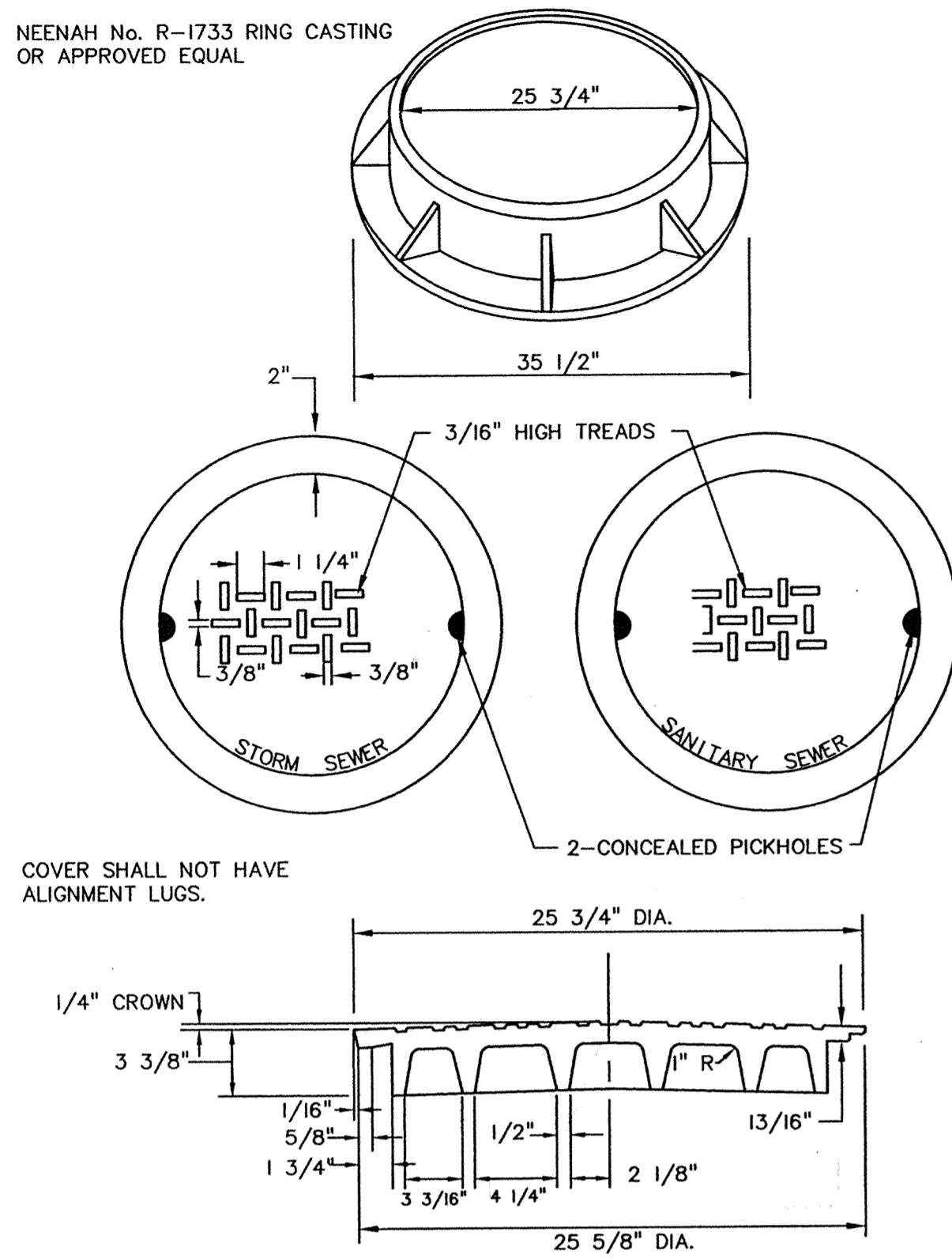
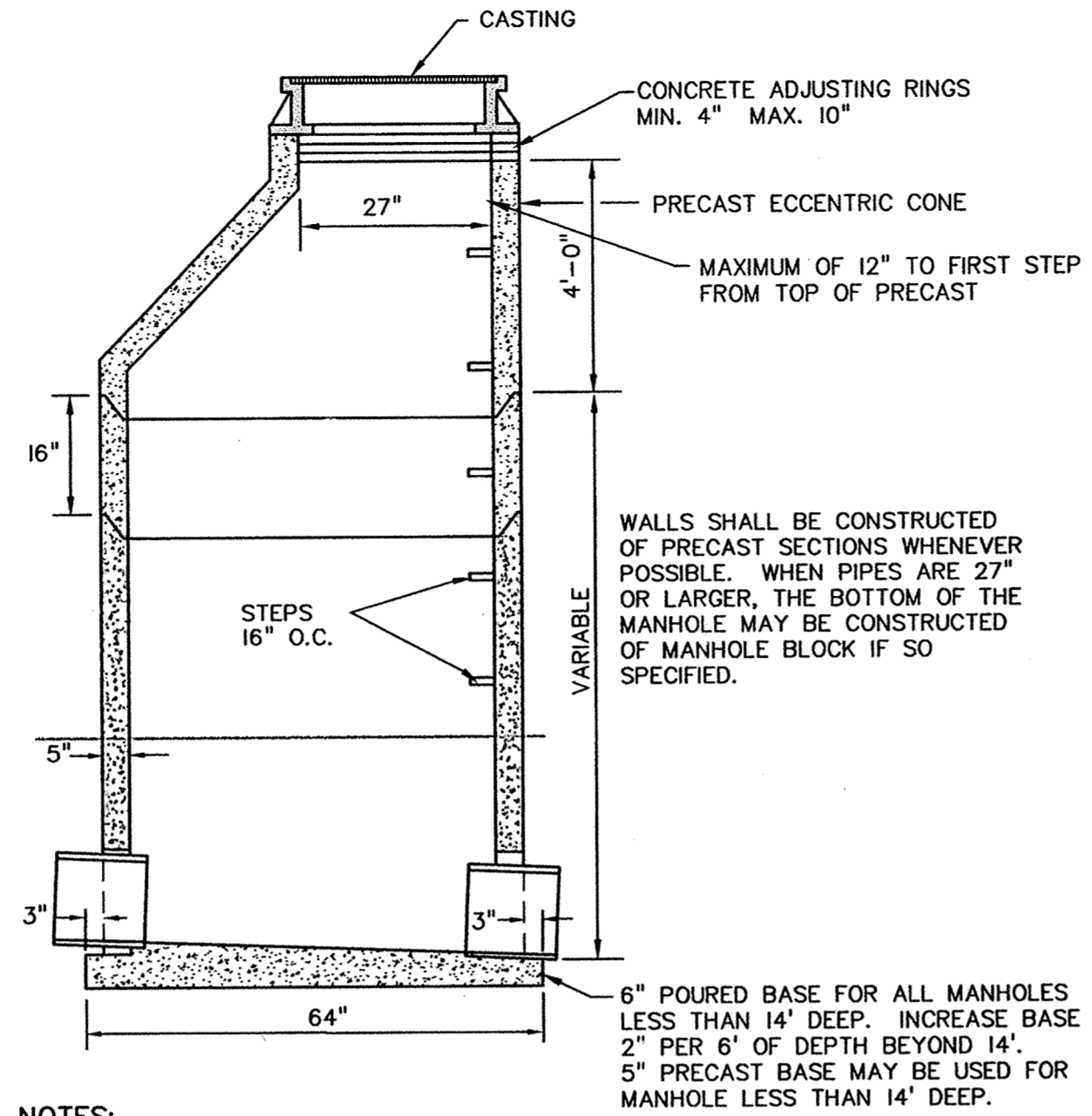


NEENAH No. R-1733 RING CASTING OR APPROVED EQUAL

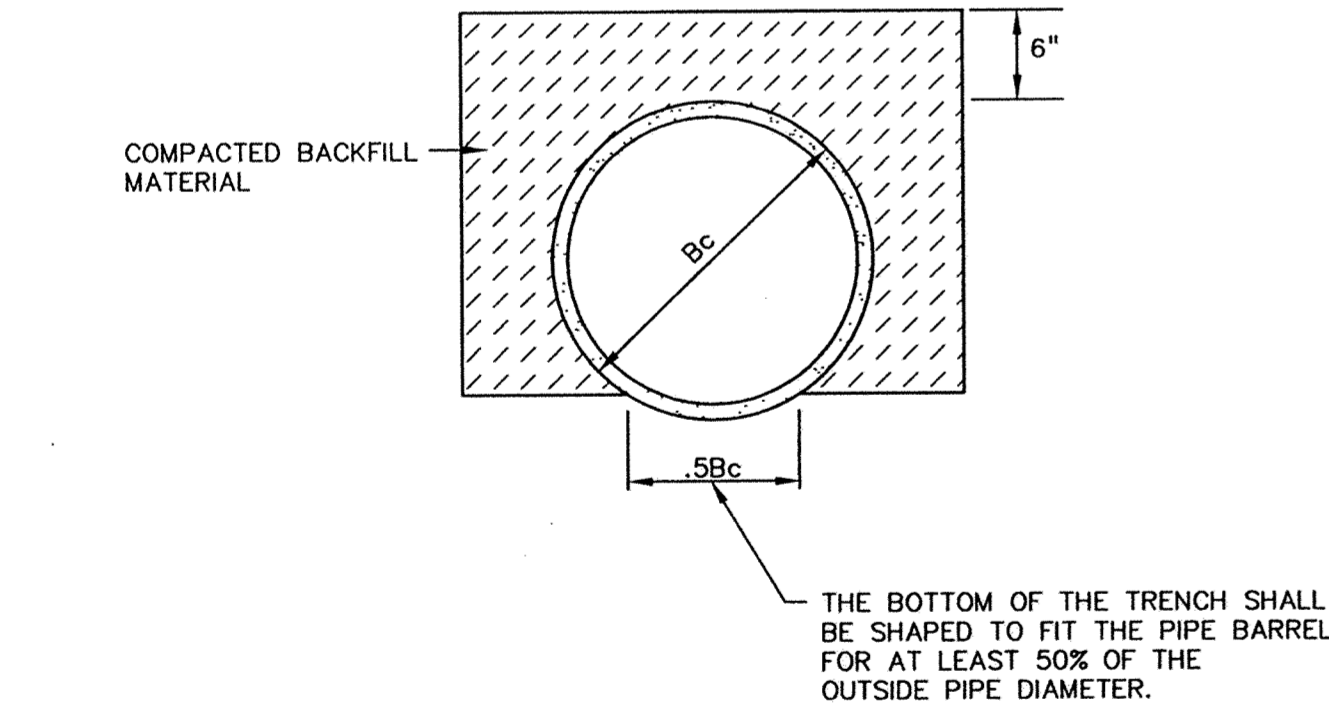


STANDARD MANHOLE CASTINGS (C-01)



- NOTES:
1. WHEN MANHOLE DEPTH IS LESS THAN 8' OR CASTING IS RECTANGULAR, A SLAB TOP SHALL BE USED IN PLACE OF THE CONE. THE SLAB SHALL BE SUITABLE FOR AASHTO HS 20 HIGHWAY LOADINGS. THE SLAB SHALL BE ON A MORTAR BED.
 2. MANHOLE INVERT SHALL BE SLOPED TO PROVIDE SMOOTH FLOW FROM INLET TO OUTLET.
 3. MANHOLE JOINTS MAY BE MADE WITH CEMENT MORTAR INSIDE AND OUT.

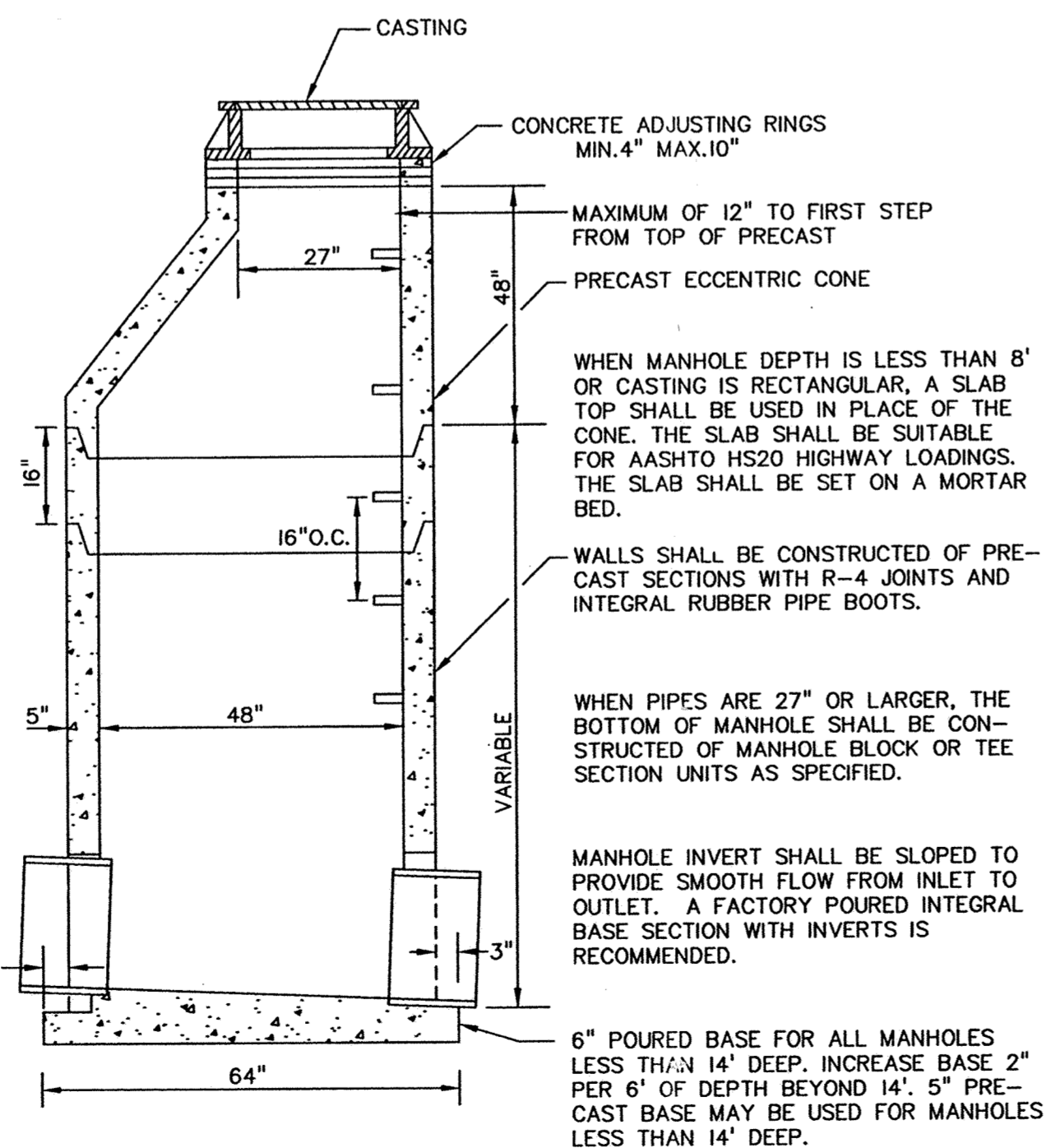
STANDARD STORM SEWER MANHOLE



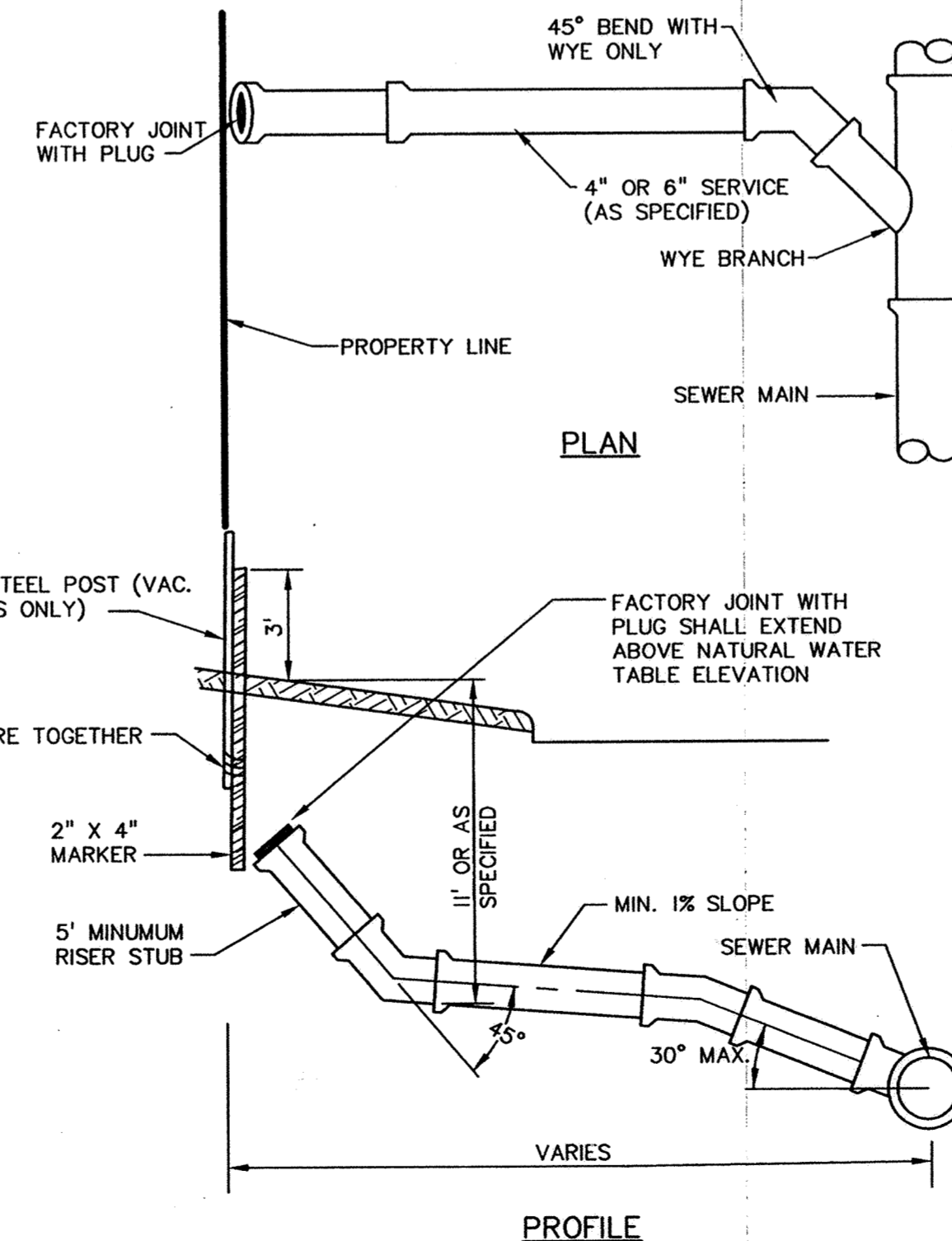
REFERENCE:
CONCRETE PIPE DESIGN MANUAL
PREPARED BY AMERICAN CONCRETE PIPE INSTITUTE

NOTE:
FOR ROCK OR OTHER INCOMPRESSIBLE MATERIALS, THE TRENCH SHOULD BE OVER EXCAVATED A MINIMUM OF 6" AND BACKFILLED WITH GRANULAR MATERIAL.

CLASS C CONCRETE PIPE BEDDING

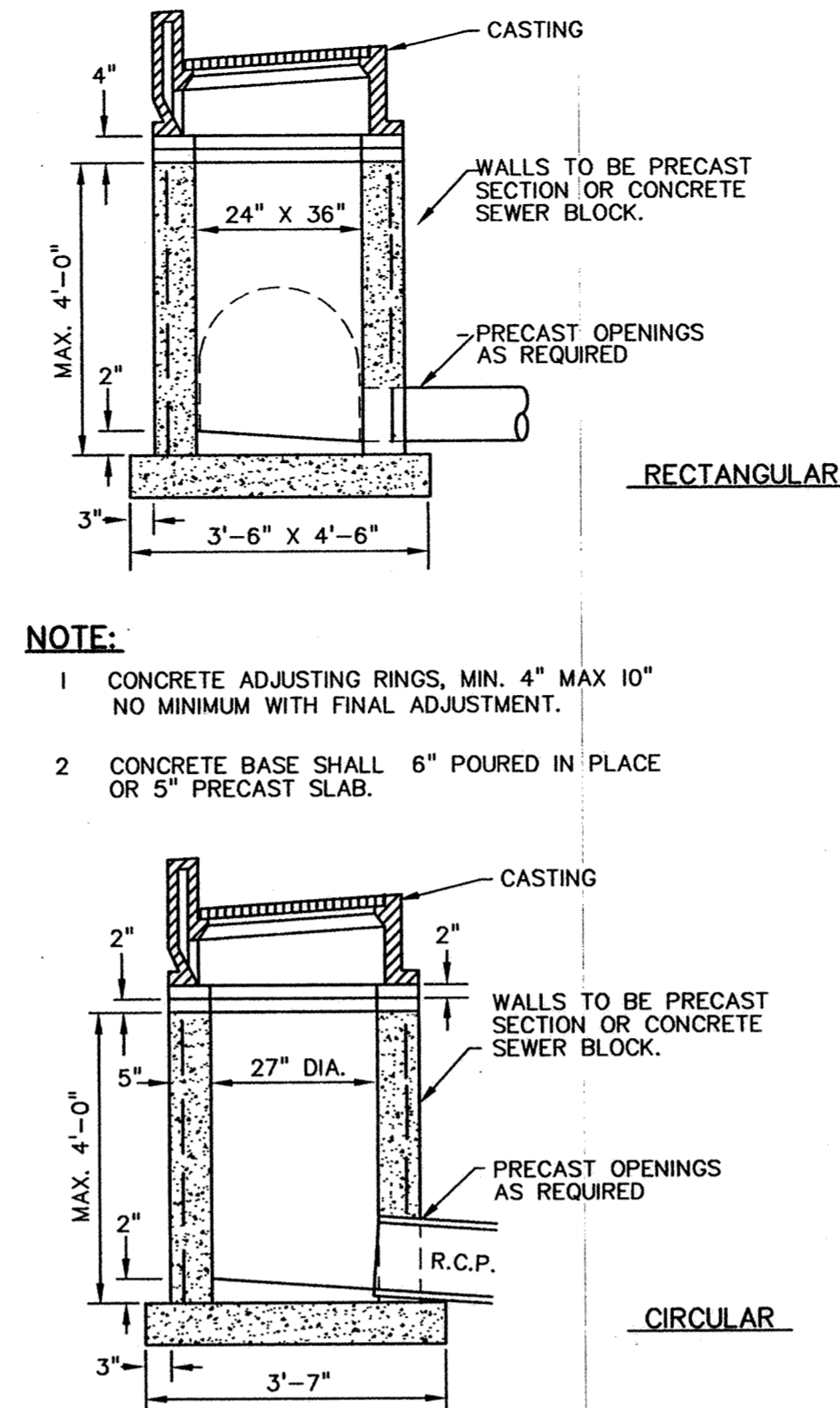


STANDARD SANITARY SEWER MANHOLE



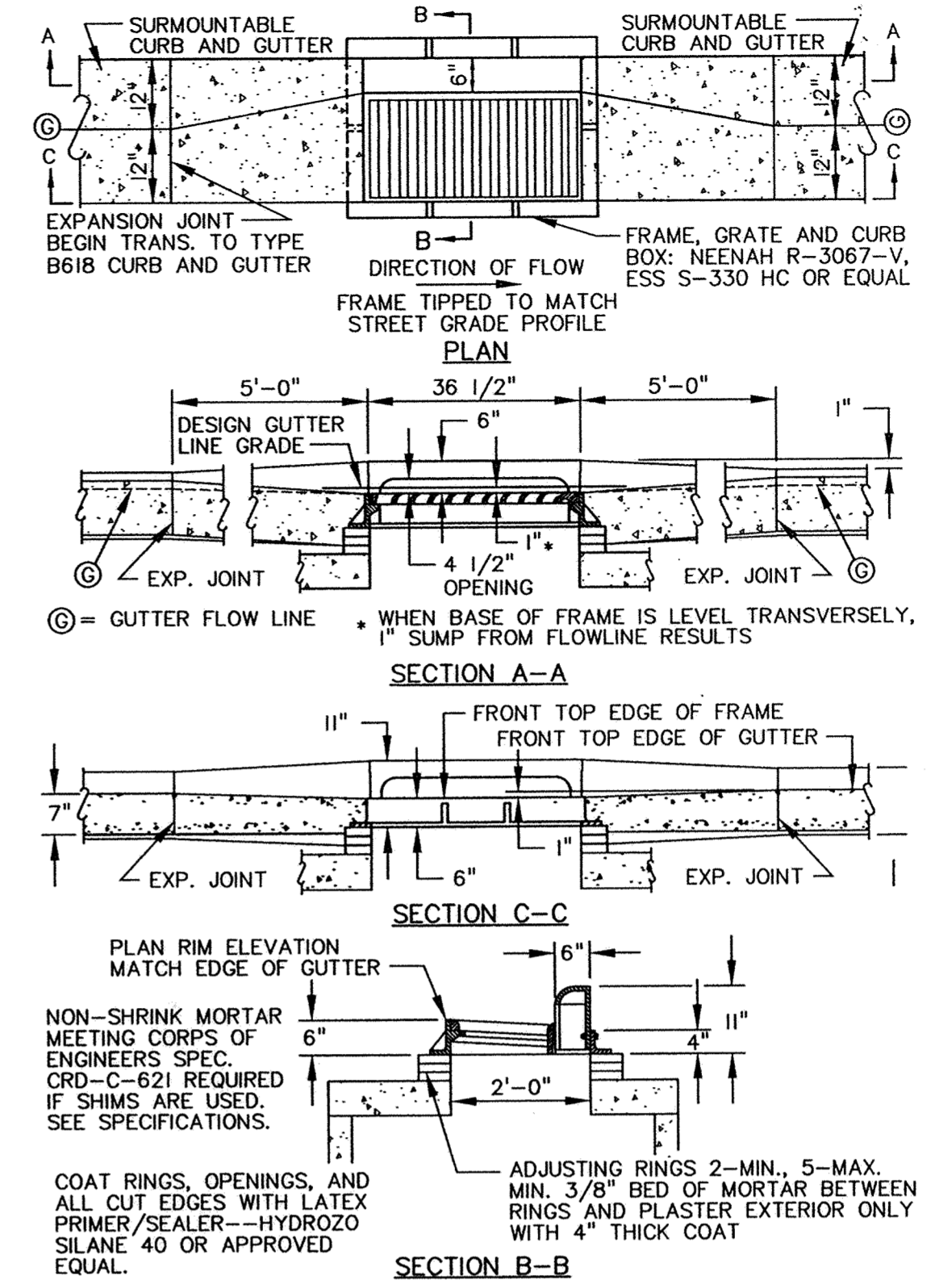
TYPICAL HOUSE SERVICE (STD. DEPTH SEWER MAIN)

RECORD DRAWINGS



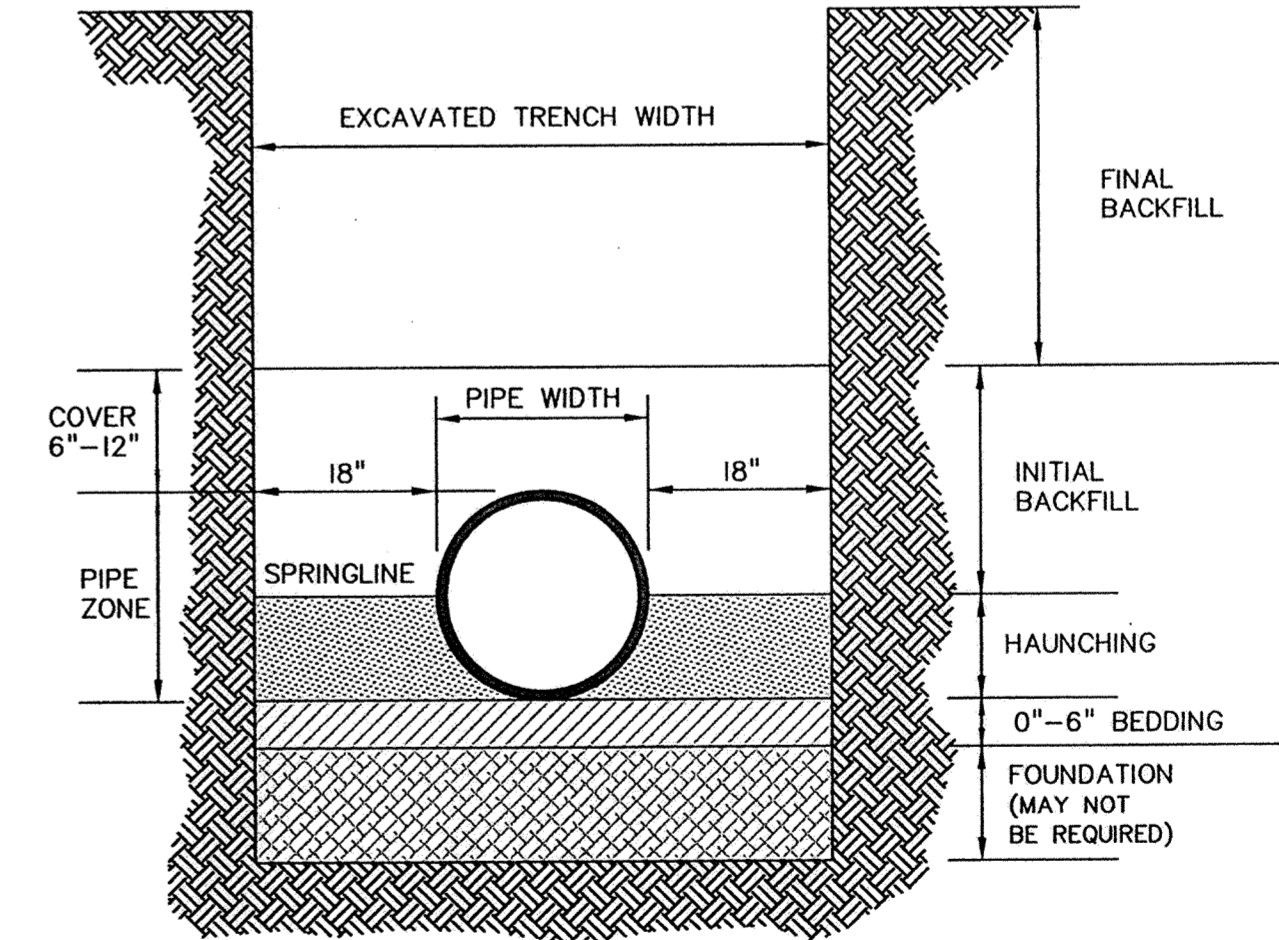
- NOTE:
1. CONCRETE ADJUSTING RINGS, MIN. 4" MAX 10" NO MINIMUM WITH FINAL ADJUSTMENT.
 2. CONCRETE BASE SHALL 6" POURED IN PLACE OR 5" PRECAST SLAB.

SHALLOW MANHOLE OR CATCH BASIN - STORM SEWER



CATCH BASIN FRAME PLACEMENT SURMOUNTABLE CURB AND GUTTER

PRIME CONTRACTOR/UTILITIES: KUECHLE UNDERGROUND, INC.
EARTHWORK: NORTH PINE AGGREGATE, INC.
CURB & GUTTER: SCHMIDT CURB COMPANY, INC.
STREETS: BAUERLY BROTHERS CO.
INSPECTION: HOWARD R. GREEN, INC.
SURVEY: JOHN OLIVER & ASSOCIATES, INC.
RECORD DRAWINGS: FRED FRITSCHEL, JOHN OLIVER & ASSOCIATES, INC.
CONSTRUCTED: 2002



NOTE:
PIPE BEDDING SHALL CONFORM TO ASTM D-2321 "RECOMMENDED PRACTICE FOR UNDERGROUND INSTALLATION OF FLEXIBLE THERMOPLASTIC SEWER PIPE" EXCEPT PIPE EMBEDMENT MATERIAL SHALL BE CLASS I OR CLASS II WITH 100% PASSING A 3/4 INCH SIEVE AND NOT MORE THAN 10% PASSING A No. 200 SIEVE.

PLASTIC PIPE BEDDING

REV. NO.	DATE	DESCRIPTION
1	9/19/02	CITY COMMENTS
2	2/26/03	RECORD DRAWINGS

DATE: 8/2/02
DESIGN BY: TM, CSA
DRAWN BY: CSA
CHECKED BY: TM
DWG: 11-13DET
TEXT: NONE
FILE NO.: 6821-30-03

Signature: [Signature]
Date: 8/2/02 Reg. No. 20383

John Oliver & Associates, Inc.
Civil Engineering, Land Surveying, Land Planning
680 Dodge Avenue
Elk River, Minnesota 55330
763-441-2072 FAX 763-441-5665
Offices in: Elk River, Burnsville and Brooklyn Center, Minnesota

MISSISSIPPI OAKS 3RD ADDITION
ELK RIVER, MN
FOR
MISSISSIPPI OAKS DEVELOPMENT CORP.
DETAIL SHEET

SHEET NO. 12 OF 13