

CITY OF BUFFALO, MINNESOTA STANDARD DETAILS

TYPICAL SECTIONS

PLATE #	DETAIL TITLE
1001	TYPICAL SECTION NEIGHBORHOOD RESIDENTIAL
1002	BITUMINOUS TRAIL

EROSION CONTROL

PLATE #	DETAIL TITLE
3000	DITCH CHECK - BIOROLL
3001	VELOCITY CHECK - HEAVY DUTY SILT FENCE
3002	DITCH CHECK - RIPRAP
3003	SILT FENCE - HEAVY DUTY
3004	SILT FENCE - MACHINE SLICED
3005	SILT FENCE - PREASSEMBLED
3006	ROCK CONSTRUCTION ENTRANCE
3007	EROSION CONTROL BLANKET INSTALLATION
3008	TYPICAL SEDIMENT BASIN CROSS SECTION
3009	INLET PROTECTION - BIOLOG
3010	INLET PROTECTION - PREASSEMBLED SILT FENCE
3011	INLET PROTECTION - HEAVY DUTY SILT FENCE
3012	INLET PROTECTION - WIMCO OR EQUAL
3013	SILT FENCE - FLOTATION SILT CURTAIN
3014	RCP CULVERT END RIPRAP DETAIL
3015	EMERGENCY OVERFLOW SWALE
3016	EROSION CONTROL FOR HOME BUILDERS & OTHER CONSTRUCTION SITES

STORM SEWER

PLATE #	DETAIL TITLE
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4002	RC PIPE CLASS "B" BEDDING
4003	NON-RIGID STORM SEWER BEDDING
4004	CATCH BASIN - DESIGN G
4005	CATCH BASIN - DESIGN H
4006	CATCH BASIN STRUCTURE - DESIGN R-1 (2'X3')
4007	STORM SEWER STRUCTURE - DESIGN F, TYPE "B" CONE
4008	STORM SEWER MANHOLE - DESIGN 4020
4009	STORM SEWER MANHOLE - DESIGN 4022
4010	SUBSURFACE ROADWAY EDGE DRAIN
4011	SUMP PUM DRAIN LINE SERVICE
4012	PRECAST CONCRETE POND SKIMMER STRUCTURE
4013	PRECAST CONCRETE POND SKIMMER STRUCTURE WITH RATE CONTROL BAFFLE
4014	DRAINAGE STRUCTURE WITH SUMP

CITY OF BUFFALO, MINNESOTA STANDARD DETAILS

SANITARY SEWER

PLATE #	DETAIL TITLE
5001	SANITARY MANHOLE - DESIGN 4007
5002	SANITARY SEWER SERVICE & SERVICE RISER, RECONSTRUCTION
5003	SANITARY MANHOLE WITH OUTSIDE DROP
5004	SANITARY SEWER CLEANOUT
5005	NON-RIGID SANITARY SEWER TRENCH
5006	SANITARY SEWER SERVICE INSULATION
5007	SANITARY SEWER MANHOLE - DESIGN SPECIAL
5008	ADJUSTABLE TRACER WIRE ACCESS BOX
5009	MANHOLE ANTI-BUOYANCY COLLAR
5010	SANITARY SEWER SERVICE - NEW CONSTRUCTION
5011	SANITARY SEWER SERVICE - RISER- NEW CONSTRUCTION

WATERMAIN

PLATE #	DETAIL TITLE
6001	HYDRANT INSTALLATION, MEGALUGS
6002	WATER SERVICE INSTALLATION - RECONSTRUCTION
6003	WATERMAIN OFFSET
6004	WATERMAIN TRENCH - PVC
6005	PROPOSED HYDRANT LOCATION
6006	WATER SERVICE INSTALLATION - NEW CONSTRUCTION
6007	GATE VALVE & BOX INSTALLATION
6008	CONCRETE THRUST BLOCKS
6009	COLIFORM BACTERIA TESTING PROCEDURES
6010	IRRIGATION CONNECTION

CURB & GUTTER, SIDEWALK

PLATE #	DETAIL TITLE
7001	CONCRETE CURB & GUTTER - DESIGN B618
7002	DRIVEWAY & CONCRETE WALK TYPICAL SECTIONS
7003	CONCRETE VALLEY GUTTER
7004	CONCRETE STAIRWAY
7005	CATCH BASIN & CURB DETAIL FOR R3067 CASTING

SIGNS & MARKERS

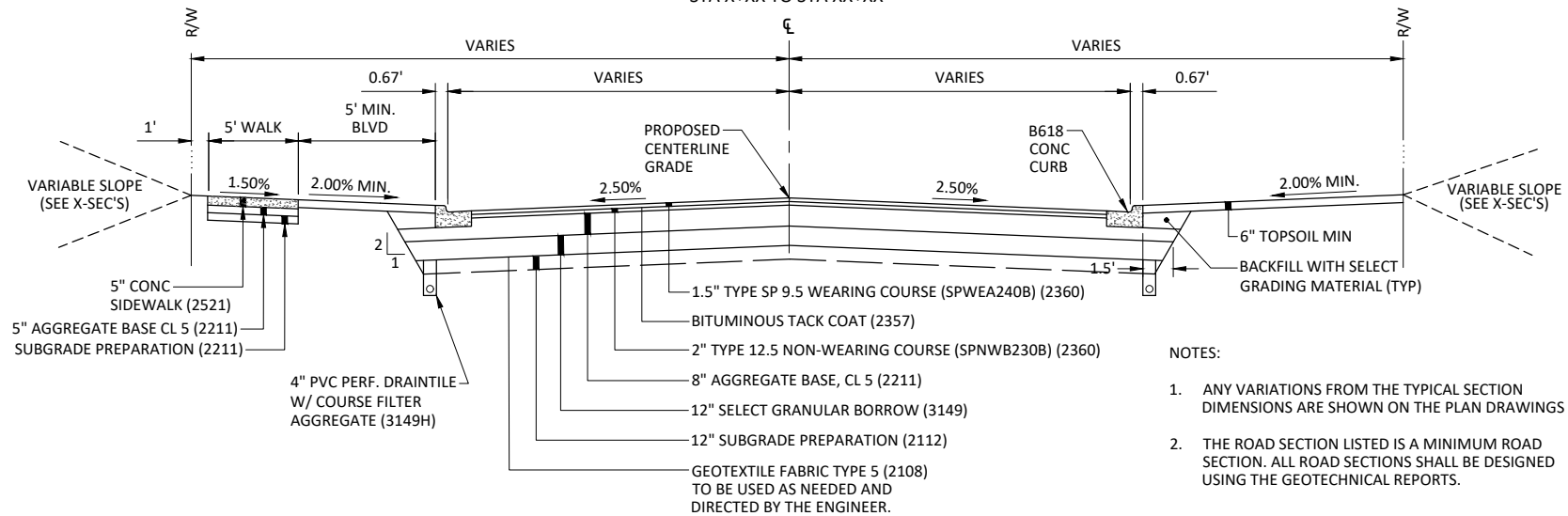
PLATE #	DETAIL TITLE
8001	RHINO TRIVIEW TRACER PED & UTILITY MARKER
8002	STREET SIGN & POST INSTALLATION
8003	WETLAND BUFFER SIGN INSTALLATION
8004	STREET NAME & SIGN POST INSTALLATION

MISCELLANEOUS

PLATE #	DETAIL TITLE
9001	CONSTRUCTION LIMITS CONTROL
9002	BOLLARD GUARD POST

TYPICAL SECTION

STA X+XX TO STA XX+XX



TYPICAL SECTION
NEIGHBORHOOD RESIDENTIAL
NOT TO SCALE



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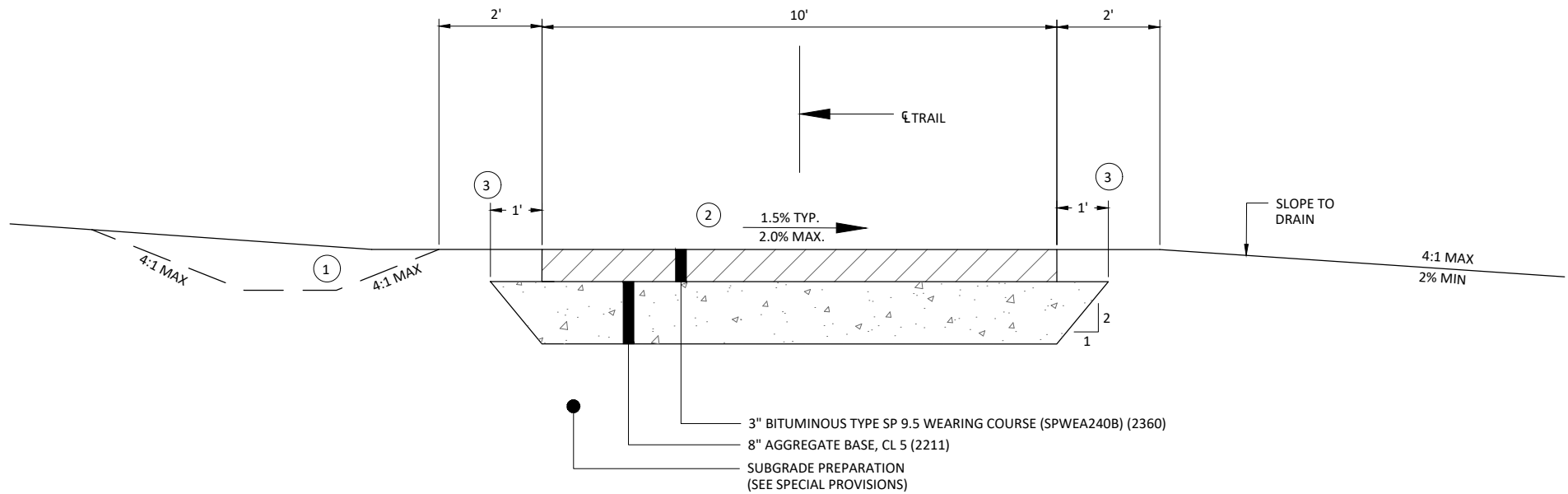
Buffalo
CITY OF BUFFALO, MINNESOTA

TYPICAL SECTION
NEIGHBORHOOD RESIDENTIAL

May 1st, 2025

STD. DETAIL

1001



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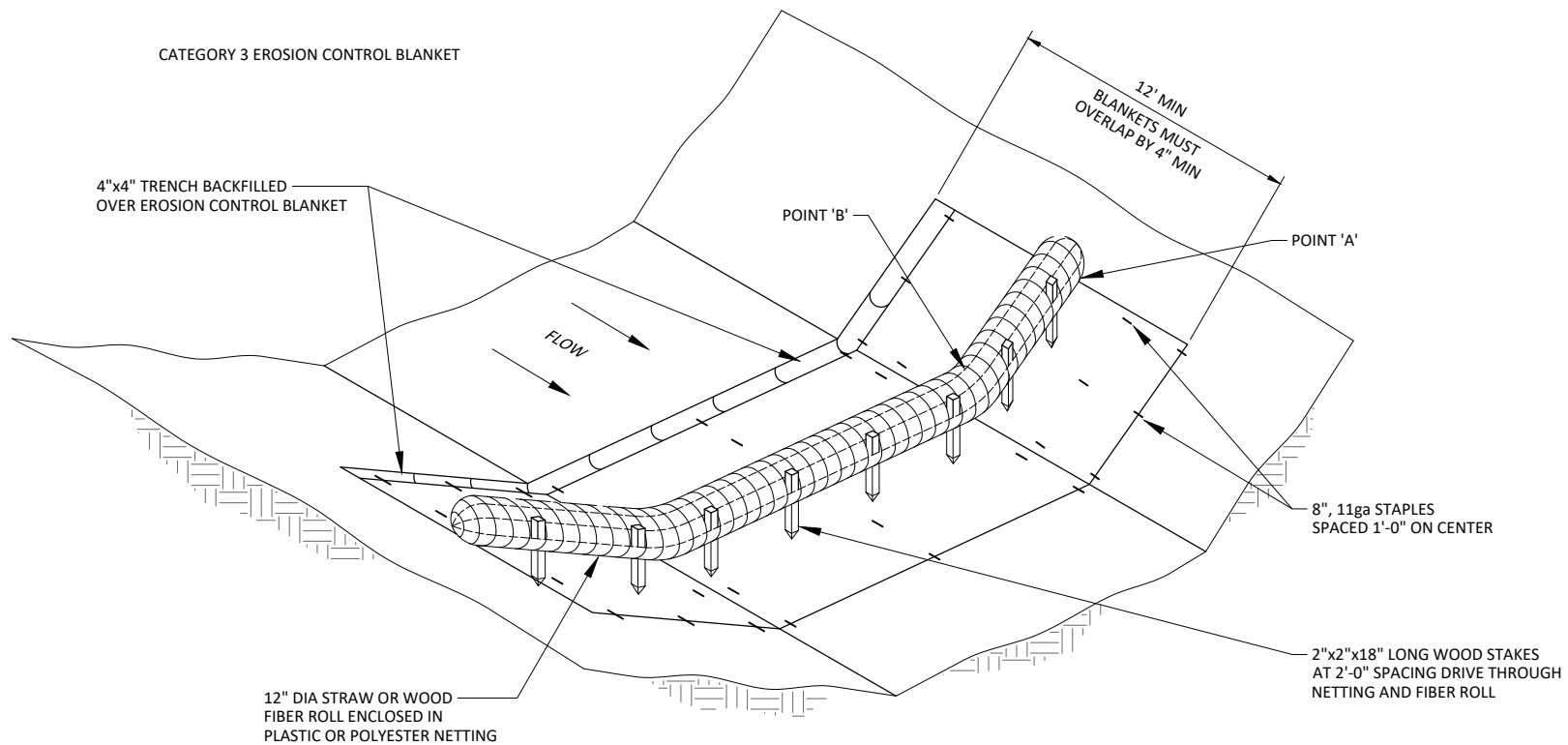
CITY OF BUFFALO, MINNESOTA

BITUMINOUS TRAIL

May 1st, 2025

STD. DETAIL

1002



DITCH CHECK - BIOROLL
NOT TO SCALE

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.
SHALL BE USED WHEN DITCH GRADIENT IS LESS THAN 3%.



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DITCH CHECK BIOROLL

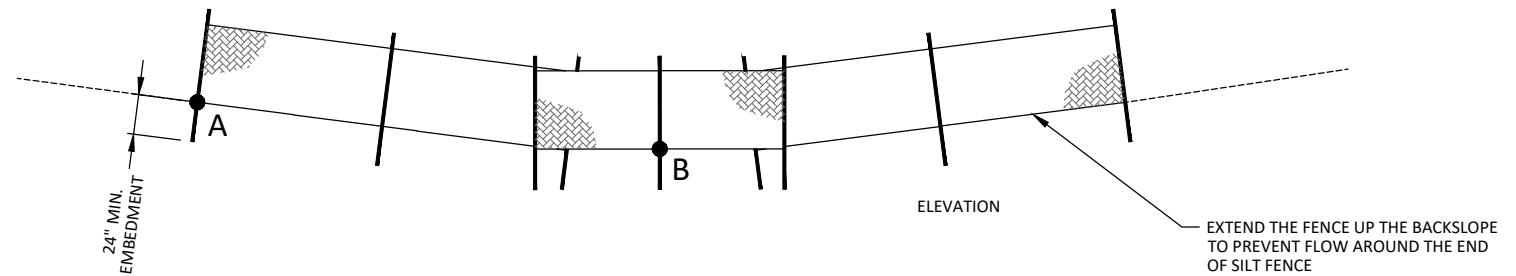
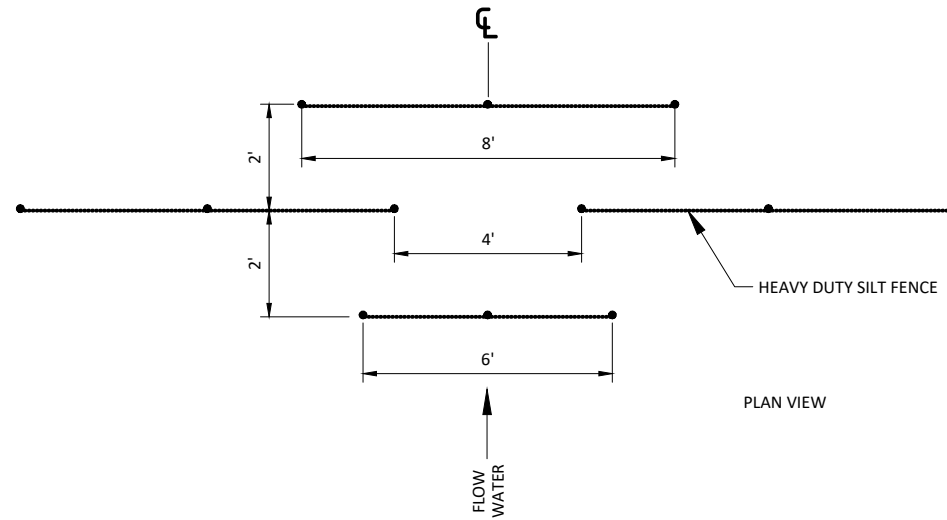
May 1st, 2025

STD. DETAIL

3000

NOTES:

1. SEE SPECS 2571, 3882, 3885, 3886 & 3889
2. SPACING OF DITCH CHECKS (FT)
= (HEIGHT OF DITCH CHECK (FT) X 100 / DITCH GRADE IN PERCENT)
3. POINT A MUST BE A MIN OF 12 INCHES HIGHER THAN POINT B TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS
4. HEAVY DUTY SILT FENCE SHALL CONFORM TO THE REQUIREMENTS OF MnDOT SPECIFICATION 3886.
5. WHEN SEDIMENT BUILD UP REACHES 8 INCHES OR $\frac{1}{3}$ OF SILT FENCE HEIGHT, THE SILT FENCE MUST BE CLEANED OUT OR REPLACED.
6. DIMENSIONS SHOWN ARE FOR TYPICAL 8' DITCH BOTTOM, MODIFICATIONS MAY BE NECESSARY FOR VARYING SLOPES AND DITCH WIDTHS



**VELOCITY CHECK
HEAVY DUTY SILT FENCE
NOT TO SCALE**



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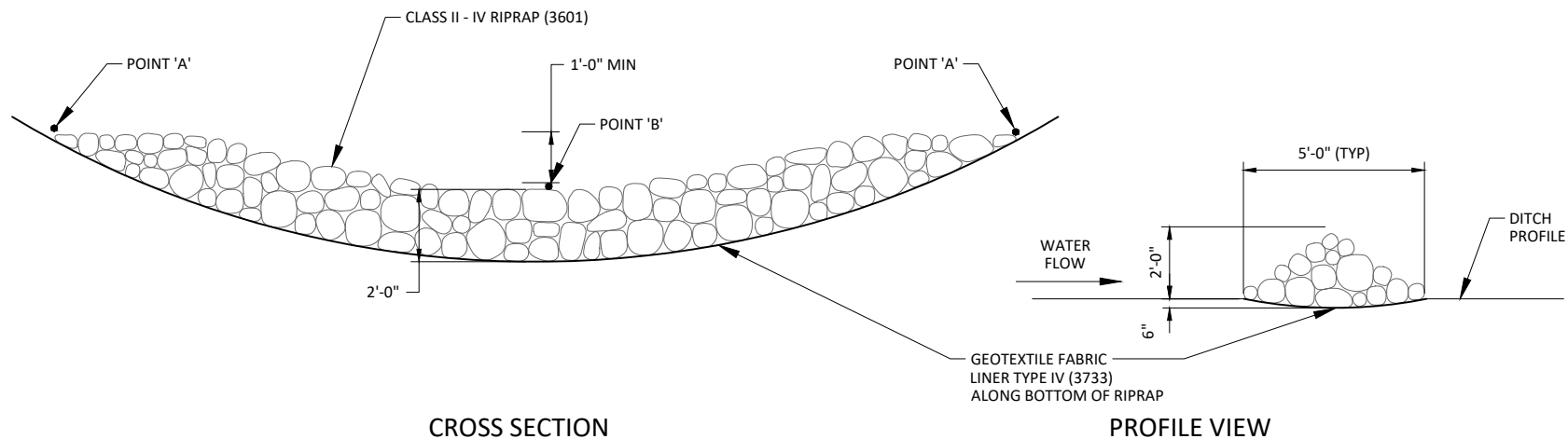
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VELOCITY CHECK - HEAVY DUTY SILT FENCE

May 1st, 2025

STD. DETAIL

3001



NOTE:

1. ROCK DITCH CHECK SHALL BE REMOVED FROM THE CLEAR ZONE AFTER SEEDING OR TURF IS ESTABLISHED AND PRIOR TO FINAL ACCEPTANCE
2. POINT 'A' MUST BE 1'-0" MINIMUM HIGHER THAN POINT 'B' TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.
3. SEE SPECS. 2573, 3882, 3885, 3886 & 3889.
4. SPACING BETWEEN EACH DITCH CHECK SHALL BE DETERMINED FROM THE SPACING FORMULA:
 - 4.1. $\text{SPACING OF DITCH CHECKS (FT)} = \frac{(\text{HEIGHT OF DITCH CHECK (FT)} \times 100)}{\text{DITCH CHECK GRADE IN PERCENT.}}$

DITCH CHECK - RIPRAP
(TYPE 7 SPEC. 3889)
NOT TO SCALE



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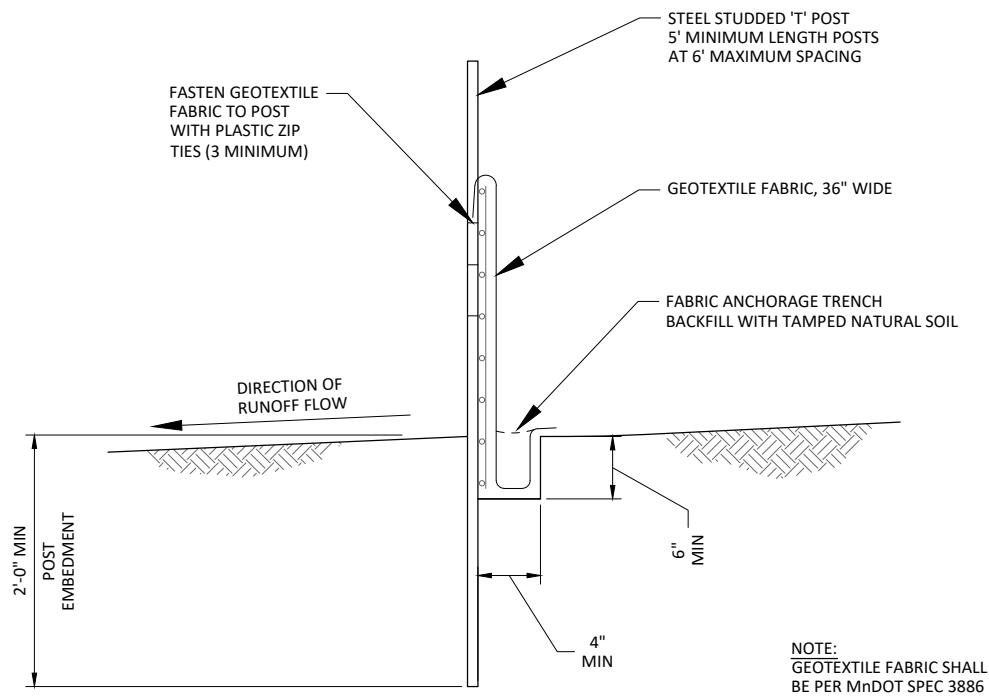
CITY OF BUFFALO, MINNESOTA

DITCH CHECK - RIPRAP

May 1st, 2025

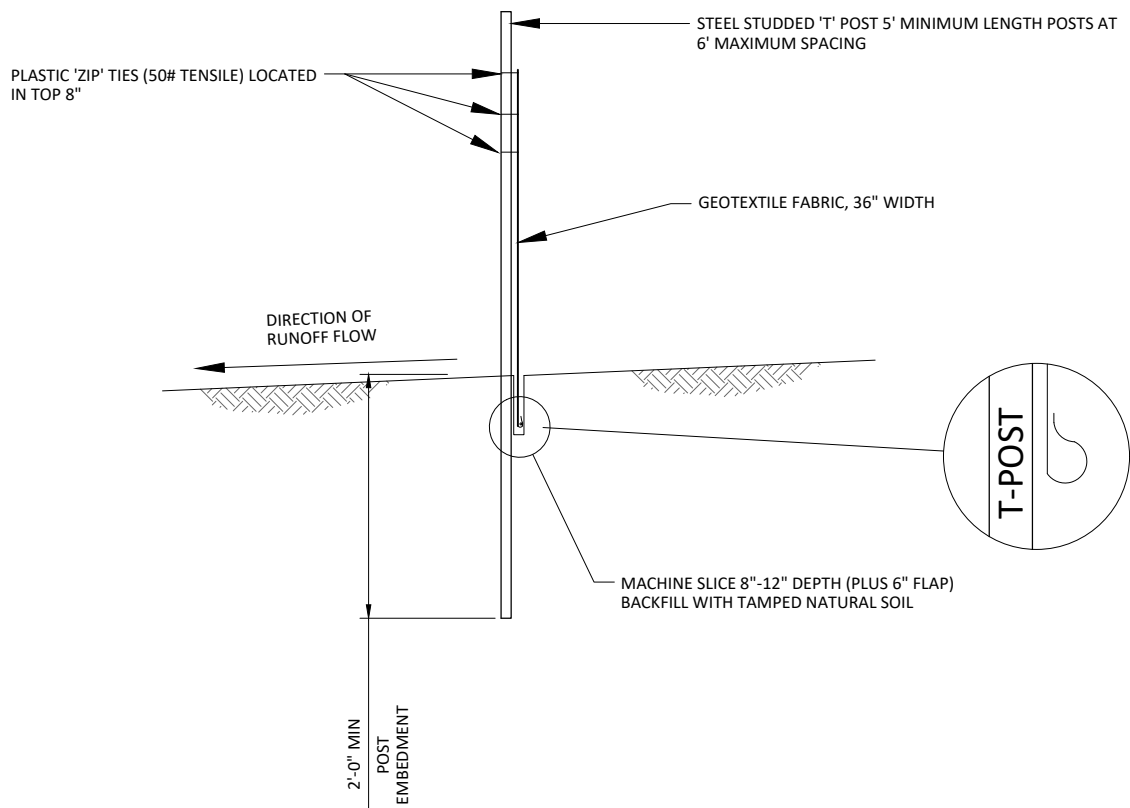
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
3002



 **SILT FENCE - HEAVY DUTY**

NOT TO SCALE




SILT FENCE - MACHINE SLICED
 NOT TO SCALE



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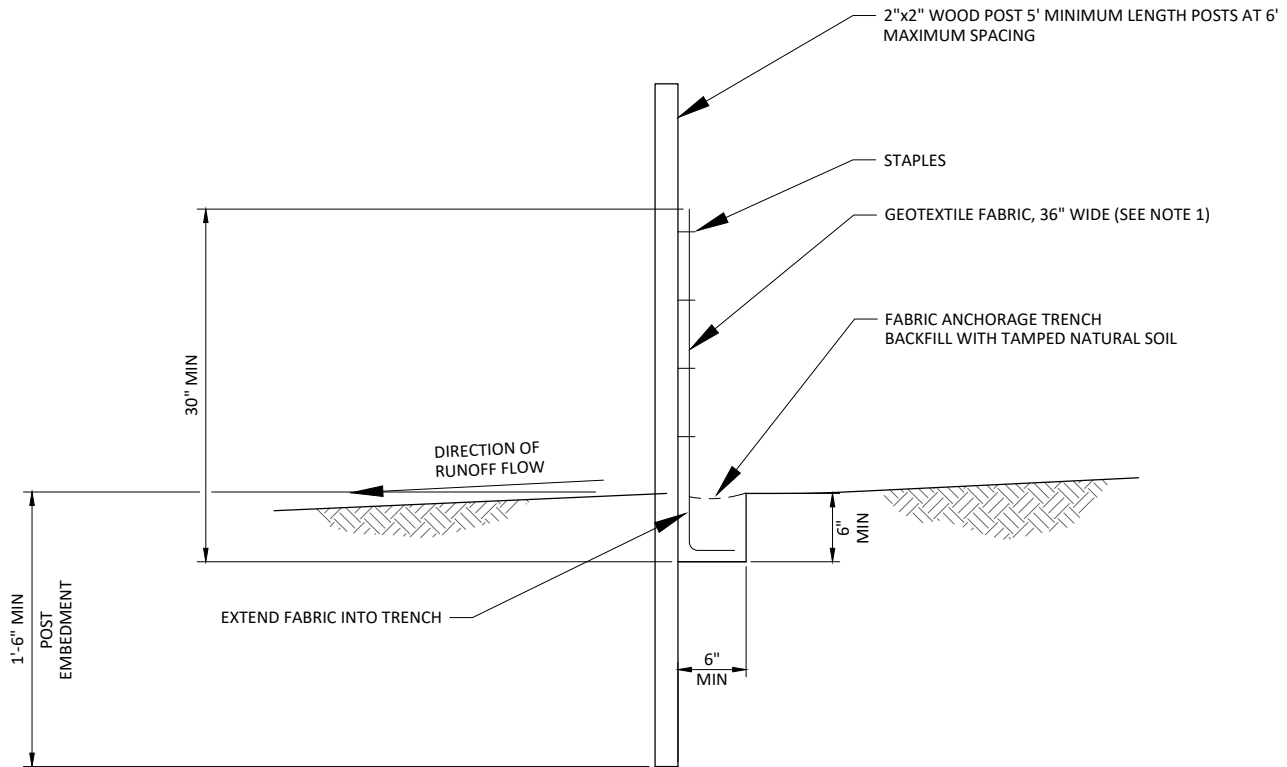
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SILT FENCE - MACHINE SLICED


May 1st, 2025

STD. DETAIL
3004

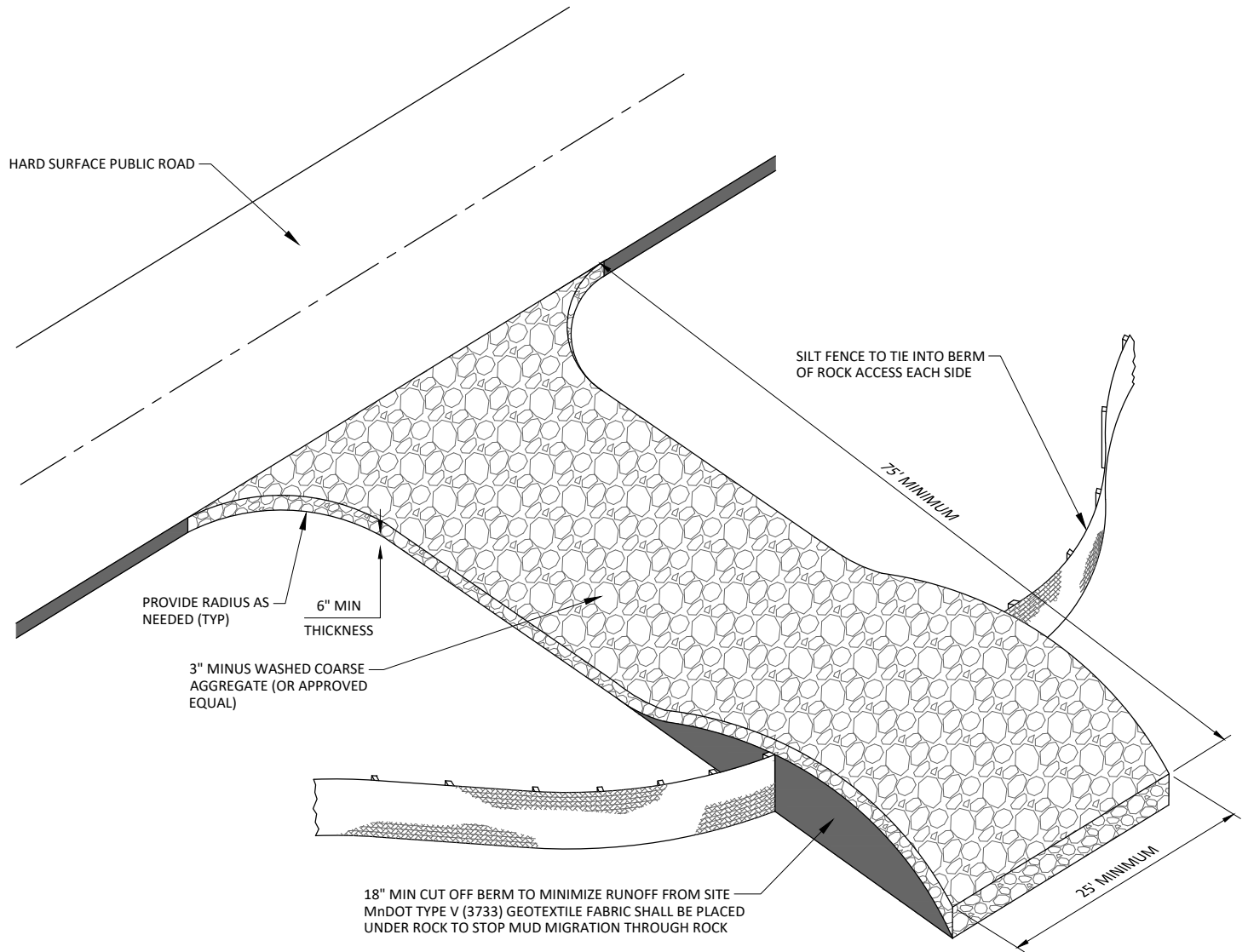



NOTE:

1. GEOTEXTILE FABRIC SHALL BE PER MnDOT SPEC 3886
2. ONLY TO BE USED WHEN MACHINE SLICED CANNOT BE INSTALLED.


SILT FENCE - PREASSEMBLED

NOT TO SCALE




ROCK CONSTRUCTION ENTRANCE
 NOT TO SCALE



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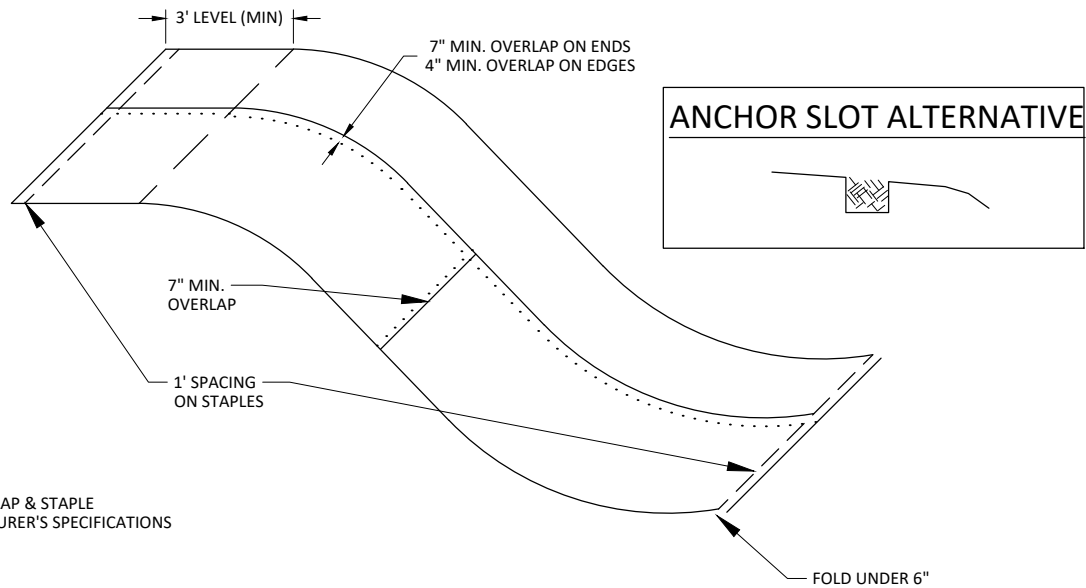
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
ROCK CONSTRUCTION ENTRANCE

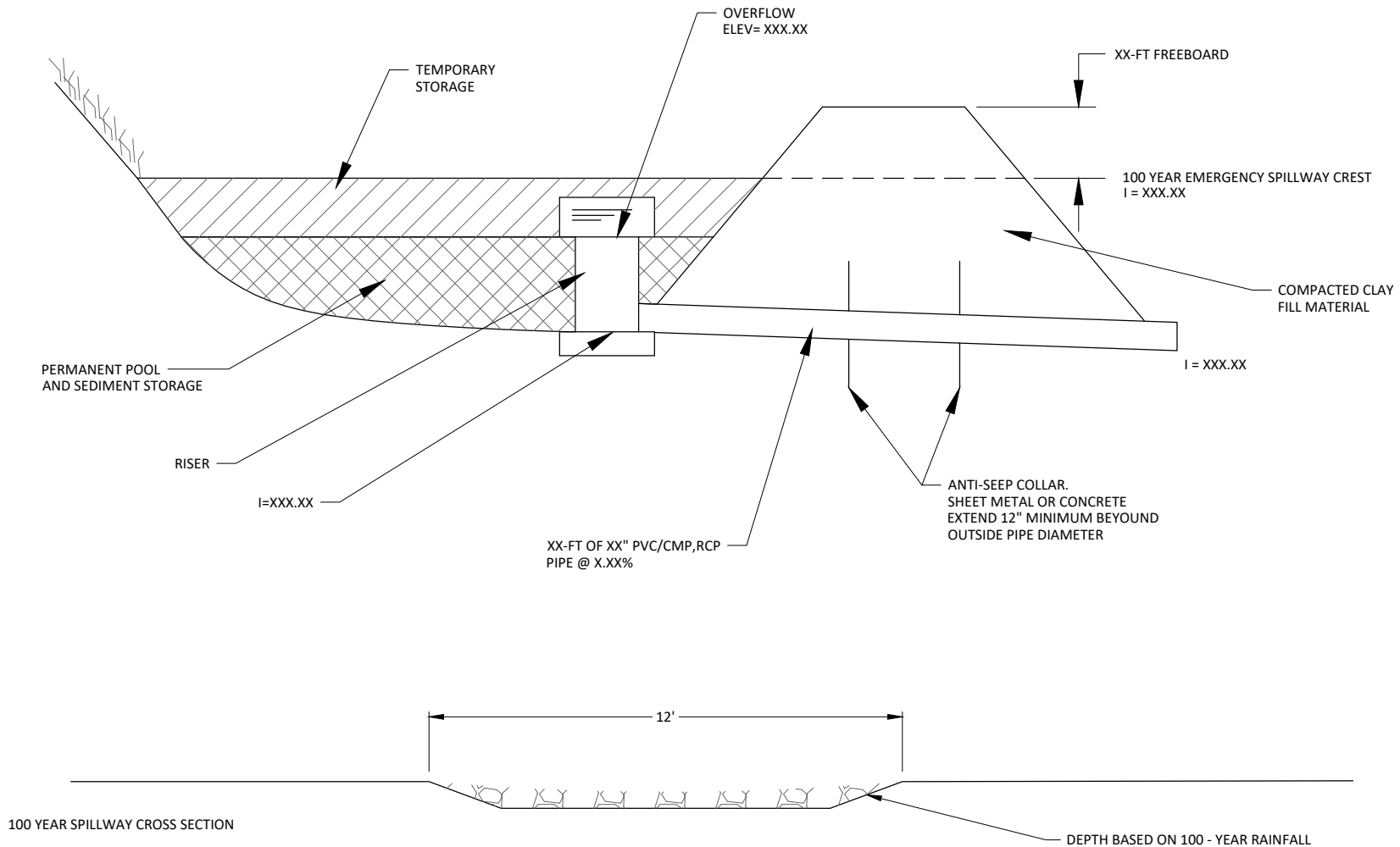
May 1st, 2025

STD. DETAIL
3006



NOTE:
ANCHOR, OVERLAP & STAPLE
PER MANUFACTURER'S SPECIFICATIONS


EROSION CONTROL BLANKET INSTALLATION
 NOT TO SCALE



TYPICAL SEDIMENT BASIN CROSS SECTION

NOT TO SCALE

NOTE: SEE PLANS FOR SEDIMENT BASIN GRADING



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CITY OF BUFFALO, MINNESOTA

TYPICAL SEDIMENT BASIN CROSS SECTION

May 1st, 2025

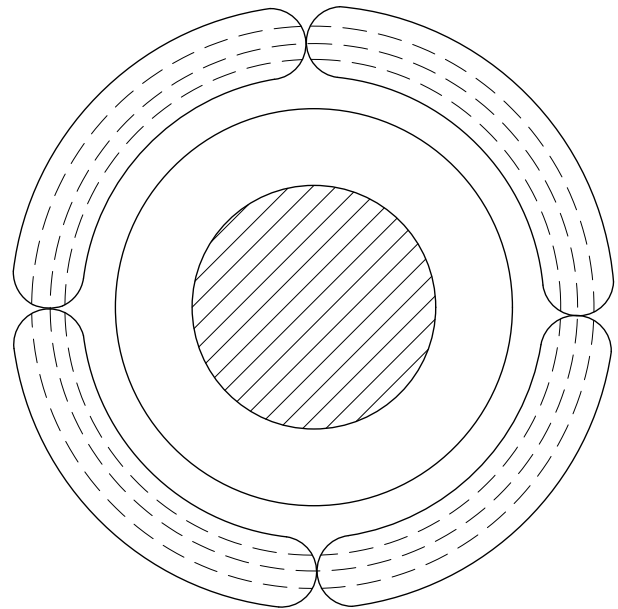
STD. DETAIL

3008

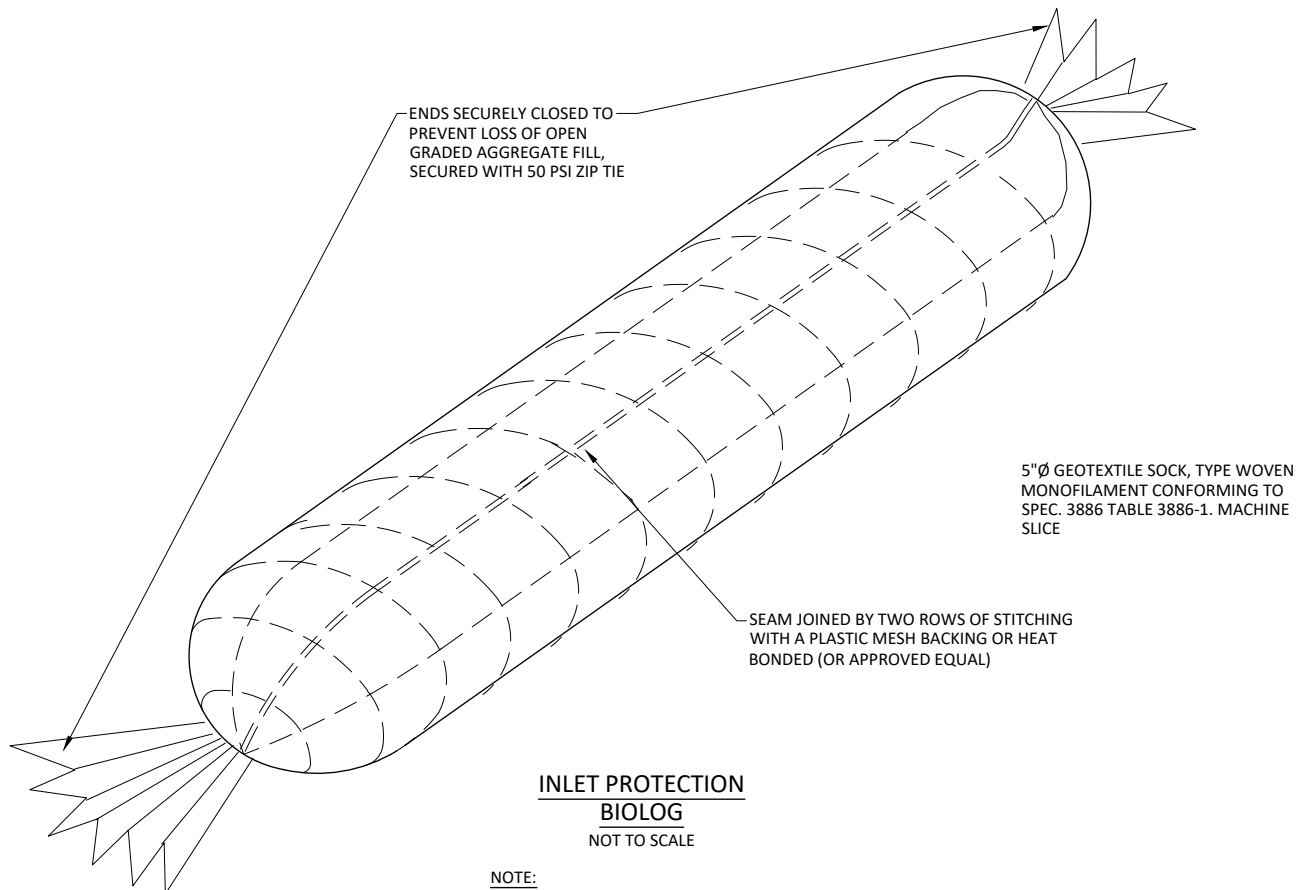
FILL ROCK LOG WITH 45 LBS. OF OPEN GRADED AGGREGATE CONSISTING OF SOUND, DURABLE PARTICLES OF CRUSHED QUARRY ROCK OR GRAVEL CONFORMING TO THE FOLLOWING GRADATION.

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.

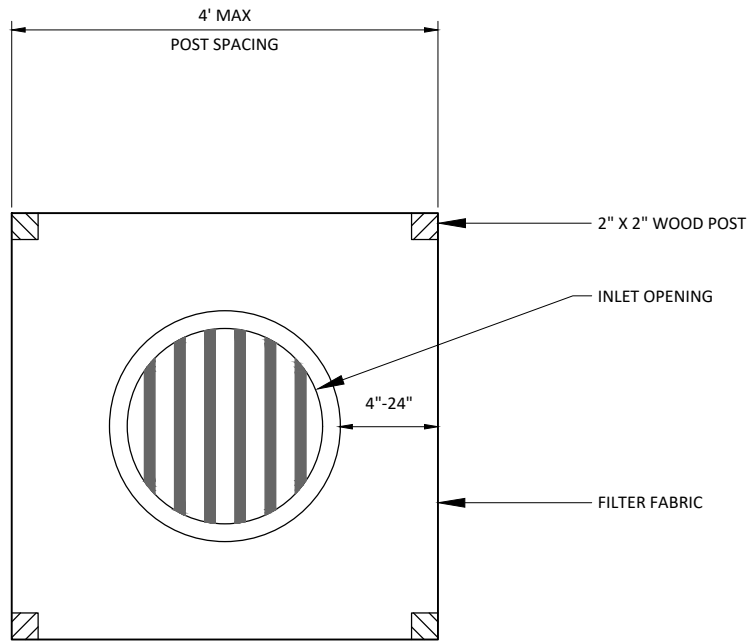


INLET PROTECTION
WITH BIOLOG

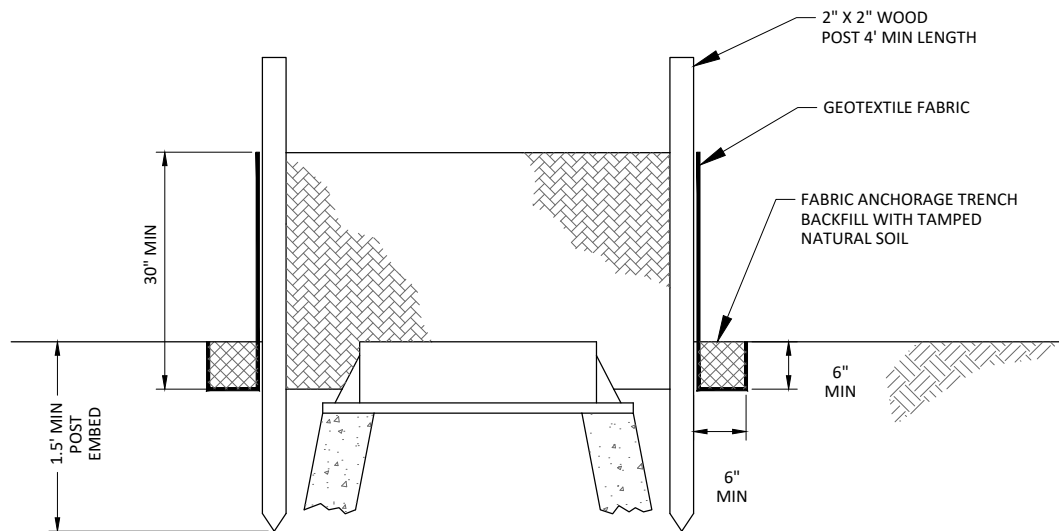


INLET PROTECTION
BIOLOG
NOT TO SCALE

NOTE:
THIS INLET IS FOR USE IN GREEN AREAS ONLY.



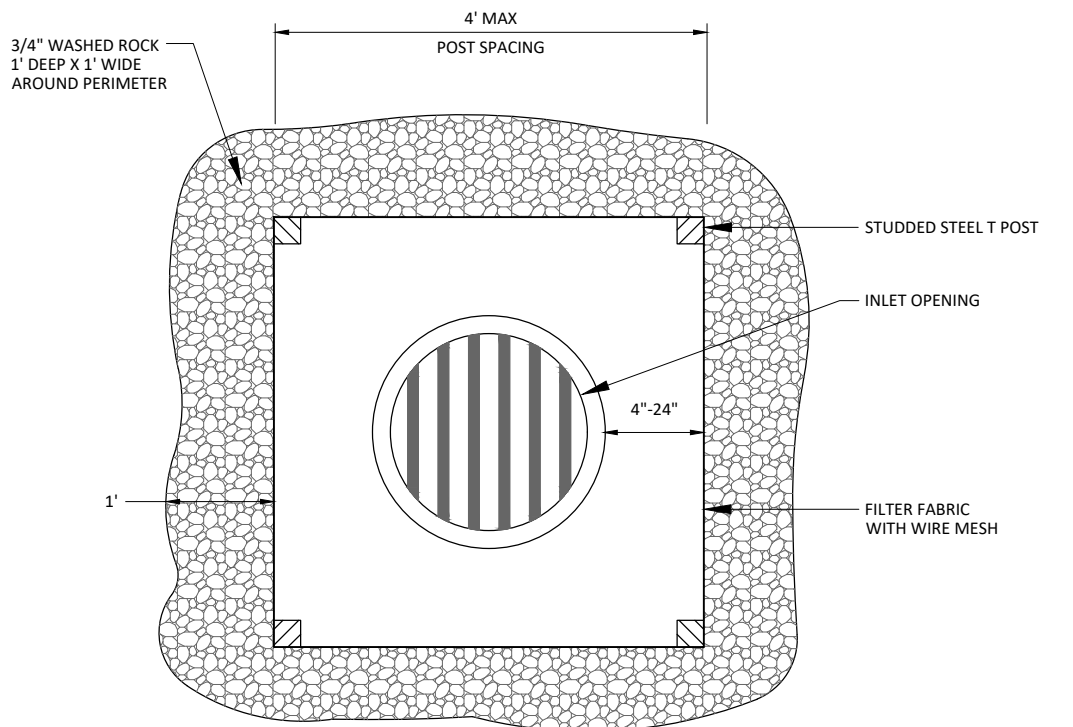
PLAN VIEW



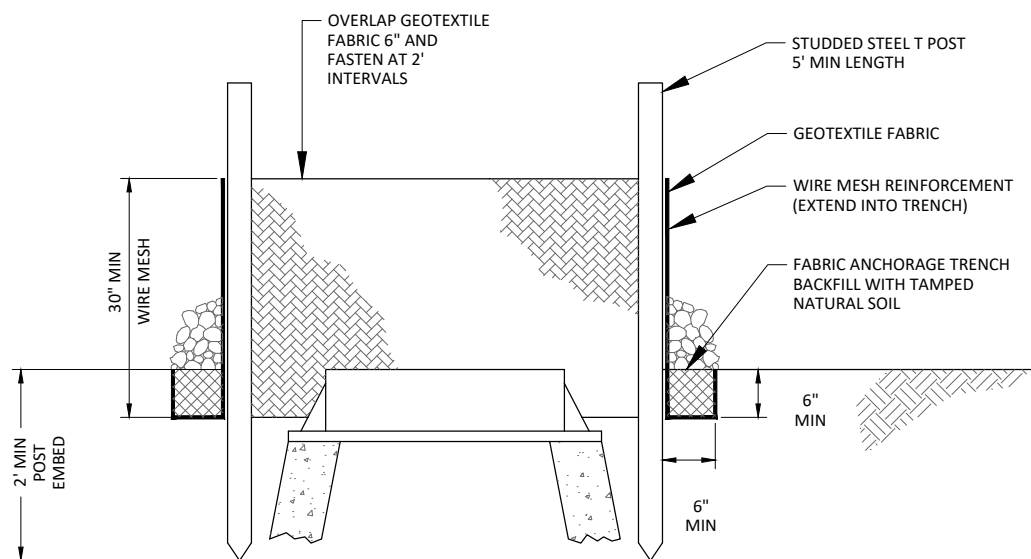
SECTION

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

**INLET PROTECTION
PREASSEMBLED SILT FENCE**
NOT TO SCALE



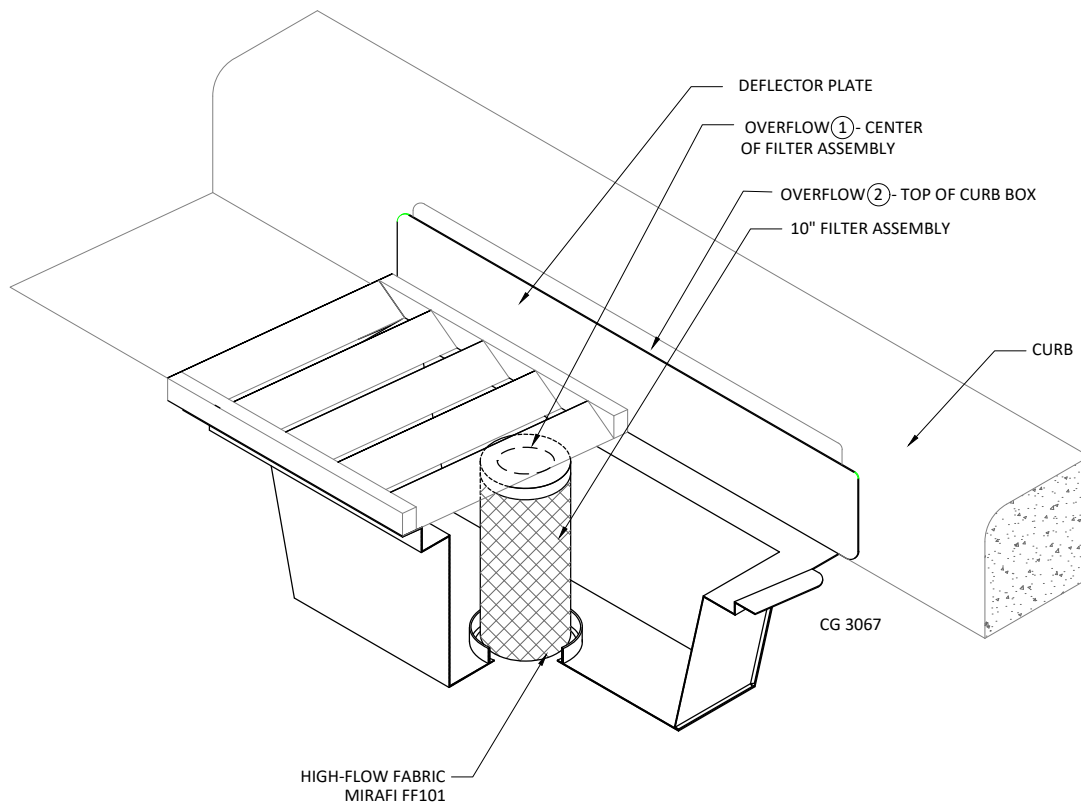
PLAN VIEW



SECTION

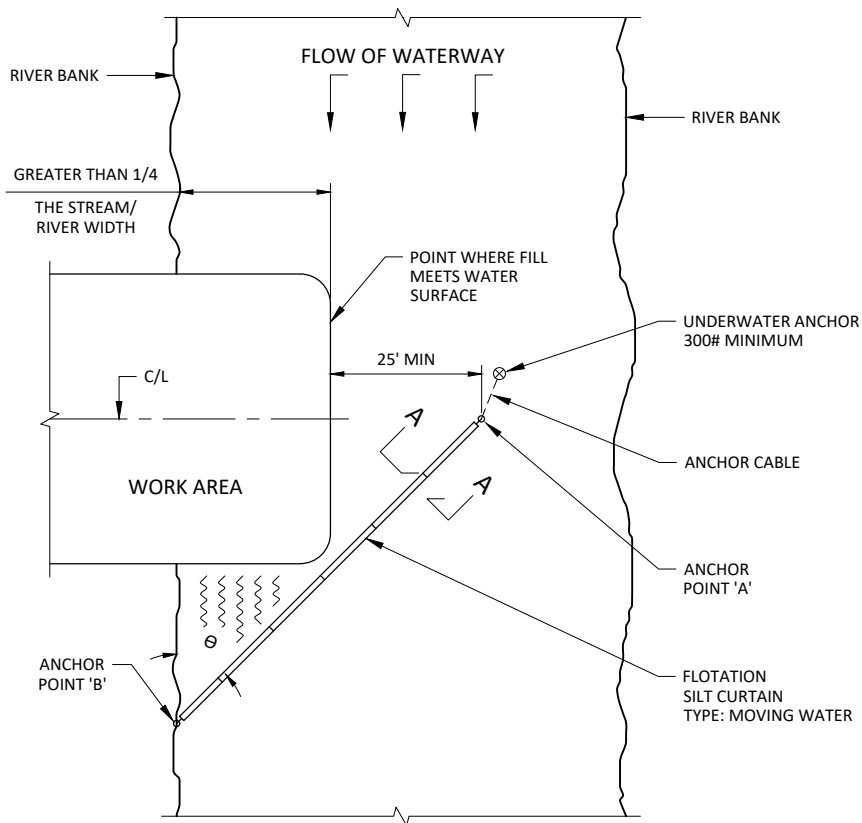
NOTE:
SILT FENCE SHALL CONFORM TO
THE REQUIREMENTS OF MnDOT
SPECIFICATION 3886

INLET PROTECTION
HEAVY DUTY SILT FENCE
NOT TO SCALE



INLET PROTECTION - WIMCO OR EQUAL
NOT TO SCALE

NOTE:
THIS INLET PROTECTION SHALL BE USED IMMEDIATELY
FOLLOWING CURB & GUTTER CONSTRUCTION. INLET
PROTECTION SHALL REMAIN INSTALLED AND MAINTAINED
UNTIL ALL HOME CONSTRUCTION IS COMPLETE.



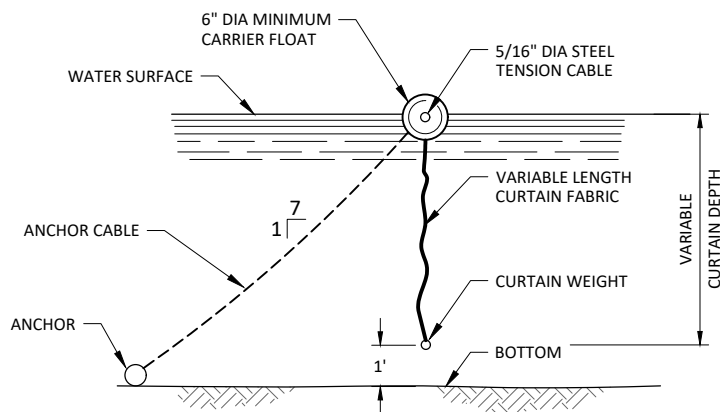
$\angle \theta$	RIVER VELOCITY
45°	SLOW, LESS THAN 3 FT/SEC
35°	MODERATE, 3 - 5 FT/SEC

PLAN VIEW

DESIGN GUIDELINES:

WHEN TEMPORARY FILL ENCROACHES MORE THAN 1/4 BUT LESS THAN 1/3 THE WIDTH OF THE STREAM

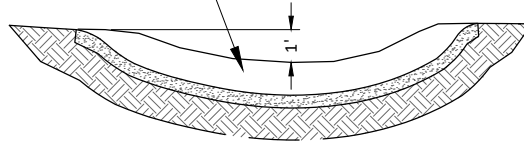
MAXIMUM WATER DEPTH: 11 FT
 MINIMUM WATER DEPTH: 3 FT
 MAXIMUM WATER VELOCITY: 5 FT/SEC



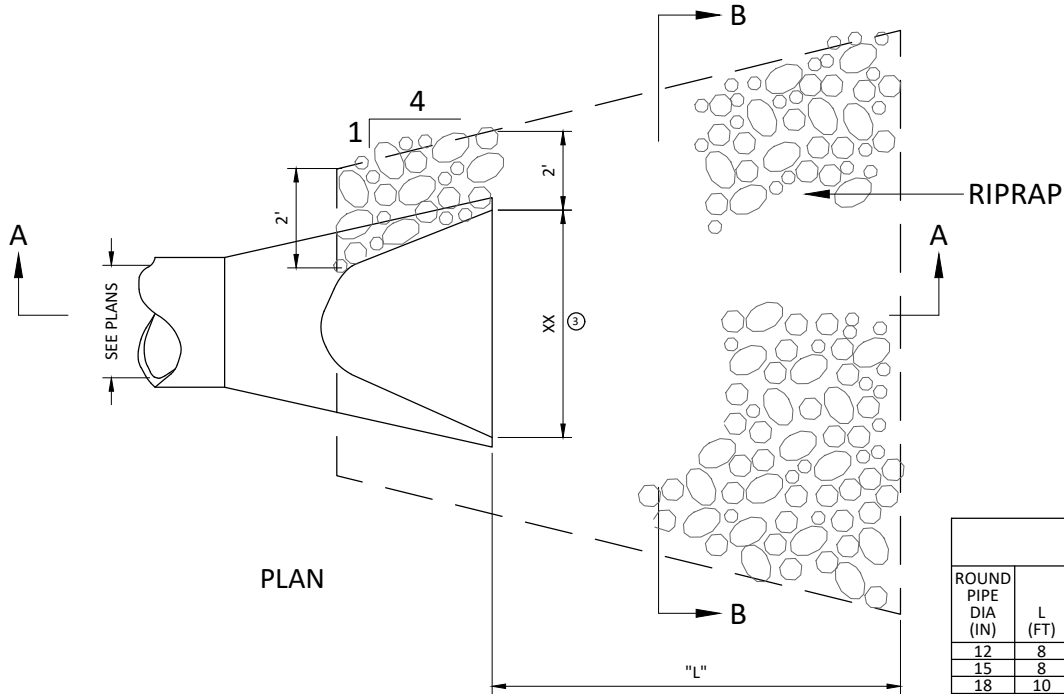
SECTION A-A



SEE TABLE FOR
MINIMUM DEPTH

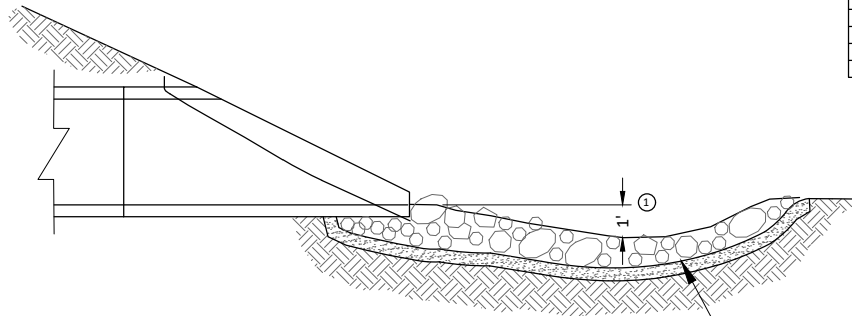


SECTION B-B



PLAN

ROUND PIPE DIA (IN)	L (FT)	CLASS II d50=6"	CLASS III d50=9"	CLASS IV d50=12"
		12" DEPTH RIPRAP (CU YD)	18" DEPTH RIPRAP (CU YD)	24" DEPTH RIPRAP (CU YD)
12	8	5	8	10
15	8	5	8	10
18	10	6	10	15
21	10	8	15	15
24	12	10	15	20
27	12	10	15	20
30	14	15	20	25
36	16	18	25	30
42	18	20	30	40
48	20	20	40	50



SECTION A-A

② GEOTEXTILE FABRIC, PER SPEC 3733;
THE FABRIC SHOULD COVER THE AREA
OF THE RIPRAP AND EXTEND UNDER
THE CULVERT APRON THREE FEET

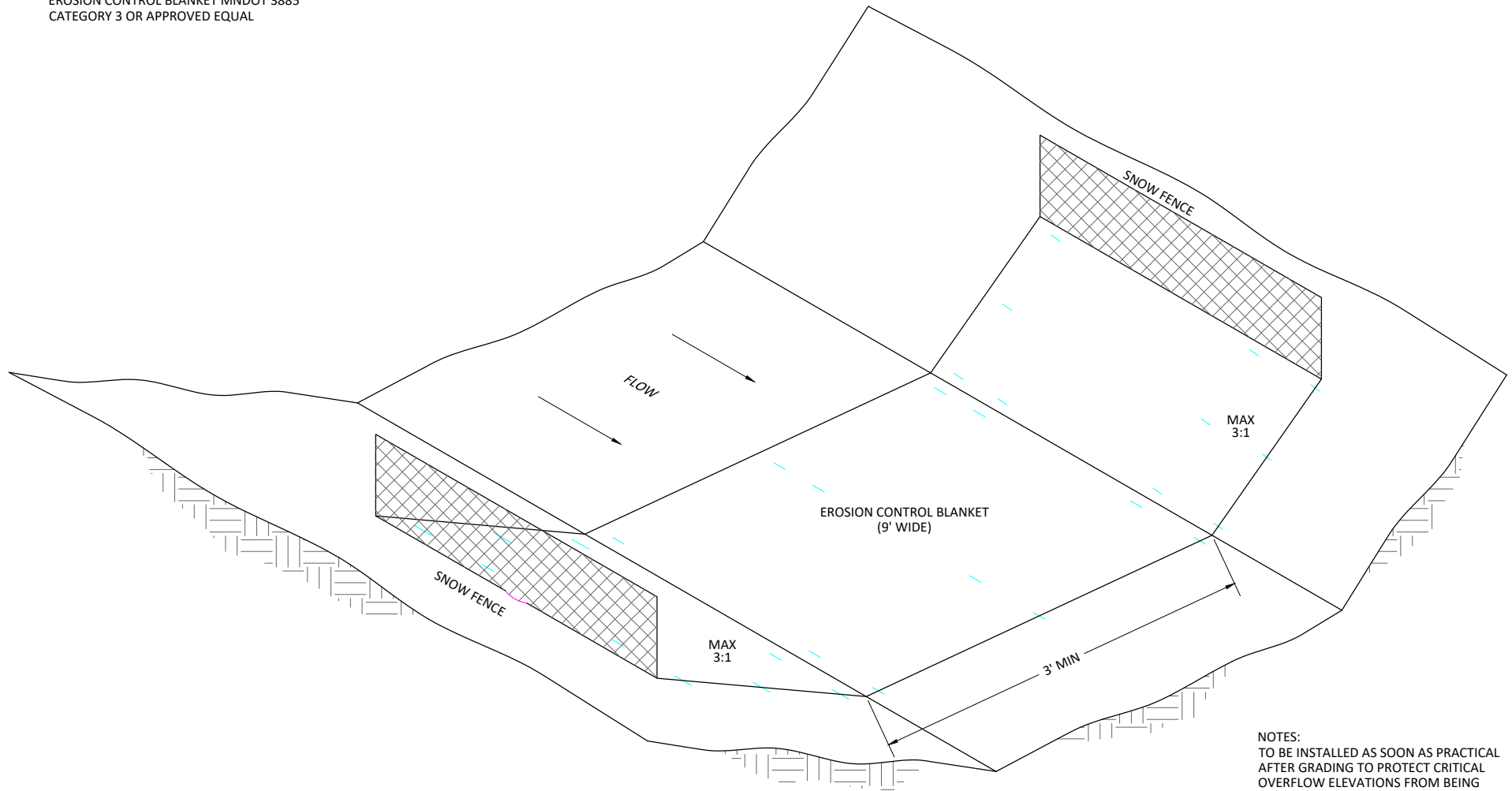
NOTES:
PIPE SIZES LARGER THAN THOSE SHOWN REQUIRE A
SPECIAL DESIGN.

REQUIREMENTS FOR RIPRAP SIZE, THICKNESS AND FILTER
BLANKET WILL BE DESIGNATED IN THE PLANS.

- ① FOR PIPES GREATER THAN OR EQUAL TO 30", USE 1.5'.
- ② THE CONTRACTOR, AT HIS OPTION, MAY SUBSTITUTE A
GEOTEXTILE FABRIC, SPEC. 3733, FOR THE GRANULAR
FILTER BLANKET UNLESS OTHERWISE SPECIFIED IN THE
PLANS. THE FABRIC SHOULD COVER THE AREA OF THE
RIPRAP AND EXTEND UNDER THE CULVERT APRON 3 FT.
- ③ DIMENSION E IS GIVEN ON MnDOT STANDARD PLATES
3100 AND 3110.
- ④ RIPRAP MATERIAL SHALL BE GRANITE OR FIELD STONE.



EMERGENCY OVERFLOW-RESTRICTED AREA
 EROSION CONTROL BLANKET MNDOT 3885
 CATEGORY 3 OR APPROVED EQUAL



EMERGENCY OVERFLOW SWALE
 NOT TO SCALE

NOTES:
 TO BE INSTALLED AS SOON AS PRACTICAL
 AFTER GRADING TO PROTECT CRITICAL
 OVERFLOW ELEVATIONS FROM BEING
 DISTURBED DURING HOME
 CONSTRUCTION. SNOW FENCE SHALL BE
 MAINTAINED AND KEPT INPLACE
 THROUGHOUT DURATION OF HOME
 CONSTRUCTION UNTIL ADJACENT LOTS
 ARE ESTABLISHED. SNOW FENCE PROTECTS
 CRITICAL GRADING ELEVATIONS FROM
 BEING DISTURBED TO PROTECT ADJACENT
 HOMES FROM FLOODING.



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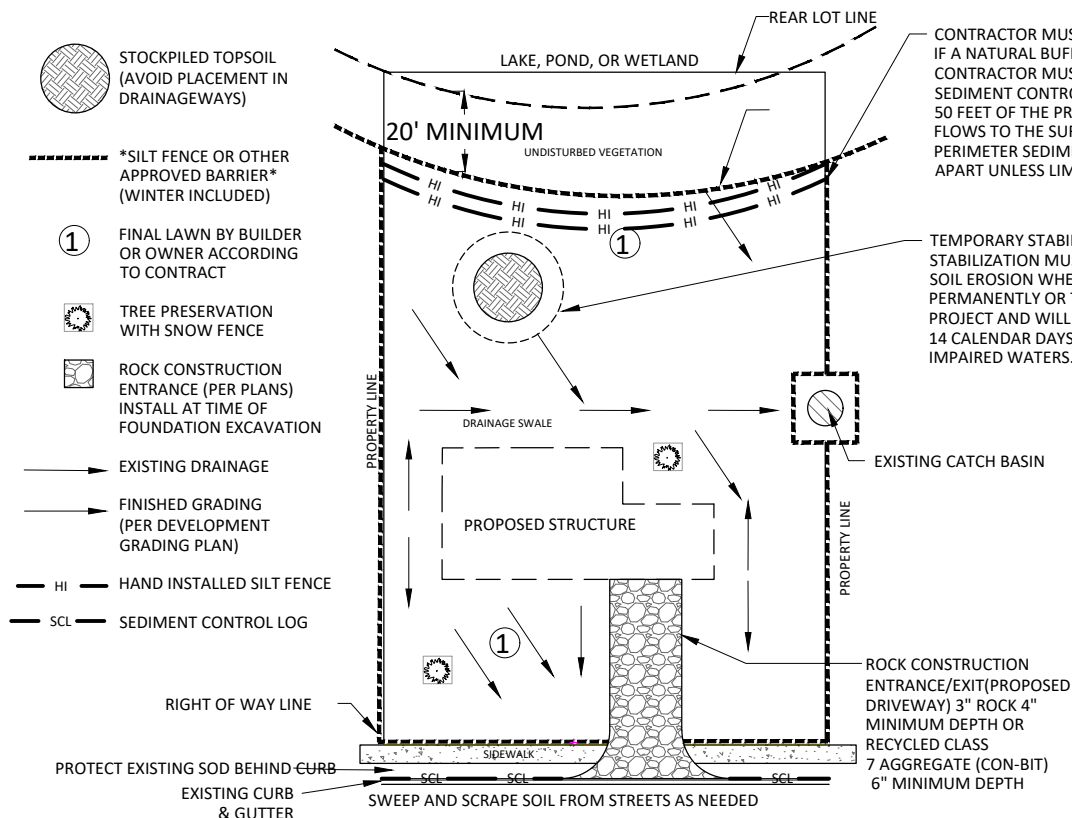
EMERGENCY OVERFLOW SWALE

May 1st, 2025

STD. DETAIL

3015

LEGEND



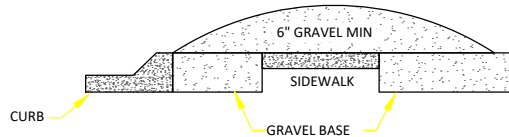
* APPROVED ALTERNATIVES INCLUDE: BIOROLLS, COMPOST LOGS, ROCK LOG, OR WOODCHIP WINDROW AGAINST SNOW FENCE.

WARNING! EXTRA MEASURES MAY BE NEEDED IF YOUR SITE:

1. IS WITHIN 200 FEET OF A WATER OF THE STATE.
2. IS STEEP (SLOPES OF 18% OR MORE).
3. RECEIVES RUNOFF FROM ADJACENT LAND.

NOTE: ALL EROSION CONTROL MEASURES SHOWN REQUIRE REGULAR MONITORING AND MAINTENANCE

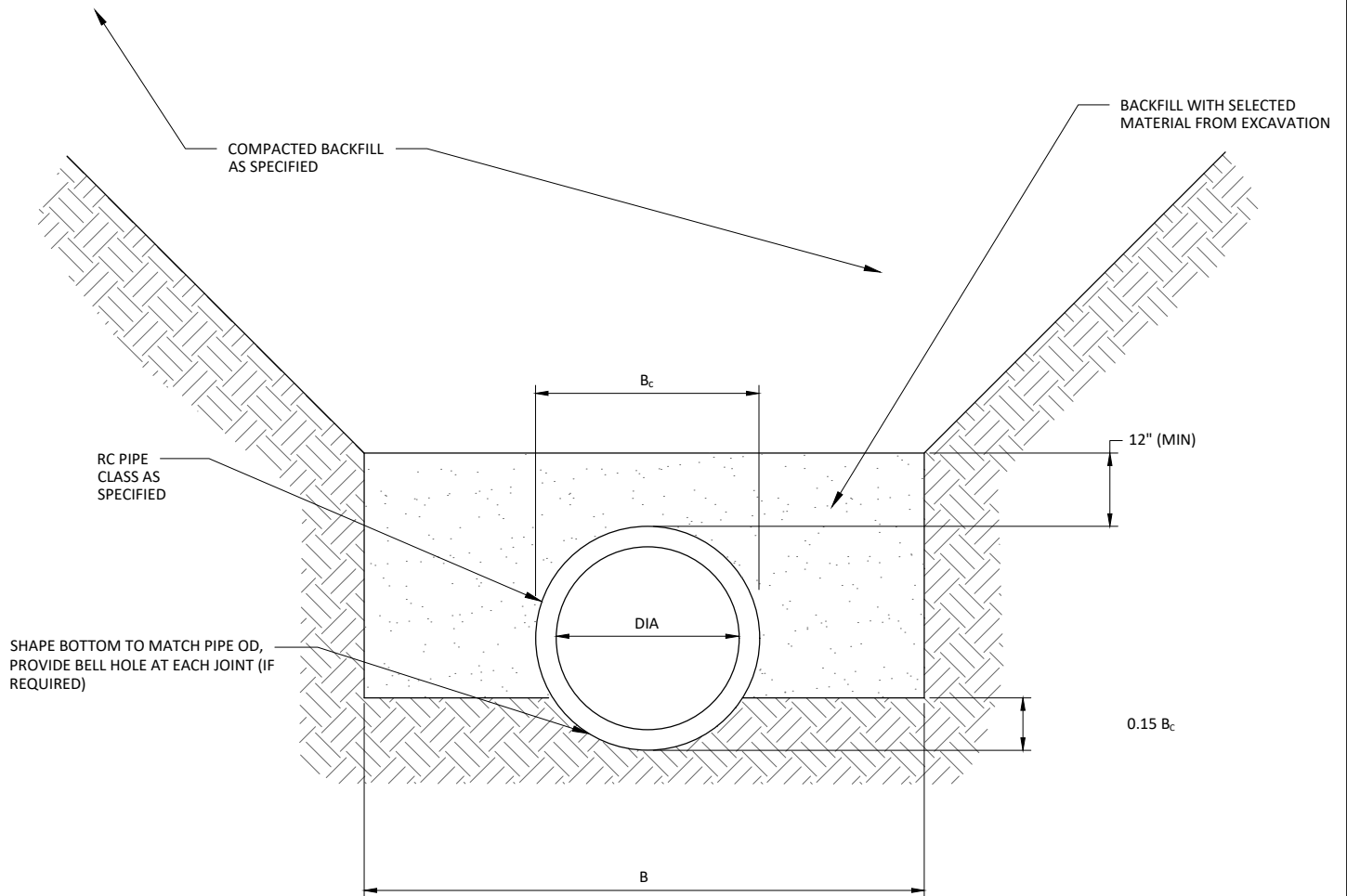
BUILDER RESPONSIBLE FOR ANY DAMAGED SIDEWALK IN FRONT OF BUILDING SITE. ALL DAMAGED SIDEWALK MUST BE REPLACED BEFORE CERTIFICATE OF OCCUPANCY IS ISSUED.



SIDEWALK PROTECTION DETAIL

*BUILDER MAY PLACE \$1,500 ESCROW WITH CITY OF BUFFALO IN LIEU OF SIDEWALK BLISTER.

NOT TO SCALE



PIPE DIA	B
36" OR LESS	$B_c + 24"$
42" TO 54"	$1.5 \times B_c$
60" OR OVER	$B_c + 36"$

RC PIPE
CLASS "C" BEDDING
NOT TO SCALE



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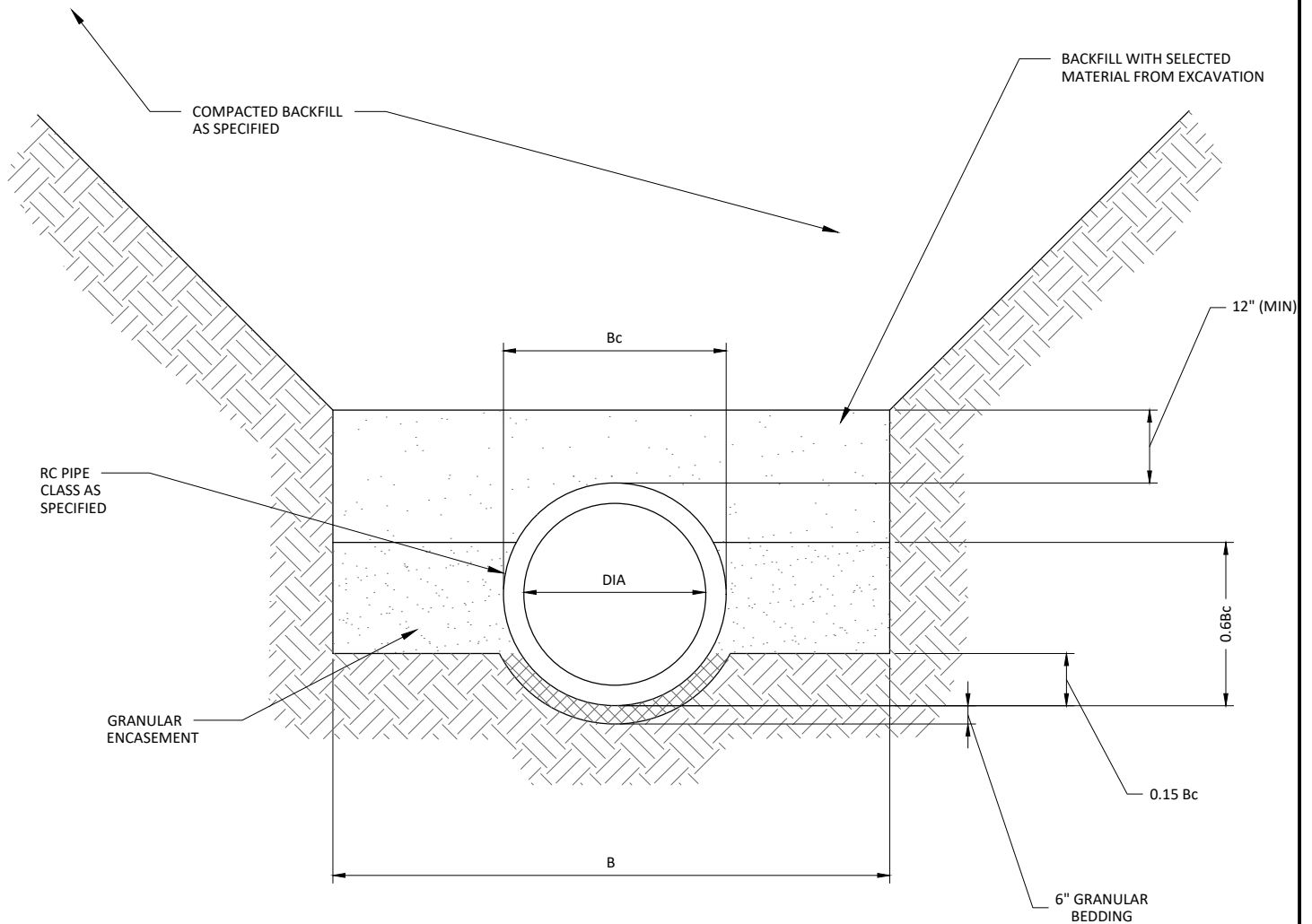
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RC PIPE CLASS C BEDDING

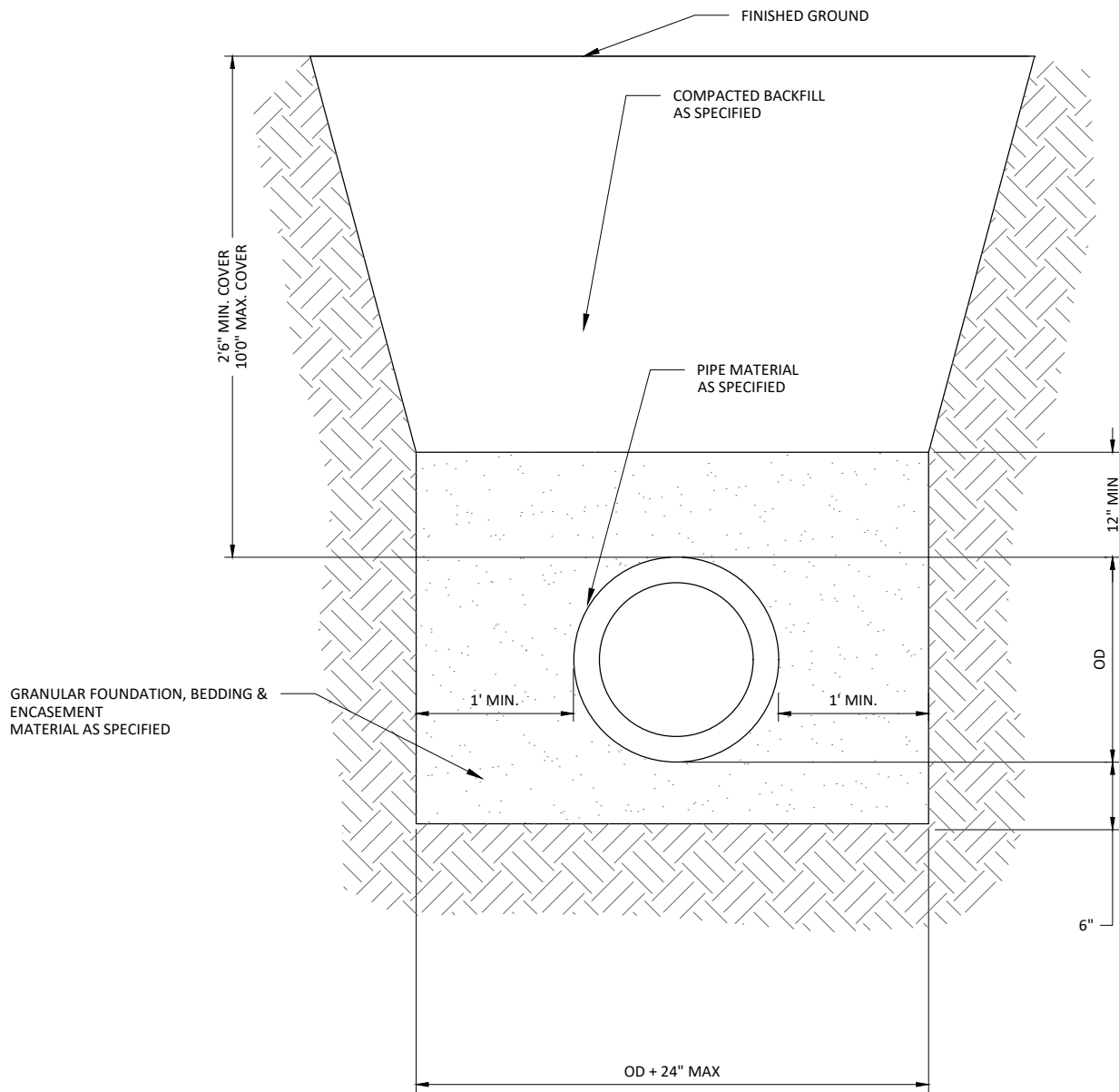
May 1st, 2025

STD. DETAIL
4001



PIPE DIA	B
36" OR LESS	$Bc + 24"$
42" TO 54"	$1.5 \times Bc$
60" OR OVER	$Bc + 36"$

RC PIPE
MODIFIED CLASS "B" BEDDING
NOT TO SCALE



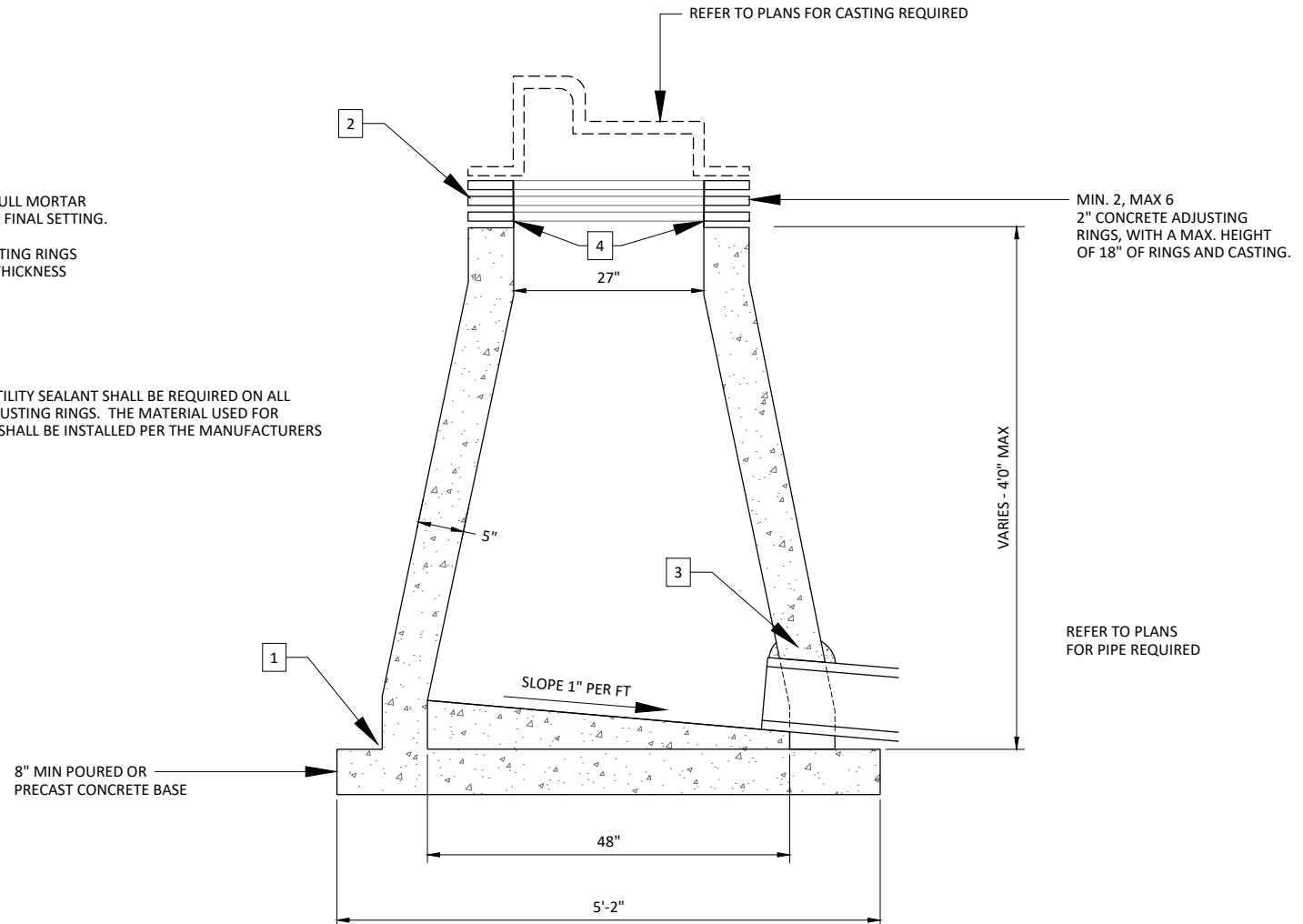
NOTES:

1. THIS NON-RIGID INSTALLATION DETAIL APPLIES ONLY TO STORM SEWER.
2. MAXIMUM PIPE DIAMETER IS 24".
3. PIPE MATERIAL REQUIREMENTS PER CURRENT AASHTO REQUIREMENTS.
4. EMBEDMENT MATERIAL PER SPEC. 3149.2D MODIFIED TO 100% PASSING THE 1" SIEVE.
5. CONSTRUCTION REQUIREMENTS PER SPEC. 2451 MODIFIED SO THAT EMBEDMENT MATERIAL IS COMPACTED IN UNIFORM LIFTS, 8" OR LESS IN DEPTH, LOOSE MEASURE, TO 95% STANDARD PROCTOR DENSITY FROM THE BEDDING TO A MIN. DEPTH OF AT LEAST 12" ABOVE THE CROWN OF THE PIPE.
6. BEDDING TO BE CLASS C PER SPEC. 2451.3.
7. TRENCH WIDTH PER ASTM D2321 EXCEPT AS MODIFIED TO PROVIDE A MINIMUM OF 1-FOOT ON EACH SIDE OF THE PIPE TO ALLOW FOR COMPACTION.
8. PLASTIC STORM SEWER ALLOWED IN GREEN AREAS ONLY.

**NON-RIGID STORM
SEWER TRENCH**

NOT TO SCALE

- 1 MANHOLE SHALL BE PLACED ON A FULL MORTAR BED OR BITUMINOUS MASTIC UPON FINAL SETTING.
- 2 THE INSIDE AND OUTSIDE OF ADJUSTING RINGS SHALL BE PLASTERED WITH A MIN. THICKNESS OF 1/2" OF CEMENT.
- 3 FILL ANNULAR SPACE AROUND PIPE WITH NON-SHRINK GROUT INSIDE & OUT
- 4 SEALING SYSTEMS INC. FLEX SEAL UTILITY SEALANT SHALL BE REQUIRED ON ALL CATCH BASINS WITH CONCRETE ADJUSTING RINGS. THE MATERIAL USED FOR LINING OF THE CATCH BASIN RINGS SHALL BE INSTALLED PER THE MANUFACTURERS RECOMMENDATIONS.



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**CATCH BASIN
DESIGN G**

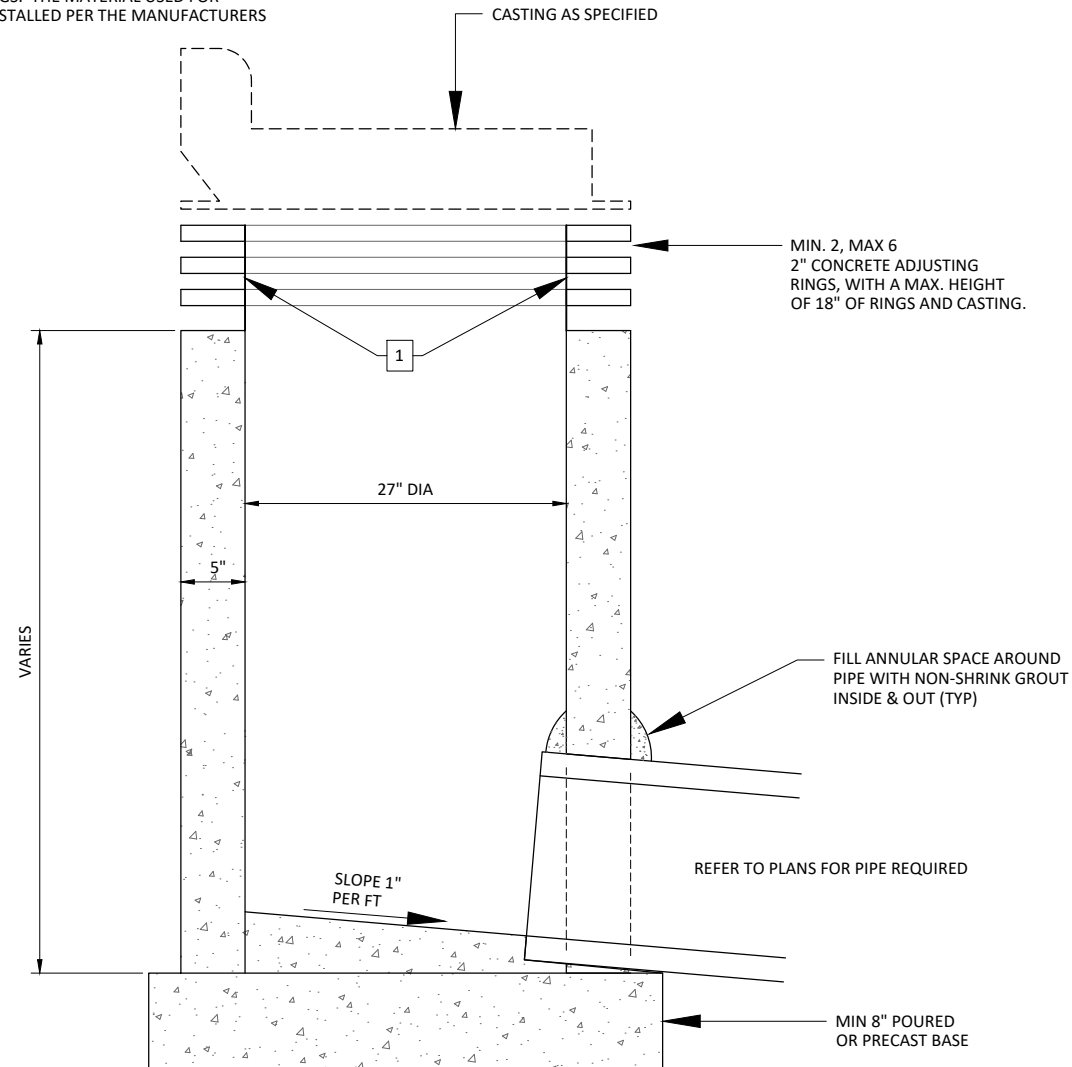
May 1st, 2025

STD. DETAIL

4004

1

SEALING SYSTEMS INC. FLEX SEAL UTILITY SEALANT SHALL BE REQUIRED ON ALL CATCH BASINS WITH CONCRETE ADJUSTING RINGS. THE MATERIAL USED FOR LINING OF THE CATCH BASIN RINGS SHALL BE INSTALLED PER THE MANUFACTURERS RECOMMENDATIONS.



CATCH BASIN
DESIGN H

NOT TO SCALE



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& MENK**

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Buffalo

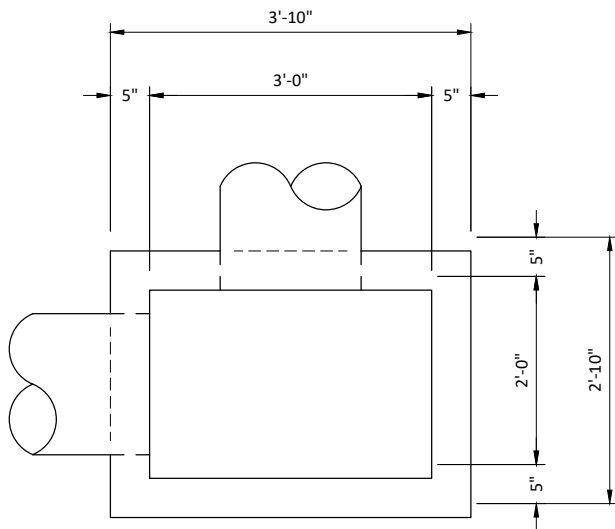
CITY OF BUFFALO, MINNESOTA

CATCH BASIN
DESIGN H

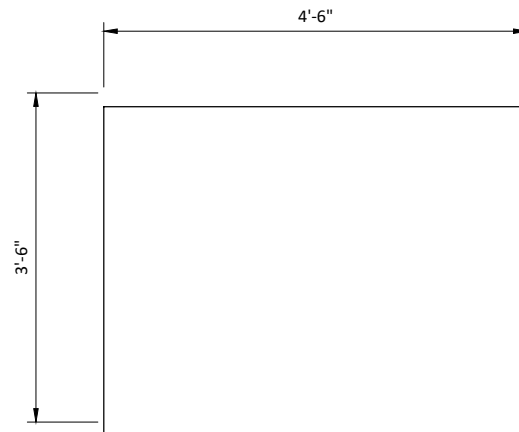
May 1st, 2025

STD. DETAIL

4005



CATCH BASIN PLAN

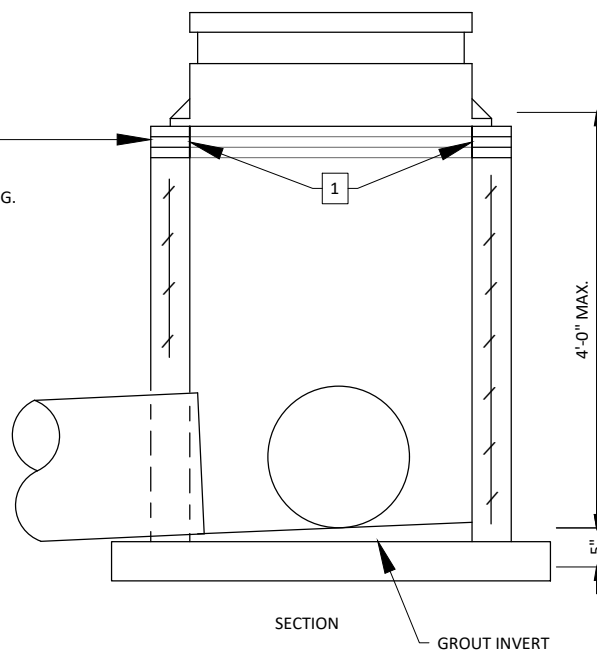


BASE SLAB PLAN

NOTES:

1. CASTING AS SPECIFIED
2. PIPE CUT-OUTS PER CONSTRUCTION DOCUMENTS
3. ALTERNATE CAST-IN-PLACE BASE CAN BE USED
4. MIN REINFORCING SHALL BE WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ IN PER FOOT IN BOTH DIRECTIONS

MIN. 2, MAX 6
2" CONCRETE ADJUSTING
RINGS, WITH A MAX. HEIGHT
OF 18" OF RINGS AND CASTING.



NOT TO SCALE

CATCH BASIN STRUCTURE
DESIGN R-1 (2'x3')

- 1 SEALING SYSTEMS INC. FLEX SEAL UTILITY SEALANT SHALL BE REQUIRED ON ALL CATCH BASINS WITH CONCRETE ADJUSTING RINGS. THE MATERIAL USED FOR LINING OF THE CATCH BASIN RINGS SHALL BE INSTALLED PER THE MANUFACTURERS RECOMMENDATIONS.



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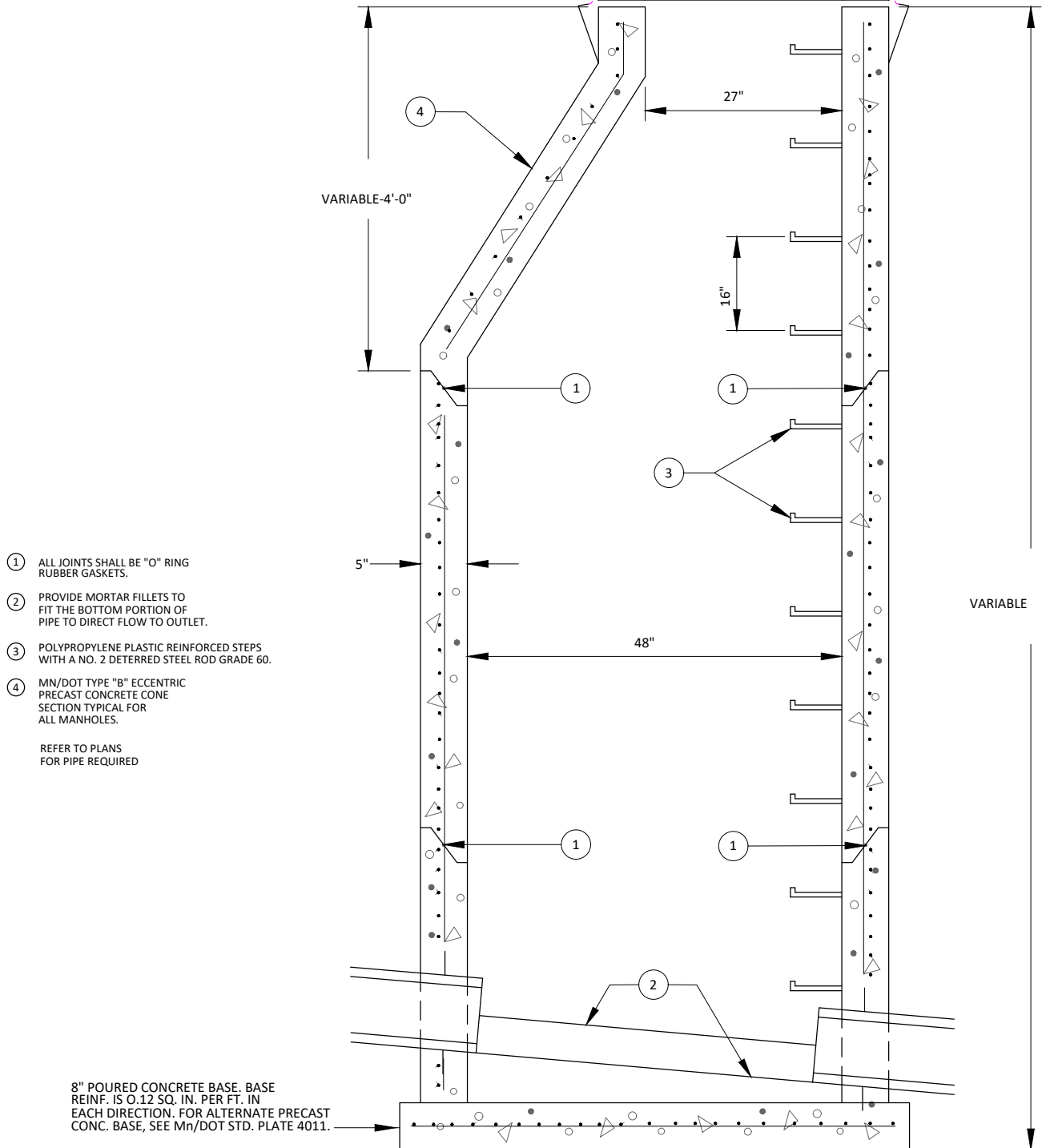


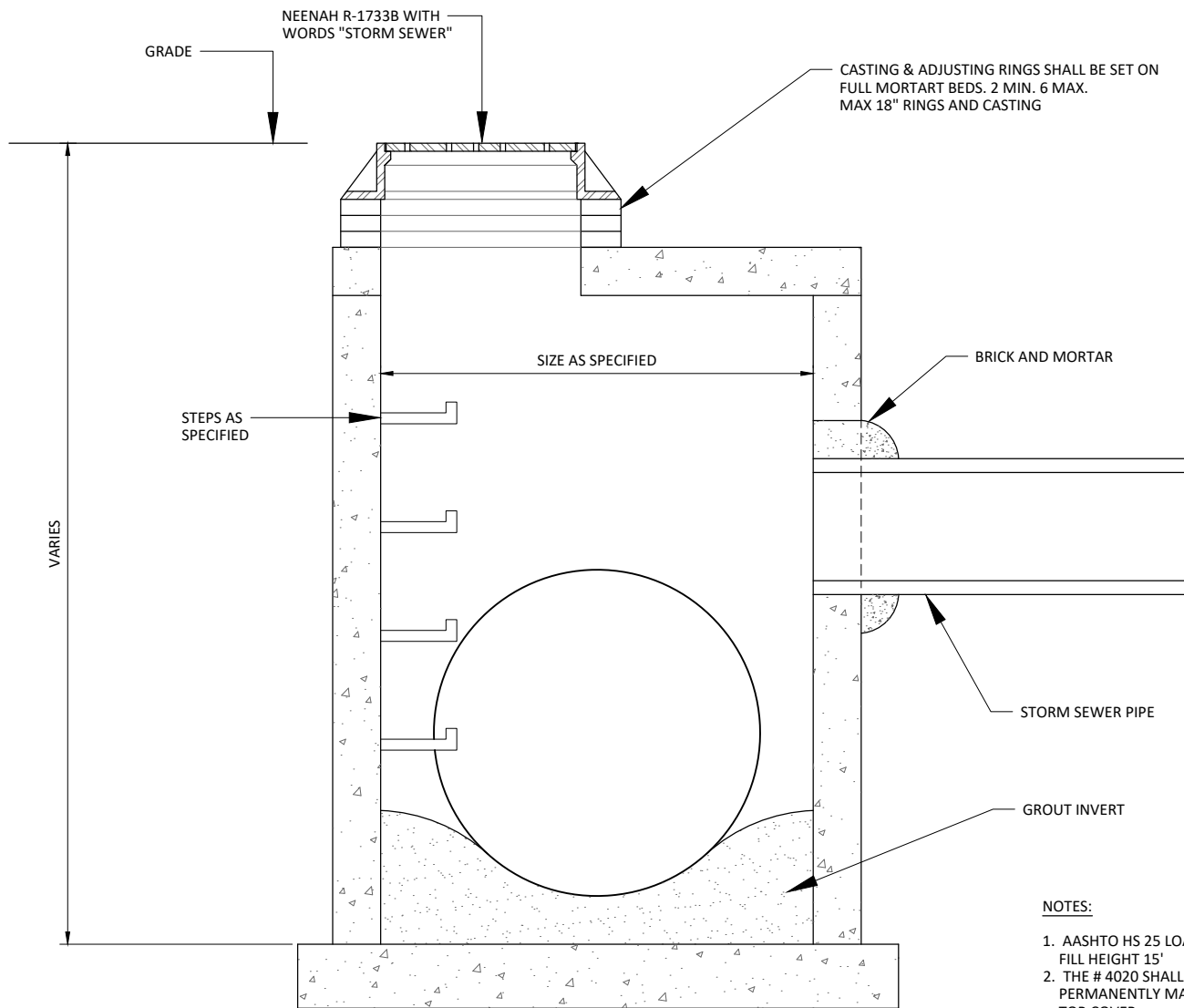
CATCH BASIN STRUCTURE
DESIGN R-1 (2'x3')

May 1st, 2025

STD. DETAIL
4006

NEENAH R-1733B WITH WORDS "STORM SEWER"
CASTING & ADJUSTING RINGS, WHEN USED,
SHALL BE SET ON FULL MORTAR BEDS.
MIN 2, MAX 6 RINGS: MAX 18" RINGS AND CASTING.



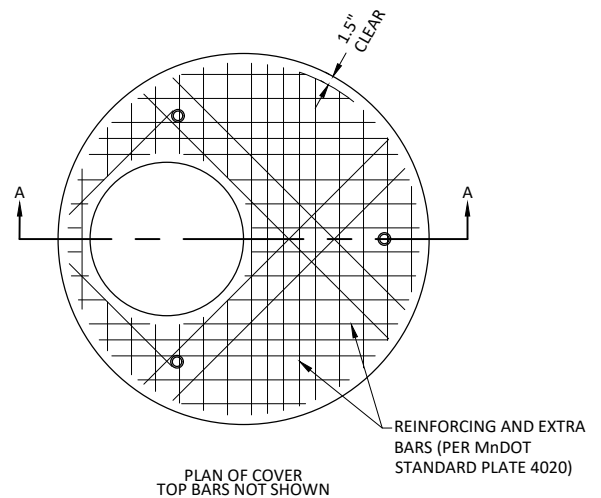
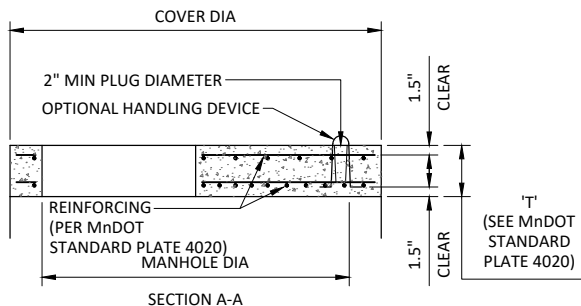


TYPICAL DESIGN 4020 MANHOLE/CATCH BASIN

DESIGNATION:
DESIGN DIAMETER - STANDARD PLATE #
DESIGN 48-4020

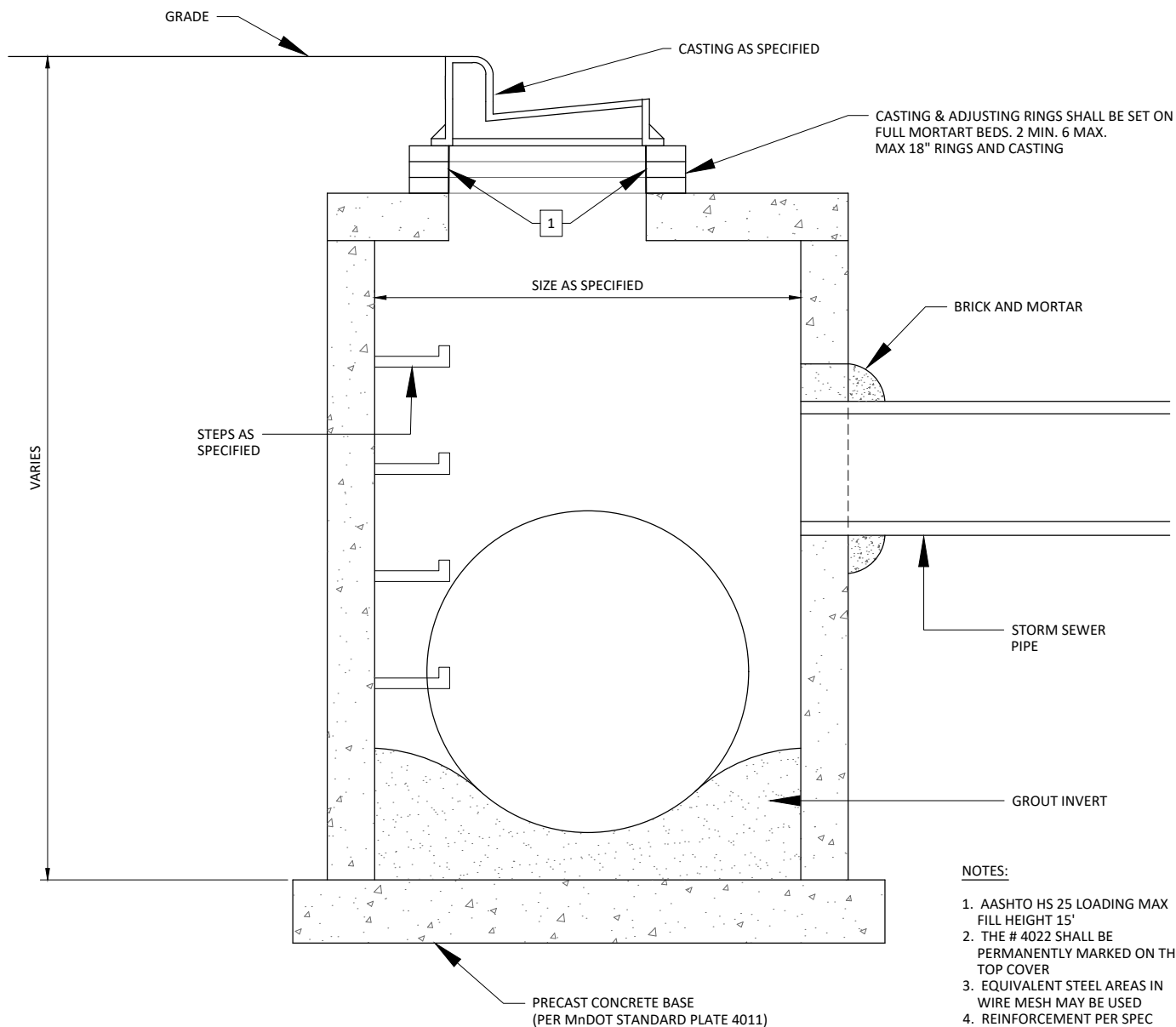
NOTES:

1. AASHTO HS 25 LOADING MAX FILL HEIGHT 15'
2. THE # 4020 SHALL BE PERMANENTLY MARKED ON THE TOP COVER
3. EQUIVALENT STEEL AREAS IN WIRE MESH MAY BE USED
4. REINFORCEMENT PER SPEC 3301, GRADE 60 A SINGLE HOOP OF 8ga STEEL WIRE



STORM SEWER STRUCTURE
DESIGN 4020

NOT TO SCALE

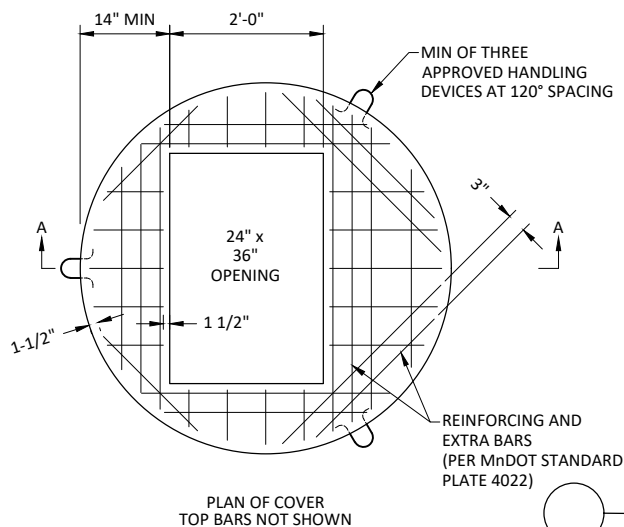


TYPICAL DESIGN 4022 CATCH BASIN

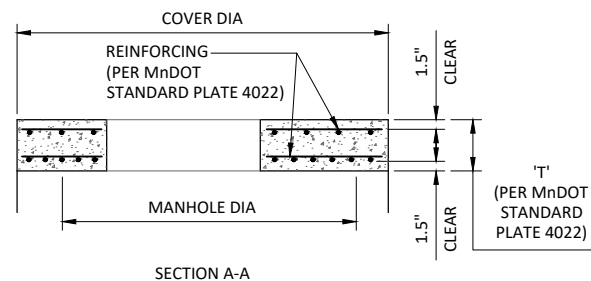
NOTES:

1. AASHTO HS 25 LOADING MAX FILL HEIGHT 15'
2. THE # 4022 SHALL BE PERMANENTLY MARKED ON THE TOP COVER
3. EQUIVALENT STEEL AREAS IN WIRE MESH MAY BE USED
4. REINFORCEMENT PER SPEC 3301, GRADE 60 A SINGLE HOOP OF 8ga STEEL WIRE

DESIGNATION:
DESIGN DIAMETER - STANDARD PLATE #
DESIGN 48-4020

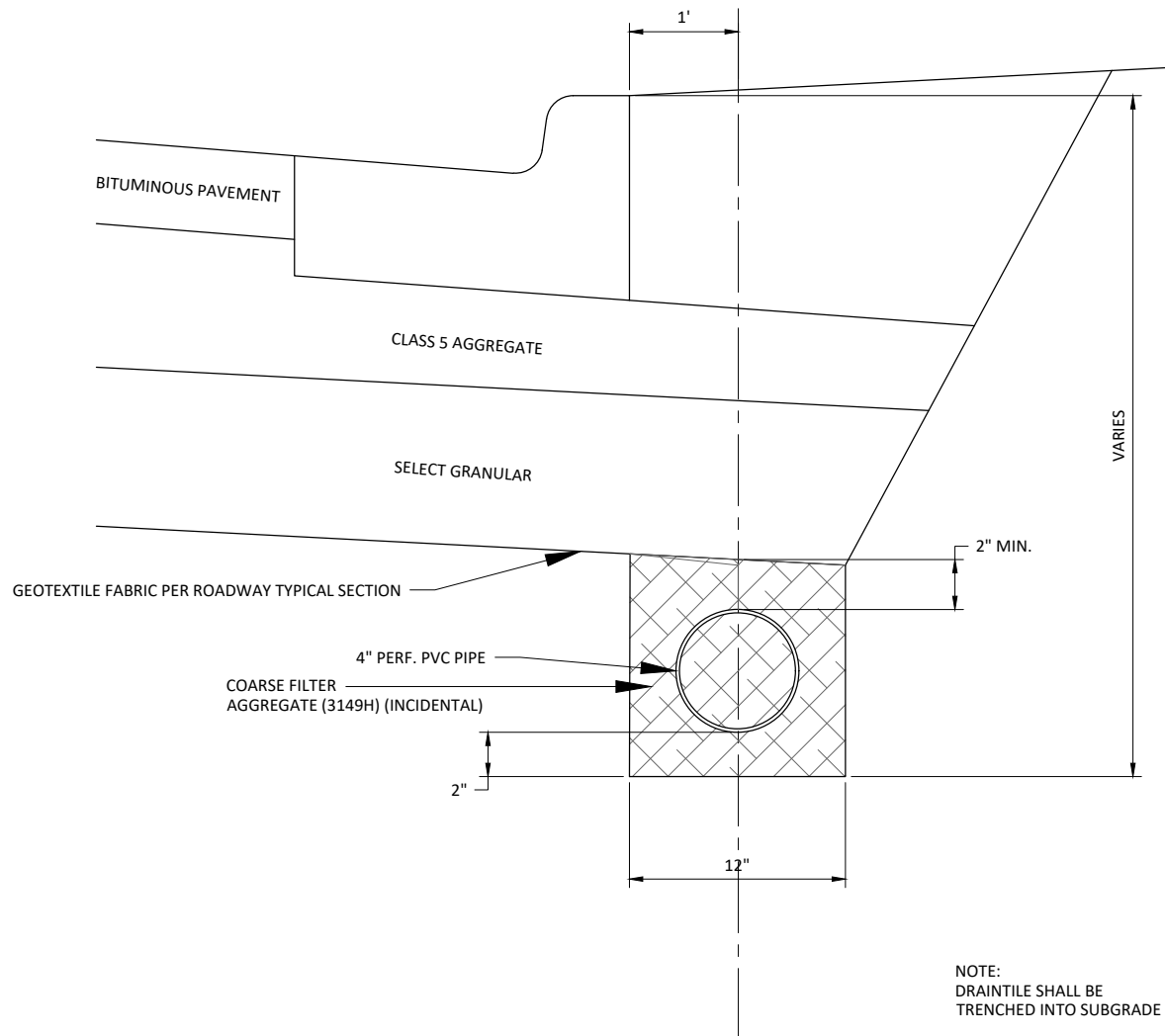


1. SEALING SYSTEMS INC. FLEX SEAL UTILITY SEALANT SHALL BE REQUIRED ON ALL CATCH BASINS WITH CONCRETE ADJUSTING RINGS. THE MATERIAL USED FOR LINING OF THE CATCH BASIN RINGS SHALL BE INSTALLED PER THE MANUFACTURERS RECOMMENDATIONS.



STORM SEWER STRUCTURE
DESIGN 4022

NOT TO SCALE



○ SUBSURFACE ROADWAY EDGE DRAIN

NOT TO SCALE



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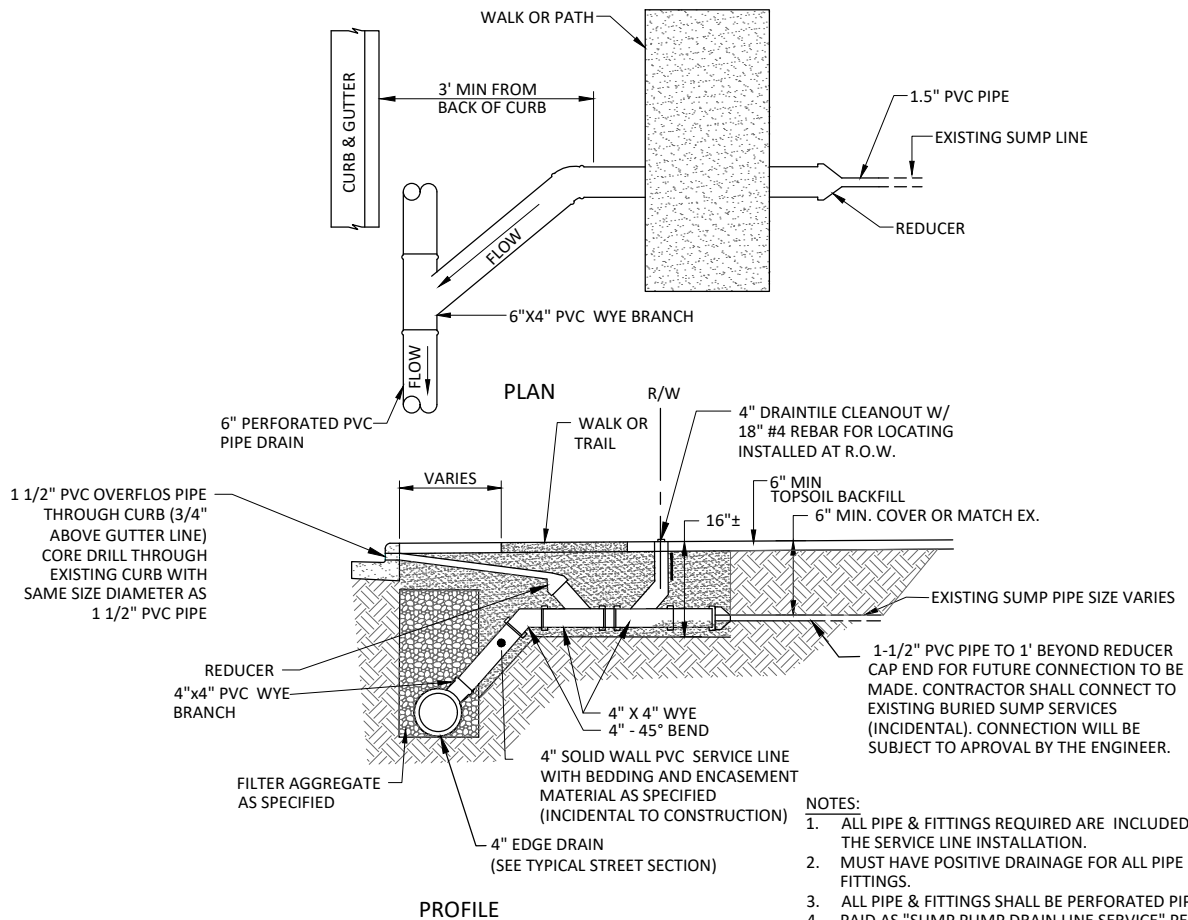
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SUBSURFACE ROADWAY
EDGE DRAIN

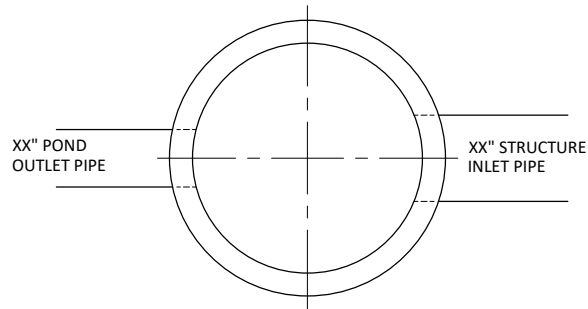
May 1st, 2025

STD. DETAIL
4010

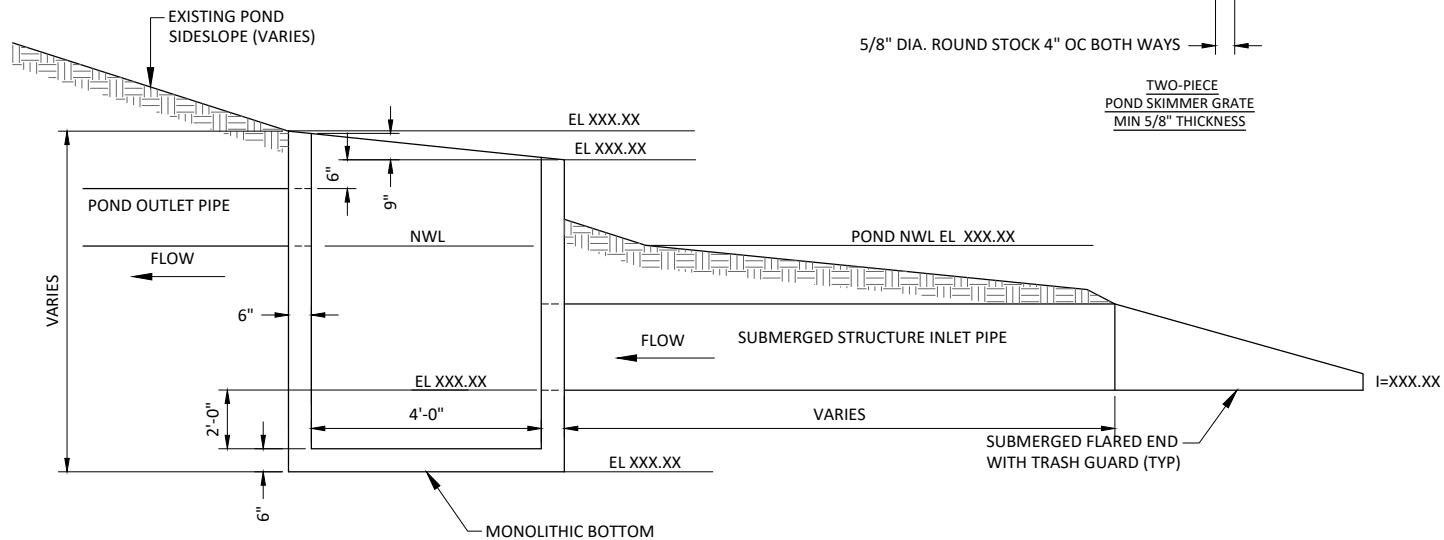
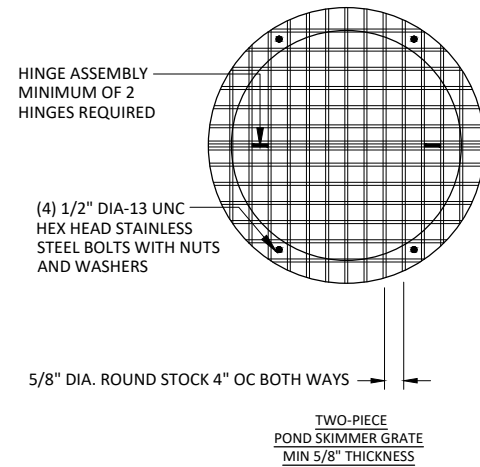


SUMP PUMP DRAIN LINE SERVICE

NOT TO SCALE



- GRATE NOTES:
 1. GRATE TO BE MADE IN TWO (2) PIECES
 2. ALL METAL SHALL BE HOT-DIPPED GALVANIZED



NOTE:
 1. ALL PIPE JOINTS SHALL BE TIED.

○ PRECAST CONCRETE POND SKIMMER STRUCTURE
 SECTION VIEW

NOT TO SCALE



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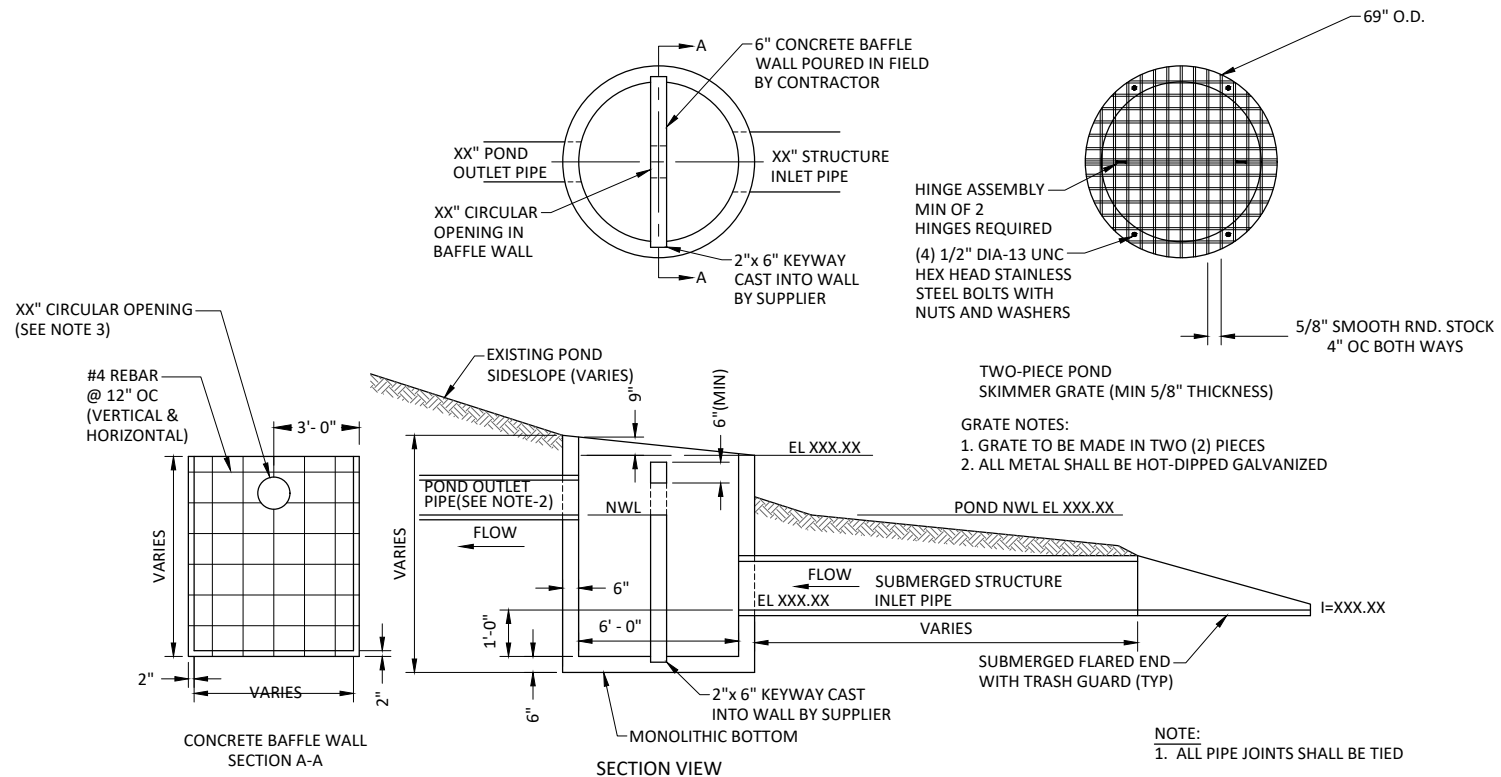
CITY OF BUFFALO, MINNESOTA

PRECAST CONCRETE POND
 SKIMMER STRUCTURE

May 1st, 2025

STD. DETAIL

4012




PRECAST CONCRETE POND SKIMMER STRUCTURE WITH RATE CONTROL BAFFLE
 NOT TO SCALE

- NOTE:
1. ALL PIPE JOINTS SHALL BE TIED
 2. BAFFLE WALL SHALL BE CONSTRUCTED TO PREVENT LEAKAGE AROUND THE WALL
 3. CONCRETE BAFFLE WALL OPENING SHALL BE SIZED TO MEET RATE CONTROL REQUIREMENTS.
 4. STRUCTURE INLET PIPE SHALL BE SIZED TO LIMIT VELOCITIES TO 0.5 FT/S FOR THE TREATMENT STORM EVENT. INLET PIPE SHALL BE RCP.
 5. POND OUTLET PIPE SHALL BE SIZED FOR 100 YEAR OR REQUIRED STORM EVENT.



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CITY OF BUFFALO, MINNESOTA

PRECAST CONCRETE POND SKIMMER STRUCTURE WITH RATE CONTROL BAFFLE

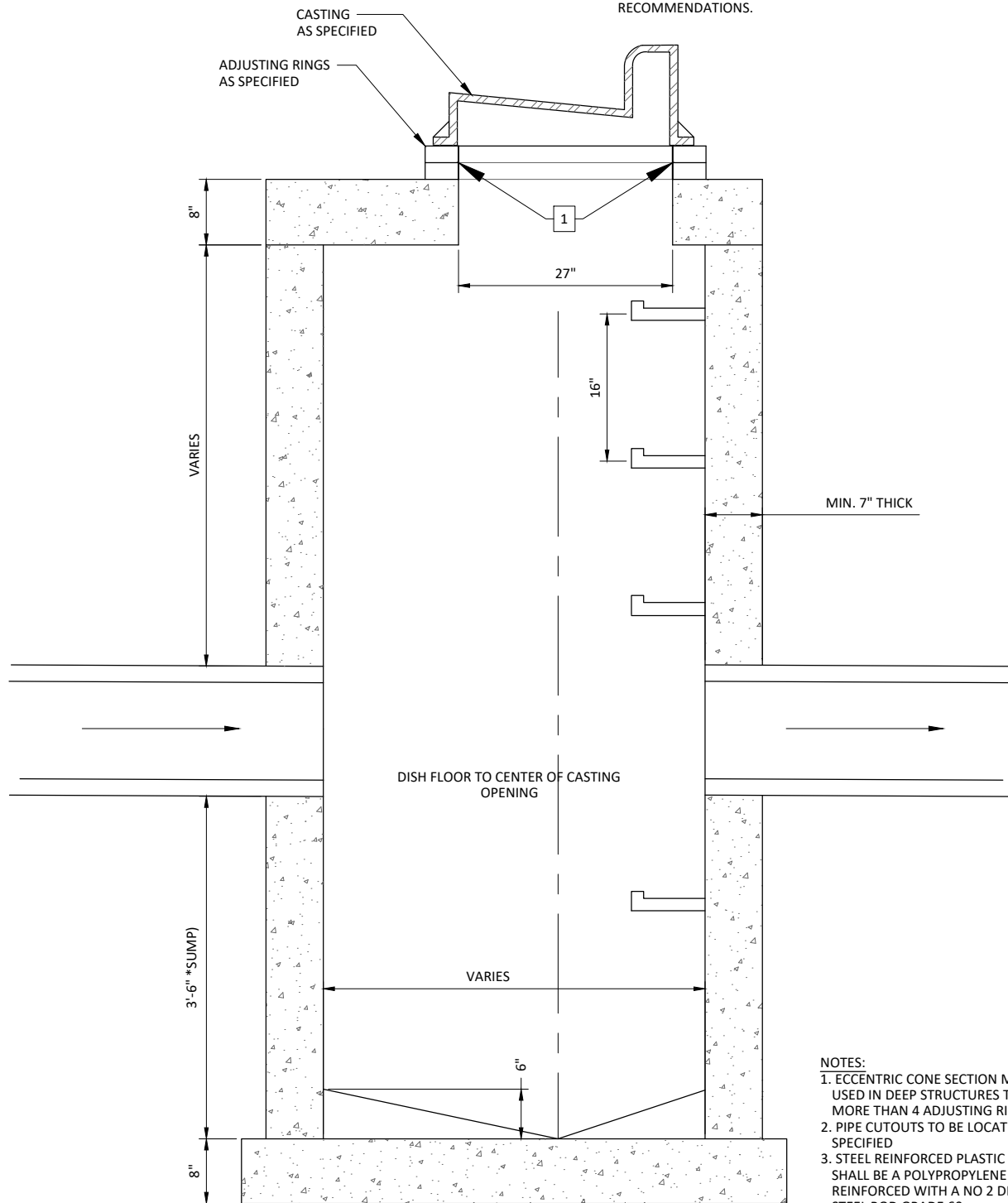
May 1st, 2025

STD. DETAIL

4013

1

SEALING SYSTEMS INC. FLEX SEAL UTILITY SEALANT SHALL BE REQUIRED ON ALL CATCH BASINS WITH CONCRETE ADJUSTING RINGS. THE MATERIAL USED FOR LINING OF THE CATCH BASIN RINGS SHALL BE INSTALLED PER THE MANUFACTURERS RECOMMENDATIONS.



NOTES:

1. ECCENTRIC CONE SECTION MAY BE USED IN DEEP STRUCTURES TO AVOID MORE THAN 4 ADJUSTING RINGS
2. PIPE CUTOUTS TO BE LOCATED AS SPECIFIED
3. STEEL REINFORCED PLASTIC STEPS SHALL BE A POLYPROPYLENE PLASTIC REINFORCED WITH A NO 2 DEFORMED STEEL ROD GRADE 60

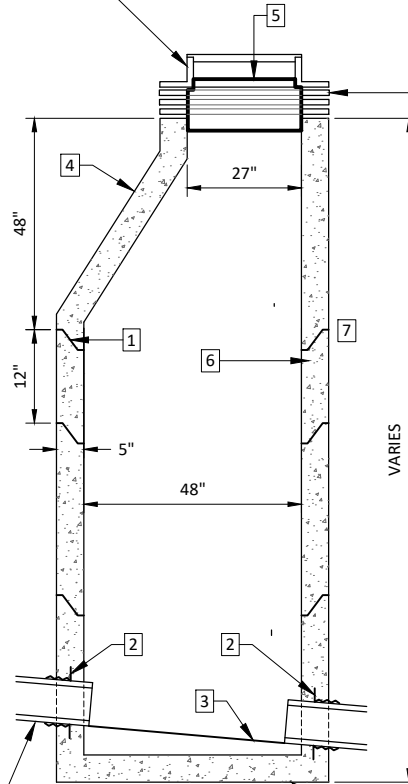
SECTIONAL VIEW



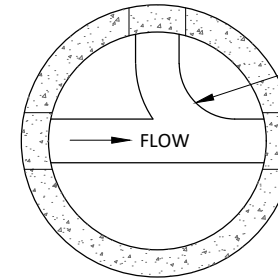
DRAINAGE STRUCTURE WITH SUMP

NOT TO SCALE

NEENAH R1733 FRAME & CASTING WITH TWO CONCEALED PICKHOLES "SANITARY SEWER" IMPRINTED ON THE COVER



MIN. 2, MAX 5 CONCRETE ADJUSTING RINGS WITH FULL MORTART BED. MAXIMUM 18" OF CASTING AND RINGS ALLOWED WITHOUT CHANGING BARREL SECTIONS.



CURVE INVERT IN DOWNSTREAM DIRECTION

PLAN VIEW

1. RUBBER GASKET (TYPICAL)
2. FLEXIBLE WATERTIGHT SEAL TO BE APPROVED BY ENGINEER
3. SHAPE, DEPTH AND SLOPE OF INVERT TO BE APPROVED BY ENGINEER
4. MnDOT TYPE "B" ECCENTRIC PRECAST CONCRETE CONE SECTION TYPICAL FOR ALL MANHOLES
5. PLACE INTERIOR MEDIUM DENSITY POLYETHYLENE I & I BARRIER
6. PLACE 1' TALL BARREL SECTION IMMEDIATELY BELOW CONE SECTION ON ALL MANHOLES

NOTES:
NO STEPS IN MANHOLES

REFER TO PLANS
FOR PIPE REQUIRED

6" MIN INTEGRAL
PRECAST CONCRETE BASE



SANITARY SEWER MANHOLE
DES. 4007

NOT TO SCALE



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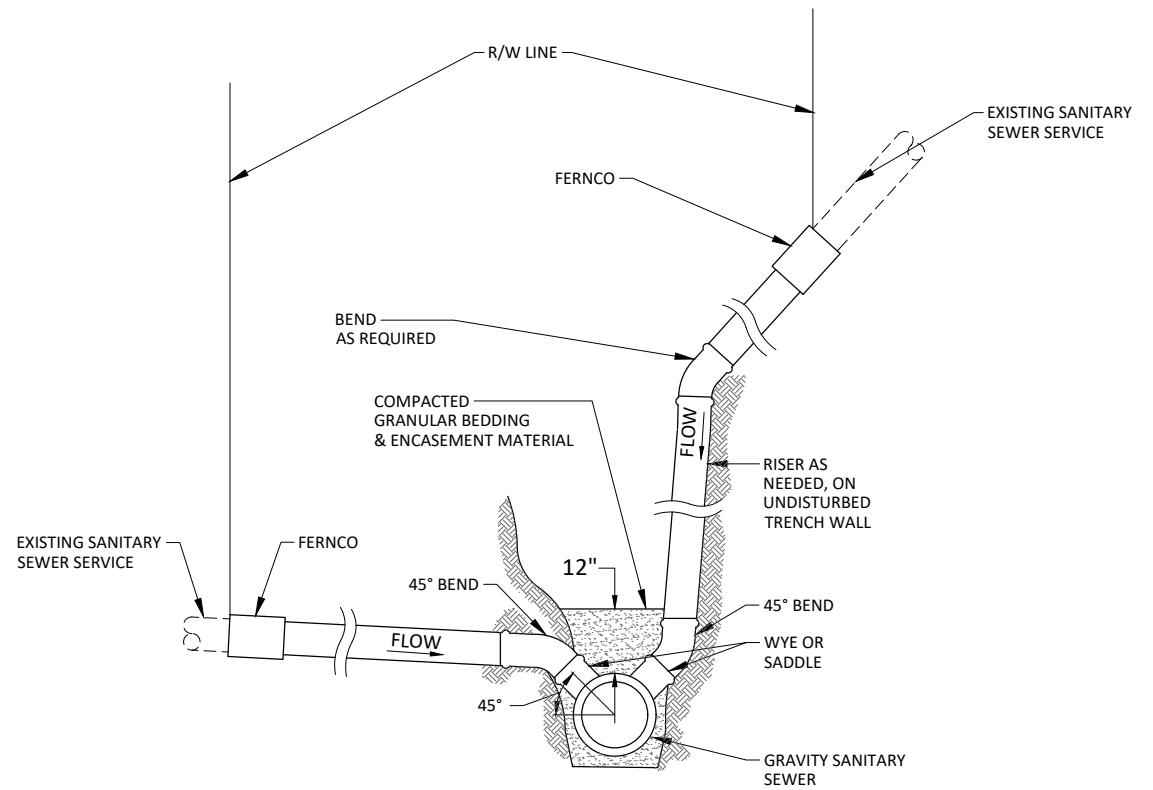
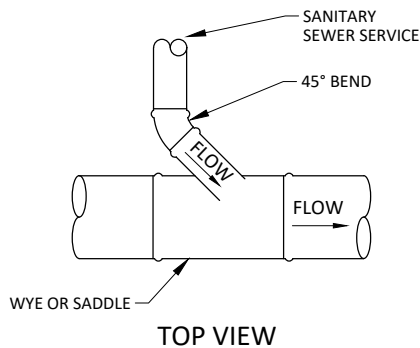
CITY OF BUFFALO, MINNESOTA

SANITARY MANHOLE
DES. 4007

May 1st, 2025

STD. DETAIL

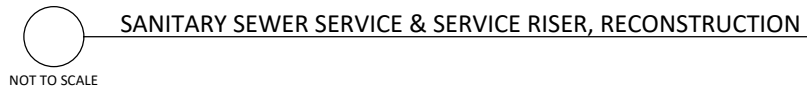
5001



NOTE:

1. SEWER PIPE AND MATERIAL SHALL BE SDR 26 PVC.
2. SERVICES NOT ALLOWED UNDER DRIVEWAYS.
3. CLEANOUTS REQUIRED EVERY 100 LF MIN.
4. WYES, BENDS AND PIPE SIZES AS REQUIRED BY PLANS AND SPECS
5. WHERE NO EXISTING SEWER IS INPLACE, INSTALL PVC CAP AND MARK LOCATION WITH 4"X4"X6' TIMBER & 3/8" X 4' STEEL ROD BURY 6" BELOW FINISHED GRADE
6. SEE MINNESOTA RURAL WATER ASSOCIATION STANDARD DETAILS FOR TRACER WIRE REQUIREMENTS.

SEWER SERVICE REQUIREMENTS
-GRADES-
MINIMUM - 1.0% (1/8" PER FT)
OPTIMUM - 2.0% (1/4" PER FT)
MAXIMUM - 12.5%



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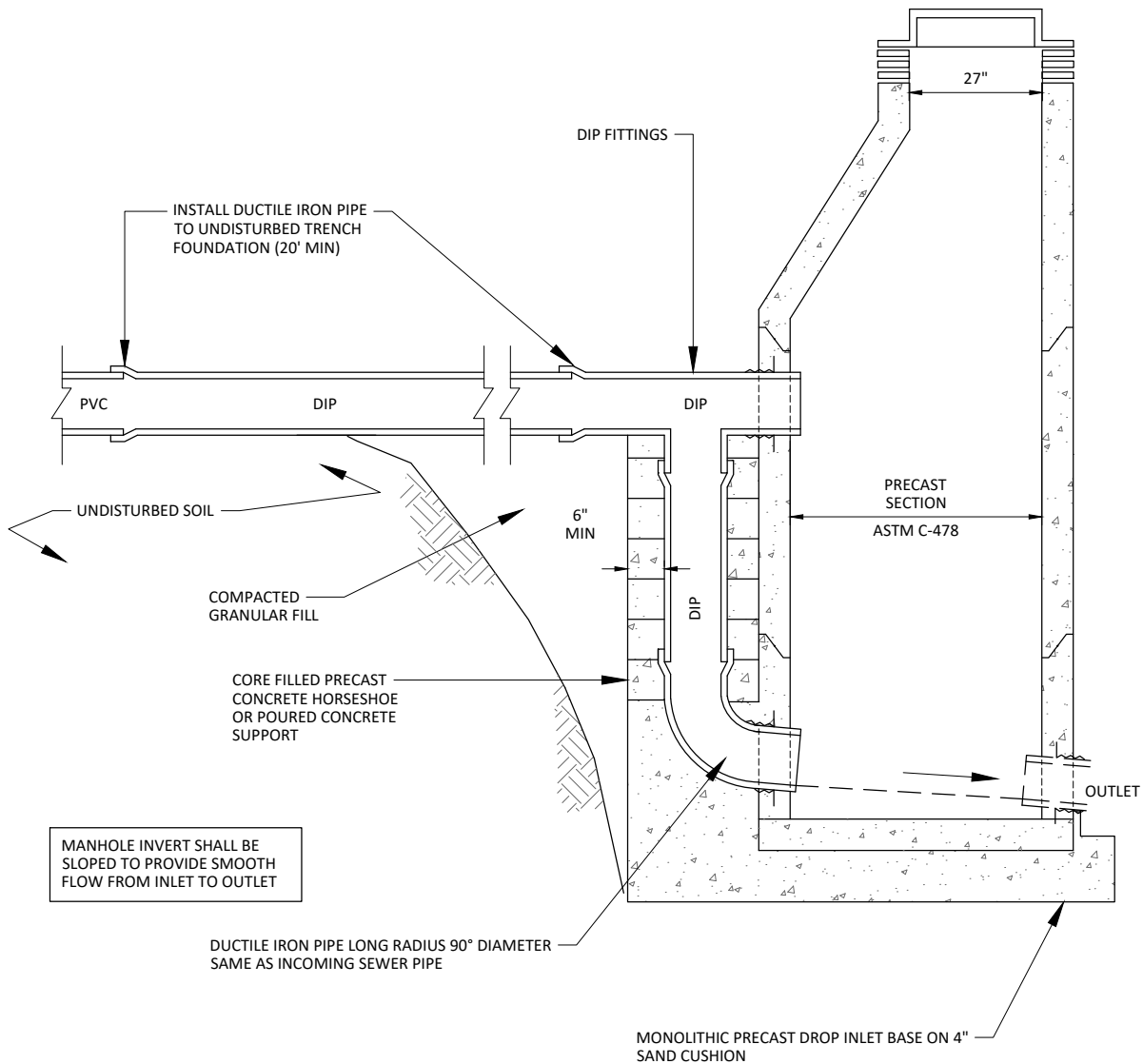
CITY OF BUFFALO, MINNESOTA


**SANITARY SEWER
SERVICE & SERVICE RISER,
RECONSTRUCTION**

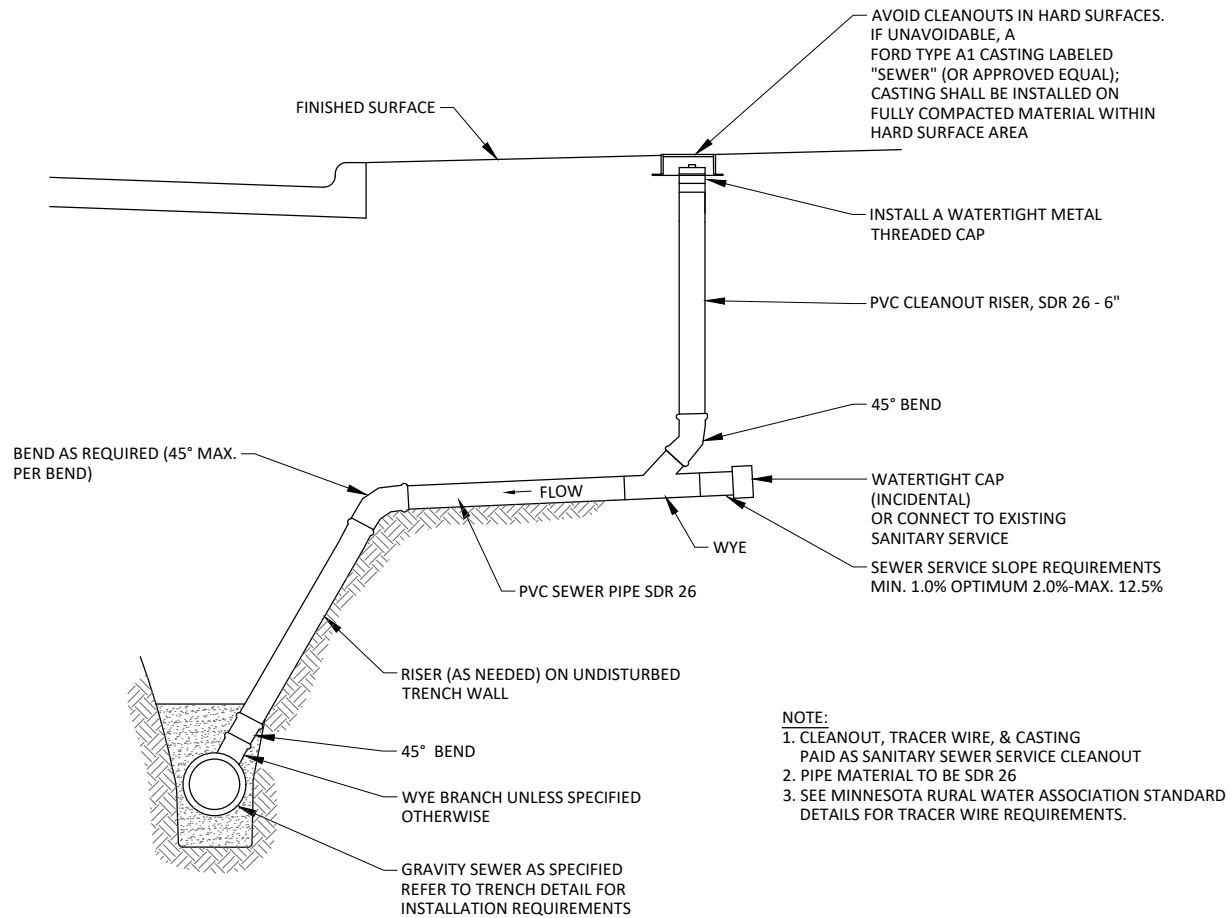
May 1st, 2025

STD. DETAIL

5002




SANITARY MANHOLE WITH OUTSIDE DROP
 NOT TO SCALE



○ SANITARY SEWER CLEAN OUT

NOT TO SCALE



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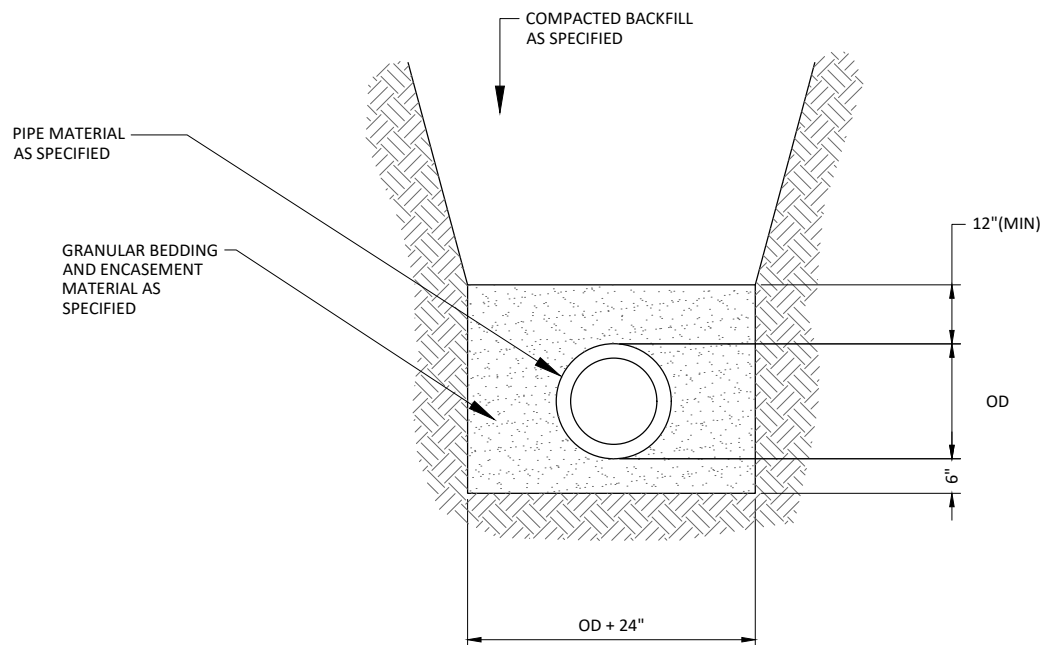
CITY OF BUFFALO, MINNESOTA


SANITARY SEWER CLEAN OUT

May 1st, 2025

STD. DETAIL

5004




NON-RIGID SANITARY SEWER TRENCH
 NOT TO SCALE



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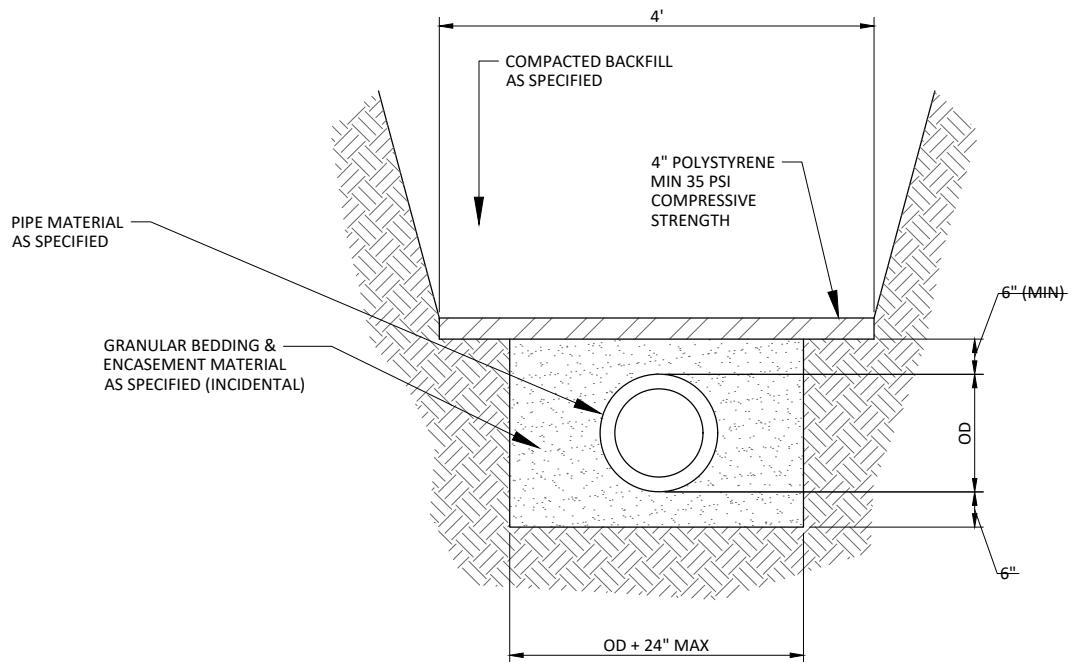
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NON-RIGID SANITARY SEWER TRENCH

May 1st, 2025


STD. DETAIL
5005



NOTE:
SEE MINNESOTA RURAL WATER ASSOCIATION STANDARD
DETAILS FOR TRACER WIRE REQUIREMENTS

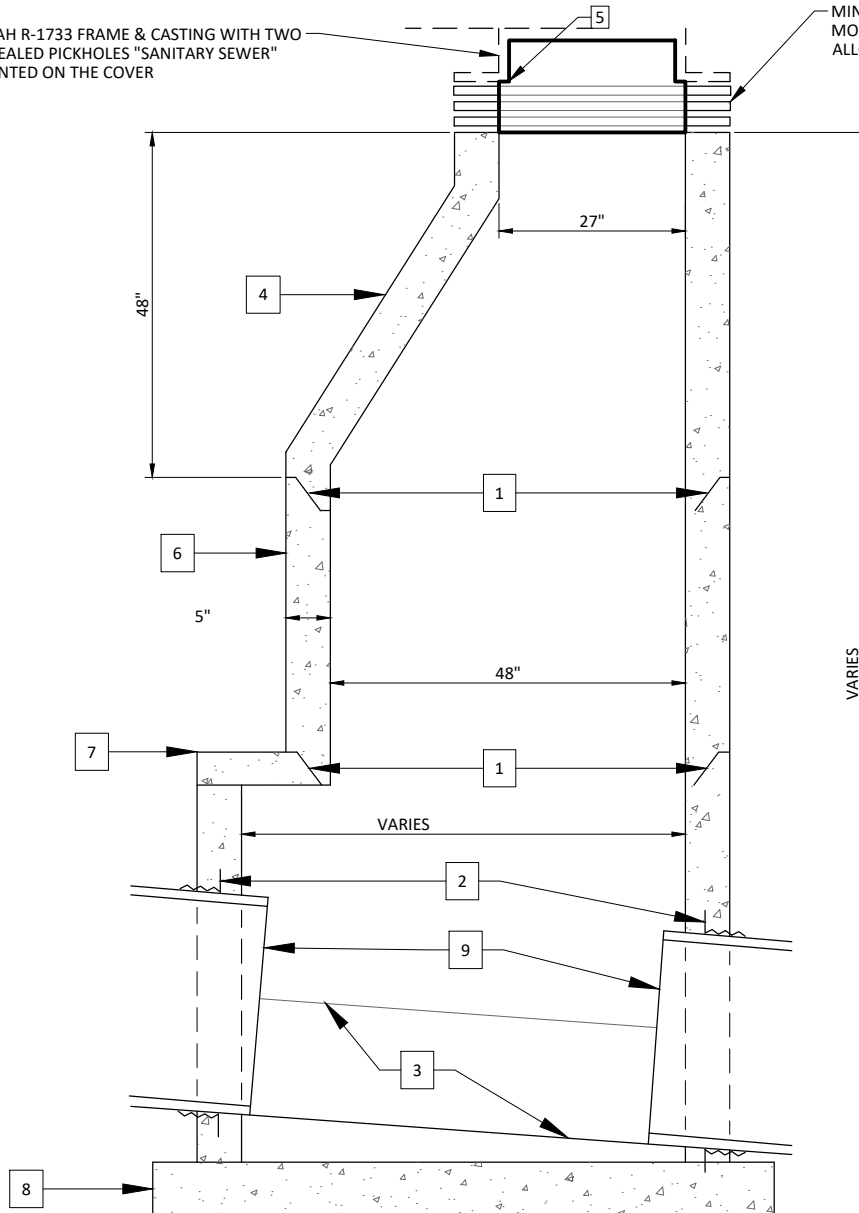
IF SERVICE LINE HAS LESS THAN 5' OF COVER
INSULATION WIDTH SHALL INCREASE AS FOLLOWS:

DEPTH OF COVER	WIDTH OF INSULATION
4 FT	6 FT
3 FT	8 FT
2 FT	10 FT


SANITARY SEWER SERVICE INSULATION
 NOT TO SCALE

NEENAH R-1733 FRAME & CASTING WITH TWO CONCEALED PICKHOLES "SANITARY SEWER" IMPRINTED ON THE COVER

MIN. 2, MAX 5 CONCRETE ADJUSTING RINGS WITH FULL MORTAR BED. MAXIMUM 18" OF CASTING AND RINGS ALLOWED WITHOUT CHANGING BARREL SECTIONS.



1. RUBBER GASKET
2. FLEXIBLE WATERTIGHT SEAL TO BE APPROVED BY ENGINEER
3. SHAPE, DEPTH & SLOPE OF INVERT TO BE APPROVED BY ENGINEER, GROUT TO BE MIX 3A34
4. MnDOT TYPE "B" ECCENTRIC PRECAST CONCRETE CONE SECTION TYPICAL FOR ALL MANHOLES
5. PLACE INTERIOR MEDIUM DENSITY POLYETHYLENE I & I BARRIER
6. 48" DIAMETER PRECAST RISER SECTIONS AS REQUIRED
7. PRECAST SLAB WITH ECCENTRIC 48" OPENING DESIGN -HS20 PLUS EARTH LOAD
8. 80" PRECAST BASE SLAB, DIAMETER DEPENDENT ON DIAMETER OF LOWER MANHOLE SECTION
9. REFER TO PLANS FOR PIPE REQUIRED

 SANITARY SEWER MANHOLE
DES. SPECIAL
NOT TO SCALE



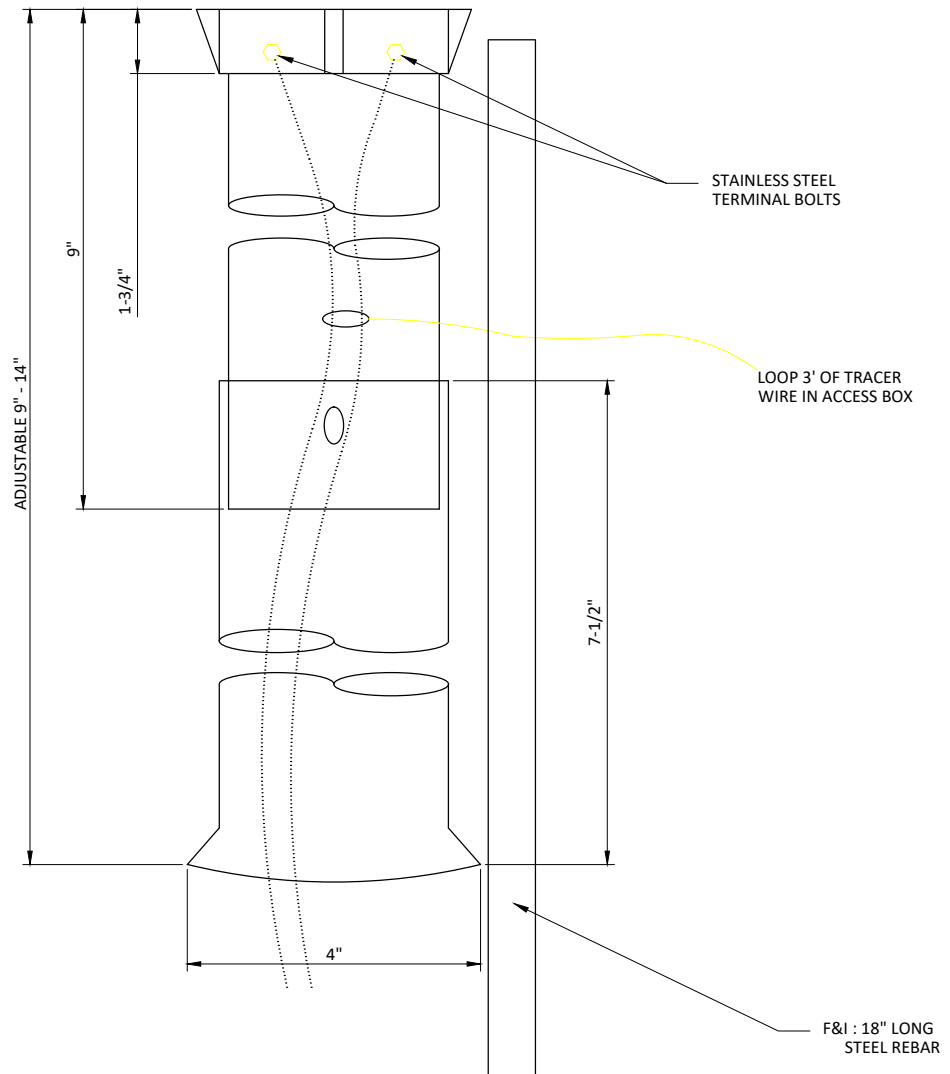
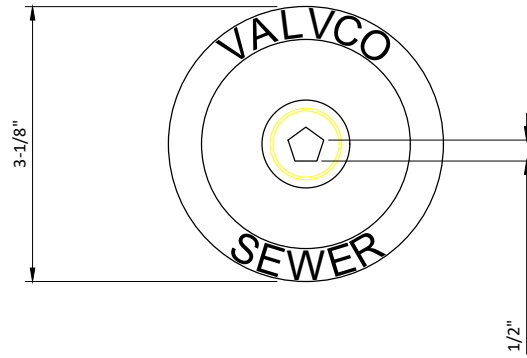
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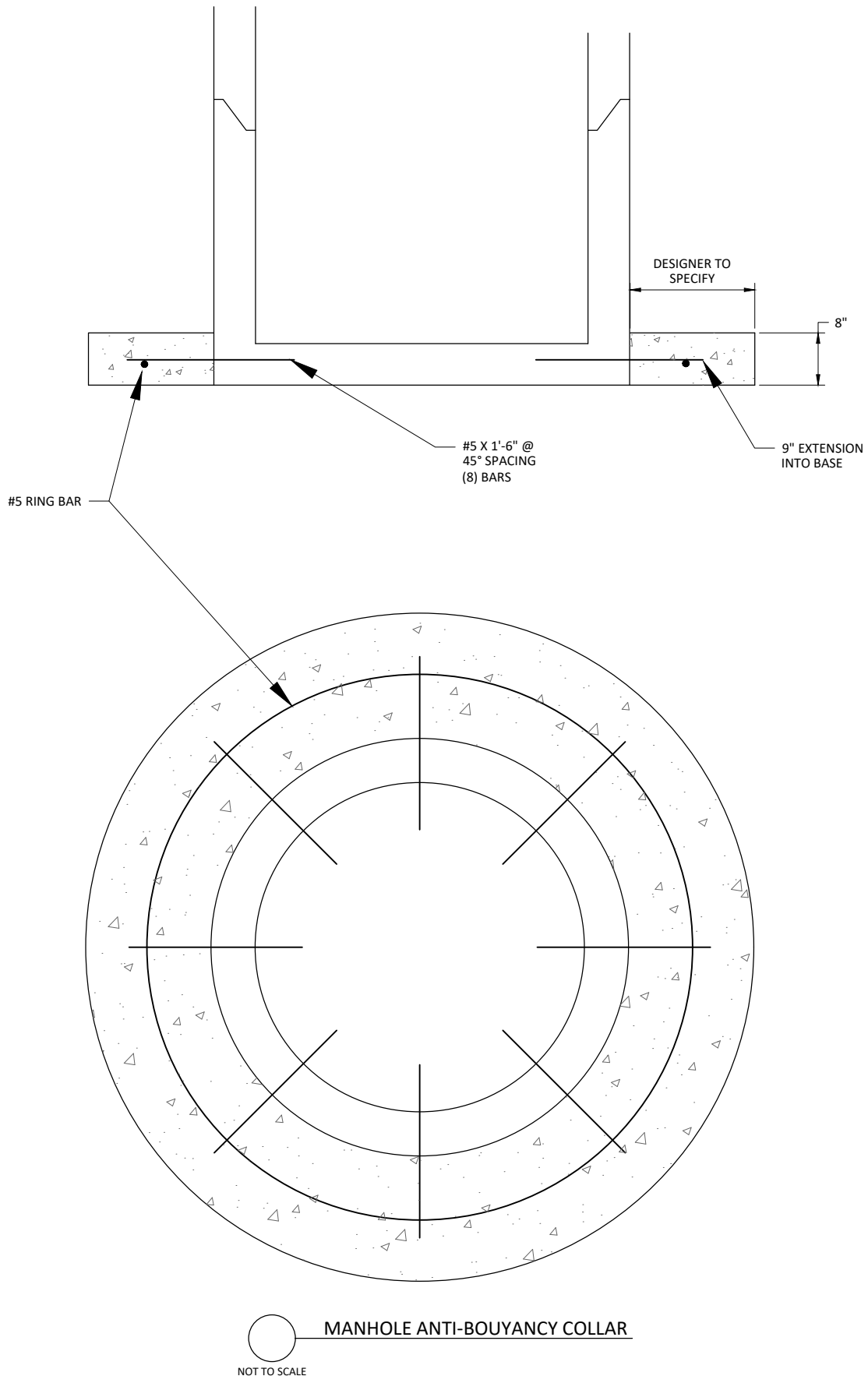
SANITARY SEWER MANHOLE
DESIGN SPECIAL

May 1st, 2025

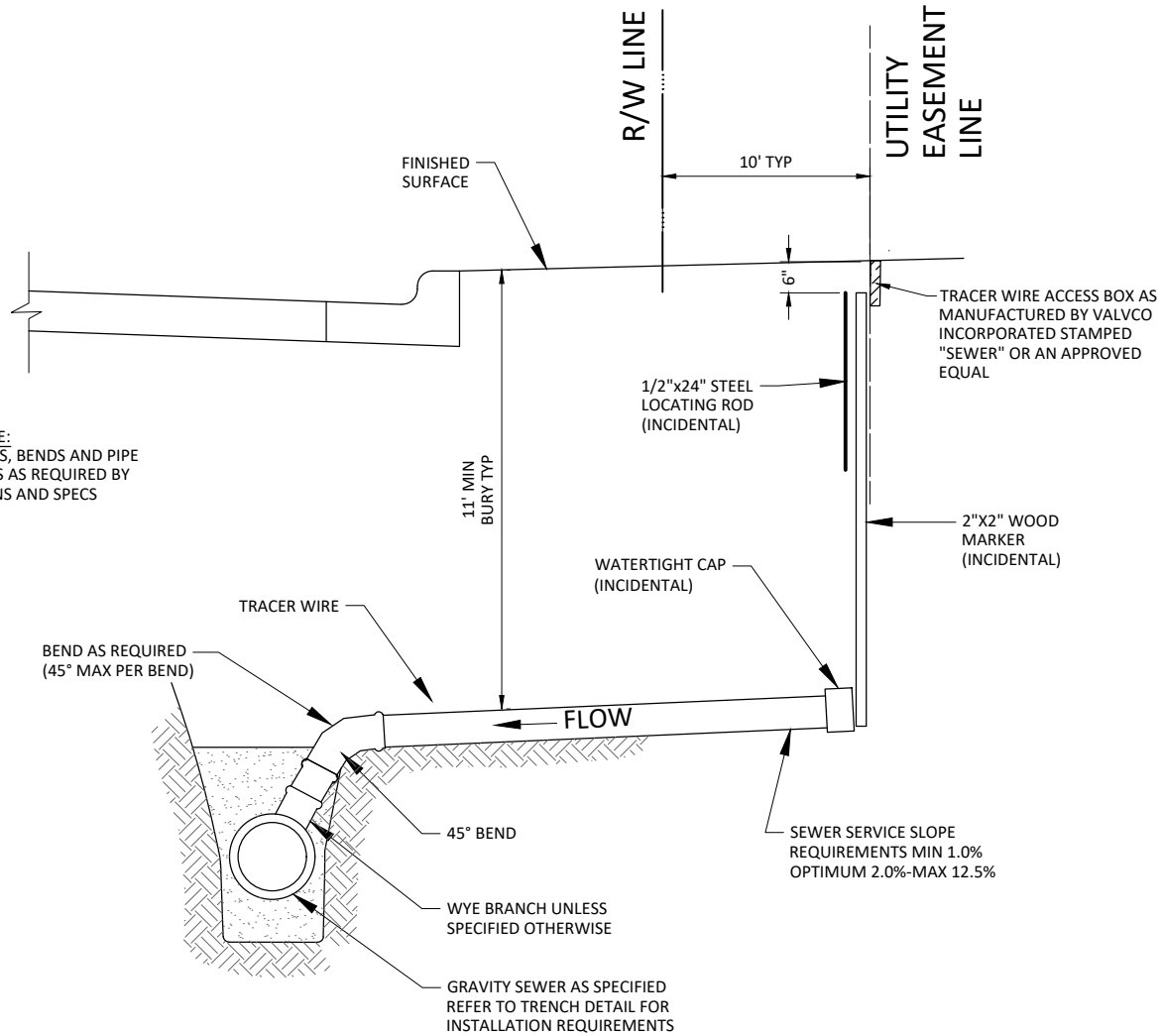
STD. DETAIL
5007




ADJUSTABLE TRACER WIRE ACCESS BOX
 NOT TO SCALE



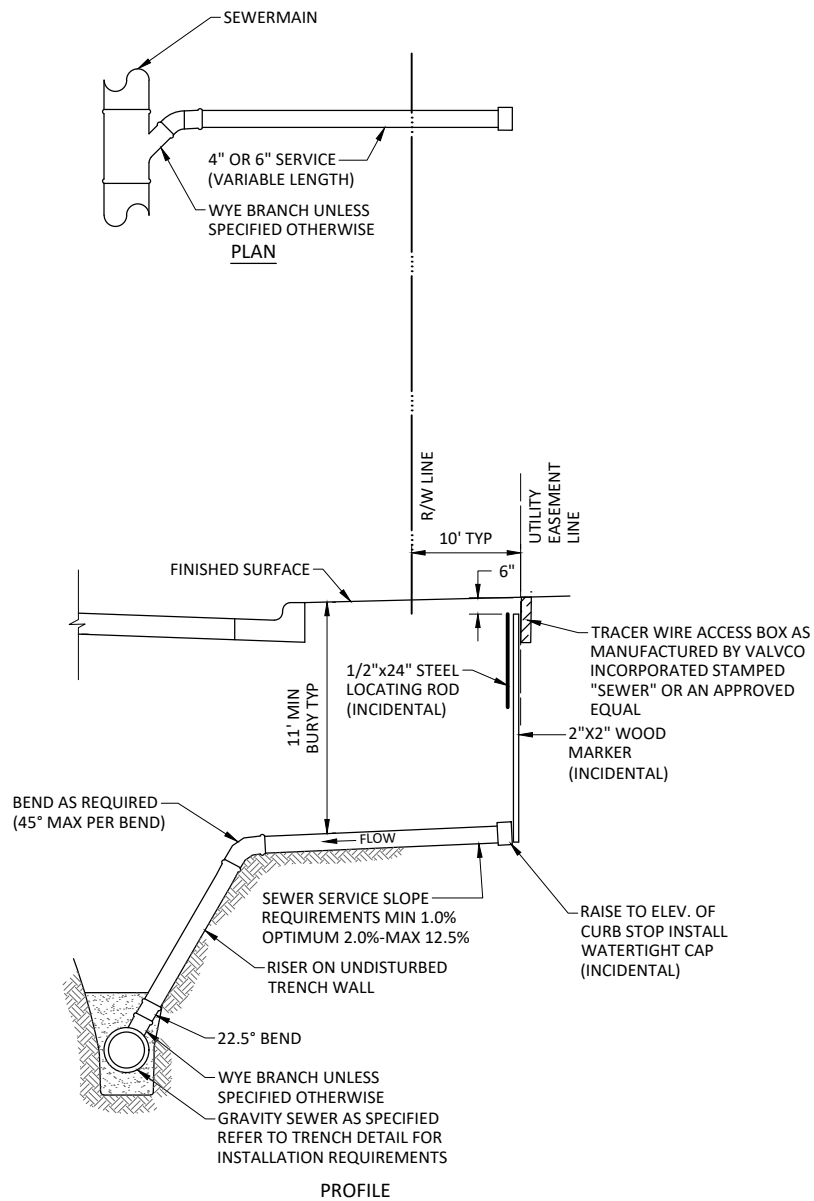
NOTE:
WYES, BENDS AND PIPE
SIZES AS REQUIRED BY
PLANS AND SPECS



NOTE:

1. WYES, BENDS AND PIPESIZES AS REQUIRED BY PLANS AND SPECS
2. SEWER PIPE MATERIAL SHALL BE SDR 26 PVC
3. SERVICES NOT ALLOWED IN OR UNDER DRIVEWAYS.
4. CLEANOUTS REQUIRED EVERY 100 LF MIN.
5. SEE MINNESOTA RURAL WATER ASSOCIATION STANDARD DETAILS FOR TRACER WIRE REQUIREMENTS.

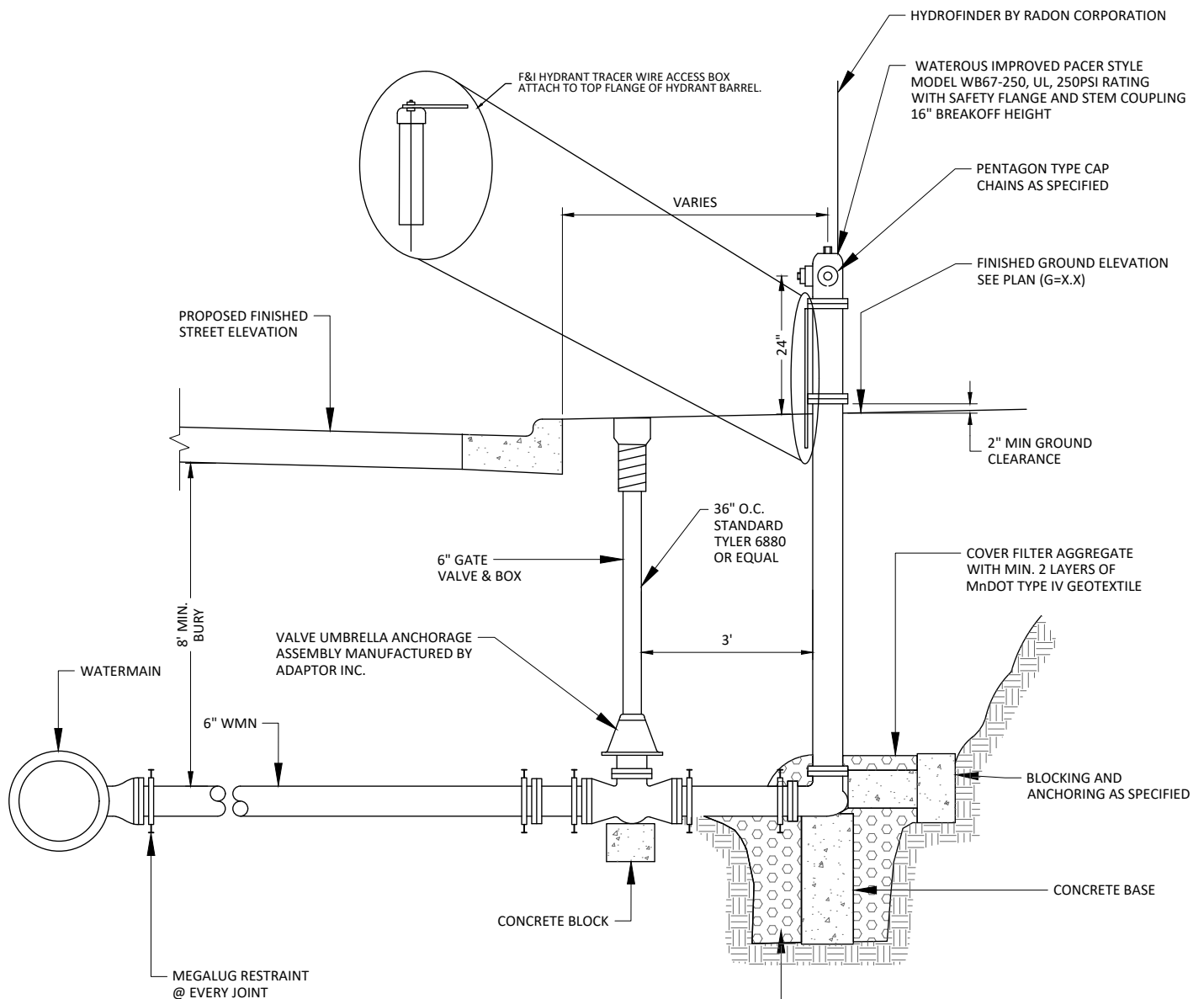

**SANITARY SEWER SERVICE
NEW CONSTRUCTION**
 NOT TO SCALE



NOTE:

1. WYES, BENDS AND PIPESIZES AS REQUIRED BY PLANS AND SPECS
2. SEWER PIPE MATERIAL SHALL BE SDR 26 PVC
3. SERVICES NOT ALLOWED IN OR UNDER DRIVEWAYS.
4. CLEANOUTS REQUIRED EVERY 100 LF MIN.
5. SEE MINNESOTA RURAL WATER ASSOCIATION STANDARD DETAILS FOR TRACER WIRE REQUIREMENTS.


SANITARY SEWER SERVICE - RISER
NEW CONSTRUCTION
 NOT TO SCALE



NOTE:

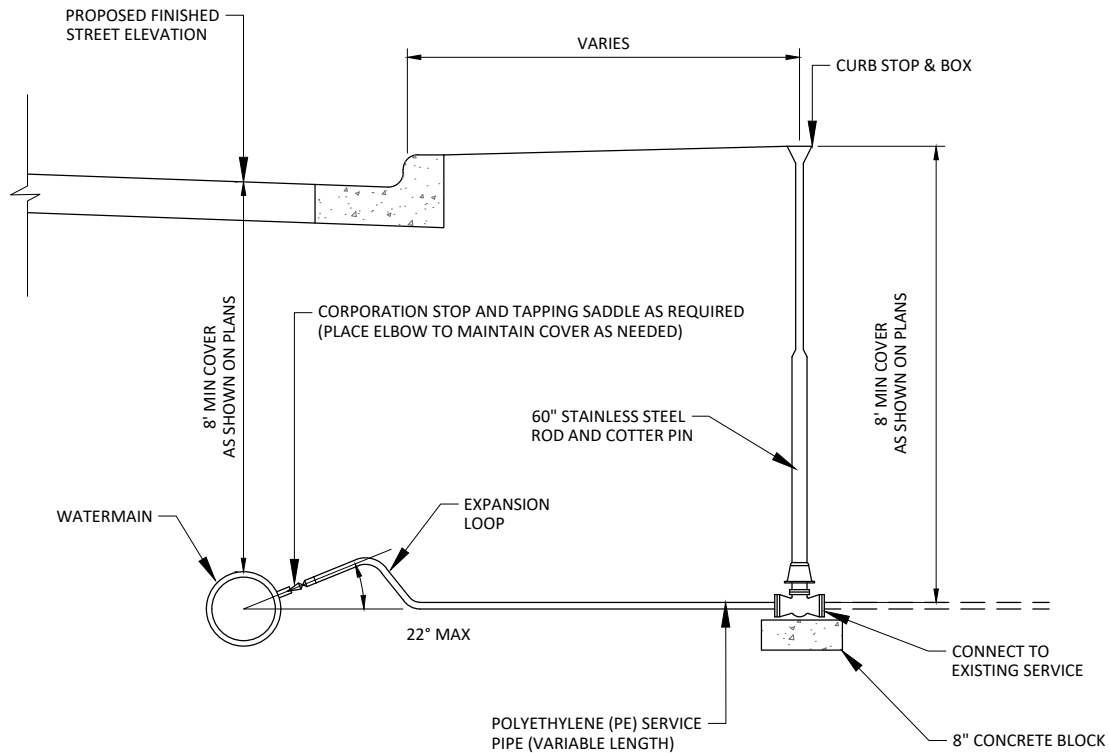
1. HYDRANT & GATE VALVE TO BE TIED TO WATERMAIN WITH METAL RESTRAINING TIE RODS AND/OR MEGA LUG RESTRAINING GLANDS.
2. ALL NUTS & BOLTS SHALL BE 316 STAINLESS STEEL.
3. TIP TEE UP AND INSTALL 45° BEND TO OBTAIN 8.5' BURY FROM HYDRANTS AT LOCATIONS WHERE MAIN IS DEEPER THAN 8'.
4. MATCH CITY OF BUFFALO COLOR AND THREAD TYPES.
5. SEE MINNESOTA RURAL WATER ASSOCIATION STANDARD DETAILS FOR TRACER WIRE REQUIREMENTS.

FILTER AGGREGATE WILL BE IGNEOUS ROCK NO LIMESTONE, MIN. HEIGHT OF 6" ABOVE WEEP HOLES. (MNDOT 3149H). IN AREAS OF HIGH GROUND WATER, PLUG WEEP HOLES AND PAINT STEAMER CAP BLUE.



HYDRANT INSTALLATION, MEGALUGS

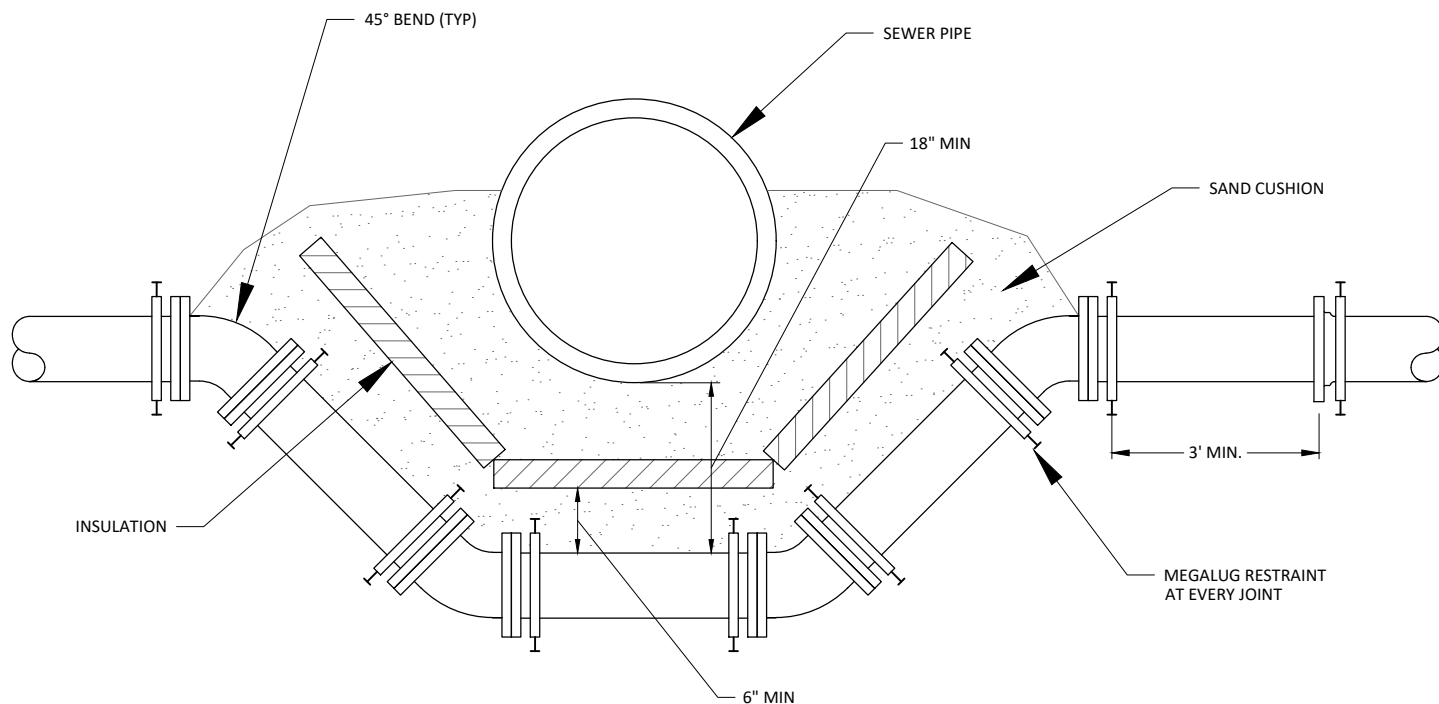
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NOTE:

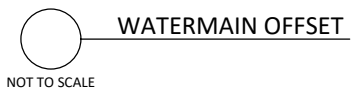
1. WHERE NO EXISTING WATER SERVICE IS INPLACE, PLACE CAP AND STEEL "T" FENCE POST AT CURB STOP
2. SEE MINNESOTA RURAL WATER ASSOCIATION STANDARD DETAILS FOR TRACER WIRE REQUIREMENTS.

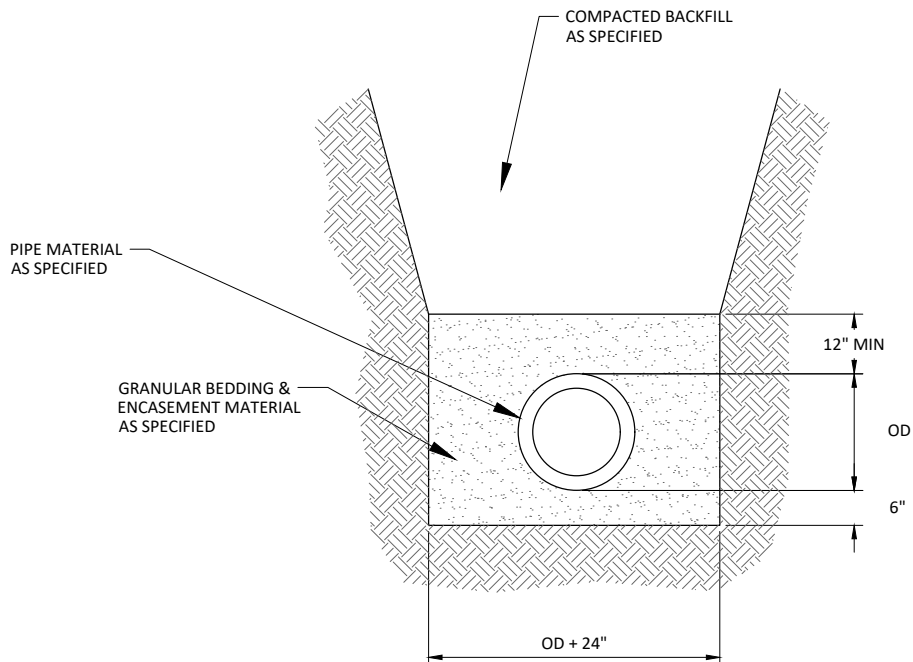
 **WATER SERVICE INSTALLATION
RECONSTRUCTION**
NOT TO SCALE



NOTES:

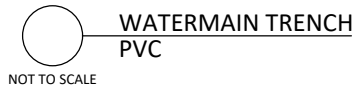
1. PROVIDE MEGALUG RESTRAINT AT JOINT ON BENDS AND AS SHOWN THIS DETAIL
2. COAT ALL ANCHORAGE AS PER SPECS
3. PROVIDE SAND CUSHION BETWEEN TOP OF WATERMAIN AND BOTTOM OF SEWER PIPE, MIN DIMENSIONS AS SHOWN THIS DETAIL (INCIDENTAL)
4. INSULATION TO BE 4" THICK DENSE FOAM IN AREAS OF LIMITED LONGITUDINAL SPACE.
5. IN AREAS OF GREATER LONGITUDINAL SPACE THE WATERMAIN SHALL BE GRADUALLY LOWERED AND RAISED, USING NO BENDS, OVER A DISTANCE OF 200'.





NOTE:

1. SEE MINNESOTA RURAL WATER ASSOCIATION STANDARD DETAILS FOR TRACER WIRE REQUIREMENTS.



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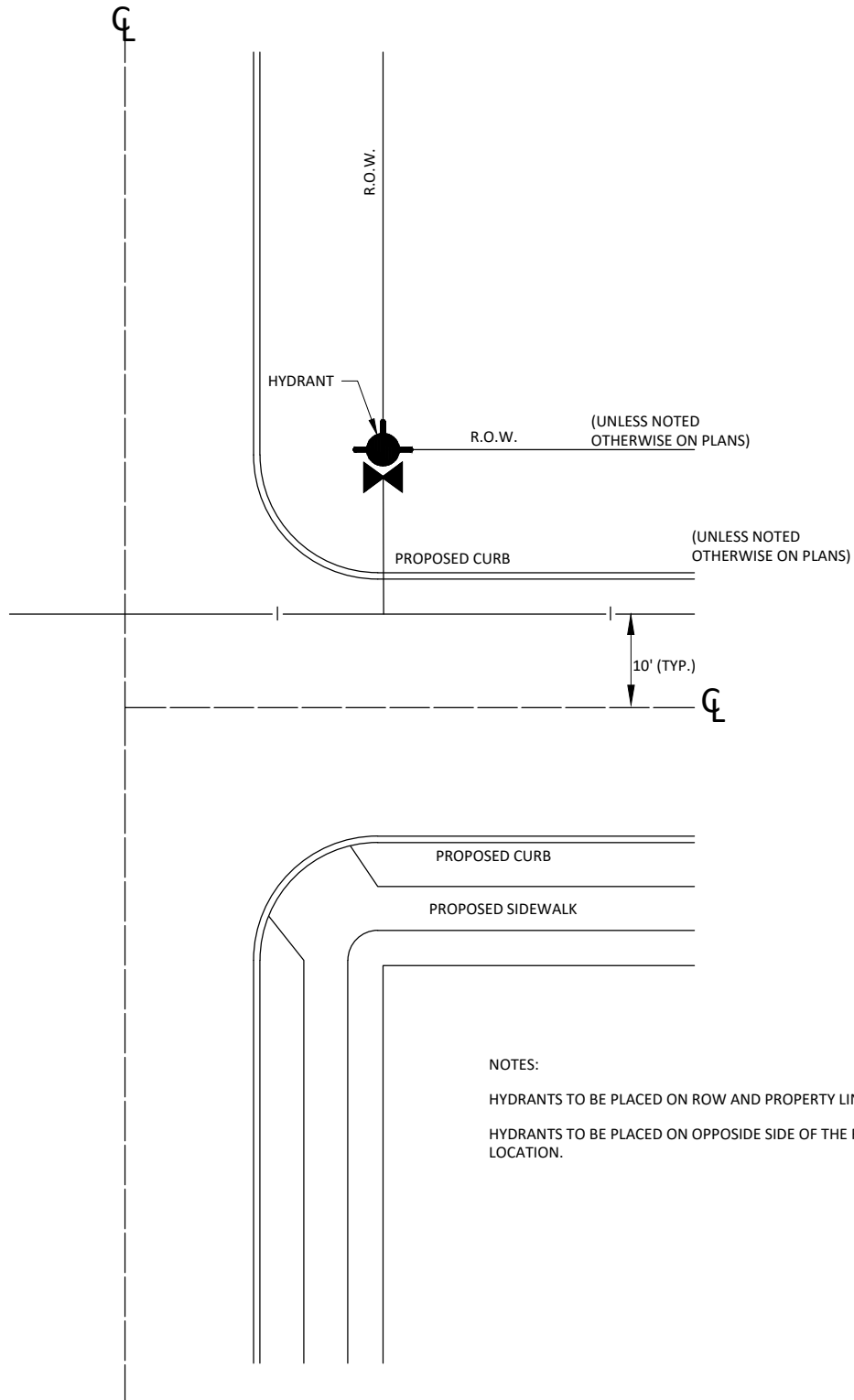
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Buffalo
CITY OF BUFFALO, MINNESOTA

WATERMAIN TRENCH - PVC

May 1st, 2025

STD. DETAIL
6004



PROPOSED HYDRANT LOCATION

NOT TO SCALE



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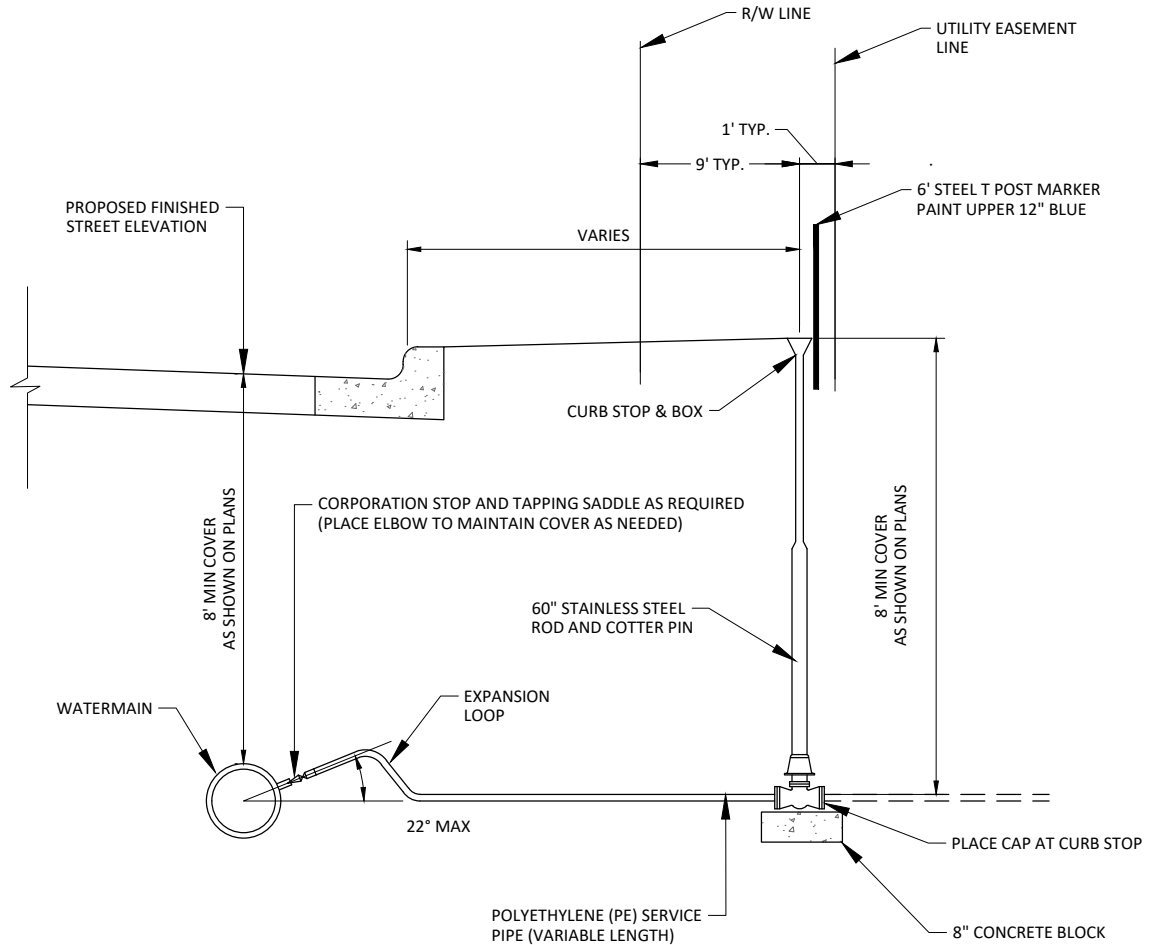
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PROPOSED HYDRANT LOCATION

May 1st, 2025

STD. DETAIL
6005



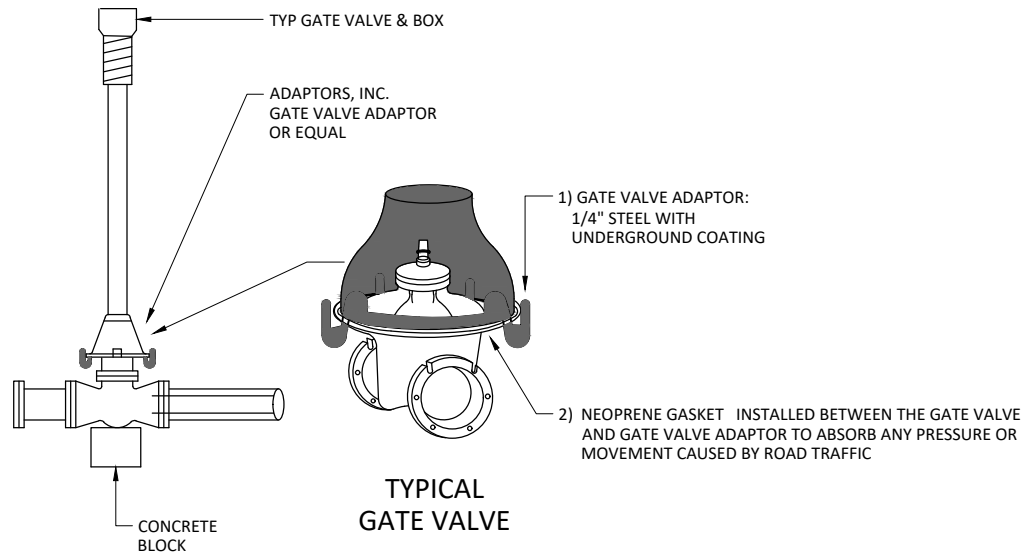
NOTE:

1. SERVICES SHALL NOT BE PLACED WITHIN ANY PAVED SURFACING INCLUDING DRIVEWAYS OR SIDEWALKS. IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER OR HOMEOWNER TO RELOCATE ANY SERVICES WHICH ARE INSTALLED WITHIN A PAVED SURFACE.
2. SEE MINNESOTA RURAL WATER ASSOCIATION STANDARD DETAILS FOR TRACER WIRE REQUIREMENTS.



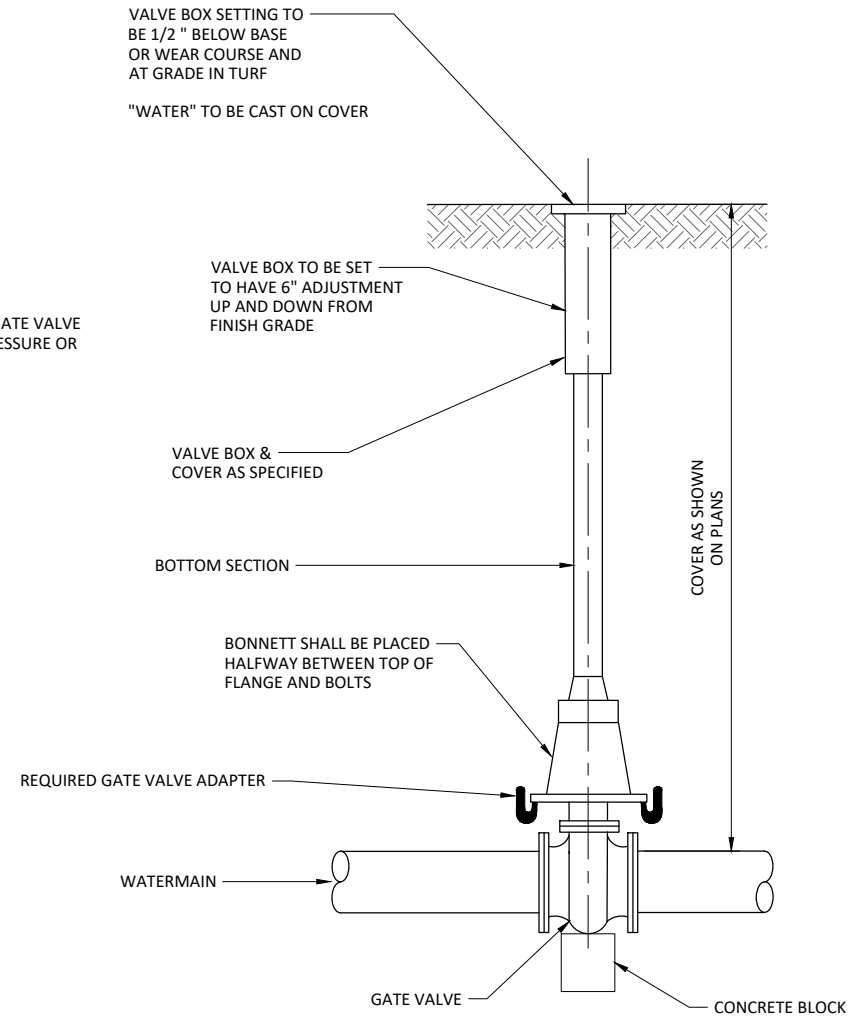
**WATER SERVICE INSTALLATION
NEW CONSTRUCTION**

NOT TO SCALE



NOTES:

1. VALVE BOX SHALL BE CENTERED ON OPERATING NUTS, STRAIGHT, FREE FROM DEBRIS, AND ALL SECTIONS UNBROKEN
2. VALVES IN EASEMENTS SHALL HAVE TRIVIEW MARKERS WITH THE APPROPRIATE REFLECTIVE STICKER.
3. DEEP VALVES SHALL HAVE NUT EXTENSIONS INSTALLED TO ELEVATION TO ACCOMMODATE STANDARD 10' KEY; BOTTOM NUT SHALL BE BOLTED TO VALVE NUT AND ONLY ONE SECTION
4. COMPACTION WITH MECHANICAL TAMPER AROUND VALVE BOX SHALL BE PLACED AND COMPACTED WITH 2' LIFTS TO ACHIEVE 95% COMPACTION
5. GATE VALVES IN CONCRETE SHALL BE AVOIDED. IF PLACEMENT IN CONCRETE IS SPECIFICALLY APPROVED BY THE CITY ENGINEER, GATE VALVES SHALL INCLUDE EXPANSION JOINT BETWEEN THE VALVE BOX AND THE CONCRETE.
6. ALL VALVE NUTS AND BOLTS SHALL BE 316 STAINLESS
7. GATE VALVES SHALL BE EPOXY COATED AND MANUFACTURED IN THE USA.
8. ALL VALVES AND RESTRAINING RODS SHALL BE PROTECTED USING 2 LARGE 6 OZ SACRIFICIAL ZINC ANODE CAPS FOR EVERY MECHANICAL JOINT GLAND INSTALLED.
9. ALL VALVES AND BOXES SHALL BE WRAPPED IN A POLYETHYLENE ENCASEMENT MATERIAL AND SECURED WITH TAPE ON EACH END AND IN THE MIDDLE.



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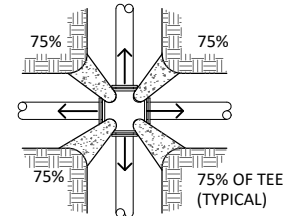
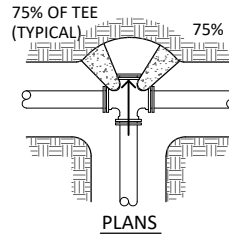
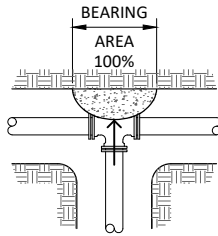
CITY OF BUFFALO, MINNESOTA

GATE VALVE & BOX INSTALLATION

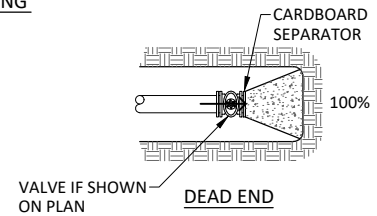
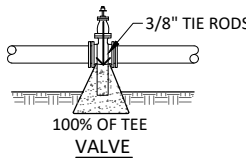
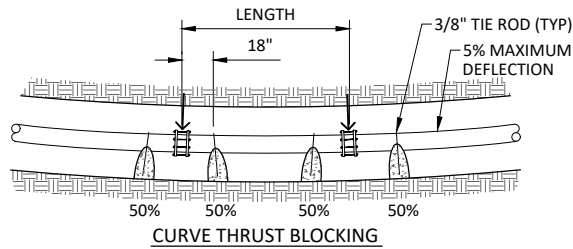
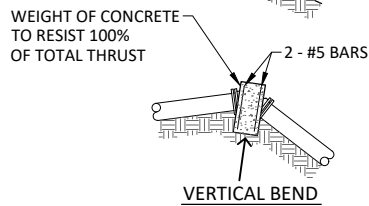
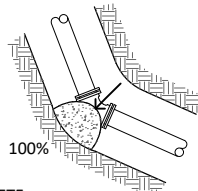
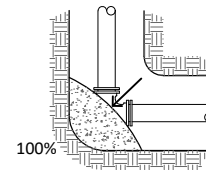
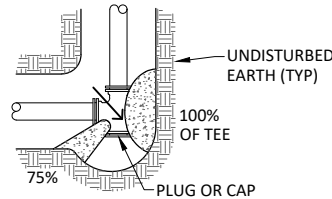
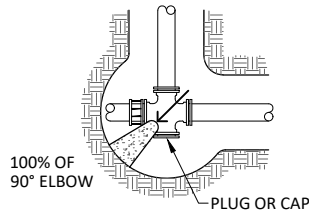
May 1st, 2025

STD. DETAIL

6007



PLANS



100% BEARING AREA (SQ FT)				
PIPE SIZE	DEAD END OR TEE	90° ELBOW	45° ELBOW	22 1/2° ELBOW
4	2.4	3.4	1.9	0.9
6	4.9	6.9	3.8	1.9
8	8.4	11.8	6.4	3.4
10	13.7	19.3	10.5	5.4
12	19.4	27.3	14.9	7.7
14	26.3	37.0	20.1	10.3
16	34.0	47.9	26.2	13.3
18	43.9	61.8	33.7	17.2
20	54.3	76.4	41.7	21.2
24	77.9	109.8	59.8	30.5

NOTE:
BEARING AREAS ARE BASED ON 250 LB
MAXIMUM PRESSURE AND SOIL BEARING
STRENGTH OF 2000 LB/SQ FT.

ARROWS (→) INDICATE THRUST DIRECTION

NOTES:

- FIGURE (100%) AT THRUST BLOCK INDICATES PER CENT OF TOTAL THRUST TO BE APPLIED FOR BEARING AREA.
- CONCRETE FOR THRUST BLOCKS TO BE 2000 PSI.
- RESTRAINING RODS ARE REQUIRED AT ALL TEES AND AT BENDS DEFLECTING 22-1/2° OR MORE.
- WRAP THE PIPE WITH POLYETHYLENE WRAPPING PRIOR TO POURING THE THRUST BLOCK.
- SEE SOILS REPORT FOR BEARING STRENGTH OF SOIL. IN ABSENCE OF A SOILS REPORT, AN AVERAGE SOIL (SPADABLE MEDIUM CLAY) CAN BE ASSUMED TO HAVE A BEARING STRENGTH OF 2000 PSI.
- THRUST BLOCKS ARE NOT REQUIRED ON PVC WITH SOLVENT WELDED JOINTS.

SIDE THRUST PER 100 LB/SQ IN PRESSURE PER DEGREE OF DEFLECTION			
PIPE SIZE	SIDE THRUST-LB	PIPE SIZE	SIDE THRUST-LB
4	35	14	377
6	72	16	486
8	122	18	665
10	197	20	790
12	278	24	1150

MULTIPLY THRUST BY DEGREE OF DEFLECTION TO OBTAIN TOTAL THRUST

CONCRETE THRUST BLOCKS

NOT TO SCALE

City of Buffalo - Coliform Bacteria Testing Procedures

Note: Inspector may be either a Bolton and Menk employee or City of Buffalo Water Department employee

- 1) Contractor schedules sampling with inspector (24 hour notice required)
- 2) Inspector to be present to witness sample collection
- 3) Contractor takes sample per AWWA requirements. Sample bottle provided by contractor (Inspector may have bottles available but not guaranteed).
- 4) Water Laboratories, Inc. chain of custody form provided by inspector to contractor and filled out by contractor. Contractor provide an email address on the form if they want a copy of the results from the lab.
- 5) Contractor hands the collected sample and filled out chain of custody form to the inspector. Inspector places sample on ice.
- 6) Inspector takes sample and chain of custody form to Water Laboratories, Inc. lab within 24 hours of time of collection (Sample must be in lab incubator within 30 hours of collection time)
 - a. Lab Hours for Dropoff: 8am to 3:45 pm
 - b. Location: 333 Main St NW, Elk River, MN 55330
 - c. Phone: 763-441-7509
- 7) If asked by lab, test to be taken is "Colilert 18" (results are back within 18 hours) (This is the standard test used by most everyone)
- 8) Lab emails results and invoice to the following:
 - a. Nick Peterson - BMI - Nick.Peterson@bolton-menk.com
 - b. Justin Kannas - BMI - Justin.Kannas@bolton-menk.com
 - c. Cara Hesse - City of Buffalo Water Department - Cara.Hesse@ci.buffalo.mn.us
 - d. Contractor - If filled out on Chain of Custody Form
- 9) BMI reviews results and sends invoice to City Finance for payment with Project Name and Number



NOT TO SCALE

COLIFORM BACTERIA TESTING PROCEDURES



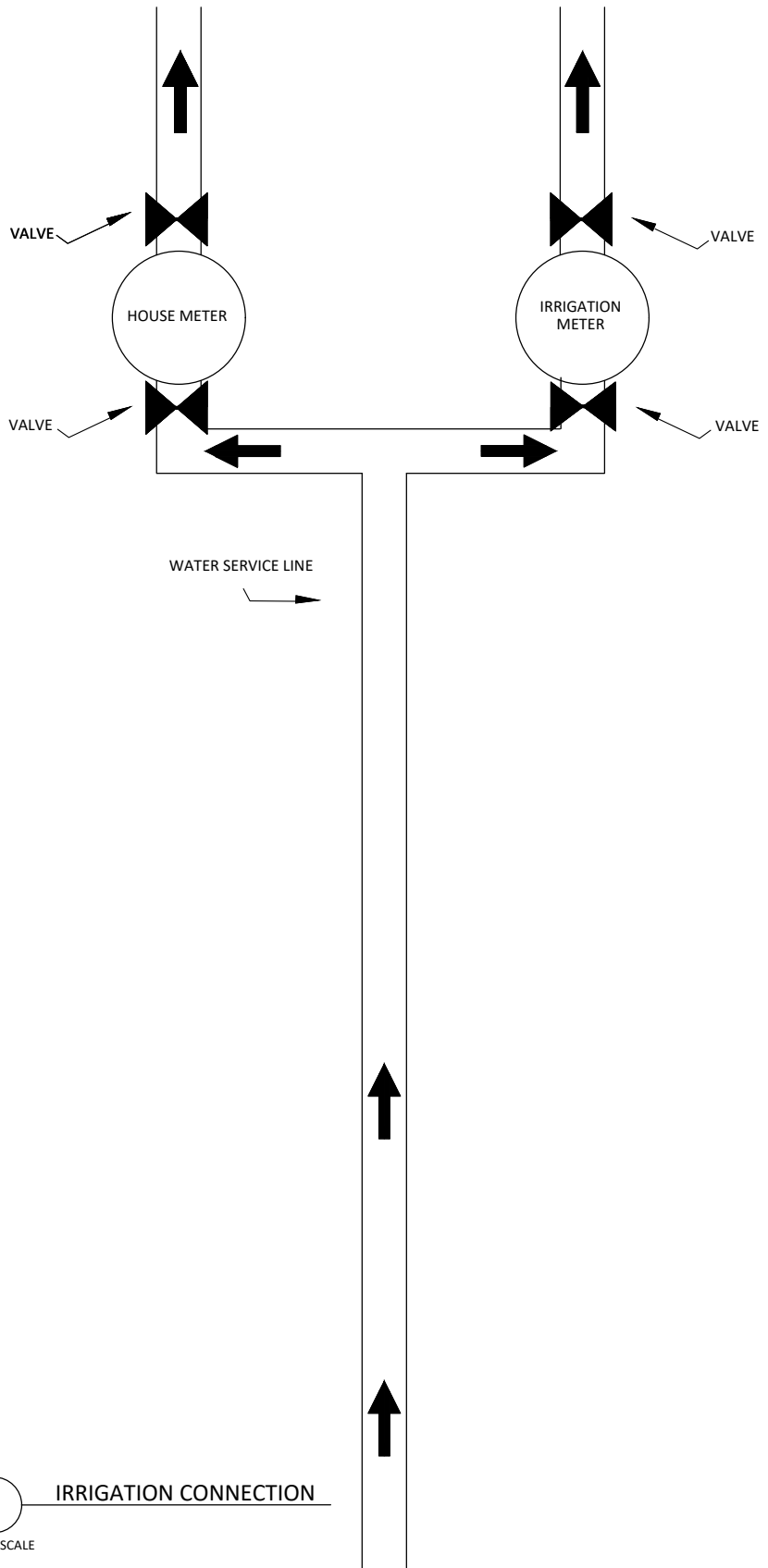
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COLIFORM BACTERIA TESTING PROCEDURES

May 1st, 2025

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6009



LEGEND



VALVE



METER



DIRECTION OF WATER FLOW



IRRIGATION CONNECTION

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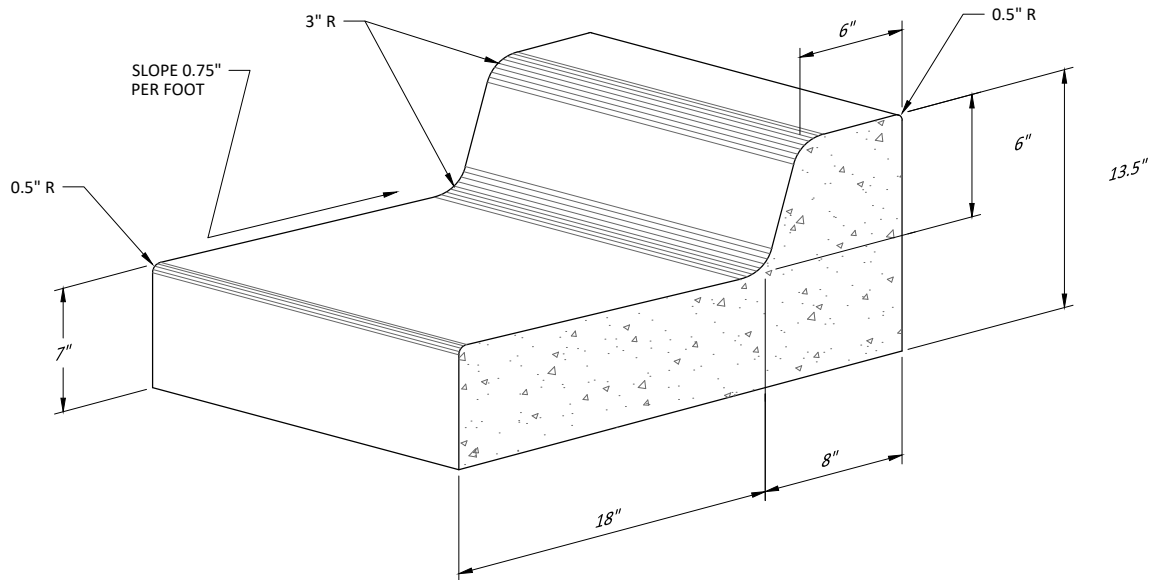
CITY OF BUFFALO, MINNESOTA

IRRIGATION CONNECTION

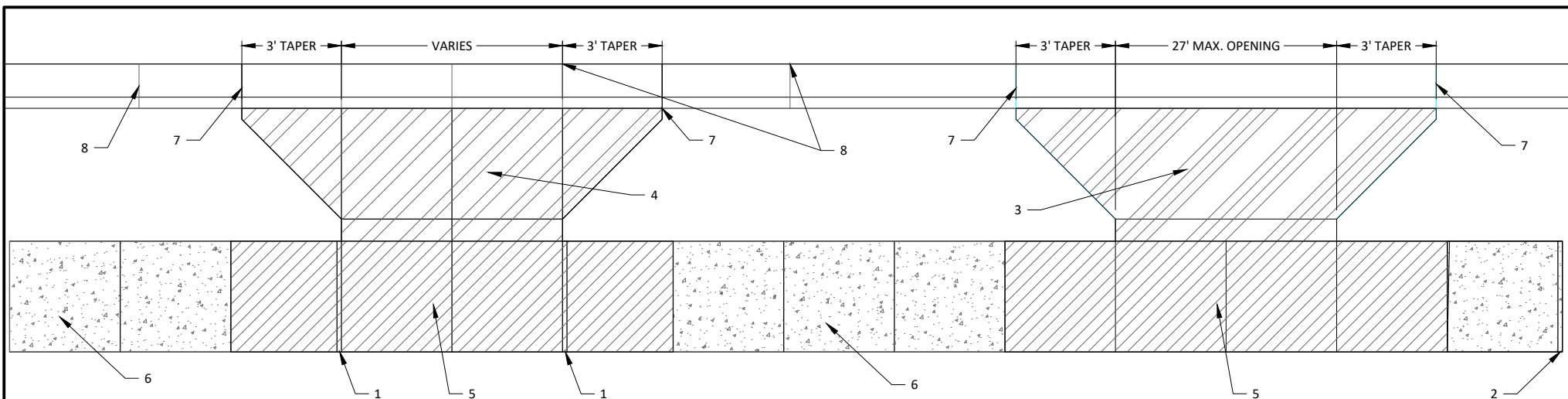
Jan 22, 2026

STD. DETAIL

6010

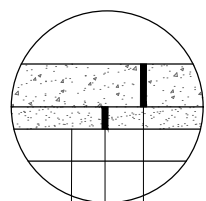



**CONCRETE CURB & GUTTER
DESIGN B618**
 NOT TO SCALE



NOTES:

1. 1/2" PREFORMED JOINT FILLER MATERIAL - AASHTO M213 (NOT REQUIRED WHEN CURB AND GUTTER OR WALK ARE ADJACENT TO BITUMINOUS PAVING.)
2. 1/2" EXPANSION JOINTS AT 60' (APPROXIMATE) MAXIMUM INTERVALS. (INCIDENTAL)
3. RESIDENTIAL APRONS TO BE SUPPLIED BY THE DEVELOPER. MATERIAL TO BE CONCRETE OR BITUMINOUS PAVEMENT.
4. COMMERCIAL DRIVEWAY APRONS TO BE CONSTRUCTED OF 7" CONCRETE PAVEMENT AND CONSTRUCTED IN CORRELATION WITH THE SIDEWALK AND CURB & GUTTER.
5. 7" CONCRETE WALK SHALL BE CONSTRUCTED THROUGH DRIVEWAYS AND EXTEND 5' OUT FROM EACH SIDE OF DRIVEWAY.
6. 5' WIDE AND 5" THICK CONCRETE WALK SHALL BE CONSTRUCTED IN LOCATIONS NOT AFFECTED BY VEHICLE TRAFFIC.
7. 1/2" EXPANSION JOINT
8. CURB SHALL HAVE CONTRACTION JOINTS (FORMED OR SAWED) AT 8' (APPROXIMATE) MAXIMUM INTERVALS.

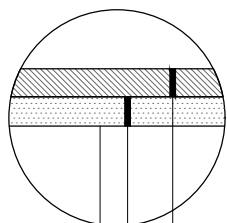


7" CONCRETE DRIVEWAY PAVEMENT
5" AGGREGATE BASE CL 5 (INCIDENTAL)
SUBGRADE PREPARATION (2112) (INCIDENTAL)



7" CONCRETE DRIVEWAY PAVEMENT

NOT TO SCALE

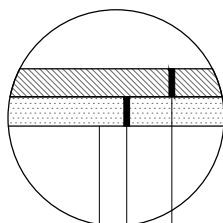


5" CONCRETE WALK
5" AGGREGATE BASE CL 5 (INCIDENTAL)
SUBGRADE PREPARATION (2112) (INCIDENTAL)



**5" CONCRETE WALK
TYPICAL**

NOT TO SCALE

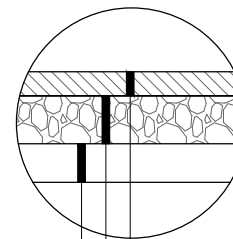


6" CONCRETE WALK
4" AGGREGATE BASE CL 5 (INCIDENTAL)
SUBGRADE PREPARATION (2112) (INCIDENTAL)



**6" CONCRETE WALK
PEDESTRIAN RAMP**

NOT TO SCALE



3" TYPE SP 9.5 WEARING COURSE (SPWEA240B)
9" AGGREGATE BASE, CL 5 (2211)
SUBGRADE PREPARATION (2112) (INCIDENTAL)



BITUMINOUS DRIVEWAY PAVEMENT

NOT TO SCALE

CONTRACTOR TO REFER TO MnDOT PEDESTRIAN RAMP CURB DETAILS - STANDARD PLAN 5-297.250 FOR PEDESTRIAN RAMP COMPLIANCE.

CONTRACTOR TO REFER TO MnDOT DRIVEWAY AND SIDEWALK DETAILS - STANDARD PLAN 5-297-254 FOR DRIVEWAY AND SIDEWALK COMPLIANCE.



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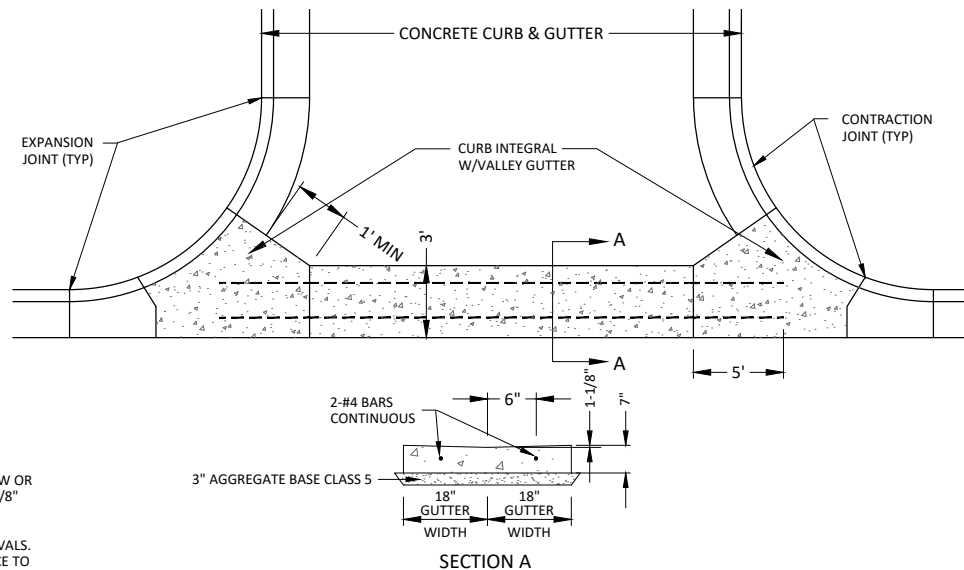
Buffalo
CITY OF BUFFALO, MINNESOTA

**DRIVEWAY & CONCRETE WALK
TYPICAL SECTIONS**

May 1st, 2025

STD. DETAIL

7002



NOTE:

1. VALLEY GUTTER JOINTS: SAW OR SCORE 1/8" MINIMUM TO 3/8" MAXIMUM WIDTH JOINTS A MINIMUM OF 2" DEPTH AT APPROXIMATELY 10' INTERVALS. SEAL JOINTS IN ACCORDANCE TO MnDOT 2301.3.N.3
2. THE CONCRETE VALLEY GUTTER SHALL BE CONSTRUCTED ON 3" AGGREGATE BASE, CLASS 5

CONCRETE VALLEY GUTTER

NOT TO SCALE



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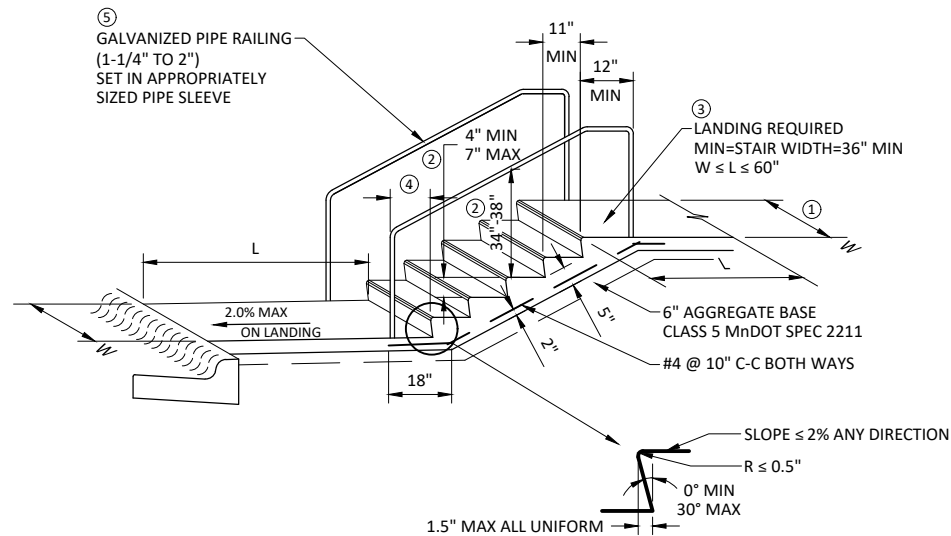
CITY OF BUFFALO, MINNESOTA

CONCRETE VALLEY GUTTER

May 1st, 2025

STD. DETAIL

7003



NOTES:

1. MIN WIDTH IS CLEAR BETWEEN HANDRAILS; CHECK WITH CITY BUILDING OFFICIAL FOR OCCUPANT LOADS ≥ 50 PERSONS
2. TREADS AND RISERS MUST BE UNIFORM WITH NO MORE THAN 3/8" DIFFERENCE FROM SMALLEST TO LARGEST TREAD OR RISER
3. SEE BUILDING CODE IF DOORS OPEN ON TO STAIR LANDING
4. MINIMUM ONE STAIR TREAD WIDTH
5. RAILINGS SHALL CONFORM TO AMERICANS WITH DISABILITIES ACT

CONCRETE STAIRWAY

NOT TO SCALE



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Buffalo

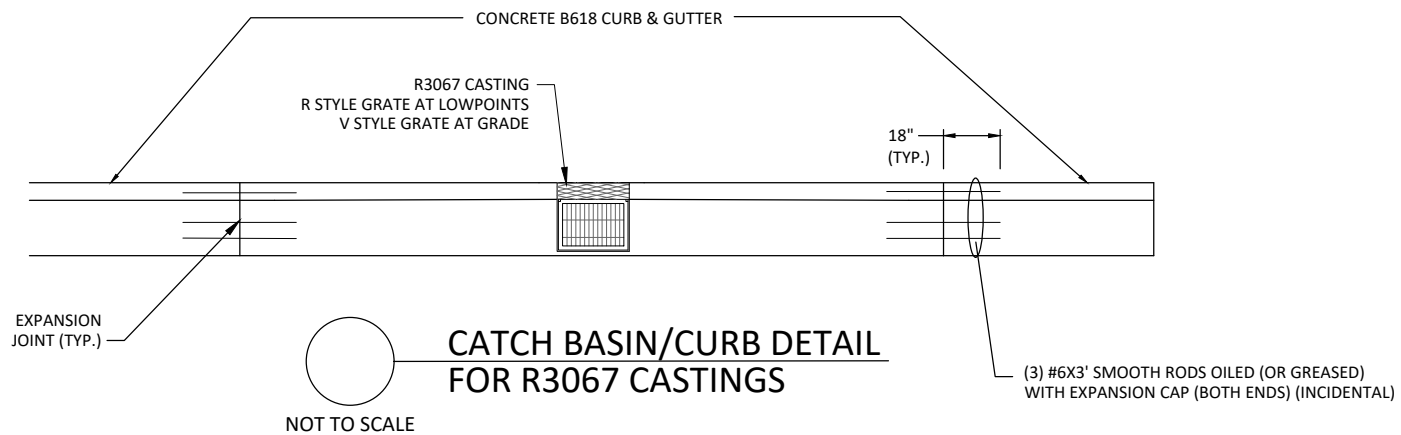
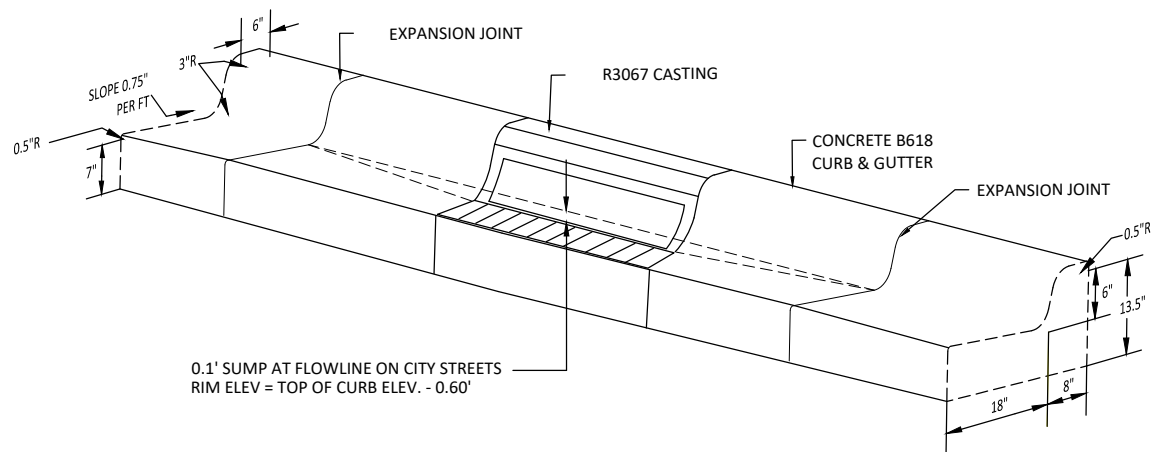
CITY OF BUFFALO, MINNESOTA

CONCRETE STAIRWAY

May 1st, 2025

STD. DETAIL

7004



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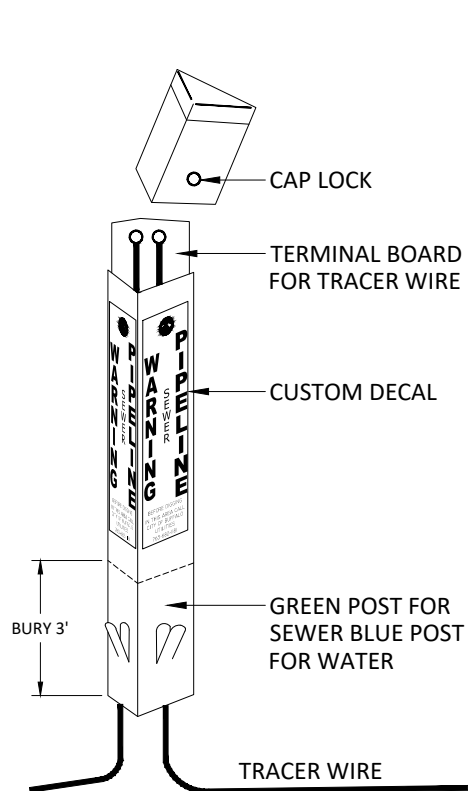
CITY OF BUFFALO, MINNESOTA

CATCH BASIN & CURB DETAIL
FOR R3067 CASTING

May 1st, 2025

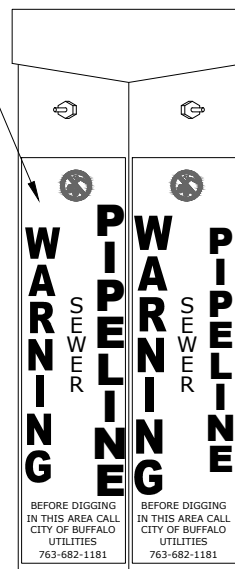
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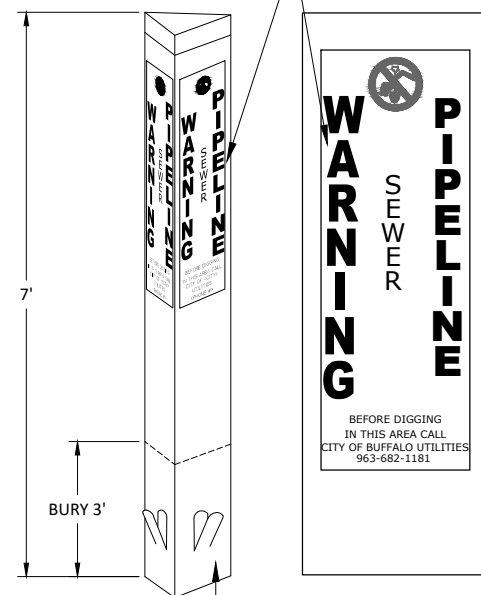
TRACER PEDESTAL

BLACK LETTERING ON
WHITE REFLECTIVE LABEL



TRACER PEDESTAL DECAL

BLACK LETTERING ON
WHITE REFLECTIVE LABEL



MANHOLE/GV MARKER POST

RHINO TRIVIEW TRACER PEDESTAL & UTILITY MARKER

NOT TO SCALE



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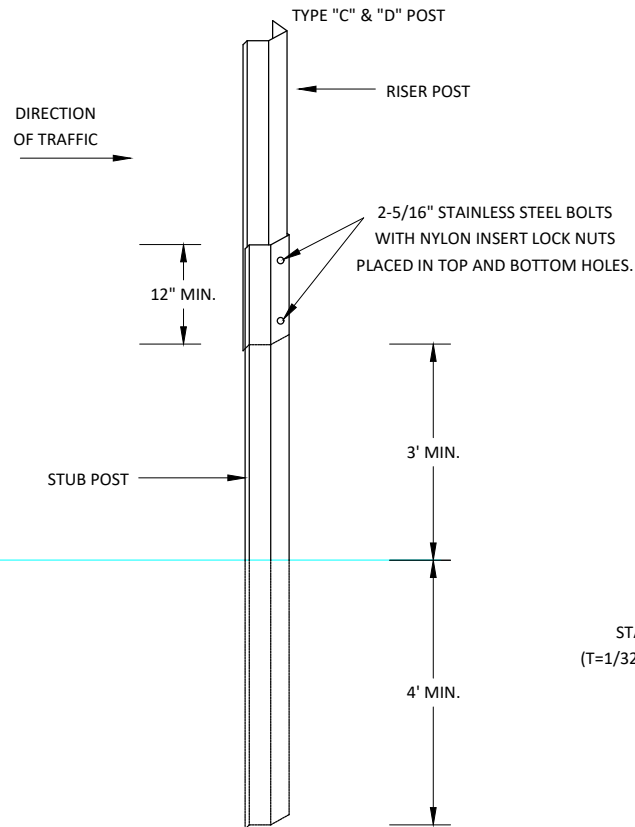
CITY OF BUFFALO, MINNESOTA

RHINO TRIVIEW TRACER PED &
UTILITY MARKER

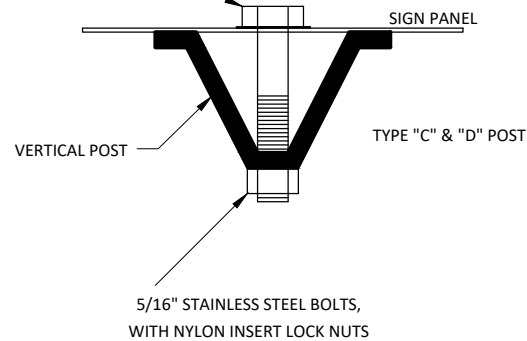
May 1st, 2025

STD. DETAIL

8001



STAINLESS STEEL & NYLON WASHER
(T=1/32" MIN., I.D.=3/8" MAX., O.D.=7/8" MAX.)



STREET SIGN & POST INSTALLATION NOT TO SCALE

1. USE 3# GALVANIZED STUB POSTS. DRIVEN STUB POSTS SHALL BE AT LEAST 8' LONG.
2. MOUNTING (PUNCHING CODE) FOR TYPE "C" SIGN PANELS SHALL BE INDICATED IN THE STANDARD SIGNS MANUAL UNLESS OTHERWISE SPECIFIED.
3. USE 2.0# GALVANIZED RISER POSTS AT LEAST 7' LONG.
4. USE STAINLESS STEEL BOLTS, WASHERS AND NYLON INSERT LOCK NUTS AS SHOWN FOR ALL GROUND MOUNTED SIGNS.
5. STAINLESS STEEL WASHER WITH SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.
6. SIGNS AND INSTALLATION OF SIGNS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND MN/DOT SPEC 2564 AND 3352. 7. SIGN BASE MATERIAL SHALL BE ALUMINUM.



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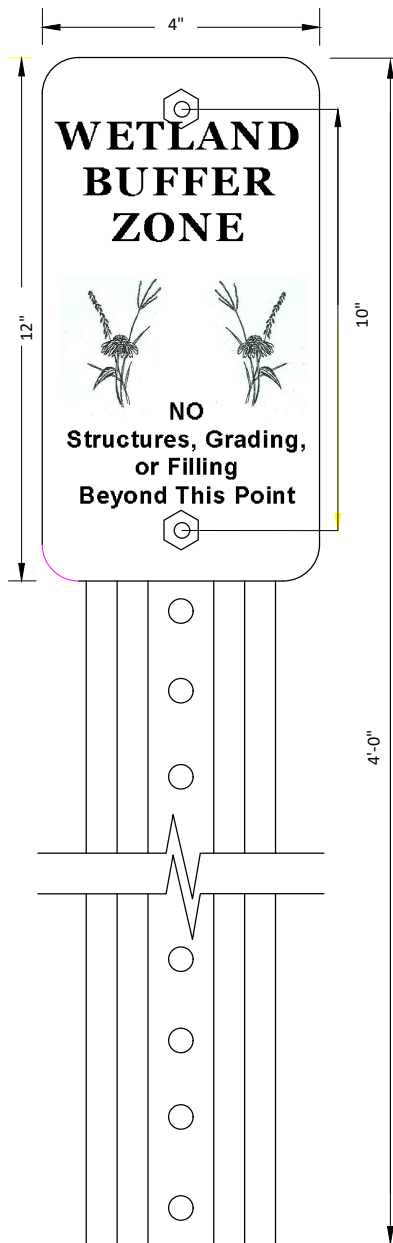
CITY OF BUFFALO, MINNESOTA

STREET SIGN & POST
INSTALLATION

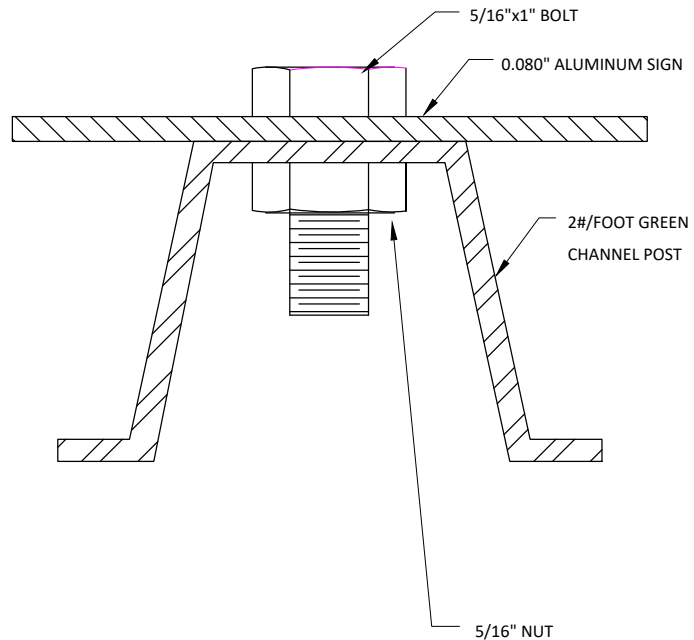
May 1st, 2025

STD. DETAIL

8002



SIGN POST MUST BE $\pm 1/2"$
OF PLUMB WHEN IT IS SET

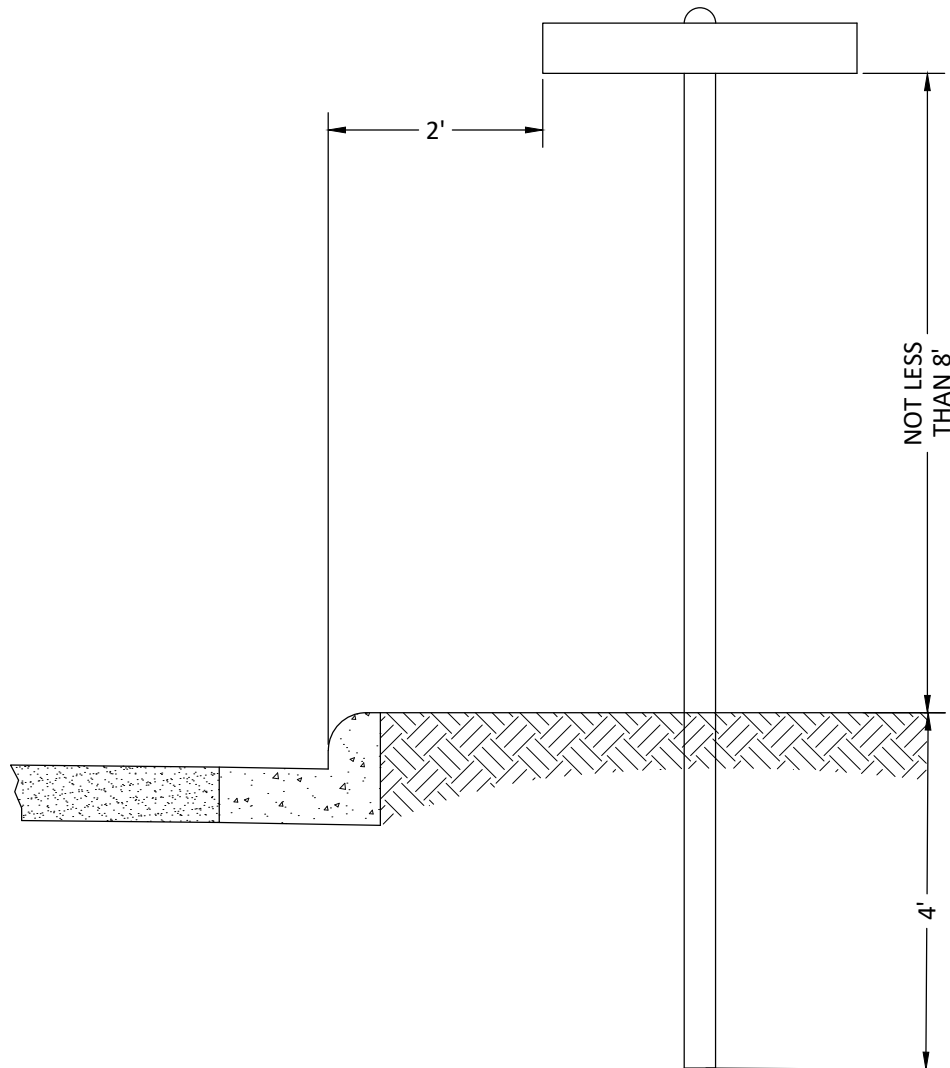


TYPICAL SECTION

NOTES:

1. MATERIALS TO BE SUPPLIED BY THE DEVELOPER/CONTRACTOR INCLUDE THE FOLLOWING:
 - (2) 4"x12"x0.080" ALUMINUM WETLAND BUFFER SIGNS
 - (2) 5/16"x2" CAD PLATED BOLTS
 - (4) 5/16" CAD PLATED NUTS
 - (1) 7' (2#/FOOT) GREEN CHANNEL POST
2. SIGNS TO BE INSTALLED BY THE DEVELOPER PER THE DRAWING SHOWN AT THE LEFT.
3. AS A GENERAL RULE, WETLAND BUFFER SIGNS SHOULD BE PLACED AT EVERY OTHER LOT CORNER. HOWEVER, AT NO TIME SHOULD THERE BE MORE THAN 200' BETWEEN SIGNS IN UNFORESTED AREAS AND 150' IN FORESTED AREAS.
4. SIGN PANELS SHALL CONSIST OF GREEN BACKGROUND WITH WHITE LETTERING, VIP SHEETING

WETLAND BUFFER SIGN INSTALLATION
N.T.S.



SIGN POSTS SHALL BE CYLINDRICAL TUBE STEEL POSTS. THE POST SHALL BE 12' LONG, WITH 2-3/8" OD, AND SHALL MEET THE FOLLOWING:

MATERIAL: GALVANIZED FINISH, ROLL FORMED FROM 12 GAUGE (.080 U.S.S GAUGE) COLD ROLLED STEEL, GALVANIZED MATERIAL ASTM DES. A-446 GRADE A.

THE POST AND SIGN HARDWARE SHALL INCLUDE 1 E250 SINGLE BRACKET OR 1 E450 4-WAY BRACKET. BRACKET AND HARDWARE SHALL BE BLACK.

STREET NAME SIGNS SHALL BE A 9" ALUMINUM .080 GAUGE PLATE WITH 6" UPPERCASE BLACK LETTERS, NUMBERS, E SERIES BORDER, AND MARKINGS, SERIES C LETTERS ON A WHITE BACKGROUND, AS SUPPLIED BY EARL F. ANDERSON.

NO SUPERScript LETTERS SHALL BE USED.

THE REFLECTIVITY OF THE SIGN SHALL BE HI-INTENSITY GRADE.

SIGNS AND INSTALLATION OF SIGNS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES".

SIGN POST SHALL BE DRIVEN INTO THE GROUND A MINIMUM OF 4-FEET.

EXAMPLES

30x9	36x9	42x9	48x9	48x9
6TH ST S	1ST AVE S	WINDRUSH RD	BAKER AVE NW	RIDGEHAVEN DR
2ND ST S	MYRTLE ST	SUNDANCE E	SUNNY HILL RD	RIDGEHAVEN CIR
	INGALLS DR	SUNDANCE W	LOOKOUT POINT	LAWRENCE PKWY
	6TH AVE S	LAKEVIEW DR	OVERLOOK DR	SUNRISE HEIGHTS CIR
		SERENITY CIR	BLUFFS PKWY	HONEY SUCKLE CT
		HARVEST TRL	LANDSDOWN RD	BRADSHAW AVE
		CHARLES CT	HEARTLAND RD	CAROLINE PATH
		WILDER WAY		SETTLERS PKWY

○ STREET NAME SIGN AND POST
NOT TO SCALE



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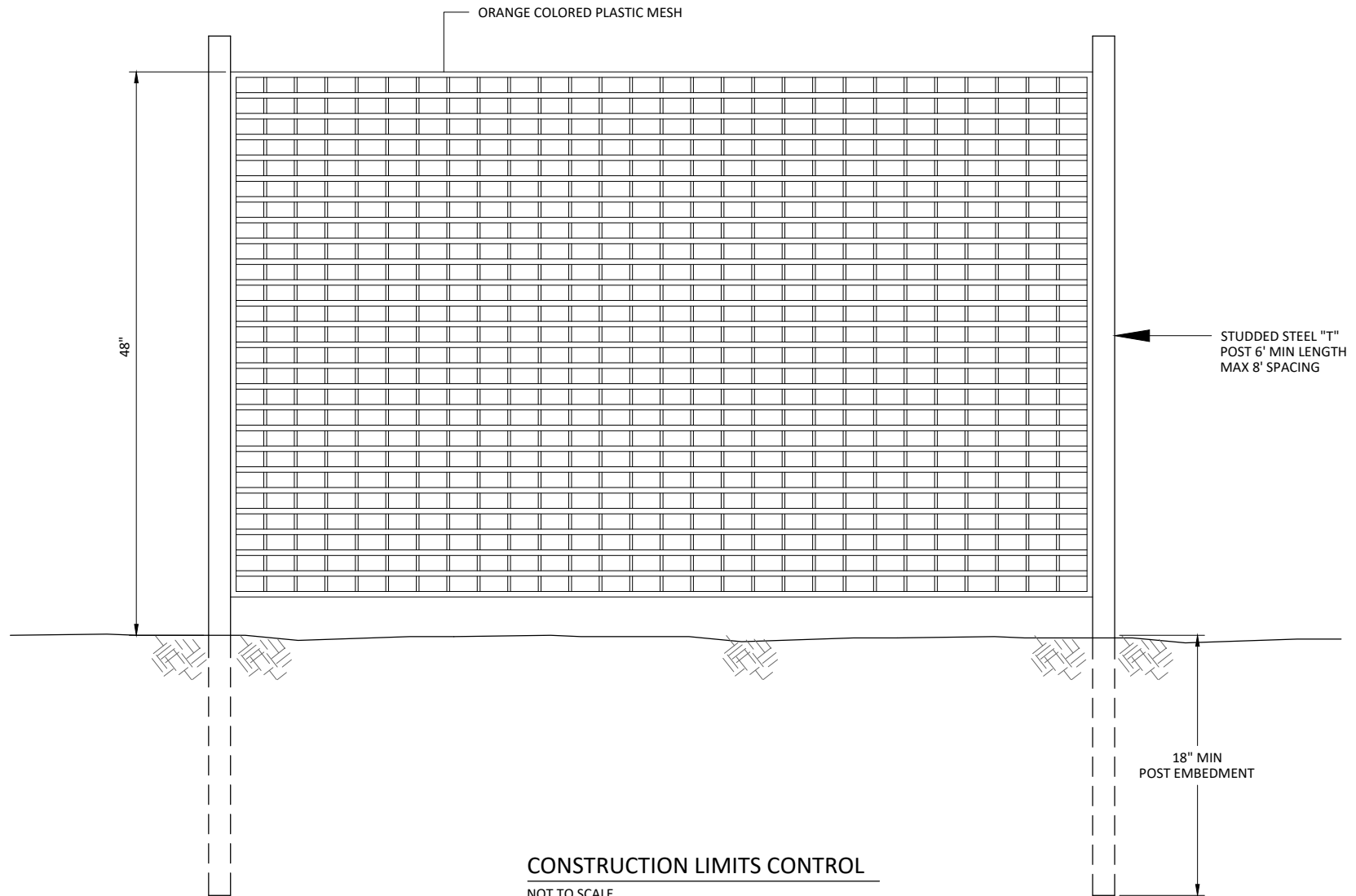
CITY OF BUFFALO, MINNESOTA

STREET NAME SIGN & POST

May 1st, 2025

STD. DETAIL

8004



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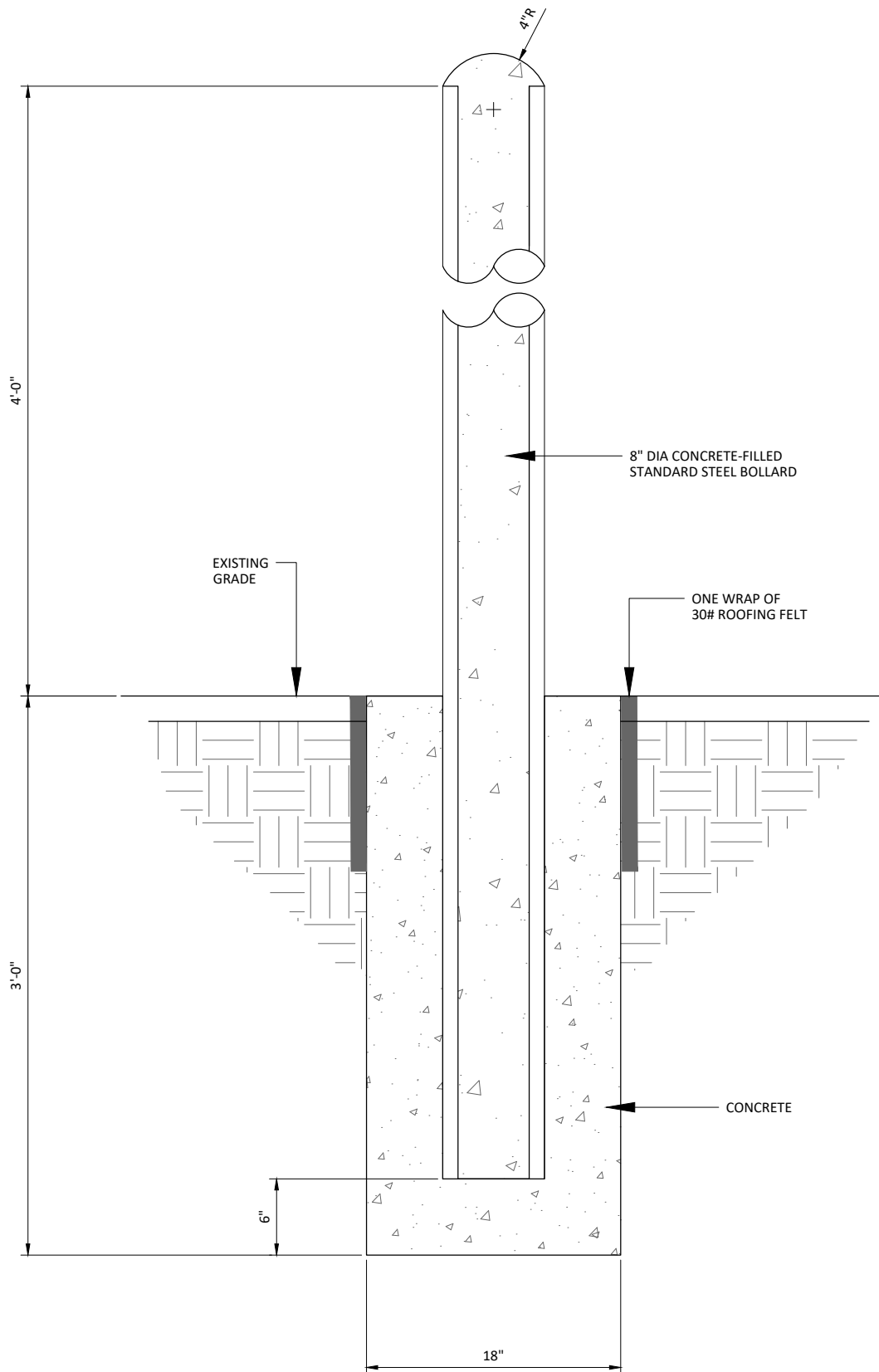
CITY OF BUFFALO, MINNESOTA

CONSTRUCTION LIMITS
CONTROL

May 1st, 2025

STD. DETAIL

9001



BOLLARD GUARD POST
NOT TO SCALE



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CITY OF BUFFALO, MINNESOTA

BOLLARD GUARD POST

May 1st, 2025

STD. DETAIL
9002