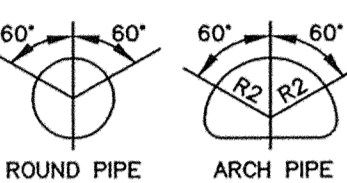
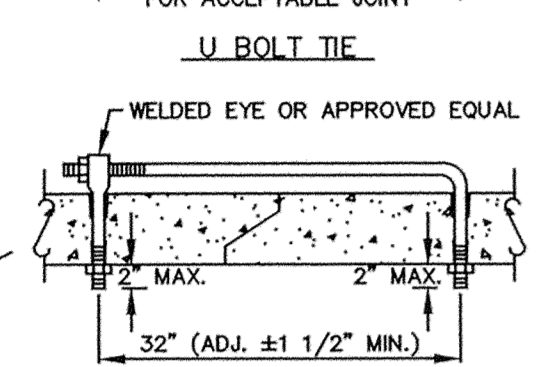
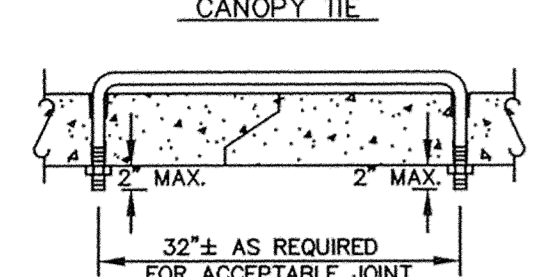
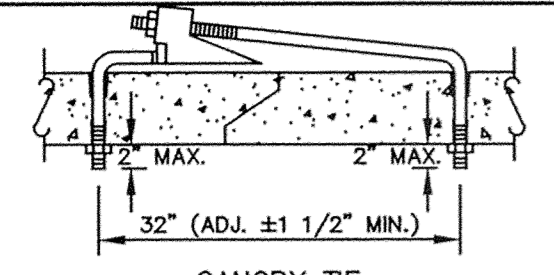


PIPE SIZE	THREAD DIAMETER
12	
15	
18	5/8"
21	ROLLED THREADS (SEE NOTE 4)
24	
27	
30	
33	
36	
42	3/4"
48	CUT OR ROLLED
54	
60	
66	
72	
78	
84	
90	
96	1"
102	CUT OR ROLLED
108	
120	
132	



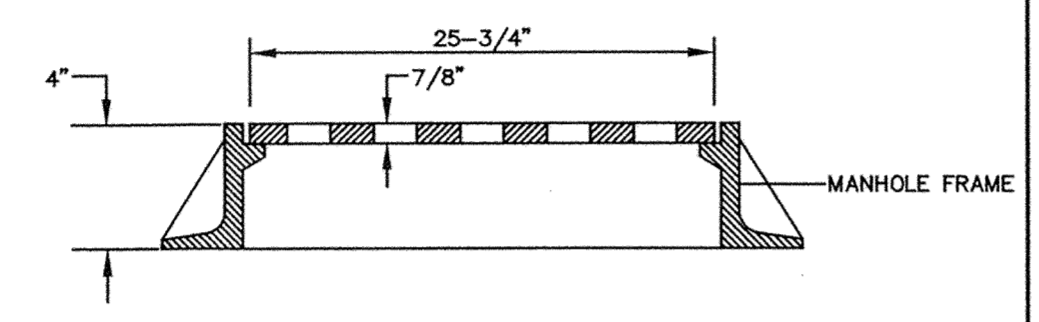
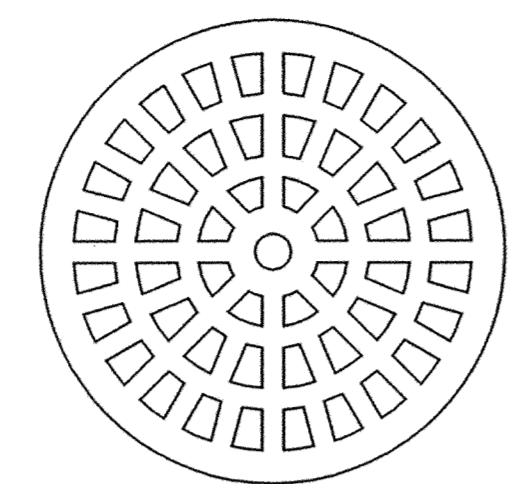
- PLACEMENT OF HOLES**
- NOTE:
- HOLES SHALL BE CAST-IN OR DRILLED 16" FROM OUTSIDE EDGE OF JOINT.
 - NUTS AND WASHERS ARE NOT REQUIRED ON INSIDE OF PIPE WITH 27" DIAMETER OR LESS.
 - TIES ARE NOT REQUIRED FOR BELL PIPE 24" AND SMALLER. ON OTHER SIZES, THEY MAY BE INSERTED FROM INSIDE.
 - CUT THREADS MAY BE USED IF WASHER AND NUT ARE USED.
 - PIPE SIZES LISTED ARE INSIDE DIAMETER OF ROUND PIPE OR EQUIVALENT DIAMETER OF PIPE ARCH.

ERSTD-SM

CONCRETE PIPE JOINT TIES

City of Elk River

STANDARD PLATE NO. **2503**



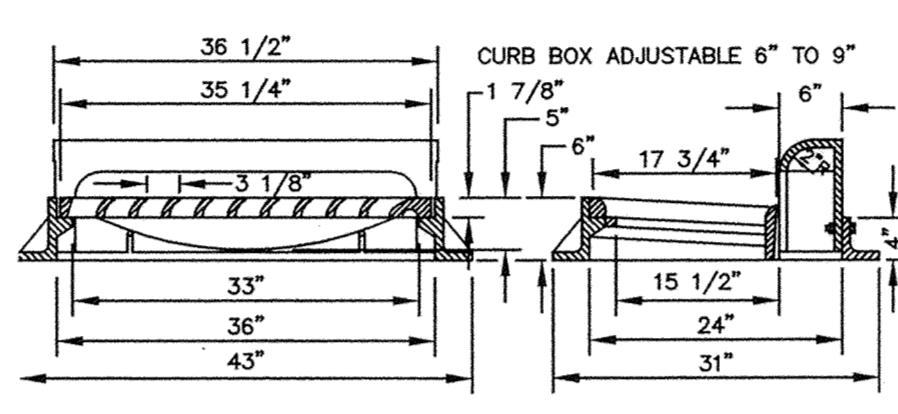
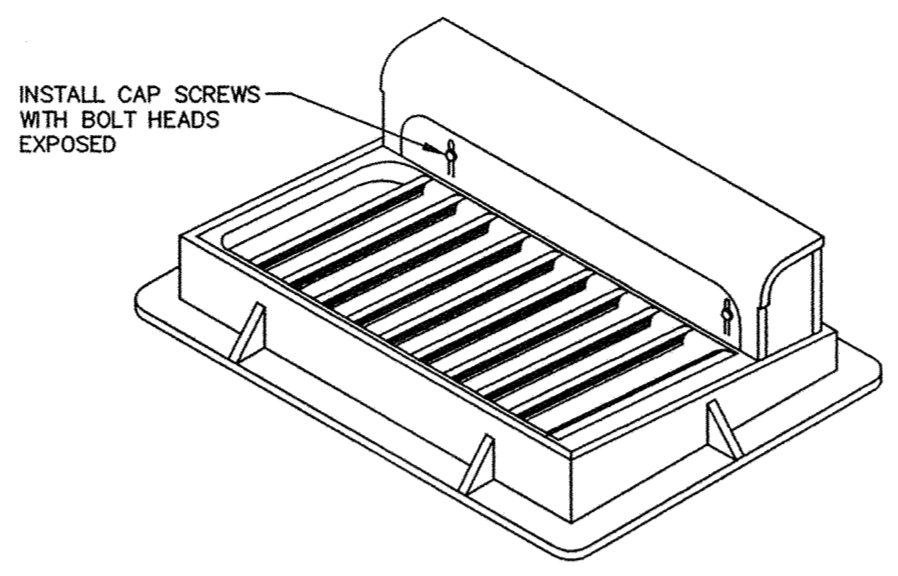
CASTING SHALL BE NEENAH R-1733-1 TYPE C OR EQUAL FOR YARDS
CASTING NEENAH R-4342 TYPE C FOR DITCHES

ERSTD-SM

GRATE CASTING

City of Elk River

STANDARD PLATE NO. **2509**



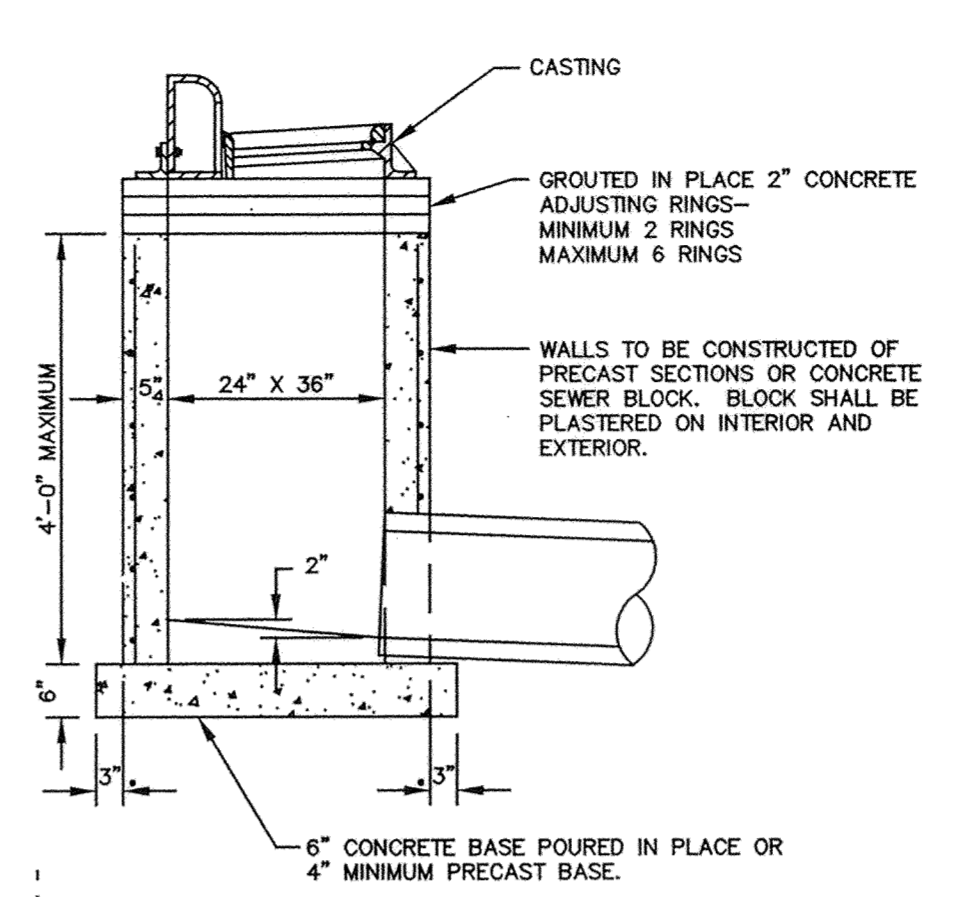
CASTINGS SHALL BE NEENAH R-3067-V OR EQUAL

ERSTD-SM

STANDARD INLET CASTING

City of Elk River

STANDARD PLATE NO. **2507**



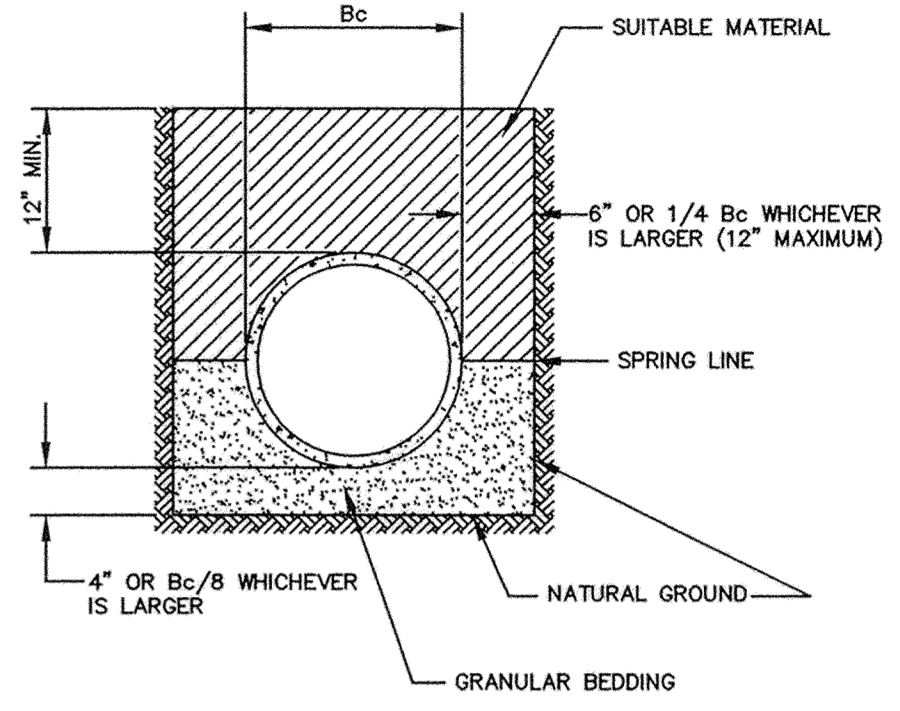
NOTE: REINFORCING SHALL CONSIST OF A SINGLE LINE OF STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.17 SQ. IN. PER FOOT OF HEIGHT.

ERSTD-SM

SHALLOW CATCH BASIN

City of Elk River

STANDARD PLATE NO. **2500**



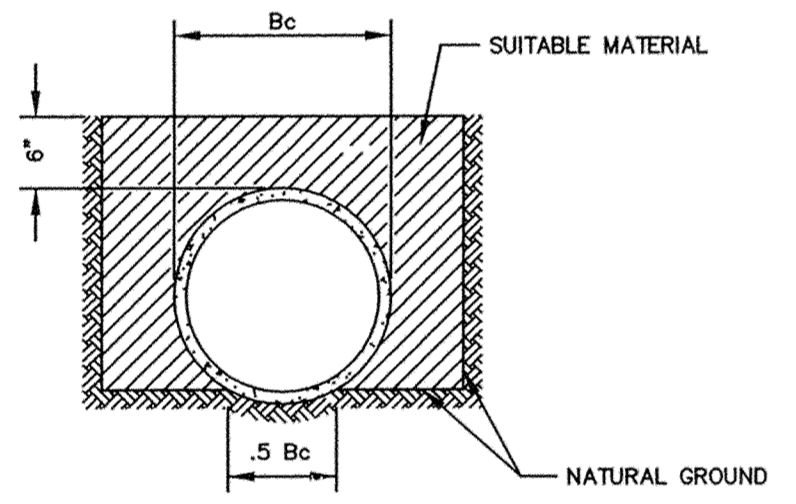
NOTE: ALL COSTS OF EXCAVATION BELOW GRADE AND PLACEMENT OF GRANULAR BEDDING SHALL BE INCLUDED IN THE BID PRICES FOR PIPE ITEMS.

ERSTD-WM

CLASS B PIPE BEDDING

City of Elk River

STANDARD PLATE NO. **3406**



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

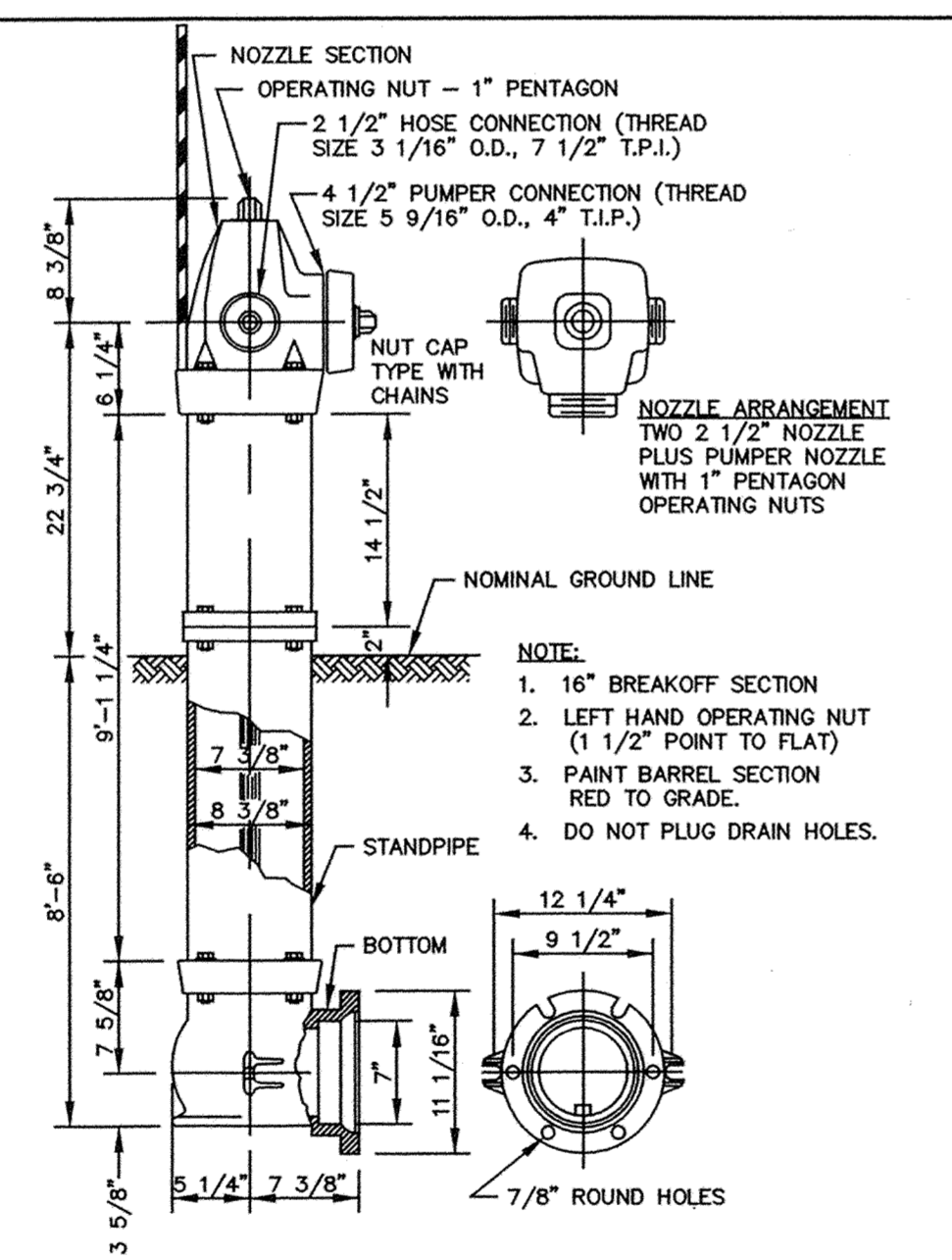
NOTE: ALL COSTS OF EXCAVATION BELOW GRADE AND PLACEMENT OF GRANULAR BEDDING SHALL BE INCLUDED IN THE BID PRICES FOR PIPE ITEMS.

ERSTD-WM

CLASS C PIPE BEDDING

City of Elk River

STANDARD PLATE NO. **3405**



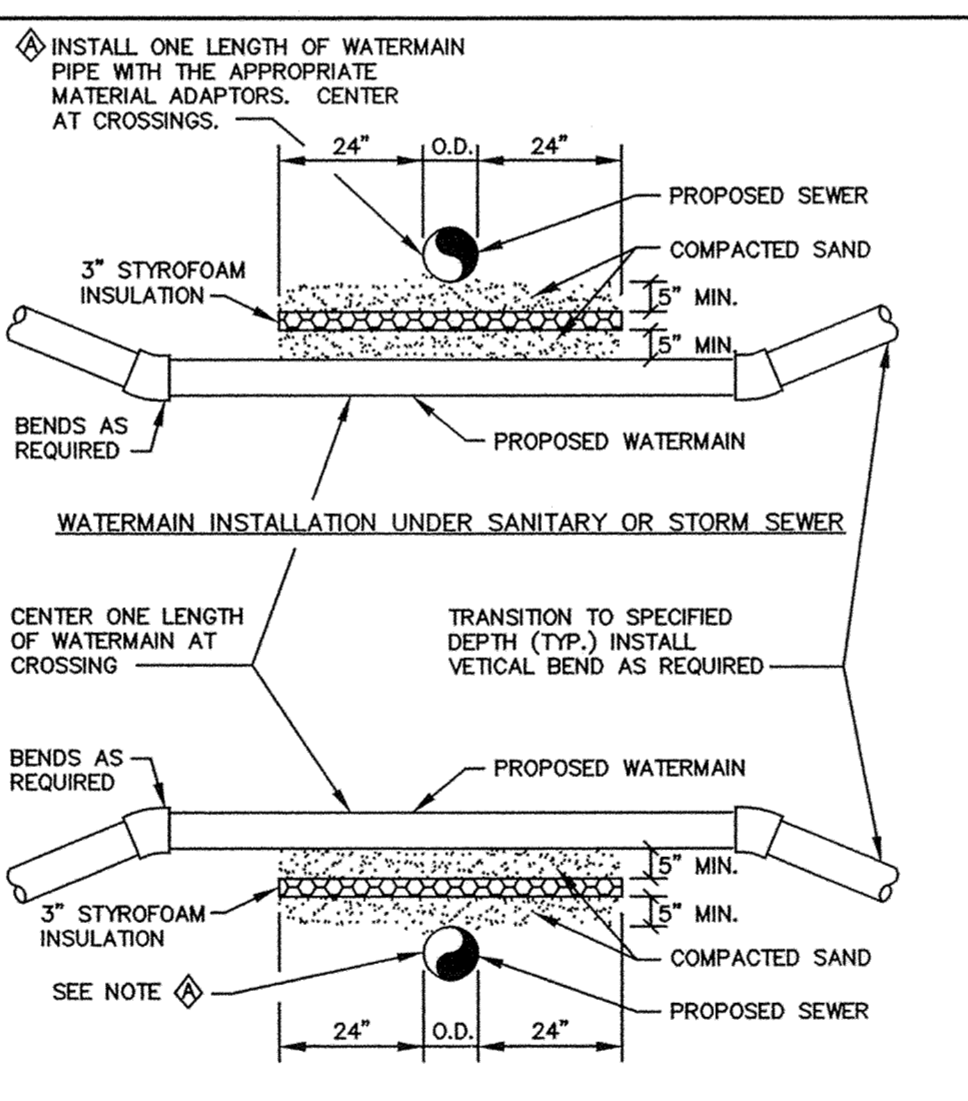
NOTE: HYDRANT LOCATING DEVICES REQUIRED - SEE SPECIFICATIONS.

ERSTD-WM

PACER HYDRANT DETAIL

City of Elk River

STANDARD PLATE NO. **3401**



NOTES:

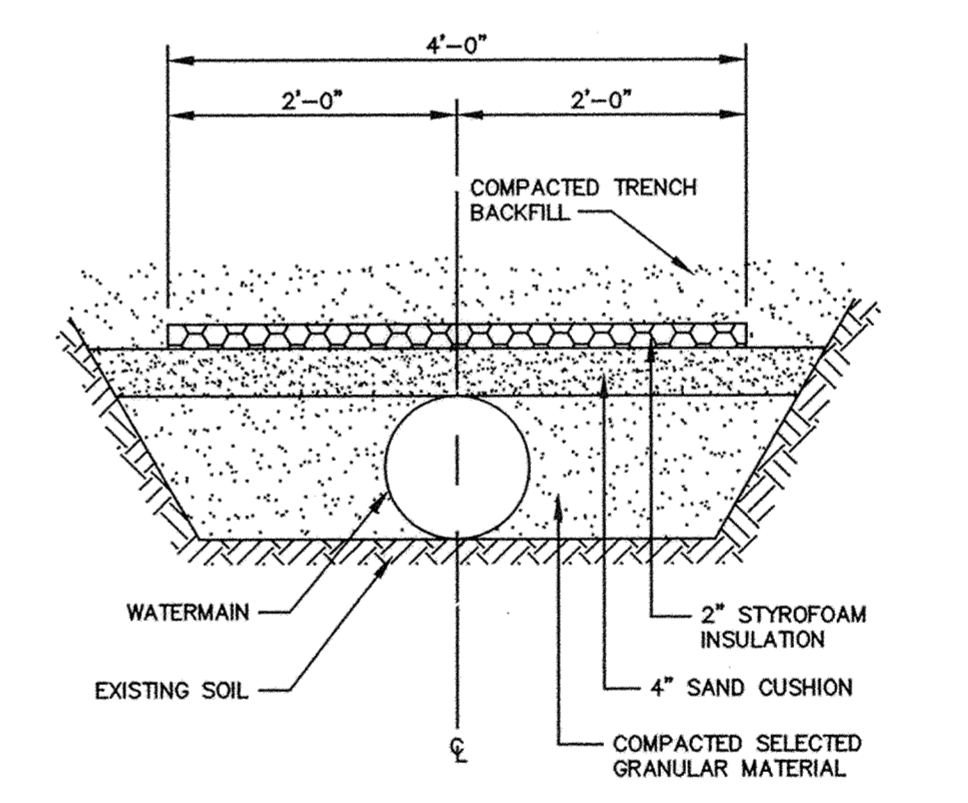
- WHEN WATERMAIN AND SANITARY SEWER CROSSINGS HAVE LESS THAN 18" VERTICAL SEPARATION, INSTALL CROSSING AS SHOWN.
- WHEN WATERMAIN COVER IS LESS THAN 7.5 FEET, INSTALL WATERMAIN UNDER SANITARY SEWER.

ERSTD-WM

WATERMAIN CROSSING

City of Elk River

STANDARD PLATE NO. **3404**



ERSTD-WM

PIPE INSULATION DETAIL

City of Elk River

STANDARD PLATE NO. **3407**

RECORD PLAN 2005

CONTRACTOR

RYAN CONTRACTING
8700 13TH AVE.
SHAKOPEE, MN
(952) 894-3200

RECORD PLAN 2005

PIONEER engineering

201 85th Avenue NW
Coon Rapids, MN 55433
(763) 753-1800 FAX: 753-1883

1. AS-BUILT

Revisions
1. XX/XX/XX

Date 7/16/04
Designed BJK
Drawn

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Name Paul J. Chertie
Reg. No. 19860 Date 7/16/04

OWNER RYAN CONTRACTING CO.
8700 13TH AVENUE EAST
SHAKOPEE, MINNESOTA 55379

PROJECT TWIN LAKES ESTATES
ELK RIVER

SHEET 22 OF 24 SHEETS