STANDARD SPECIFICATIONS
and
CONSTRUCTION REQUIREMENTS

for

Streets, Water, Storm Sewer and Sanitary Sewer System

City of Rice Lake

Updated 8/2024

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STANDARD SPECIFICATIONS AND CONSTRUCTION REQUIREMENTS

1. ROAD REQUIREMENTS

a. Soil borings may be required to be completed on a case-by-case basis as directed by the City of Rice Lake prior to the design of any road project. The borings shall be evaluated by a registered professional engineer and recommendations made in writing. Borings shall be located within the project area at intervals necessary to accurately assess the soil conditions within the project area. Boring information shall be included on the drawings. A copy of the boring information and geotechnical report signed by a licensed engineer shall be submitted to the City.
b. Where required by the City Planning Commission during zoning approval, pedestrian walkways shall be constructed.
c. All newly constructed roadways shall be paved unless a waiver is granted by the City.
d. The City Engineer shall make a determination whether the proposed roadway will have an urban section or rural section requirement. Minimum typical sections are included herein.
e. Half or partial roads will not be permitted.
f. The typical street section included herein shall be considered the minimum with regard to materials and thicknesses. The section may be modified based upon the results of the soil borings as determined by the design engineer or the City Engineer. The section shall not be reduced in materials or thickness under any conditions.
g. Roads shall be laid out so as to intersect at right angles. The developer may apply for a waiver from the City when such an intersection is not feasible, but in no case shall an intersection of two roads be at less than 70 degrees.
h. Intersections shall be designed with as flat a grade as possible while still providing adequate drainage.
i. For dead end roads, the requirements of the Current International Fire Code Appendix D shall be met.
j. All culverts perpendicular to the road shall be no less than 12 inches in diameter and of a material approved the City Engineer. Larger sizes may be required based on design considerations.
k. Prior to acceptance by the City, the Developer shall post all new roadways as “private roads”.
l. All maintenance costs of new roadways, including snowplowing, shall be the responsibility of the Developer until the City accepts the roadway.
m. Where a cul-de-sac is designed, the minimum right of way shall be 120-feet in diameter with an 80-foot diameter paved area.

2. WATER SYSTEM REQUIREMENTS

a. Minimum water main diameter shall be 8 inches unless approved or directed otherwise by the City Engineer. The existing water model system will be run by the City Engineer for all proposed water system extensions. Costs for this analysis shall be paid for by the Developer.
b. The City may require upsizing of water mains for future projects. Where upsizing is required, payment for the differential cost will be determined on a case-by-case basis.

c. The City may require upsizing of existing mains, pressure reducing stations or booster stations to provide adequate flows to the development area. Where upsizing is required, payment for the differential cost will be determined on a case-by-case basis.
d. All water booster stations and water pressure reducing stations to be owned by the City shall be designed and constructed by the City and paid for by the Developer.

3. WASTEWATER COLLECTION SYSTEM AND LIFT STATION REQUIREMENTS

a. The City will determine on a case-by-case basis if any wastewater lift stations required for the project serving more than one residence or building will be owned by the Developer or the City. The existing sewer model system will be run by the City Engineer for all proposed wastewater collection system extensions. Costs for this analysis shall be paid for by the Developer.
b. All wastewater lift stations to be owned by the City shall be designed and constructed by the City and paid for by the Developer.
c. The City may require upsizing of sewer mains for future projects. Where upsizing is required, payment for the differential cost will be determined on a case-by-case basis.
d. The City may require upsizing of existing sewer mains or lift stations to provide adequate capacity to the development area. Where upsizing is required, payment for the differential cost will be determined on a case-by-case basis.
e. The City may allow individual sewage grinder pumps to be installed to service individual lots, however, any individual grinder pump stations installed will be owned, operated, and maintained by the property owner. Projects involving the installation of individual grinder stations will be reviewed by the City Engineer and recommendations made on a case-by-case basis.

4. STORM WATER REQUIREMENTS

The storm water design shall be submitted to City Engineer for review and shall comply with the requirements in Ordinance #35 and the City of Rice Lake Stormwater Management Design Standards.

5. SPECIAL CONSTRUCTION REQUIREMENTS

a. The City Engineers Association of Minnesota (CEAM) “Standard Specifications” are amended as follows:

S-1 2600.3 CONSTRUCTION REQUIREMENTS

- Add the following paragraph under **C3, Directional Boring**: Directional Boring shall only be used with prior approval by the City Engineer.

S-2 2611.2 MATERIALS

- Paragraph 2611.2B(4) shall be **REPLACED** with the following:
  Hydrant to be American Flow Control waterous 5-1/4 in. pacer fire hydrant traffic model wb-67-250, left open (c.c.w.) with a pentagon shape non-weathershield operating nut and nozzle cap. Hydrant shall have an upper standpipe length of 28". Bury depth (depth of trench) shall be 7'-6" or greater to meet hydrant setting requirements. The bottom connection shall be a 6" mj connection, or Alpha style connection and be asphaltic coated. Nozzle cap chains are required. The hydrant shall be painted yellow.

S-3 2621.2 MATERIALS

- Add the following paragraph under **A, Sewer Pipe and Service Line Materials:**
  All pipes shall be Polyvinyl Chloride (PVC) unless approved otherwise by the City Engineer. All gravity sanitary sewer laterals shall meet the Current State Plumbing Code. All pressure sewer shall be HDPE SDR 11.
- saddles
- Add the following paragraph under **A9, High Density Polyethylene Pipe:**
  High-density polyethylene pipe shall be manufactured from materials conforming to ASTM D1248, Grade P34 with cell classification conforming to ASTM D3350. Pipe shall be manufactured according to ASTM D3035 or D2239. All joints shall be butt fusion type conforming to ASTM D3261. All pipe fittings shall be DR 11 and have a minimum working pressure of 160 psi. Pipe size and designation (nominal diameter and IPS or DIPS designation) shall be directed by the City Engineer. All fittings shall be molded polyethylene fused-type. All pressure sewers shall be high-density polyethylene pipe.
- Add the following paragraph under **F, Tracer Wire:**
  Tracer wire for all applications shall meet, at a minimum, those standards prepared by the Minnesota Rural Water Association sample tracer-wire specification. This specification has been added to the City specification by reference. Copies of this specification are available online at https://www.mrwa.com/PDF/TracerWireSpecGuideFinalweb7.pdf.
- Add the following paragraph under **G, Manholes:**
  All subsurface precast concrete structures, including manholes, shall have mechanically tied joints in areas determined by City Engineer.

S-4 2621.3 CONSTRUCTION REQUIREMENTS

- Add the following paragraph under **A2, Pipe Laying Operations:**
  Minimum depth of bury over all pressure laterals and mains shall be 7.5 feet unless insulated and/or heat traced per the standard details. All non-metallic pipe shall have tracer wire.
- Add the following paragraph under **C, Sewer Service Installations:**
  All references to outside drops shall be deleted. All drops shall be inside unless approved otherwise by the City Engineer.
- Add the following paragraph under **C, Sewer Service Installations:**

All gravity sanitary sewer laterals shall be installed with a cleanout adjacent to the structure. The cleanout must be accessible for City sewer inspection purposes.

- Add the following paragraph under **C, Sewer Service Installations:**
  All sanitary laterals shall be pressure tested from R.O.W. clean out to house following Minnesota State Plumbing Code This specification will be followed at the time any replacement has been conducted.
- Add the following paragraph under **D, Manhole & Catch Basin Structures:**
  All concrete manholes shall have a precast integral base. Catch Basin shall have precast base and precast cone section. Riser section joints of the tongue and groove design shall be sealed with rubber gaskets.
- Add the following paragraph under **E, Sanitary Sewer Leakage Testing:**
  All mains shall be air tested, deflection tested and televised.

  Hydrostatic tests shall be conducted on all force mains,. Minimum test duration shall be 2 hours. Force mains shall be tested at 150 psi.. The hydrostatic test, pressure requirement for an acceptable test shall be a maximum pressure drop of 2 psi during the last hour of the two-hour pressure test. If this test requirement cannot be met, the Contractor shall investigate the cause, make corrections, and retest until the pressure drop requirement can be met.

  Only if several consecutive tests indicate a consistent pressure drop and only after the Contractor has made numerous attempts to resolve the problem, acceptable to the Engineer, may the Contractor request in writing and the Engineer consider the use of the leakage test. The leakage test may be performed by the Contractor to determine the magnitude of the leak, however, meeting the leakage allowance shall not automatically be considered acceptance, in lieu of the pressure test, for the section being tested. Final acceptance shall be at the discretion of the Engineer.

  When allowed, the leakage test shall be performed in accordance with AWWA C-600, Section 4.1.5, 4.1.6 and the line will be accepted as per Section 4.1.7.

- Add subsection **H, Pressure Sewer and Forcemain Installation**
- Add the following paragraph under **H, Pressure Sewer and Forcemain Installation:**
  Pressure application and testing equipment used for sanitary and pressure sewer testing shall not be used for water installation testing.
- Add the following paragraph under **H, Pressure Sewer and Forcemain Installation:**
  Polyethylene pipe joints shall conform to the requirements of AWWA C-906, and shall be made by the Thermal Butt-Fusion Method, electrofused, approved mechanical joint couplings, or approved socket fusing.
- Add the following paragraph under **H, Pressure Sewer and Forcemain Installation:**
  All HDPE pipe fusing personnel shall have City approved training and certification for the appropriate pipe size or equivalent as approved by the Engineer.

- Add the following paragraph**.19**
  All sanitary manholes shall be vacuum tested. Manhole will be accepted if time for vacuum to drop from 10" to 9" of mercury exceeds the following:

Depth/Feet	Test Time/Seconds
8	20
10	25
12	30
14	35
16	40
18	45
20	50
22	55
24	59
26	64
28	69
30	74

- Add the following paragraph under **I, Continuity Test:**
  A continuity test shall be performed on all tracer wire in the presence of the City or their designated representative. The City will not accept any installations without tracer wire or where the tracer wire does not pass a continuity test.

S-5 **2621.5 METHOD OF MEASUREMENT**

- All references to outside drop connections shall be replaced with inside drop connections.

City of Rice Lake, Minnesota

Public Works Department

Standard Specifications for Construction

APPENDIX A

Standard Detail Drawings

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W-8	SERVICE INSULATION
W-9	CAST IRON WATER MANHOLE FRAME AND COVER
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STREET DETAILS

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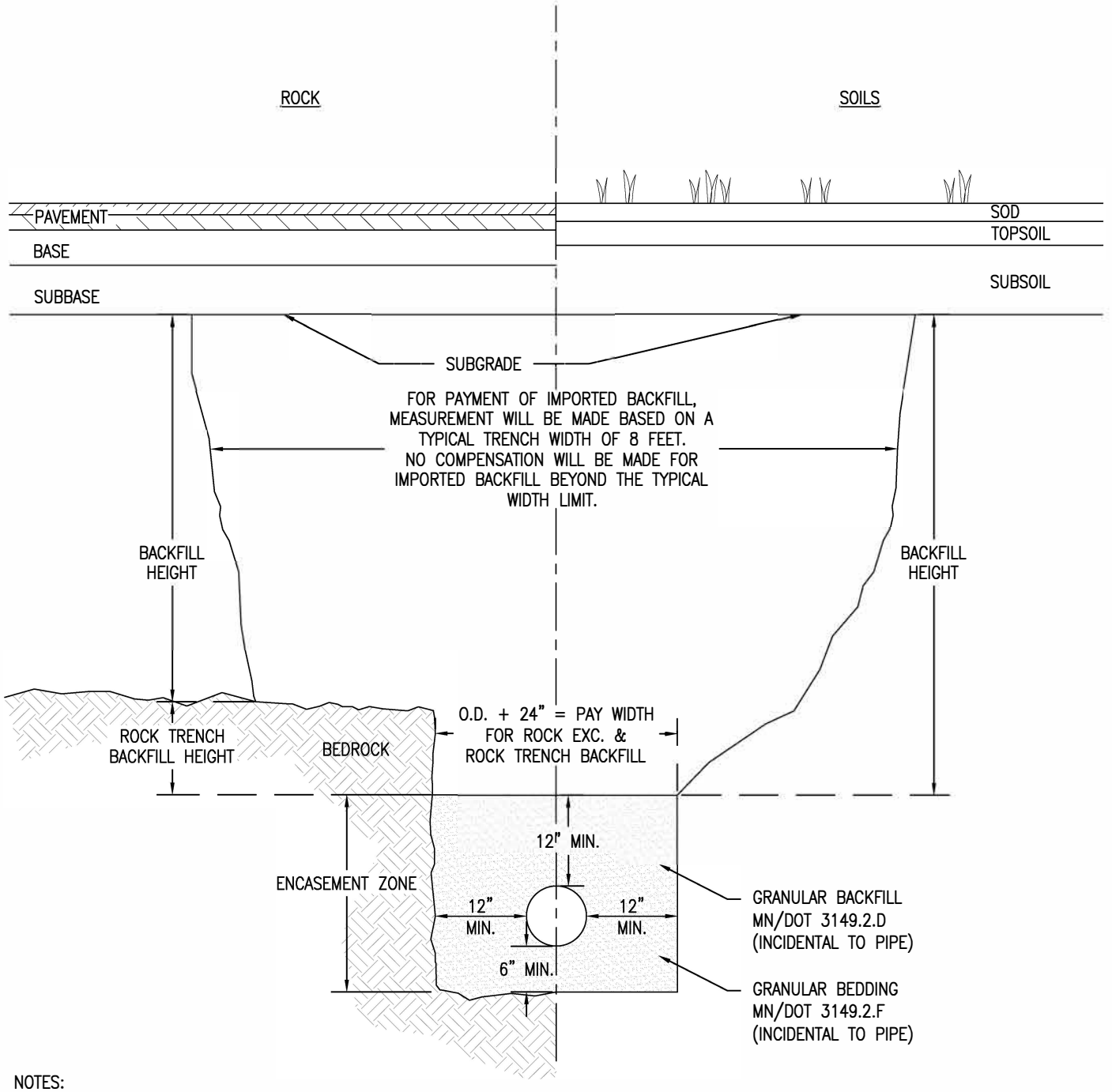
STR-1	TYPICAL STREET RESTORATION OVER TRENCH
STR-2	TYPICAL URBAN STREET SECTION
STR-3	TYPICAL RURAL STREET BITUMINOUS SECTION
STR-4	TYPICAL RURAL STREET GRAVEL SECTION
STR-5	PERFORATED PIPE DETAIL

TRANSPORTATION DETAILS

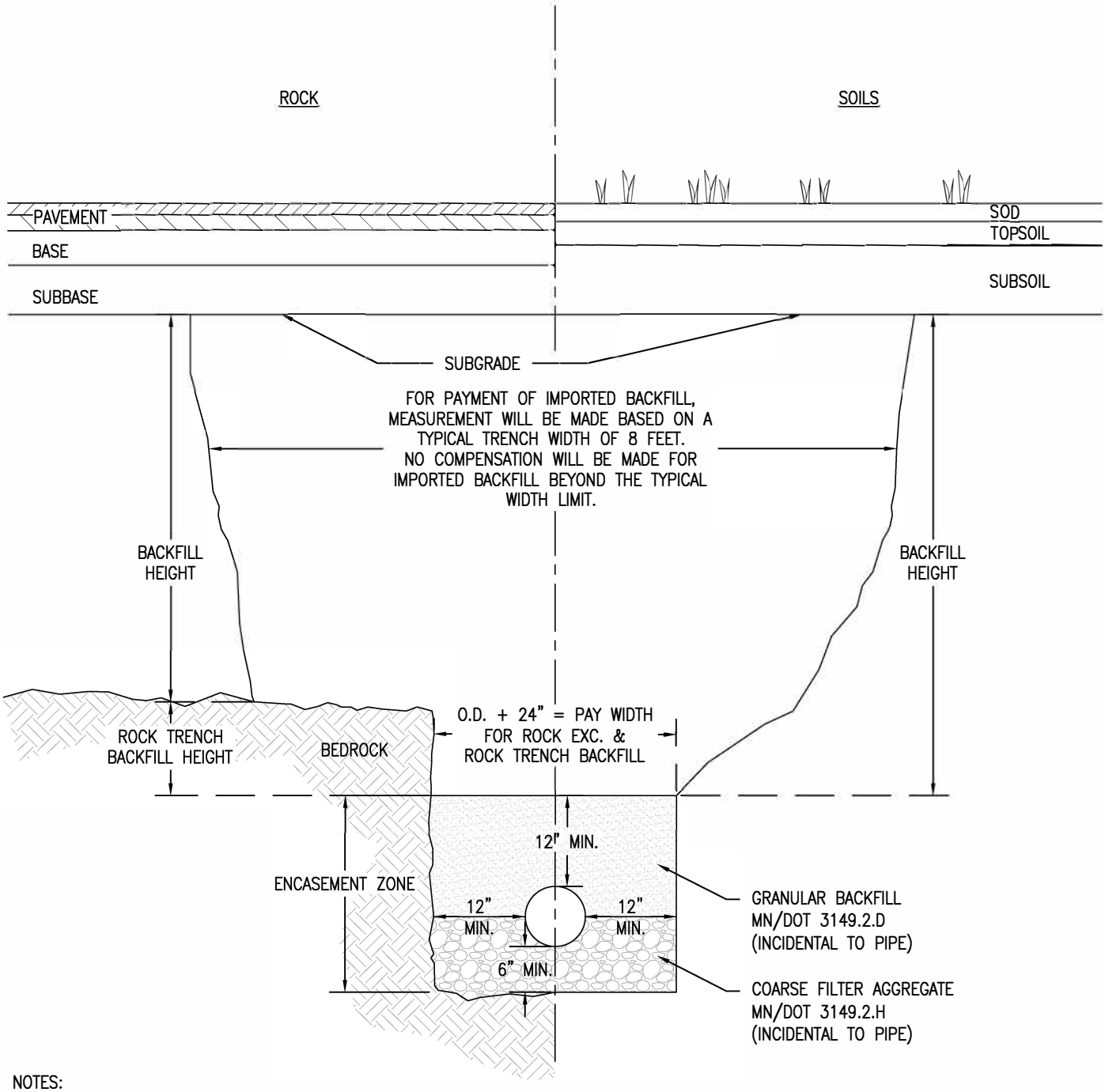
T-1	SIGN INSTALLATION DETAIL



NOTES:

1. EXCESS EXCAVATION MATERIAL SHALL BE DISPOSED OF OFF PROJECT R.O.W. (INCIDENTAL)
2. PAY WIDTH FOR ROCK EXCAVATION SHALL BE BASED ON OUTSIDE DIAMETER OF PIPE PLUS 24".
3. A MINIMUM OF 1 CUBIC YARD OF STRUCTURE EXCAVATION, CLASS R, WILL BE PAID FOR EVERY 10' OF PIPE WHERE ROCK REMOVAL IS REQUIRED.
4. TRENCH STABILIZATION BEDDING MATERIAL MAY BE USED IN AREAS AS DETERMINED BY THE ENGINEER.
5. ENCASEMENT ZONE MATERIAL SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY.
6. BACKFILL SHALL BE SELECT GRADING MATERIAL FOUND ON-SITE WHEN DEEMED SUITABLE BY THE ENGINEER OR AS OTHERWISE DEFINED IN THE PROJECT SPECIAL PROVISIONS. WHEN ON-SITE MATERIAL IS NOT SUITABLE AND WHEN BACKFILL MATERIAL IS NOT SPECIFIED, IMPORTED MATERIAL MEETING MN/DOT 3149.2.D.1 GRANULAR BACKFILL SHALL BE PROVIDED. USE OF NATIVE ON-SITE MATERIAL IS INCIDENTAL.
7. COMPACT BACKFILL MATERIALS TO 100% OF MAXIMUM STANDARD PROCTOR DENSITY FOR THE UPPER 3' BELOW THE SUBGRADE, AND TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY BELOW THE UPPER 3'.

City of Rice Lake	DUCTILE IRON, PE WATER MAIN, PRESSURE SEWER, & FORCE MAIN BEDDING	EX-1	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	



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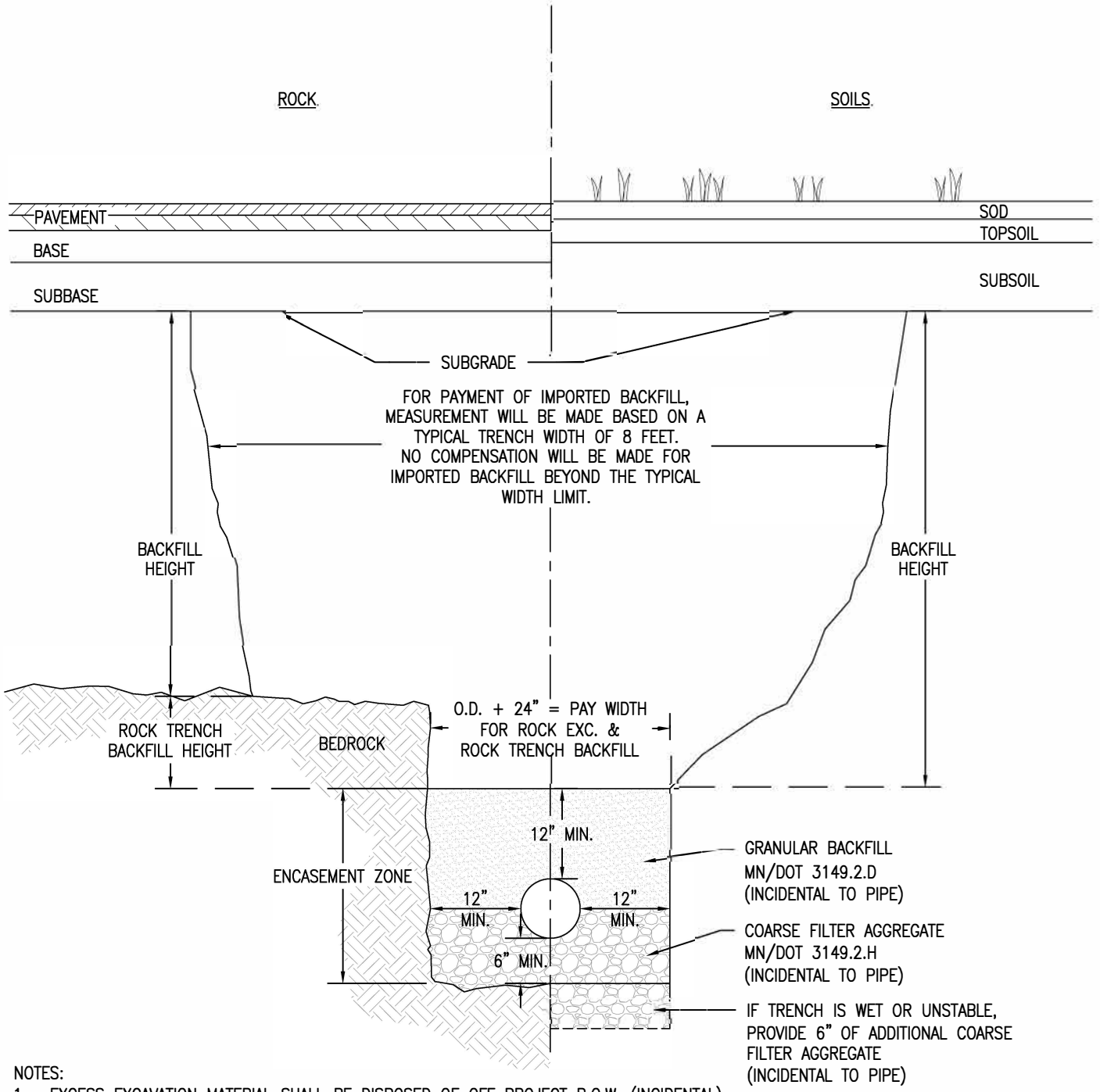
7. COMPACT BACKFILL MATERIALS TO 100% OF MAXIMUM STANDARD PROCTOR DENSITY FOR THE UPPER 3' BELOW THE SUBGRADE, AND TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY BELOW THE UPPER 3'.

City of Rice Lake	PVC AND CORRUGATED POLYETHYLENE SEWER PIPE BEDDING DETAIL	EX-2	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	



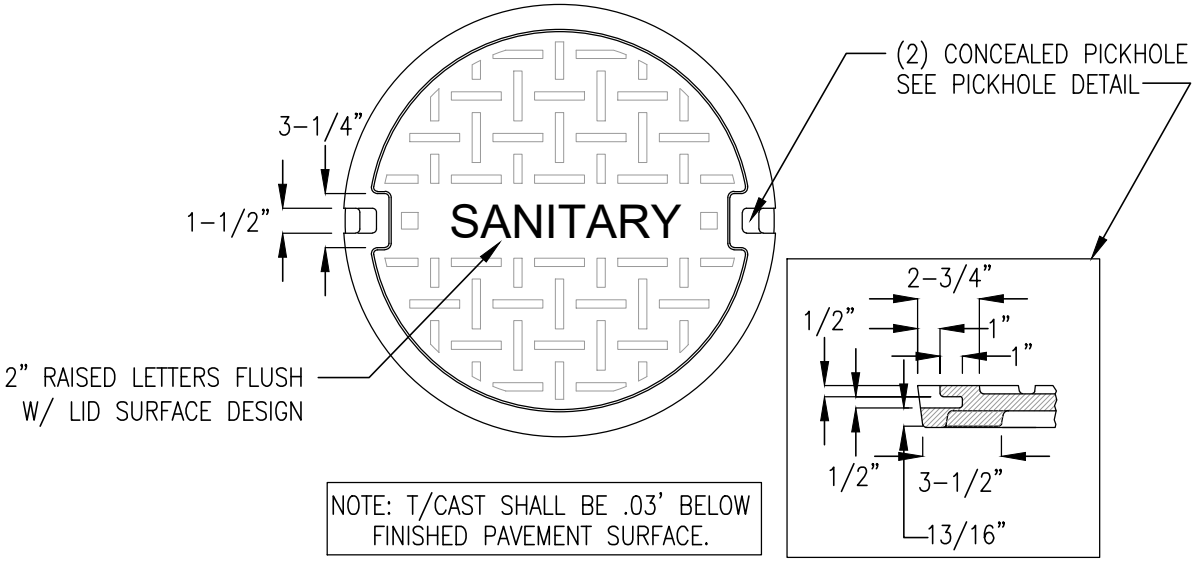
NOTES:

1. EXCESS EXCAVATION MATERIAL SHALL BE DISPOSED OF OFF PROJECT R.O.W. (INCIDENTAL)
2. PAY WIDTH FOR ROCK EXCAVATION SHALL BE BASED ON OUTSIDE DIAMETER OF PIPE PLUS 24".
3. A MINIMUM OF 1 CUBIC YARD OF STRUCTURE EXCAVATION, CLASS R, WILL BE PAID FOR EVERY 10' OF PIPE WHERE ROCK REMOVAL IS REQUIRED.
4. TRENCH STABILIZATION BEDDING MATERIAL MAY BE USED IN AREAS AS DETERMINED BY THE ENGINEER.
5. ENCASEMENT ZONE MATERIAL SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY.
6. BACKFILL SHALL BE SELECT GRADING MATERIAL FOUND ON-SITE WHEN DEEMED SUITABLE BY THE ENGINEER OR AS OTHERWISE DEFINED IN THE PROJECT SPECIAL PROVISIONS. WHEN ON-SITE MATERIAL IS NOT SUITABLE AND WHEN BACKFILL MATERIAL IS NOT SPECIFIED, IMPORTED MATERIAL MEETING MN/DOT 3149.2.D.1 GRANULAR BACKFILL SHALL BE PROVIDED. USE OF NATIVE ON-SITE MATERIAL IS INCIDENTAL.
7. COMPACT BACKFILL MATERIALS TO 100% OF MAXIMUM STANDARD PROCTOR DENSITY FOR THE UPPER 3' BELOW THE SUBGRADE, AND TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY BELOW THE UPPER 3'.

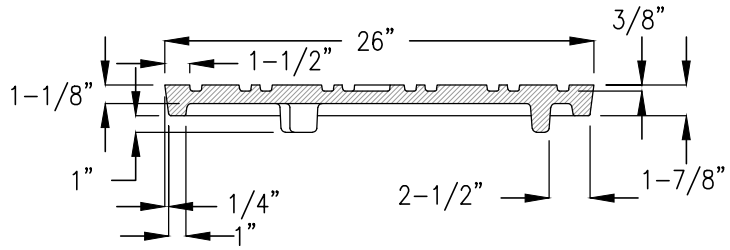
City of Rice Lake	CONCRETE STORM SEWER BEDDING	EX-3	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	

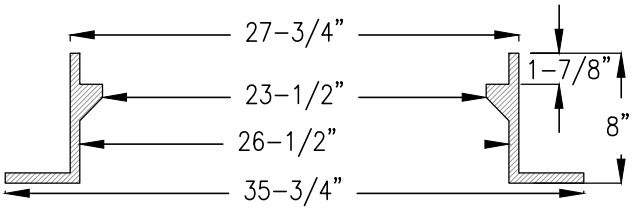
WGT. 298 LBS		MATERIAL: GRAY IRON CLASS 35B
WGT. 122 LBS	TOTAL WEIGHT 420 LBS.	SPEC.: ASTM A-48-74

NOTE: SUITABLE FOR HS25 WHEEL LOADS

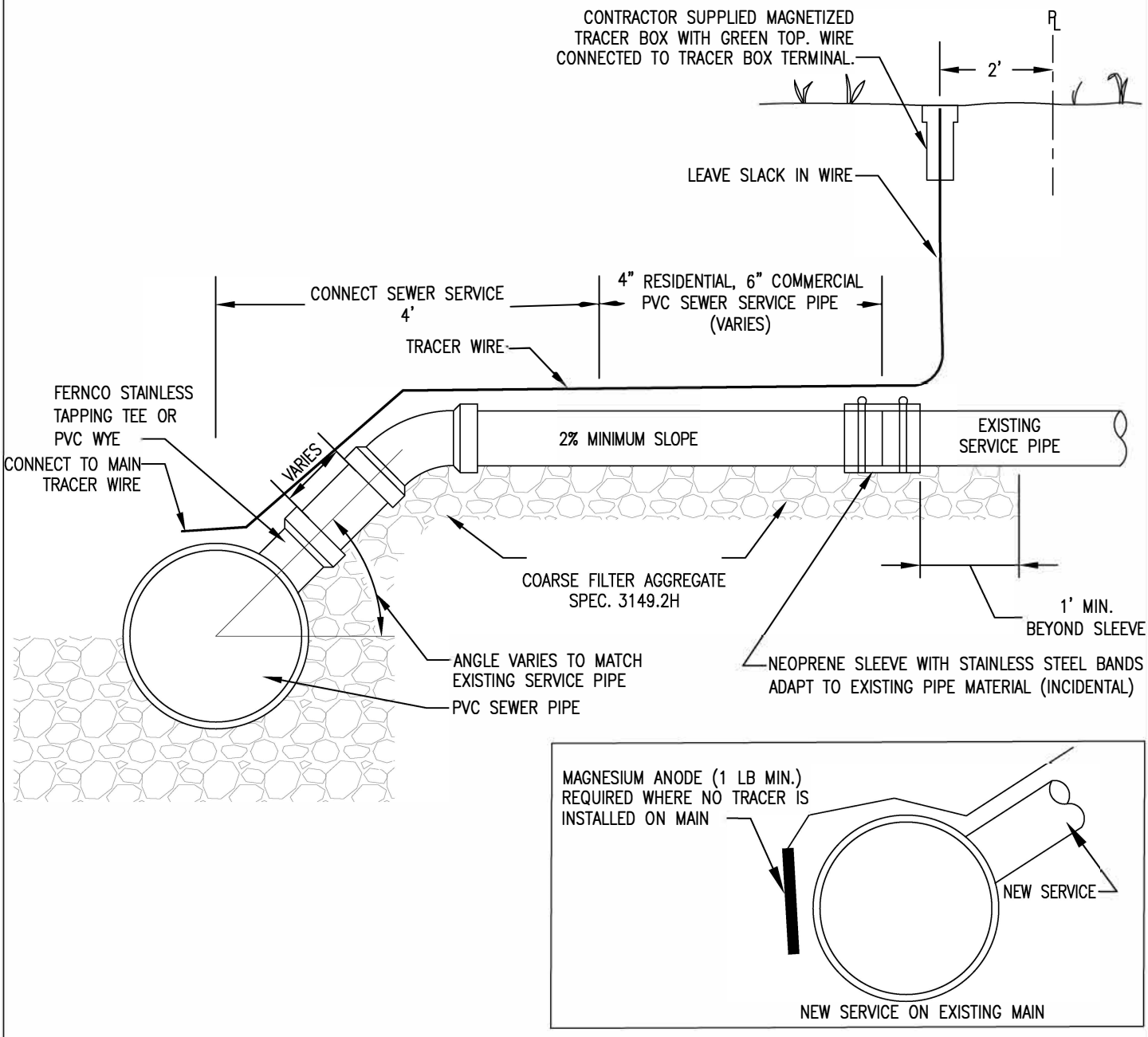


NOTE: T/CAST SHALL BE .03' BELOW FINISHED PAVEMENT SURFACE.





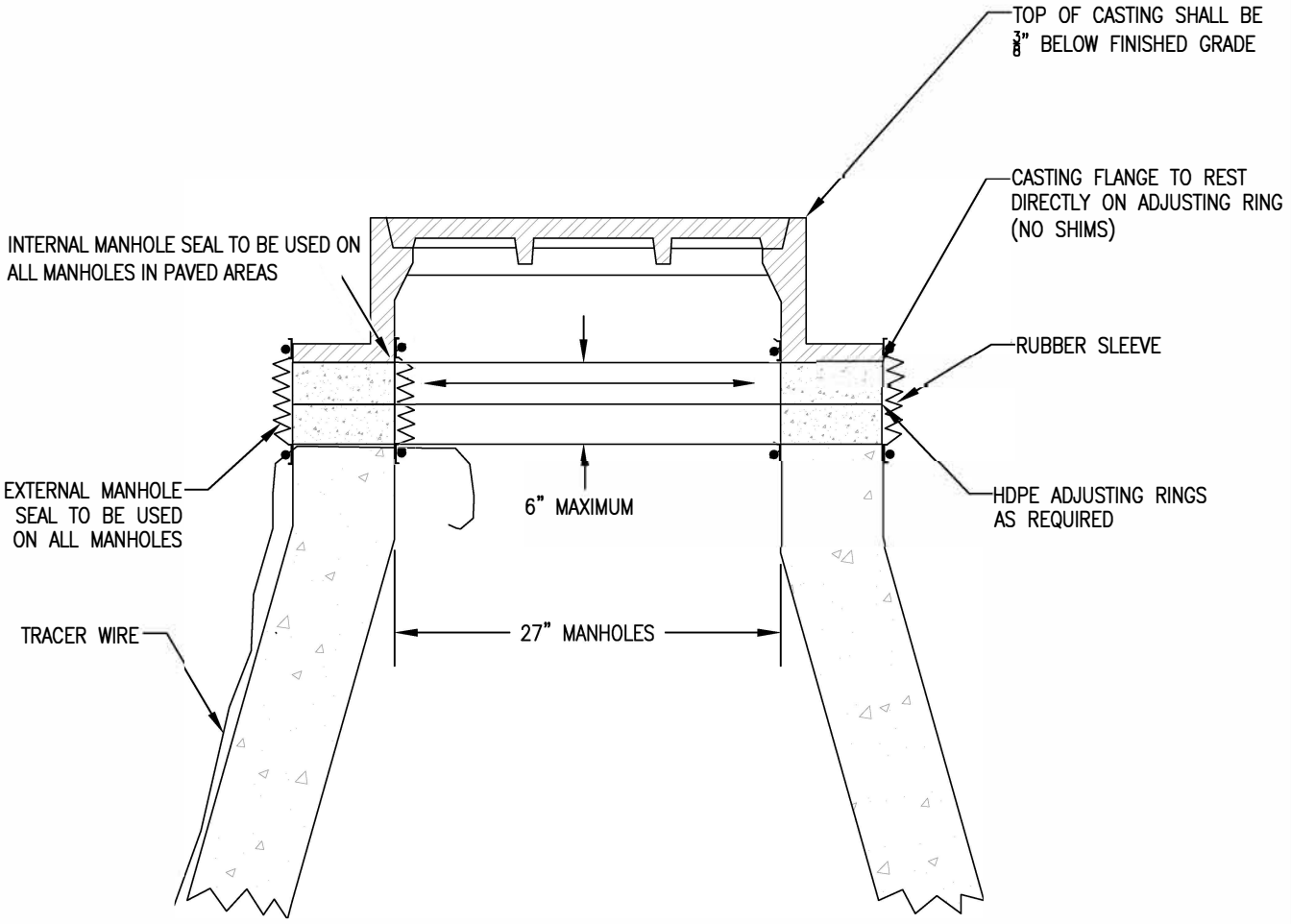
City of Rice Lake	SANITARY CASTING DETAIL	SAN-1	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	



NOTES

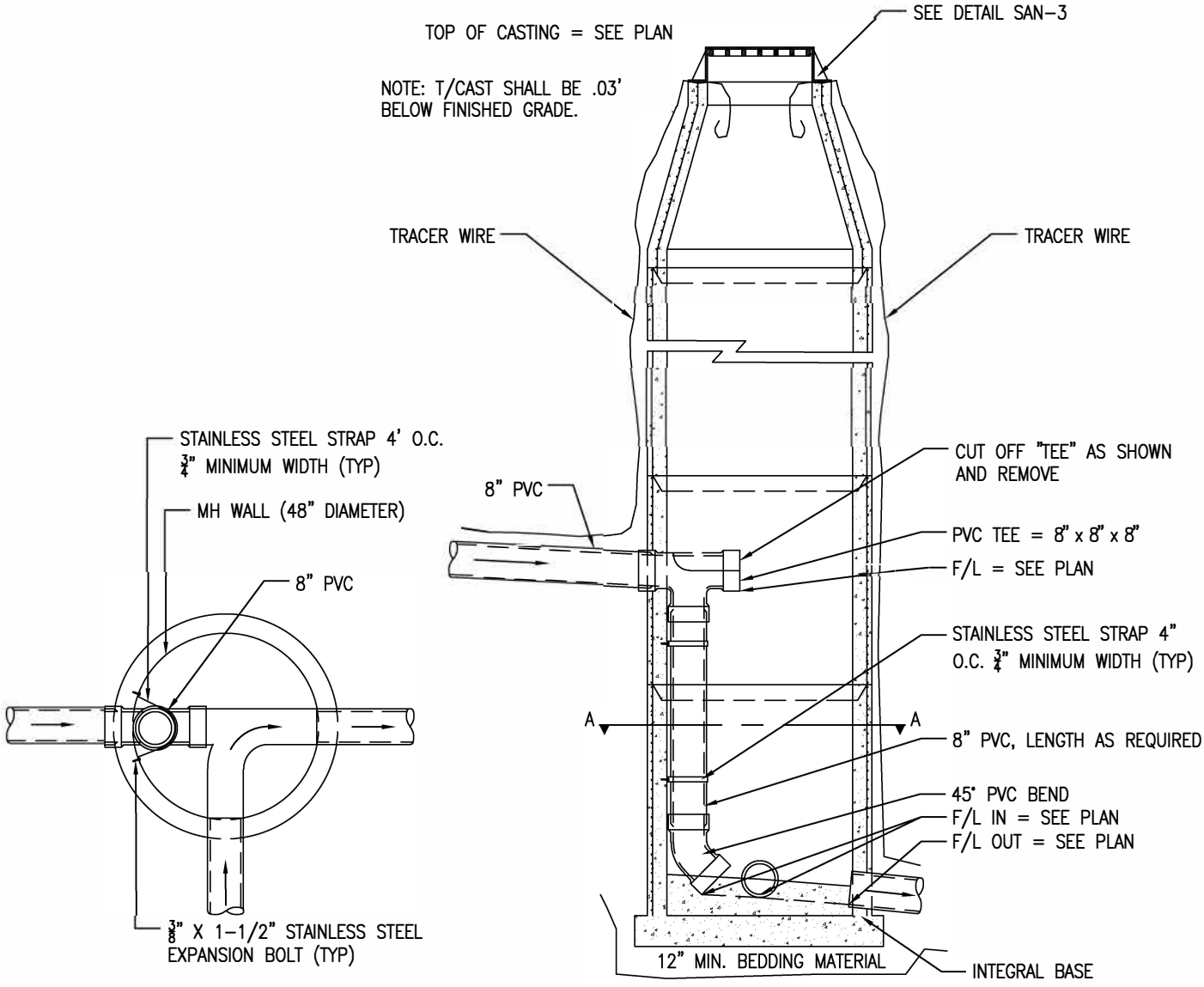
1. BID ITEM FOR PVC WYE INCLUDES FURNISHING AND INSTALLING WYE IN SEWER MAIN.
2. CONNECT SEWER SERVICE INCLUDES 6" PVC SEWER SERVICE PIPE (TO 4' FROM C/L) AND ALL FITTINGS
3. 6" PVC SEWER SERVICE PIPE IS INTENDED FOR THE RECONSTRUCTION OF SEWER SERVICES (WHEN FOUND TO BE IN NEED BY THE ENGINEER) COMPLETE IN PLACE FROM 4.0' BEYOND THE C/L OF THE SEWER MAIN TO A POINT DESIGNATED BY THE ENGINEER
4. FOR NEW SERVICES, PIPE TO STOP AT RIGHT OF WAY
5. #12 GAUGE GREEN INSULATED COPPER TRACER WIRE SHALL BE INSTALLED WITH SANITARY SEWER MAINS AND SERVICES. TRACER WIRE TERMINAL BOXES SHALL BE INSTALLED DIRECTLY ABOVE THE SEWER SERVICE OR AS DETERMINED BY THE ENGINEER
6. FOR SERVICES, TRACER WIRE SHALL RUN FROM THE WYE AND TERMINATE IN A FLUSH MOUNTED TRACER BOX WITH A GREEN CAST IRON LOCKABLE TOP.
7. THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS SHALL NOT BE USED. A WATER–PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.

City of Rice Lake	TYPICAL SEWER SERVICE CONNECTION	SAN–2	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	



NOTE:
1. ALL SEALS SHALL EXTEND FROM THE CASTING TO THE CONE
2. TRACER WIRE REQUIRED ON ALL SANITARY SEWER MAINS

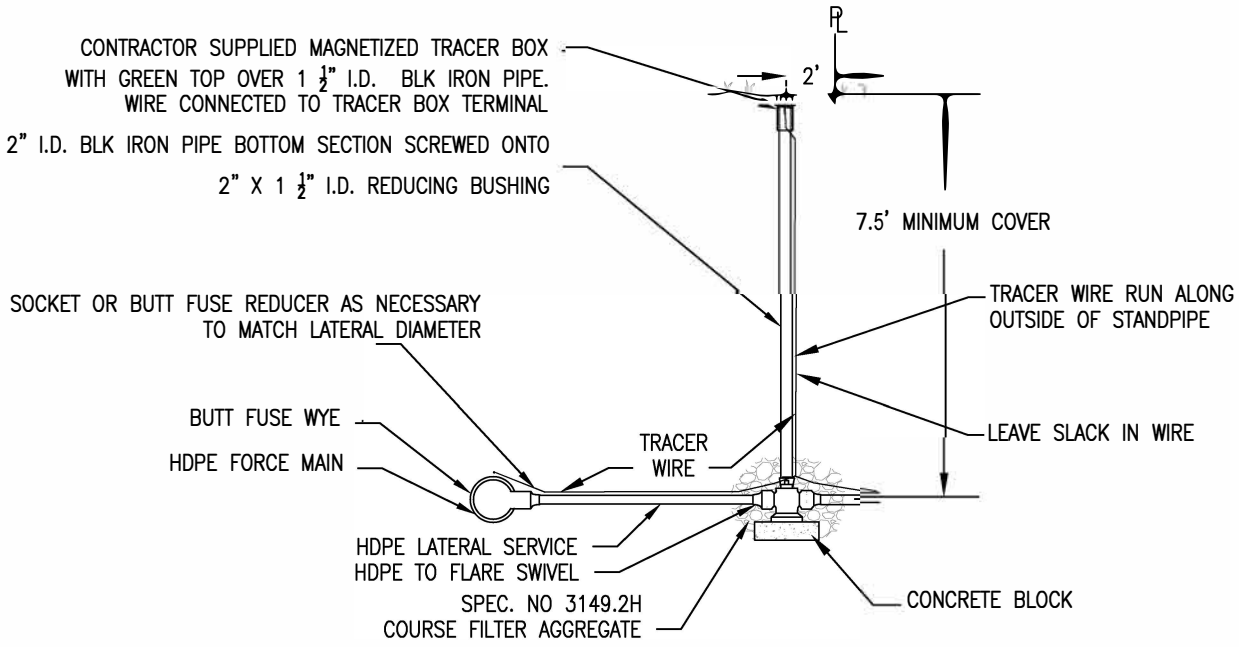
City of Rice Lake	EXTERNAL MANHOLE FRAME SEAL	SAN–3	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	

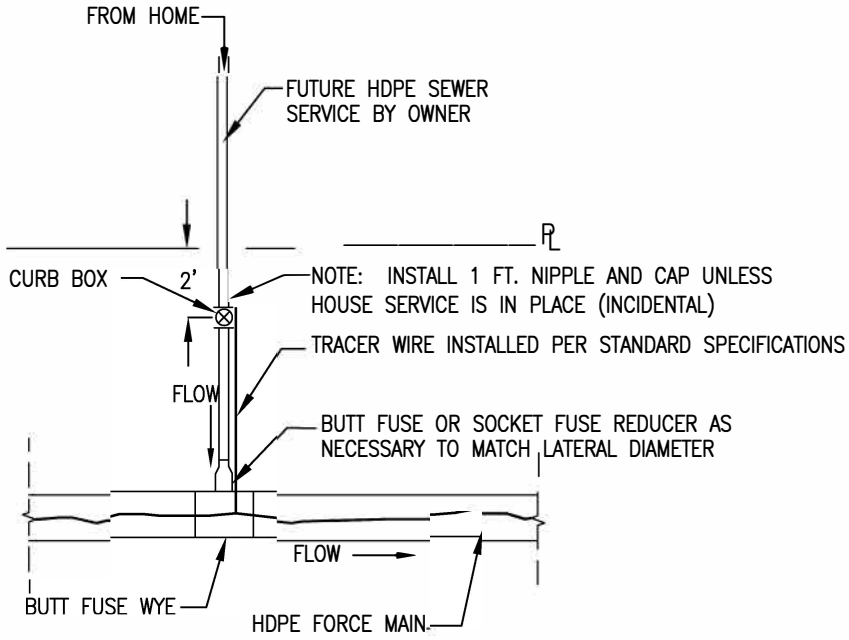


SECTION AA

NOTES: REFER TO PLAN/PROFILES FOR ELEVATIONS

City of Rice Lake	CONSTRUCT INSIDE DROP STRUCTURE	SAN-4	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 08/12/2024

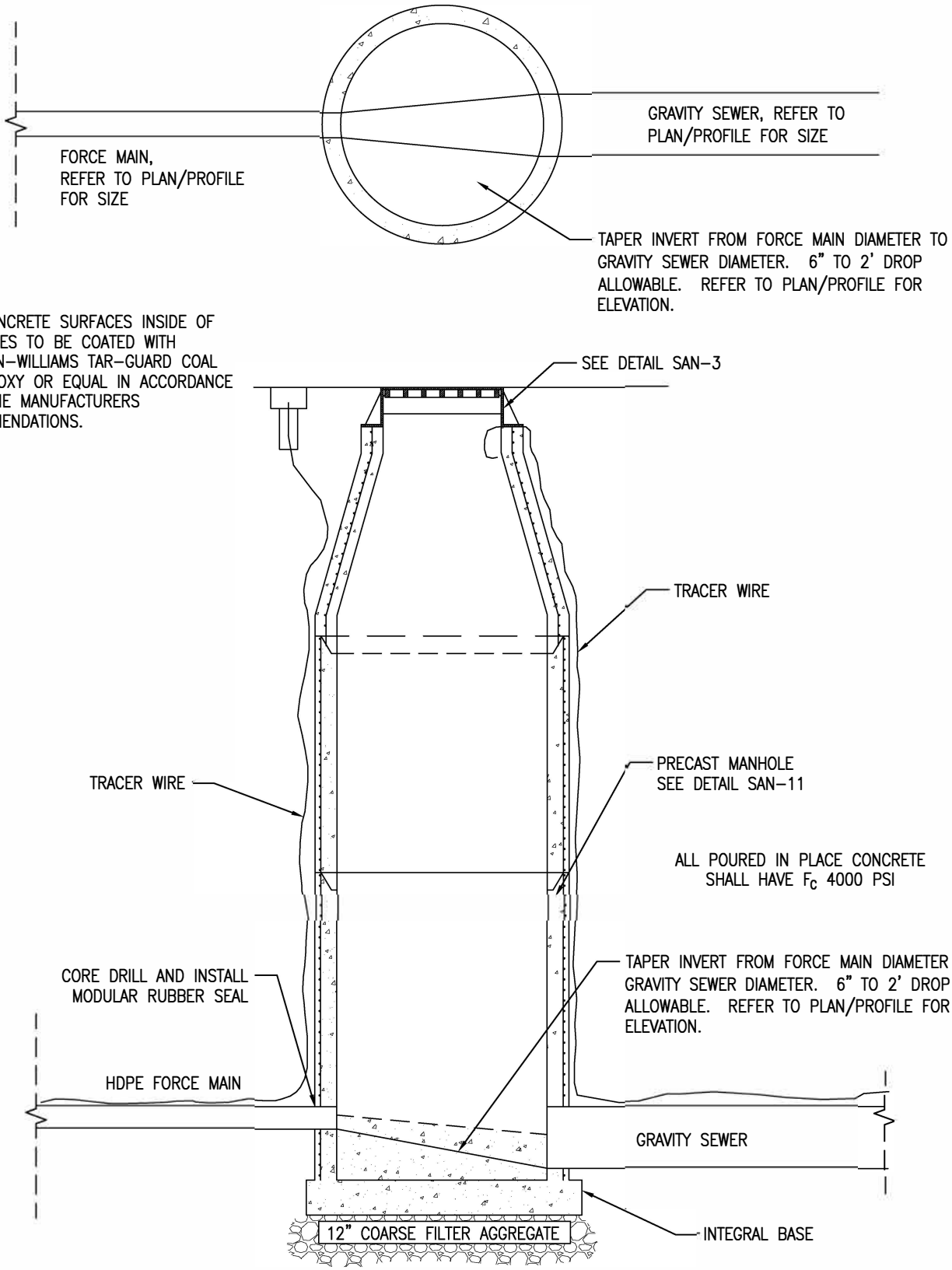




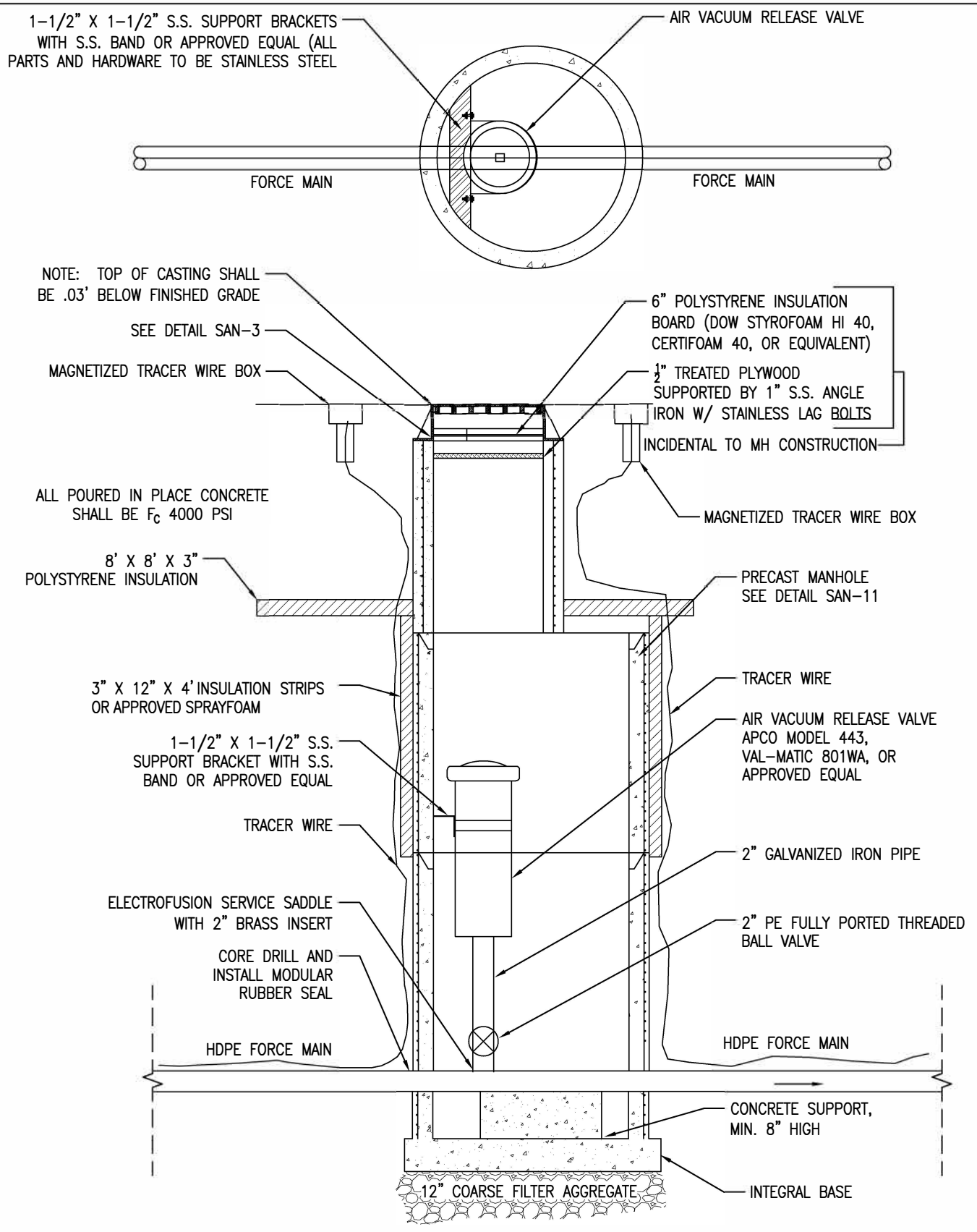
NOTES:

1. #12 GAUGE GREEN INSULATED COPPER TRACER WIRE SHALL BE INSTALLED WITH THE NON–CONDUCTIVE SERVICE PIPE. TRACER WIRE INSTALLATION REQUIRES ACCESS POINTS AT LEAST EVERY 300 FEET.
2. THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS SHALL NOT BE USED. A WATER–PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.
3. TRACER WIRE SHALL RUN FROM THE WYE AND TERMINATE IN A FLUSH MOUNTED TRACER BOX WITH A GREEN CAST IRON TOP.

City of Rice Lake	HDPE SANITARY SEWER PRESSURE LATERAL CONNECTION	SAN–5	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 08/12/2024

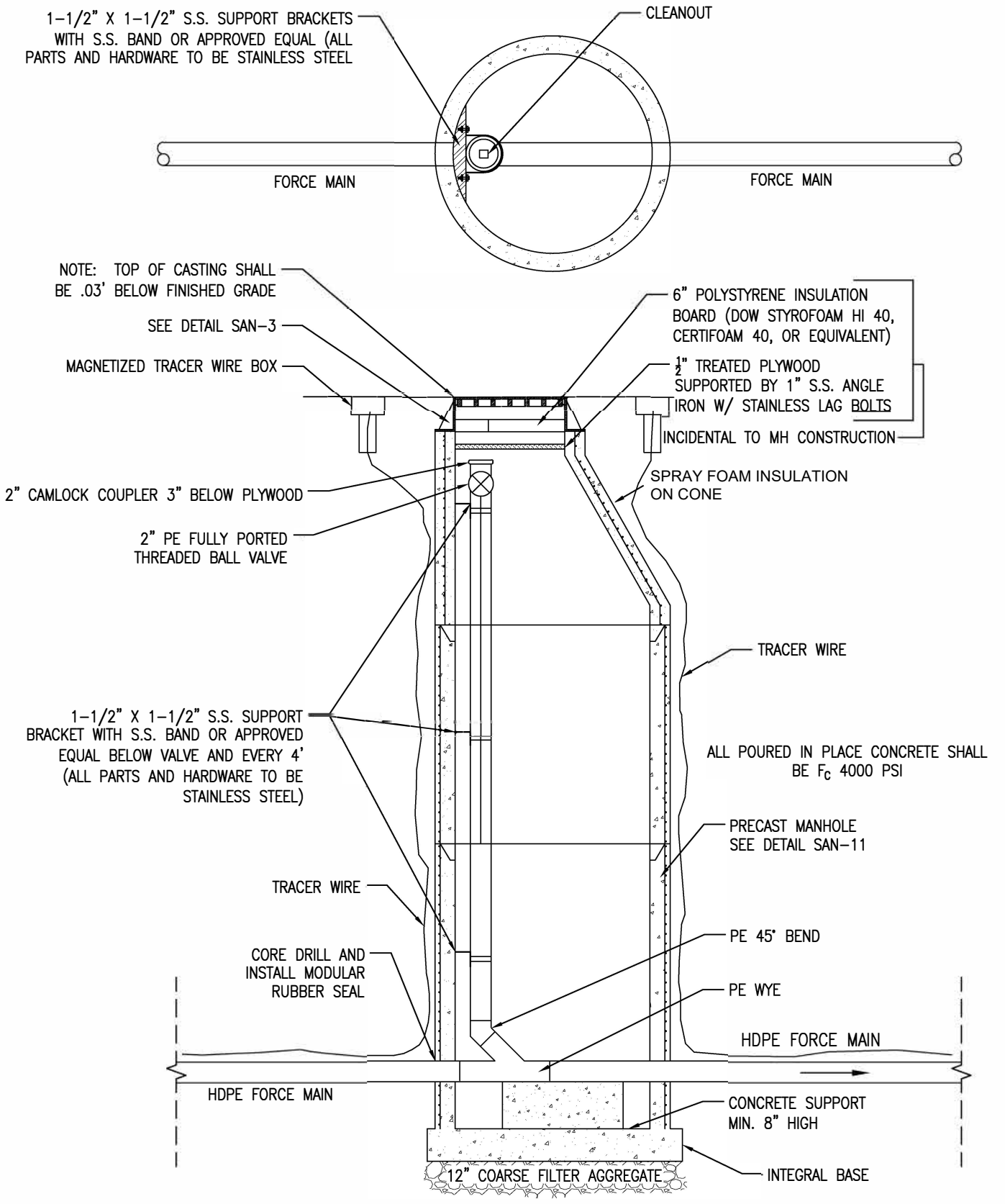


City of Rice Lake	HDPE FORCE MAIN TO GRAVITY MAIN MANHOLE	SAN-6	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	

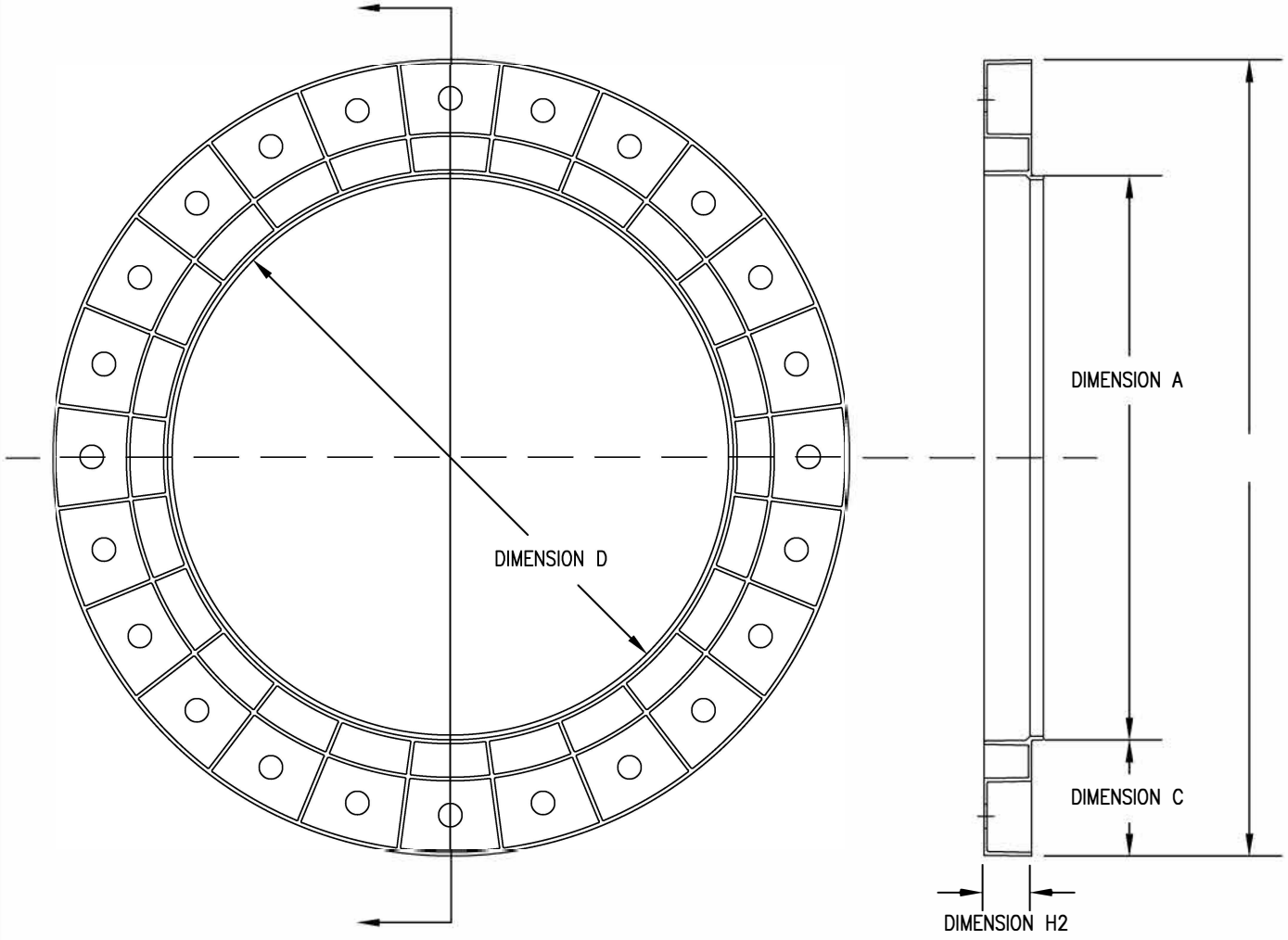


NOTE: MANHOLE TO MEET ALL REQUIREMENTS OF SAN–11

City of Rice Lake	AIR–RELEASE MANHOLE	SAN–7	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 08/12/2024



City of Rice Lake	CLEANOUT MANHOLE	SAN-8	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	

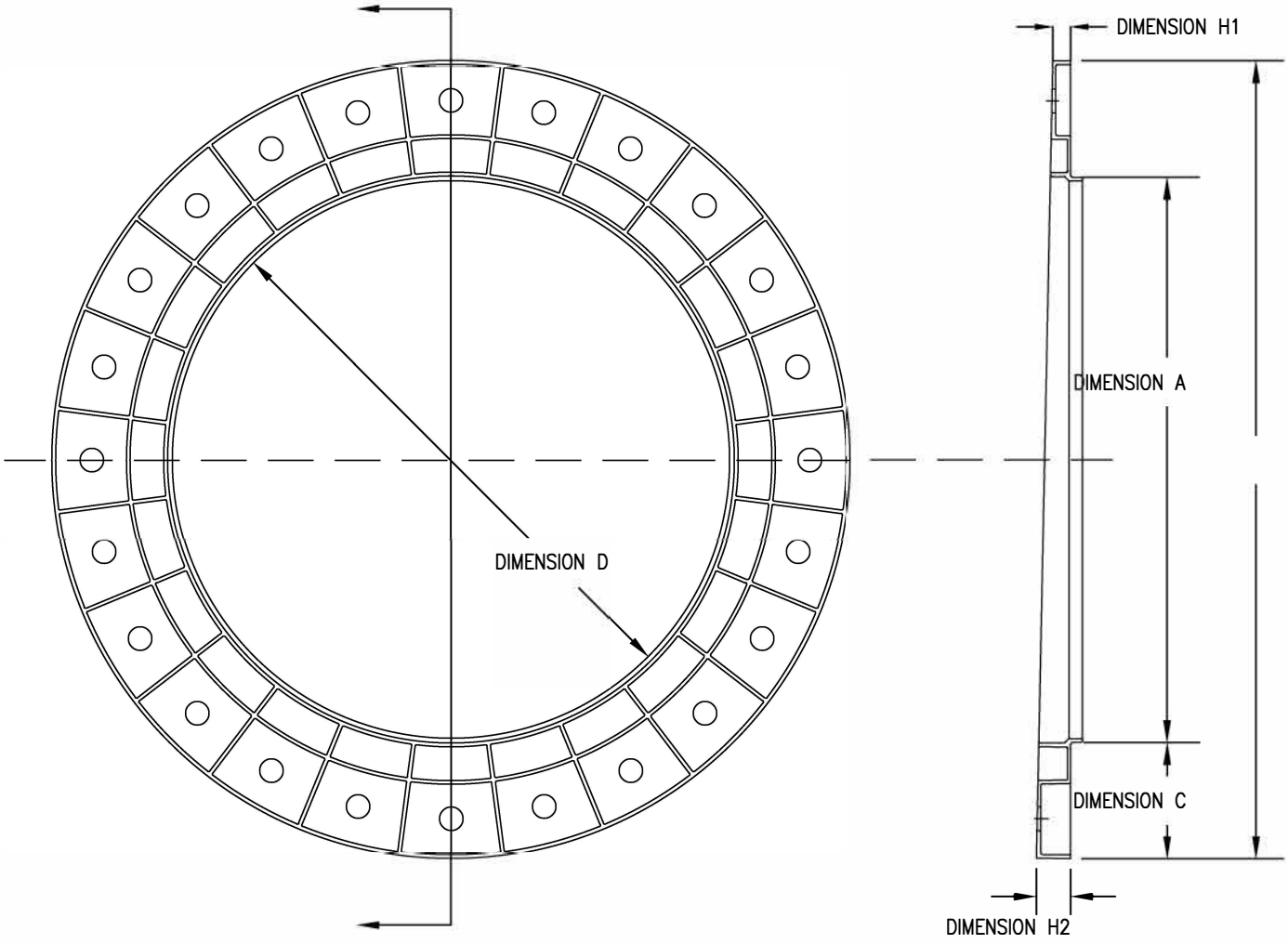


DIMENSION SCHEDULE					
CONE SIZE	DIMENSION A	DIMENSION B	DIMENSION C	DIMENSION D	DIMENSION H1
27.00	26.75	36.50	5.00	26.25	1.20, 1.50, 2.00, 4.00

DESCRIPTION

1. PLASTIC INJECTION MOLDED ADJUSTMENT RING
2. MOLDED FROM HIGH DENSITY POLYETHYLENE AS DEFINED IN ASTM SPECIFICATION D1248
3. ACTUAL RESIN PROPERTIES WILL VARY ALLOWING FOR THE UTILIZATION OF A MAXIMUM PERCENT OF RECYCLED MATERIAL
4. THE PERCENT OF POST CONSUMER WASTE TO INDUSTRIAL WASTE WILL VARY WITH AVAILABILITY AND PROPERTY RETENTION NEEDS
5. COLOR, SHADE AND UNIFORMITY WILL VARY WITH THE MIX OF THE POST CONSUMER AND INDUSTRIAL WASTE MATERIALS
6. DIMENSIONS SHOWN ARE NOMINAL – ACTUAL SIZE WILL VARY WITHIN ALLOWABLE TOLERANCE AND REQUIRED FIT

City of Rice Lake	POLYETHYLENE MH ADJUSTING RING – FLAT	SAN–9	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	



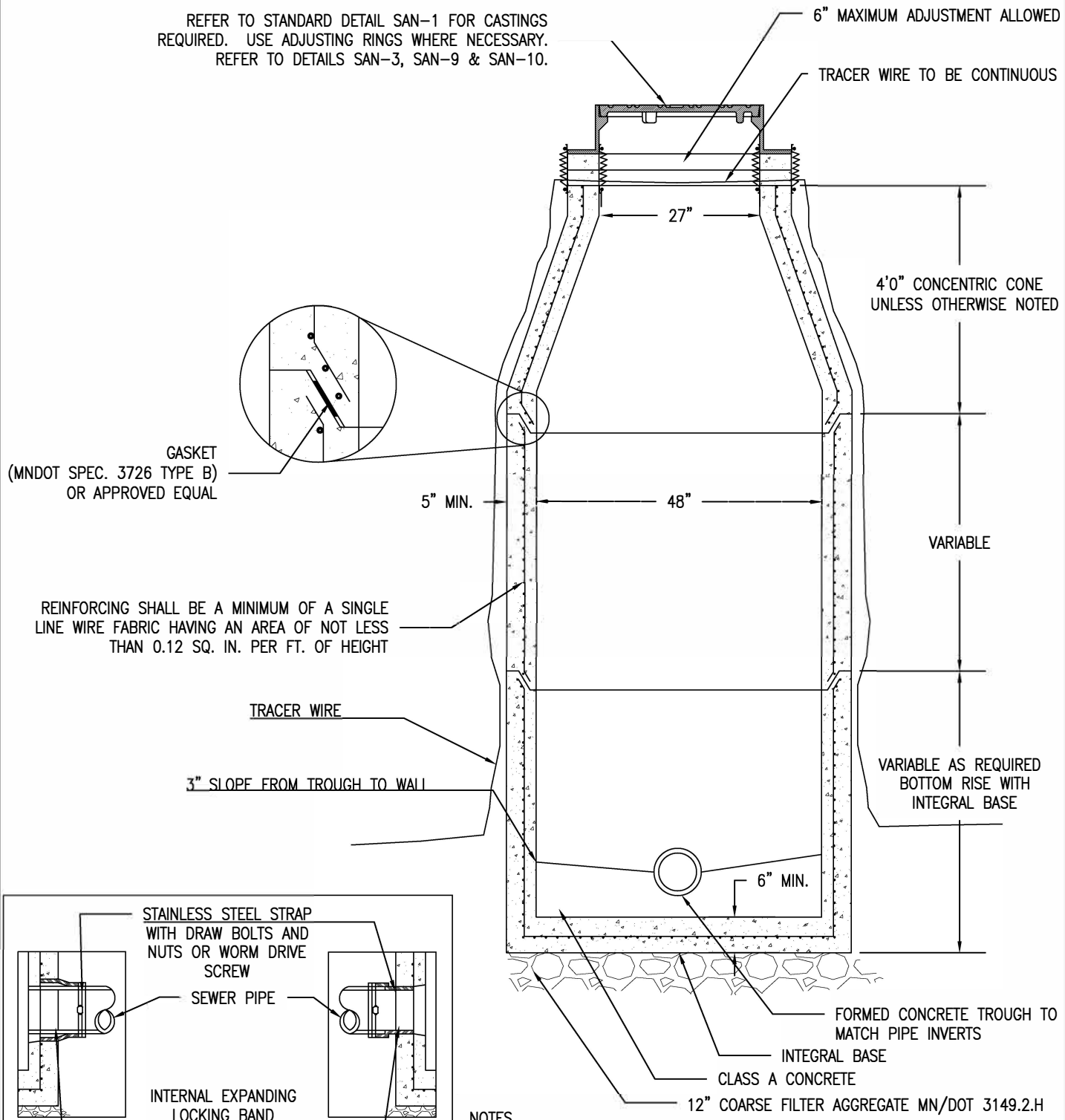
DIMENSION SCHEDULE					
CONE SIZE	DIMENSION A	DIMENSION B	DIMENSION C	DIMENSION D	DIMENSION H1–H2
27.00	26.75	36.50	5.00	26.25	0.75 – 1.50

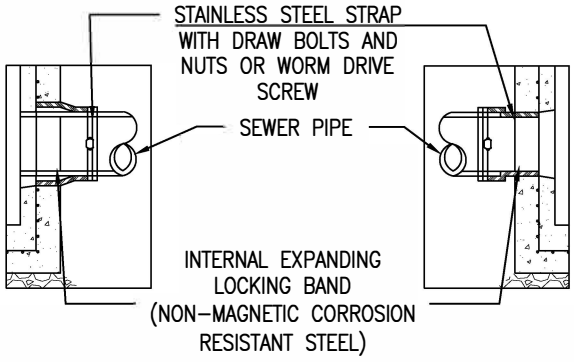
DESCRIPTION

1. PLASTIC INJECTION MOLDED ADJUSTMENT RING
2. MOLDED FROM HIGH DENSITY POLYETHYLENE AS DEFINED IN ASTM SPECIFICATION D1248
3. ACTUAL RESIN PROPERTIES WILL VARY ALLOWING FOR THE UTILIZATION OF A MAXIMUM PERCENT OF RECYCLED MATERIAL
4. THE PERCENT OF POST CONSUMER WASTE TO INDUSTRIAL WASTE WILL VARY WITH AVAILABILITY AND PROPERTY RETENTION NEEDS
5. COLOR, SHADE AND UNIFORMITY WILL VARY WITH THE MIX OF THE POST CONSUMER AND INDUSTRIAL WASTE MATERIALS
6. DIMENSIONS SHOWN ARE NOMINAL – ACTUAL SIZE WILL VARY WITHIN ALLOWABLE TOLERANCE AND REQUIRED FIT

City of Rice Lake	POLYETHYLENE MH ADJUSTING RING – WEDGE	SAN–10	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	

REFER TO STANDARD DETAIL SAN–1 FOR CASTINGS REQUIRED. USE ADJUSTING RINGS WHERE NECESSARY. REFER TO DETAILS SAN–3, SAN–9 & SAN–10.





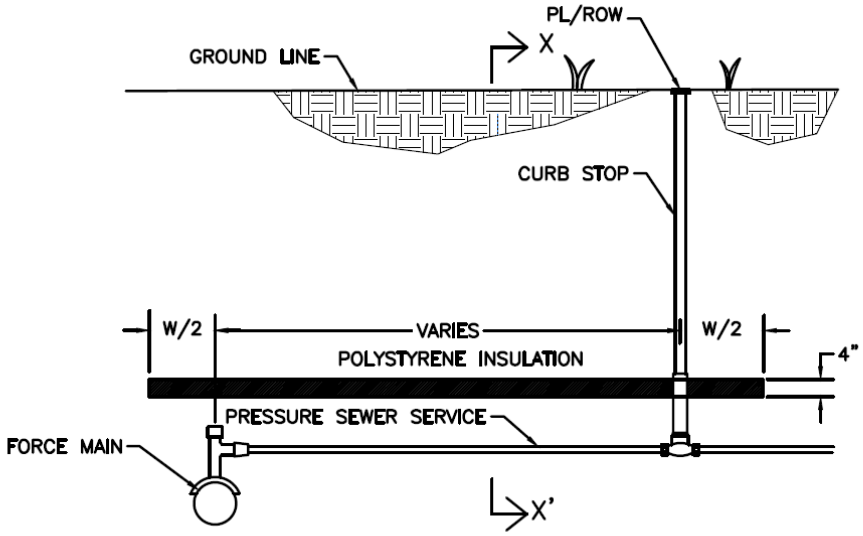
PIPE SLEEVE DETAIL

1. ALL PIPE SLEEVES MUST BE WATER TIGHT

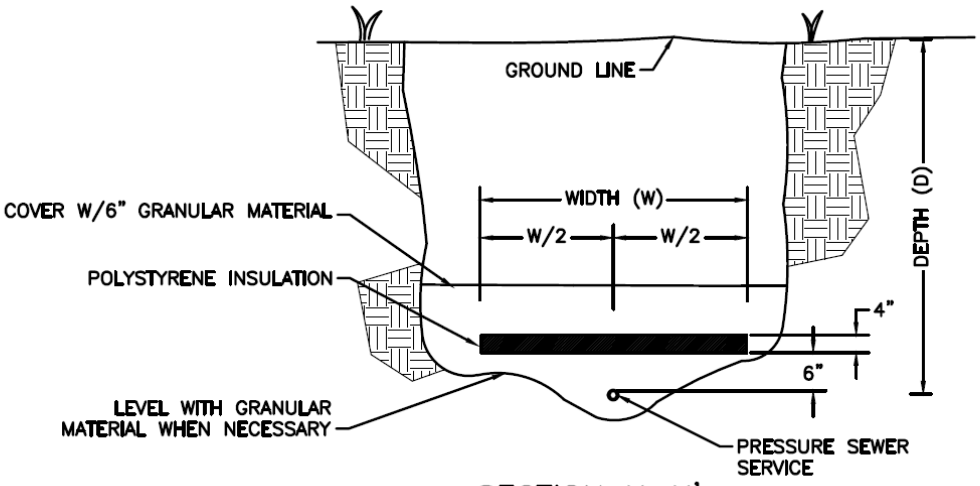
NOTES

1. SANITARY MANHOLES SHALL NOT HAVE STEPS.
2. ALL SANITARY MANHOLES SHALL BE VACUUM TESTED.
3. ALL SANITARY MANHOLES SHALL BE WATERTIGHT. ANY OBSERVABLE WATER SEEPAGE THROUGH THE END OF THE WARRANTY PERIOD SHALL BE CAUSE TO REJECT MANHOLES.
4. AN INSIDE DROP IS REQUIRED PER DETAIL SAN–4 ANYTIME THE DROP IS GREATER THAN 2.0'.

City of Rice Lake	PRECAST MECHANICAL JOINT SEWER MANHOLE	SAN–11	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	



ELEVATION



SECTION X–X'

DEPTH (D)	WIDTH (W)
7'–0" OR MORE	NONE
5'–0" TO 7'–0"	4 FEET
4'–0" TO 5'–0"	6 FEET
3'–0" TO 4'–0"	8 FEET

NOTES:

1. LAYERING OF 2 OR 3 SHEETS TO ARRIVE AT 4" IS PERMITTED WITH JOINTS OFFSET A MINIMUM OF 6".
2. POLYSTYRENE SHALL BE HI DENSITY DOW HI 40 OR CERTIFOAM 40
3. ALL SERVICES SHALL BE INSTALLED WITH A MINIMUM OF 7'–0" OF COVER UNLESS OTHERWISE APPROVED BY THE TOWN ENGINEER.
4. SERVICES WITH LESS THAN 5'–0" OF COVER SHALL ALSO BE HEAT TRACED.
5. NO SERVICE LATERAL MAY BE INSTALLED WITH LESS THAN 3'–0" OF COVER.

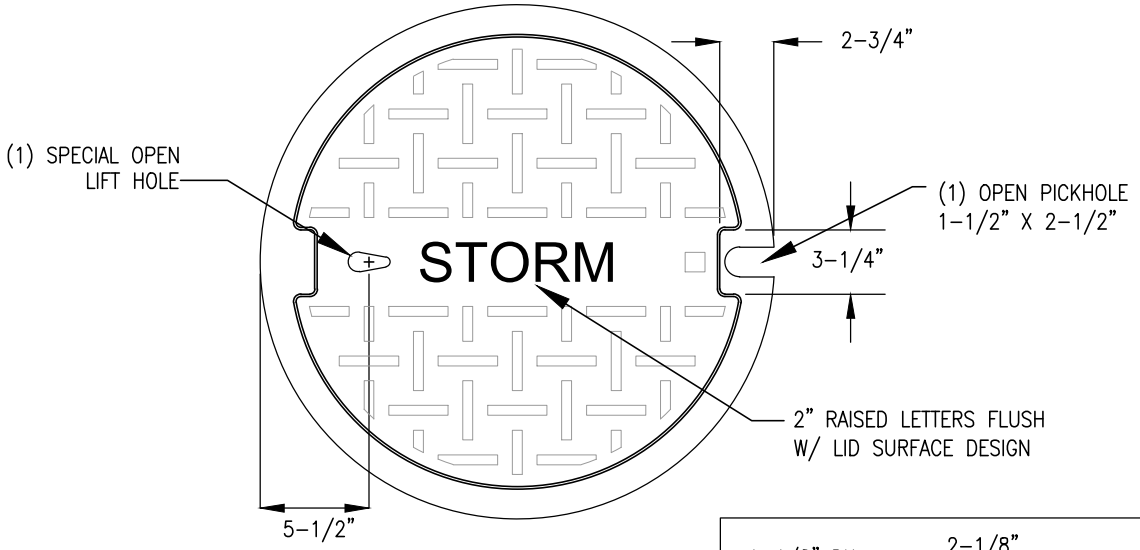
PRESSURE SEWER SERVICE INSULATION DETAIL

NOT TO SCALE

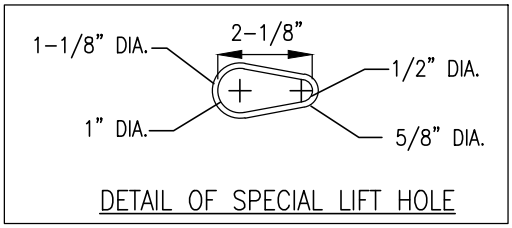
City of Rice Lake	PRESSURE SEWER SERVICE INSTALLATION	SAN-12	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	

WEIGHT 298 LBS		MATL. GRAY IRON CLASS 35B
WEIGHT 122 LBS	TOTAL WEIGHT 420 LBS.	SPEC. ASTM A-48-74

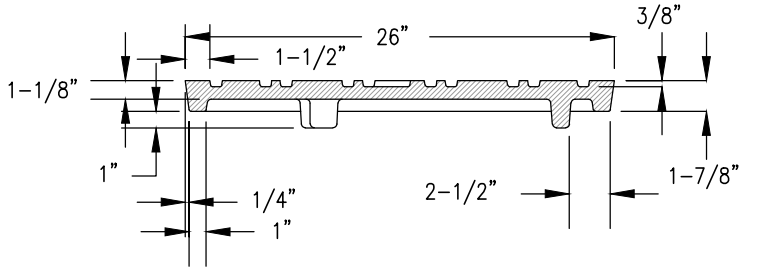
NOTE: SUITABLE FOR HS25 WHEEL LOADS

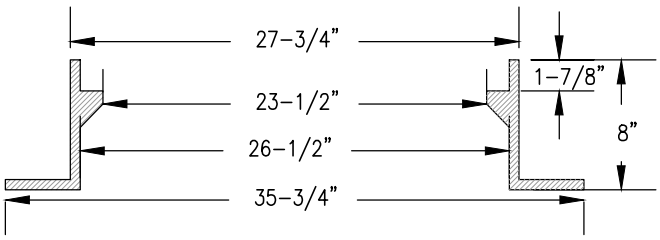


NOTE: T/CAST SHALL BE .03' BELOW FINISHED PAVEMENT SURFACE.

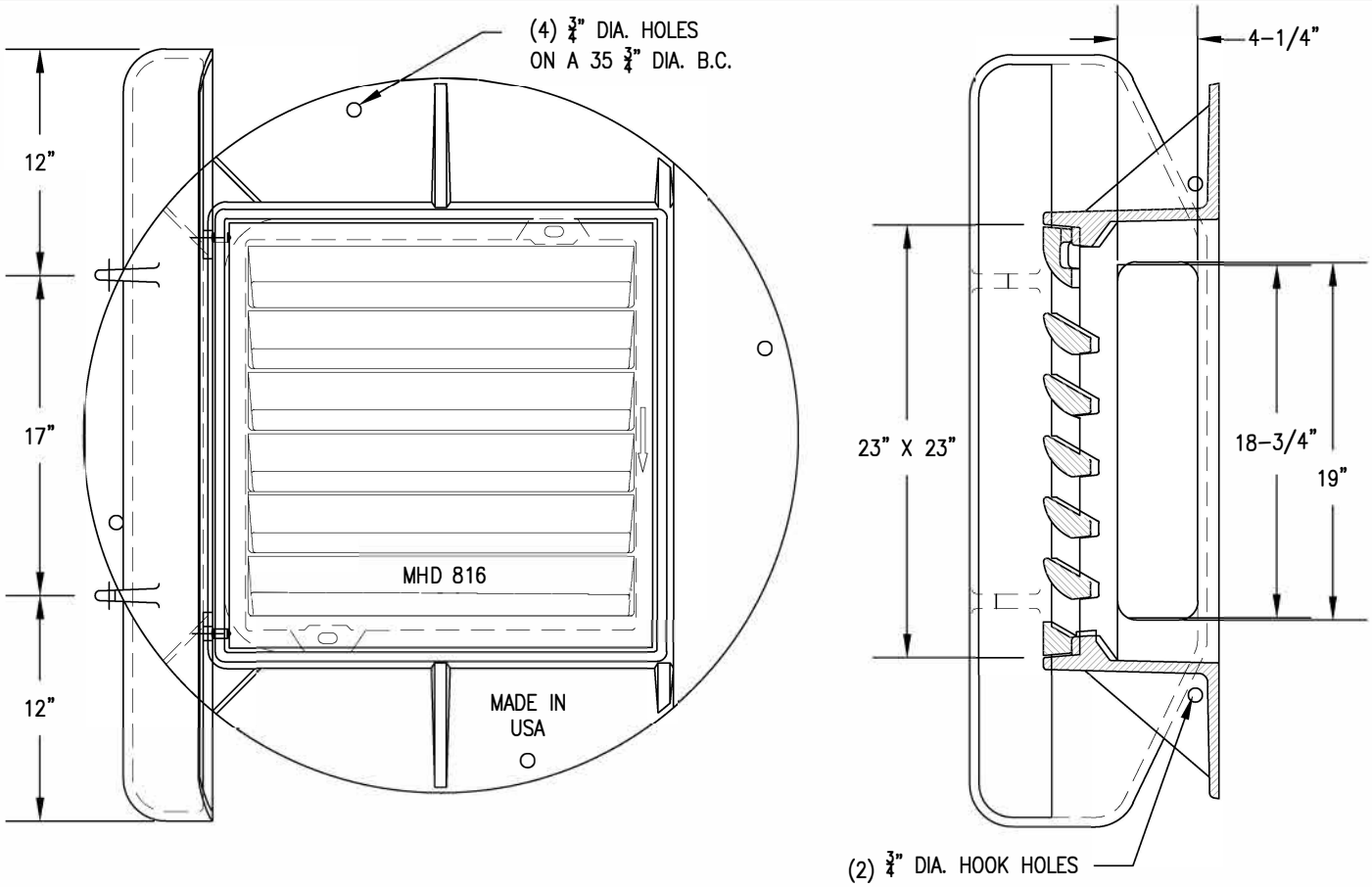


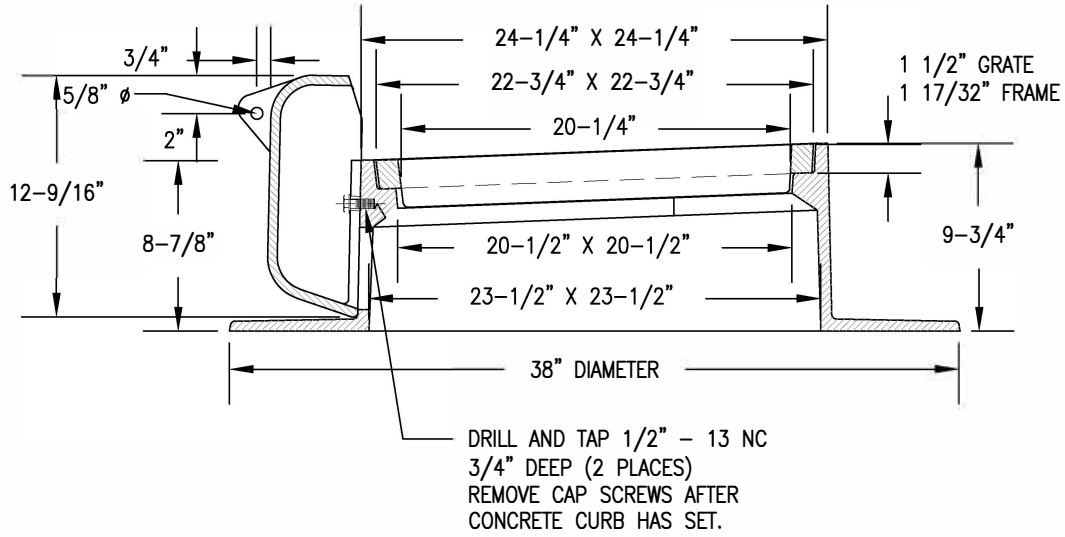
DETAIL OF SPECIAL LIFT HOLE





City of Rice Lake	STORM MANHOLE CASTING	STORM-1	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	

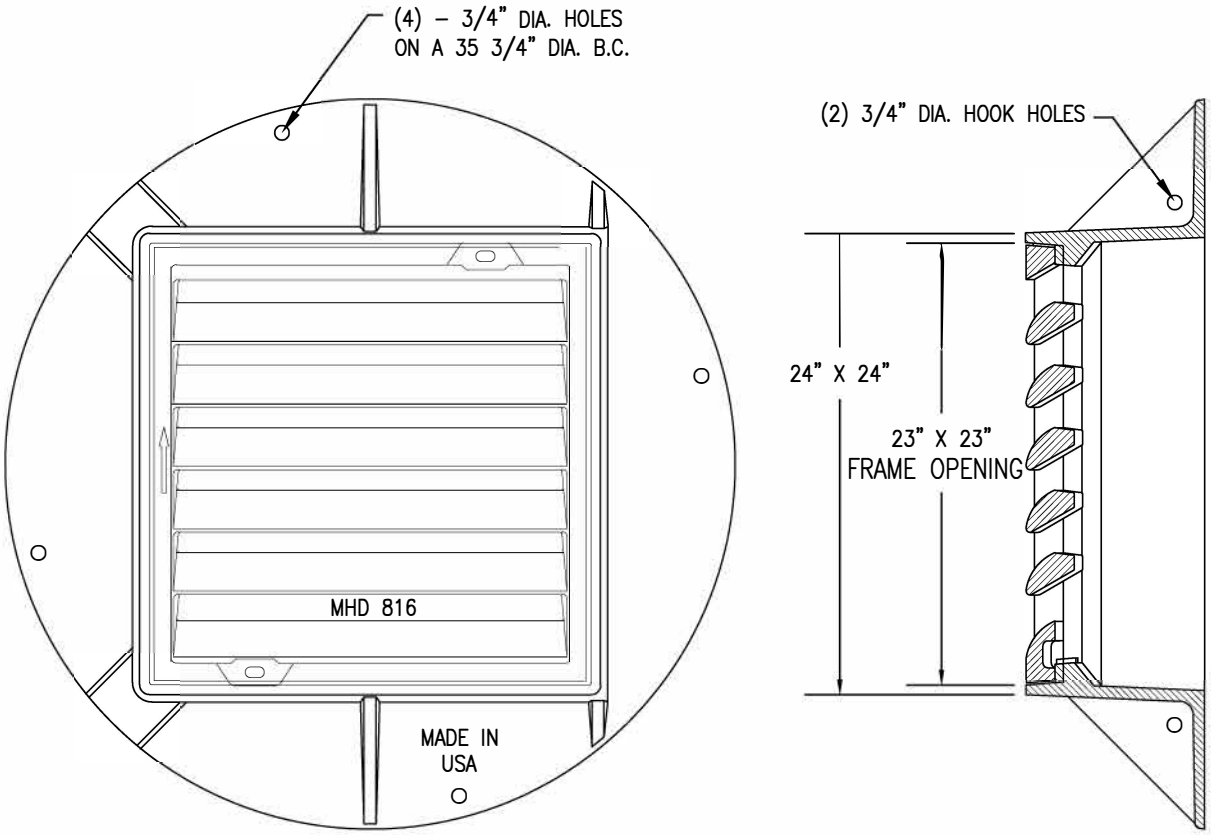


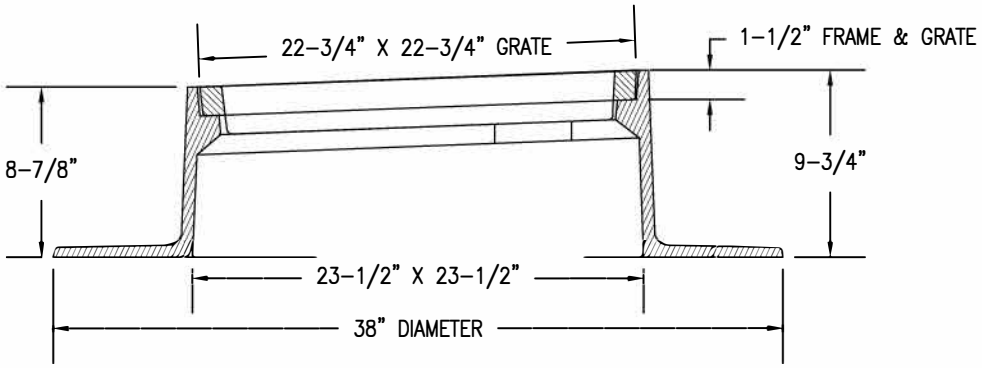


NOTES:

1. COMPONENT NO'S: FRAME 5002, GRATE MHD 816 (STD PLATE 4154), CURB BOX 823A (STD PLATE 4160).
2. MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
3. WEIGHT: FRAME APPROX. 257#, GRATE 131#, CURB BOX 105#.
4. ALL GUTTERS UPSTREAM OF CATCH BASINS SHALL BE STAMPED, "NO DUMPING, LEADS TO LAKE".

City of Rice Lake	CATCH BASIN/CURB BOX CASTINGS	STORM-2	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 08/12/2024

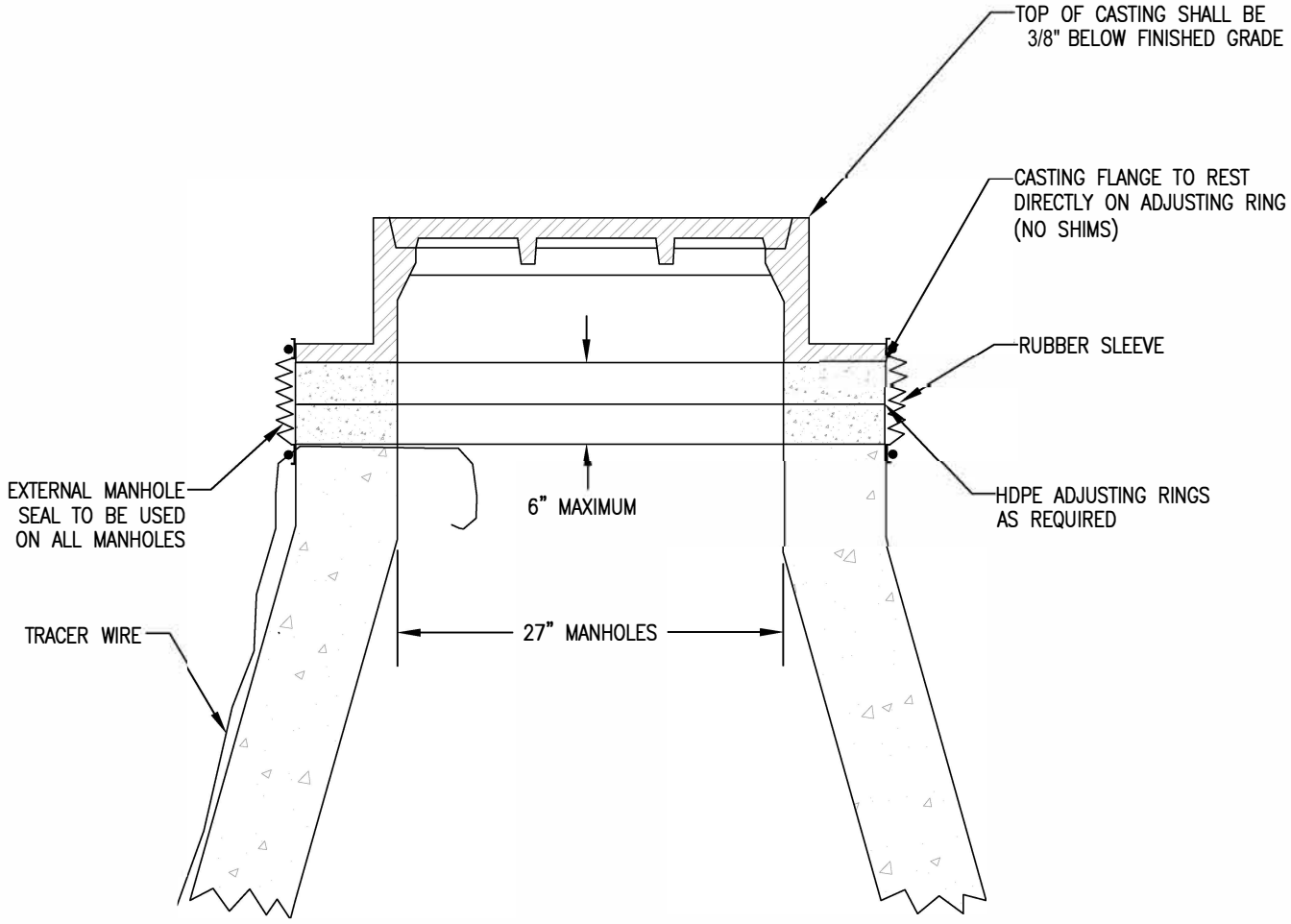




NOTES:

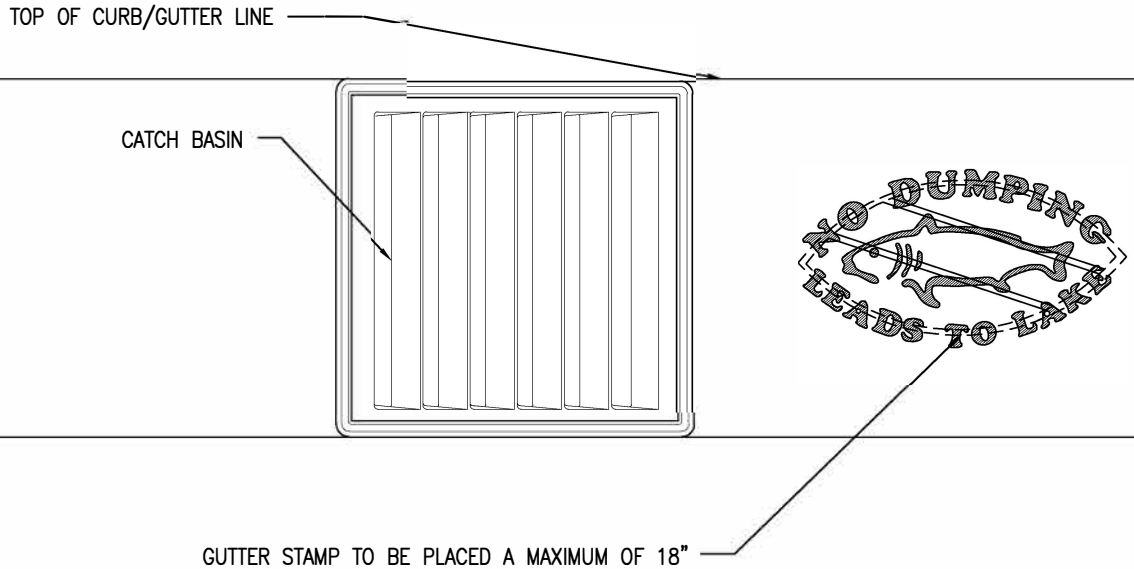
1. COMPONENT NO'S: FRAME 5005, GRATE 816 (STD PLATE 4154B).
2. MATERIAL: CAST GRAY IRON ASTM A–48, CLASS 35B
3. WEIGHT: FRAME 262#; GRATE 131#
4. ALL GUTTERS UPSTREAM OF CATCH BASINS SHALL BE STAMPED, "NO DUMPING, LEADS TO LAKE".

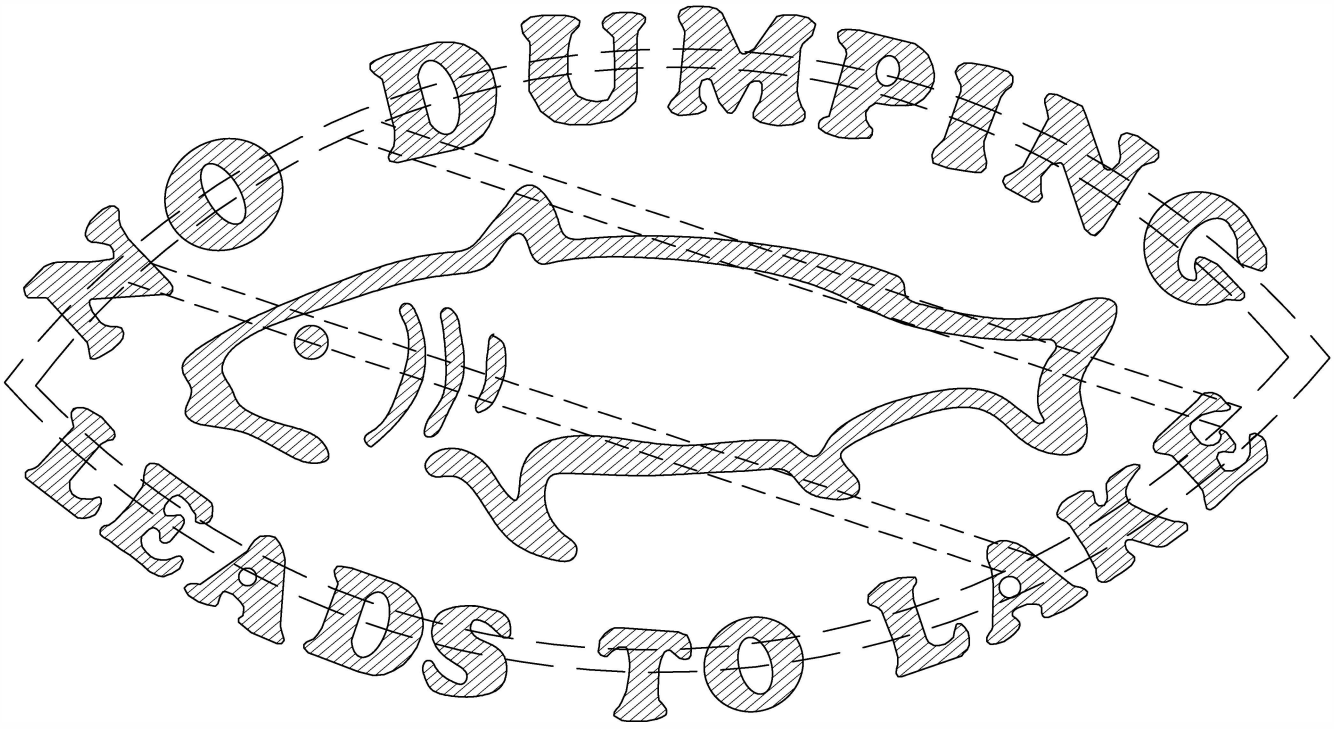
City of Rice Lake	CATCH BASIN CASTINGS	STORM–3	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	



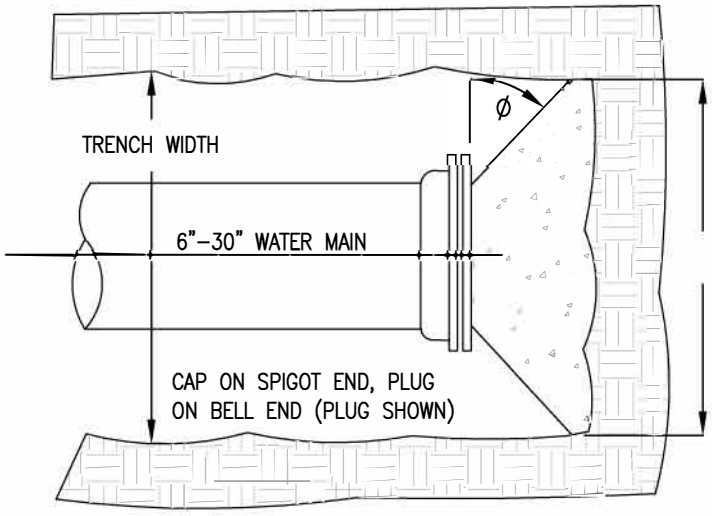
NOTE:
TRACER WIRE REQUIRED ON ALL PLASTIC STORM SEWER PIPE

City of Rice Lake	STORM MANHOLE	STORM–4	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 08/12/2024

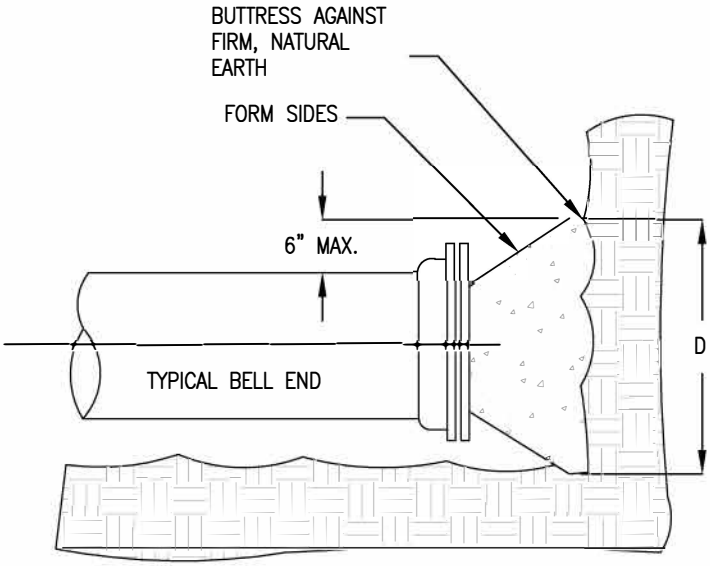




City of Rice Lake	GUTTER STAMP	STORM–5	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 08/12/2024



PLAN

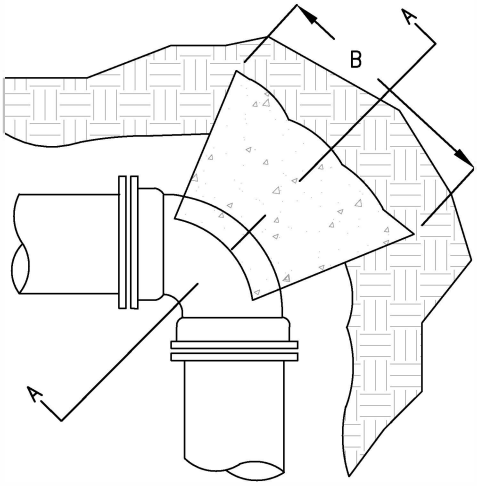


ELEVATION

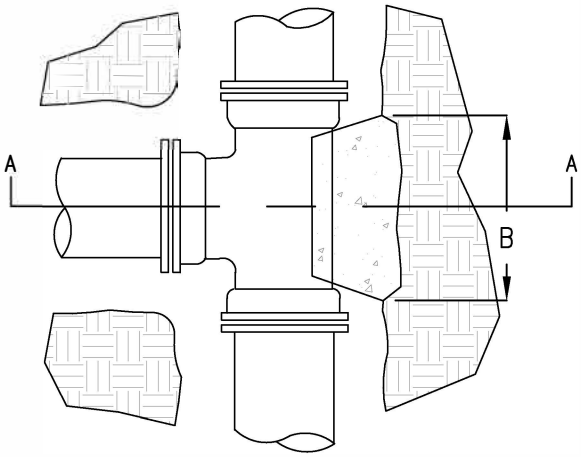
BLOCKING DIMENSIONS		
PLUG SIZE	B	D
6"	12"	15"
8"	24"	15"
10"	24"	20"
12"	30"	22"
16"	40"	28"
20"	50"	34"
24"	62"	40"
30"	80"	48"

NOTES:
1. BLOCKING DIMENSIONS BASED ON EARTH RESISTANCE OF 2 TONS PER SQ. FT. WHERE, IN THE OPINION OF THE ENGINEER, EARTH IS POOR, BLOCKING SHALL BE INCREASED IN SIZE AS DIRECTED OR STRAPPING MAY BE NECESSARY.
2. ANGLEØ SHALL BE EQUAL TO OR LARGER THAN 45°.
3. BLOCKING SHALL BE CENTERED ON MAIN.
4. CONCRETE SHALL BE MIX 3G52 – MNDOT 2461.
5. POLYETHYLENE SHALL BE USED TO SEPARATE CONCRETE FROM FITTING.
6. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

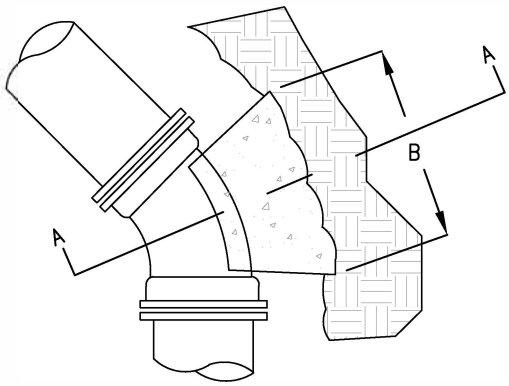
City of Rice Lake	PLUG BLOCKING FOR WATER MAIN	W-1	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 08/12/2024



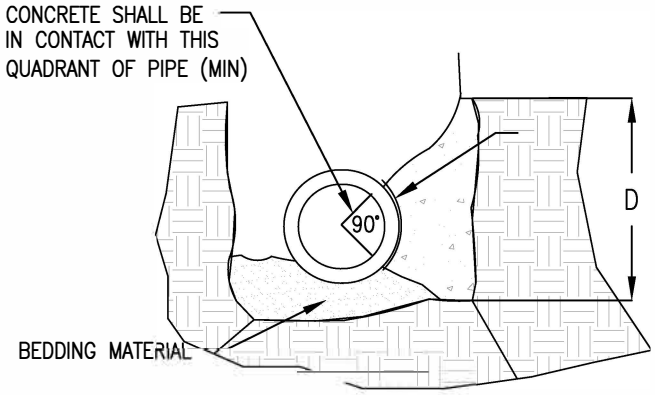
PLAN – 90° BEND



PLAN – TEE



PLAN – 45° BEND



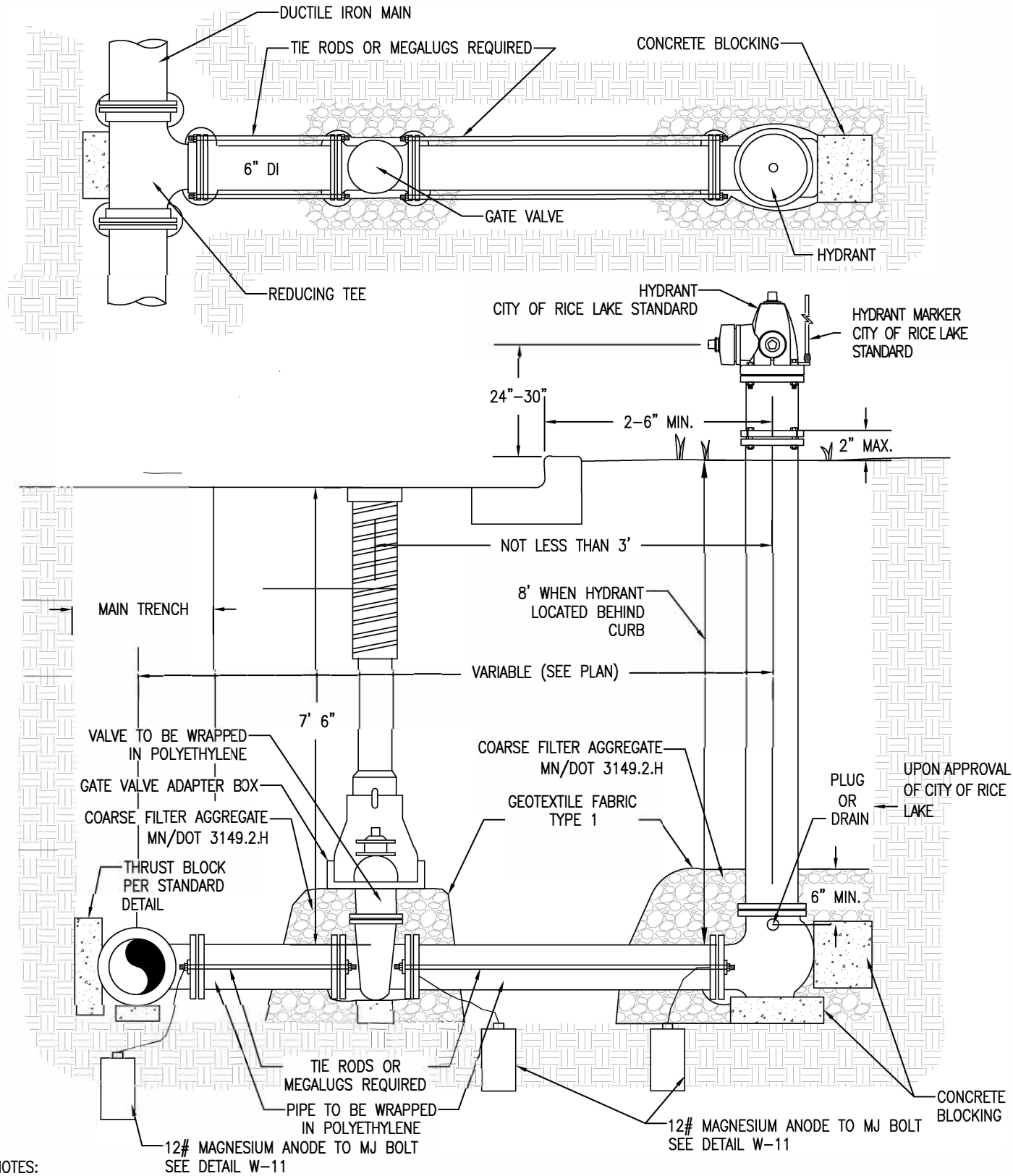
SECTION A–A

NOTES

1. DIMENSIONS IN TABLE ARE BASED ON A WATER PRESSURE OF 150 P.S.I. & AN EARTH RESISTANCE OF 2 TONS/S.F.
2. BLOCKING TO BE SET AGAINST UNDISTURBED SOIL
3. CONCRETE SHALL BE MIX 3G52. (MNDOT SPEC. 2461) CONCRETE SHALL NOT INTERFERE WITH MECHANICAL JOINTS
4. POLYETHLYENE SHALL BE USED TO SEPARATE CONCRETE FROM FITTING.
5. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

BLOCKING DIMENSIONS								
BEND OR BRANCH SIZE	22–1/2" BENDS		45° BENDS		90° BENDS		TEES	
	B	D	B	D	B	D	B	D
0'–6"	1'–0"	1'–0"	1'–0"	1'–0"	1'–4"	1'–2"	1'–3"	1'–0"
0'–8"	1'–0"	1'–0"	1'–4"	1'–2"	1'–10"	1'–6"	1'–6"	1'–4"
1'–0"	1'–4"	1'–4"	1'–10"	1'–10"	2'–8"	2'–3"	2'–3"	2'–0"
1'–4"	1'–10"	1'–8"	2'–6"	2'–4"	3'–10"	2'–10"	3'–2"	2'–4"
1'–8"	2'–4"	2'–0"	3'–3"	2'–10"	5'–0"	3'–4"	4'–0"	3'–0"
2'–0"	2'–10"	2'–4"	4'–0"	3'–3"	6'–4"	3'–10"	5'–3"	3'–4"
2'–6"	3'–6"	3'–0"	5'–4"	3'–10"	8'–0"	4'–8"	6'–3"	4'–3"

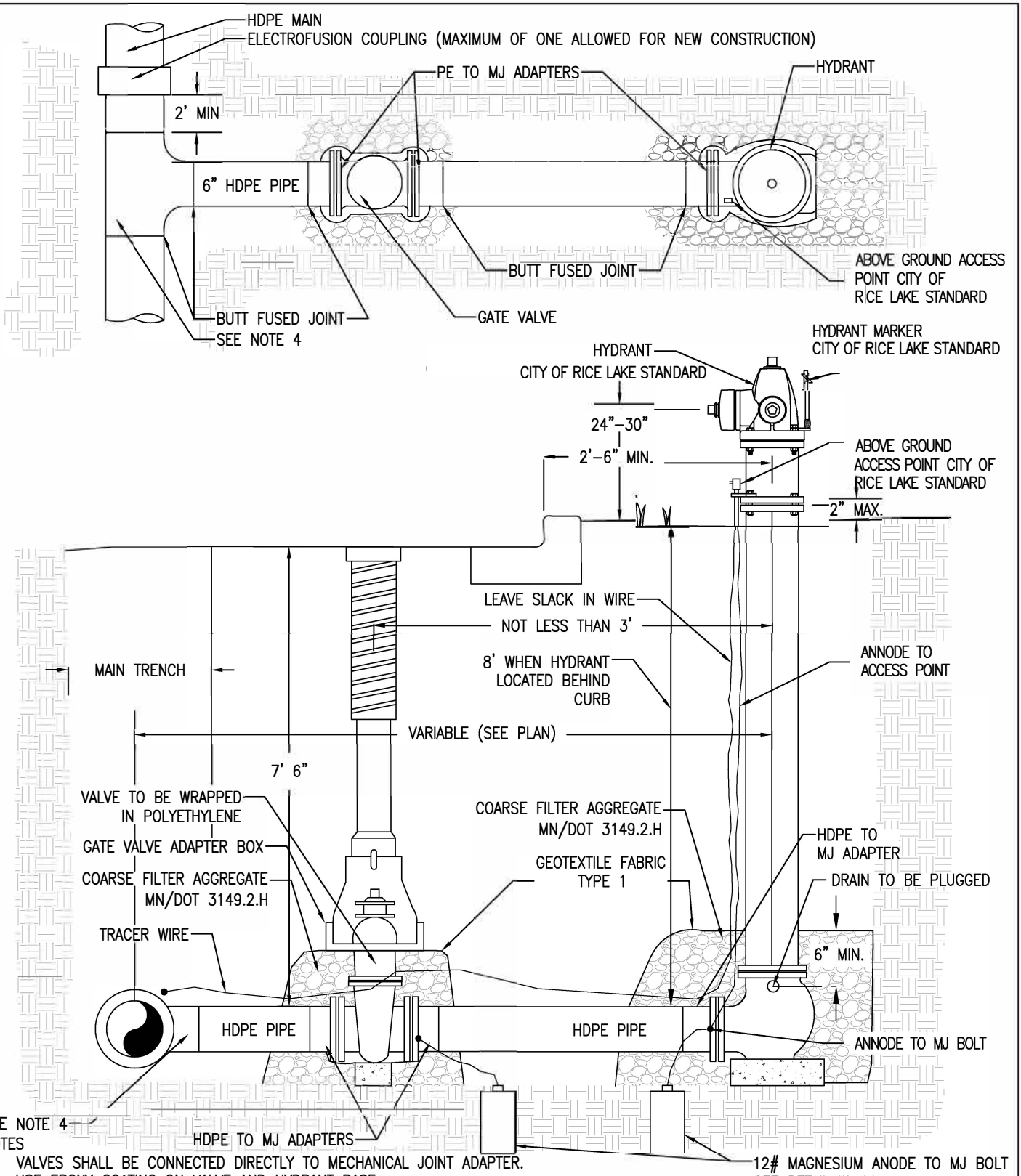
City of Rice Lake	THRUST BLOCKING FOR WATER MAIN	W–2	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	



NOTES:

1. VALVES SHALL BE CONNECTED DIRECTLY TO AN ANCHORING TEE. WHENEVER DIRECT CONNECTION IS NOT POSSIBLE, TIE RODS OR MEGALUGS SHALL BE USED. TIE RODS SHALL BE GALVANIZED.
2. USE EPOXY COATING ON VALVE AND HYDRANT BASE.
3. ALL BOLTS SHALL BE COR–TEN WITH 6 OUNCE ZINC ANODE CAPS CONFORMING TO ASTM B–418 FOR ALL MECHANICAL JOINT FITTINGS.

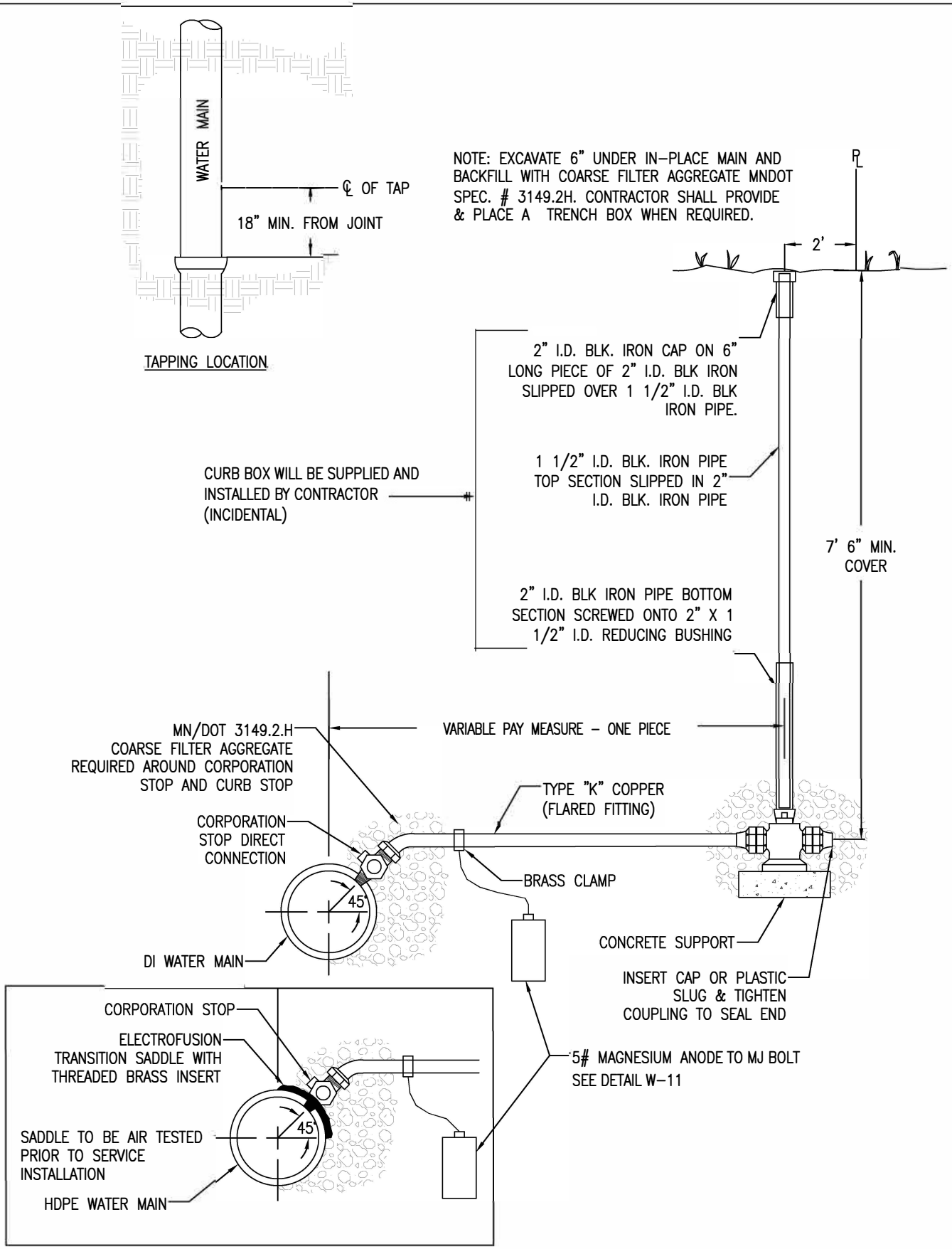
City of Rice Lake	FIRE HYDRANT SETTING DETAIL – DUCTILE IRON	W–3	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	



NOTES

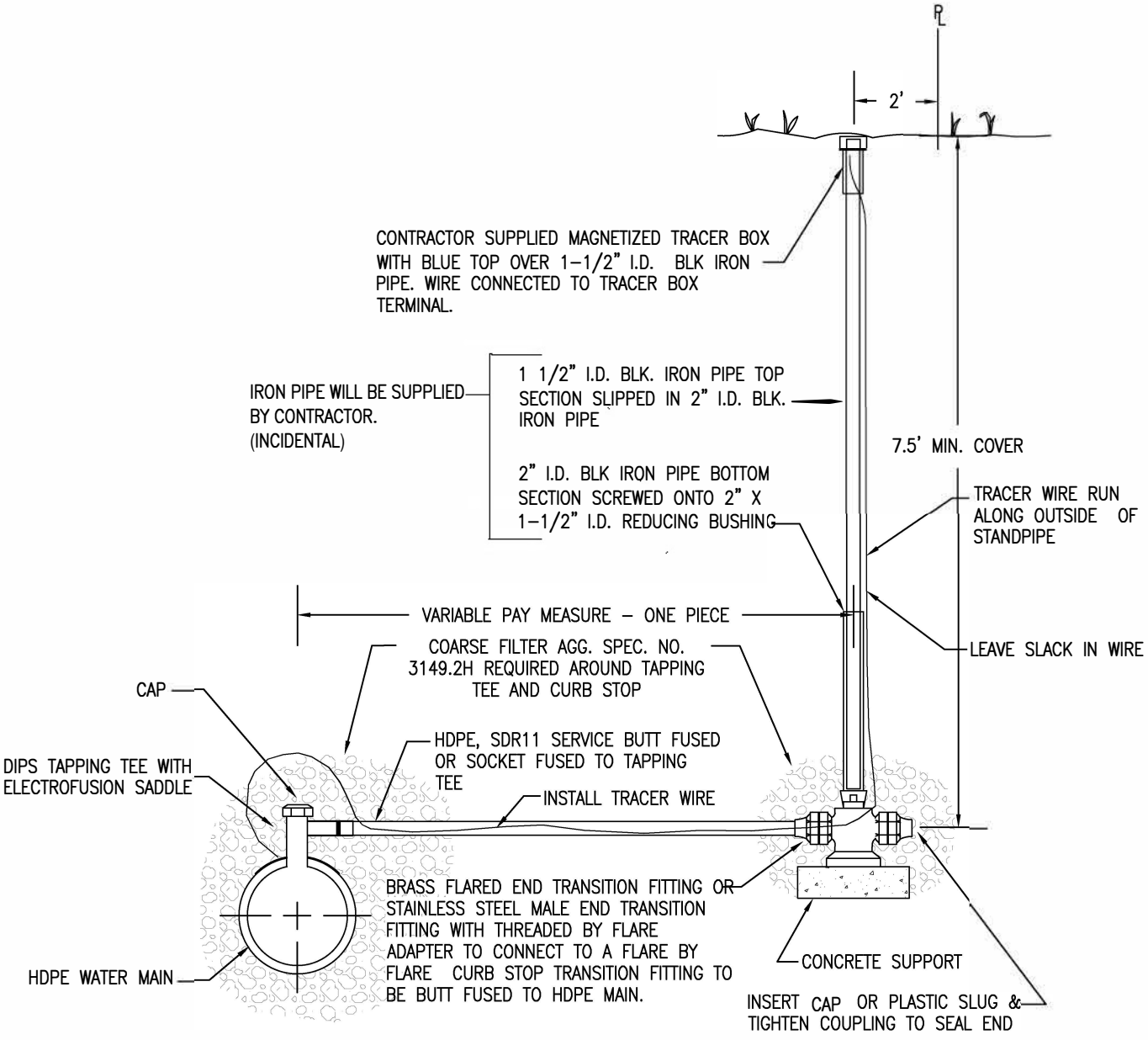
1. VALVES SHALL BE CONNECTED DIRECTLY TO MECHANICAL JOINT ADAPTER.
2. USE EPOXY COATING ON VALVE AND HYDRANT BASE
3. ALL BOLTS SHALL BE COR–TEN WITH 6 OUNCE ZINC ANODE CAPS CONFORMING TO ASTM B–418 FOR ALL MECHANICAL JOINT FITTINGS.
4. FOR 8" MAINS, CONTRACTOR SHALL USE AN 8 X 8 TEE WITH A MACHINED 8 X 6 REDUCER OR AN 8 X 6 ELECTROFUSION BRANCH SADDLE. FOR LARGER DIMENSION MAINS A FABRICATED TEE WITH A 6" BRANCH OUTLET MAY BE USED.
5. GATE VALVES WITH HDPE STUBS MAY BE USED IN LIEU OF MJ VALVES. ANODES SHALL BE CONNECTED DIRECTLY TO THE VALVE BONNET BOLTS.

City of Rice Lake	FIRE HYDRANT SETTING DETAIL – HDPE	W–3A	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 08/12/2024



City of Rice Lake	TYPICAL COPPER WATER SERVICE – 3/4", 1", 1-1/4", AND 2"	W-4	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 08/12/2024

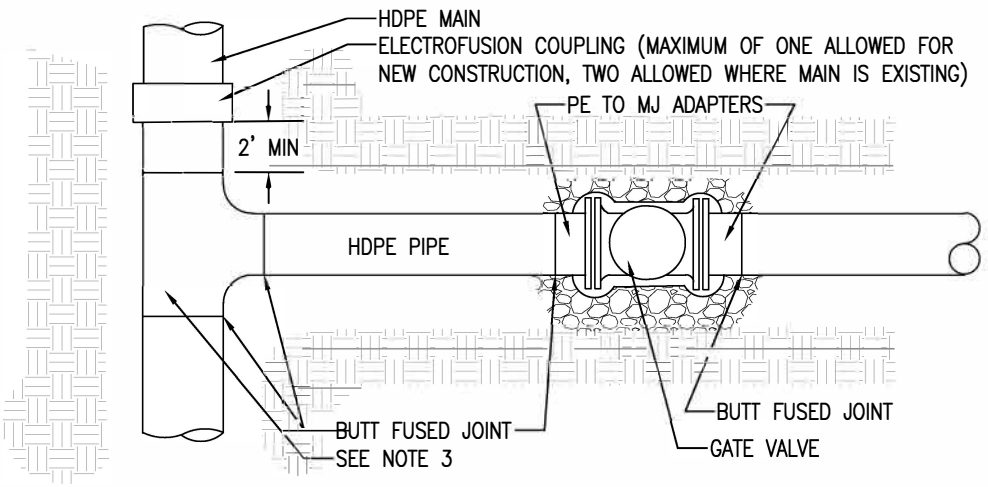
NOTE: EXCAVATE 6" UNDER IN-PLACE MAIN AND BACKFILL WITH COURSE FILTER AGGREGATE MNDOT SPEC. # 3149.2H. CONTRACTOR SHALL PROVIDE & PLACE A TRENCH BOX WHEN REQUIRED.

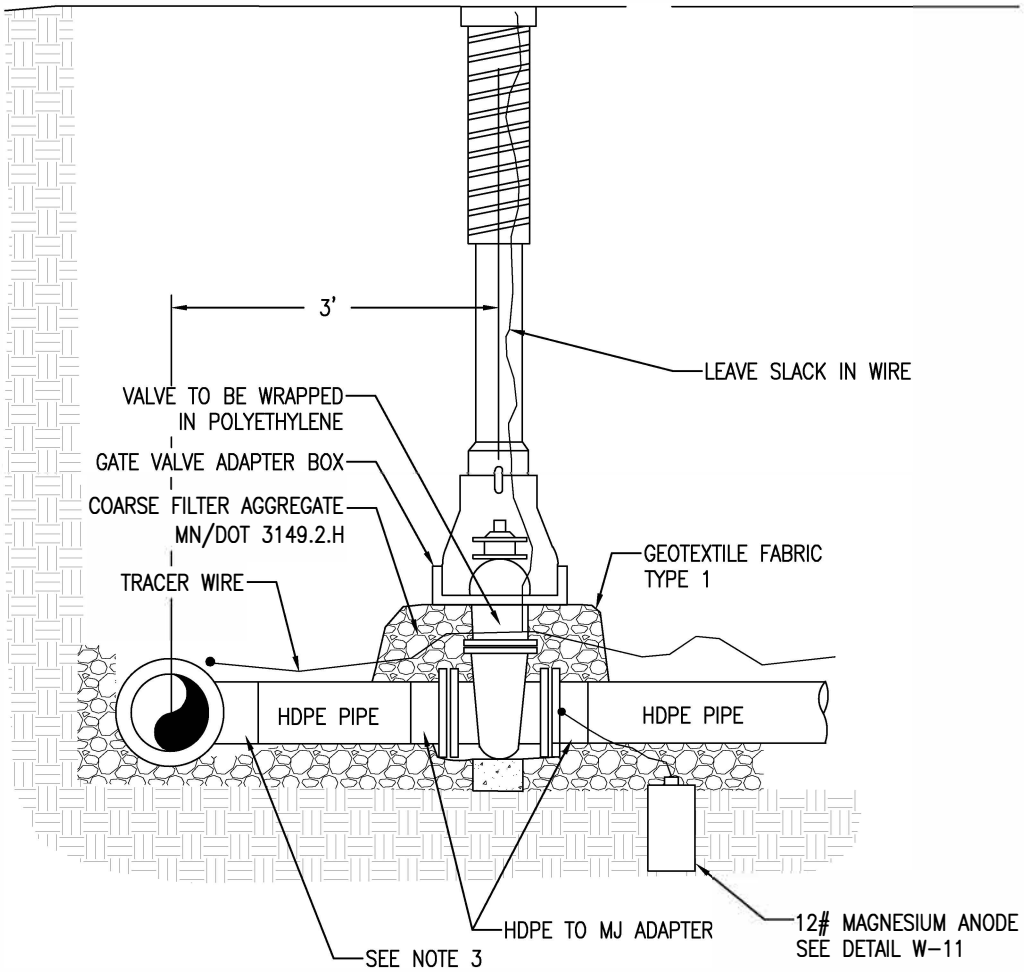


NOTE: SERVICE TO BE AIR TESTED PRIOR TO TAPPING MAIN

THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS OR CLIP TYPE CONNECTOR SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.

City of Rice Lake	TYPICAL HDPE WATER SERVICE - 1", 1-1/4", AND 2"	W-4A	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 08/12/2024



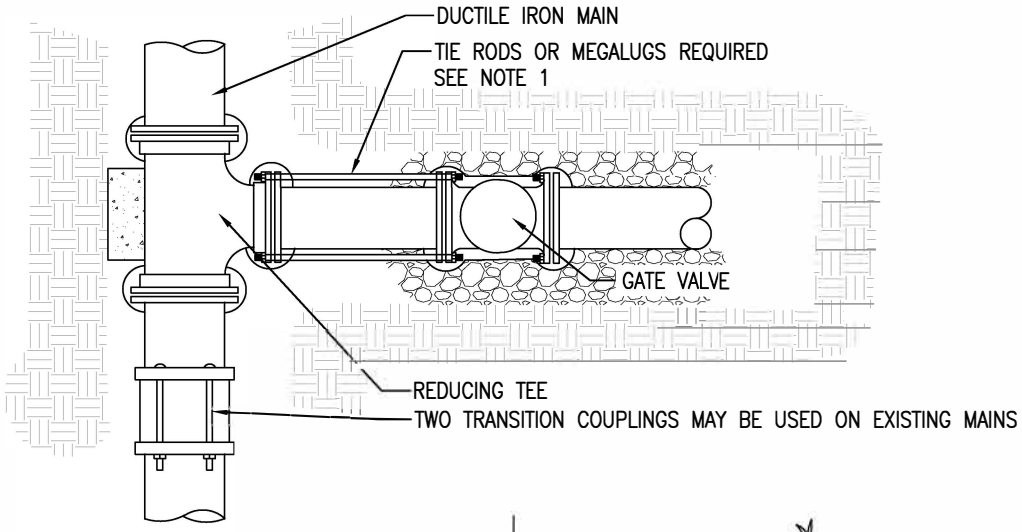


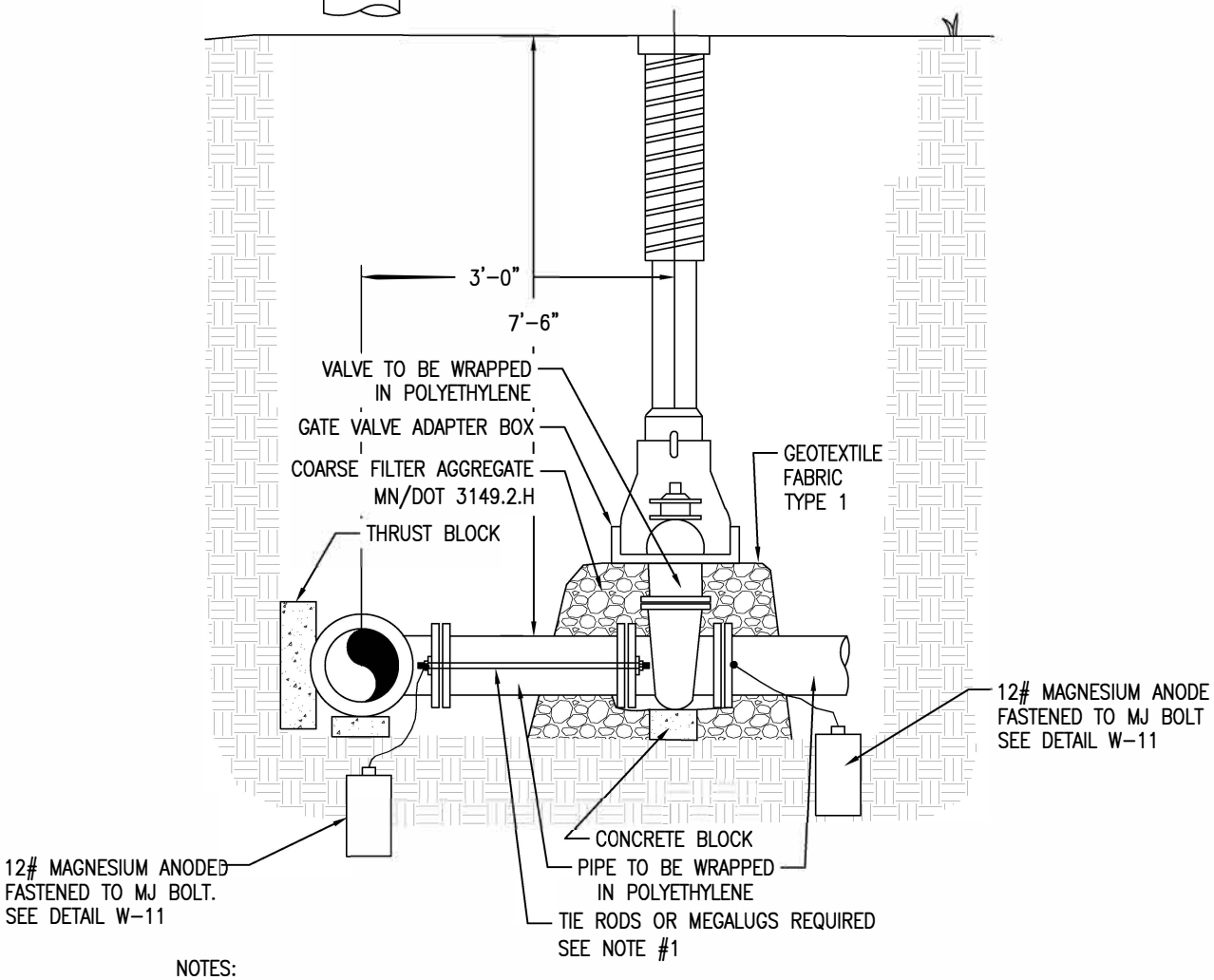
NOTES

1. VALVES SHALL BE CONNECTED DIRECTLY TO MECHANICAL JOINT ADAPTER.
2. ALL BOLTS SHALL BE COR-TEN WITH 6 OUNCE ZINC ANODE CAPS CONFORMING TO ASTM B-418 FOR ALL MECHANICAL JOINT FITTINGS.
3. FOR 8" MAINS, CONTRACTOR SHALL USE AN 8 X 8 TEE WITH A MACHINED 8 X 6 REDUCER OR AN 8 X 6 ELECTROFUSION BRANCH SADDLE. FOR LARGER DIMENSION MAINS A FABRICATED TEE WITH A 6" BRANCH OUTLET MAY BE USED.
4. GATE VALVES WITH HDPE STUBS MAY BE USED IN LIEU OF MJ VALVES. ANODES SHALL BE CONNECTED DIRECTLY TO THE VALVE BONNET BOLTS.

City of Rice Lake	4" & LARGER WATER SERVICE – HDPE	W-4B	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	

NOTE: ON EXISTING WATER MAINSS, HOT TAPS SHALL BE PERFORMED FOR NEW SERVICES WHEN POSSIBLE.

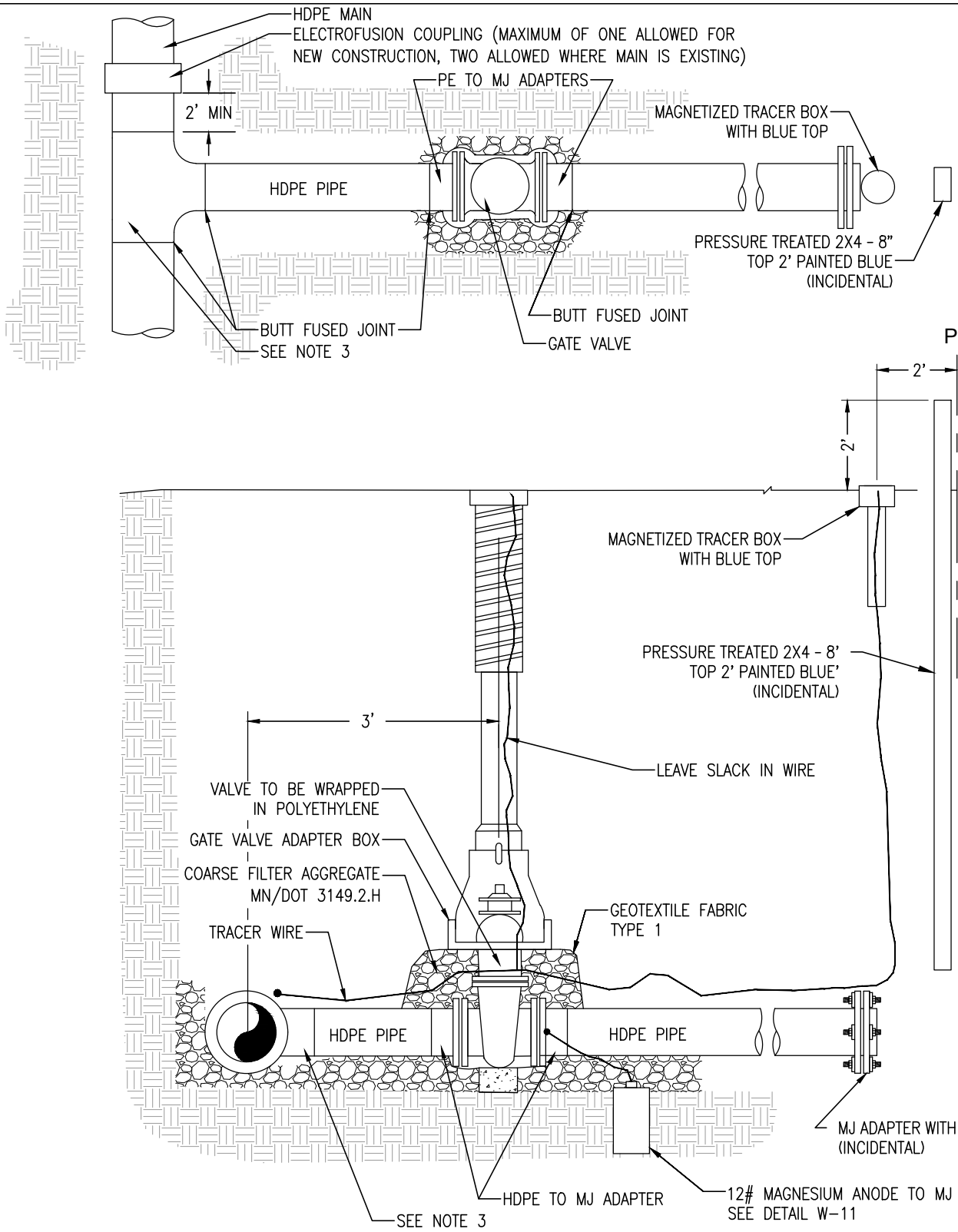




NOTES:

1. VALVES SHALL BE CONNECTED DIRECTLY TO AN ANCHORING TEE. WHENEVER DIRECT CONNECTION IS NOT POSSIBLE, TIE RODS OR MEGALUGS SHALL BE USED. TIE RODS SHALL BE GALVANIZED.
2. USE EPOXY COATING ON VALVE.
3. ALL BOLTS SHALL BE COR-TEN WITH 6 OUNCE ZINC ANODE CAPS CONFORMING TO ASTM B-418 FOR ALL MECHANICAL JOINT FITTINGS.

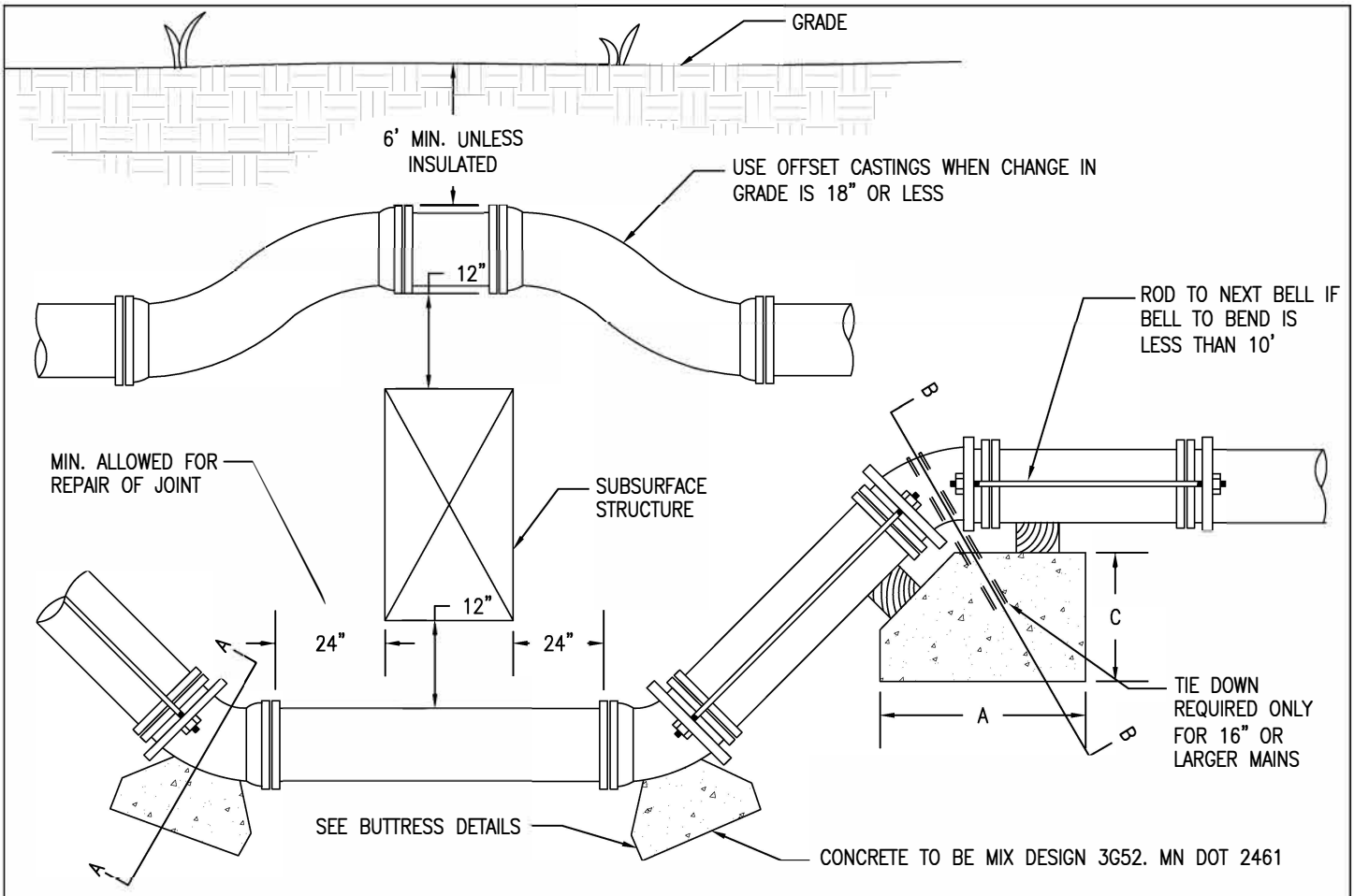
City of Rice Lake	4" & LARGER WATER SERVICE – DUCTILE IRON	W-4C	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	

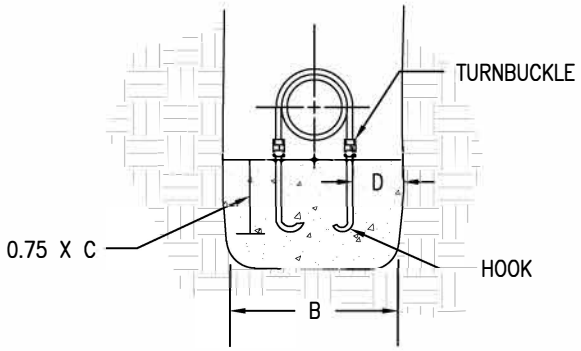


NOTES

1. VALVES SHALL BE CONNECTED DIRECTLY TO MECHANICAL JOINT ADAPTER.
2. ALL BOLTS SHALL BE COR-TEN WITH 6 OUNCE ZINC ANODE CAPS CONFORMING TO ASTM B-418 FOR ALL MECHANICAL JOINT FITTINGS.
3. FOR 8" MAINS, CONTRACTOR SHALL USE AN 8 X 8 TEE WITH A MACHINED 8 X 6 REDUCER OR AN 8 X 6 ELECTROFUSION BRANCH SADDLE. FOR LARGER DIMENSION MAINS A FABRICATED TEE WITH A 6" BRANCH OUTLET MAY BE USED.
4. GATE VALVES WITH HDPE STUBS MAY BE USED IN LIEU OF MJ VALVES. ANODES SHALL BE CONNECTED DIRECTLY TO THE VALVE BONNET BOLTS.

City of Rice Lake	4" & LARGER WATER SERVICE WITH CAP – HDPE	W-4D	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	

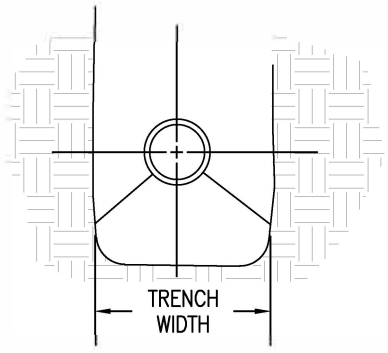




SECTION B–B

NOTES:

1. TIE RODS, BOLTS, NUTS, BANDS, AND WASHERS TO BE FURNISHED BY THE CONTRACTOR AND INSTALLED BY CONTRACTOR. ALL RODS AND CONNECTING HARDWARE SHALL BE GALVANIZED. ALL BOLTS SHALL BE COR–TEN WITH ZINC ANODE CAPS
2. STRAPPING MATERIAL:
   - 2.1. NO. RODS 2 PER TIE
   - 2.2. DIA. RODS 1 INCH
   - 2.3. STRAP SIZE 1/2" X 2"
   - 2.4. BOLT DIA. 3/4"
   - 2.5. WASHER SIZE 1/2" X 3" X 5"
3. OFFSETS FOR 16" WATER MAIN AND LARGER, TIE DOWNS SHALL BE INSTALLED AS SHOWN. TURNBUCKLE AND BLOCK SIZES:

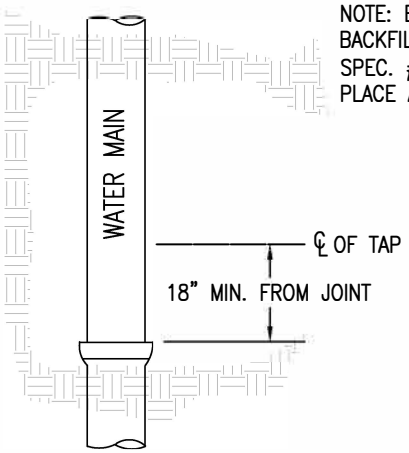


SECTION A–A

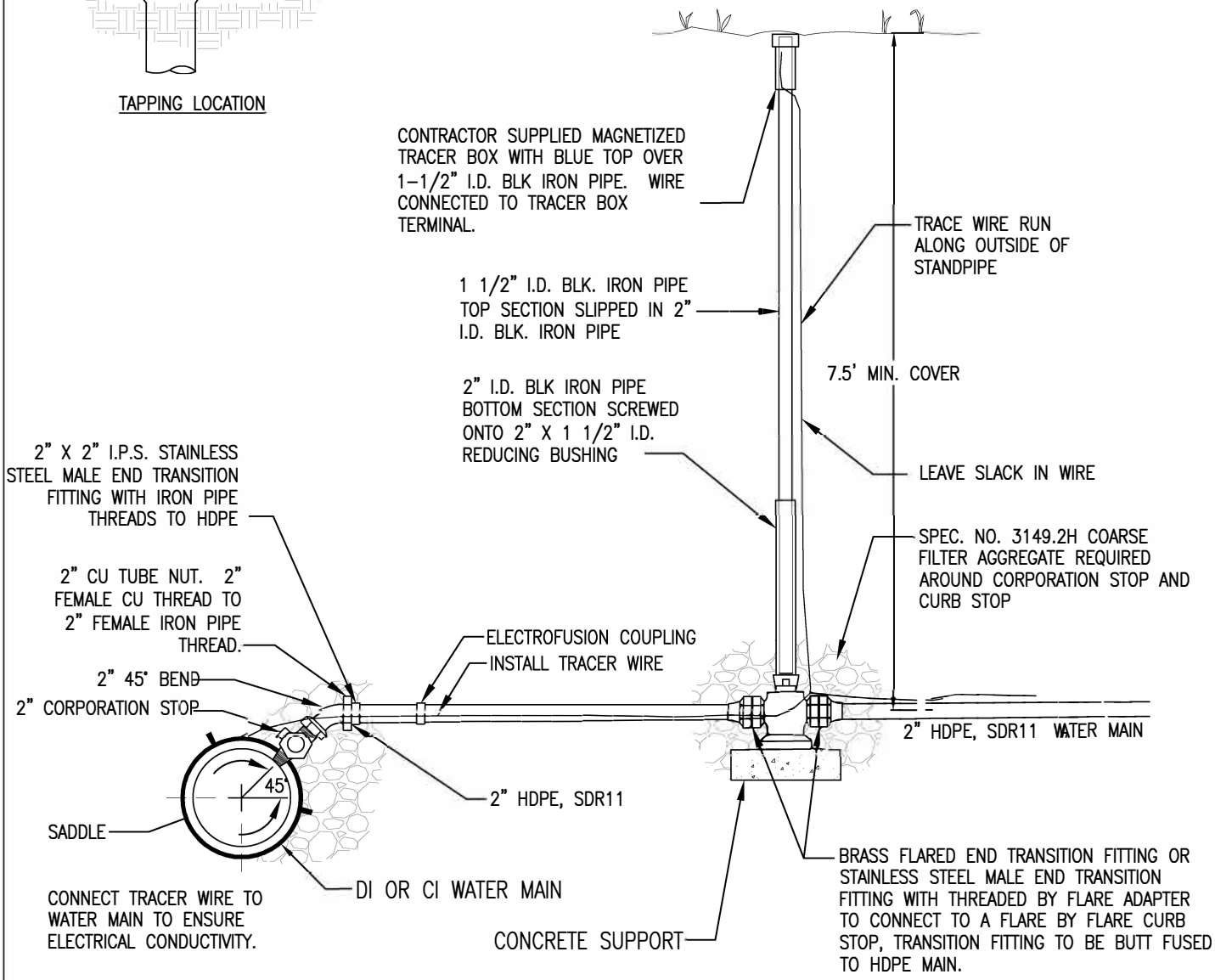
PIPE SIZE	A	B	C	D
16"	6'–0"	2'–6"	3'–0"	0'–1"
20"	8'–0"	3'–0"	3'–0"	0'–1 1/4"
24"	8'–0"	3'–0"	5'–0"	0'–1 1/2"
30"	8'–0"	5'–0"	5'–0"	0'–2"

City of Rice Lake	STRAPPING WATER MAIN VERTICAL OFFSETS	W–5	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	

NOTE: EXCAVATE 6" UNDER IN-PLACE MAIN AND BACKFILL WITH COARSE FILTER AGGREGATE MNDOT SPEC. # 3149.2H. CONTRACTOR SHALL PROVIDE & PLACE A TRENCH BOX WHEN REQUIRED.

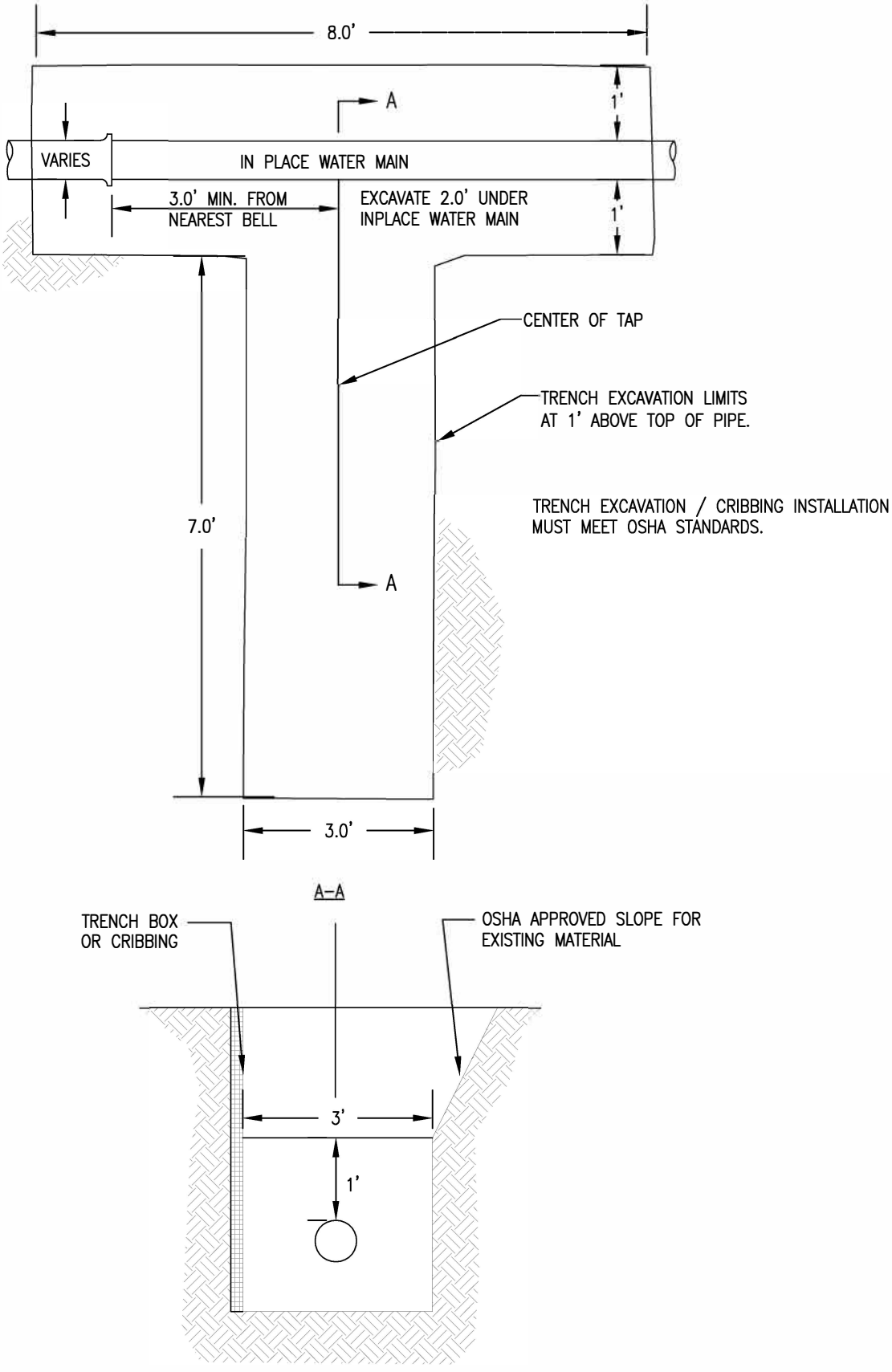


TAPPING LOCATION

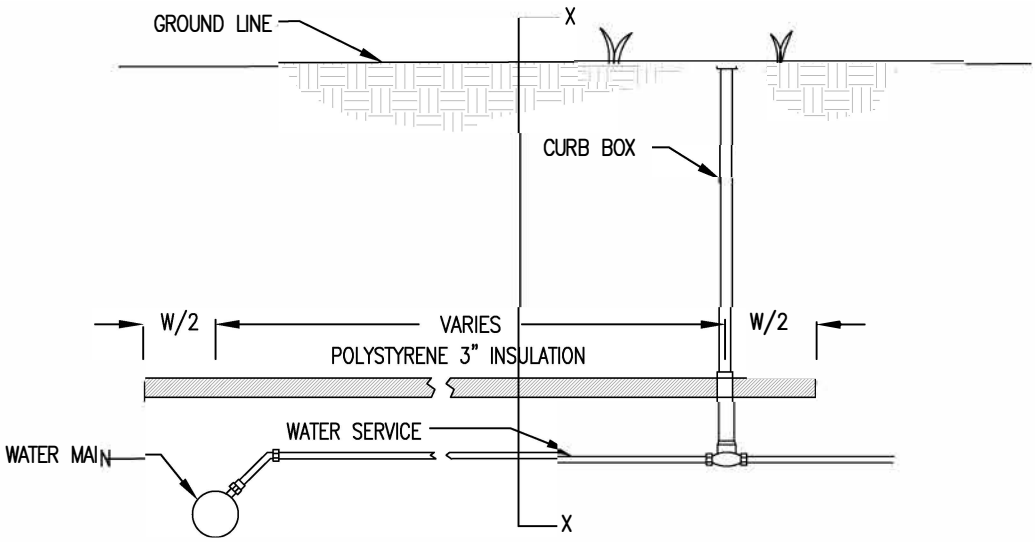


THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. THE NUMBER OF CONNECTIONS MUST BE KEPT TO A MINIMUM. ANY SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS OR CLIP TYPE CONNECTORS SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.

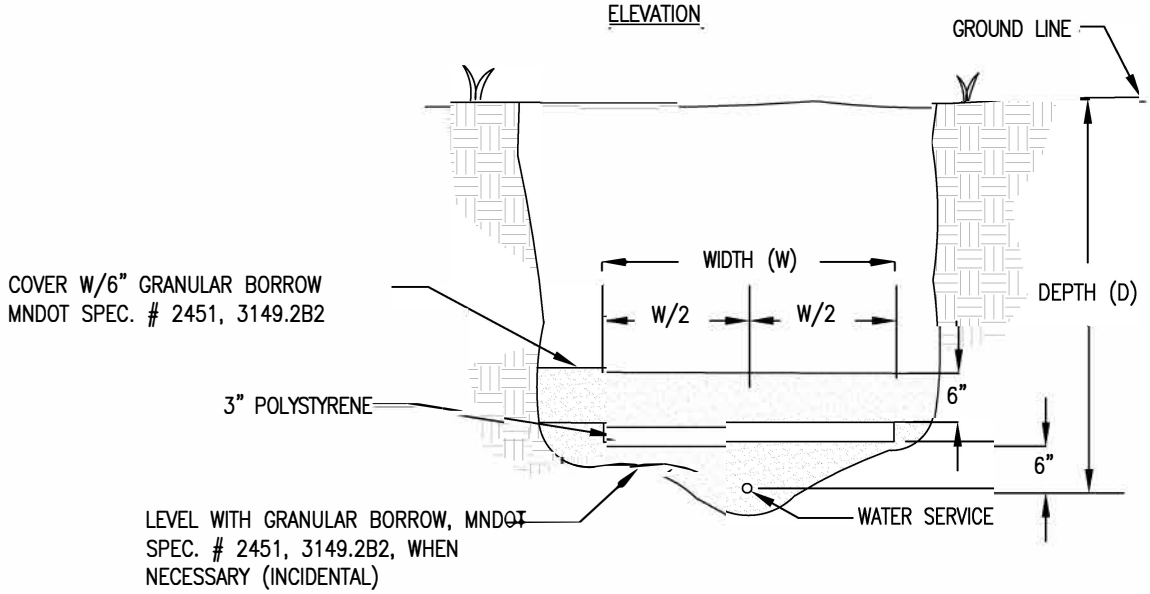
City of Rice Lake	2" HDPE WATER MAIN CONNECTION TO DI OR CI	W-6	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	



City of Rice Lake	EXCAVATION FOR TAPPING SLEEVE AND VALVE	W–7	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 08/12/2024



ELEVATION



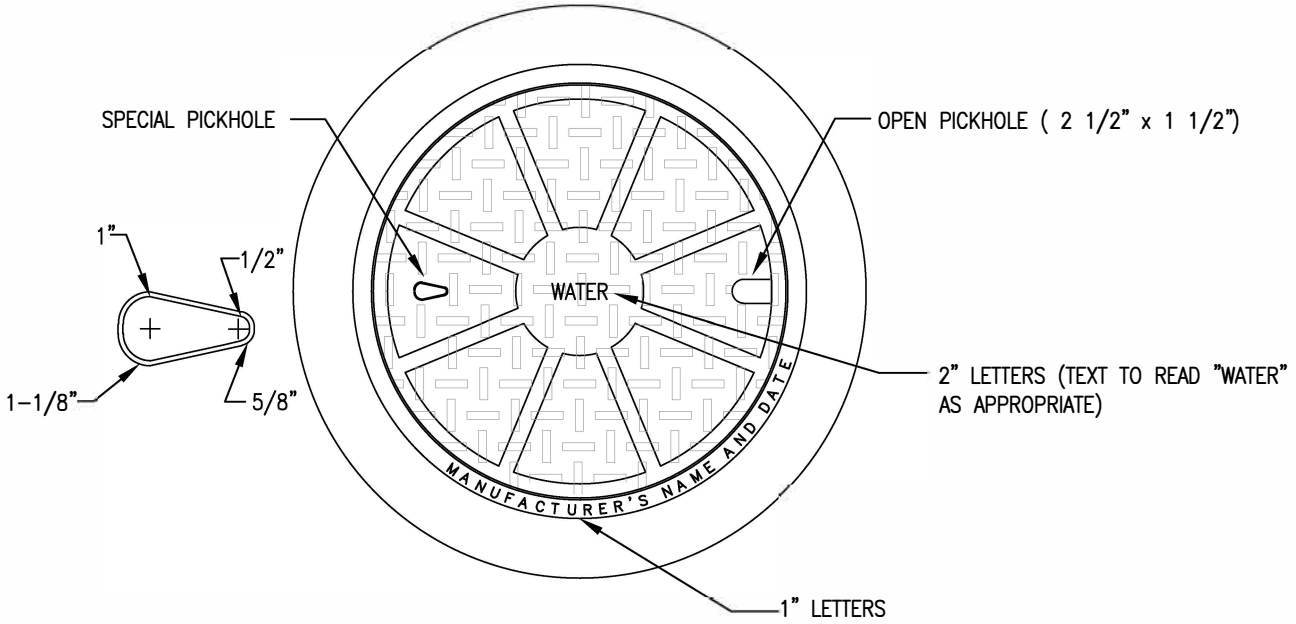
SECTION X–X

NOTES:

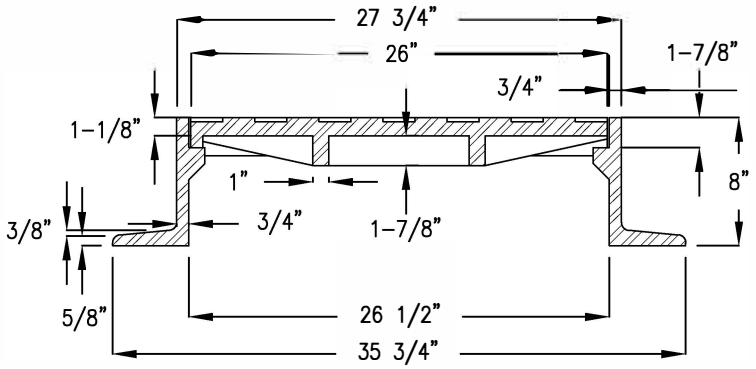
1. LAYERING OF 2 OR 3 SHEETS TO ARRIVE AT 3" IS PERMITTED WITH JOINTS OFFSET A MINIMUM OF 6".
2. POLYSTYRENE SHALL BE AS SPECIFIED IN THE CITY OF RICE LAKE PUBLIC WORKS AND UTILITIES STANDARD CONSTRUCTION SPECIFICATIONS.
3. INSULATION SHALL ONLY BE USED WHERE APPROVED BY THE ENGINEER.

DEPTH (D)	WIDTH (W)
7' OR MORE	NONE
5.2' TO 6.9'	4'–0"
4.3' TO 5.1'	6'–0"
3.0' TO 4.2'	8'–0"

City of Rice Lake	WATER SERVICE INSULATION	W–8	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 08/12/2024



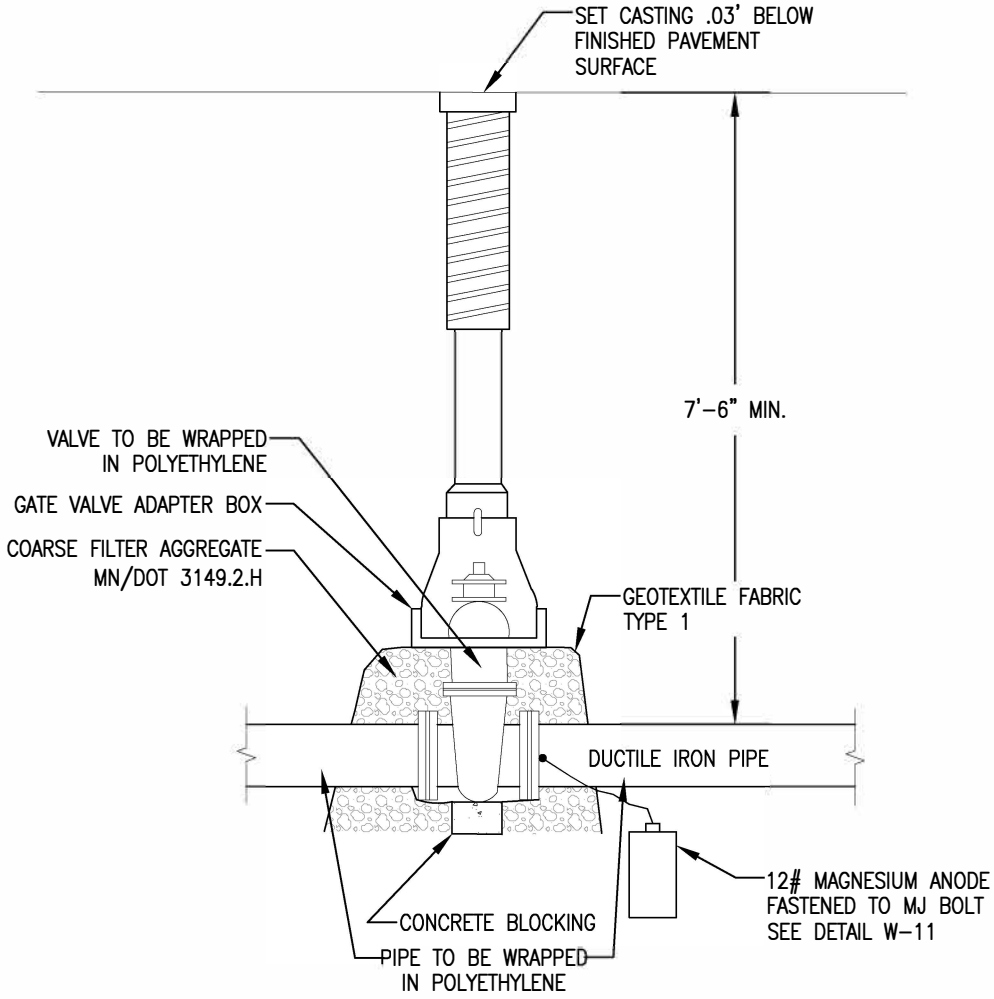
PLAN OF COVER



SECTION OF FRAME AND COVER

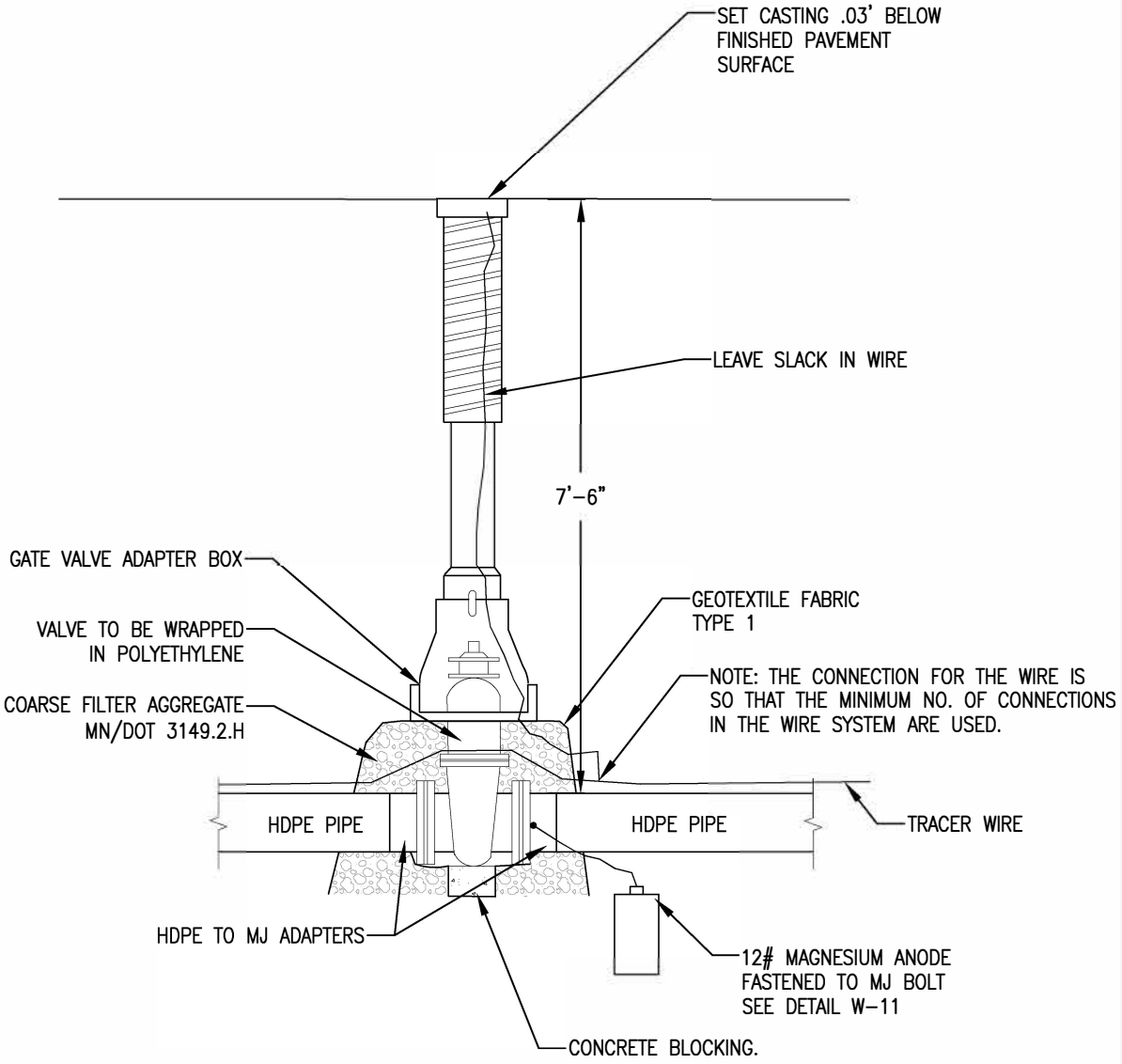
NOTE: ROUND OFF ALL EXPOSED EDGES FURNISHED WITH MACHINED HORIZONTAL BEARING SURFACES.
WEIGHT: RING–295 LBS. COVER – 162 LBS. SIMILAR OR EQUAL TO NEENAH FOUNDRY NQR–1723 (EXCEPT WITH LETTERING AS NOTED)

City of Rice Lake	CAST IRON WATER MANHOLE FRAME AND COVER	W–9	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 08/12/2024



NOTES:
1. USE EPOXY COATING ON EXTERIOR OF VALVES
2. ALL BOLTS SHALL BE COR-TEN WITH 6 OUNCE ZINC ANODE CAPS CONFORMING TO ASTM B-418 FOR ALL MECHANICAL JOINT FITTINGS.

City of Rice Lake	WATER VALVE BOX – DUCTILE IRON MAIN	W-10	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 08/12/2024

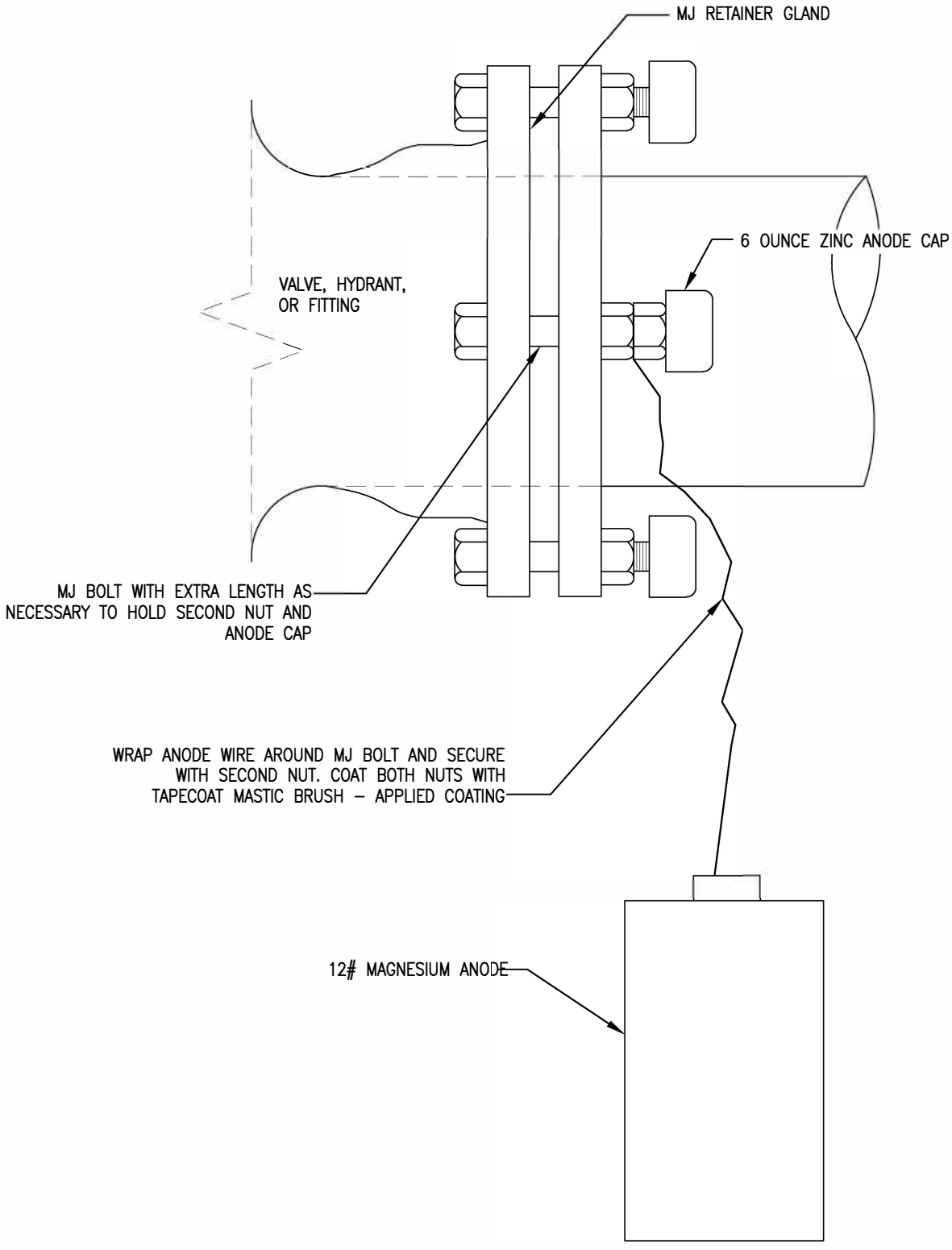


NOTES:

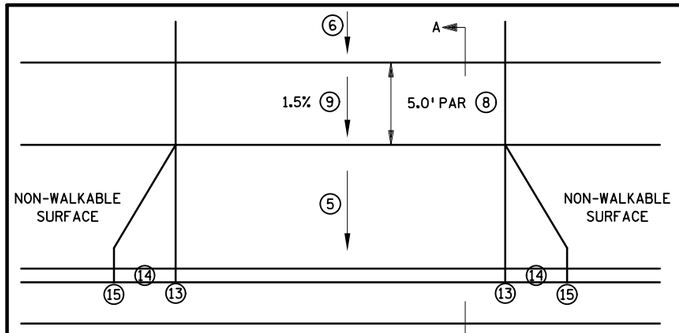
1. VALVES SHALL BE CONNECTED DIRECTLY TO HDPE WITH HDPE TO MECHANICAL JOINT ADAPTERS.
2. USE EPOXY COATING ON EXTERIOR OF VALVES.
3. ALL BOLTS SHALL BE COR-TEN WITH 6 OUNCE ZINC ANODE CAPS CONFORMING TO ASTM B-418 FOR ALL MECHANICAL JOINT FITTINGS.
4. FOR OPEN CUT PIPE INSTALLATIONS, ELECTROFUSION COUPLINGS ARE NOT ALLOWED FOR CONNECTION OF HDPE TO MJ ADAPTERS. FOR DIRECTIONAL DRILLED INSTALLATIONS, ONE ELECTROFUSION COUPLING MAY BE USED PER VALVE.
5. GATE VALVES WITH HDPE STUBS MAY BE USED IN LIEU OF MJ VALVES. ANODE SHALL BE CONNECTED DIRECTLY TO THE VALVE BONNET BOLTS.

City of Rice Lake	WATER VALVE BOX – HDPE MAIN	W-10A	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	

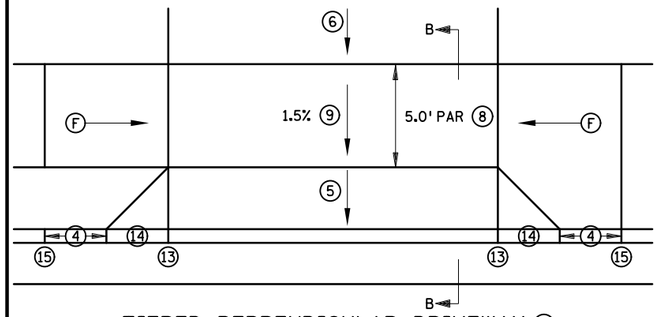
NOTE: ALL DUCTILE IRON VALVES, HYDRANTS, OR FITTINGS SHALL RECEIVE ANODES.



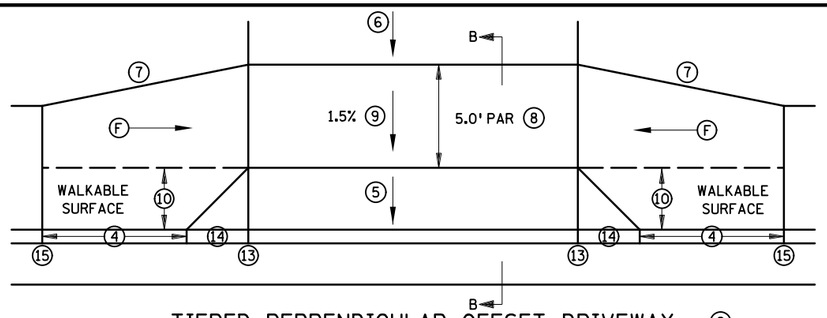
City of Rice Lake	ANODE CONNECTION	W–11	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	



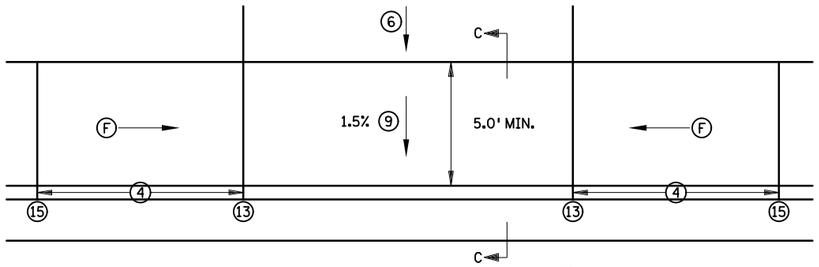
PERPENDICULAR DRIVEWAY ①



TIERED PERPENDICULAR DRIVEWAY ②



TIERED PERPENDICULAR OFFSET DRIVEWAY ②



PARALLEL DRIVEWAY ③

LEGEND

(F) ↓	INDICATES DRIVEWAY RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%

NOTES:

ALL SIDEWALK AND BOULEVARD WIDTHS SHALL BE MEASURE FROM BACK OF CURB.

IN URBAN ROADWAY SECTIONS, 6" CURB HEIGHT SHOULD BE USED WHEN 6' OR GREATER BOULEVARD WIDTH IS PROPOSED. WHEN BOULEVARD IS LESS THAN 6' WIDE, 4" CURB HEIGHT SHOULD BE USED.

MAINTAIN EXISTING DRAINAGE PATTERNS FLOWING TO PUBLIC RIGHT OF WAY.

ACQUIRE ADEQUATE L3 TO ALLOW FOR A CONTINUOUS PAR PROFILE (UNIFORM TYPICAL SIDEWALK SECTION) THROUGH THE DRIVEWAY APRON.

IN NO CASE SHALL SIDEWALK PROFILES EXCEED 5.0%, EXCEPT SIDEWALK PROFILES CAN MATCH ROADWAY GRADE IF ROADWAY GRADE IS GREATER THAN 5.0%. RAMPS FOR DRIVEWAYS ARE REQUIRED TO FOLLOW THE ABOVE SIDEWALK CRITERIA.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PEDESTRIAN ACCESS ROUTE (PAR). 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

DRIVEWAY TYPES FROM MOST PREFERRED TO LEAST PREFERRED ARE AS FOLLOWS: PERPENDICULAR, TIERED PERPENDICULAR, TIERED PERPENDICULAR OFFSET & PARALLEL.

① PERPENDICULAR DRIVEWAYS ARE THE STANDARD AND STARTING POINT FOR ALL DRIVEWAY DESIGN AND CONSTRUCTION. SHOULD BE USED TO ACHIEVE CONTINUOUS PAR PROFILE THROUGH THE DRIVEWAY. OBTAINING A PERPENDICULAR DRIVEWAY DESIGN BECOMES MORE CRITICAL WITH STEEP ROADWAY PROFILES.

② TO BE USED WHEN PERPENDICULAR DRIVEWAY DESIGN CANNOT BE ACHIEVED. THE DRIVEWAY PAR IS BELOW ROADWAY CURB HEIGHT. THIS DRIVEWAY TYPE CAN BE USED FOR BOTH PAVED (AS SHOWN) AND GRASS BOULEVARDS.

③ TO BE USED WHEN PERPENDICULAR AND TIERED PERPENDICULAR DRIVEWAY DESIGN CANNOT BE ACHIEVED. CAN BE USED FOR STEEP NEGATIVE SLOPED DRIVEWAYS. DW CURB TYPE 2 SHOULD BE USED TO RAISE PAR ABOVE GUTTER AND REDUCE "ROLLER COASTER" EFFECT. 4" HIGH ROADWAY CURB SHOULD BE USED TO REDUCE "ROLLER COASTER" EFFECT ESPECIALLY WHEN MULTIPLE DRIVEWAYS ARE PRESENT.

④ TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

⑤ 8% STANDARD, 10% MAX. FOR COMMERCIAL AND 12% MAX. FOR RESIDENTIAL. SEE GENERAL NOTES ON SHEET 2 FOR MORE INFORMATION.

⑥ S3 8% MAXIMUM, IF THE SLOPE IS EXCEEDED OR CONTINUED FOR MORE THAN 5', ANALYZE VEHICLE TEMPLATES FOR VERTICAL CLEARANCE. IF EXISTING DRIVEWAY IS NEGATIVELY DRAINING, S3 CAN BECOME SLIGHTLY MORE NEGATIVE TO ACHIEVE PERPENDICULAR DRIVEWAY DESIGN IF THE VERTICAL CLEARANCE IS ACHIEVED IN VEHICLE TEMPLATES.

⑦ 1:3 MIN. 1:5 PREFERRED FOR DRIVEWAY RETROFIT PROJECTS. 1:10 PREFERRED FOR SIDEWALK REPLACEMENT PROJECTS.

⑧ 5.0' MIN. PAR WIDTH IS THE STANDARD THROUGH DRIVEWAYS. IF FEASIBLE WIDEN DRIVEWAY PAR WIDTH TO MATCH APPROACHING SIDEWALK PAR WIDTHS. IN VERTICALLY CONSTRAINED AREAS PAR WIDTHS CAN INCREMENTALLY BE REDUCED TO 4.5' OR 4' MIN AFTER ALL OTHER OPTIONS HAVE BEEN APPLIED.

⑨ THE PEDESTRIAN ACCESS ROUTE, MAY NOT EXCEED 0.02 FT./FT. AS CONSTRUCTED.

⑩ SIDEWALK OFFSET TO BE LESS THAN OR EQUAL TO HALF THE APPROACHING SIDEWALK WIDTH.

⑪ INTEGRAL DRIVEWAY APRON TO BE POURED MONOLITHICALLY/INTEGRAL WITH THE CURB AND GUTTER. SEE SHEET 2 FOR MORE INFORMATION.

⑫ SEE SHEET 2 FOR CURB TYPE INFORMATION.

⑬ 0" CURB IS AT FLOW LINE. SEE DRIVEWAY TABLE FOR BACK OF CURB HEIGHTS.

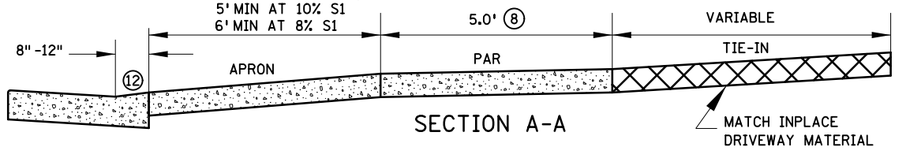
⑭ 3' LONG AT 8-10% PREFERRED FOR INITIAL CURB TAPER. REDUCE CURB TAPER SLOPE IF NECESSARY TO MATCH ADJACENT SIDEWALK GRADES.

⑮ MATCH FULL CURB HEIGHT.

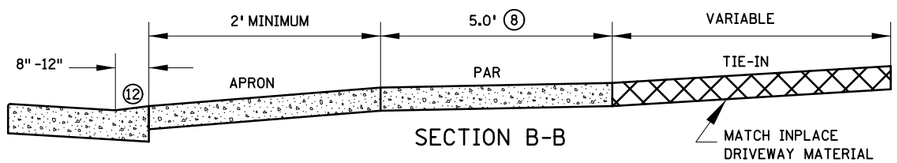
⑯ 1:2 TAPER RATE ON INTEGRAL DRIVEWAY APRONS.

⑰ SEE SHEET 4 FOR WHEN 6" WALK IS REQUIRED.

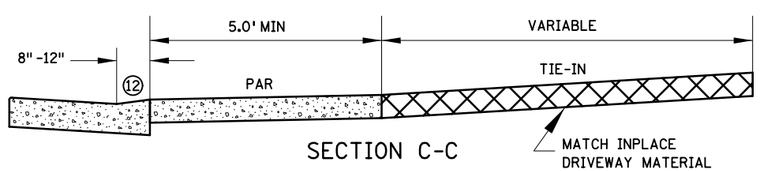
WITH 4" CURB HEIGHT;
3' MIN AT 10% S1
4' MIN AT 8% S1
WITH 6" CURB HEIGHT;
5' MIN AT 10% S1
6' MIN AT 8% S1



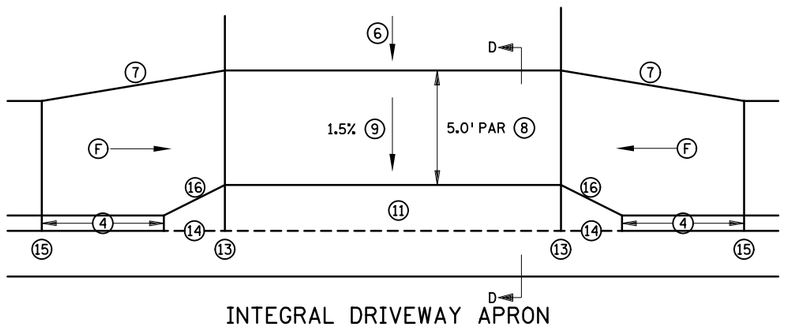
SECTION A-A



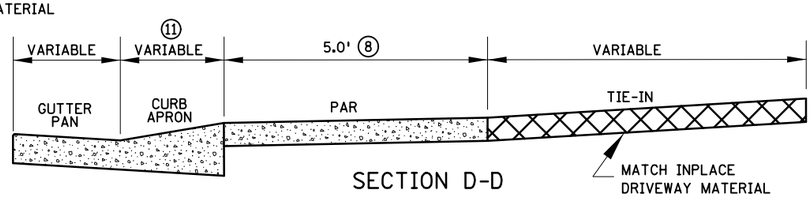
SECTION B-B



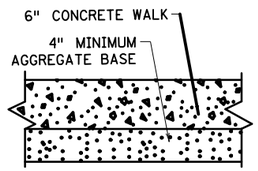
SECTION C-C



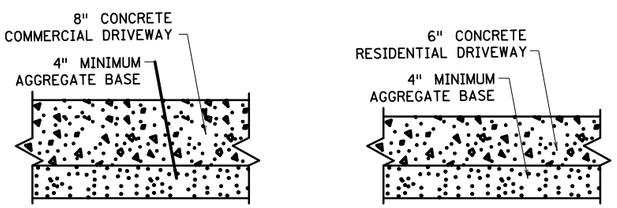
INTEGRAL DRIVEWAY APRON



SECTION D-D



TYPICAL SIDEWALK SECTION ⑰



TYPICAL DRIVEWAY SECTIONS

REVISION:

APPROVED: 11-04-2021
JEFFREY PERKINS
OPERATIONS DIVISION

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.254 | 1 OF 4

APPROVED: 11-04-2021
REVISED:

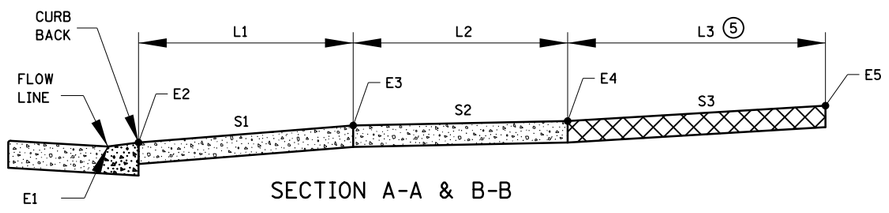
THOMAS STYRBICKI
STATE DESIGN ENGINEER

DRIVEWAY AND SIDEWALK DETAILS

STATE PROJ. NO. (TH) SHEET NO. OF SHEETS

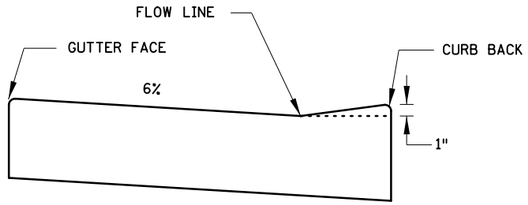
DRIVEWAY TABLE (1)

STATION	SIDE	DRIVEWAY TYPE (2)	CURB TYPE (3)	E1	E2	L1 FT	S1 %	E3	L2 FT	S2 (4) %	E4	L3 (5) FT	S3 %	EXISTING (6) %	E5	COMMENTS



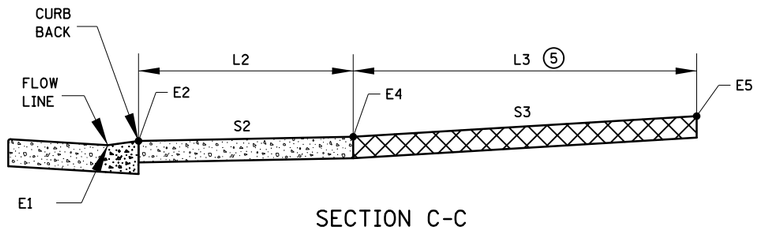
SECTION A-A & B-B

(REFER TO PREVIOUS SHEET)



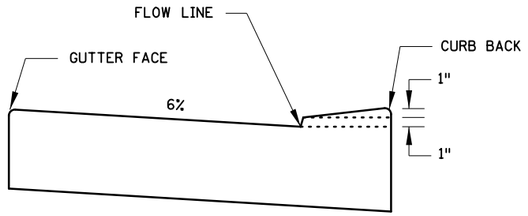
DW CURB TYPE 1

STANDARD CURB AT DRIVEWAY



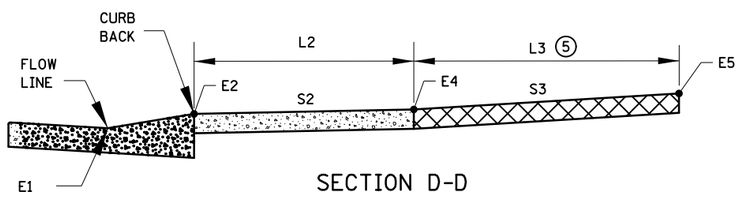
SECTION C-C

(REFER TO PREVIOUS SHEET)



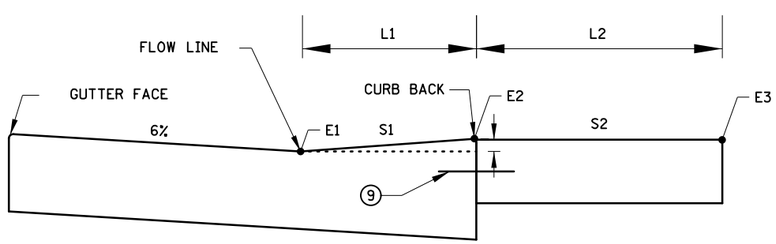
DW CURB TYPE 2

VERTICALLY CONSTRAINED



SECTION D-D

(REFER TO PREVIOUS SHEET)



INTEGRAL DRIVEWAY APRON (IDA)

NOTES:

ALL SIDEWALK AND BOULEVARD WIDTHS SHALL BE MEASURED FROM BACK OF CURB.

DW CURB TYPE 1 SHALL BE USED WHEN THE DRIVEWAY ACTS AS A PEDESTRIAN RAMP. THE MAX. APRON SLOPE MUST ADHERE TO ADA CRITERIA AS WELL. DW CURB TYPE 1 SHOULD BE USED IF THERE IS ON STREET PARKING.

WHERE ROADWAY DRAINAGE IS A CONCERN (NEGATIVE SLOPED APRON) DW CURB TYPE 2 CAN BE USED TO HELP KEEP THE WATER ON PUBLIC RIGHT OF WAY.

S1 8% STANDARD, 10% MAX. COMMERCIAL AND 12% MAX. RESIDENTIAL. IF EXISTING GRADES ARE STEEPER DO NOT MAKE GRADES APPRECIABLY WORSE BY USING BEST PRACTICES SUCH AS DRIVEWAY CURB HEIGHTS, EXTENDING L3 AND/OR STEEPEN S3.

S3 8% MAXIMUM, IF THIS SLOPE IS EXCEEDED OR CONTINUED FOR MORE THAN 5', ANALYZE VEHICLE TEMPLATES FOR VERTICAL CLEARANCE. SEE FACILITY DESIGN GUIDE, CHAPTER 6, FOR GEOMETRIC DESIGNS OF DRIVEWAYS.

(1) EXAMPLE SHOWN TO BE INCLUDED IN PLAN FOR EACH DRIVEWAY THAT HAS PAR THROUGH IT.

(2) REFERS TO THE FOLLOWING TYPES; PERPENDICULAR DRIVEWAY, TIERED PERPENDICULAR OFFSET DRIVEWAY, TIERED PERPENDICULAR DRIVEWAY, PARALLEL DRIVEWAY, AND INTEGRAL DRIVEWAY APRON.

(3) DW CURB TYPE 1 IS THE STANDARD AND SHALL BE THE STARTING POINT FOR ALL PERPENDICULAR AND TIERED DRIVEWAYS. DW CURB TYPE 2 SHALL ONLY BE USED AFTER UTILIZING BEST PRACTICES SUCH AS MAXIMIZING S1, S3, AND L3.

(4) SHOULD BE DESIGNED AT 1.5%.

(5) ACQUIRE ADEQUATE L3 TO ALLOW FOR CONTINUOUS PAR PROFILE (UNIFORM SIDEWALK SECTION) THROUGH THE DRIVEWAY APRON.

(6) PROVIDE INPLACE TIE-IN SLOPE INFORMATION AT BACK OF PROPOSED WALK (S3 AREA).

(7) INFORMATION TO BE INCORPORATED INTO DRIVEWAY TABLE WHEN INTEGRAL DRIVEWAY APRON IS USED. OTHER CURB HEIGHTS & CURB APRON LENGTHS CAN BE USED.

(8) L1 & S1 FOR INTEGRAL DRIVEWAY APRON IS TO FLOWLINE. 12.5% IS MAXIMUM PREFERRED SLOPE.

(9) TIE ADJACENT SECTIONS. CONCRETE DRIVEWAY APRON AND CONCRETE DRIVEWAY SIDEWALK SHALL BE CONSTRUCTED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. DRILL AND GROUT OR CAST IN-PLACE THROUGH HOLES IN THE FORMS NO. 4 X 12" LONG TIE BARS (EPOXY COATED). 36" MAXIMUM SPACING WITH 2" MINIMUM CONCRETE COVER PLACED 1' MINIMUM FROM ADJACENT CONSTRUCTION JOINT.

TYPICAL INTEGRAL DRIVEWAY APRON (7)

CURB TYPE	L1 FT	E2	S1 (8) %
IDA 216	1.33	+0.16	12.5
IDA 220	1.67	+0.16	10
IDA 324	2	+0.24	12.5
IDA 432	2.67	+0.33	12.5

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STANDARD PLAN 5-297.254 | 2 OF 4

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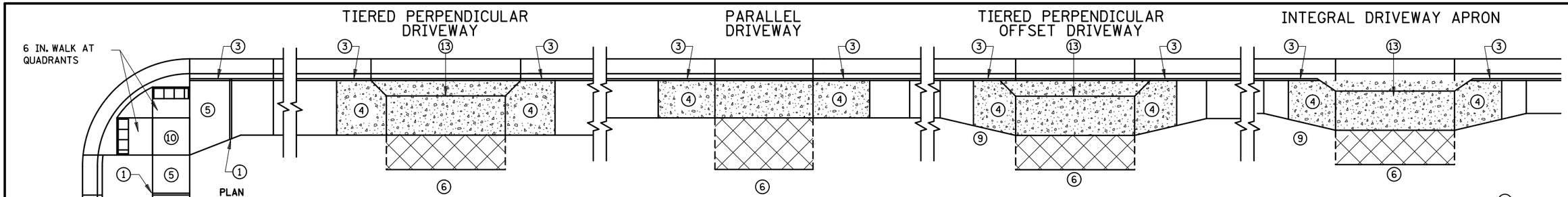
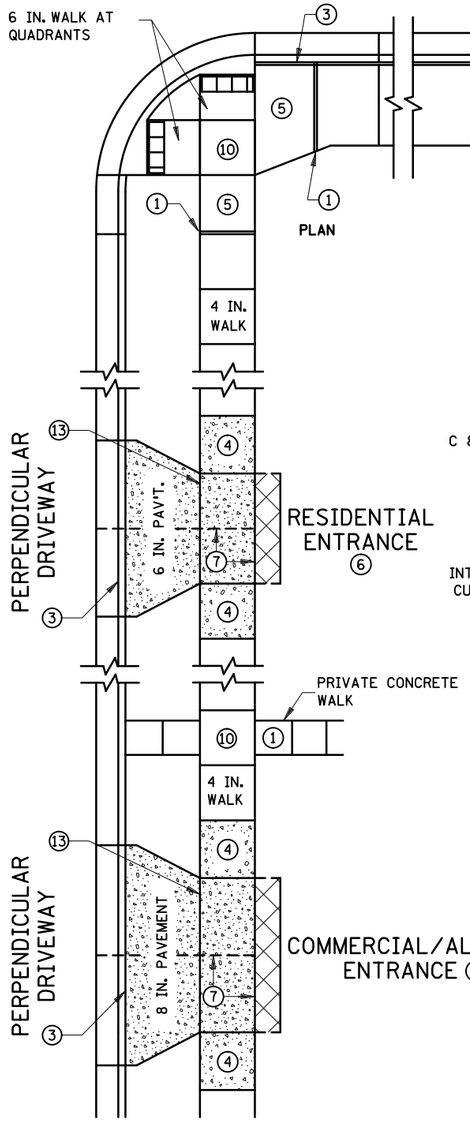
REVISED:

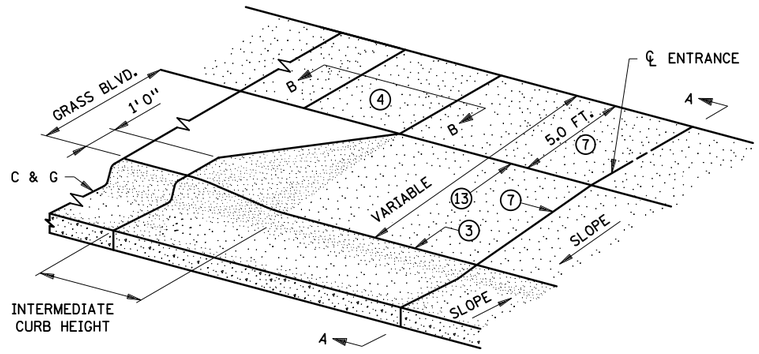
THOMAS STYRBICKI
STATE DESIGN ENGINEER

DRIVEWAY AND SIDEWALK DETAILS

STATE PROJ. NO. (TH) SHEET NO. OF SHEETS

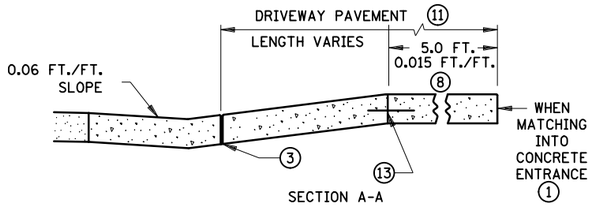




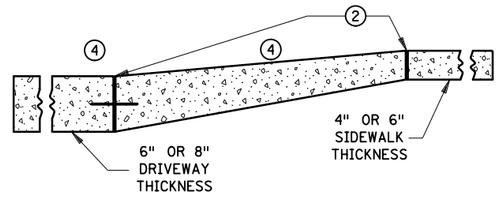


HALF PLAN PERSPECTIVE

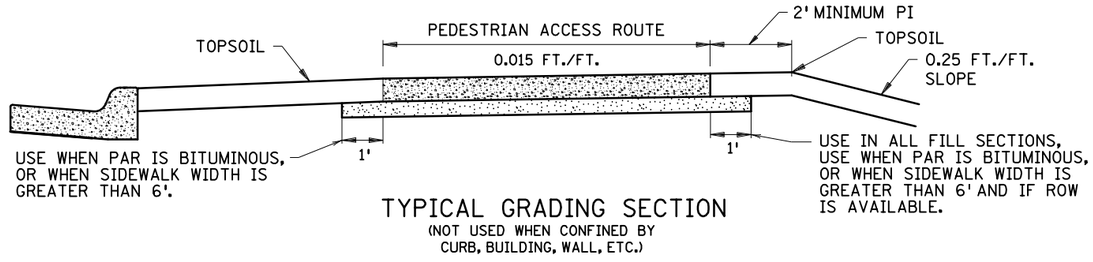
PERPENDICULAR DRIVEWAYS WITH GRASS BOULEVARDS



SECTION THRU DRIVEWAY

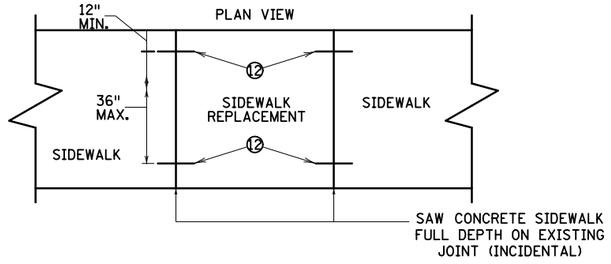


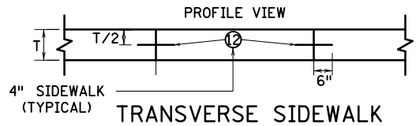
SECTION THRU SIDEWALK THICKNESS TRANSITION



TYPICAL GRADING SECTION

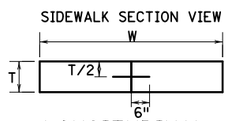
(NOT USED WHEN CONFINED BY CURB, BUILDING, WALL, ETC.)





TRANSVERSE SIDEWALK TIE BAR REINFORCEMENT

RETROFITS ONLY



LONGITUDINAL SIDEWALK REINFORCEMENT JOINTS

SIDEWALK LONGITUDINAL JOINT TIE BAR TABLE				
SIDEWALK WIDTH, W	SIDEWALK THICKNESS, T	TIE BAR SIZE	LENGTH	SPACING
> 7'	4"	No. 4	12"	24"
>10'	6"	No. 4	12"	36"

FOR 4" CONCRETE ONLY: CAST IN PLACE BARS MUST BE SUPPORTED WITH P-STAKES OR REINFORCEMENT BASKETS FOR FULL WIDTH CONCRETE PLACEMENTS.

FOR 6" CONCRETE ONLY: DRILL AND GROUT OR CAST IN PLACE THROUGH HOLES IN THE FORMS REQUIRED FOR STAGED ADJACENT CONCRETE PLACEMENTS.

NOTES:

ALL SIDEWALK AND BOULEVARD WIDTHS SHALL BE MEASURED FROM BACK OF CURB.

TO MINIMIZE SIDEWALK "ROLLER COASTER" EFFECT IT IS DESIRABLE TO KEEP THE PAR ELEVATION CONTINUOUS OR AT LEAST IN THE UPPER HALF OF CURB HEIGHT. 4" HIGH CURB SHOULD BE USED INSTEAD OF 6" HIGH CURB TO HELP THIS PROBLEM WHEN APPLICABLE.

4" HIGH ADJACENT CURB IS PREFERRED WHEN BOULEVARDS 4' OR LESS ARE PRESENT MEASURED FROM THE BACK OF CURB. WHEN THE DRIVEWAY IS SLOPING DOWN FROM THE ROADWAY (NEGATIVE) 4" HIGH ADJACENT CURB SHOULD ALSO BE USED.

SEE FACILITY DESIGN GUIDE, CHAPTER 6, FOR GEOMETRIC DESIGN OF DRIVEWAYS.

(1) CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE. DRIVEWAY EXPANSION SHALL BE PLACED AT TOP OR BOTTOM OF TRANSITION PANEL. MAXIMUM 2 EXPANSIONS PER DRIVEWAY.

(2) CONSTRUCT WITH EXPANSION MATERIAL MNDOT PER SPEC. 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE. MAXIMUM ONE EXPANSION PER DRIVEWAY PLACED AT EITHER TOP OR BOTTOM OF CONCRETE THICKNESS TRANSITION. IF MULTIPLE DRIVEWAYS EXIST PLACE ONE EXPANSION BETWEEN EACH DRIVEWAY. IF NO DRIVEWAY EXIST PLACE A MAXIMUM OF ONE EXPANSION PER 150' OF SIDEWALK RUN.

(3) USE AN APPROVED TYPE F (1/4 INCH THICK) SEPARATION MATERIAL. SEPARATION MATERIAL SHALL MATCH FULL HEIGHT DIMENSION OF ADJACENT CONCRETE.

(4) TRANSITION DRIVEWAY THICKNESS TO WALK THICKNESS. IF THERE IS A CONSTRUCTION JOINT AND NO EXPANSION IS USED, INSTALL TIE BARS.

(5) TRANSITION CURB RAMP THICKNESS TO WALK THICKNESS.

(6) MATCH INPLACE DRIVEWAY WIDTH, MATERIAL TYPE AND THICKNESS.

(7) FORM CONTRACTION JOINT AS NEEDED TO PRODUCE APPROXIMATELY SQUARE PANELS. CONCRETE PANEL SIZE SHOULD NOT EXCEED 1 1/2 : 1 LENGTH X WIDTH. 81 SF FOR 6" CONCRETE DRIVEWAY WITH 9'X9' MAXIMUM PANEL SIZE. 144 SF FOR 8" CONCRETE DRIVEWAY WITH 12'X12' MAXIMUM PANEL SIZE. MATCH DRIVEWAY APRON AND SIDEWALK JOINTS.

(8) THE PEDESTRIAN ACCESS ROUTE CROSS-SLOPE, SHALL NOT EXCEED 0.02 FT./FT. AS CONSTRUCTED.

(9) 1:10 MIN. SIDEWALK OFFSET TAPER REQUIRED FOR SIDEWALK REPLACEMENT PROJECTS. 1:3 MIN. AND 1:5 MIN. PREFERRED SIDEWALK OFFSET TAPER FOR DRIVEWAY REPLACEMENT.

(10) LANDING REQUIRED, SEE NEXT SHEET FOR MORE INFORMATION.

(11) CONCRETE DRIVEWAY APRON AND CONCRETE DRIVEWAY SIDEWALK SECTIONS SHALL BE CONSTRUCTED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. ENGINEER'S APPROVAL REQUIRED FOR MONOLITHIC PLACEMENTS.

(12) DRILL AND GROUT NO. 4 X 12" LONG TIE BARS (EPOXY COATED). 36" MAXIMUM SPACING BETWEEN BARS COVER PLACED 1' MINIMUM FROM ADJACENT CONSTRUCTION JOINTS. 1' MINIMUM FROM ADJACENT CONCRETE JOINTS. BARS TO BE ADJUSTED TO MATCH SIDEWALK GRADES. TO BE PAID BY EACH.

(13) DRILL AND GROUT OR CAST IN-PLACE THROUGH HOLES IN THE FORMS NO. 4 X 12" LONG TIE BARS (EPOXY COATED). 36" MAXIMUM SPACING BETWEEN BARS WITH 2" MINIMUM CONCRETE COVER PLACED 1' MINIMUM FROM ADJACENT CONSTRUCTION JOINTS. 1' MINIMUM FROM ADJACENT CONCRETE JOINTS.

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DRIVEWAY AND SIDEWALK DETAILS

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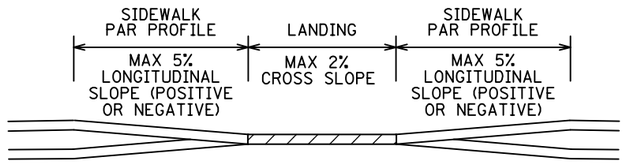
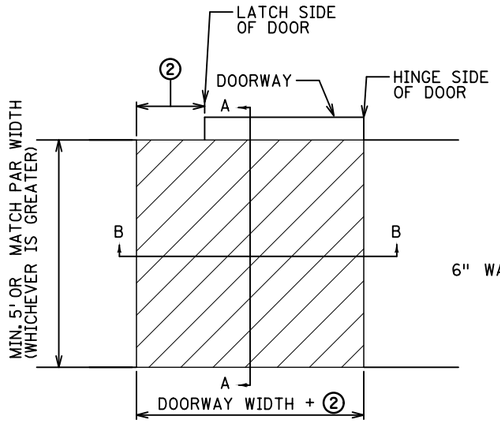
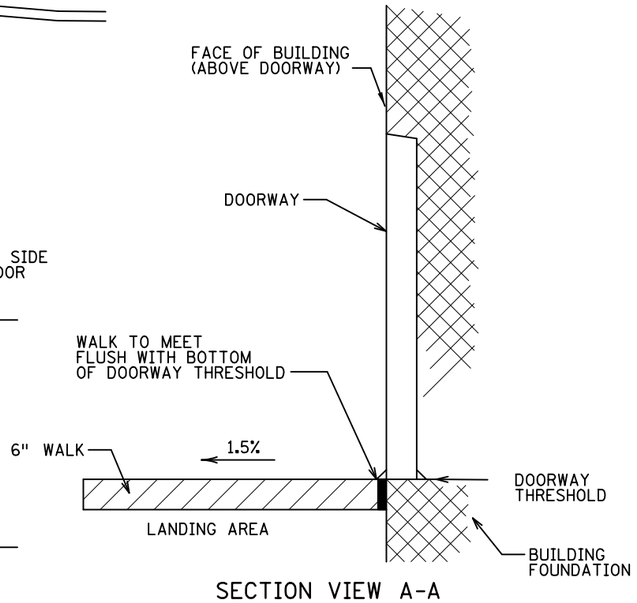


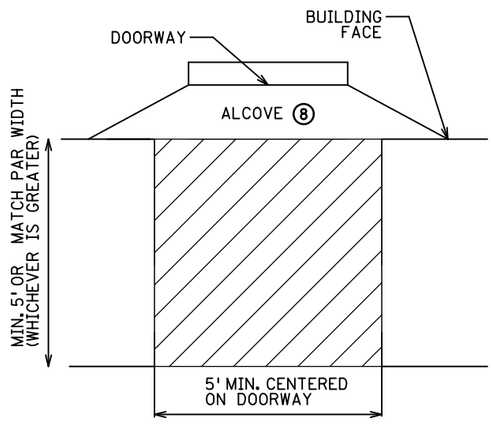
SECTION VIEW B-B



PLAN VIEW DOORWAY

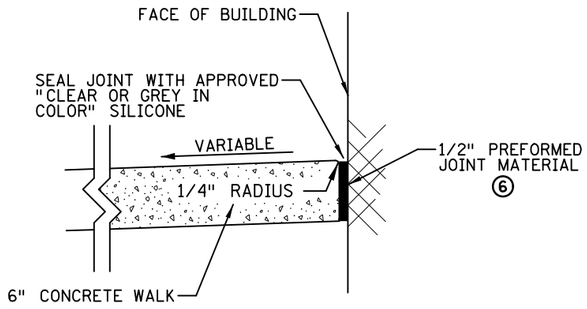


SECTION VIEW A-A

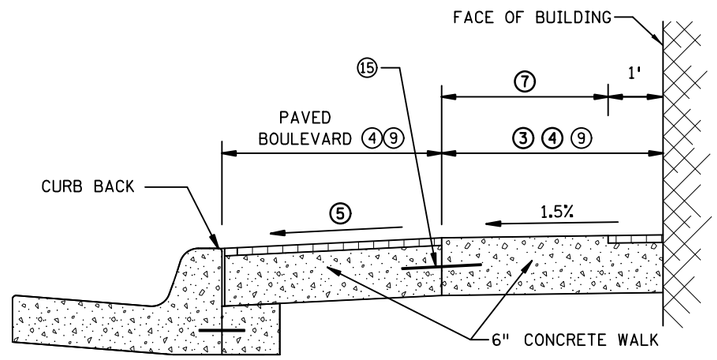


PLAN VIEW DOORWAY WITH ALCOVE

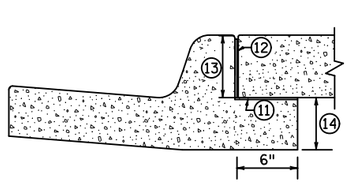
SIDEWALK LANDING REQUIREMENTS ①



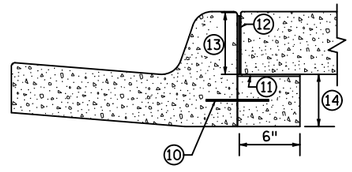
BUILDING JOINT SEAL (INCIDENTAL)



DOWNTOWN SIDEWALK TYPICAL SECTION



SLIP FORM SILL



FIXED FORM SILL

SILL CURB SHOULD BE USED AT ALL LOCATIONS WHEN CONCRETE WALK IS AT BACK OF CURB, INCLUDING PAVED BOULEVARD.

SILL CURB SHALL NOT BE USED IN CURB RAMP AND DRIVEWAY AREAS, INCLUDING CONCRETE FLARES.

SILL CURB WITH 4" WALK CAN USE FIXED OR SLIP FORM OPTIONS.

NOTES:

6" WALK IS REQUIRED:
1) IN ALL SIDEWALK LOCATIONS WHERE VARIABLE SLOPED CONCRETE BOULEVARDS ARE PAVED, SUCH AS COMMERCIAL (STORE FRONT, DOWNTOWN) AREAS.
2) ANYTIME DRILL AND REINFORCEMENT IS USED TO TIE LONGITUDINAL JOINTS TOGETHER.
3) TO ELIMINATE LONGITUDINAL JOINT WHEN INCREASING PANEL SIZE OVER 36SF.
4) AT LOCATIONS WHERE MAINTENANCE EQUIPMENT WILL SUBJECT CONCRETE TO HEAVY LOADS.

ALL SIDEWALK AND BOULEVARD WIDTHS SHALL BE MEASURED FROM BACK OF CURB.

FIELD ADJUST SIDEWALK PROFILES TO MEET ALL DOORWAY THRESHOLDS.

SIDEWALK MUST MAINTAIN POSITIVE DRAINAGE AWAY FROM THE BUILDING TO THE ROADWAY.

SEE SPECIAL PROVISIONS FOR SILICONE SPECIFICATIONS.

① LANDING CRITERIA IS REQUIRED FOR ALL DOORS, STEPS, AND PRIVATE WALKS. FEASIBILITY DECREASES WITH NARROWER BOULEVARDS AND STEEPER SIDEWALK PROFILES.

② 18" MIN. WHEN DOOR SWINGS OUTWARD FROM BUILDING. 12" MIN WHEN DOOR SWINGS INWARD FROM BUILDING.

③ 6' MIN. PAR REQUIRED WHEN ADJACENT TO BUILDINGS.

④ 2/3 PAR TO 1/3 BOULEVARD SHOULD BE USED WHEN FEASIBLE. HOLD UNIFORM BOULEVARD WIDTH. 4' PREFERRED MINIMUM BOULEVARD.

⑤ 1%-5% FOR THE MAJORITY OF THE BLOCK, WITH EXCEPTIONS UP TO 8% IN CONSTRAINED AREAS.

⑥ CONSTRUCT USING APPROVED EXPANSION MATERIAL PER MNDOT TYPE A-E EXPANSION. LEAVE A MINIMUM ½" TOP GAP AND SEAL WITH MNDOT APPROVED SILICONE PER MNDOT SPEC 3722.

⑦ TO MINIMIZE VIBRATION AND ROLLING RESISTANCE, AREA SHALL BE FREE OF PAVERS, STAMPED CONCRETE, AND/OR EXCESSIVE JOINTING.

⑧ 2% MAX. PER BUILDING CODE. IF GREATER THAN 2%, FLATTEN AS FEASIBLE.

⑨ FORM CONTRACTION JOINTS AS NEEDED TO PRODUCE APPROXIMATELY SQUARE PANEL SIZE. CONRETE PANEL SIZE SHOULD NOT EXCEED 1½ : 1 LENGTH X WIDTH.

⑩ DRILL AND GROUT NO. 4 X 8" LONG TIE BARS (EPOXY COATED). 36" MAXIMUM SPACING BETWEEN BARS WITH 2" MINIMUM CONCRETE COVER PLACED 1' MINIMUM FROM ADJACENT CONSTRUCTION JOINTS. 1' MINIMUM FROM ADJACENT CONCRETE JOINTS. TIE BARS SHALL BE EMBEDDED 4" WITH 2" MINIMUM CONCRETE COVER AND ARE INCIDENTAL TO SILL PLACEMENT.

⑪ FURNISH AND INSTALL THE FULL WIDTH OF THE TOP OF SILL A MINIMUM 2ML THICK POLYTHENE SHEETING.

⑫ USE AN APPROVED TYPE F (¼ INCH THICK) SEPARATION MATERIAL. SEPARATION MATERIAL SHALL MATCH FULL HEIGHT DIMENSION OF ADJACENT CONCRETE.

⑬ DIMENSION TO BE SAME AS SIDEWALK THICKNESS, 4" MIN.

⑭ 6" WALK: 5" MIN. FOR B424; 7" MIN. FOR B624
4" WALK: 7" MIN. FOR B424; 9" MIN. FOR B624

⑮ DRILL AND GROUT NO. 4 X 12" LONG TIE BARS (EPOXY COATED). 36" MAXIMUM SPACING BETWEEN BARS WITH 2" MINIMUM CONCRETE COVER PLACED 1' MINIMUM FROM ADJACENT CONCRETE JOINTS.

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DRIVEWAY AND SIDEWALK DETAILS

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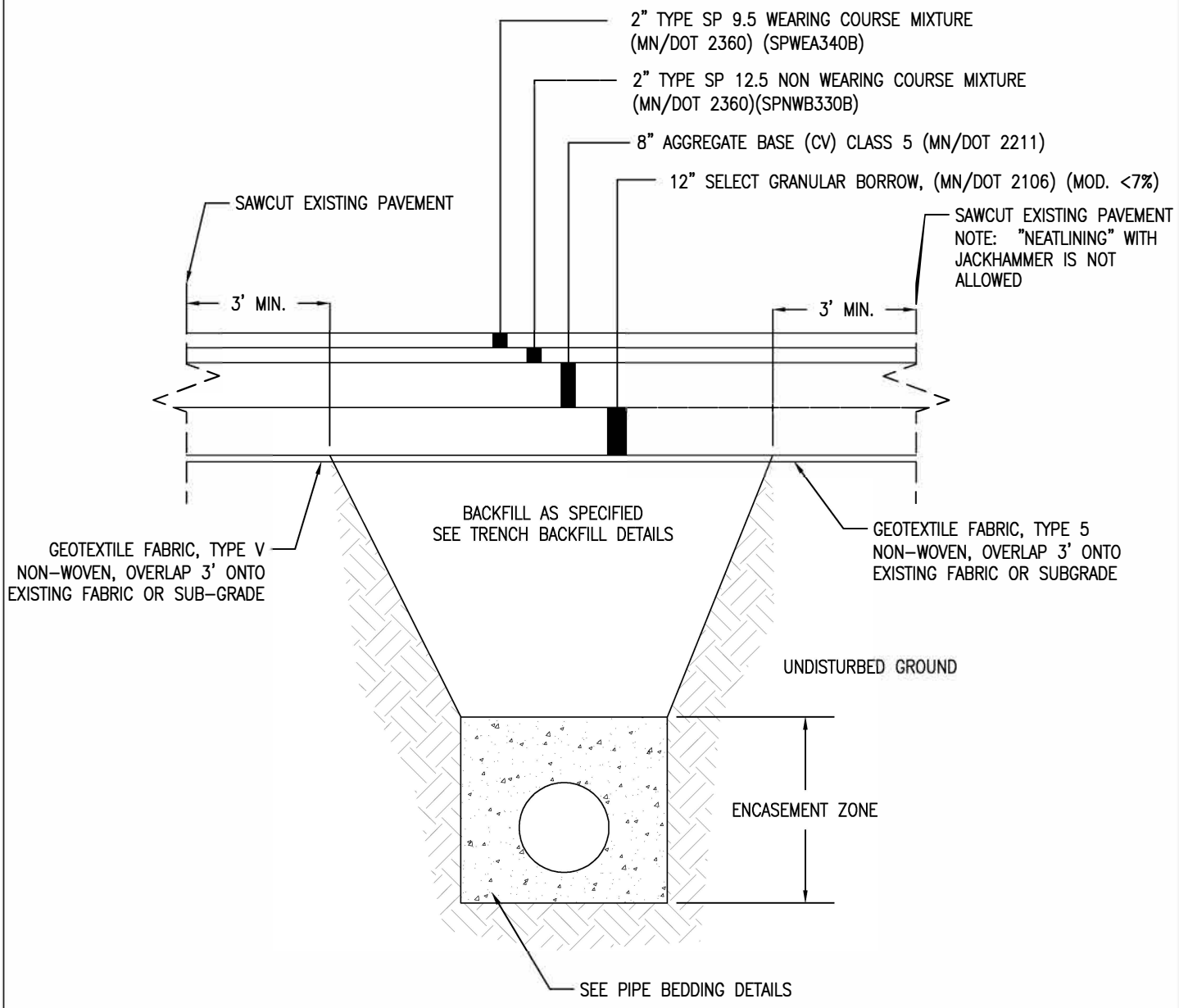
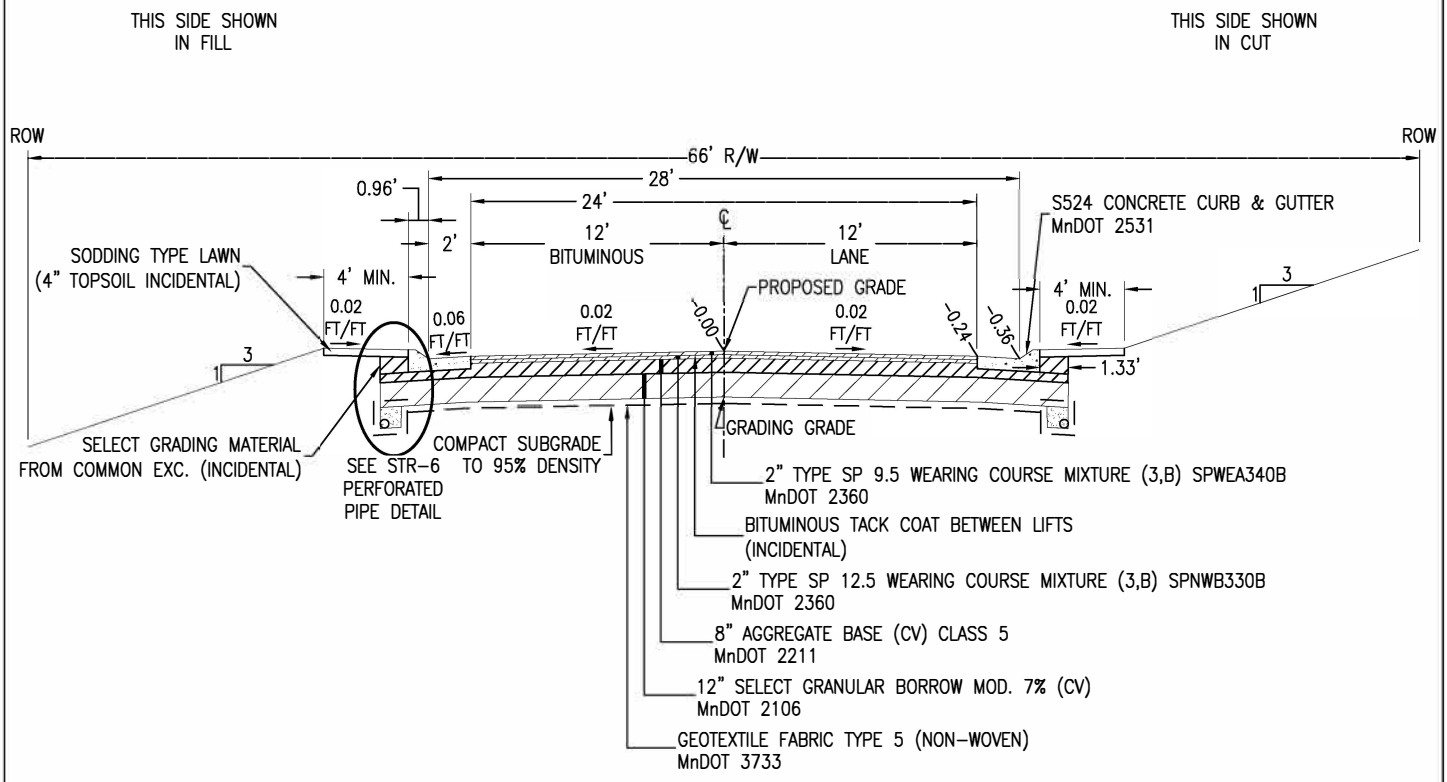
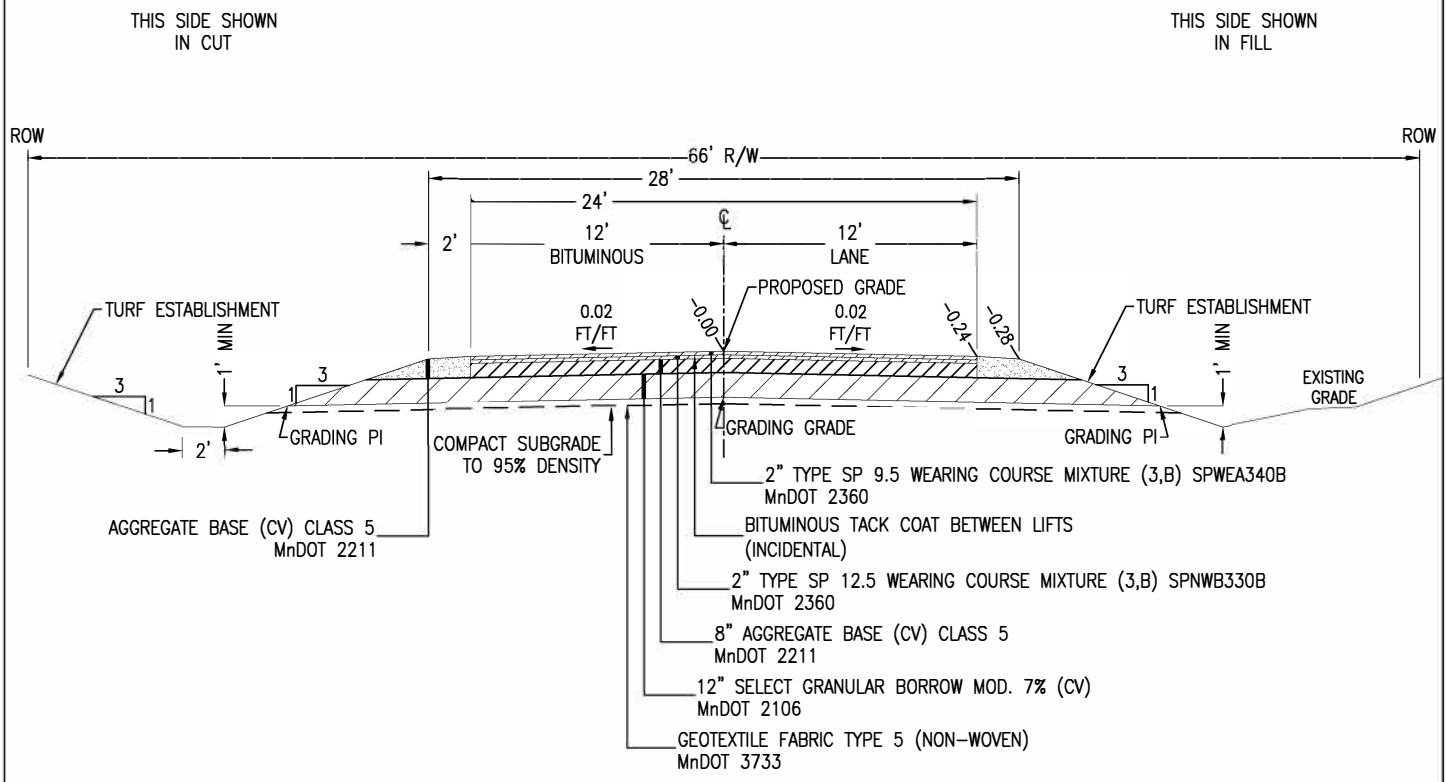


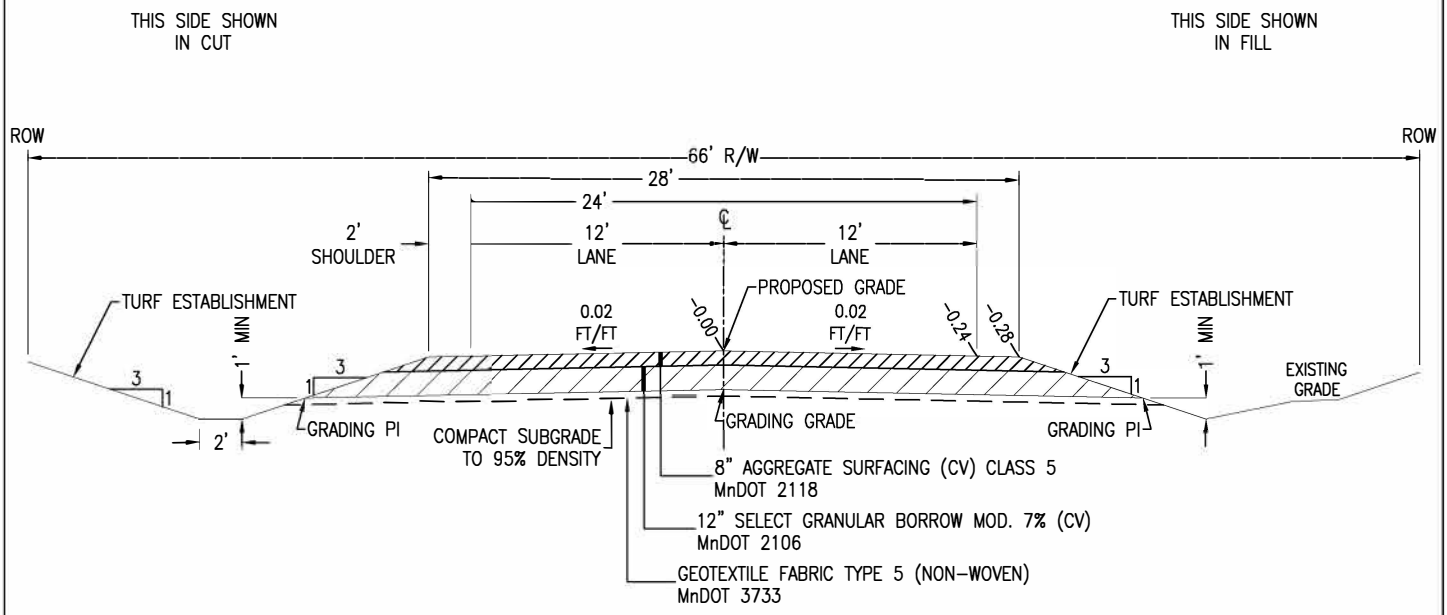
City of Rice Lake	TYPICAL STREET RESTORATION OVER TRENCH	STR-1	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 08/12/2024



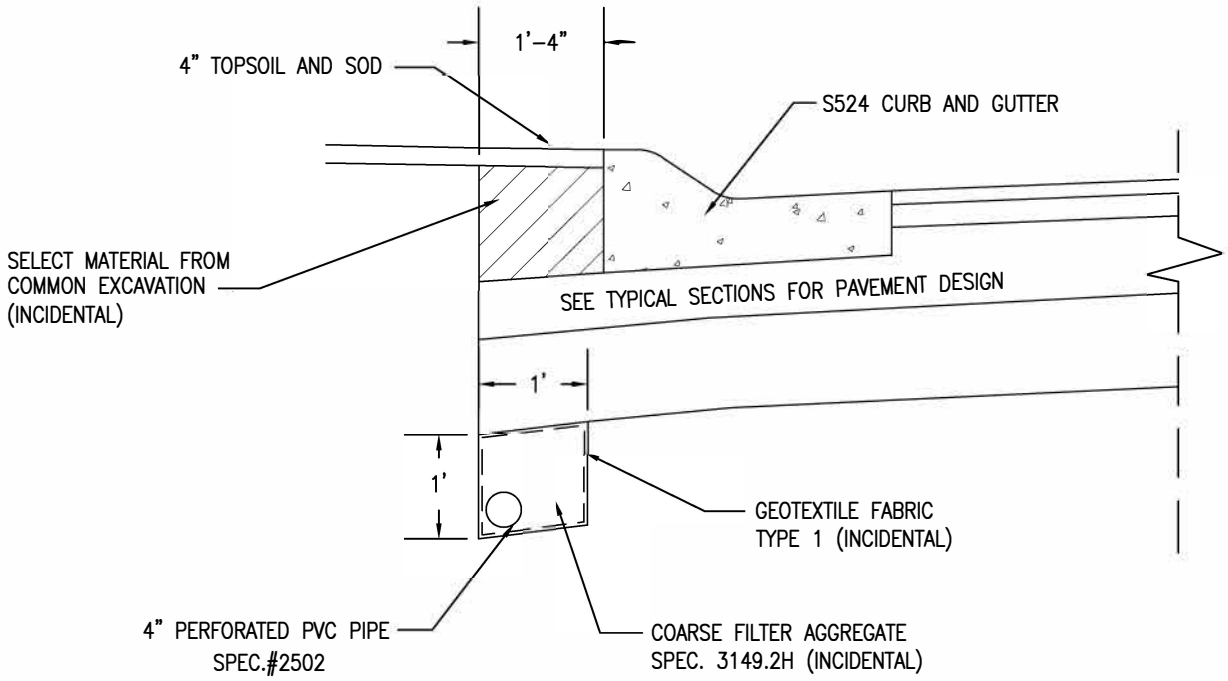
City of Rice Lake	TYPICAL URBAN STREET SECTION	STR-2	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 08/12/2024



City of Rice Lake	TYPICAL RURAL STREET BITUMINOUS SECTION	STR-3	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 08/12/2024

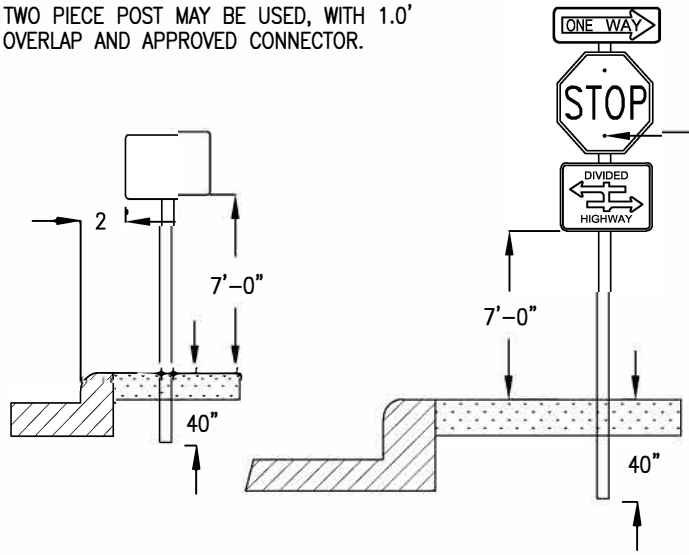


City of Rice Lake	TYPICAL RURAL STREET GRAVEL SECTION	STR-4	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	

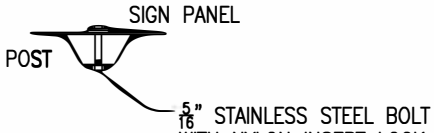


City of Rice Lake	PERFORATED PIPE DETAIL	STR-5	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	

NOTE: ALL DIMENSIONS ARE MINIMUMS. A TWO PIECE POST MAY BE USED, WITH 1.0' OVERLAP AND APPROVED CONNECTOR.



STAINLESS STEEL WASHER & NYLON WASHER (T=1/16" MIN., I.D.=3/8" MAX., O.D.=7/8" MAX.)



NOTE: SEE SPECIAL PROVISIONS FOR SIGN AND AND POST SPECIFICATIONS.

SIGN PANEL TO POST CONNECTION

ALL MATERIALS AND LABOR USED TO RELOCATE EXISTING SIGN AS SHOWN, SHALL BE INCLUDED IN THIS PAY ITEM:

City of Rice Lake	SIGN INSTALLATION DETAIL	T–1	NO SCALE
	CITY OF RICE LAKE STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 08/12/2024	