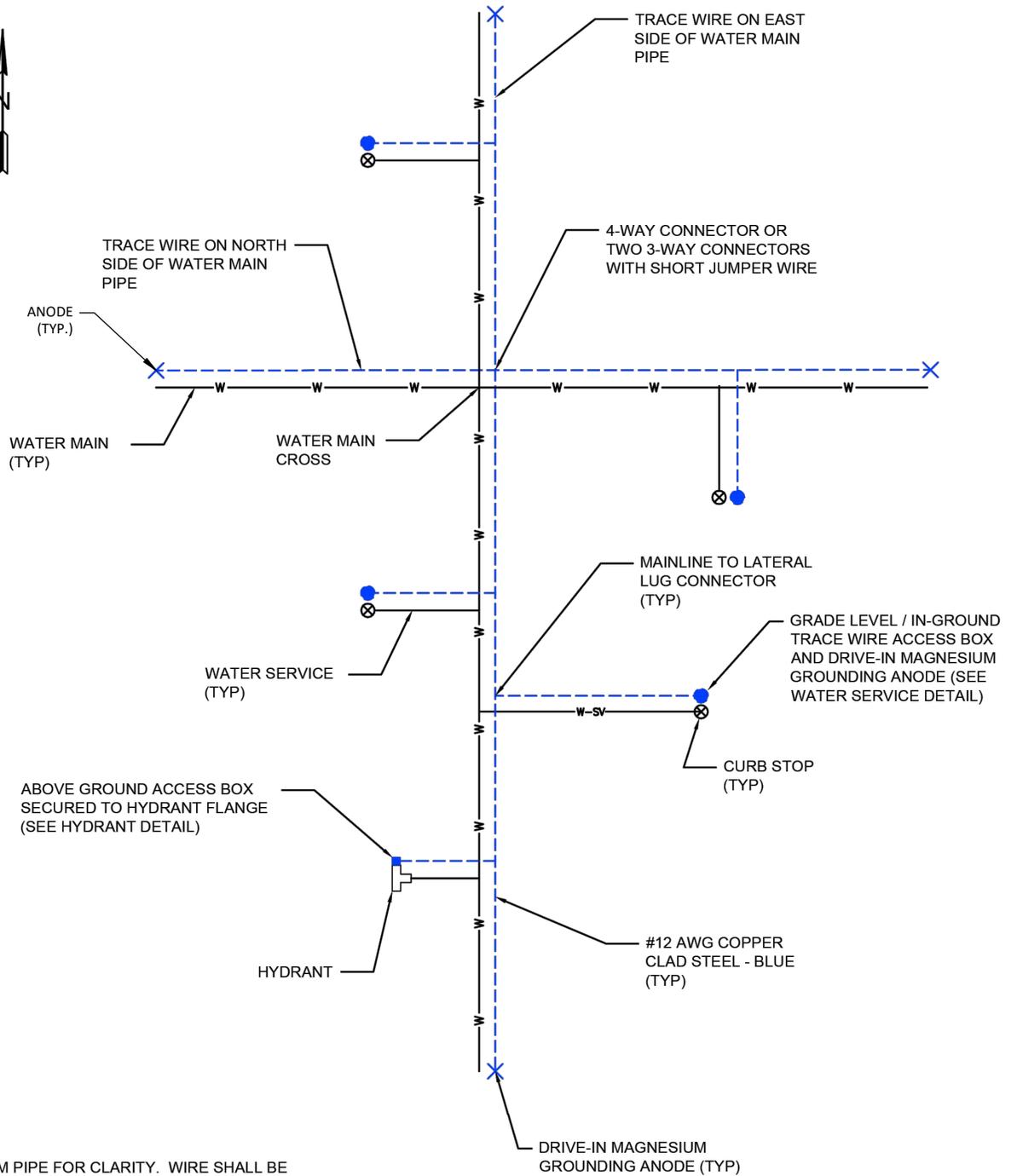
1. ROOTS MUST BE SOAKED OVERNIGHT THE NIGHT BEFORE PLANTING.
2. ROOTS MUST BE PROTECTED FROM DRYING OUT DURING THE INSTALLATION PROCESS.
3. ALL DAMAGED, DISEASED OR DESIGNATED ROOTS AND ROOT ENDS MUST BE CLEANLY PRUNED. TREE SHALL NOT HAVE GIRDLING ROOTS.



**TREE OR SHRUB
PLANTED ON A SLOPE**

REVISION
PUBLISHED
02/2026

PLATE NO.
MISC-03



NOTES:

1. WIRE SHOWN AWAY FROM PIPE FOR CLARITY. WIRE SHALL BE INSTALLED ON THE BOTTOM SIDE OF THE PIPE BELOW THE SPRING LINE. THE WIRE SHALL BE FASTENED TO THE PIPE WITH TAPE OR PLASTIC TIES AT 5' INTERVALS.

TRACE WIRE PLAN (WATER)

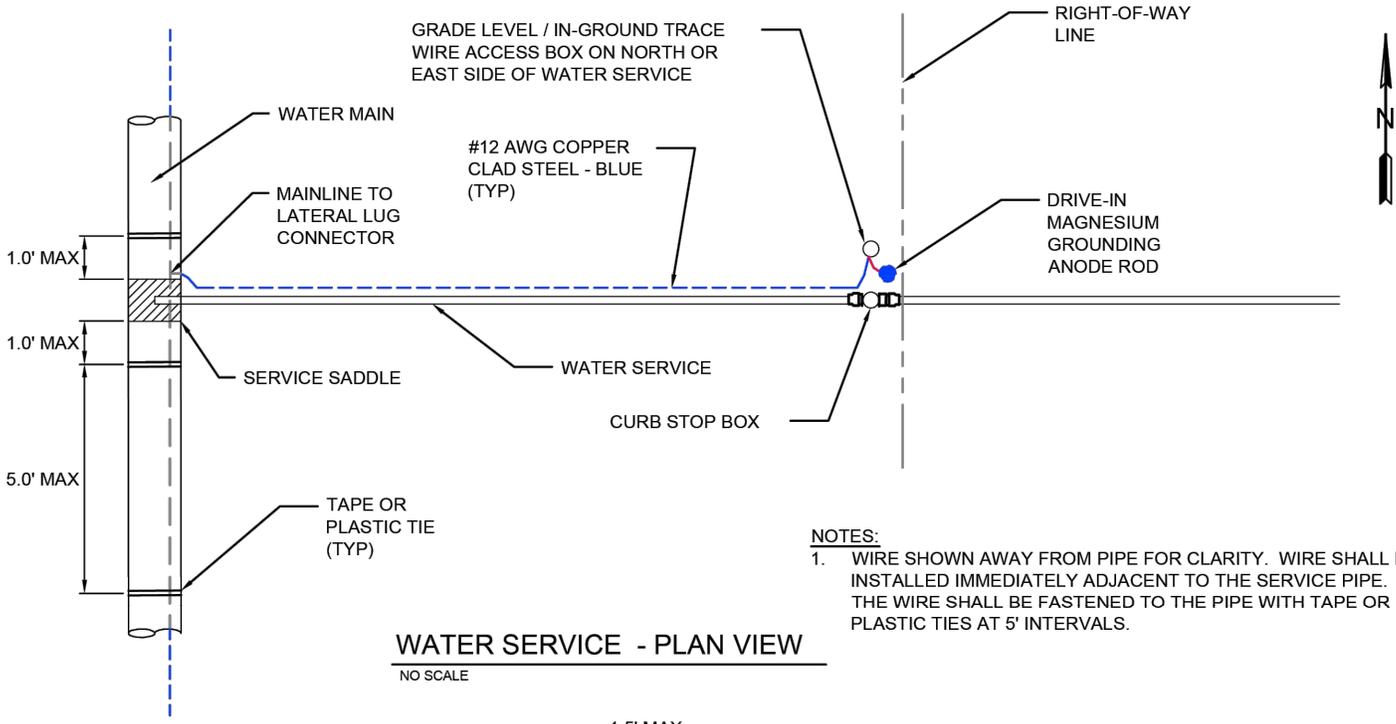
NO SCALE



**TRACE WIRE -
WATER**

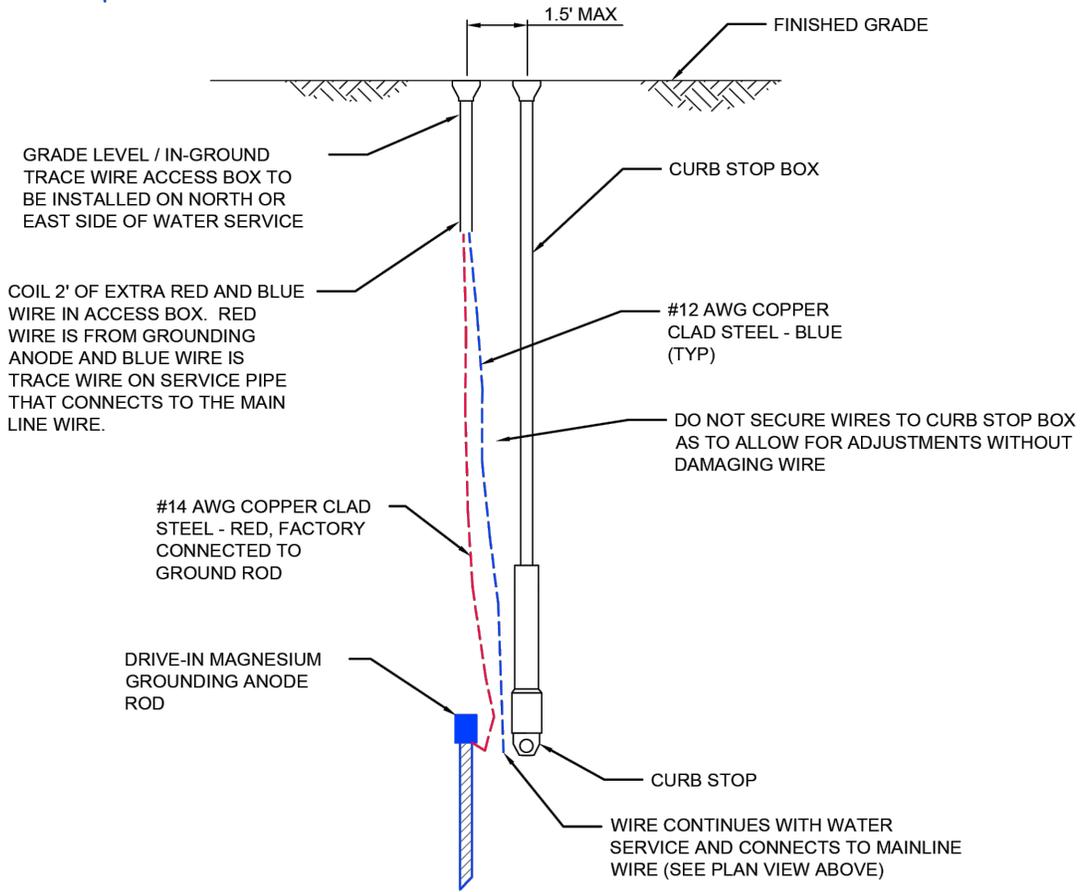
REVISION
PUBLISHED
02/2026

PLATE NO.
MISC-04



NOTES:
 1. WIRE SHOWN AWAY FROM PIPE FOR CLARITY. WIRE SHALL BE INSTALLED IMMEDIATELY ADJACENT TO THE SERVICE PIPE. THE WIRE SHALL BE FASTENED TO THE PIPE WITH TAPE OR PLASTIC TIES AT 5' INTERVALS.

WATER SERVICE - PLAN VIEW
 NO SCALE

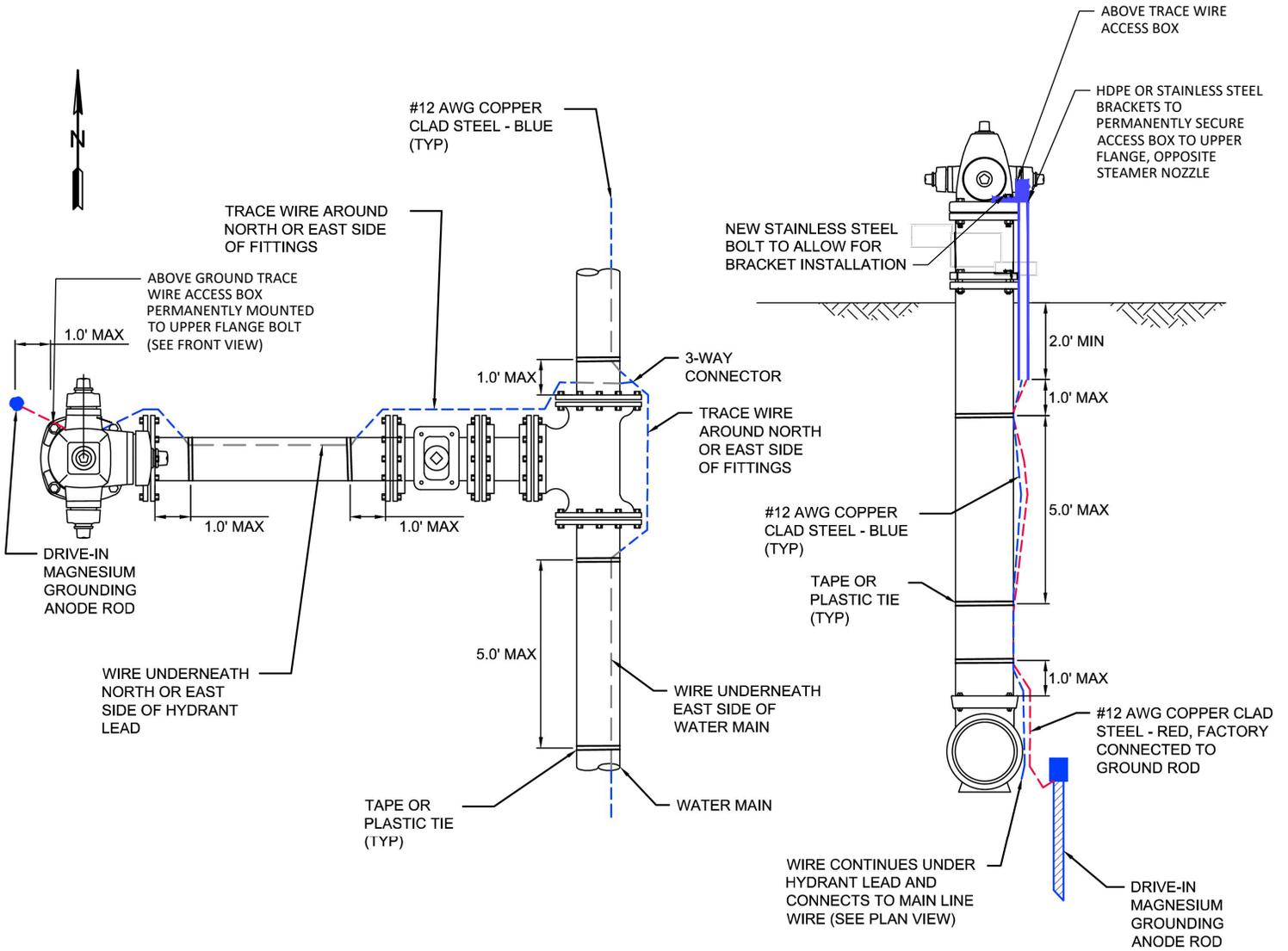


WATER SERVICE - SECTION VIEW
 NO SCALE



TRACE WIRE - WATER

REVISION PUBLISHED 02/2026
PLATE NO. MISC-05



HYDRANT - PLAN VIEW

NO SCALE

HYDRANT - SECTION VIEW

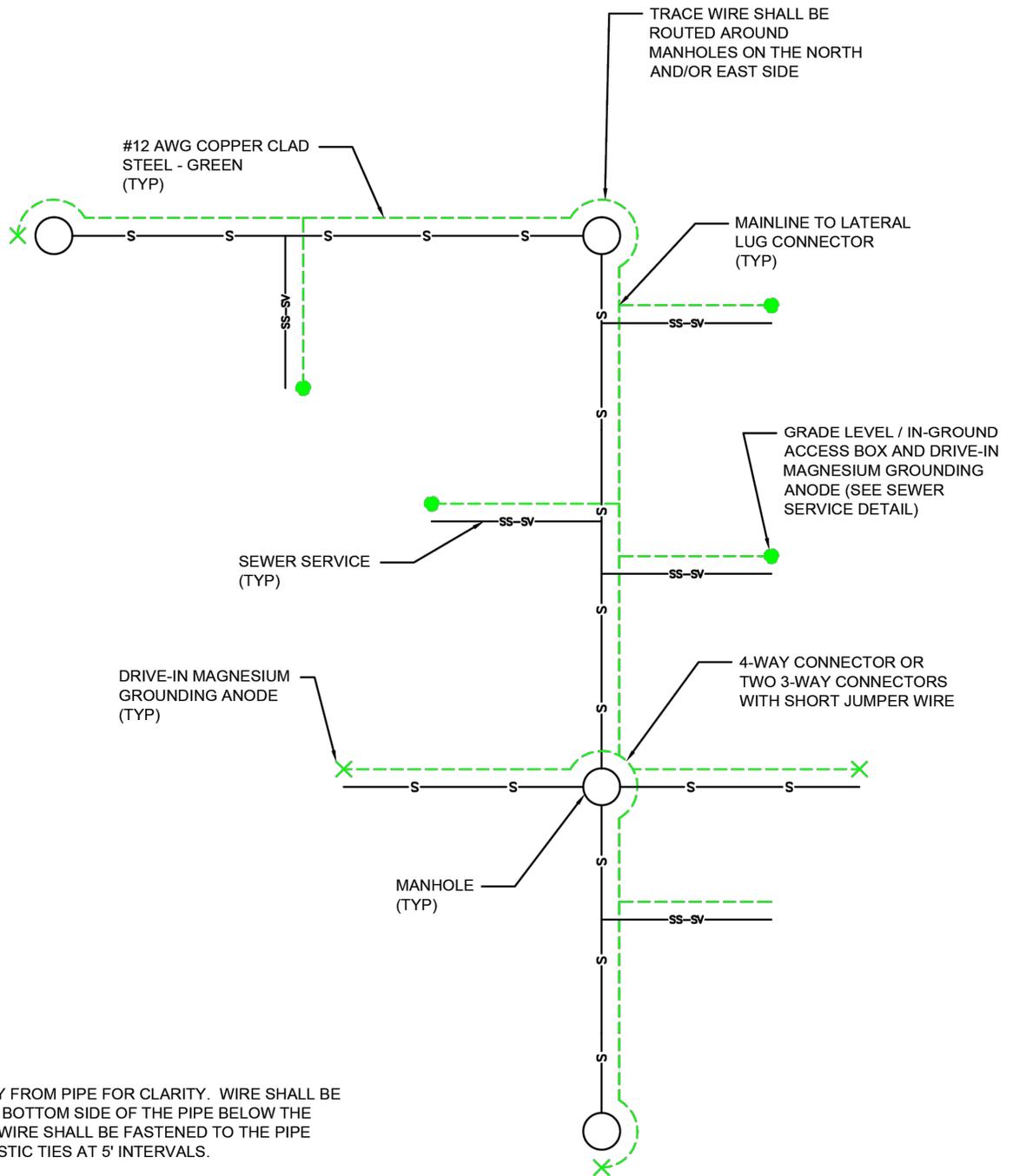
NO SCALE



TRACE WIRE -
HYDRANT

REVISION
PUBLISHED
02/2026

PLATE NO.
MISC-06



NOTES:

1. WIRE SHOWN AWAY FROM PIPE FOR CLARITY. WIRE SHALL BE INSTALLED ON THE BOTTOM SIDE OF THE PIPE BELOW THE SPRING LINE. THE WIRE SHALL BE FASTENED TO THE PIPE WITH TAPE OR PLASTIC TIES AT 5' INTERVALS.

TRACE WIRE PLAN (SEWER)

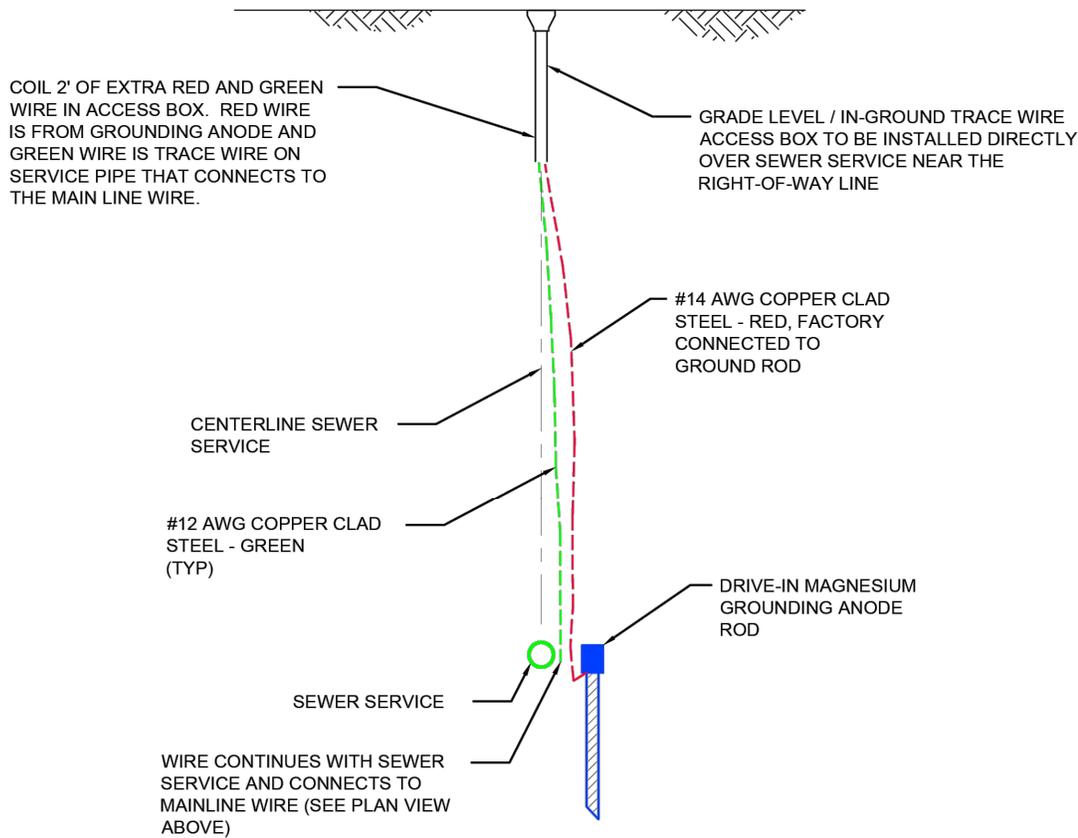
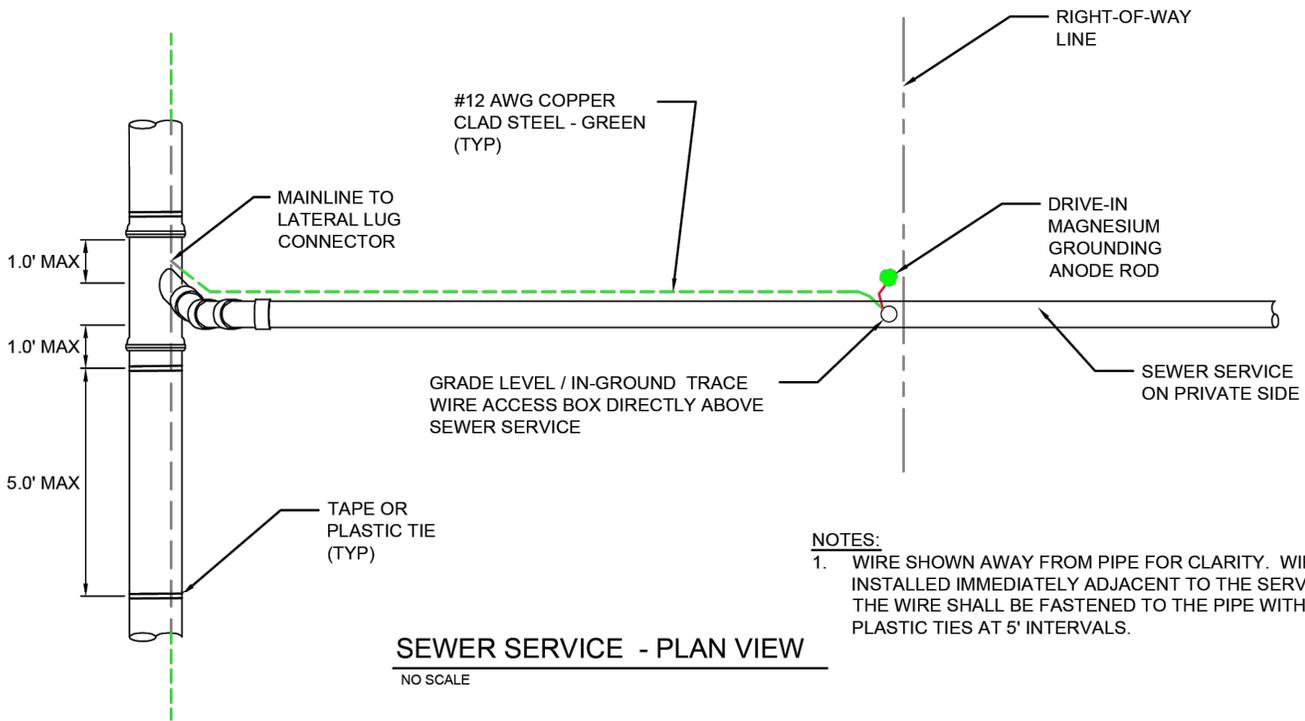
NO SCALE



**TRACE WIRE -
SEWER**

REVISION
PUBLISHED
02/2026

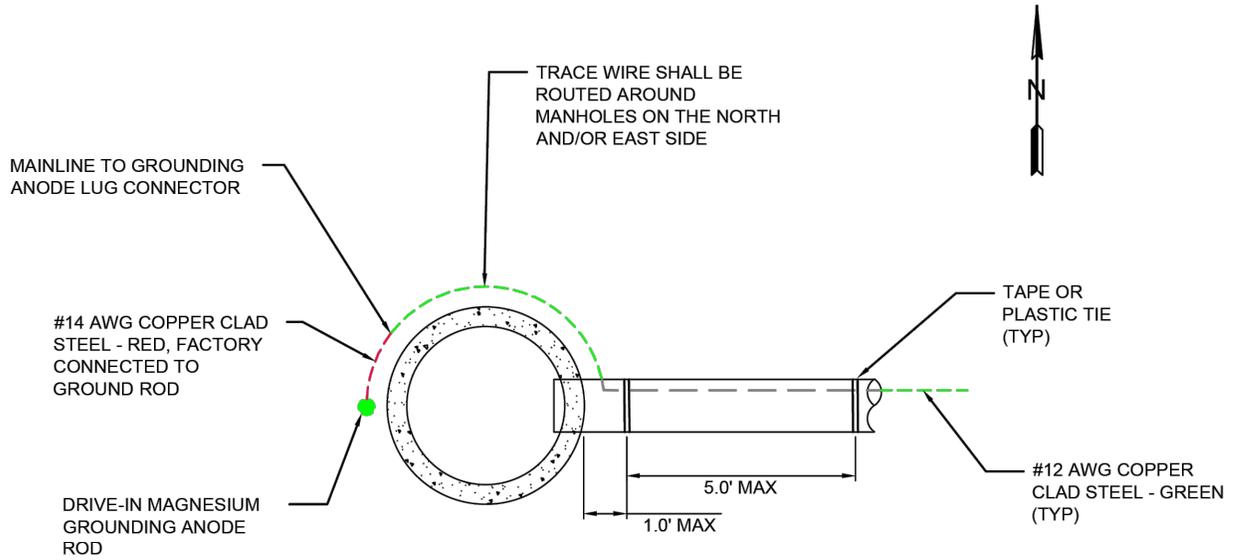
PLATE NO.
MISC-07



**TRACE WIRE -
SEWER**

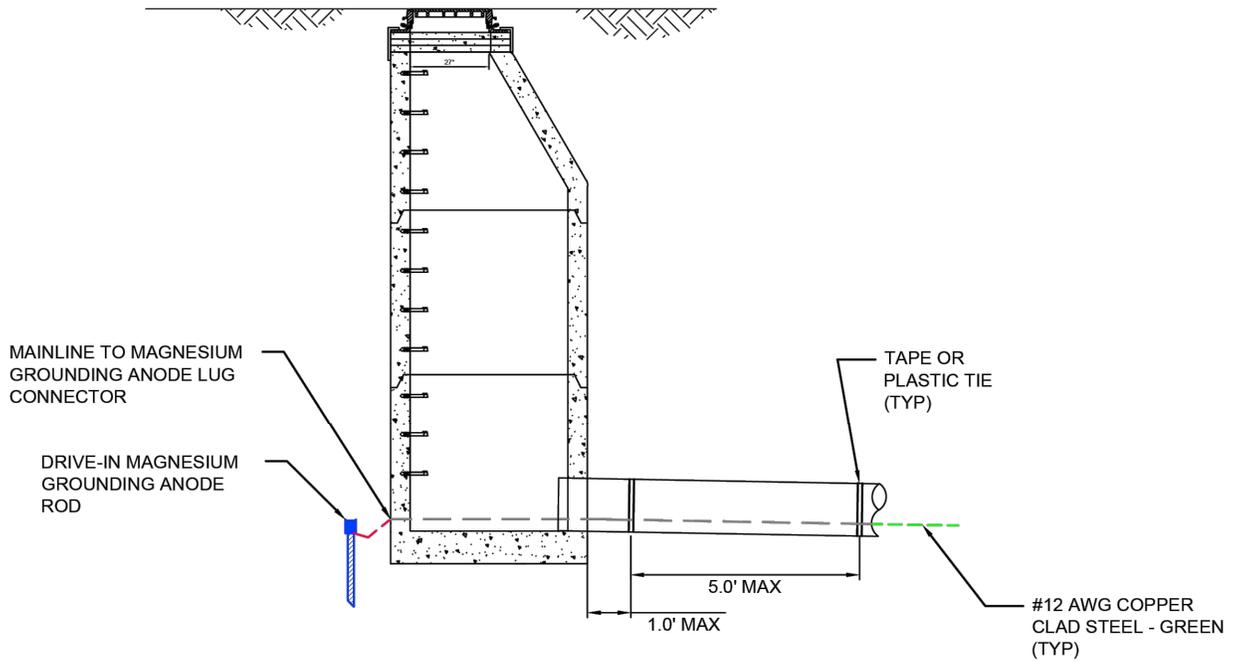
REVISION
PUBLISHED
02/2026

PLATE NO.
MISC-08



SEWER MANHOLE - PLAN VIEW

NO SCALE



SEWER MANHOLE - SECTION VIEW

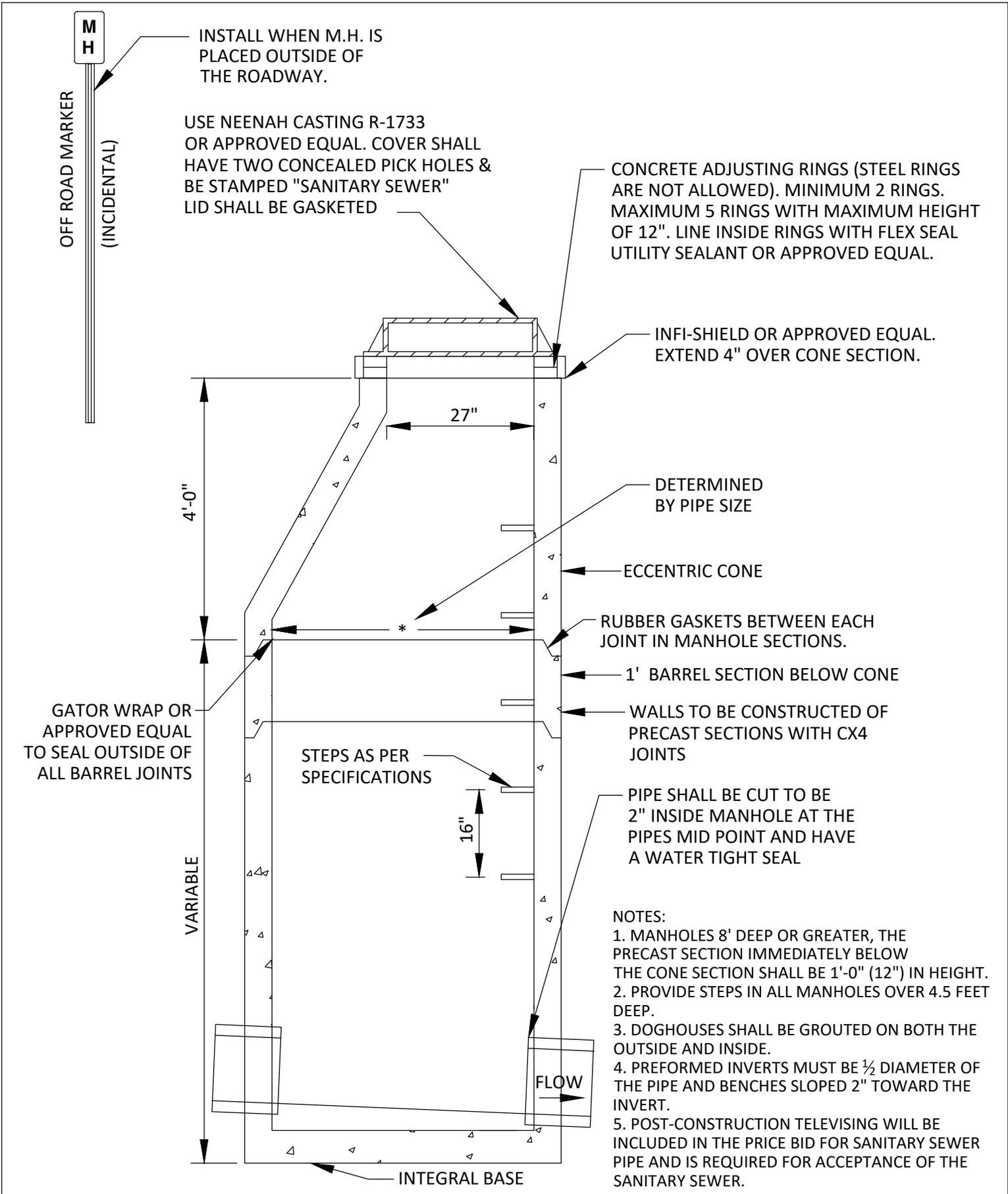
NO SCALE



**TRACE WIRE -
SEWER**

REVISION
PUBLISHED
02/2026

PLATE NO.
MISC-09



**SANITARY
STANDARD MANHOLE**

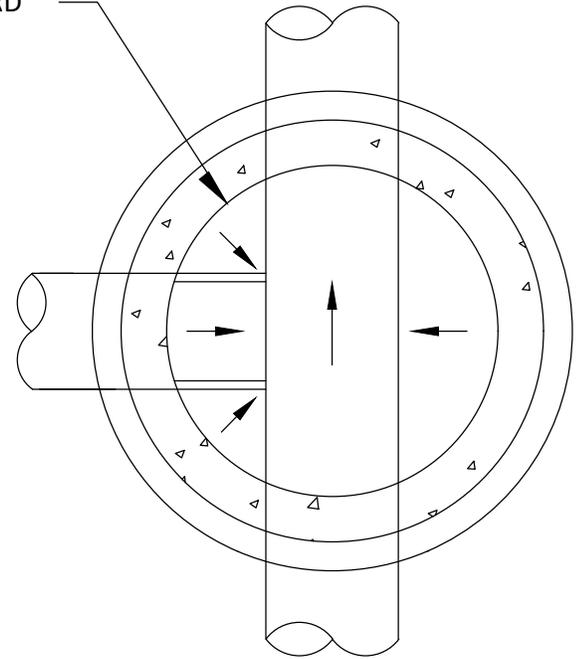
REVISION
PUBLISHED
02/2026

PLATE NO.
SAN-01

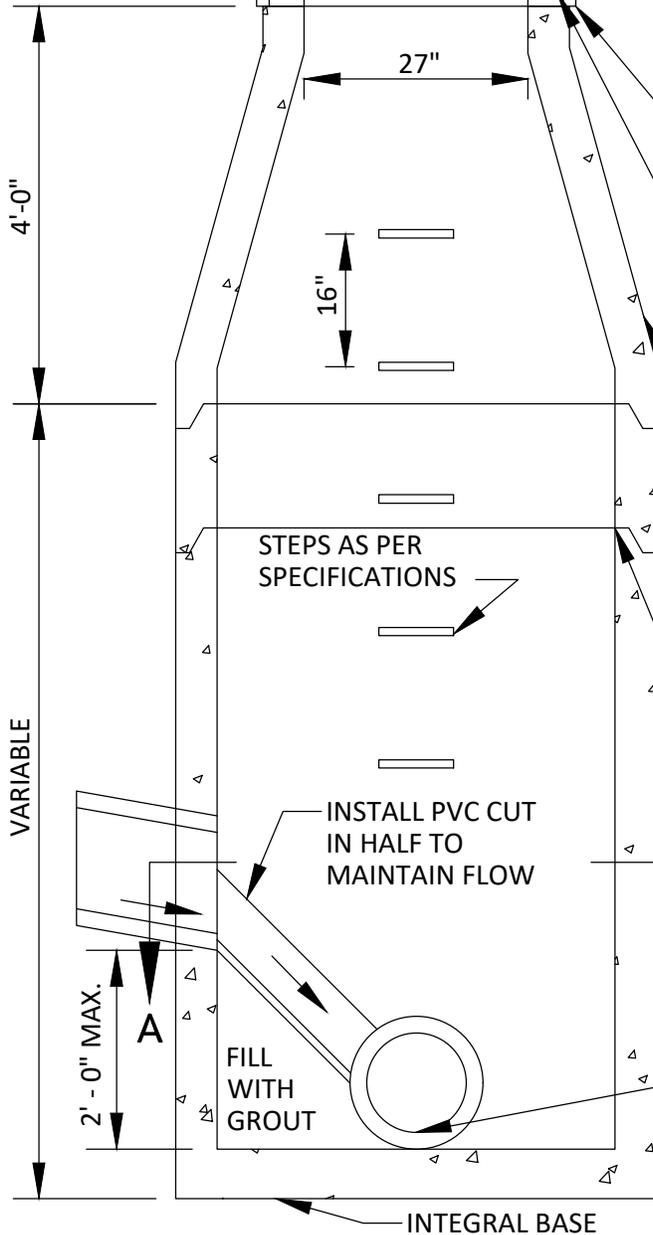
GROUT BOTTOM TO SLOPE TOWARD PIPE AS SHOWN BY ARROWS

CONCRETE ADJUSTING RINGS (STEEL RINGS ARE NOT ALLOWED). MINIMUM 2 RINGS. MAXIMUM 5 RINGS MAXIMUM. 12" LINE. LINE INSIDE RINGS WITH FLEX SEAL UTILITY SEALANT OR APPROVED EQUAL.

USE NEENAH CASTING R-1733 OR APPROVED EQUAL. COVER SHALL HAVE TWO CONCEALED PICK HOLES & BE STAMPED "SANITARY SEWER" LID SHALL BE GASKETED



SECTION A - A



INFI-SHIELD OR APPROVED EQUAL. EXTEND 4" OVER CONE SECTION.

CONCRETE ADJUSTING RINGS. MINIMUM 2 RINGS. MAXIMUM 5 RINGS WITH MAXIMUM HEIGHT OF 12". LINE INSIDE RINGS WITH FLEX SEAL UTILITY SEALANT OR APPROVED EQUAL.

ECCENTRIC CONE

RUBBER GASKET AT ALL JOINTS

1' BARREL SECTION BELOW CONE

WALLS TO BE CONSTRUCTED OF PRECAST SECTIONS WITH CX4 JOINTS

GATOR WRAP OR APPROVED EQUAL TO SEAL OUTSIDE OF ALL BARREL JOINTS

MANHOLE INVERT SHALL BE SLOPED TO PROVIDE SMOOTH FLOW FROM INLET TO OUTLET

NOTE: POST-CONSTRUCTION TELEVISIONING WILL BE INCLUDED IN THE PRICE BID FOR SANITARY SEWER PIPE AND IS REQUIRED FOR ACCEPTANCE OF THE SANITARY SEWER.



SANITARY
INSIDE DROP MANHOLE
(TWO OR LESS)

REVISION
PUBLISHED
02/2026

PLATE NO.
SAN-02

USE NEENAH CASTING R-1733 OR APPROVED EQUAL. COVER SHALL HAVE TWO CONCEALED PICK HOLES & BE STAMPED "SANITARY SEWER" LID SHALL BE GASKETED

NOTE: POST-CONSTRUCTION TELEVISIONING WILL BE INCLUDED IN THE PRICE BID FOR SANITARY SEWER PIPE AND IS REQUIRED FOR ACCEPTANCE OF THE SANITARY SEWER.

SECTION A - A

PRECAST HORSESHOE COLLARS FILL ANNULAR SPACE WITH GROUT OR OR FLOWABLE FILL AS APPROVED BY THE ENGINEER

CL 52 DIP RISER PIPE

12"

CONCRETE ADJUSTING RINGS (STEEL RINGS ARE NOT ALLOWED). MINIMUM 2 RINGS. MAXIMUM 5 RINGS WITH MAXIMUM HEIGHT OF 12". LINE INSIDE RINGS WITH FLEX SEAL UTILITY SEALANT OR APPROVED EQUAL.

INFI-SHIELD OR APPROVED EQUAL. EXTEND 4" OVER CONE SECTION.

STEEL TRANSITION COUPLER

CL 52 D.I.P. FROM TEE TO UNDISTURBED SOIL

MJ-PE DIP TEE WITH RESTRAINED JOINTS

20'

1' SECTION BELOW CONE

PRECAST SECTIONS ASTM C-478

STEPS AS PER SPECIFICATIONS

UNDISTURBED SOIL

RUBBER GASKETS AT ALL JOINTS. GATOR WRAP OR APPROVED EQUAL BARREL TO SEAL OUTSIDE OF ALL BARREL JOINTS

PRECAST HORSESHOE COLLARS FILL ANNULAR SPACE WITH GROUT OR FLOWABLE FILL AS APPROVED BY THE ENGINEER

MONOLITHIC PRECAST DROP INLET BASE ON 4" SAND CUSHION

A

A

MJ-PE 90° BEND

MIN. 0.1' SLOPE

MONO-PRECAST

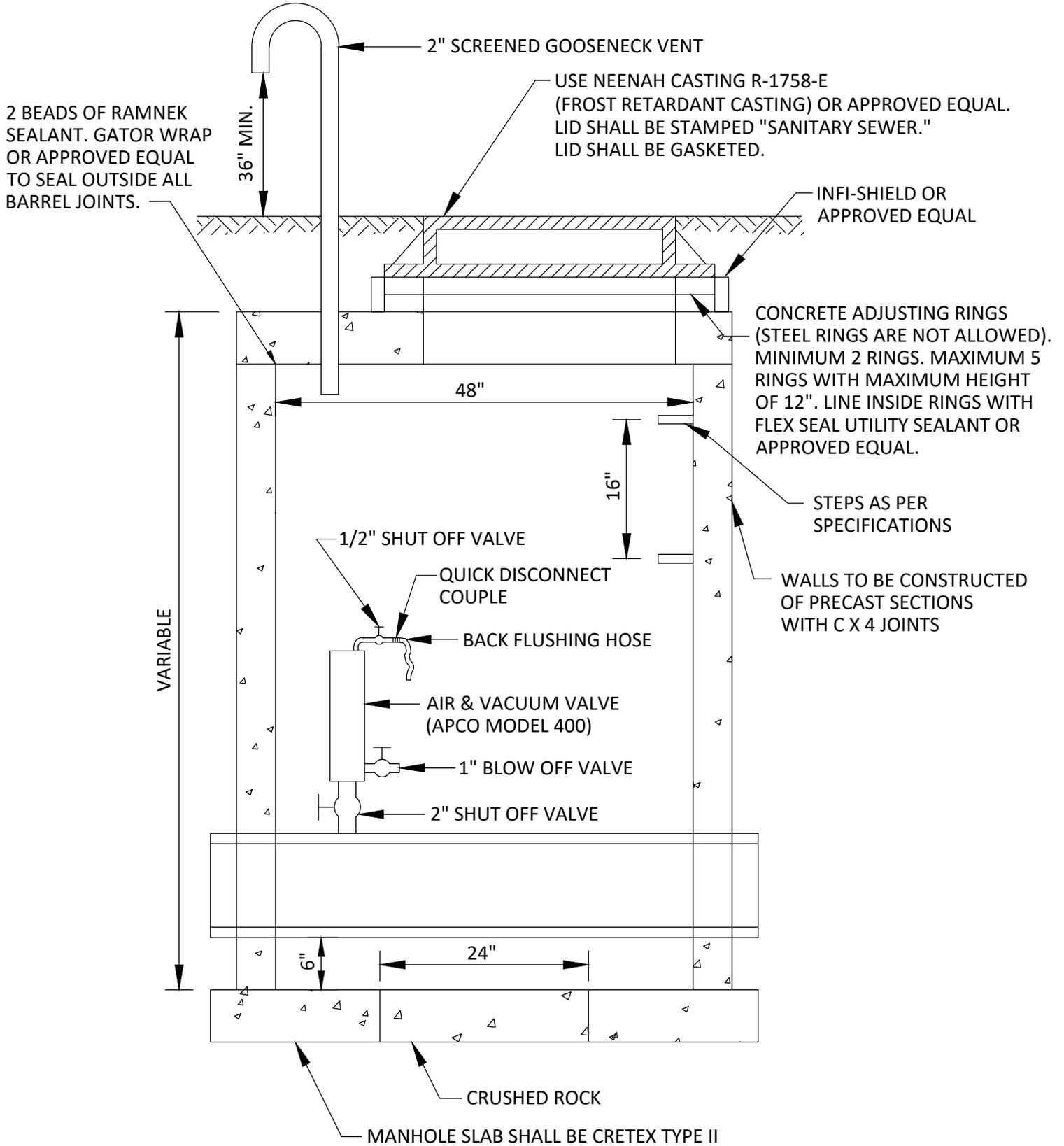
MANHOLE INVERT SHALL BE SLOPED TO PROVIDE SMOOTH FLOW FROM INLET TO OUTLET



SANITARY
OUTSIDE DROP MANHOLE

REVISION
PUBLISHED
02/2026

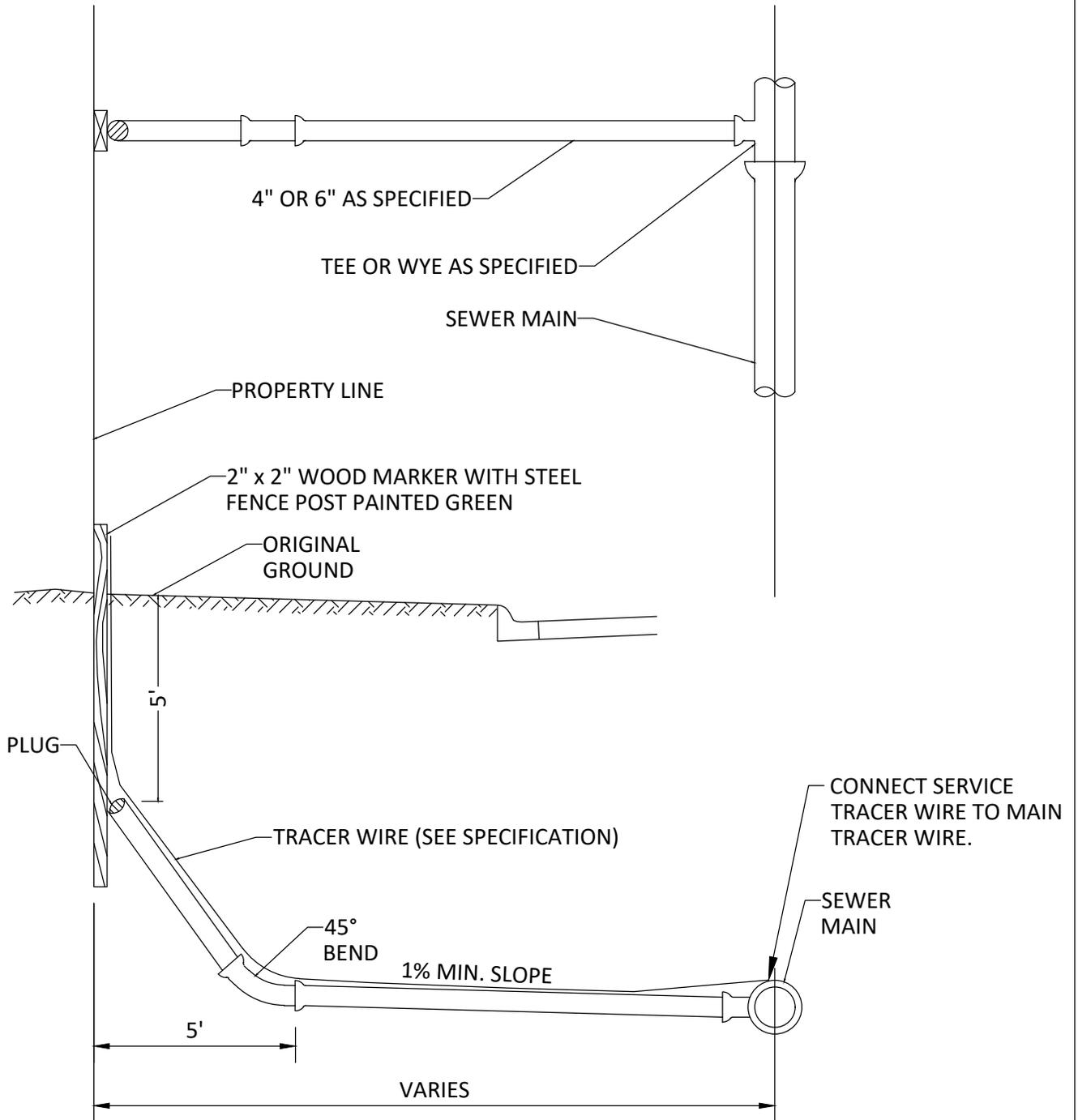
PLATE NO.
SAN-03



STANDARD AIR RELIEF MANHOLE

REVISION
PUBLISHED
02/2026

PLATE NO.
SAN-04



NOTES:

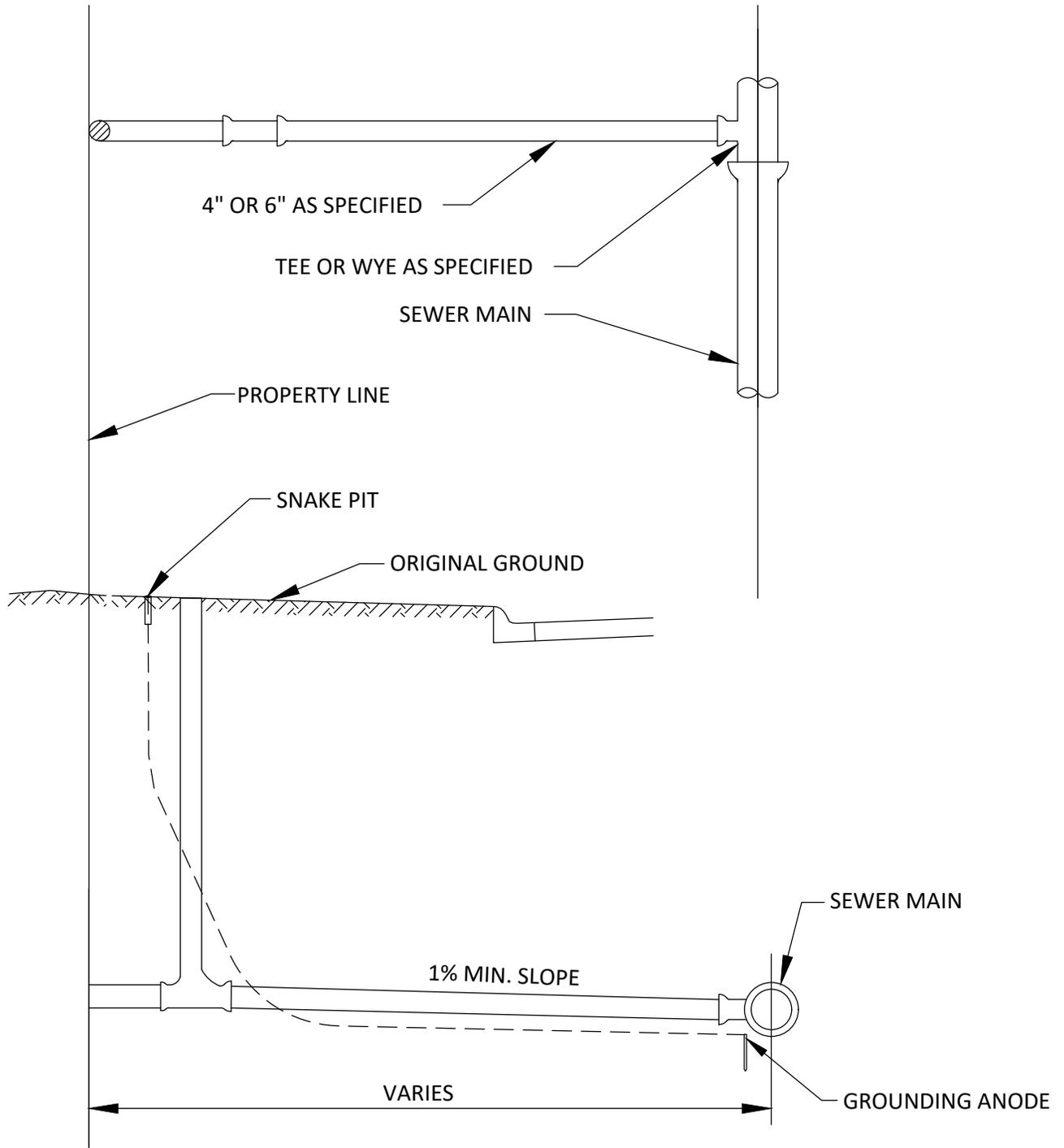
1. TRACER WIRE TO BE EXTENDED TO HOUSE/BUILDING PER SPECIFICATION.
2. ALL CLEANOUTS MUST HAVE LOCATABLE, THREADED, METAL CAPS.



TYPICAL HOUSE SERVICE

REVISION
PUBLISHED
02/2026

PLATE NO.
SAN-05



NOTES:

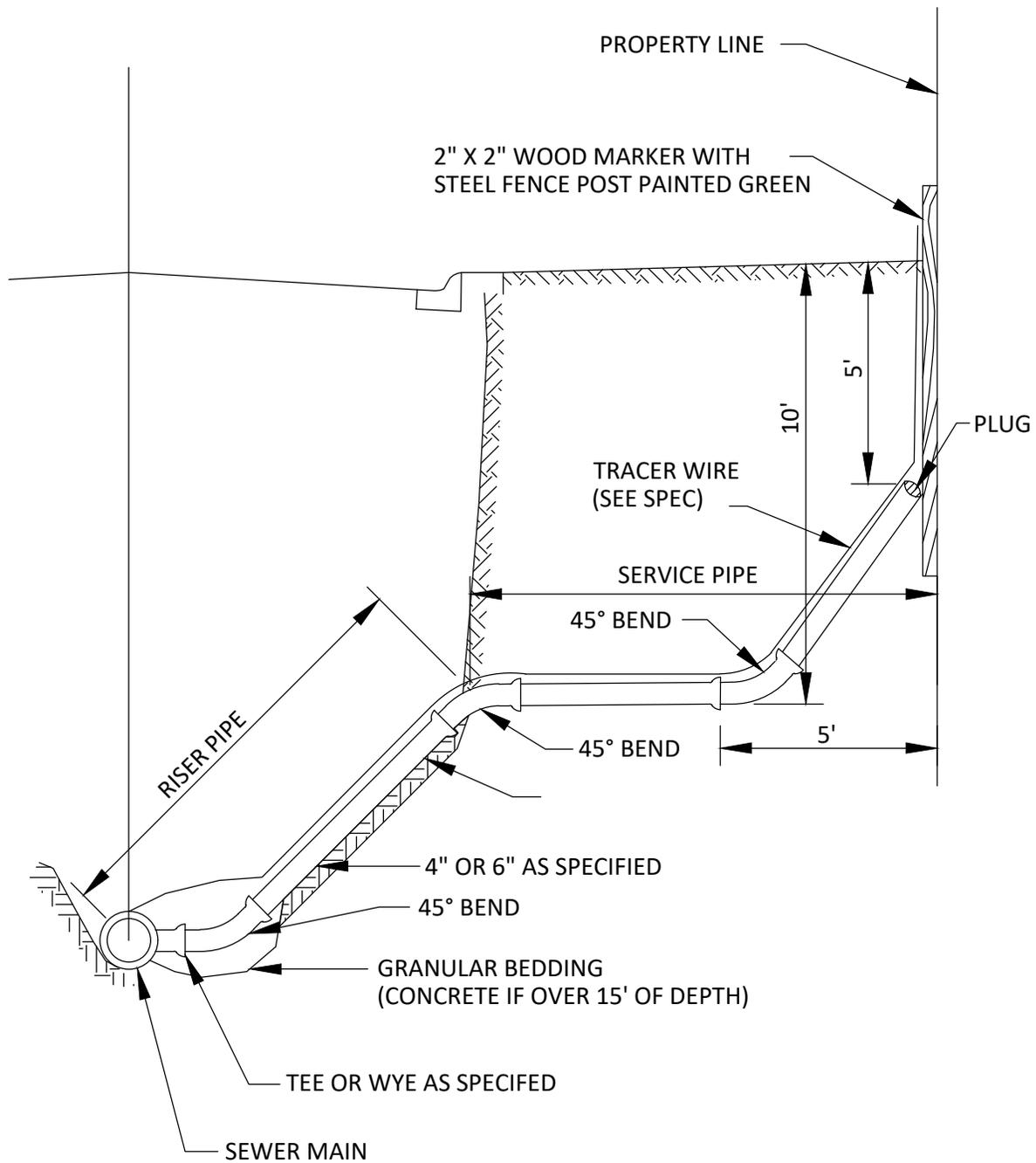
1. TRACER WIRE TO BE EXTENDED TO HOUSE/BUILDING PER SPECIFICATION.
2. ALL CLEANOUTS MUST HAVE LOCATABLE, THREADED, METAL CAPS.



TYPICAL HOUSE SERVICE
WITHOUT MAIN TRACER WIRE

REVISION
PUBLISHED
02/2026

PLATE NO.
SAN-06



TO BE USED AS SERVICE CONNECTIONS ON DEEP LINES

NOTES:

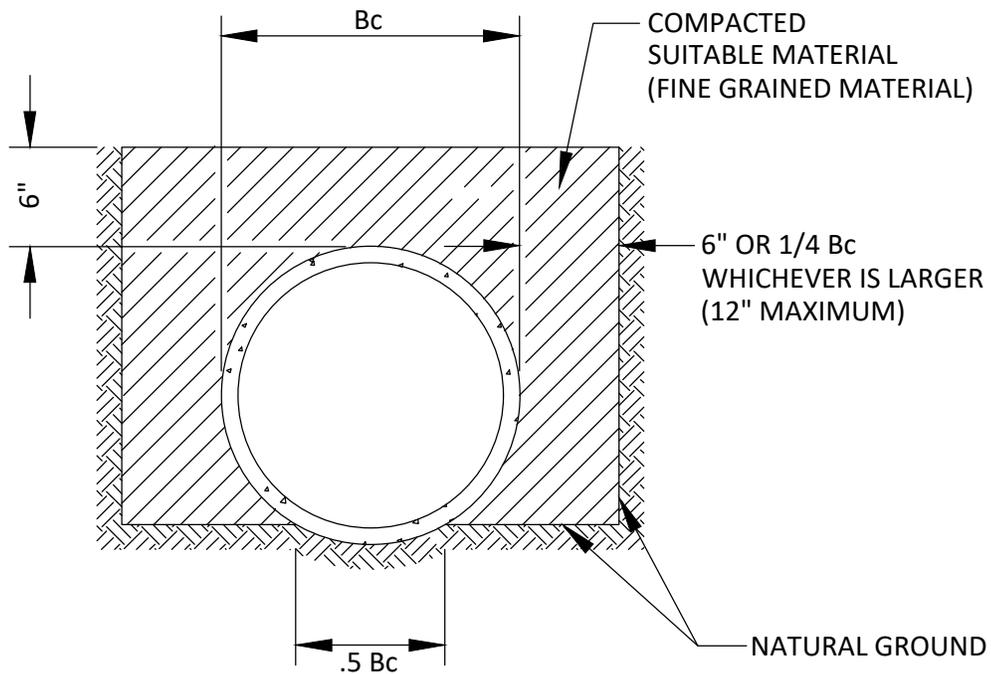
1. TRACER WIRE TO BE EXTENDED TO HOUSE/BUILDING PER SPECIFICATION.
2. ALL CLEANOUTS MUST HAVE A LOCATABLE, THREADED, METAL CAP.



SERVICE RISER SECTION

REVISION
PUBLISHED
02/2026

PLATE NO.
SAN-07



THE BOTTOM OF THE TRENCH SHALL BE SHAPED TO FIT THE PIPE BARREL FOR AT LEAST 50% OF THE OUTSIDE DIAMETER. THE REMAINDER OF THE PIPE IS SURROUNDED TO A HEIGHT OF AT LEAST 6" ABOVE ITS TOP BY SELECT FILL MATERIALS, PLACED BY HAND TOOLS AND COMPACTED TO COMPLETELY FILL ALL SPACES UNDER AND ADJACENT TO THE PIPE.

NOTE:

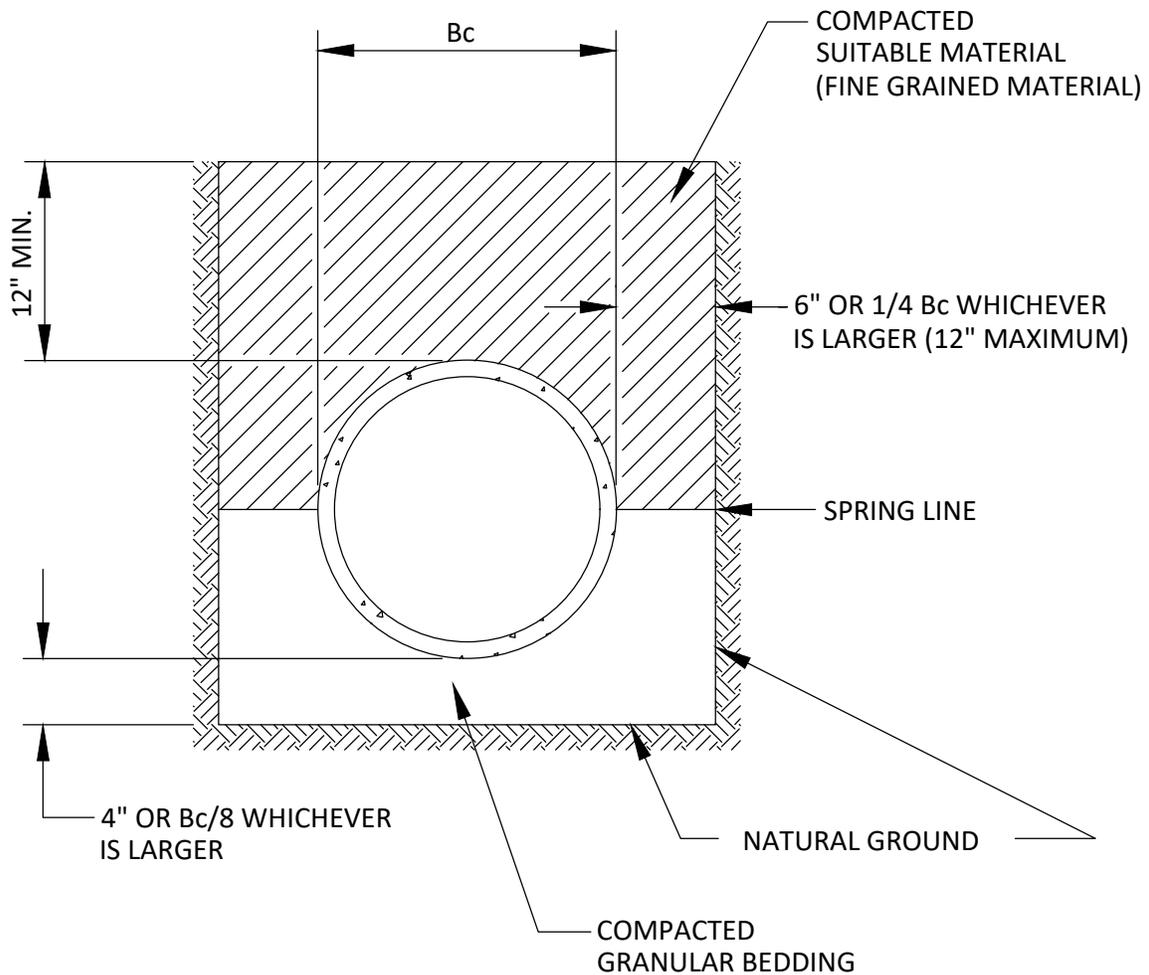
1. ALL COSTS OF EXCAVATION BELOW GRADE AND PLACEMENT OF GRANULAR BEDDING SHALL BE INCLUDED IN THE BID PRICES FOR PIPE ITEMS.
2. POST-CONSTRUCTION TELEVISIONING WILL BE INCLUDED IN THE PRICE BID FOR SANITARY SEWER PIPE AND IS REQUIRED FOR ACCEPTANCE OF THE SANITARY SEWER.



CLASS C PIPE BEDDING

REVISION
PUBLISHED
02/2026

PLATE NO.
SAN-08



NOTE:

1. ALL COSTS OF EXCAVATION BELOW GRADE AND PLACEMENT OF GRANULAR BEDDING SHALL BE INCLUDED IN THE BID PRICES FOR PIPE ITEMS.
2. POST-CONSTRUCTION TELEVISIONING WILL BE INCLUDED IN THE PRICE BID FOR SANITARY SEWER PIPE AND IS REQUIRED FOR ACCEPTANCE OF THE SANITARY SEWER.



CLASS B PIPE BEDDING

REVISION
PUBLISHED
02/2026

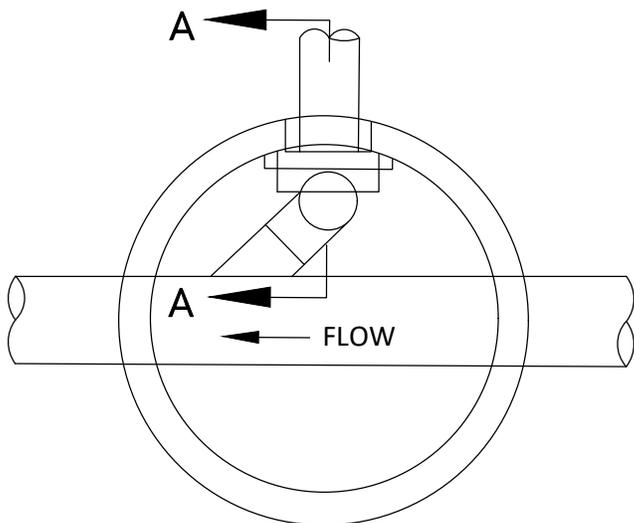
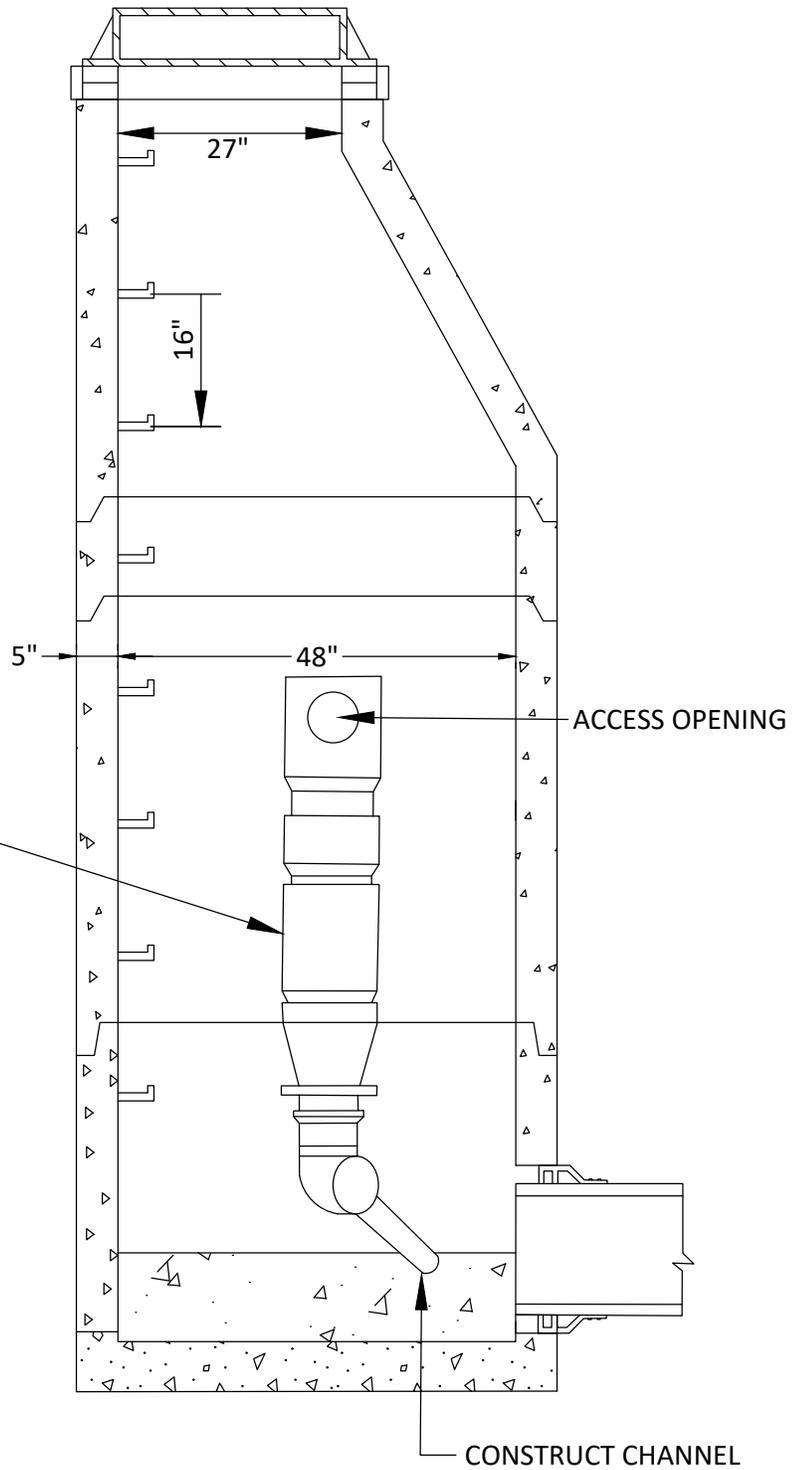
PLATE NO.
SAN-09

CORE DRILL AND SEAL WITH MORTAR

DIP PIPE

CONCRETE SUPPORT

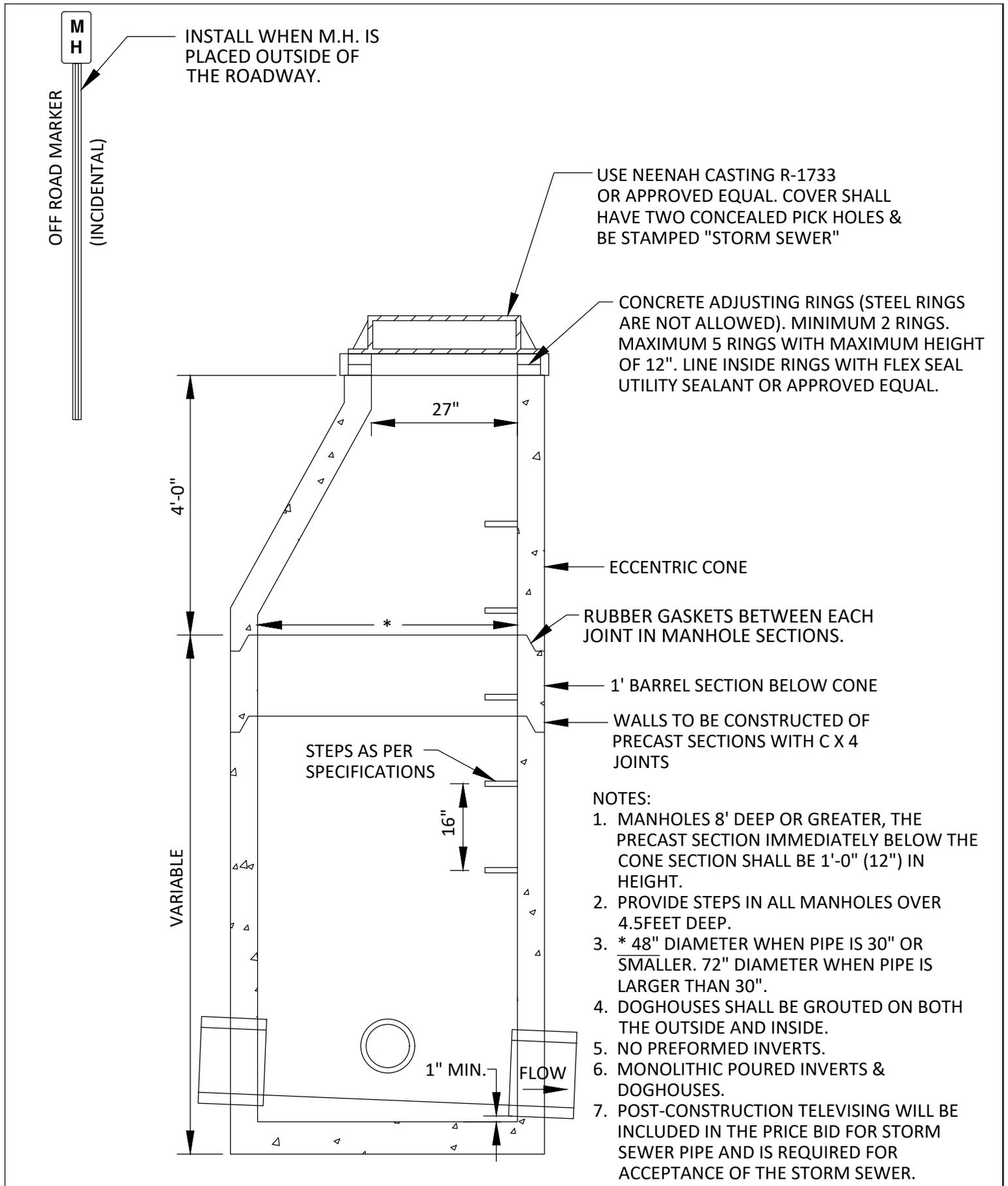
SECTION A-A



INSIDE DROP
MANHOLE ADDITION

REVISION
PUBLISHED
02/2026

PLATE NO.
SAN-10

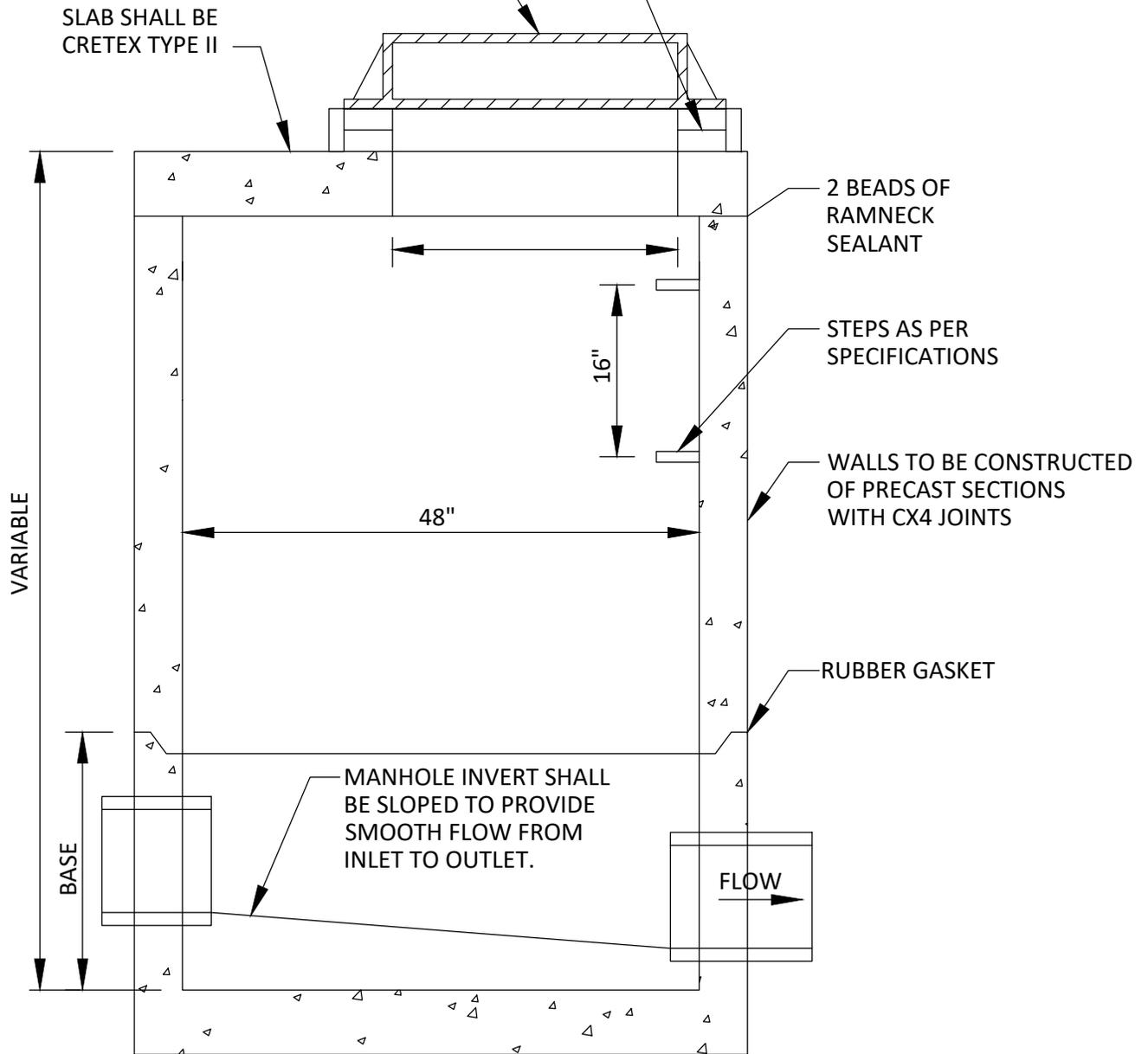


STORM MANHOLE

REVISION PUBLISHED 02/2026
PLATE NO. STRM-01

USE NEENAH CASTING R-1733 OR APPROVED EQUAL. COVER SHALL HAVE TWO CONCEALED PICK HOLES & BE STAMPED "STORM SEWER." USE NEENAH CASTING R-3067-V FOR STORM CATCH BASIN MANHOLES

CONCRETE ADJUSTING RINGS (STEEL RINGS ARE NOT ALLOWED). MINIMUM 2 RINGS. MAXIMUM 5 RINGS WITH MAXIMUM HEIGHT OF 12". LINE INSIDE RINGS WITH FLEX SEAL UTILITY SEALANT OR APPROVED EQUAL.



NOTES:

1. THIS TYPE MANHOLE SHALL BE USED WHEN SPECIFIED OR WHEN THE MANHOLE DEPTH IS LESS THAN EIGHT FEET.
2. NO PREFORMED INVERTS.
3. MONOLITHIC POURED INVERT & DOGHOUSES.
4. POST-CONSTRUCTION TELEVISIONING WILL BE INCLUDED IN THE PRICE BID FOR STORM SEWER PIPE AND IS REQUIRED FOR ACCEPTANCE OF THE STORM SEWER.



**STORM
SLAB TOP MANHOLE
CATCH BASIN MANHOLE**

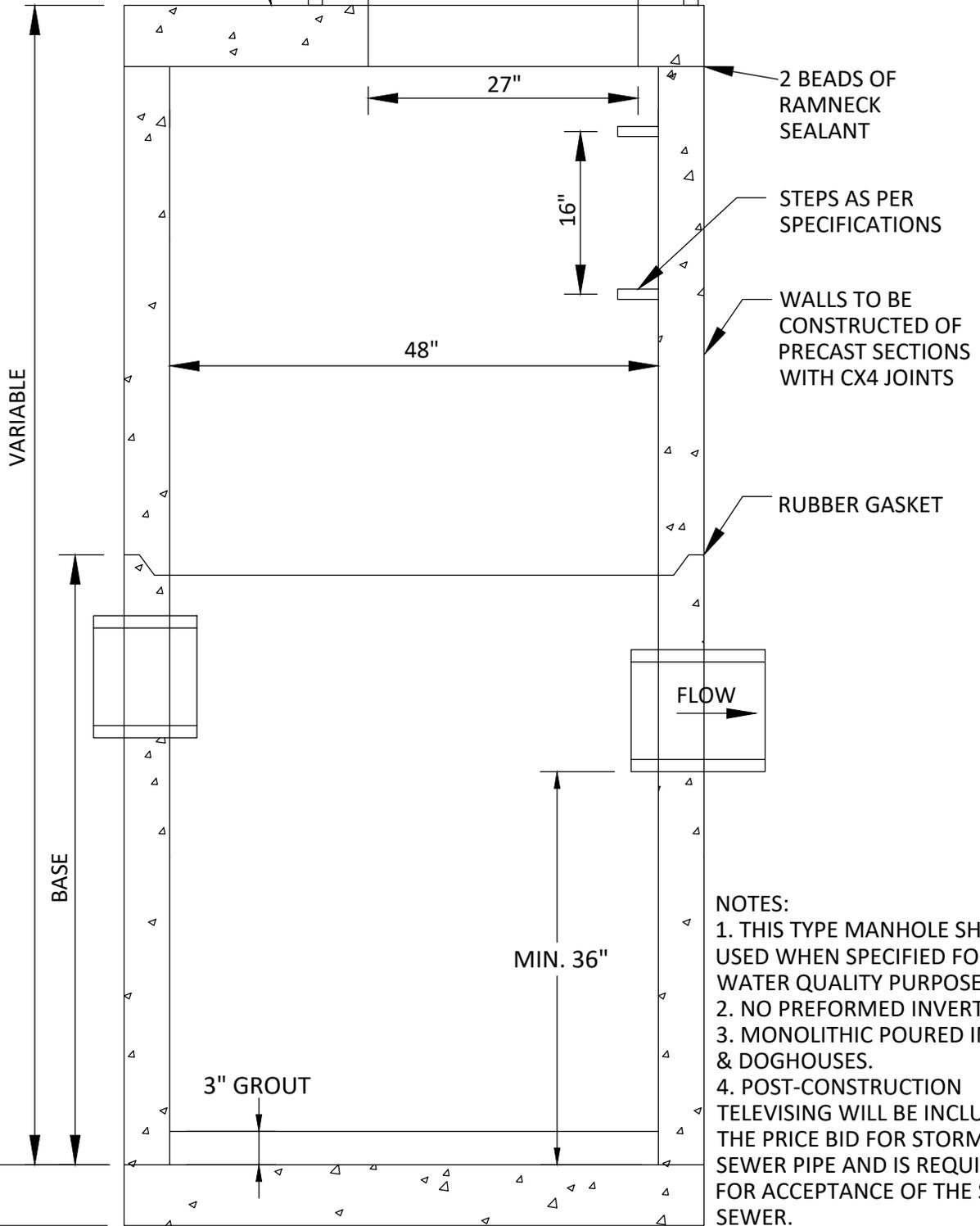
REVISION
PUBLISHED
02/2026

PLATE NO.
STRM-02

USE NEENAH CASTING R-1733 OR APPROVED EQUAL. COVER SHALL HAVE TWO CONCEALED PICK HOLES & BE STAMPED "STORM SEWER." USE NEENAH CASTING R-3067-V FOR STORM CATCH BASIN MANHOLES

CONCRETE ADJUSTING RINGS (STEEL RINGS ARE NOT ALLOWED). MINIMUM 2 RINGS. MAXIMUM 5 RINGS WITH MAXIMUM HEIGHT OF 12". LINE INSIDE RINGS WITH FLEX SEAL UTILITY SEALANT OR APPROVED EQUAL.

SLAB SHALL BE CRETEX TYPE II



NOTES:

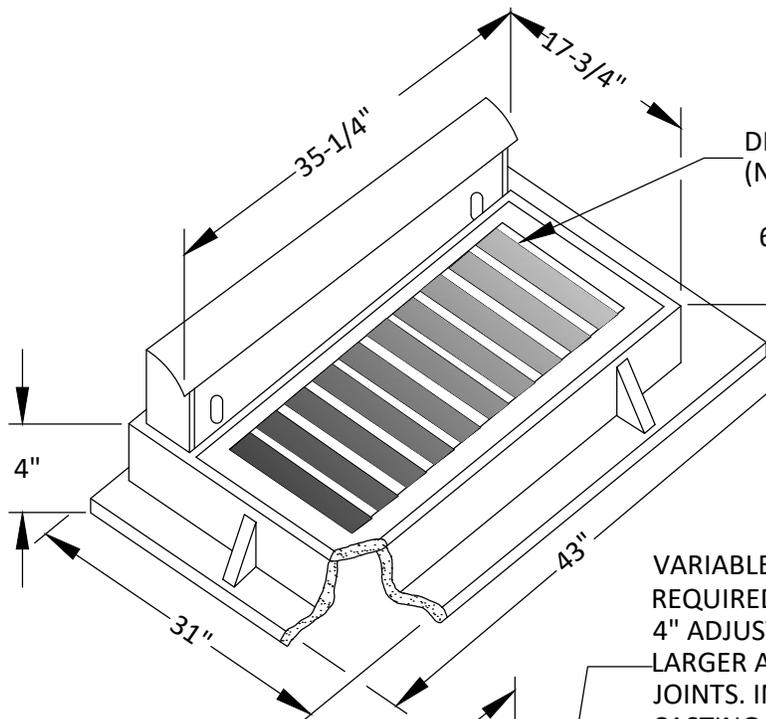
1. THIS TYPE MANHOLE SHALL BE USED WHEN SPECIFIED FOR WATER QUALITY PURPOSES.
2. NO PREFORMED INVERTS.
3. MONOLITHIC POURED INVERTS & DOGHOUSES.
4. POST-CONSTRUCTION TELEVISIONING WILL BE INCLUDED IN THE PRICE BID FOR STORM SEWER PIPE AND IS REQUIRED FOR ACCEPTANCE OF THE STORM SEWER.



STORM SEWER MANHOLE WITH SUMP

REVISION
PUBLISHED
02/2026

PLATE NO.
STRM-03



DIRECTION OF MAJOR FLOW
(NEENAH CASTING R-3067V)

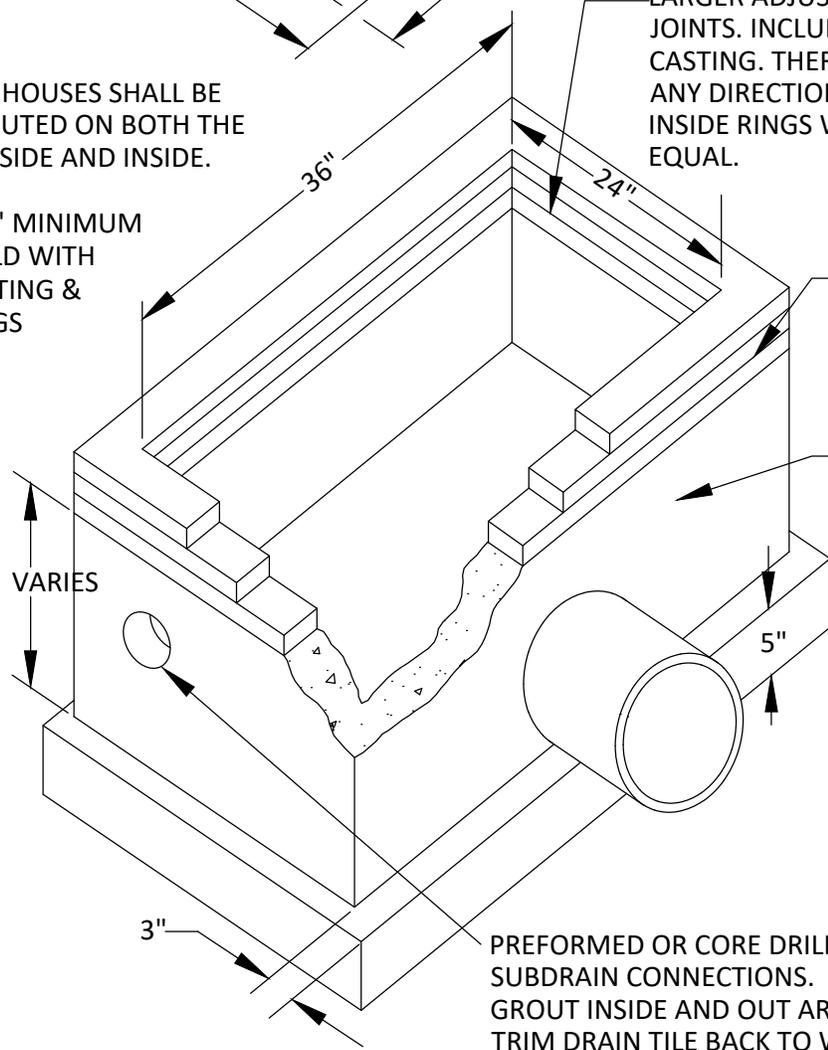
NOTES:

1. EXPANSION MATERIAL TO BE PLACED IN FIRST CURB JOINT, BOTH SIDES OF CATCH BASIN.
2. RECESS CATCH BASINS 0.1' BELOW GUTTER GRADE LINE.
3. FOR SURMOUNTABLE CURB, PROVIDE FACE OF CURB TRANSITION EXTENDING 10' ON EACH SIDE OF CATCH BASIN TO MATCH CASTING.

VARIABLE THICKNESS CONC. ADJUSTING RINGS AS REQUIRED (STEEL RINGS ARE NOT ALLOWED). MINIMUM OF 4" ADJUSTMENT AND MAXIMUM OF 12" ADJUSTMENT. USE LARGER ADJUSTMENT RINGS TO MINIMIZE THE NUMBER OF JOINTS. INCLUDE MIN. 1-2" RING IMMEDIATELY UNDER THE CASTING. THERE CAN BE NO MORE THAN 3" OF OFFSET IN ANY DIRECTION IN THE ADJUSTING RING PLACEMENT. LINE INSIDE RINGS WITH FLEX UTILITY SEALANT OF APPROVED EQUAL.

DOGHOUSES SHALL BE GROUTED ON BOTH THE OUTSIDE AND INSIDE.

3'-6" MINIMUM BUILD WITH CASTING & RINGS



APPLY MORTAR BETWEEN RINGS AND THE STRUCTURE AND BETWEEN THE UPPER RING AND THE CASTING.

5" THICK 2'x3' PRECAST REINFORCED CONCRETE

IF STRUCTURE BASE IS LESS THAN 48" BELOW FINISHED GRADE, PLACE GRANULAR MATERIAL UNDER STRUCTURE, FOR A MINIMUM OF 48" BELOW FINISHED GRADE.

NOTE:

1. USE 4-FOOT DIAMETER (MIN.) CATCH BASIN MANHOLE WHEN DEPTH EXCEEDS 4.5- FEET.
2. POST-CONSTRUCTION TELEVISIONING WILL BE INCLUDED IN THE PRICE BID FOR STORM SEWER PIPE AND IS REQUIRED FOR ACCEPTANCE OF THE STORM SEWER.

PREFORMED OR CORE DRILLED HOLES REQUIRED FOR SUBDRAIN CONNECTIONS. GROUT INSIDE AND OUT AROUND SUBDRAIN. TRIM DRAIN TILE BACK TO WALL.



CATCH BASIN 2' X 3'

REVISION
PUBLISHED
02/2026

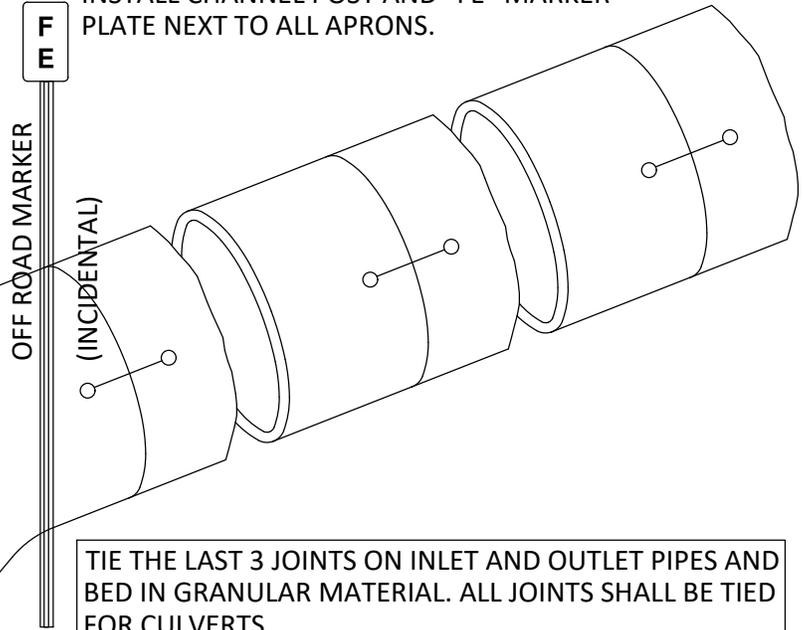
PLATE NO.
STRM-04

RIP-RAP REQUIRED FOR ALL APRONS: SEE RIP RAP DETAIL FOR FLARED END SECTION

PLACE RANDOM RIP RAP CLASS III (MnDOT 3601.2) AROUND SIDES AND OVER THE TOP OF THE F.E.S.

AFTER INITIAL PLACEMENT, REMAINING RIPRAP IS TO BE HAND PLACED TO FILL IN FINAL GAPS.

INSTALL CHANNEL POST AND "FE" MARKER PLATE NEXT TO ALL APRONS.



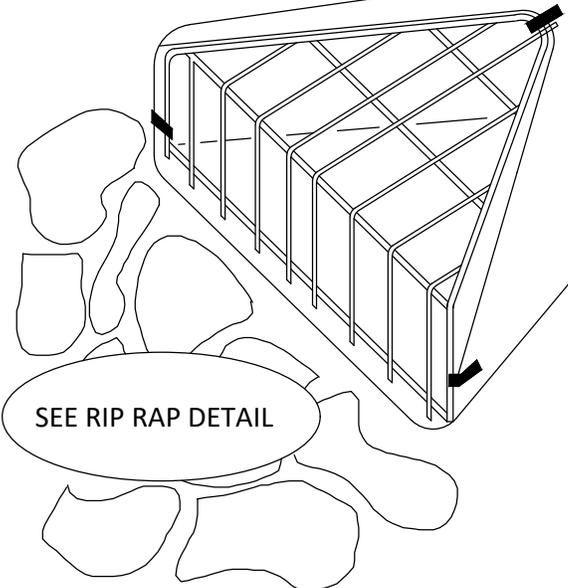
TIE THE LAST 3 JOINTS ON INLET AND OUTLET PIPES AND BED IN GRANULAR MATERIAL. ALL JOINTS SHALL BE TIED FOR CULVERTS.

USE 2 TIE BOLT FASTENERS PER JOINT INSTALLED AT 60 DEG FROM TOP OF PIPE.
 USE 5/8" TIE FOR PIPE SIZES 12" TO 27".
 USE 3/4" TIE FOR PIPE SIZES 30" TO 66".
 USE 1" TIE FOR PIPE SIZES OVER 72".
 NUTS AND WASHERS ARE NOT REQUIRED ON PIPE SIZE LESS THAN 24".

TRASH GUARDS WILL BE REQUIRED ON ALL 24" OR LARGER APRONS UNLESS APPROVED BY THE CITY ENGINEER.

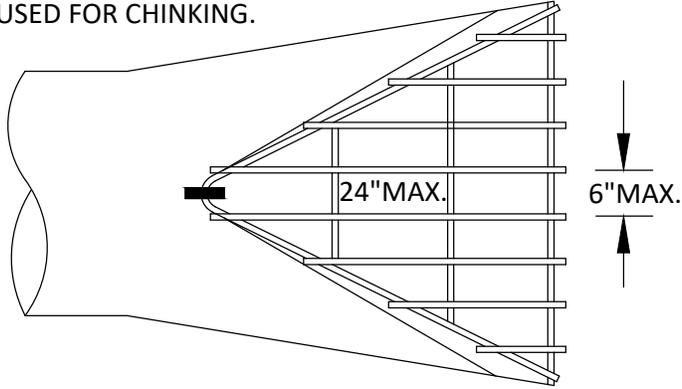
RANDOM RIPRAP CLASS III (MnDOT 3601.2)

INDIVIDUAL STONES SHALL NOT WEIGH LESS THAN 50 POUNDS EACH EXCEPT THOSE USED FOR CHINKING.

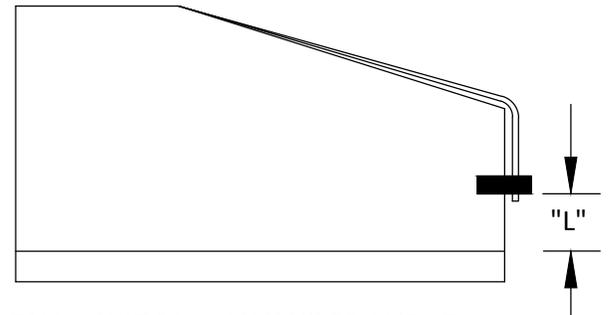


SEE RIP RAP DETAIL

PLACE NONWOVEN GEOTEXTILE FABRIC UNDER RIP-RAP AND EXTENDING 1' UNDER FES



SIZE OF PIPE	BARS	BOLTS	MIN. "L"
21" TO 42"	1"	3/4"	6"
48" TO 72"	1-1/4"	1"	12"



NOTE: POST-CONSTRUCTION TELEVISIONING WILL BE INCLUDED IN THE PRICE BID FOR STORM SEWER PIPE AND IS REQUIRED FOR ACCEPTANCE OF THE STORM SEWER.

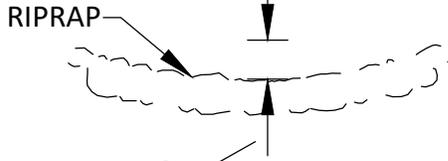
INSTALL 3 HOT DIP GALVANIZED CLIPS TO FASTEN TRASH GUARD TO F.E.S.



INLET & OUTLET F.E.S WITH TRASH GUARD

REVISION PUBLISHED 02/2026
 PLATE NO. STRM-05

1' (12"-27" DIA. PIPE)
1.5' (30" AND LARGER PIPE)

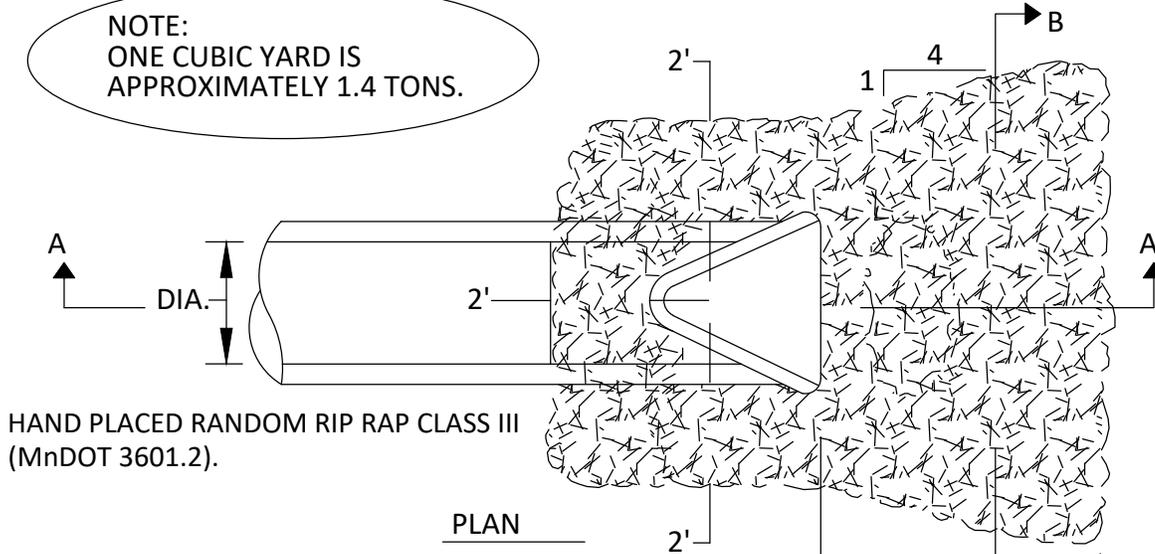


NONWOVEN GEOTEXTILE FABRIC

SECTION B-B

MINIMUM RIPRAP REQUIRED			
DIA. OF PIPE (IN.)	L (FT.)	QUANTITY (C.Y.)	CLASS
12	8	5	III
15	8	5	III
18	10	6	III
24	12	8	III
30	14	12	III
36	16	14	III
42	18	22	IV
48	20	26	IV
>48	22-28	30-40	IV

NOTE:
ONE CUBIC YARD IS
APPROXIMATELY 1.4 TONS.

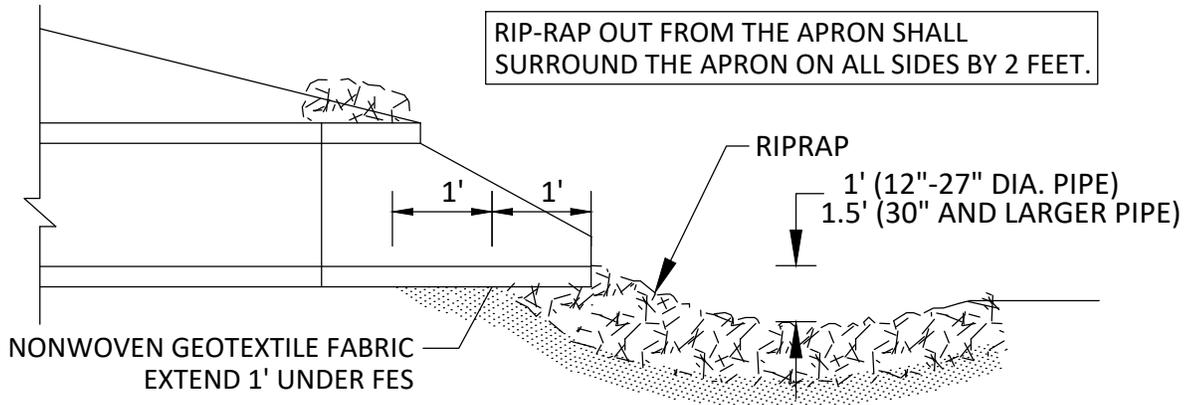


HAND PLACED RANDOM RIP RAP CLASS III
(MnDOT 3601.2).

PLAN

TIE THE LAST 3 JOINTS ON INLET AND OUTLET PIPES AND BED IN GRANULAR MATERIAL. ALL JOINTS SHALL BE TIED FOR CULVERTS. NO GALVANIZED FES ARE PERMITTED.

RIP-RAP OUT FROM THE APRON SHALL SURROUND THE APRON ON ALL SIDES BY 2 FEET.



SECTION A-A

RIP-RAP REQUIRED AT ALL OUTLETS. RIPRAP
REQUIRED AT INLETS AS SPECIFIED BY ENGINEER.

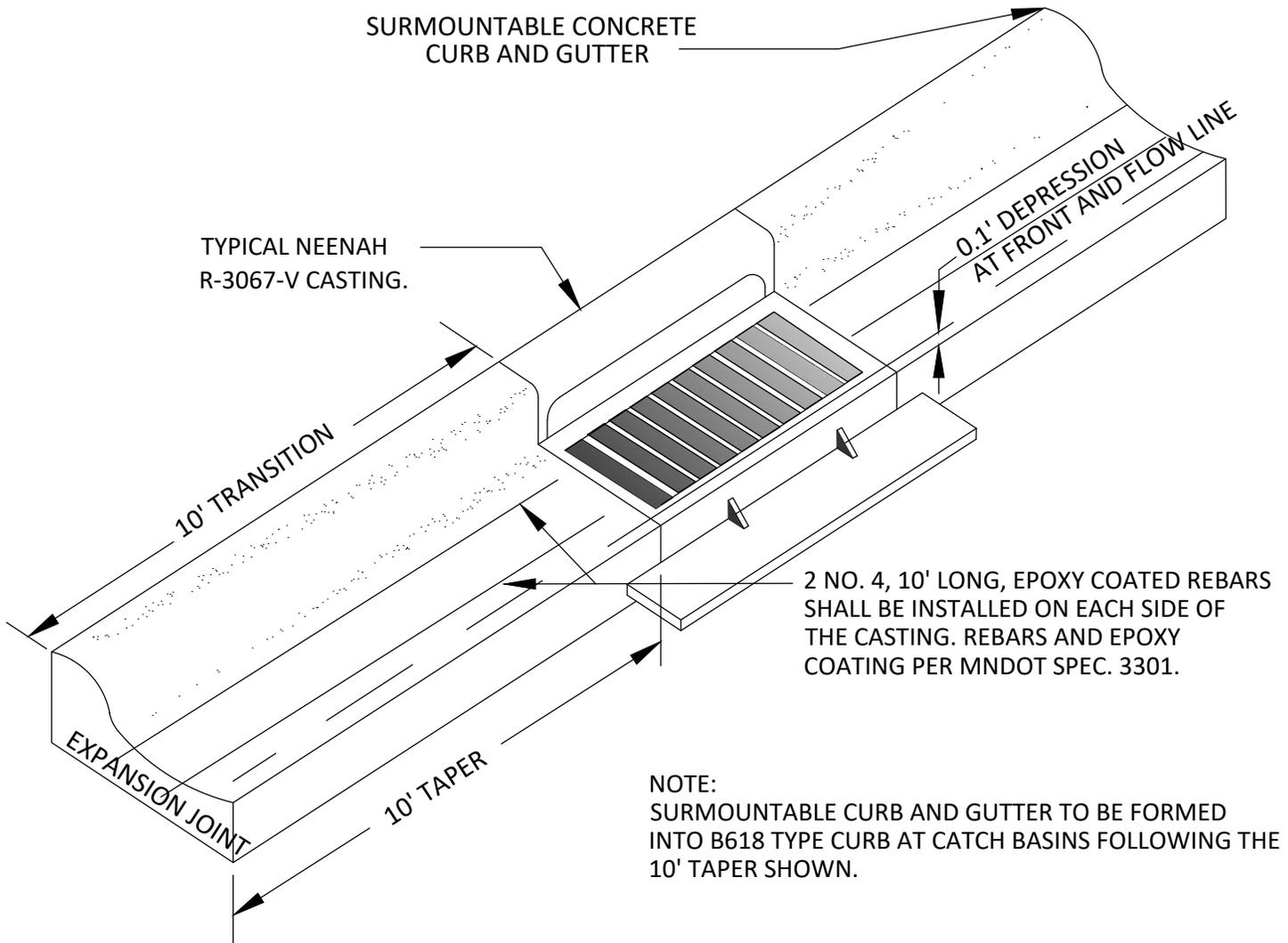


RIPRAP DETAIL FOR
FLARED END SECTION

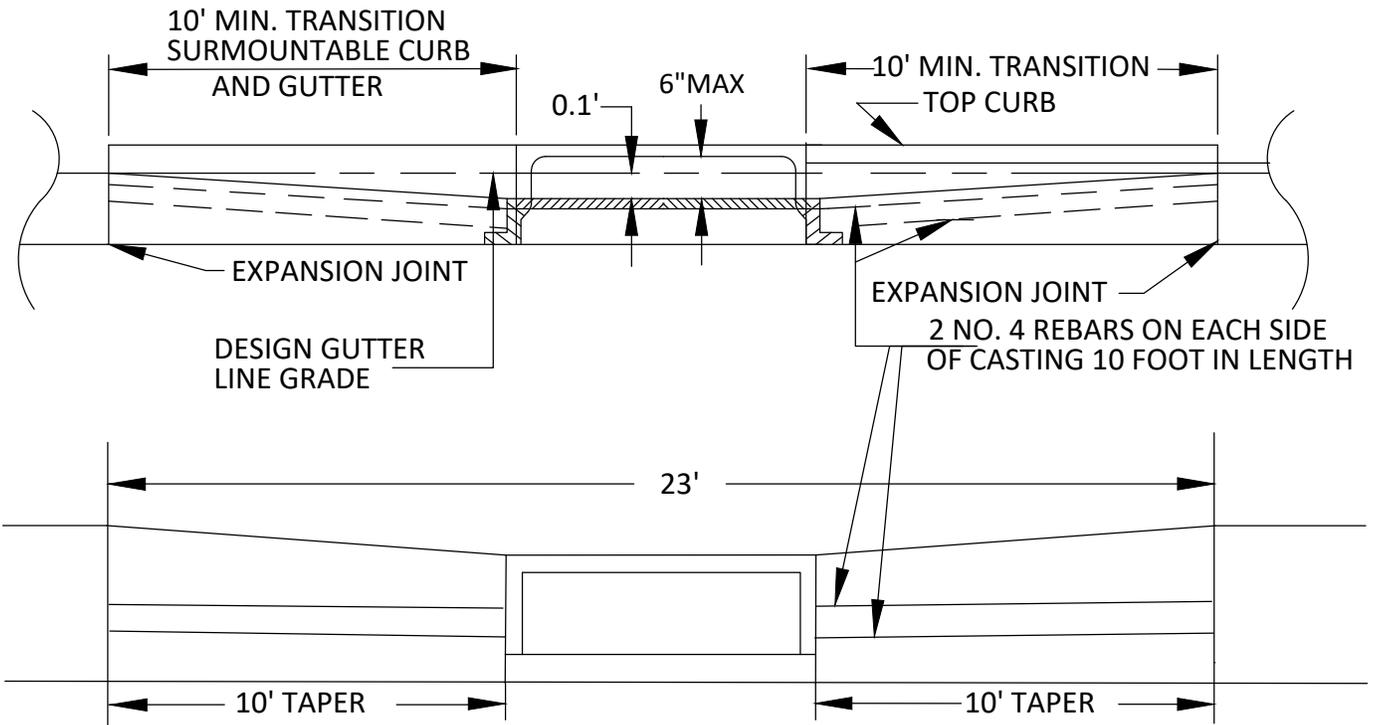
REVISION
PUBLISHED
02/2026

PLATE NO.
STRM-06

SURMOUNTABLE CONCRETE CURB AND GUTTER



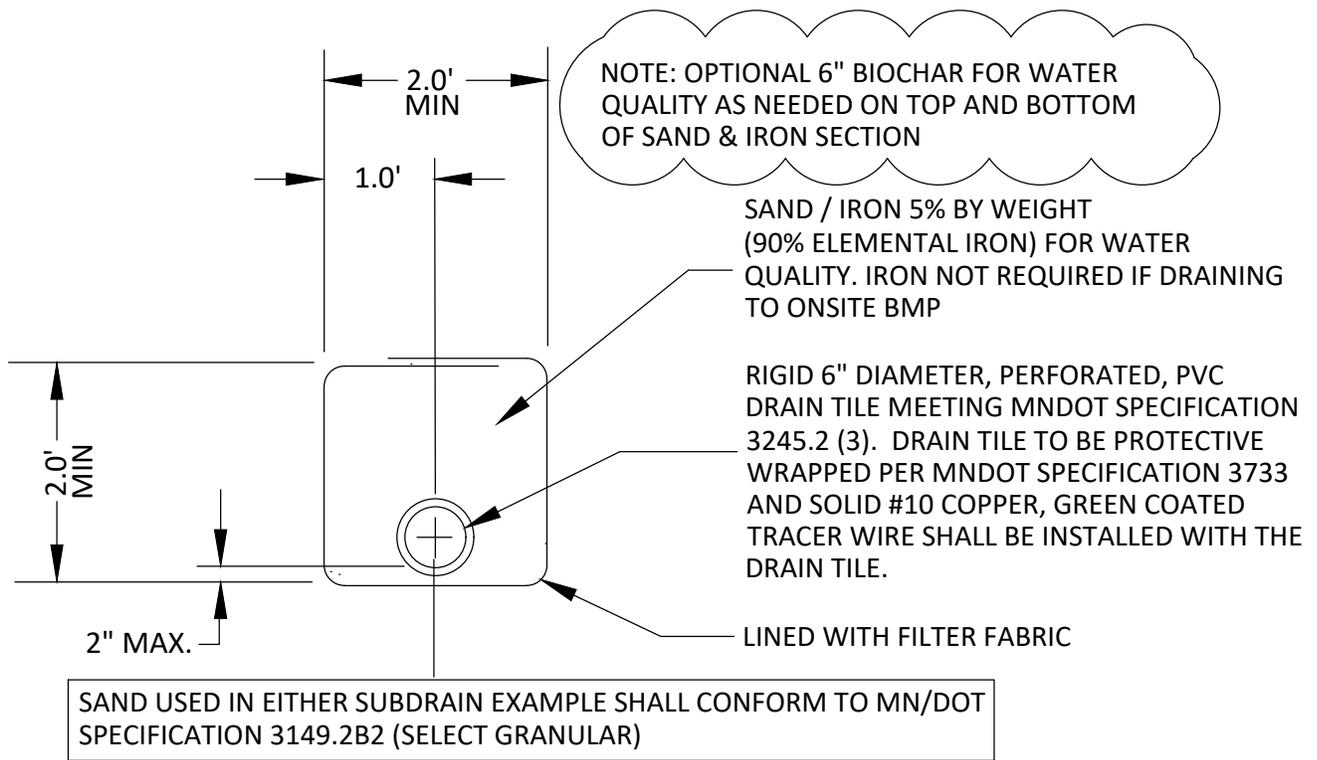
NOTE:
SURMOUNTABLE CURB AND GUTTER TO BE FORMED INTO B618 TYPE CURB AT CATCH BASINS FOLLOWING THE 10' TAPER SHOWN.



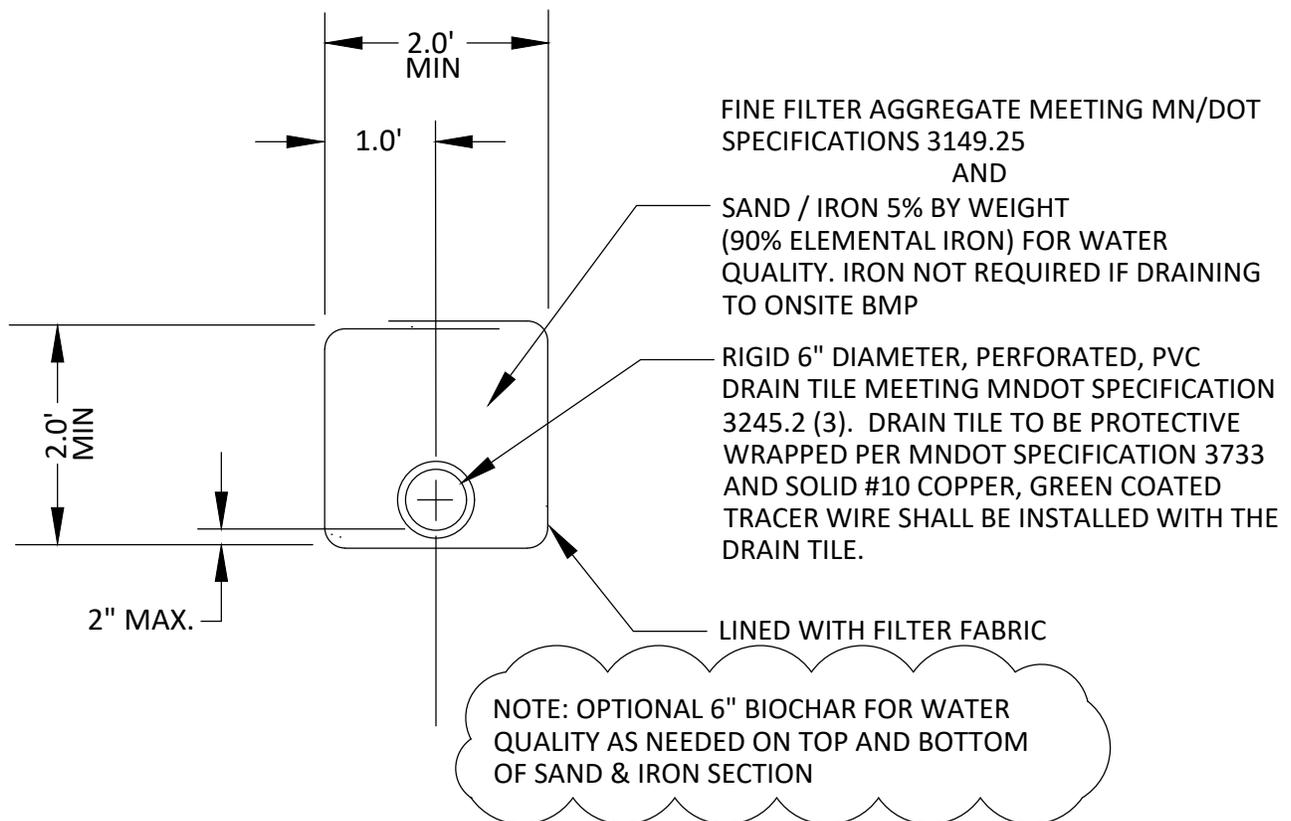
**CATCH BASIN CASTING
INSTALLATION DETAIL**

REVISION
PUBLISHED
02/2026

PLATE NO.
STRM-07



ALTERNATIVE SUBDRAIN INSTALLATIONS FOR USE IN GREEN AREAS
IF APPROVED BY THE CITY ENGINEER

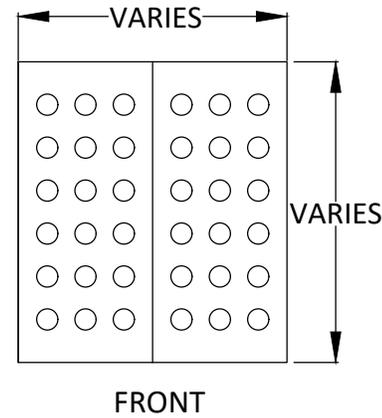


DRAIN TILE

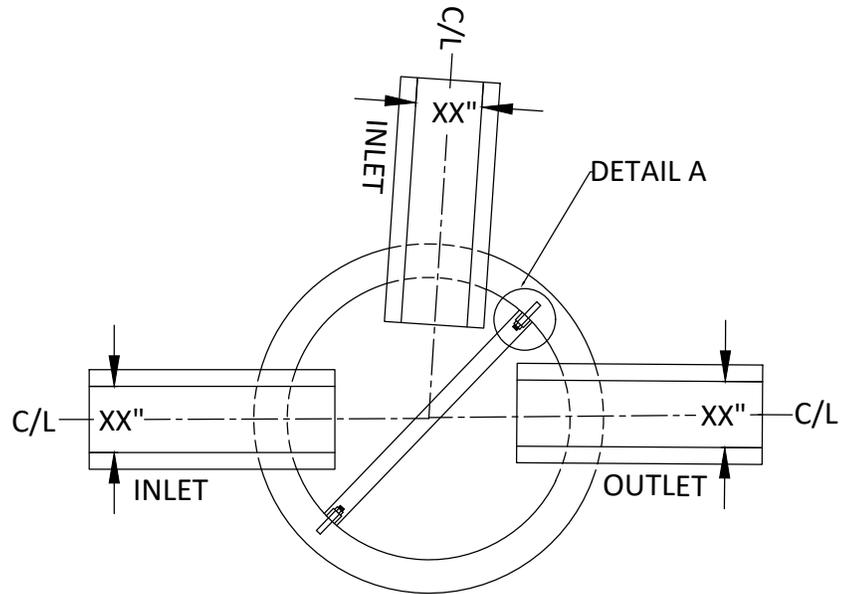
REVISION
 PUBLISHED
 02/2026

PLATE NO.
 STRM-08

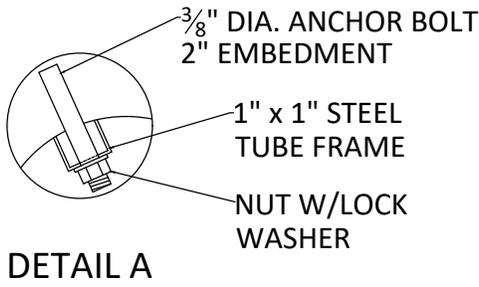
DRAINAGE STRUCTURE DESIGN SPECIAL



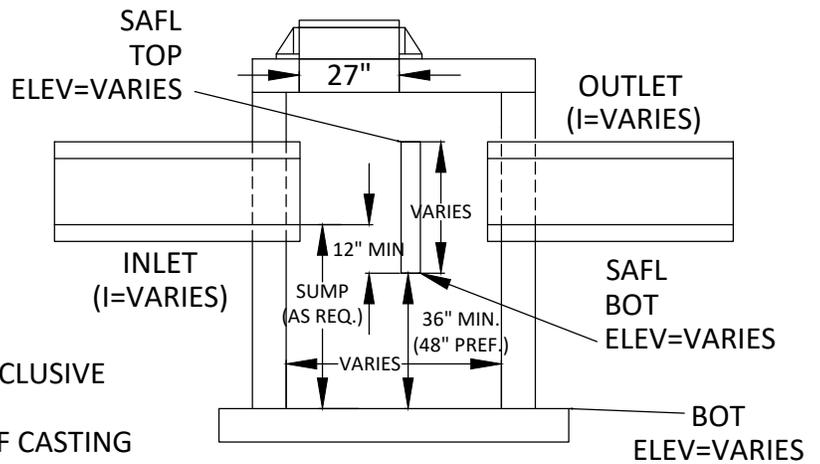
SAFL BAFFLE PANEL



TOP VIEW OF SUMP



DETAIL A



SIDE VIEW OF SUMP

NOTES:

1. UPSTREAM TECHNOLOGIES INC. IS THE EXCLUSIVE LICENSEE OF THE SAFL BAFFLE.
2. CONTRACTOR MUST VERIFY LOCATION OF CASTING AND STEPS PRIOR TO INSTALLATION OF STRUCTURE.
3. POST-CONSTRUCTION TELEVISIONING WILL BE INCLUDED IN THE PRICE BID FOR STORM SEWER PIPE AND IS REQUIRED FOR ACCEPTANCE OF THE STORM SEWER. POST-CONSTRUCTION TELEVISIONING WILL BE INCLUDED IN THE PRICE BID FOR STORM SEWER PIPE AND IS REQUIRED FOR ACCEPTANCE OF THE STORM SEWER.



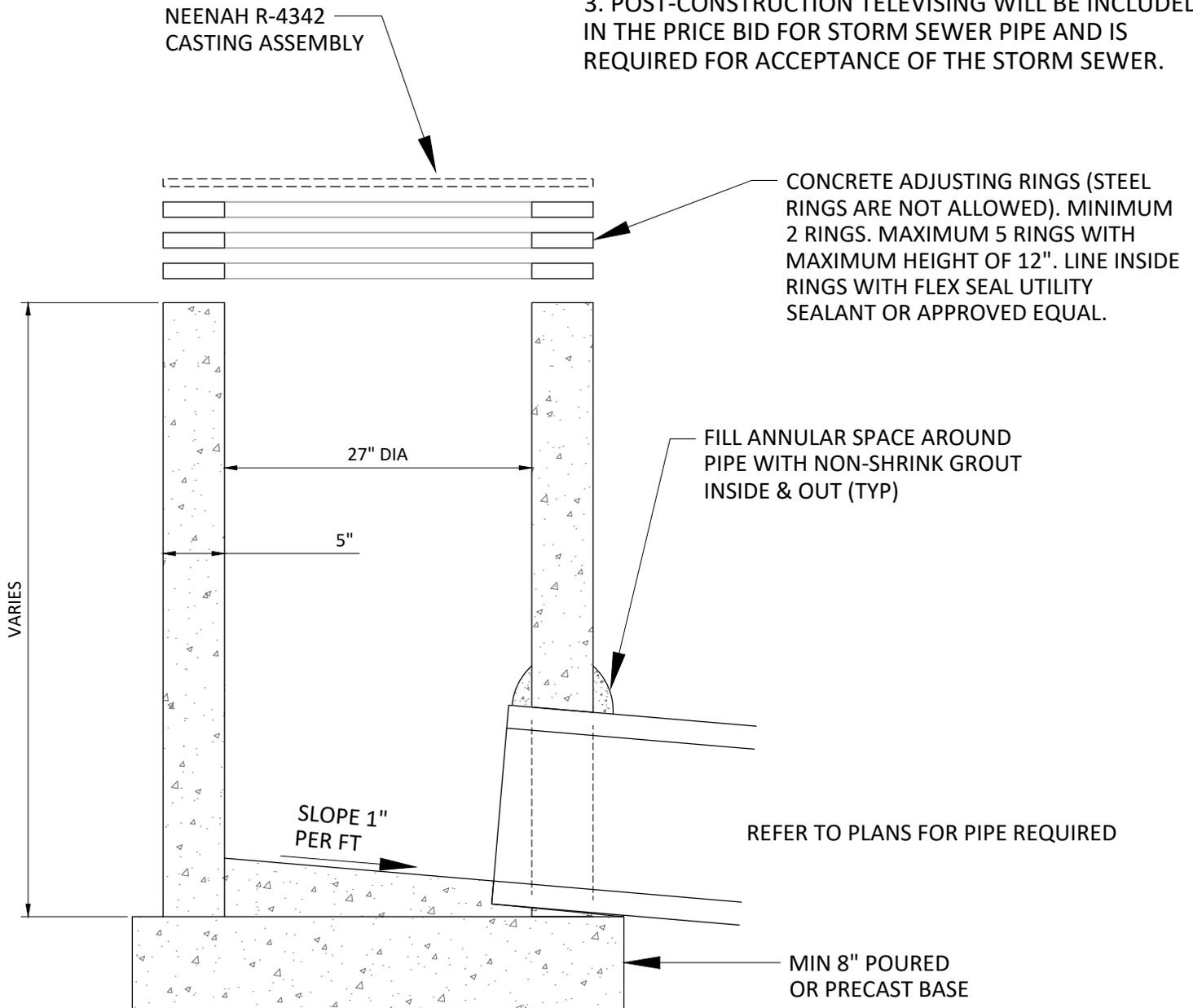
**SAFL BAFFLE
STORM STRUCTURE**

REVISION
PUBLISHED
02/2026

PLATE NO.
STRM-09

NOTES:

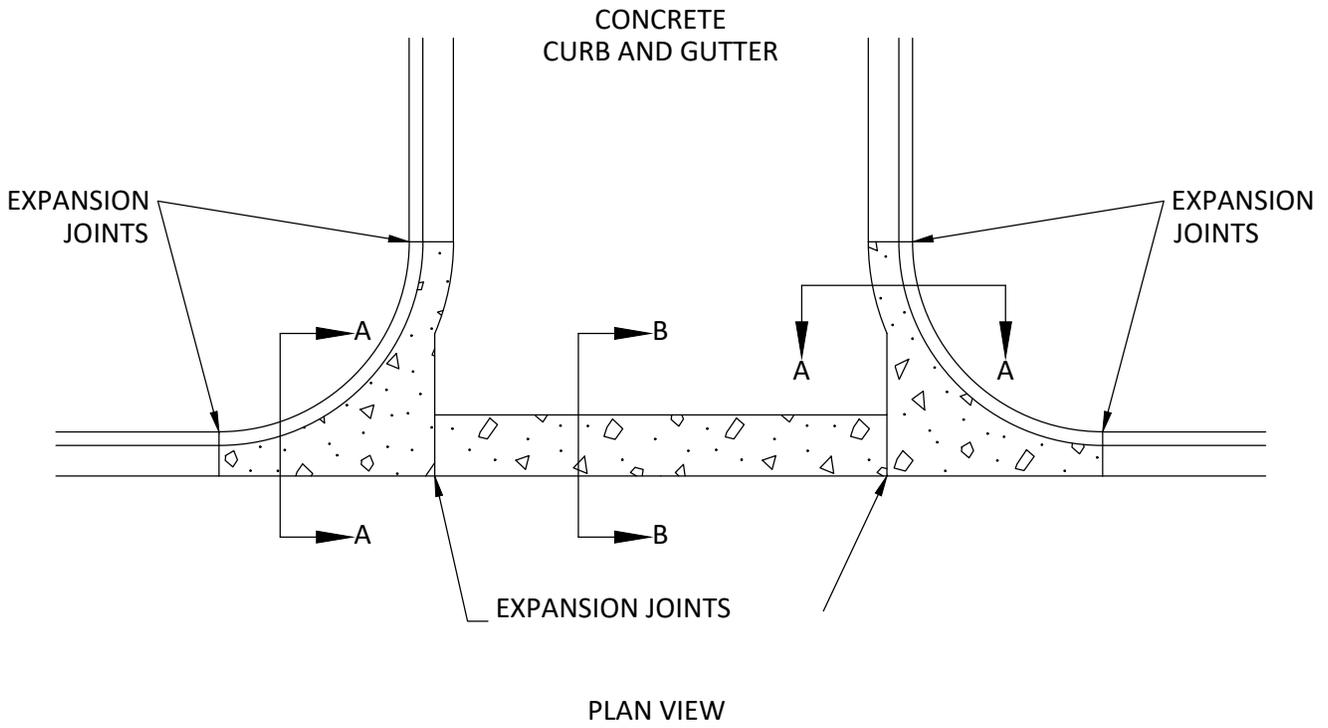
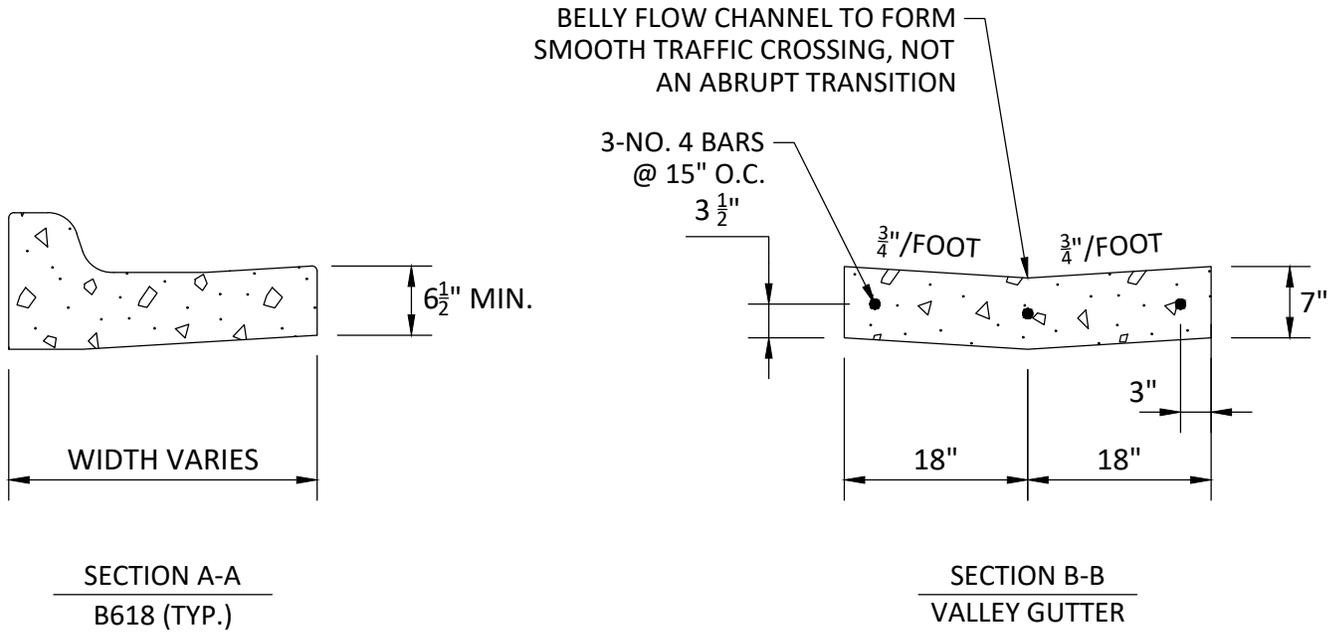
1. IF THE STORM SEWER SYSTEM INCLUDES SERVICE LATERALS FOR CONNECTION OF PRIVATE DRAINS AND TILE LINES, IT SHALL BE SPECIFIED THE SAME AS A SANITARY SEWER APPLICATION
2. LAY MAINLINE TRACE WIRE CONTINUOUSLY, BY-PASSING AROUND THE OUTSIDE OF THE MANHOLES/STRUCTURE ON THE NORTH OR EAST SIDE.
3. POST-CONSTRUCTION TELEVISIONING WILL BE INCLUDED IN THE PRICE BID FOR STORM SEWER PIPE AND IS REQUIRED FOR ACCEPTANCE OF THE STORM SEWER.



**BEEHIVE STORM MANHOLE
STRUCTURE (DES-H)**

REVISION
PUBLISHED
02/2026

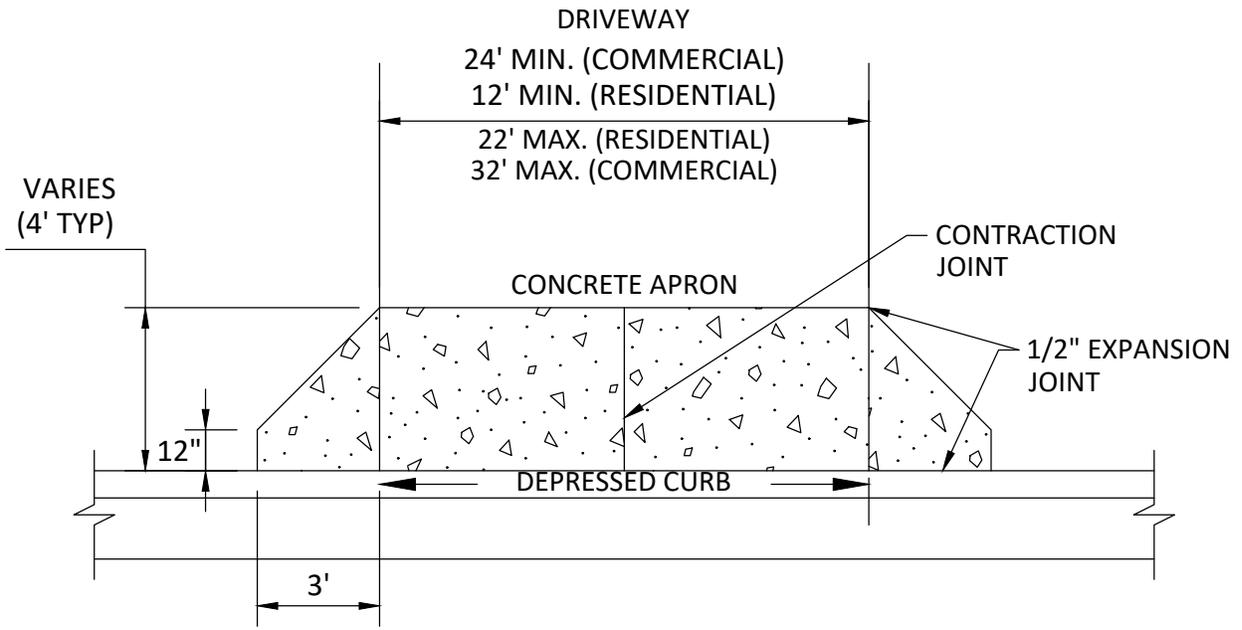
PLATE NO.
STRM-10



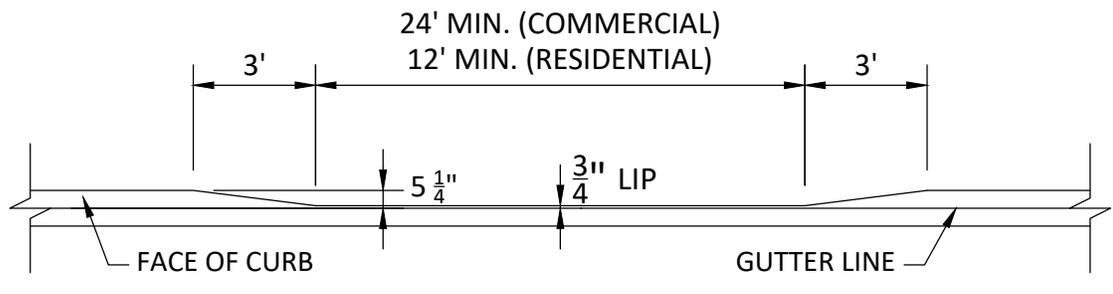
CONCRETE "V" GUTTER

REVISION
PUBLISHED
02/2026

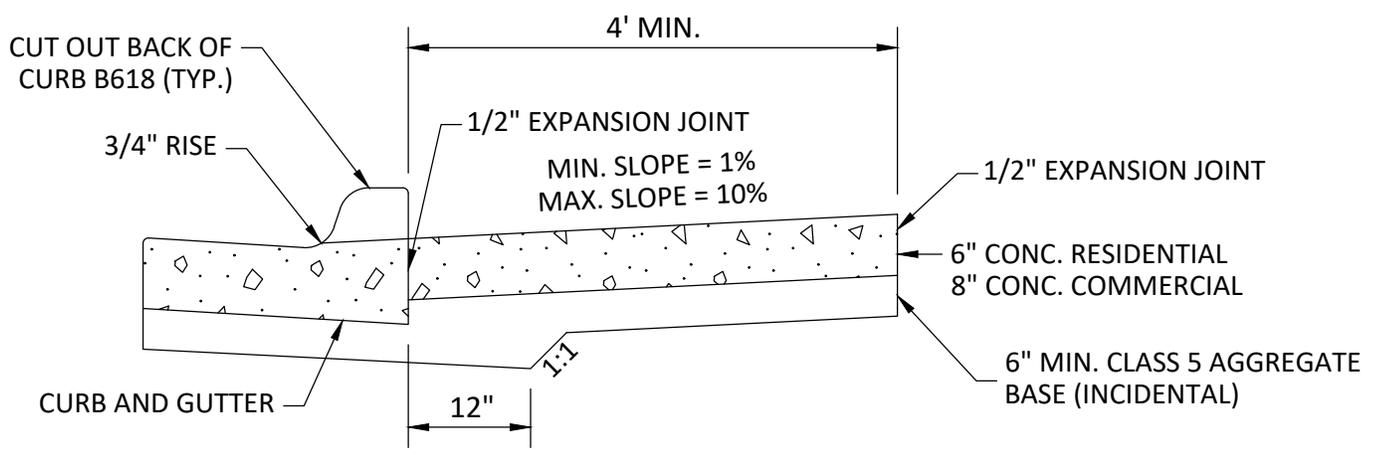
PLATE NO.
STRT-01



PLAN VIEW



ELEVATION VIEW

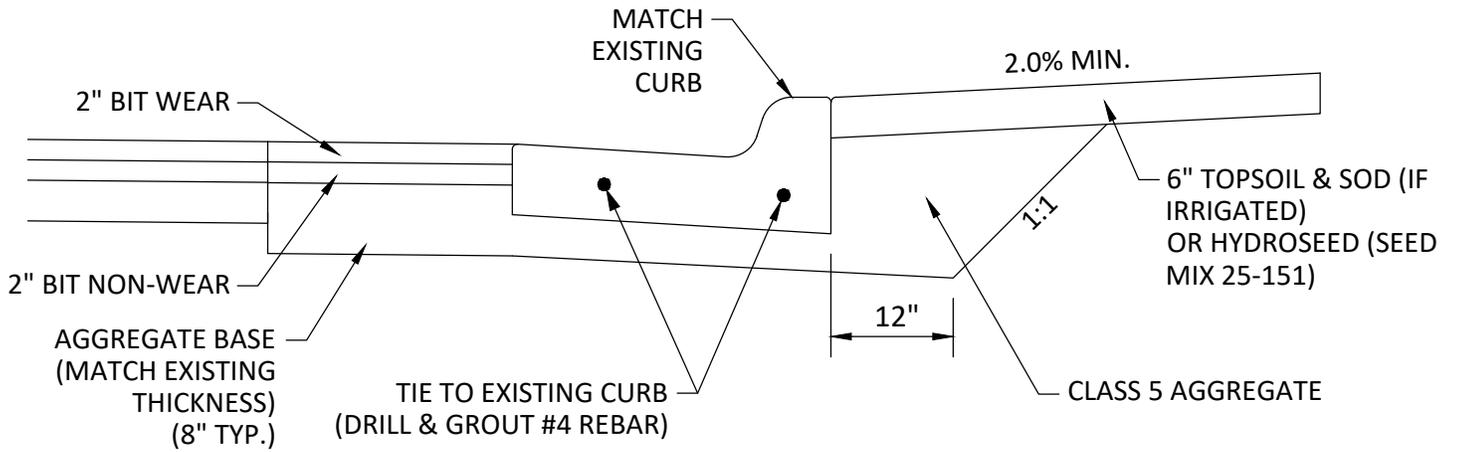


SECTION VIEW

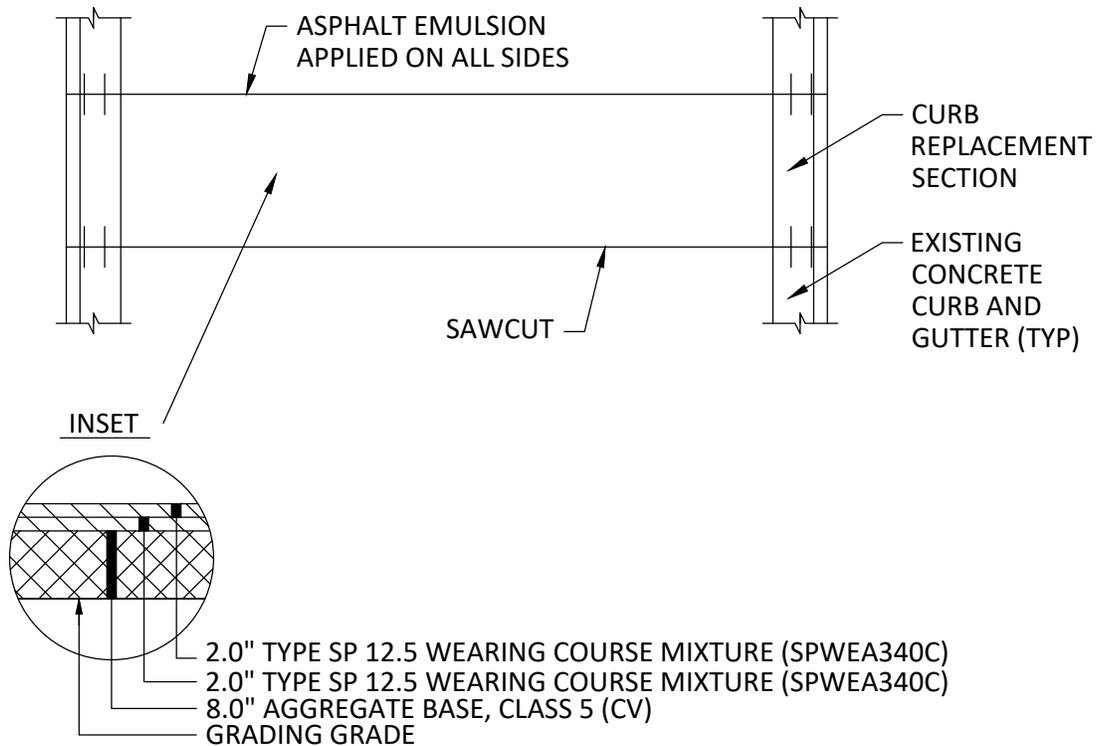


DEPRESSED CURB WITH DRIVEWAY APRON

REVISION PUBLISHED 02/2026
PLATE NO. STRT-02



CURB REPLACEMENT WITH BITUMINOUS PATCH



BITUMINOUS PATCH

NOTE:

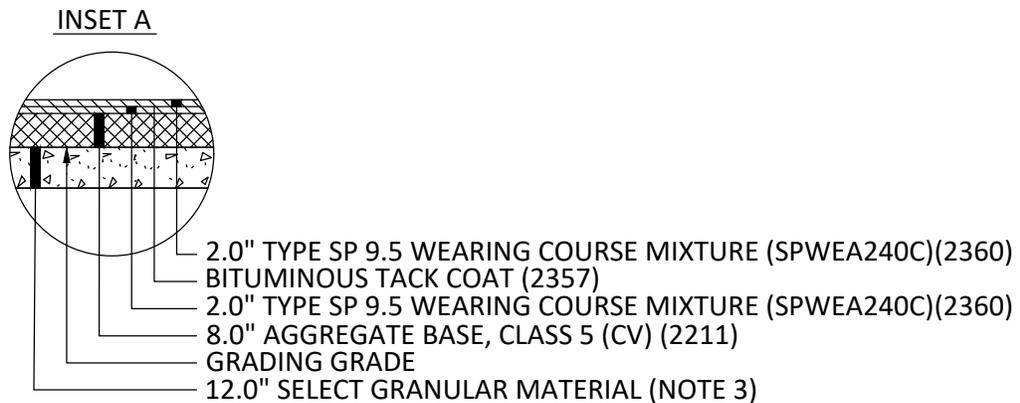
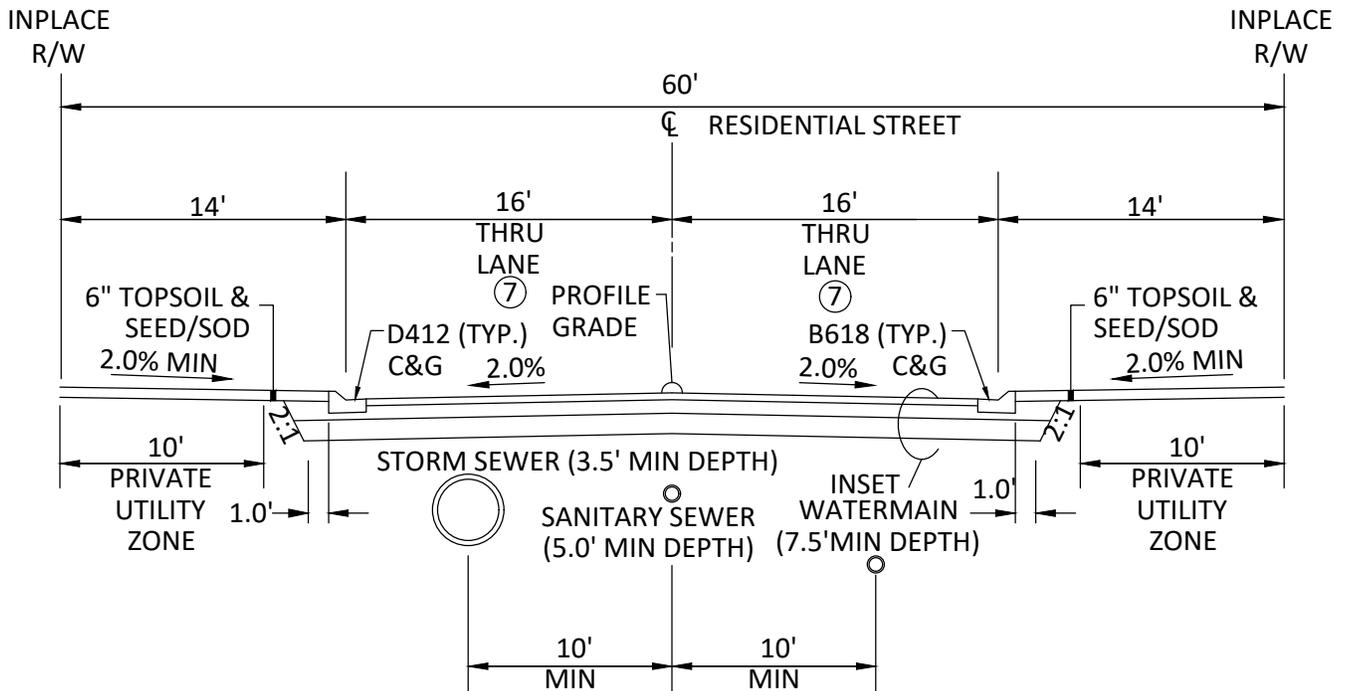
- 1) TOPSOIL SHALL MEET MNDOT SPEC 3877 FOR PULVERIZED TOPSOIL
- 2) WATER SEED OR SOD UNTIL ESTABLISHED & ACCEPTED BY THE CITY OR REPRESENTATIVE



BITUMINOUS PATCHING DETAILS

REVISION
PUBLISHED
02/2026

PLATE NO.
STRT-03



NOTES:

TYPICAL RESIDENTIAL STREET SECTION

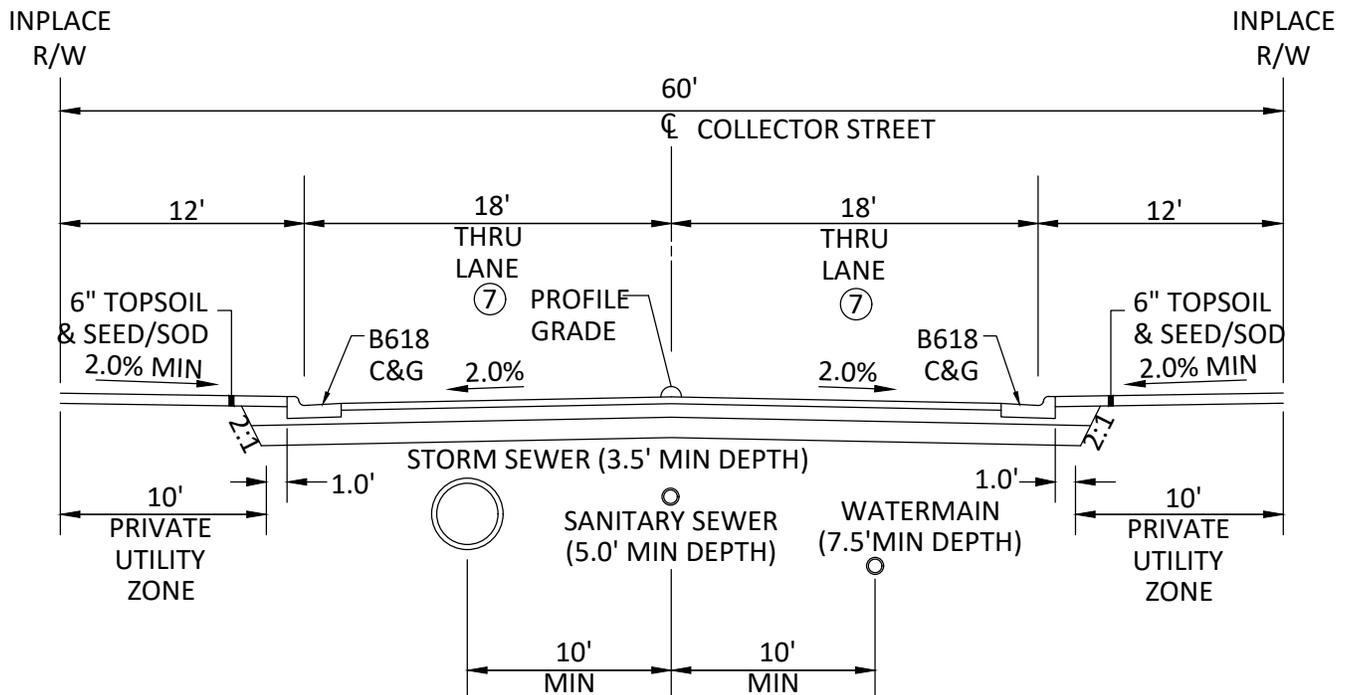
1. STREET PAVEMENT SECTION SHALL BE DESIGNED BY A QUALIFIED ENGINEER BASED ON ACTUAL SOIL CONDITIONS. THE PAVEMENT SECTION (INSET A) REPRESENTS THE MINIMUM SECTION ALLOWED.
2. PAVEMENT DESIGN CRITERIA MINIMUM SHALL INCLUDE THE FOLLOWING: 1000 ADT, 20 YEAR LIFE, 2% GROWTH.
3. INCORPORATION OF GRANULAR SUBBASE AND SUBDRAINS SHALL BE BASED ON GEOTECHNICAL ENGINEERING RECOMMENDATION.
4. B618 CURB AND GUTTER SHALL BE PLACED AROUND RADII AND ADJACENT TO STORM SEWER CATCH BASINS.
5. PRIVATE UTILITIES AND IRRIGATION SHALL NOT BE PLACED UNDER THE ROADWAY SECTION EXCEPT FOR CROSSINGS IN LOCATIONS APPROVED BY THE CITY ENGINEER.
6. REFER TO ARDEN HILLS DESIGN STANDARDS MANUAL FOR ADDITIONAL REQUIREMENTS RELATED TO ROADWAY PROFILES, CURVATURE INTERSECTIONS ETC.
7. MAINTAIN EXISTING STREET WIDTHS FOR RECONSTRUCTION PROJECTS.
8. TOPSOIL SHALL MEET MNDOT SPEC 3877 FOR PULVERIZED TOPSOIL.
9. NO CORES FOR DENSITY PERMITTED FOR FINAL WEAR.



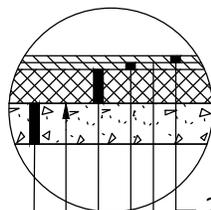
TYPICAL RESIDENTIAL STREET SECTION

REVISION
 PUBLISHED
 02/2026

PLATE NO.
 STRT-04



INSET A



- 2.0" TYPE SP 9.5 WEARING COURSE MIXTURE (SPWEA240C)(2360)
- BITUMINOUS TACK COAT (2357)
- 2.0" TYPE SP 9.5 WEARING COURSE MIXTURE (SPWEA240C)(2360)
- 8.0" AGGREGATE BASE, CLASS 5 (CV) (2211)
- GRADING GRADE
- 12.0" SELECT GRANULAR MATERIAL (NOTE 3)

NOTES:

TYPICAL RESIDENTIAL STREET SECTION

1. STREET PAVEMENT SECTION SHALL BE DESIGNED BY A QUALIFIED ENGINEER BASED ON ACTUAL SOIL CONDITIONS. THE PAVEMENT SECTION (INSET A) REPRESENTS THE MINIMUM SECTION ALLOWED.
2. PAVEMENT DESIGN CRITERIA MINIMUM SHALL INCLUDE THE FOLLOWING: 1000 ADT, 20 YEAR LIFE, 2% GROWTH.
3. INCORPORATION OF GRANULAR SUBBASE AND SUBDRAINS SHALL BE BASED ON GEOTECHNICAL ENGINEERING RECOMMENDATION.
4. B618 CURB AND GUTTER SHALL BE PLACED AROUND RADII AND ADJACENT TO STORM SEWER CATCH BASINS.
5. PRIVATE UTILITIES AND IRRIGATION SHALL NOT BE PLACED UNDER THE ROADWAY SECTION EXCEPT FOR CROSSINGS IN LOCATIONS APPROVED BY THE CITY ENGINEER.
6. REFER TO ARDEN HILLS DESIGN STANDARDS MANUAL FOR ADDITIONAL REQUIREMENTS RELATED TO ROADWAY PROFILES, CURVATURE INTERSECTIONS ETC.
7. MAINTAIN EXISTING STREET WIDTHS FOR RECONSTRUCTION PROJECTS.
8. TOPSOIL SHALL MEET MNDOT SPEC 3877 FOR PULVERIZED TOPSOIL.
9. NO CORES FOR DENSITY PERMITTED FOR FINAL WEAR.

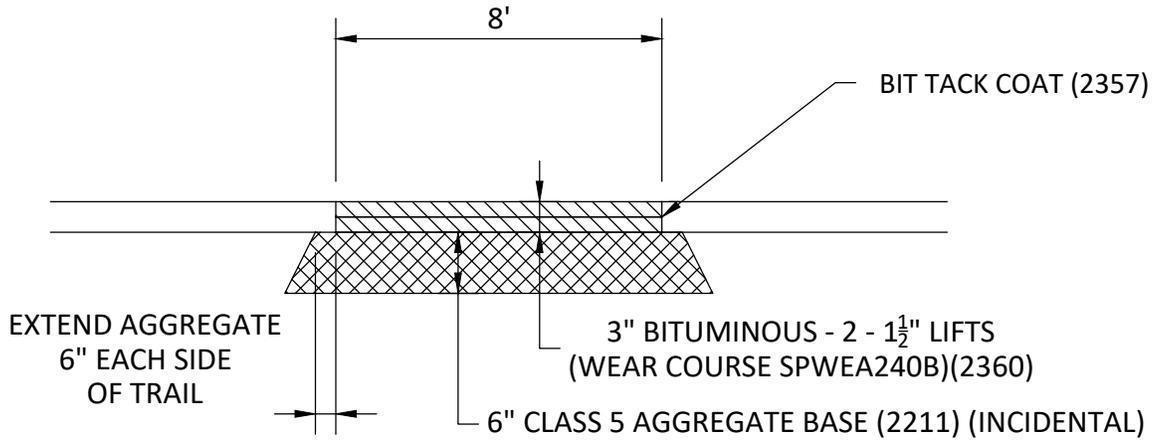


TYPICAL COLLECTOR STREET SECTION

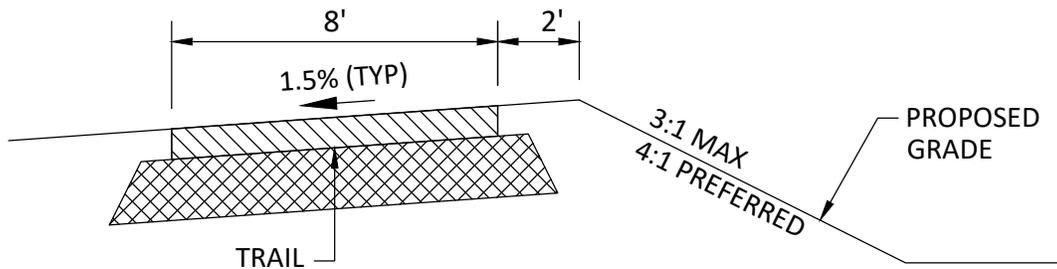
REVISION
PUBLISHED
02/2026

PLATE NO.
STRT-05

RESTORE DISTURBED AREA WITH 2" PULVERIZED BLACK DIRT (MINIMUM). SEEDING, FERTILIZING, AND PLACEMENT OF EROSION CONTROL BLANKET. SEED MIX TO BE TYPE 25-151 WITH APPLICATION RATE OF 50 LBS/ACRE OF RYE SEED



TRAIL TYPICAL CROSS SECTION



TRAIL TYPICAL SECTION

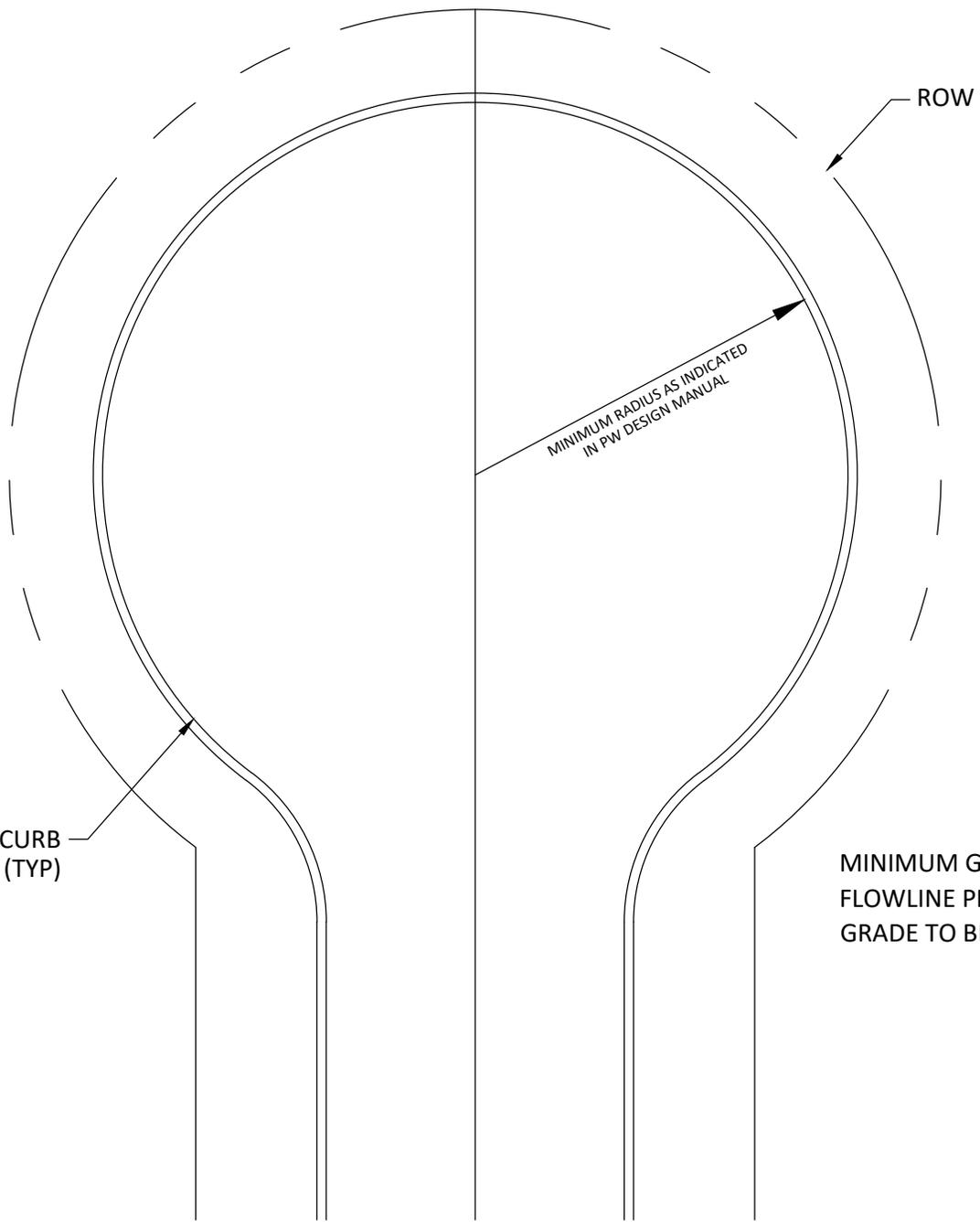
NOTE: FOLLOW MNDOT ADA DESIGN STANDARDS.
NOTE: NO CORES FOR DENSITY PERMITTED FOR FINAL WEAR.



BITUMINOUS TRAIL
TYPICAL SECTION

REVISION
PUBLISHED
02/2026

PLATE NO.
STRT-06



ROW

MINIMUM RADIUS AS INDICATED
IN PW DESIGN MANUAL

D412 OR B618 CURB
& GUTTER (TYP)

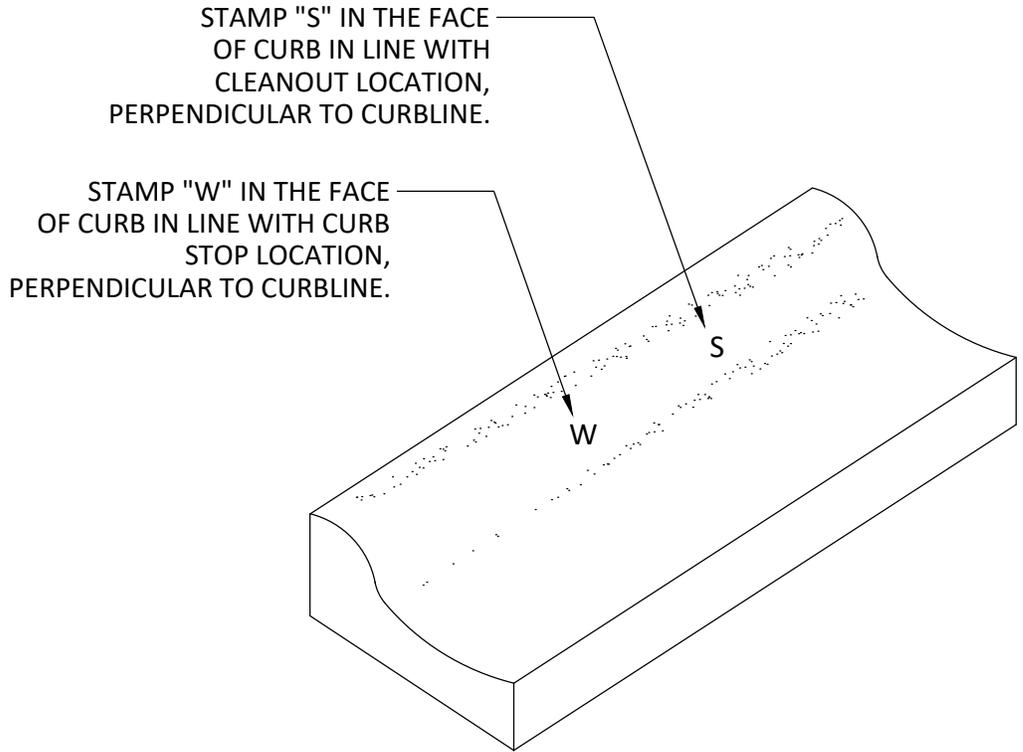
MINIMUM GUTTER
FLOWLINE PROFILE
GRADE TO BE 0.40%



CUL-DE-SAC

REVISION
PUBLISHED
02/2026

PLATE NO.
STRT-07



NOTES:

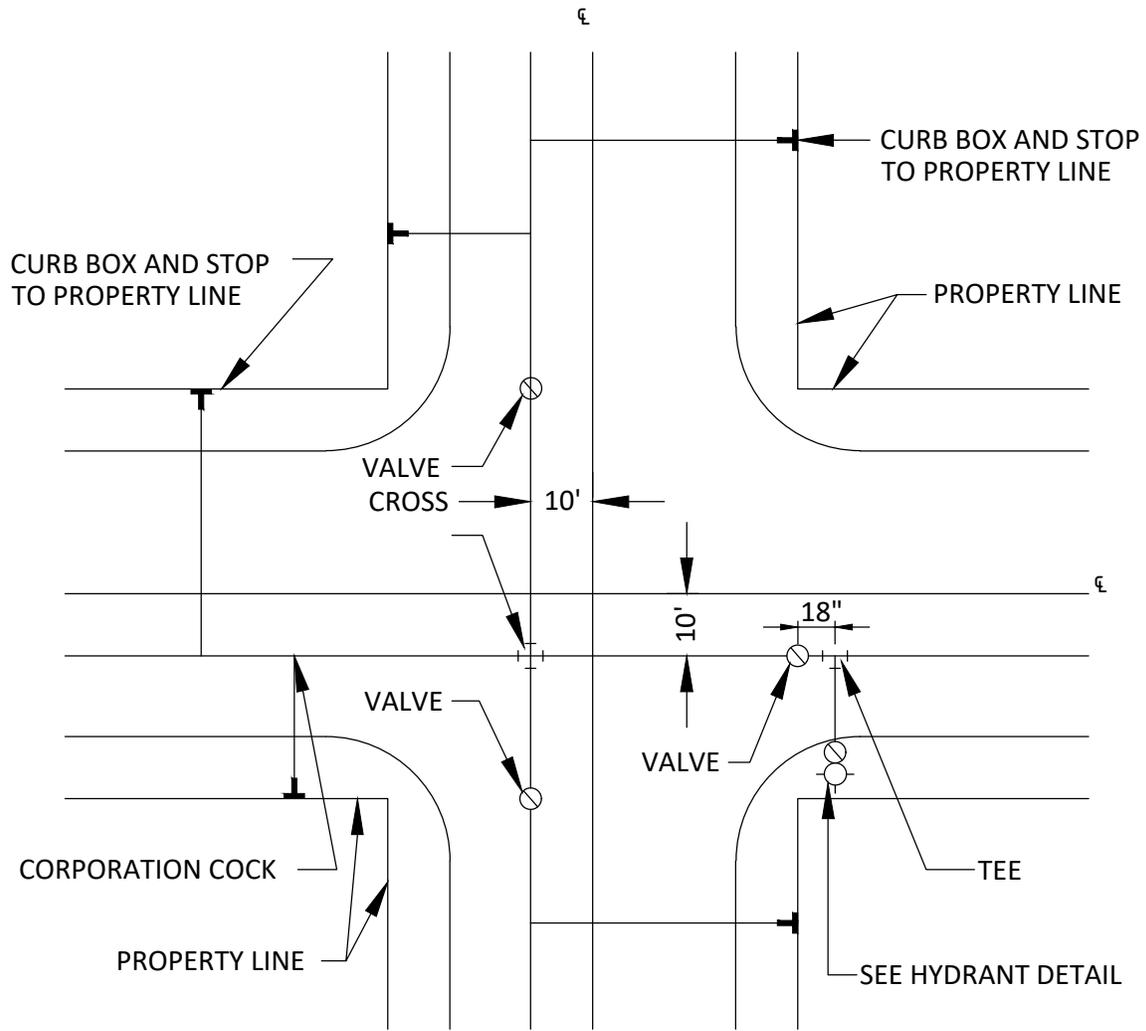
1. ALL NEW AND EXISTING WATER AND SEWER SERVICE LOCATIONS SHALL BE MARKED IN CURB AS SHOWN. STAMPING OF SERVICE LOCATIONS SHALL BE CONSIDERED INCIDENTAL TO THE PRICE OF CURB.
2. W'S AND S'S NOT PLACED BY SPECIFIED STAMP WILL NOT BE ACCEPTED AND THAT SECTION OF CURB MUST BE REMOVED AND REPLACED.



CURB NOTATION

REVISION
PUBLISHED
02/2026

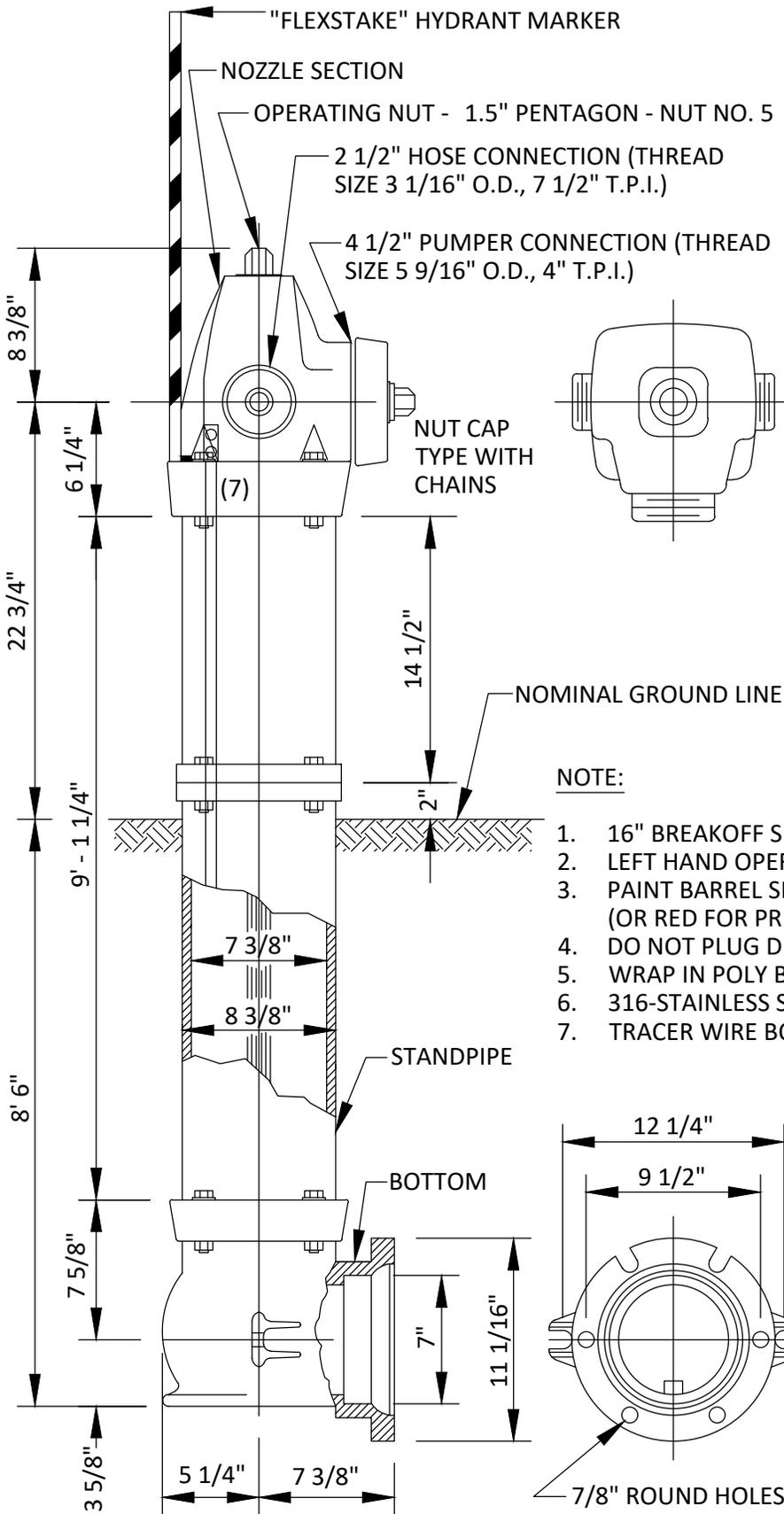
PLATE NO.
STRT-09



TYPICAL WATER LAYOUT

REVISION
PUBLISHED
02/2026

PLATE NO.
WATR-01



NOZZLE ARRANGEMENT
 TWO 2 1/2" NOZZLE
 PLUS PUMPER NOZZLE
 WITH 1.5" PENTAGON -
 NUT NO. 5
 OPERATING NUT

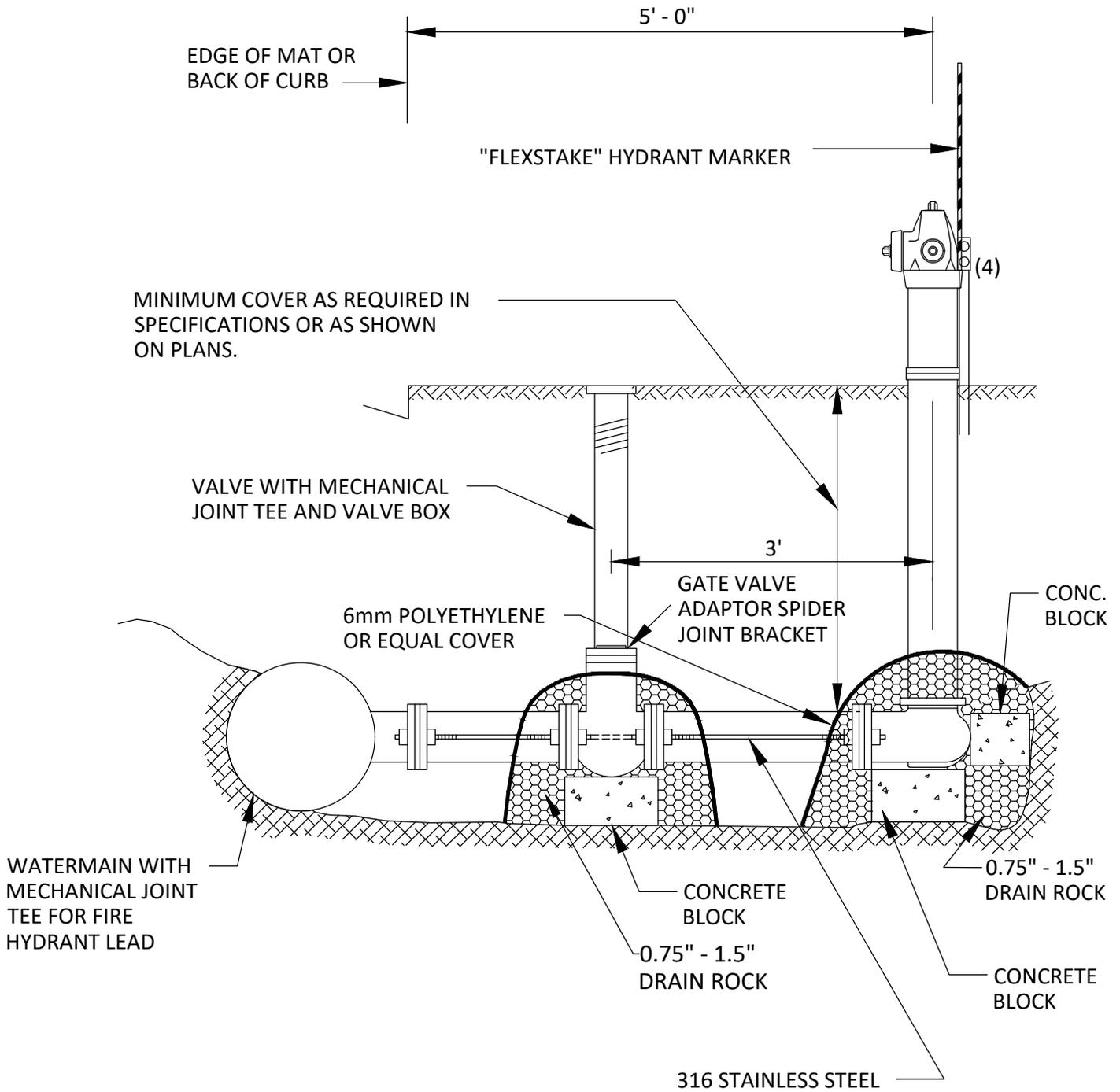
- NOTE:**
- 16" BREAKOFF SECTION.
 - LEFT HAND OPERATING NUT (1 1/2" POINT TO FLAT).
 - PAINT BARREL SECTION YELLOW (OR RED FOR PRIVATE) TO GRADE.
 - DO NOT PLUG DRAIN HOLES.
 - WRAP IN POLY BELOW GRADE.
 - 316-STAINLESS STEEL BOLTS BELOW GRADE.
 - TRACER WIRE BOX PER SPEC.

NOTE: HYDRANT LOCATION DEVICES REQUIRED - SEE SPECIFICATIONS
 HYDRANT COLOR YELLOW FOR PUBLIC / HYDRANT COLOR RED FOR PRIVATE



**PACER HYDRANT DETAIL
 MODEL WB-67**

REVISION PUBLISHED 02/2026
PLATE NO. WATR-02



NOTES:

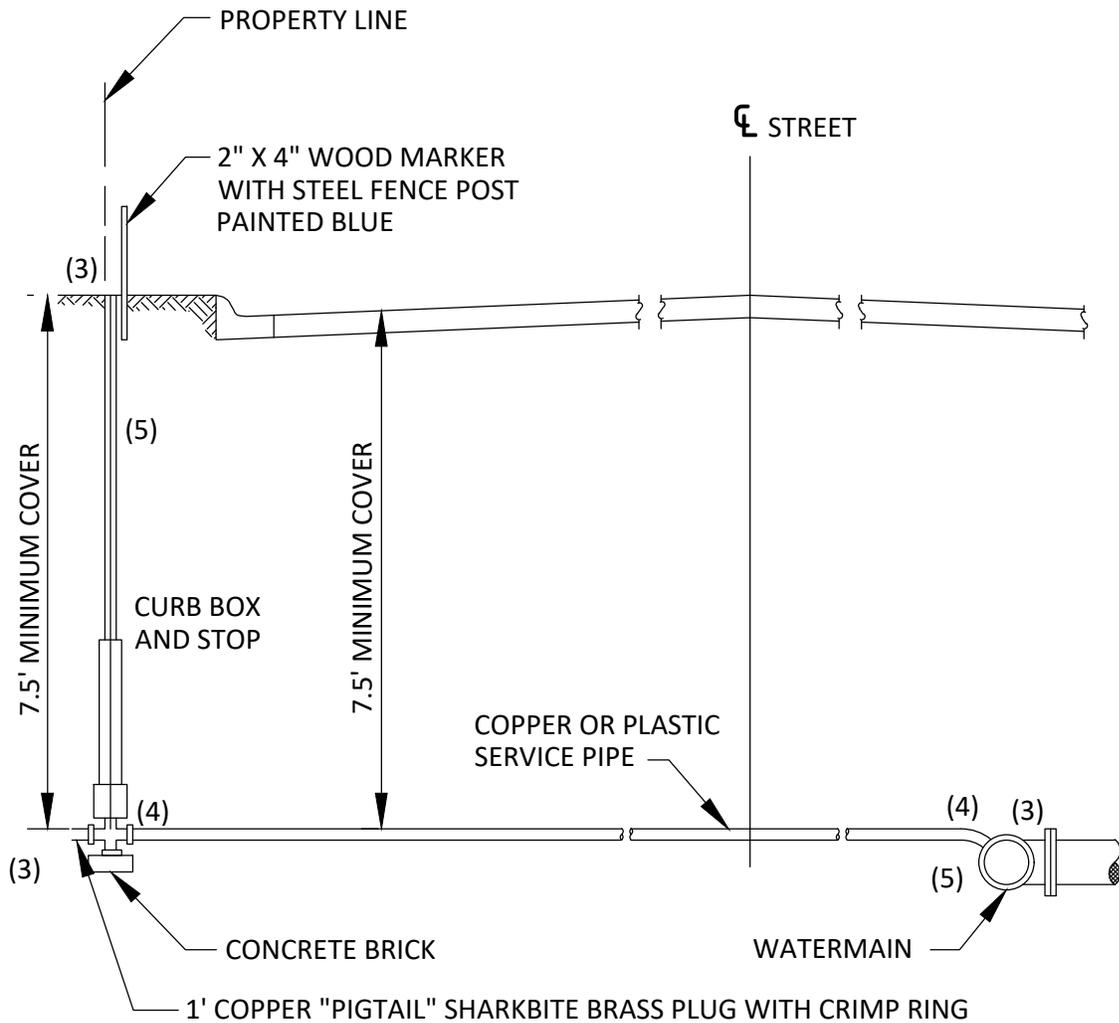
1. ALL HYDRANT LEADS SHALL BE RESTRAINED FROM THE MAIN TO THE HYDRANT THROUGH THE USE OF $\frac{3}{4}$ " THREADED RODS 316 STAINLESS STEEL OR MEGALUGS AS RESTRAINTS IN ACCORDANCE WITH THE STANDARD DETAIL PLATES
2. WRAP ALL DIP & FITTINGS IN POLY.
3. CONCRETE BLOCKS TO BE PLACED AGAINST UNDISTURBED GROUND.
4. TRACER WIRE PER SPECS.



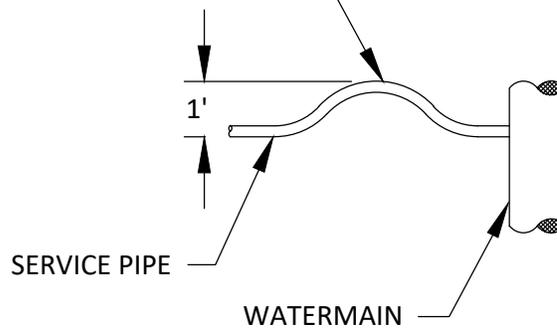
HYDRANT RESTRAINT DETAIL

REVISION
PUBLISHED
02/2026

PLATE NO.
WATR-03



PROVIDE ONE - 1.0' HORIZONTAL LOOP IN SERVICE LINE



PLAN

NOTES:

1. PLACE CURB BOX 1FT BEYOND ROW WHEN SIDEWALK IS PRESENT.
2. PLACE STAMP IN CURB WHEN CONCRETE CURB IS PRESENT.
3. ADD TRACER WIRE PER SPECIFICATIONS.
4. COMPRESSION OR FLARED FITTING PER SPECIFICATIONS.
5. CORPORATION, CURBSTOP & BOX PER SPECIFICATIONS.
6. CURBSTOPS SHALL HAVE EXTENSION RODS (PINNED).

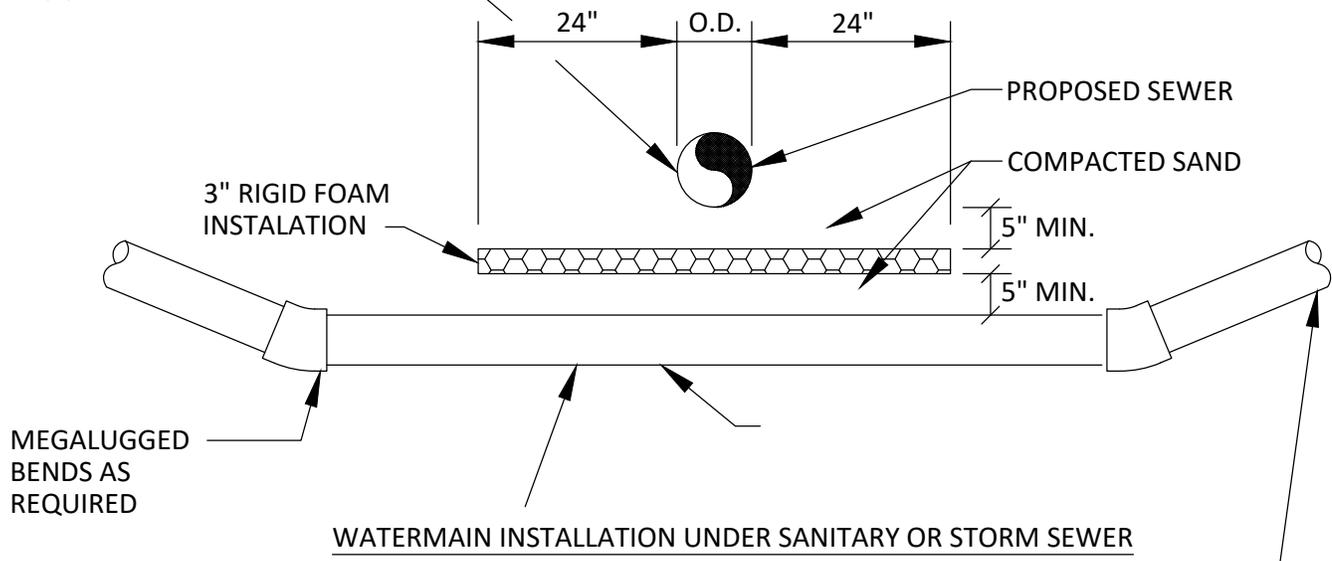


TYPICAL WATER SERVICE DETAIL

REVISION
PUBLISHED
02/2026

PLATE NO.
WATR-04

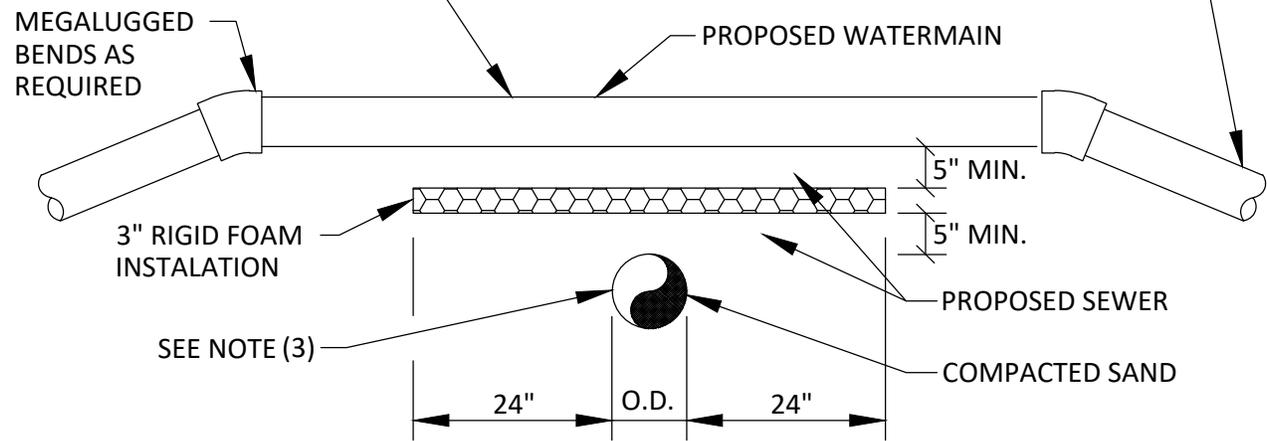
(3) CENTER AT ALL CROSSINGS



WATERMAIN INSTALLATION UNDER SANITARY OR STORM SEWER

TRANSITION TO SPECIFIED DEPTH (TYP.) INSTALL VERTICAL BEND AS REQUIRED

CENTER ONE LENGTH OF WATERMAIN AT CROSSING



WATERMAIN INSTALLATION OVER SANITARY OR STORM SEWER

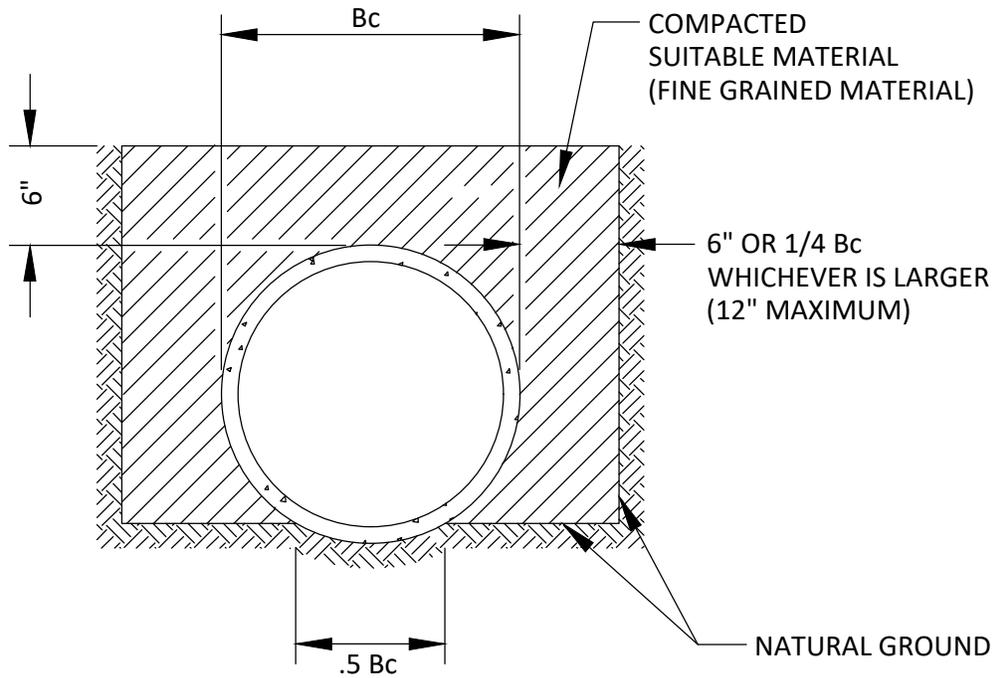
NOTES:

1. WHEN WATERMAIN AND SANITARY SEWER CROSSING HAVE LESS THAN 18" VERTICAL SEPARATION, INSTALL CROSSING AS SHOWN.
2. WHEN WATERMAIN COVER IS LESS THAN 7.5 FEET, INSTALL WATERMAIN UNDER SANITARY SEWER.
3. INSTALL ONE LENGTH OF WATERMAIN PIPE WITH THE APPROPRIATE MATERIAL ADAPTORS.



WATERMAIN CROSSING

REVISION PUBLISHED 02/2026
PLATE NO. WATR-05



THE BOTTOM OF THE TRENCH SHALL BE SHAPED TO FIT THE PIPE BARREL FOR AT LEAST 50% OF THE OUTSIDE DIAMETER. THE REMAINDER OF THE PIPE IS SURROUNDED TO A HEIGHT OF AT LEAST 6" ABOVE ITS TOP BY SELECT FILL MATERIALS, PLACED BY HAND TOOLS AND COMPACTED TO COMPLETELY FILL ALL SPACES UNDER AND ADJACENT TO THE PIPE.

NOTE:

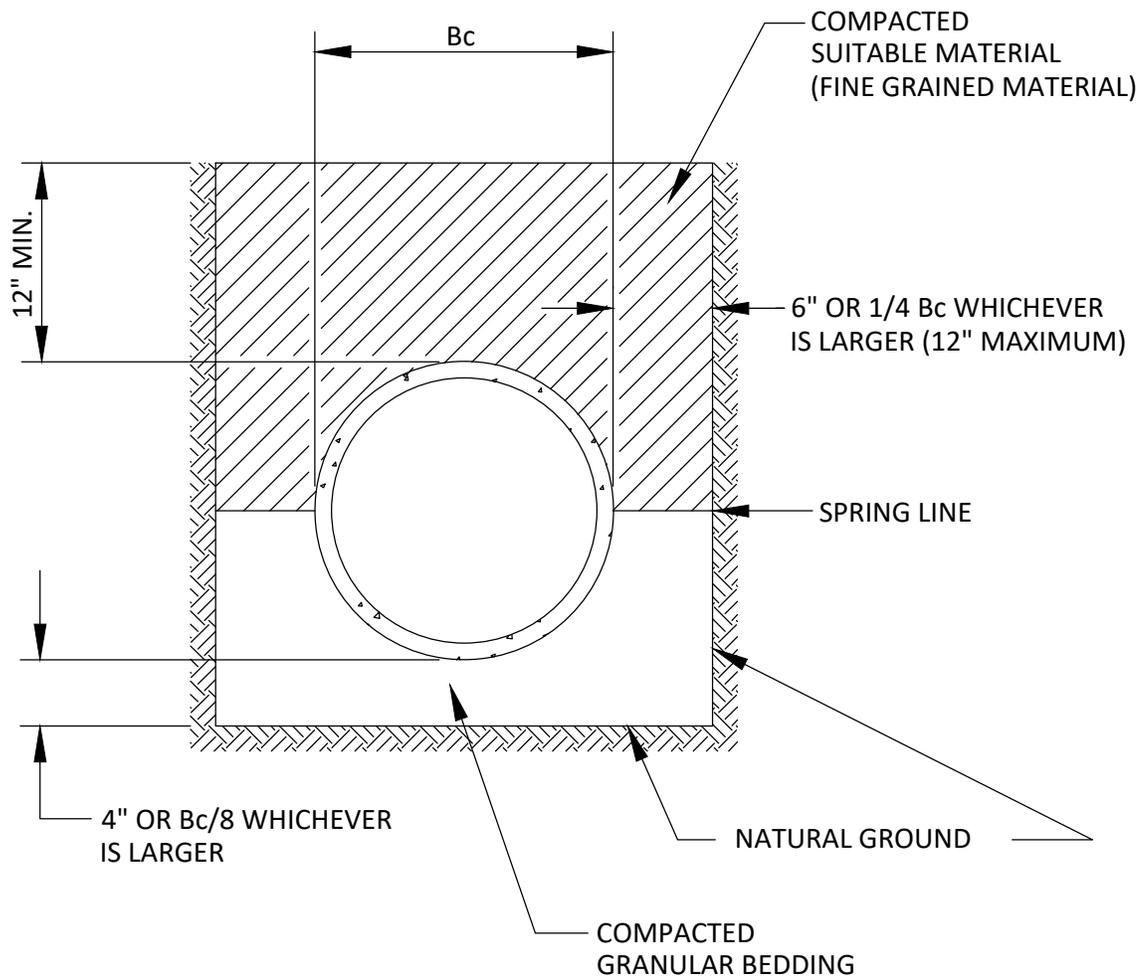
ALL COSTS OF EXCAVATION BELOW GRADE AND PLACEMENT OF GRANULAR BEDDING SHALL BE INCLUDED IN THE BID PRICES FOR PIPE ITEMS.



CLASS C PIPE BEDDING

REVISION
PUBLISHED
02/2026

PLATE NO.
WATR-06



NOTE:

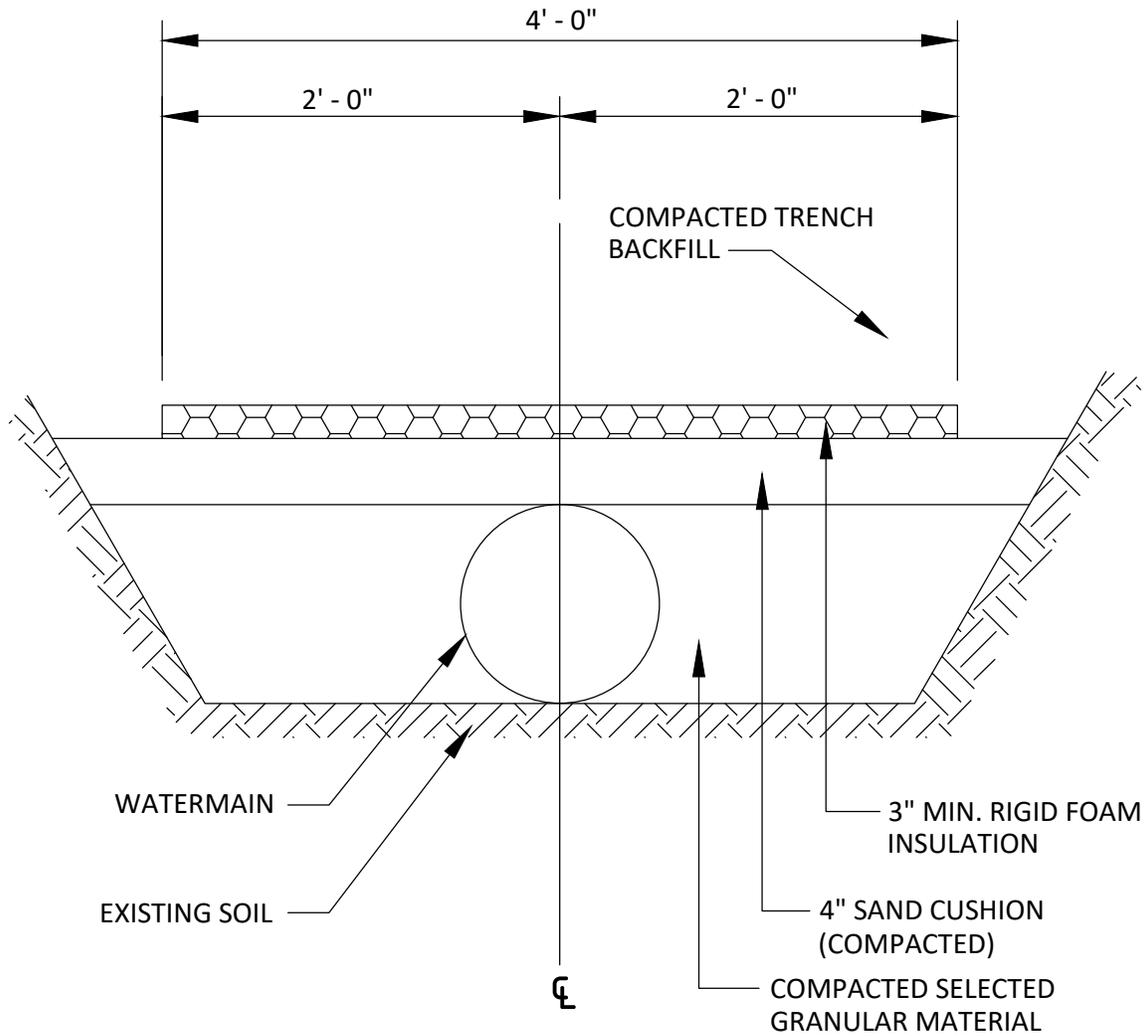
ALL COSTS OF EXCAVATION BELOW GRADE AND PLACEMENT OF GRANULAR BEDDING SHALL BE INCLUDED IN THE BID PRICES FOR PIPE ITEMS.



CLASS B PIPE BEDDING

REVISION
PUBLISHED
02/2026

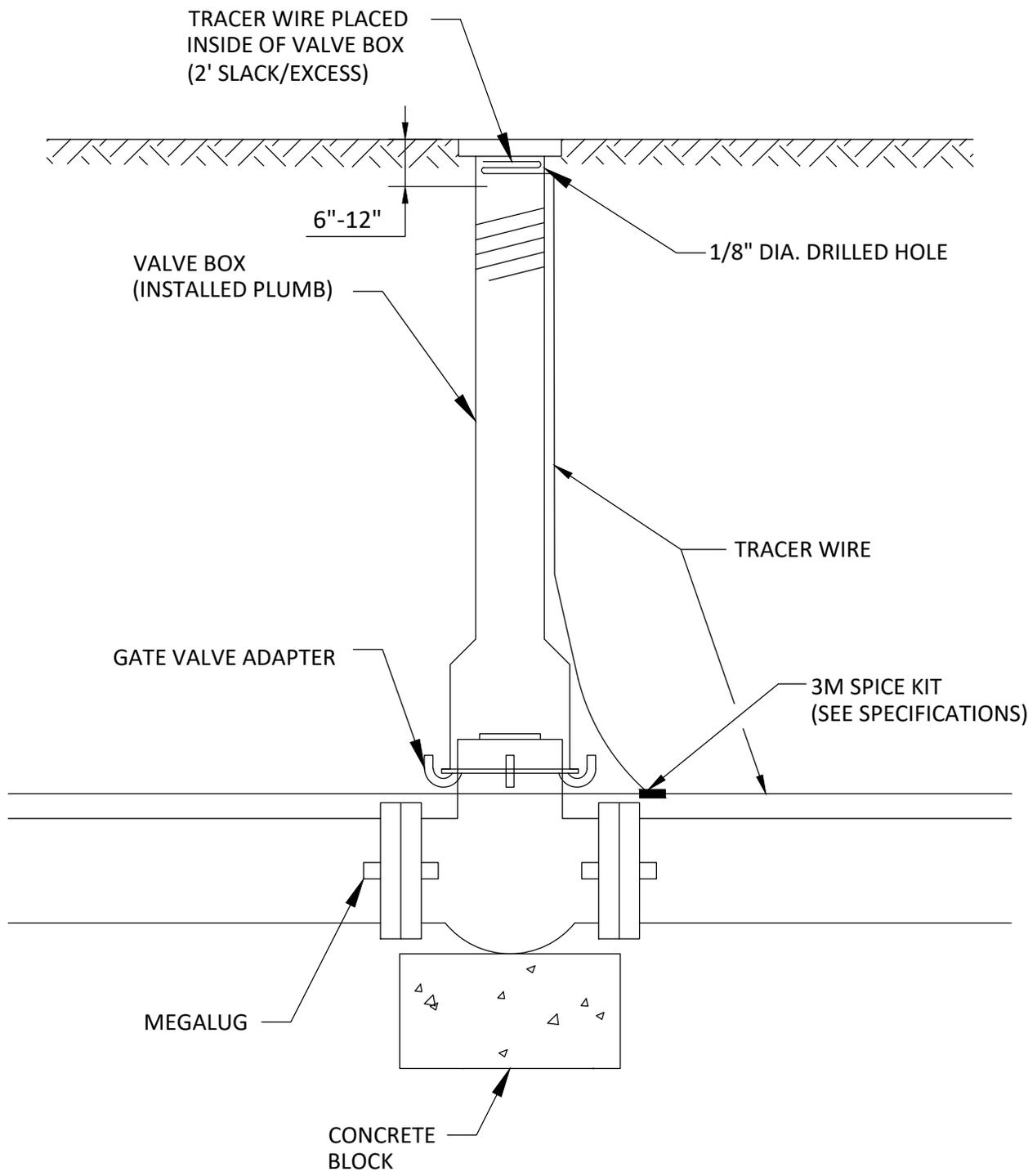
PLATE NO.
WATR-07



PIPE INSULATION DETAIL

REVISION
PUBLISHED
02/2026

PLATE NO.
WATR-08



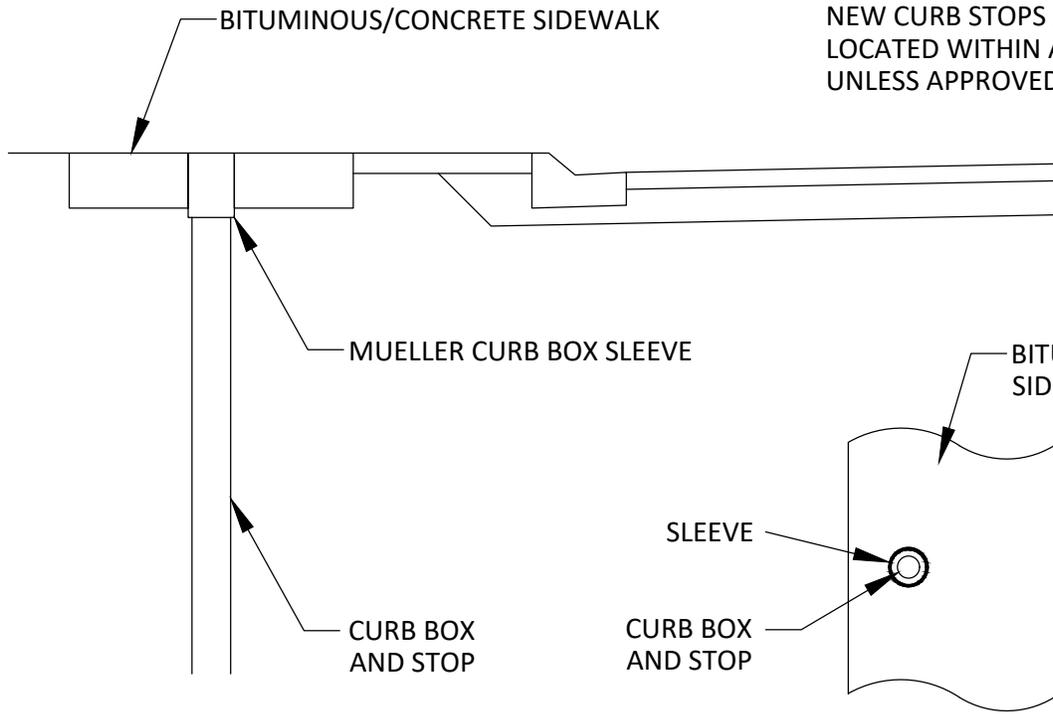
*GATE VALVE HARDWARD MUST
CONSIST OF 316 STAINLESS STEEL*



VALVE WITH TRACER WIRE DETAIL

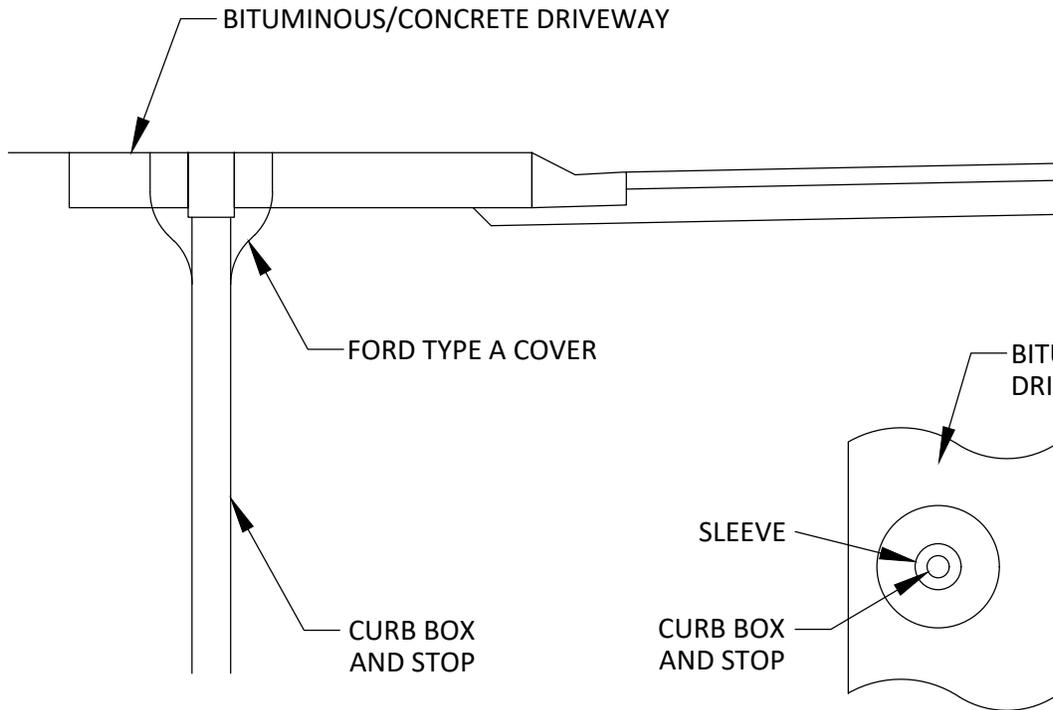
REVISION
PUBLISHED
02/2026
PLATE NO.
WATR-09

NOTE:
NEW CURB STOPS ARE NOT ALLOWED TO BE
LOCATED WITHIN A PAVEMENT SECTION,
UNLESS APPROVED BY THE CITY ENGINEER.



PROFILE

PLAN



PROFILE

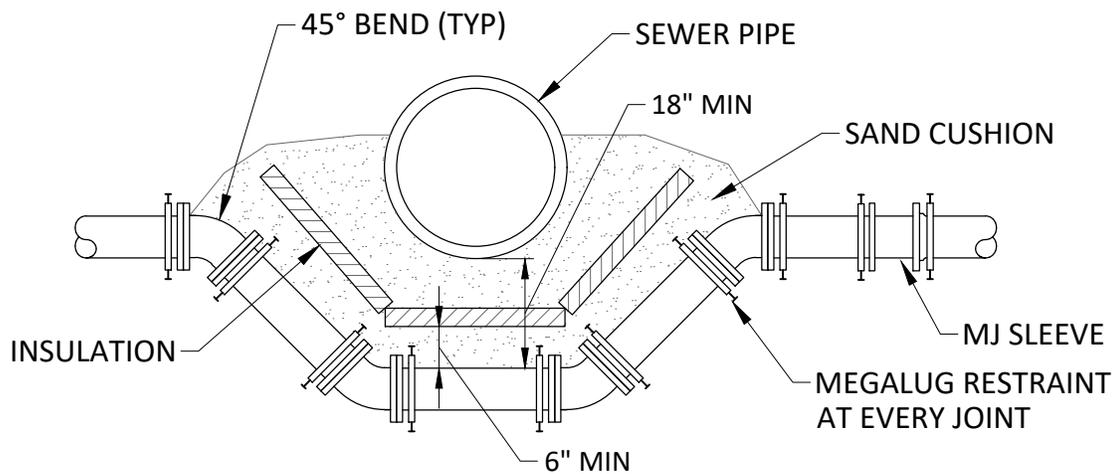
PLAN



**CURB STOP IN SIDEWALK
OR DRIVEWAY DETAIL**

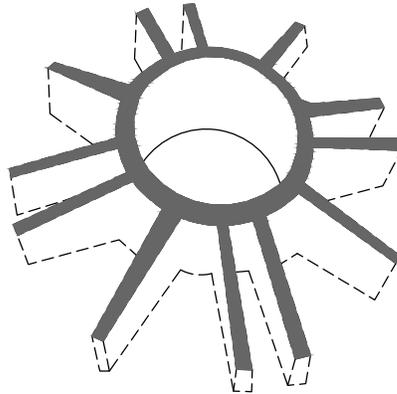
REVISION
PUBLISHED
02/2026

PLATE NO.
WATR-10

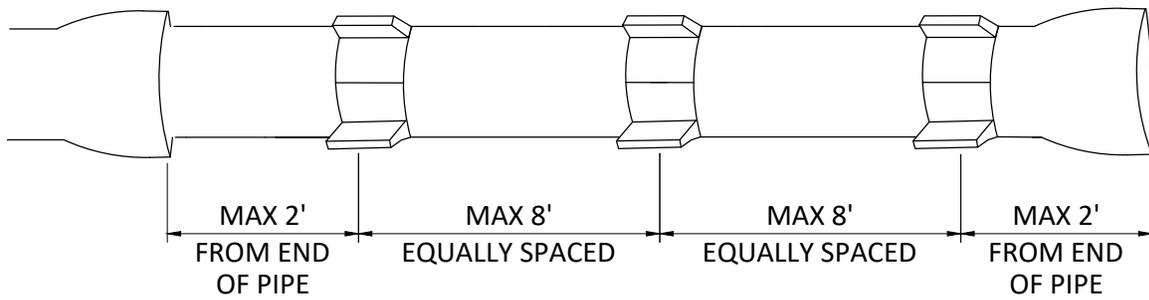
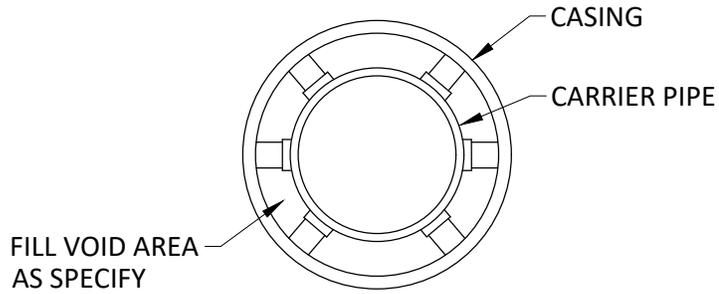


NOTES:

1. PROVIDE MEGALUG RESTRAINT AT JOINT ON BENDS AND AS SHOWN THIS DETAIL
2. COAT ALL ANCHORAGE AS PER SPECS
3. PROVIDE SAND CUSHION BETWEEN TOP OF WATERMAIN AND BOTTOM OF SEWER PIPE, MIN DIMENSIONS AS SHOWN THIS DETAIL (INCIDENTAL)
4. INSULATION TO BE 2" THICK POLYSTYRENE



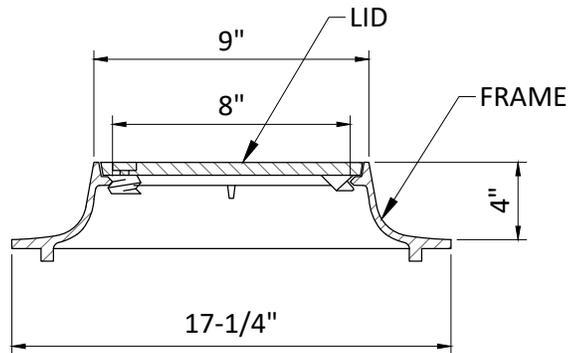
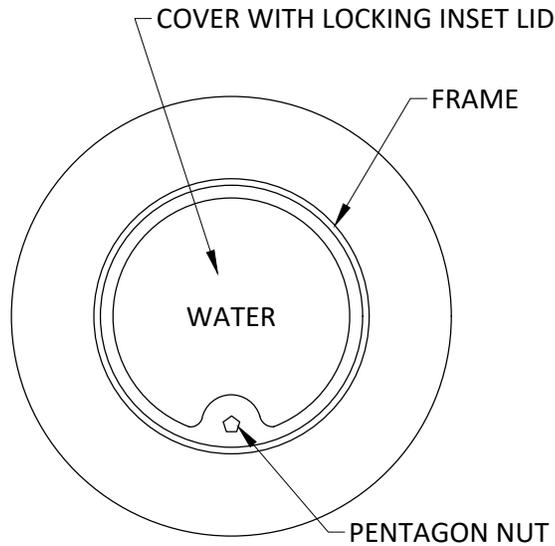
PHOENIX PLASTIC CASING SPACER
OR APPROVED EQUAL



WATERMAIN PIPE SUPPORT
IN CASING, PLASTIC SPACERS

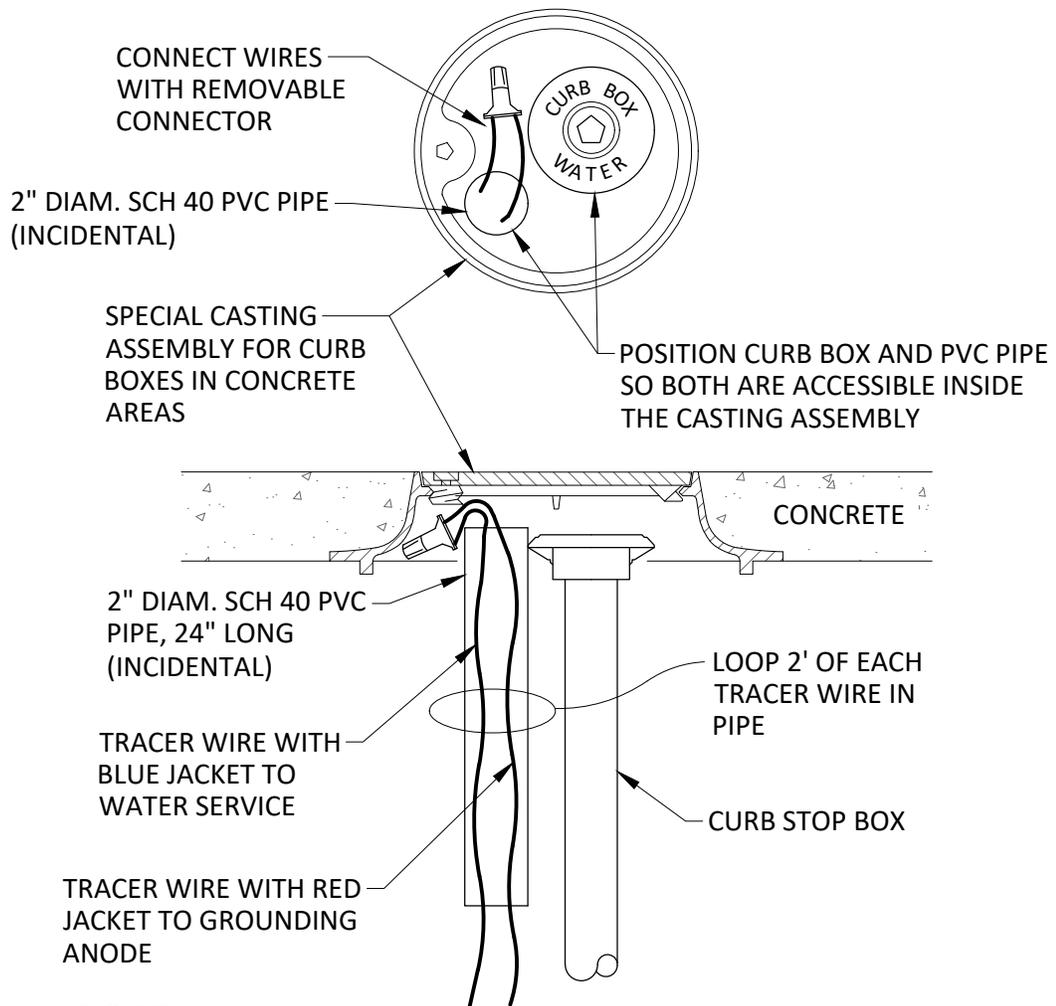
REVISION
PUBLISHED
02/2026

PLATE NO.
WATR-12



NOTES:

1. FURNISH AND INSTALL ON CURB STOPS THAT ARE WITHIN CONCRETE OR BITUMINOUS SURFACING.
2. CASTING ASSEMBLY TO BE FORD METER BOX MODEL A1 OR APPROVED EQUAL.
3. NEW CURB STOPS ARE NOT ALLOWED TO BE LOCATED WITHIN A PAVEMENT SECTION, UNLESS APPROVED BY THE CITY ENGINEER.



NOTES:

1. SPECIAL CASTING ASSEMBLIES ARE REQUIRED ON CURB STOP BOXES THAT ARE WITHIN CONCRETE OR BITUMINOUS SURFACING.
2. TRACER WIRE ACCESS BOXES ARE NOT REQUIRED WHERE A SPECIAL CASTING ASSEMBLY IS INSTALLED.



**TRACER WIRE AT CURB BOX,
INSIDE CASTING ASSEMBLY SPECIAL**

REVISION
PUBLISHED
02/2026

PLATE NO.
WATR-14