Rev. 2022

STANDARD DETAIL SPECIFICATIONS
FOR
SANITARY AND STORM SEWER SYSTEMS

CITY OF EDEN PRAIRIE, MINNESOTA

INDEX

STANDARD DETAIL SPECIFICATIONS
FOR
SANITARY AND STORM SEWER SYSTEMS

CITY OF EDEN PRAIRIE, MINNESOTA

1. SCOPE OF WORK

The work to be done under this Contract shall include the furnishing of all labor, materials, tools and equipment to construct, complete in place, the sanitary sewer and/or storm sewer and all appurtenances as shown on the drawings and Plans and as specified herein.

The Contractor shall excavate all materials encountered, furnish or compact foundations where required, furnish and install all timbering, sheeting and bracing necessary or proper to safely support all work, remove all water, protect, repair, relocate, maintain and restore all sub-surface, surface and overhead structures directly or indirectly disturbed, injured or affected by their operations and provide all backfilling and furnish all other appurtenant items and services as necessary.

2. SEWER PIPE MATERIALS AND APPURTENANCES

All sanitary sewer and storm sewer pipe, fittings, manholes and all appurtenances shall be new materials and shall be of the type, size, strength, and quality as shown on the Plans and as specified below and/or as indicated in the Special Conditions.

The Contractor shall provide to the Engineer a written statement from the manufacturer assuring the quality and compliance to the applicable specifications of all materials furnished and installed under this Improvement Project. This shall in no way relieve the Contractor of any responsibilities as to the quality of materials furnished and installed.

2.1 POLYVINYL CHLORIDE PIPE (PVC) (SANITARY):

Polyvinyl chloride pipe shall conform to ASTM D 3034 (SDR 35) or ASTM F789 and shall be used to a depth not to exceed 20 feet. Sewer pipes with a depth greater than 20 feet shall be SDR 26 PVC and with a depth greater than 30 feet shall be ductile iron pipe. PVC joints shall be either solvent cement or elastomeric gasket joints. Said gasket joints must be approved by the Engineer on the basis of data furnished by the manufacturer.

An approved water stop gasket shall be used on the sewer main where it enters and exits a manhole. The gasket shall be placed near the center of the manhole wall.

2.2 DUCTILE IRON PIPE (DIP) (SANITARY):

Where the drawings call for sanitary sewer to be ductile iron, the pipe shall be cement lined, bituminous coated ductile iron pipe of Class 54 thickness and poly-wrapped as defined in Section 3.2 on Page W-2.

2.3 REINFORCED CONCRETE SEWER PIPE (RCP) AND END SECTIONS (STORM):

Reinforced concrete sewer pipe and end sections shall conform to MnDOT 3236 and shall have rubber gasket joints (MnDOT 3726). The class of pipe shall be as stated on the Plans. End sections shall be provided with a galvanized trash guard for pipe sizes 24" and larger in accordance with Detail Drawing S-11, which shall be incidental to the cost of the end section. End sections shall be tied back a minimum of three (3) pipe joints with approved pipe ties. RCP aprons shall conform to MnDOT

Standard Plate No. 3100. All end sections at discharge points shall be marked with an 8' – 2# safety green channel post located 18" adjacent to the end section (incidental).

The Plans indicate various lengths of storm sewer. These dimensions are from end to end of pipe and include special sections. To determine pay quantities for the storm sewer pipe, the laying length for any increasers, bends, end sections or tee sections shall be subtracted. The special sections are being paid for per each.

2.4 CORRUGATED POLYETHYLENE PIPE (CP) AND END SECTIONS (STORM):

All CP pipe shall conform to MnDOT 3247 and shall meet ASTM F667 and AASHTO M294 standards.

The following shall apply:

(1) CP pipe shall be used in non-pavement areas only.

(2) CP shall have a minimum cover of at least 18".

(3) End sections and/or aprons shall conform to MnDOT Standard Plate No. 3129 and meet MnDOT 3351 Standards. All end sections at discharge points shall be marked with an 8' – 2# safety green channel post located 18" adjacent to the end section (incidental). All aprons shall be galvanized steel or approved equal.

2.5 MANHOLES AND CATCH BASINS

Sections for pre-cast concrete manholes and catch basins shall conform to ASTM C-478.

Standard and "T" manholes and catch basins shall conform respectively to all requirements as shown on the Detail Drawings attached to these Specifications. If the mainline is 42" or larger, pre-cast "T" sections shall be used as shown on the Detail Drawings, unless otherwise specified.

When specifically permitted by the Engineer, pre-cast segmental blocks may be used to build up manholes and/or catch basins. The blocks shall conform to ASTM C-139 and shall be radial wall for manholes and circular catch basins.

Frames and covers (castings) for manholes and catch basins shall be as follows or approved equal:

(1) Sanitary Sewer Manholes - Neenah Foundry Company R-1733-5044 and "Sanitary Sewer" imprinted on the cover.

(2) Storm Sewer Manholes - Neenah Foundry Company R-1733-T64 with center pick hole and "Storm Sewer" imprinted on the cover.

(3) 'LADTECH' or approved equal, plastic adjustment rings (rings shall meet all AASHTO H25 and ASTM D-1248 specifications.).

NOTE: When adjusting manholes for the final lift of bituminous, the contractor may use a one-piece ductile iron ring (Neenah-R-1979 series or approved equal), in lieu of additional plastic rings. The ductile iron ring shall be installed using the manufacturer's specifications. An approved epoxy adhesive shall be used to set the casting adjustment ring in place. Two-piece metal

adjusting rings will not be allowed.

(4) Catch Basins

(a)	Circular, Neenah Foundry Company	R-3250-A (for mountable curb)
	Rectangular, Neenah Foundry Company	R-3501-T (for mountable curb)
(b)	Circular, Neenah Foundry Company	R-3250-1 (for B6-18 curb)
	Rectangular, Neenah Foundry Company	R-3067-V (for B6-18 curb)
(c)	Circular, Neenah Foundry Company	R-3250-A Type 'C' Grate (for driveway aprons)

(d) 'LADTECH' or approved equal, plastic adjustment rings (rings shall meet all AASHTO H25 and ASTM D-1248 specifications.).

2.6 MANHOLE INSIDE AND OUTSIDE DROP STRUCTURES

Manhole drop structures shall be constructed as shown on Detail Drawings S-3 and S-4. The specific type or drop (inside or outside) will be designated on the Plans and/or in the Special Conditions. Generally, where an influent main is over two (2) feet above the invert of the effluent main, a drop structure will be required. Where the separation is less than two (2) feet, the Contractor shall form a concrete flume invert to match into the manhole floor. Inside drop manholes shall be constructed only by approval of the City Engineer/Utility Division.

2.7 BUILDING SERVICES

Building services shall conform respectively to Detail Drawings S-8 and S-9. All building service locations will be established in the field by the Engineer. Generally, these locations will agree with those shown on the Plans, however, the Contractor shall not install a service until its location is verified by the Engineer. It will be the Contractor's responsibility to keep an accurate written record of the location of each service and submit this to the Engineer prior to backfilling.

All building service pipe shall be four (4) inch SDR 26 (unless otherwise noted on the Plans). Ductile iron service pipe and wyes shall be used where depths exceed 30 feet. The service shall be extended to the property line or as otherwise designated on the Plans and/or Special Conditions. The end of the service shall be plugged with an airtight cap.

PVC wyes must be factory molded and the same class and grade as specified for the pipe. Saddles will not be allowed except as approved by the Engineer.

PVC pipe shall be used for building services under the following conditions if water services are involved:

(1) The service is laid in a separate trench at least ten (10) feet horizontally from the water service, or

(2) It is laid in the same trench with the water service located at one side on a bench of undisturbed earth and if the crown of the sewer pipe is at least 18 inches below the bottom of the water service.

An airtight plug or cap shall be installed at the end of PVC services.

2.8 RIPRAP - FILTER BLANKET

Riprap shall be placed on all flared end sections and shall conform to MnDOT Standard Plate Detail 3133 and MnDOT 2511 and the following, unless otherwise specified on the Plans and/or Special Conditions:

(1) Riprap stones shall be Class III for 21" or smaller pipe, and Class IV for 24" and larger pipe.

(2) The depth of granular filter material (MnDOT 3601.2B) shall conform to the specifications of MnDOT Standard Plate No. 3133. Geotextile (Type 4 or Type 7) filter material may be used in lieu of granular filter material.

3. SAFETY EQUIPMENT

For all sanitary sewer projects, in addition to the usual safety equipment and procedures, the Contractor shall also make available at the job site the following:

(1) An air blower with a directional chute capable of delivering 1,500 cfm of fresh air at sewer manholes.

(2) An approved harness or rope-sling for rescue of personnel from manholes.

(3) An approved portable oxygen supply unit with face mask and goggles.

No personnel will be allowed to enter completed sanitary sewer manholes without this equipment immediately available for use by a "top man" stationed at the manhole. All safety equipment shall remain the property of the Contractor.

4. TESTING - SEWERS AND APPURTENANCES

4.1 INFILTRATION TEST

Upon completion of the sewer construction and before any house services are connected, leakage tests shall be made to determine the amount of ground water infiltration into the sewers. Measurements will be taken by means of 90-degree V-notch weirs placed in the lines. Measurements shall be taken at all points where, in the opinion of the Engineer, the flow of the water in the sewer is greater than the maximum allowable leakage. The maximum allowable rate of leakage for any section of sewer shall be based upon 35 gallons/inch diameter/mile of pipe/24 hours. This computes as shown below for the pipe sizes listed.

Pipe Size	Gallons of Leakage Allowed per Hour per 100 Feet of Pipe
8"	0.22
10"	0.28
12"	0.33
15"	0.41

In case measurements indicate a leakage greater than the maximum allowable leakage, additional measurements shall be taken and continued until all leaks are located and the necessary repairs and corrective work have reduced the leakage in the section being tested below the maximum allowed by the Specifications. All rework and materials used must be approved by the Engineer. For purposes of the test, the line between adjoining manholes will be considered a section and will be tested as such. Leakage within manholes and from services shall be included in all testing.

The Contractor shall furnish the weirs and other material and labor for placing the weirs in the sewer and shall assist the Engineer in making measurements. The Contractor shall receive no additional compensation for making the leakage tests or corrective work necessary to reduce leakage below the maximum allowed.

4.2 EXFILTRATION TEST

In addition to the infiltration test, exfiltration tests may be required on sewer lines which are above the present ground water.

The test section shall be bulkheaded and the pipe subjected to a hydrostatic pressure produced by a head of water at a depth of four (4) feet above the invert of the sewer under test at its upper end. This head of water shall be maintained for a period of one hour during which it is presumed that full absorption of the pipe body has taken place, and thereafter for a further period of two (2) hours for the actual test of leakage. During this two (2) hour period, the measured loss shall not exceed that specified above for infiltration.

The introduction of any substance into the water used for testing with the intent to seal such leaks, as may be indicated, will be permitted only with express permission of the Engineer.

Two such exfiltration tests will be required for each type of pipe and for each size of pipe. If the results are satisfactory on the two sections chosen by the Engineer, no further exfiltration test will be required.

If results of the exfiltration test are not satisfactory, additional tests may be required until the Engineer is satisfied that the leakage requirements are being met.

4.3 AIR TESTING

Air testing is an approved method of testing of sanitary sewer lines and is a required method of testing of curved aligned sanitary sewer lines with the following requirements:

The Contractor shall perform these tests with equipment similar to Air-Loc equipment manufactured by Cherne Industrial, Inc., Hopkins, Minnesota.

The air test shall be made when the sewer is clean. The line shall be plugged at each manhole with pneumatic balls. Low pressure air shall be introduced into the plugged line until the internal air pressure reaches 4.0 p.s.i.g. greater than the average back pressure of any ground water pressure that may submerge the pipe. At least two (2) minutes shall be allowed for the air temperature to stabilize before readings are taken and the timing started.

The portion being tested shall pass if it does not lose air at a rate to cause the pressure to drop from 3.6 to 3.0 p.s.i.g. (greater than the average back pressure of any ground water that may submerge the pipe) in less time than listed as follows:

Pipe Diameter In Inches	Minimum Allowable Minutes (3.6 - 3.0 p.s.i.g. Pressure)
4	2.0
6	3.0
8	4.0
10	5.0
12	6.0
15	7.5
18	9.0
21	10.5

All service plugs shall be secured in place to prevent displacement during testing operations.

4.4 SANITARY FORCEMAIN HYDROSTATIC TEST

Sanitary Forcemain shall be tested at a rate of 75 p.s.i. for 2 hours with 0 (zero) pounds allowable pressure loss during the first hour and no more than 2 pounds allowable pressure loss during the second hour. Gauge to be used will be an Ashcroft, Model 1082, 4 ½ inch diameter in one p.s.i. increments or approved equal.

4.5 PVC DEFLECTION TEST

The Contractor shall measure the deflection of all PVC sewer after placement of backfill material in the trench a minimum of 30 days after backfilled to finished grade. The owner reserves the right to measure deflection of PVC sewer pipe at any time during the warranty period. Deflections greater than 5% of the inside pipe diameter shall be considered failure of the bedding procedure and the Contractor will be required to re-excavate the trench and replace or re-compact the bedding material as required.

4.6 TELEVISING

All sanitary and storm sewer lines shall be televised and the video reports submitted to the City for review. Video reports can be submitted on CD-ROM or DVD compact disks, or USB flash drive. All lines must be flushed and cleaned prior to televising. The video report will be used to view the condition of the sanitary sewer pipe prior to acceptance. Workmanship and cleanliness of the installation will be checked. If the line requires cleaning or repairs then that segment shall be re-televised afterwards and the new report will be submitted to the City for review. This shall be repeated until the segment of the sanitary sewer line is clean and or repaired. Video reports shall become the property of the City and contain the following:

A. Reference the start and end of each video segment as it begins, by clearly identifying the City manhole number where the video segment begins and the City manhole number where the video segment ends.

B. Footages along the sewer line must be shown on the video report and zeroed out at

the beginning of each segment starting from the center of the manhole.

C. The video camera should be guided forward at a moderate to slow pace along the bottom of the pipe.

D. The camera should stop and rotate up to view each service wye.

E. The camera should stop at any unusual instances that are viewed while in progress and provide a more detailed and longer view of the specific instance (i.e. – bad joint, dirt in lines, settlement in the line, etc.).

F. The project inspector or city representative shall be present at all times during the televising of all sewer lines.

4.7 VISUAL INSPECTION

Prior to final acceptance of each section of the sewer line, the Contractor shall flush and clean all dirt and debris from the line. All dirt and debris shall be prevented from entering the existing sewer system by means of watertight plugs or other suitable methods. Cleaning shall also include manholes, catch basins, sumps and ponds associated with the project.

Upon completion of the Contract, the Engineer will carefully inspect all sewers and appurtenances. Any cracked or broken pipe including, but not limited to; circumferential cracks, transverse cracks, partial cracks, etc. shall be removed and replaced at the discretion of the City Engineer. The invert of the sewer shall be left clean and free from any obstructions throughout the entire line.

Storm sewer pipes shall be straight and uniform in alignment and grade. Pipe and manholes shall be free of dirt, mortar and other debris.

No other specific tests other than a televised inspection will be required for storm sewer construction.

5. SUBSURFACE DRAIN

Subsurface drain construction shall be performed in accordance with the provisions of MnDOT 2502, except as modified below:

The exact location and actual quantity of perforated pipe drain will be determined by the Engineer at the time of the construction operations.

The pipe shall be perforated, single walled. Flexible corrugated pipe will not be allowed. The pipe may be furnished with either bell or spigot joints or with sleeve couplings on the straight pipe. All joints in the perforated pipe shall be left unsealed.

Depending on the application and as detailed in the plans and specifications, either the subsurface drain trench shall be lined with filter fabric, or the perforated pipe shall be lined. Regardless, in order to prevent contamination of filter aggregate or infiltration of soil and aggregate into the pipe, the contractor shall use porous, rot-proof polymeric fiber filter cloth conforming to MnDOT 3733 Type I specifications.

Torn or punctured fabric shall not be accepted and in no case shall the fabric be exposed to heat or direct sunlight to the extent that its strength or toughness are diminished. The over wrapping and securing of the filter cloth to the pipe or around the filter aggregate trench shall be done in a manner approved by the Engineer. Spiral wrapping of the filter cloth on the pipe will not be permitted.

Backfill material shall conform to MnDOT 3149.2H (Course Filter Aggregate) specifications and shall be

installed in accordance with MnDOT 2502.3 specifications unless otherwise indicated by the City Engineer. (Refer to detail drawing S-10).

6. MEASUREMENT AND PAYMENT

6.1 SANITARY SEWER PIPE

All measurements of pipe length shall be from center of manhole to center of manhole or fitting, along the axis of the pipe for each diameter and type of pipe. Measurement of depth (vertical) shall be made from the flow line of the sewer pipe and shall be in zone classifications as follows:

From:	0 feet to 8 feet
From:	8 feet to 10 feet
From:	10 feet to 12 feet
From:	12 feet to 14 feet
Etc. in	2-foot intervals

Unless otherwise specified, the depth of cut will be from the centerline profile taken before work by the Contractor begins. In most cases, it will be from the existing grade shown on the Plans.

Payment made per lineal foot in place, as measured above, shall include the cost of furnishing the pipe, joint materials, gaskets and all other materials and of delivering, handling, placing, backfilling, compacting, testing and all equipment or work necessary to install the pipe complete in place at the depth specified.

6.2 STANDARD AND "T" MANHOLES AND CATCH BASINS

Measurement for payment shall be from the lowest pipe invert at the structure to the top of the casting in place.

Payment for standard manholes and catch basins shall be at the unit price per each for furnishing and installing a complete structure of heights not exceeding eight (8) feet. If the measured depth is over eight (8) feet, an additional payment will be made for each foot (to nearest 1/10 foot) that is in excess of eight (8) feet. The unit price per standard manhole or catch basin shall also include the manhole base, frame and cover (casting), gaskets and steps in place.

6.3 MANHOLE DROP STRUCTURES

Measurement for payment shall be from the lowest invert at the manhole to the invert of the incoming pipe for which the drop is provided. The unit bid price per foot shall be compensation in full for a complete outside drop structure as shown on the Detail Drawings.

6.4 STORM SEWER PIPE AND END SECTION

Payment for storm sewer pipe shall be made per lineal foot center to center of structure or end of pipe as applicable for the size and class of pipe installed unless otherwise indicated by the City Engineer. Payment shall include the cost of furnishing the pipe, joint material, gaskets and all other materials and delivering, handling, placing, backfilling, compacting, testing and all equipment or work necessary to install the pipe complete in place at the depth specified. End sections and/or aprons shall be paid for as each unless otherwise indicated by the City Engineer. No payment shall be made for concrete bulkhead plugs.

6.5 BUILDING SERVICE PIPE

Measurement will be made horizontally from the centerline of the sewer main at the wye location to the plug at the end of the sewer service. The depth of said pipe will not be a factor in payment.

Payment will be made per lineal foot in place as measured above and shall include furnishing and installing the pipe complete, as specified, including adapters, plugs, and 1/8 bends if wyes are used.

Separate payment will be made for casing pipe, clean-out structure and double wye, as required for a jacked building service.

6.6 SPECIAL PIPE FITTINGS

Additional payment for special fittings (i.e., wyes, tees, bends, etc.) will be made only if a bid item for said fittings has been provided in the Proposal Form. There will be no additional payment for those fittings which are an integral part of some structure for which a pay item has been provided (i.e., tees and bends on a drop structure or clean-out).

6.7 RIPRAP-FILTER BLANKET

The provisions of MnDOT 2511 and MnDOT Standard Plate No. 3133 shall apply, unless other dimensions are specified on the Plans or are ordered by the Engineer.

6.8 GRANULAR BEDDING (3149.2F) AND STABILIZING AGGREGATE (3149.2C)

Payment shall be for cubic yards furnished, installed and properly compacted, with measurement based upon vehicular measure (MnDOT 1901). The unit bid price shall include the cost of all excavation and compaction required to place these materials and also the cost to dispose of any undesirable material so replaced unless otherwise specified in the Special Conditions.

6.9 STREET RESTORATION - Refer to the Standard Detail Specifications for Street Construction, Walkways and Pavement Restoration (Street Specifications)

- Aggregate base - See MnDOT 2211 and Page P-2 of the Street Specifications
- Bituminous street and bike path pavement - Refer to most current MnDOT specifications for plant mixed bituminous pavement and pages P-2 and P-3 of the Street Specifications.
- Concrete curb - See MnDOT 2531 and Page P-3 of the Street Specifications.
- Concrete sidewalk - See MnDOT 2521 and Detail Drawing R-16 of the Street Specifications.
- Sodding and seeding - See MnDOT 2575. The unit bid prices shall include the cost of all topsoil, sod, seed and mulch required.

6.10 JACKING OPERATIONS

Unless otherwise specified, payment for jacking operations will be as follows:

If steel casing pipe is required, measurement for payment will be made horizontally from end to end of the casing installed. Payment for the carrier pipe to be threaded through the casing will be made separately at the corresponding mainline or building service unit bid price. The unit bid price for the casing pipe shall include all labor, equipment and materials necessary to install the casing pipe, backfill with silica sand or flowable fill, bulkhead each end, complete as specified. Cathodic protection is required on all casing installations and shall be incidental to the jacking price.

If the carrier pipe is jacked, tunneled or augered directly into place without the use of casing pipe, the unit bid price for the pipe so installed shall include all labor, equipment and materials necessary to install the pipe complete as specified. Depth zones will not be a factor in payment. Measurement for payment will be made horizontally from end to end of the jacked, tunneled or augered pipe installed.

The Contractor shall pay all charges for bonds, permits and/or inspection fees required in connection with jacking operations or other special crossing at no additional compensation.

6.11 SHEETING AND BRACING

Measurement for payment shall be based upon units of thousand board feet (MBF) in place. Payment will be made only for that portion of sheeting or bracing which is ordered to be left in place by the Engineer except that payment will be made for the upper four (4) feet of "Cut-off" section of the sheeting.

6.12 PILING

Pile bents (including test piles) shall be paid for at the Contract unit price for a bent in place with the number of piles specified or shown on the Plans assuming piles to be 20 feet long and shall be complete with caps, cradles, and accessories required. The caps and cradles shall be included as part of the 20-foot minimum length. Any piling required over 20 feet in length shall be paid for as excess length of piling and shall be paid for at the Contract unit price per lineal foot driven in place over 20 feet. Payment will not be made for piling over the cut-off line for piling over 20 feet long.

Unless otherwise specified, there will be no additional compensation for piling delivered only. For specifications, see EIR-5, Paragraph 14.

6.13 INCIDENTAL ITEMS

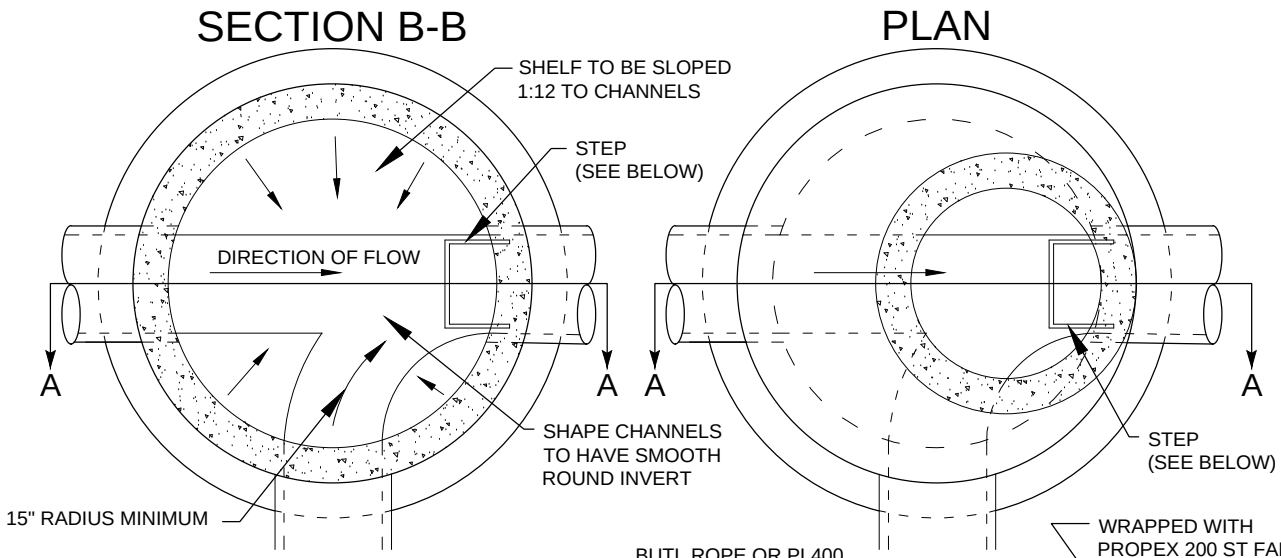
The cost of all material and labor required to complete this project as specified and shown on the Plans, but not specifically included as a pay item, shall be included as incidental items.

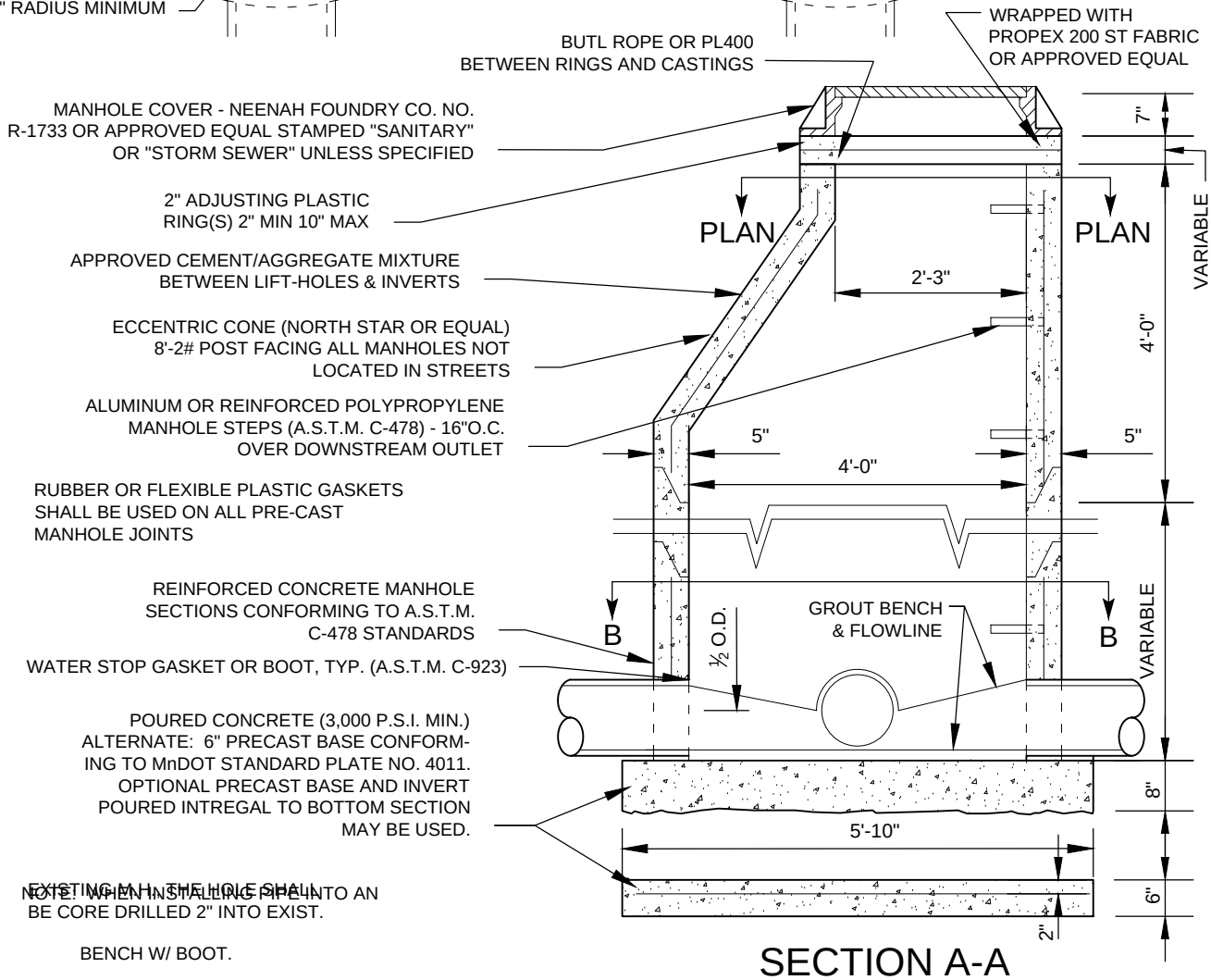
6.14 INSULATION BOARD

Insulation board will be paid for by the square foot furnished and installed at the thickness and dimension shown on the Plans and shall be compensation in full for all labor, materials, tools, etc., necessary to complete the work.

6.15 SUBSURFACE DRAIN

Measurement and payment will be made for the actual quantity of subsurface drain installed and no other compensation other than the contract bid price will be made therefore. Unit payment includes excavation, pipe, filter aggregate and filter fabric paid for by Linear Foot.





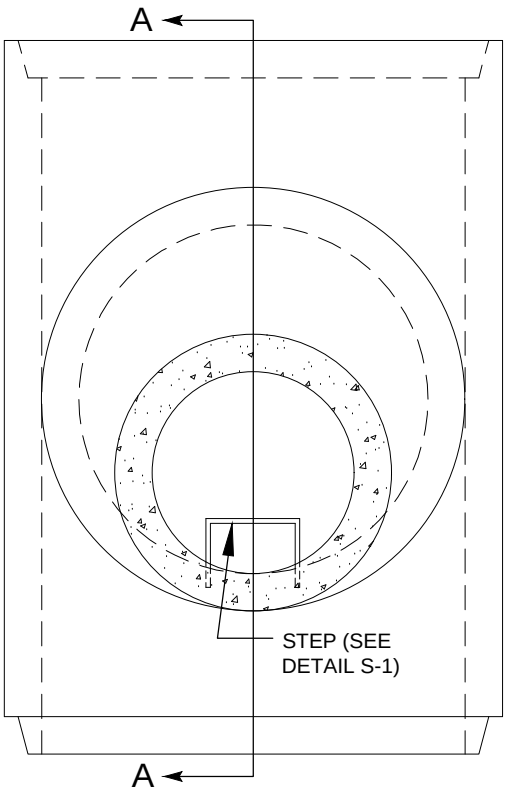
REV 03/15/2013

STANDARD MANHOLE DETAIL

DETAIL NO.

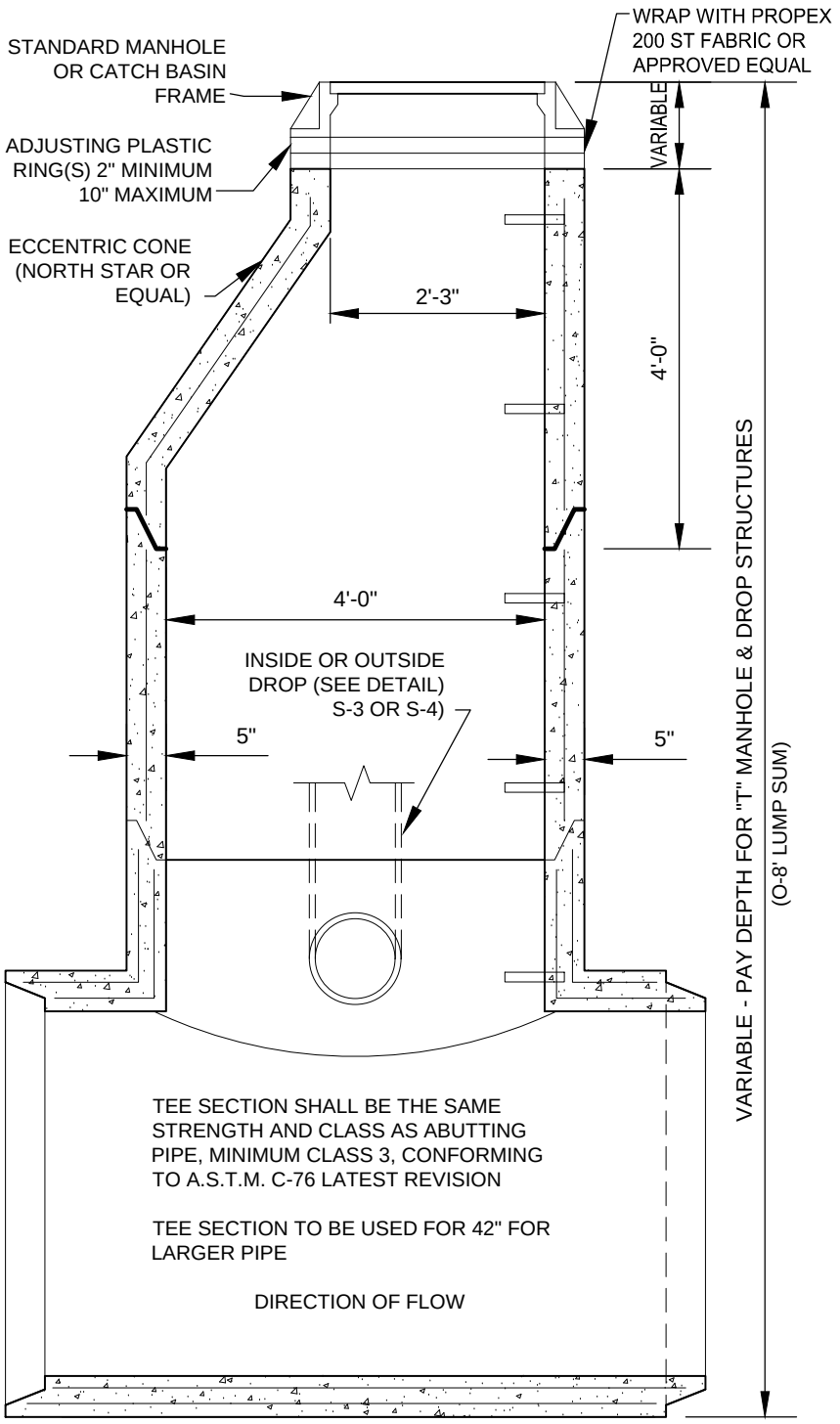
S-1

CITY OF EDEN PRAIRIE
DEPARTMENT OF ENGINEERING



PLAN

NOTE:
1. SEE DETAIL S-1 FOR REQUIREMENTS OF STEPS, MANHOLE SECTIONS AND GASKET MATERIAL
2. INCLUDE COST OF TEE SECTION IN BID PRICE FOR MAINLINE



SECTION A-A

REV 03/01/2013

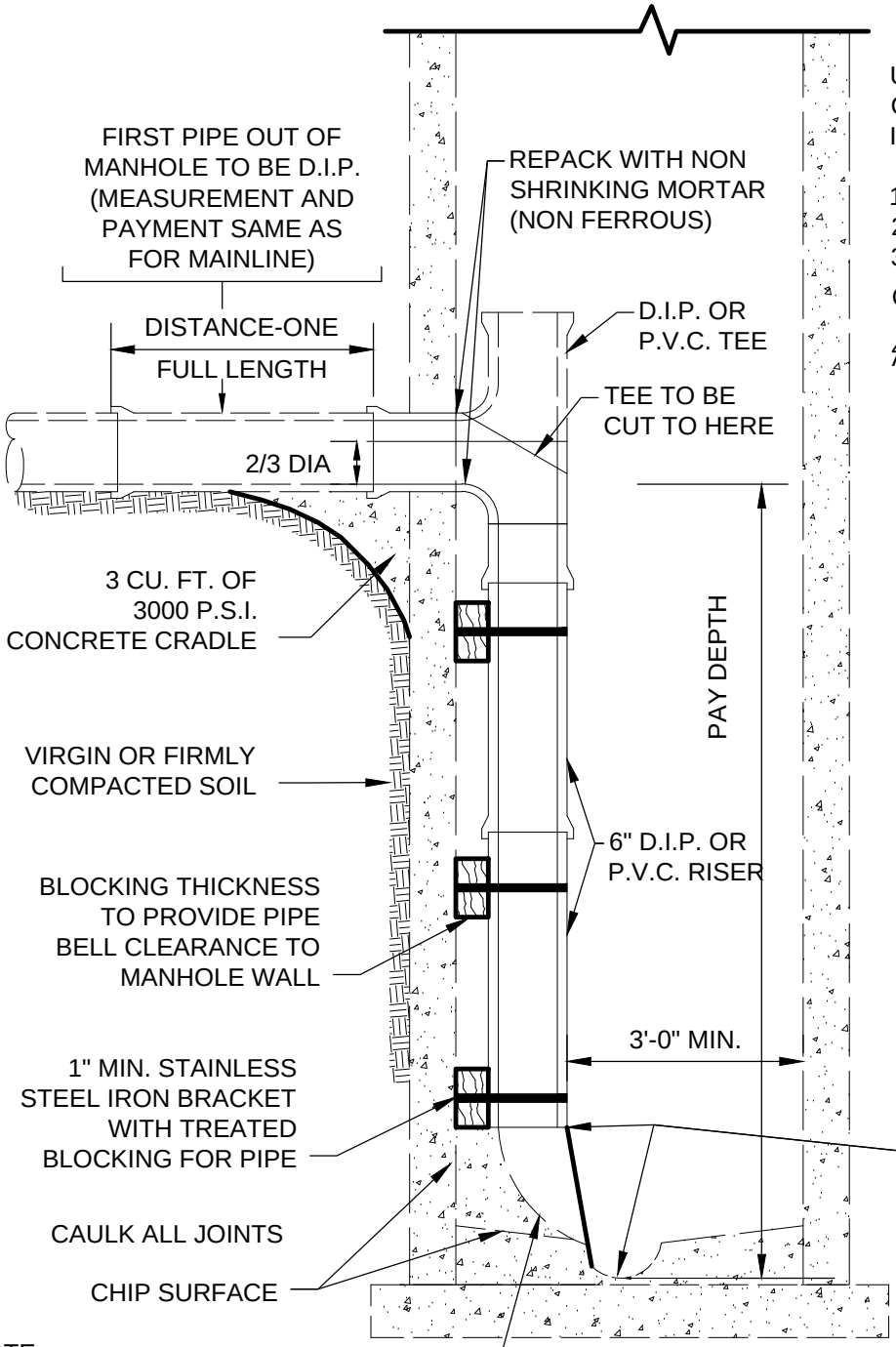
EDEN PRAIRIE
LIVE • WORK • DREAM

"T" MANHOLE OR CATCH BASIN

DETAIL NO.

S-2

CITY OF EDEN PRAIRIE
DEPARTMENT OF ENGINEERING



UNIT BID PRICE PER FOOT OF DROP SECTION SHALL INCLUDE THE FOLLOWING:

1. D.I.P. OR P.V.C. TEE
2. 6" D.I.P. OR P.V.C. RISER
3. BRACKETS, BLOCKING, FLUME INVERT AND CONCRETE CRADLE
4. ADAPTERS OR REDUCERS AS REQUIRED

SEE S-2 FOR TEE-SECTION CLEARANCE

NOTE:
IF PIPE IS USED IN LIEU OF CONCRETE FLUME, THE PIPE MUST BE IMBEDDED IN CONCRETE. USE 45˚ BEND, SHORT PIPE AND TURN DOWNSTREAM. (CUT PIPE TO AVOID MAIN CHANNEL RESTRICTION).

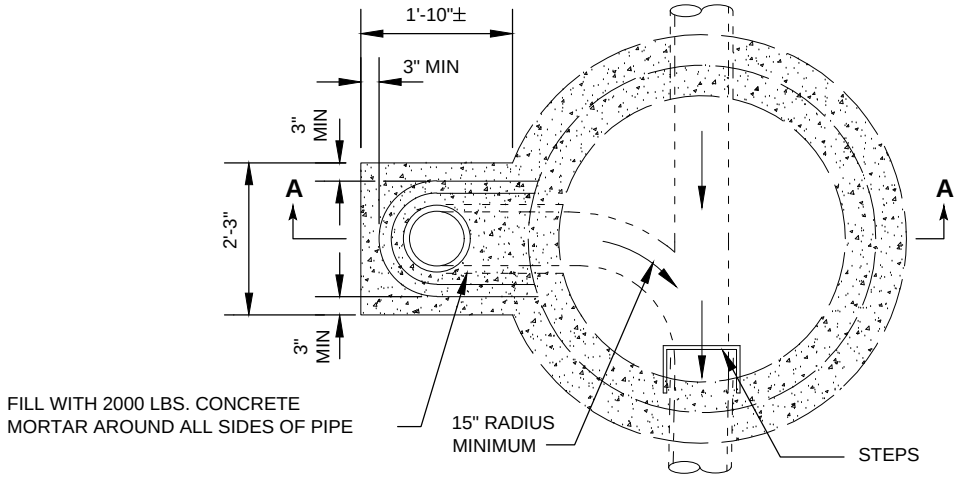
REV 03/01/2013

INSIDE DROP SECTION

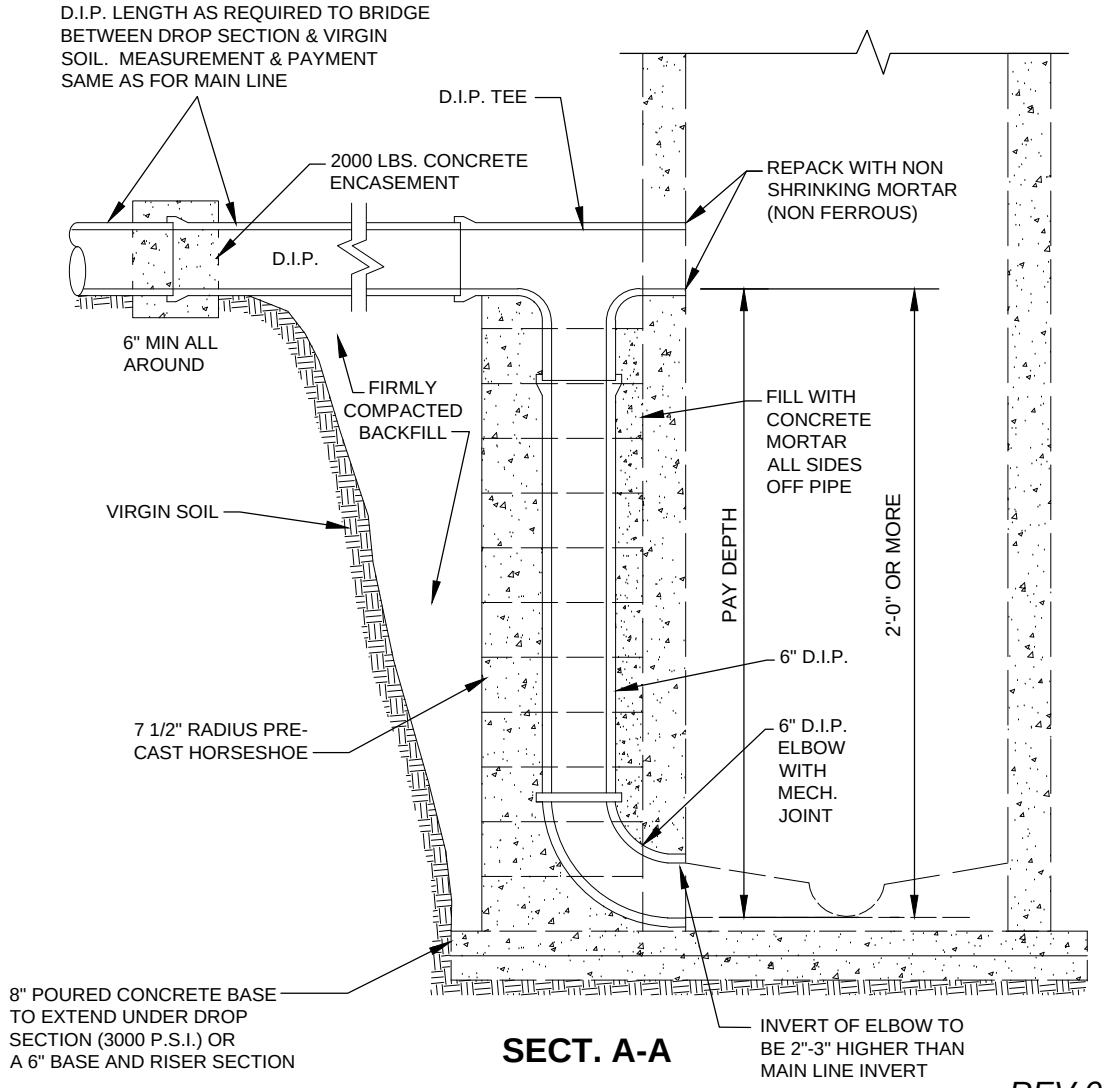
DETAIL NO.

S-3

CITY OF EDEN PRAIRIE
DEPARTMENT OF ENGINEERING



PLAN



SECT. A-A

REV 03/01/2013

EDEN PRAIRIE
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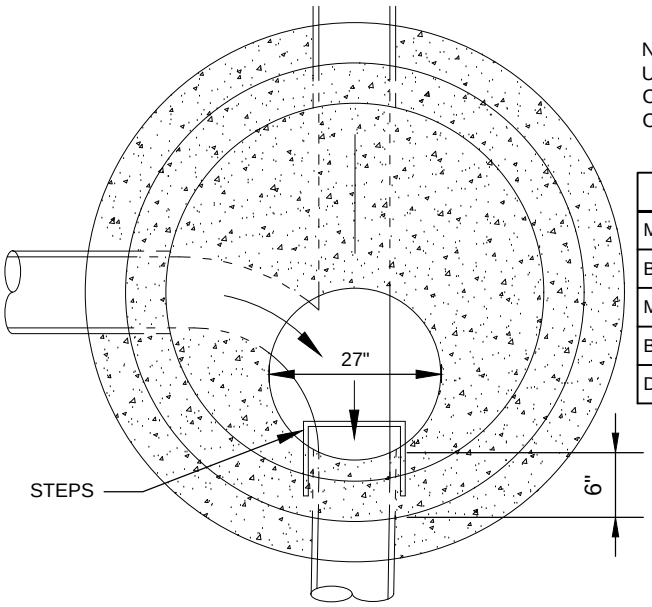
OUTSIDE DROP SECTION

DETAIL NO.

S-4

CITY OF EDEN PRAIRIE
DEPARTMENT OF ENGINEERING

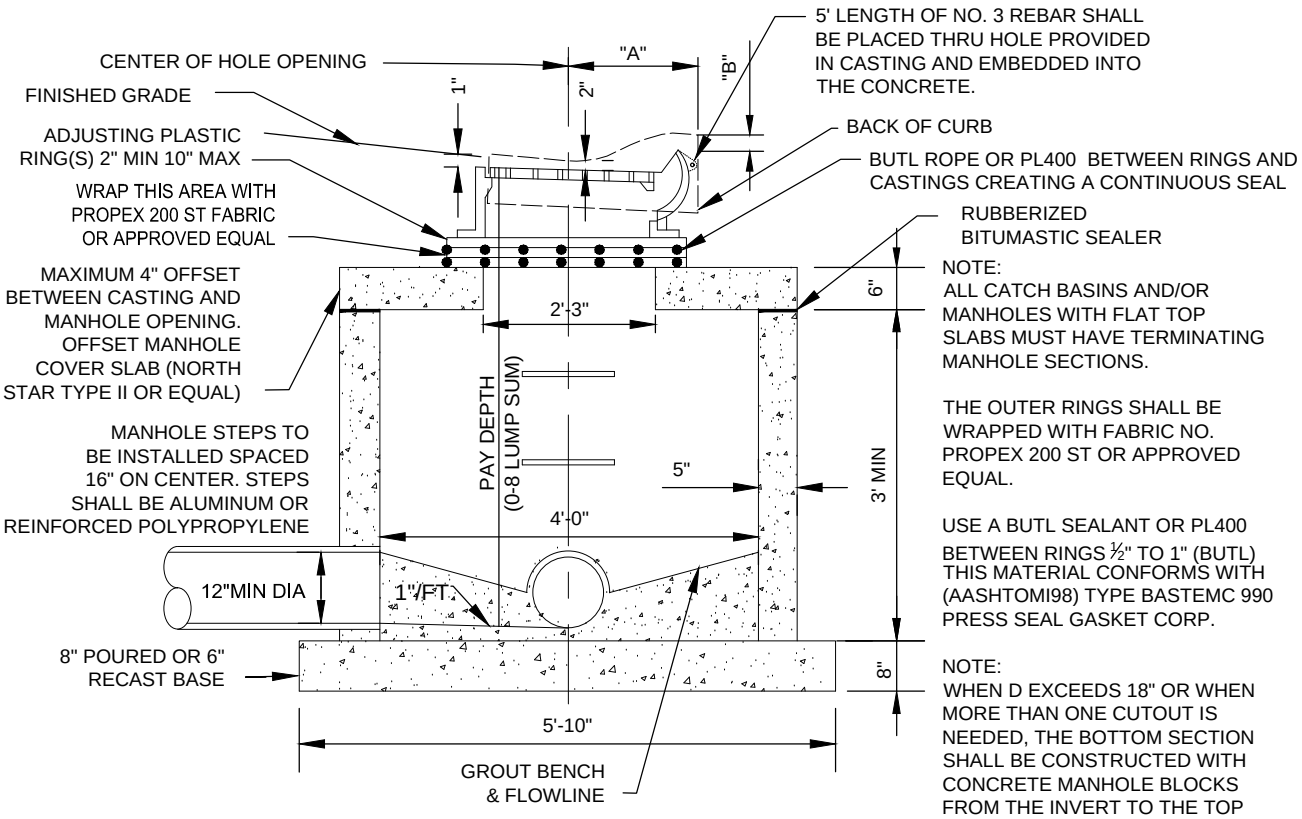


NOTE:
USE MANHOLE BLOCKS FOR COMPLETE STRUCTURE WHEN COVER IS MINIMAL

C&G TYPE	"A"	"B"	NEENAH RIM NO.
MOUNTABLE	1'-10"	2-1/2"	3250-A
B6-18	1'-10"	3-1/4"	3250-I
MOUNTABLE	12.5"	0	3501-T
B6-18	12"	0	3067*
DRWY./APRON	1'-10"	0	3250-A TYPE C GRA.

* HIGH INTAKE GRATE FOR STREET GRADES $\geq$3%.

NOTE:
SQUARE OR RECTANGULAR CASTINGS SHALL HAVE SQUARE OR RECTANGULAR PLASTIC RINGS. A SQUARE OR RECTANGULAR OPENING WILL BE REQUIRED ON STRUCTURE FLAT TOP.



NOTE:
ALL CATCH BASINS AND/OR MANHOLES WITH FLAT TOP SLABS MUST HAVE TERMINATING MANHOLE SECTIONS.

THE OUTER RINGS SHALL BE WRAPPED WITH FABRIC NO. PROPEX 200 ST OR APPROVED EQUAL.

USE A BUTL SEALANT OR PL400 BETWEEN RINGS ½" TO 1" (BUTL) THIS MATERIAL CONFORMS WITH (AASHTOMI98) TYPE BASTEMC 990 PRESS SEAL GASKET CORP.

NOTE:
WHEN D EXCEEDS 18" OR WHEN MORE THAN ONE CUTOUT IS NEEDED, THE BOTTOM SECTION SHALL BE CONSTRUCTED WITH CONCRETE MANHOLE BLOCKS FROM THE INVERT TO THE TOP OF OUTLET PIPE.

NOTE:
ALL GROUT USED FOR BOTTOM OF STRUCTURE OR CONNECTIONS OF RCP TO MANHOLE SHALL BE AIR ENTRAINED MEETING ASTM C270 WITH MINIMUM OF 8% AIR CONTENT

REV 03/15/2022

EDEN PRAIRIE
LIVE • WORK • DREAM

STANDARD CATCH BASIN

DETAIL NO.

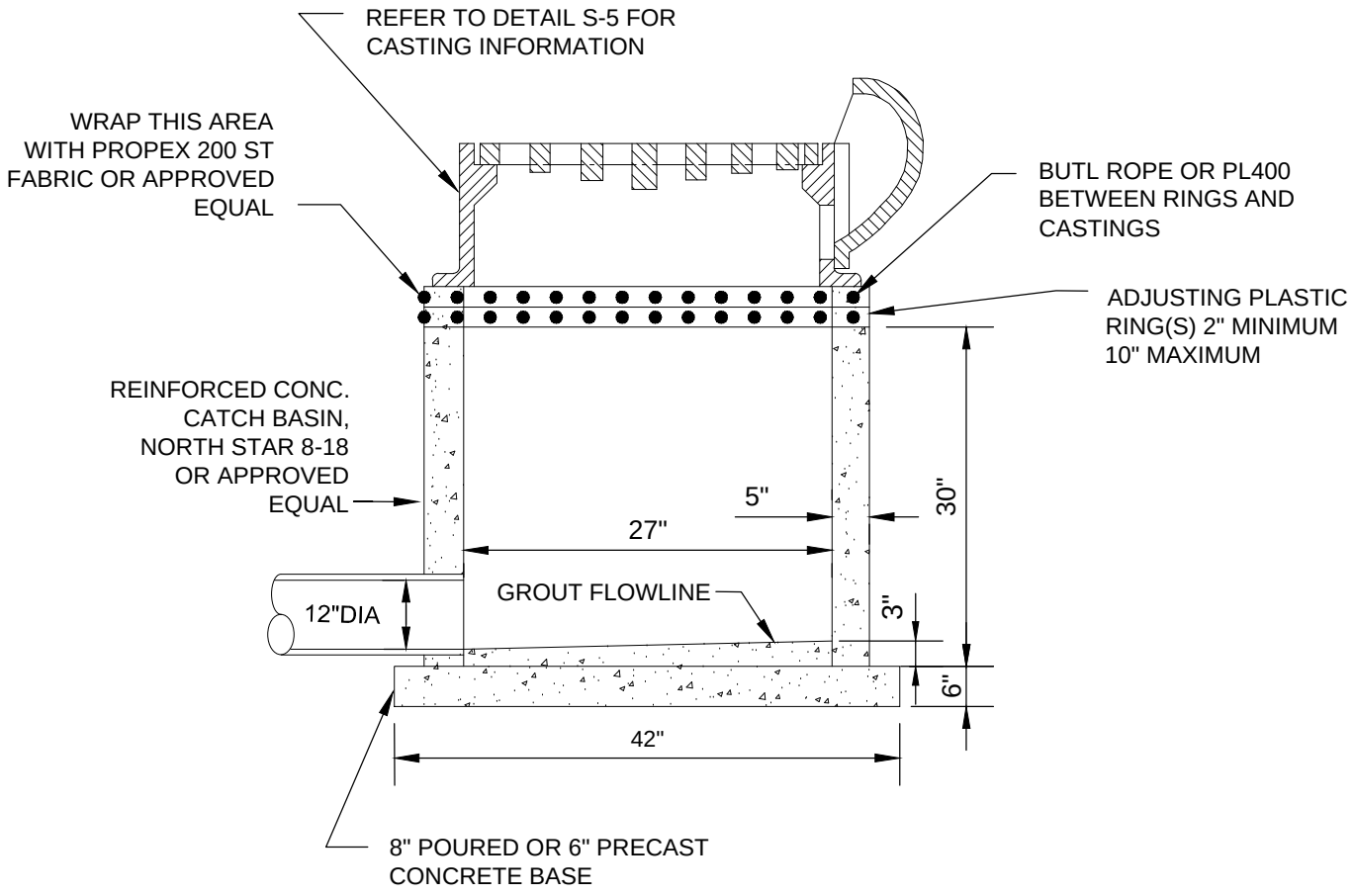
S-5

CITY OF EDEN PRAIRIE
DEPARTMENT OF ENGINEERING

NOTE:
THE OUTER RINGS SHALL BE WRAPPED WITH FABRIC NO. PROPEX 200 ST OR APPROVED EQUAL.

USE A BUTL SEALANT OR PL400 BETWEEN RINGS ½" TO 1" (BUTL) THIS MATERIAL CONFORMS WITH (AASHTOMI98) TYPE BASTEMC 990 PRESS SEAL GASKET CORP.

ALL GROUT USED FOR BOTTOM OF STRUCTURE OR CONNECTIONS OF RCP TO MANHOLE SHALL BE AIR ENTRAINED MEETING ASTM C270 WITH MINIMUM 8% AIR CONTENT



REV 03/15/2013

EDEN PRAIRIE
LIVE • WORK • DREAM

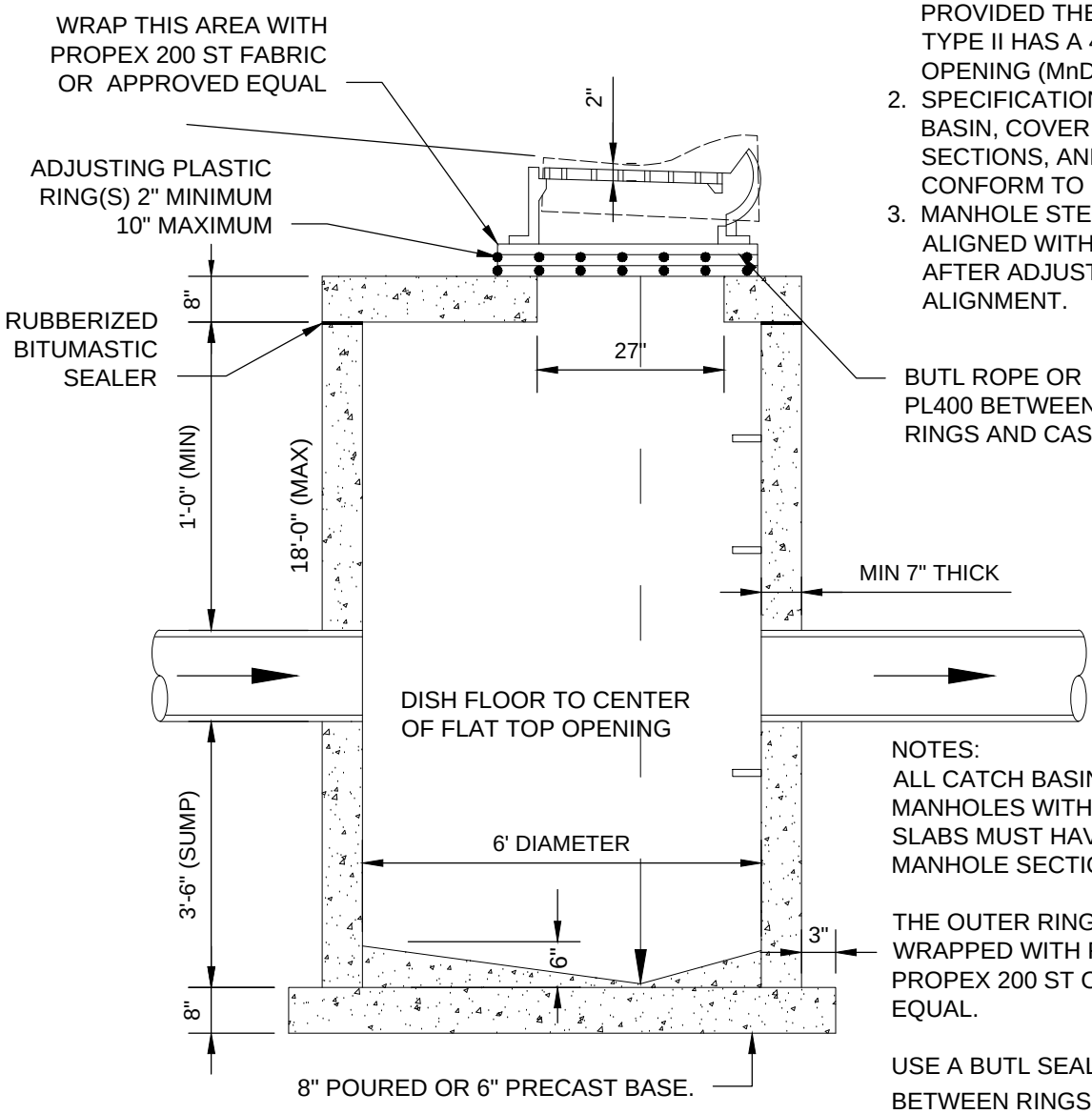
27" DEAD END CATCH BASIN

DETAIL NO.

S-6

CITY OF EDEN PRAIRIE
DEPARTMENT OF ENGINEERING

NOTES:
1. ECCENTRIC CONE SECTION MAY BE USED ABOVE THE FLAT SLAB IN DEEP STRUCTURES TO AVOID MORE THAN 4 ADJUSTING RINGS, PROVIDED THE 86" FLAT SLAB TYPE II HAS A 48" DIA. HOLE OPENING (MnDOT 4019E).
2. SPECIFICATIONS FOR CATCH BASIN, COVER SLAB, MANHOLE SECTIONS, AND STEPS SHALL CONFORM TO DETAIL S-5.
3. MANHOLE STEPS SHALL BE ALIGNED WITH HOLE OPENING AFTER ADJUSTMENT FOR CURB ALIGNMENT.



NOTES:
ALL CATCH BASINS AND/OR MANHOLES WITH FLAT TOP SLABS MUST HAVE TERMINATING MANHOLE SECTIONS.

THE OUTER RINGS SHALL BE WRAPPED WITH FABRIC NO. PROPEX 200 ST OR APPROVED EQUAL.

USE A BUTL SEALANT OR PL400 BETWEEN RINGS ½" TO 1" (BUTL) THIS MATERIAL CONFORMS WITH (AASHTOMI98) TYPE BASTEMC 990 PRESS SEAL GASKET CORP.

SQUARE CASTINGS SHALL HAVE SQUARE RINGS. THE FLAT TOP SHALL HAVE A SQUARE OPENING.

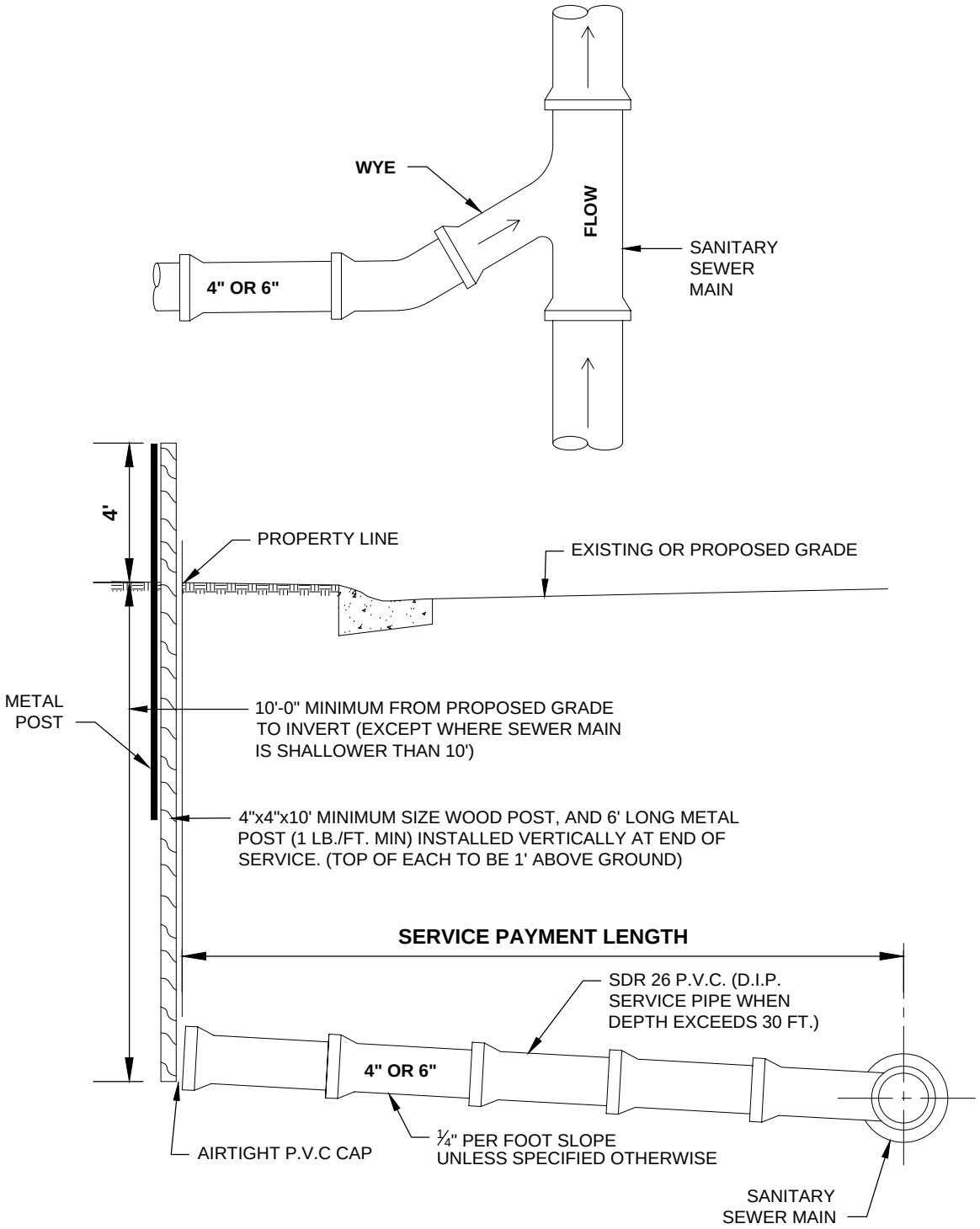
REV 03/01/2013

SUMP MANHOLE OR CATCH BASIN

DETAIL NO.

S-7

CITY OF EDEN PRAIRIE
DEPARTMENT OF ENGINEERING



NOTE:
SERVICE TO BE EXTENDED 10' BEYOND PROPERTY LINE WHERE SIDEWALK IS PLANNED

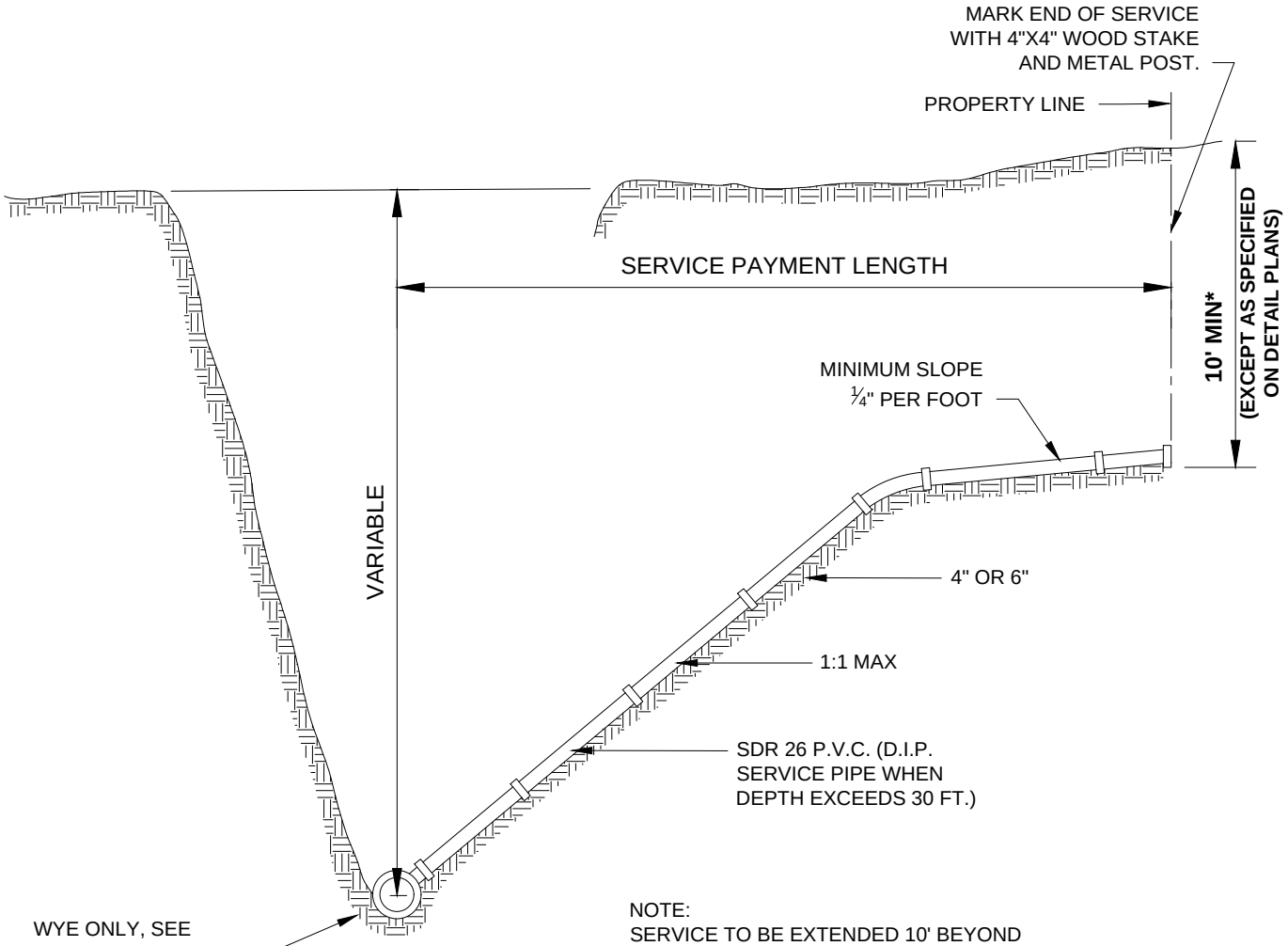
REV 03/01/2009

TYPICAL BUILDING SERVICE

DETAIL NO.

S-8

CITY OF EDEN PRAIRIE
DEPARTMENT OF ENGINEERING



NOTE:
SERVICE TO BE EXTENDED 10' BEYOND PROPERTY LINE WHERE SIDEWALK IS PLANNED.

*IF DEPTH AT PROPERTY LINE EXCEEDS 12', INSTALL 45° ELBOW AND EXTENSION TO A DEPTH OF 10'.

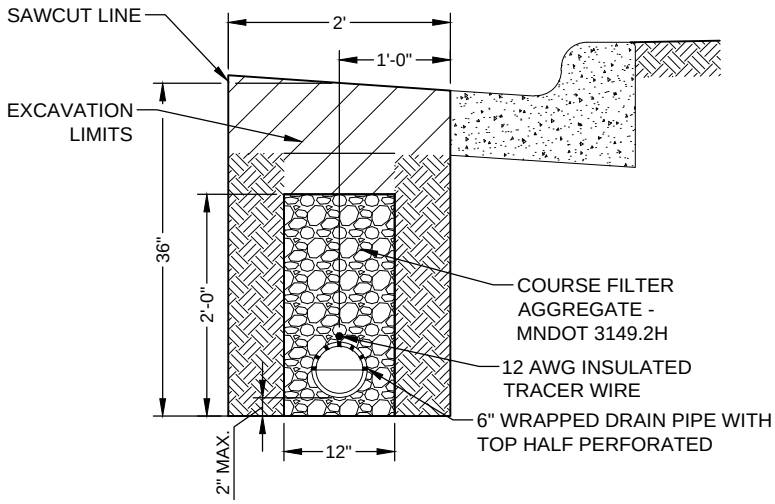
REV 03/01/2009

SANITARY SEWER SERVICE RISER

DETAIL NO.

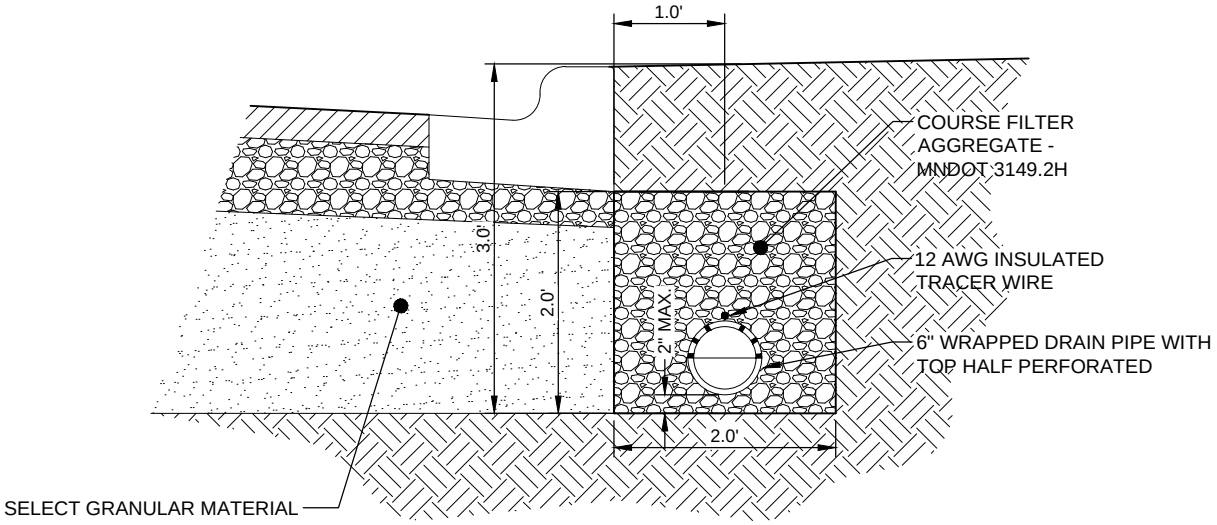
S-9

CITY OF EDEN PRAIRIE
DEPARTMENT OF ENGINEERING



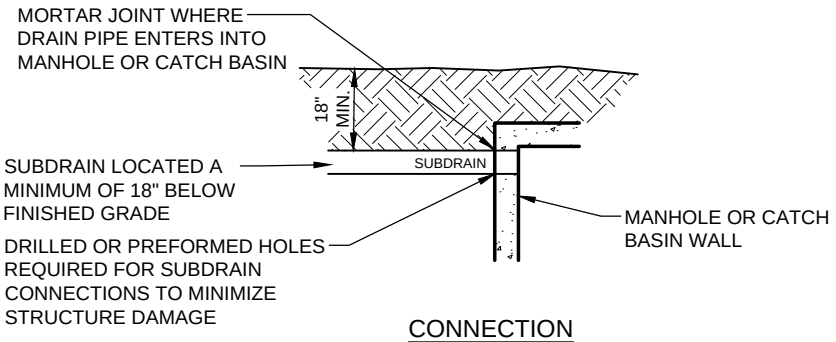
SUBSURFACE EDGE DRAIN - EXISTING ROAD / RETROFIT

NOT TO SCALE



SUBSURFACE EDGE DRAIN - NEW ROAD

NOT TO SCALE



CONNECTION

Rev. 03/16/2022

EDEN PRAIRIE MINNESOTA

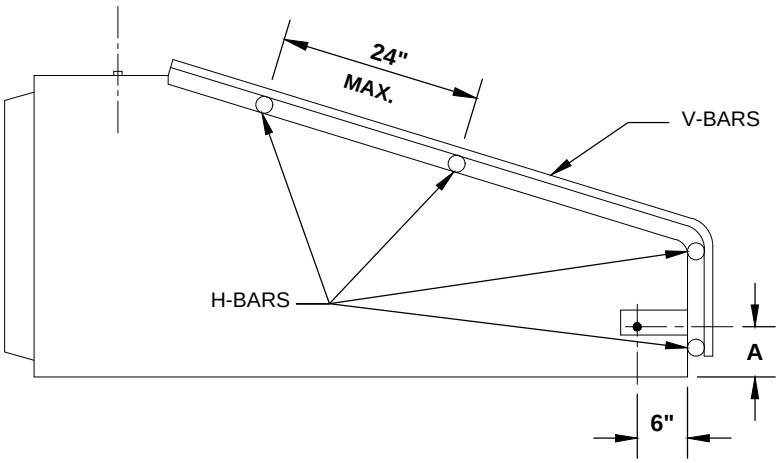
STANDARD SUBSURFACE EDGE DRAINS RETROFIT & NEW ROAD

DETAIL NO.

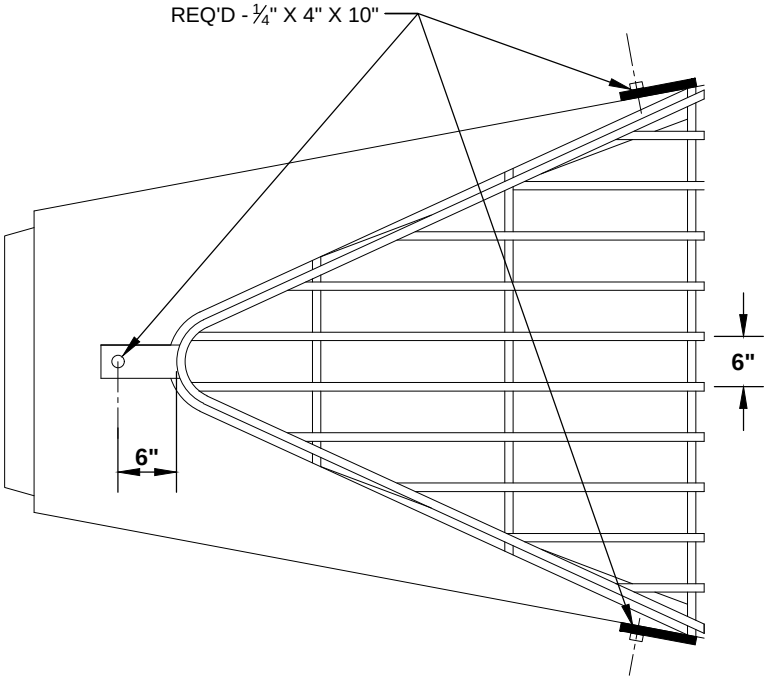
S-10

CITY OF EDEN PRAIRIE

DEPARTMENT OF ENGINEERING



BOLT TO APRON 6" FROM EDGE OF CONCRETE 3 BOLT PLATES REQ'D - ¼" X 4" X 10"



	Apron Size	V-bar Size	H-bar Size	No. of H-bars Req'd	Bolt Dia.	"A" Dim.
	Inches				Inches	
ARCH PIPE APRONS	18	½ ø	⅝ ø	3	½	5
	24	⅝ ø	¾ ø	4	½	7
	30	⅝ ø	¾ ø	4	½	7 ½
	36	¾ ø	1 ø	4	½	10 ½
	42	¾ ø	1 ø	4	¾	11
	48	¾ ø	1½ pipe	4	¾	12
	54	¾ ø	1½ pipe	4	¾	12
	60	¾ ø	1½ pipe	5	¾	14
	72	¾ ø	1½ pipe	5	¾	14
	84	¾ ø	1½ pipe	6	¾	15

ROUND PIPE APRONS	12	½ ø	⅝ ø	3	½	4
	15	½ ø	⅝ ø	3	½	4 ½
	18	½ ø	⅝ ø	4	½	4 ½
	21	½ ø	⅝ ø	4	½	5
	24	⅝ ø	¾ ø	4	½	5
	27	⅝ ø	¾ ø	4	½	5 ½
	30	⅝ ø	¾ ø	4	½	5 ½
	36	¾ ø	1 ø	4	¾	8
	42	¾ ø	1 ø	4	¾	8
	48	¾ ø	1 ø	5	¾	8
	54	¾ ø	1½ pipe	5	¾	8
	60	¾ ø	1½ pipe	5	¾	8
	66	¾ ø	1½ pipe	6	¾	8
	72	¾ ø	1½ pipe	6	¾	9
	84	¾ ø	1½ pipe	7	¾	10
	90	¾ ø	1½ pipe	7	¾	14

NOTE:
ALL BARS, PLATES, PIPE & BOLTS SHALL BE HOT-ROLLED, GALVANIZED STEEL.
ALL APRONS SHALL BE MARKED WITH AN 8'-2 LB. GREEN CHANNEL POST.

TRASH GUARDS SHALL BE REQUIRED ON APRONS 24" OR LARGER.

REV 03/01/2013

EDEN PRAIRIE
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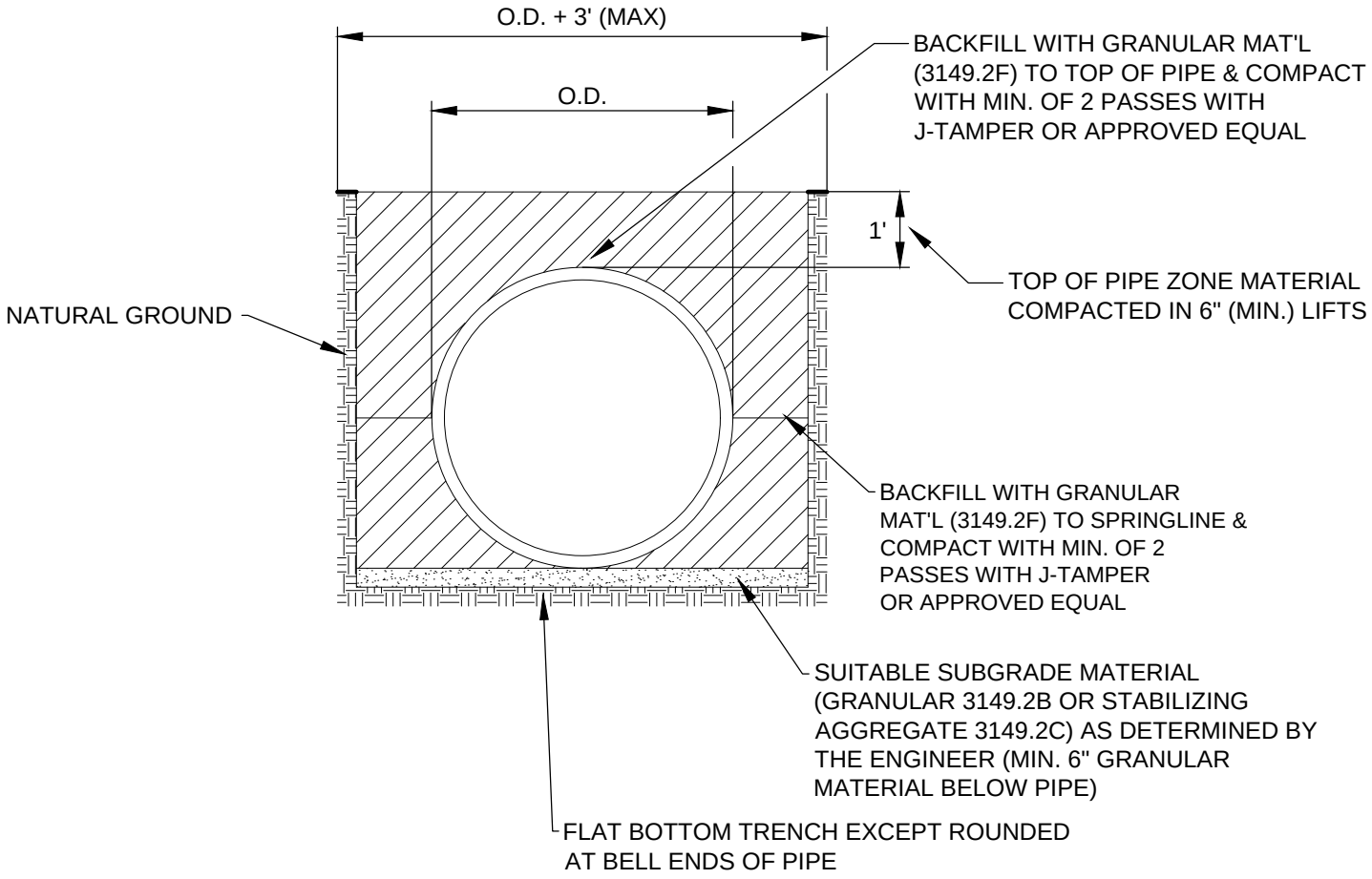
TRASH GUARD FOR CONCRETE APRONS

CITY OF EDEN PRAIRIE
DEPARTMENT OF ENGINEERING

DETAIL NO.

S-11



Rev. 03/15/2022

BEDDING FOR PVC, HDPE (ALL SIZES), AND RCP / DIP (8" AND LARGER)

CITY OF EDEN PRAIRIE
DEPARTMENT OF ENGINEERING

DETAIL NO.

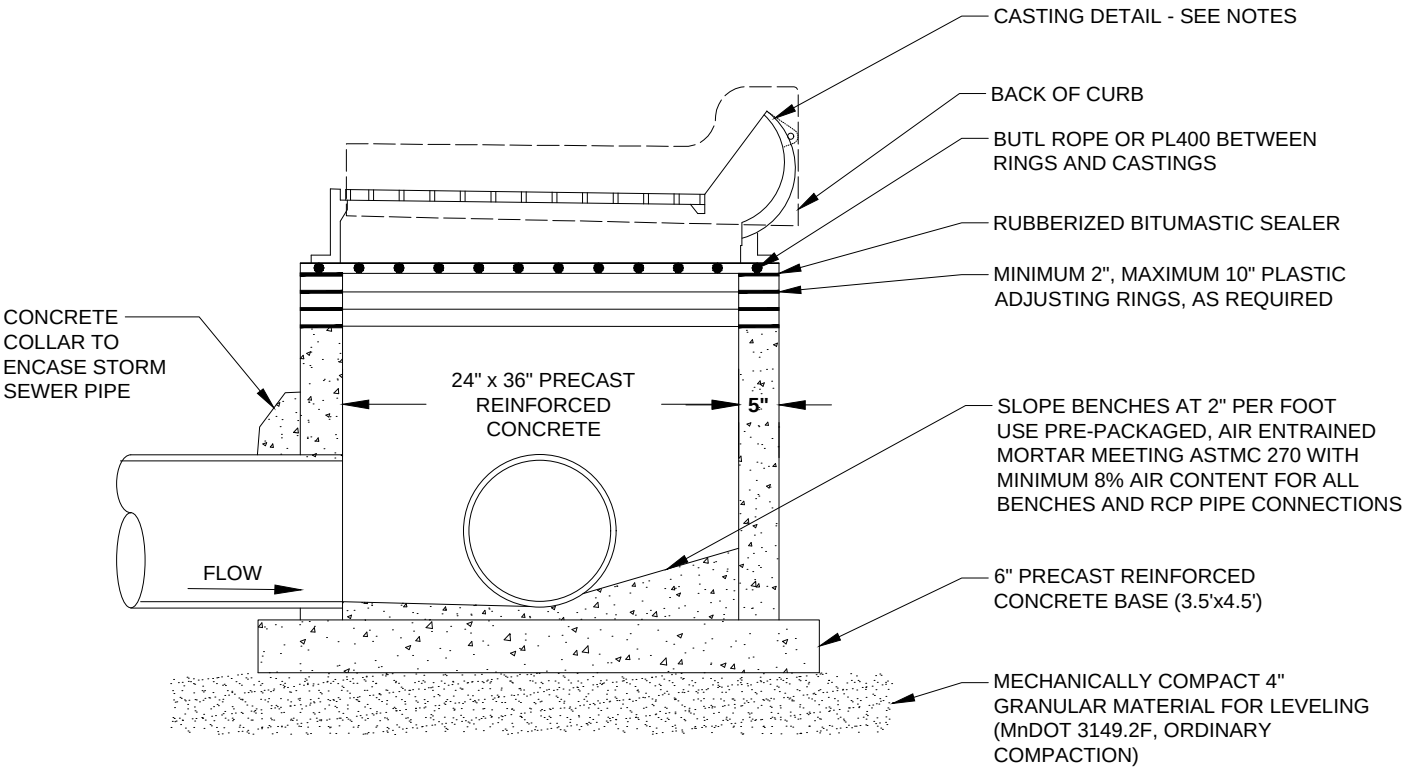
S-12

NOTES:

1) BULKHEAD STYLE CURB
   CASTING SHALL BE A NEENAH R-3067-V OR NEENAH R-3067-VB

2) BULKHEAD STYLE CURB WITHIN BIKE FACILITY
   CASTING SHALL BE A NEENAH R-3067-L

3) SURMOUNTABLE STYLE CURB
   CASTING SHALL BE A NEENAH R-3501-TR OR TL



01/26/2022

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2' x 3' CATCH BASIN

DETAIL NO.

S-13

CITY OF EDEN PRAIRIE
DEPARTMENT OF ENGINEERING