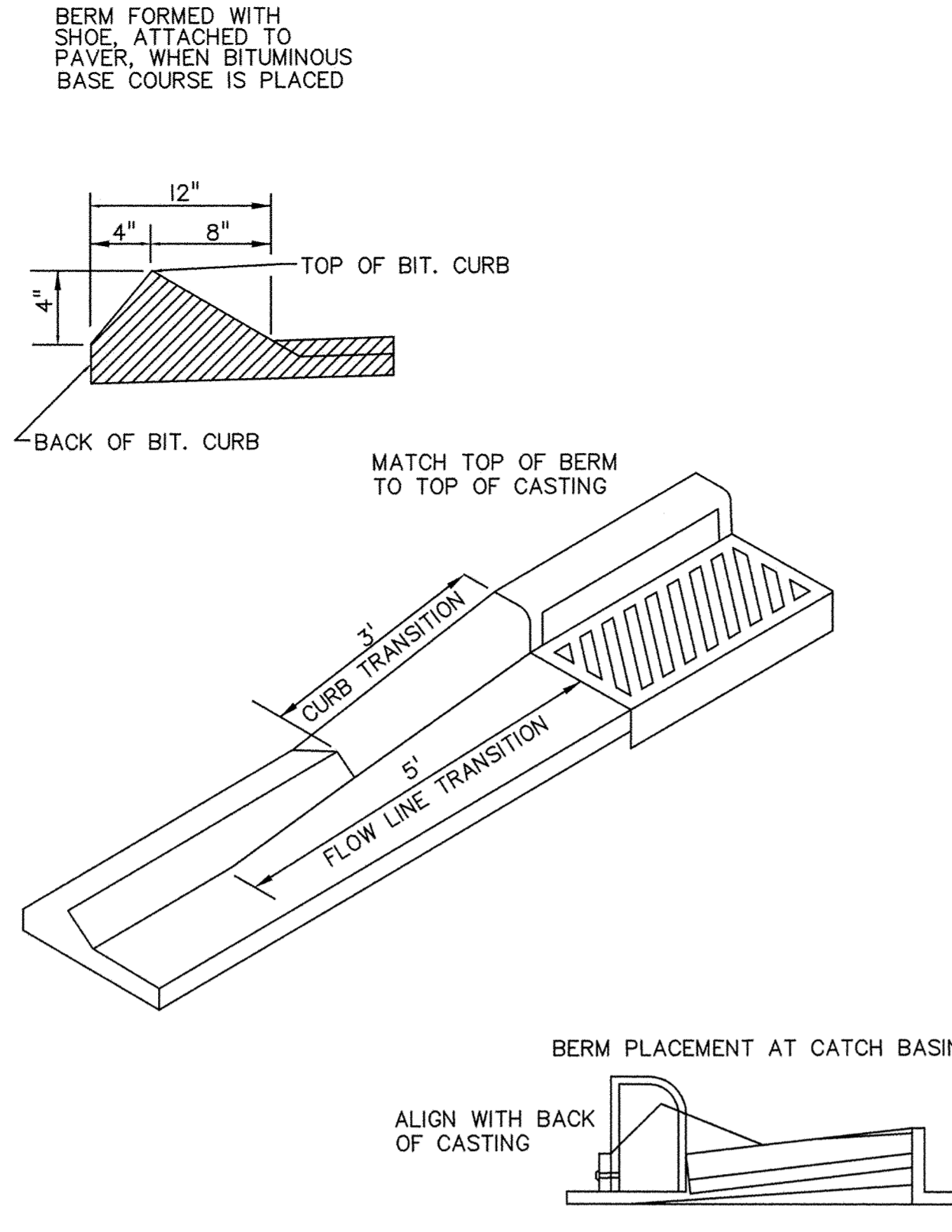
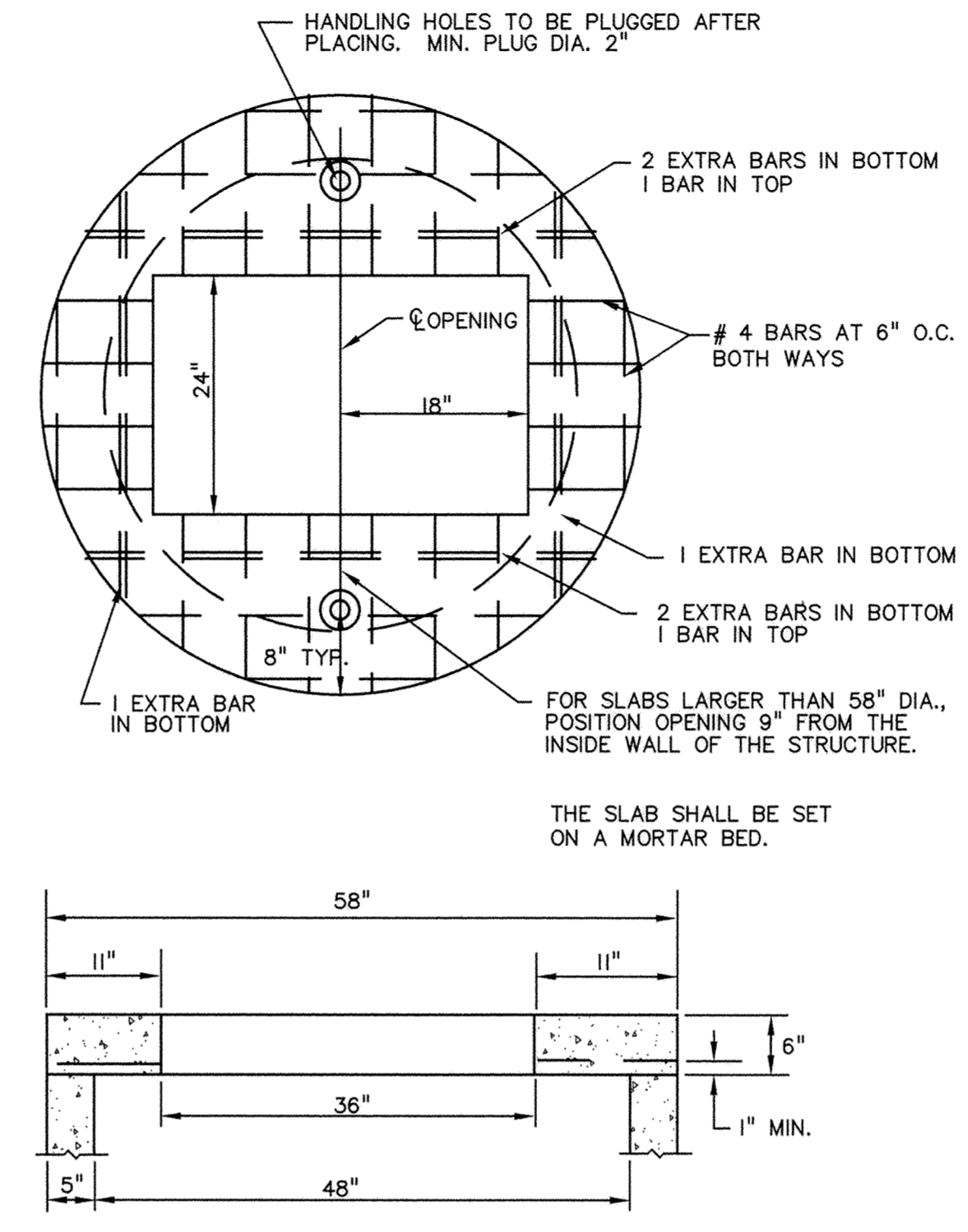


CASTINGS SHALL BE NEENAH R-3067-V OR EQUAL

STANDARD INLET CASTING

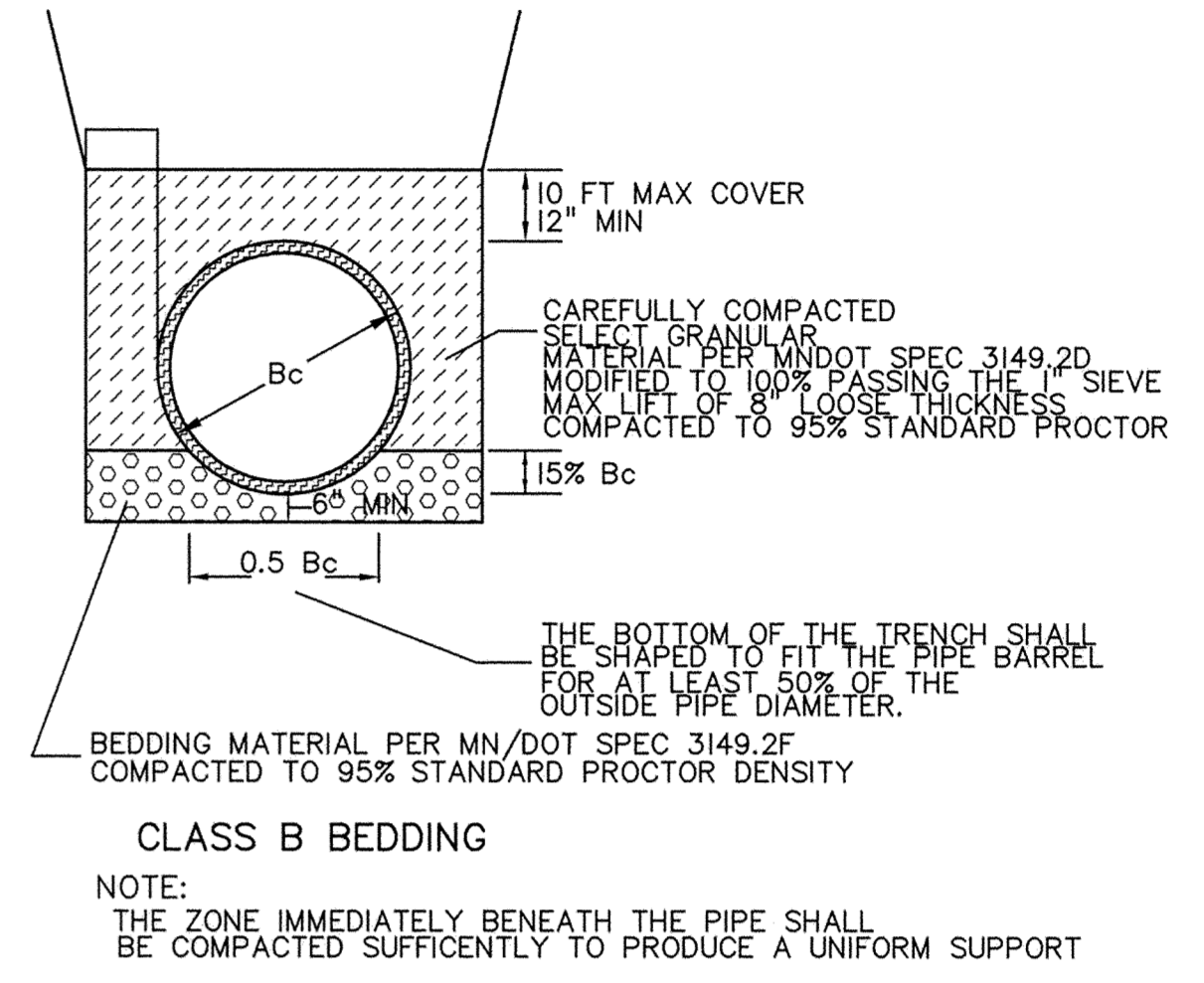


INTEGRAL BITUMINOUS BERM



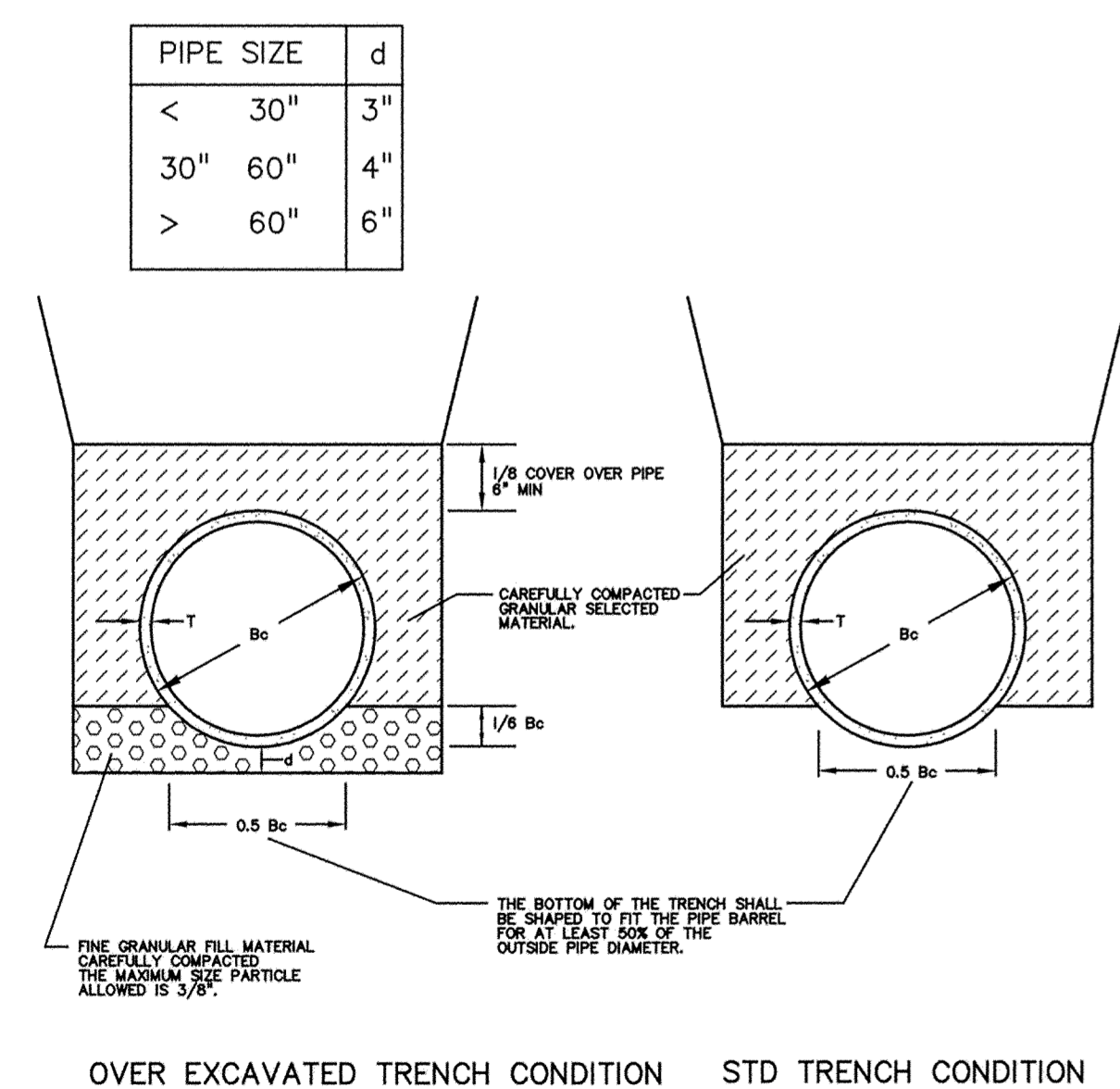
H.S. 20 DESIGN MANHOLE SLAB-TOP - RECTANGULAR

**RECORD PLAN**  
**CONTRACTOR: RANDY KRAMER**  
**DEVELOPER: DENNIS T. WURM**  
**OBLIQUE TEXT DENOTES AS BUILT CHANGES**



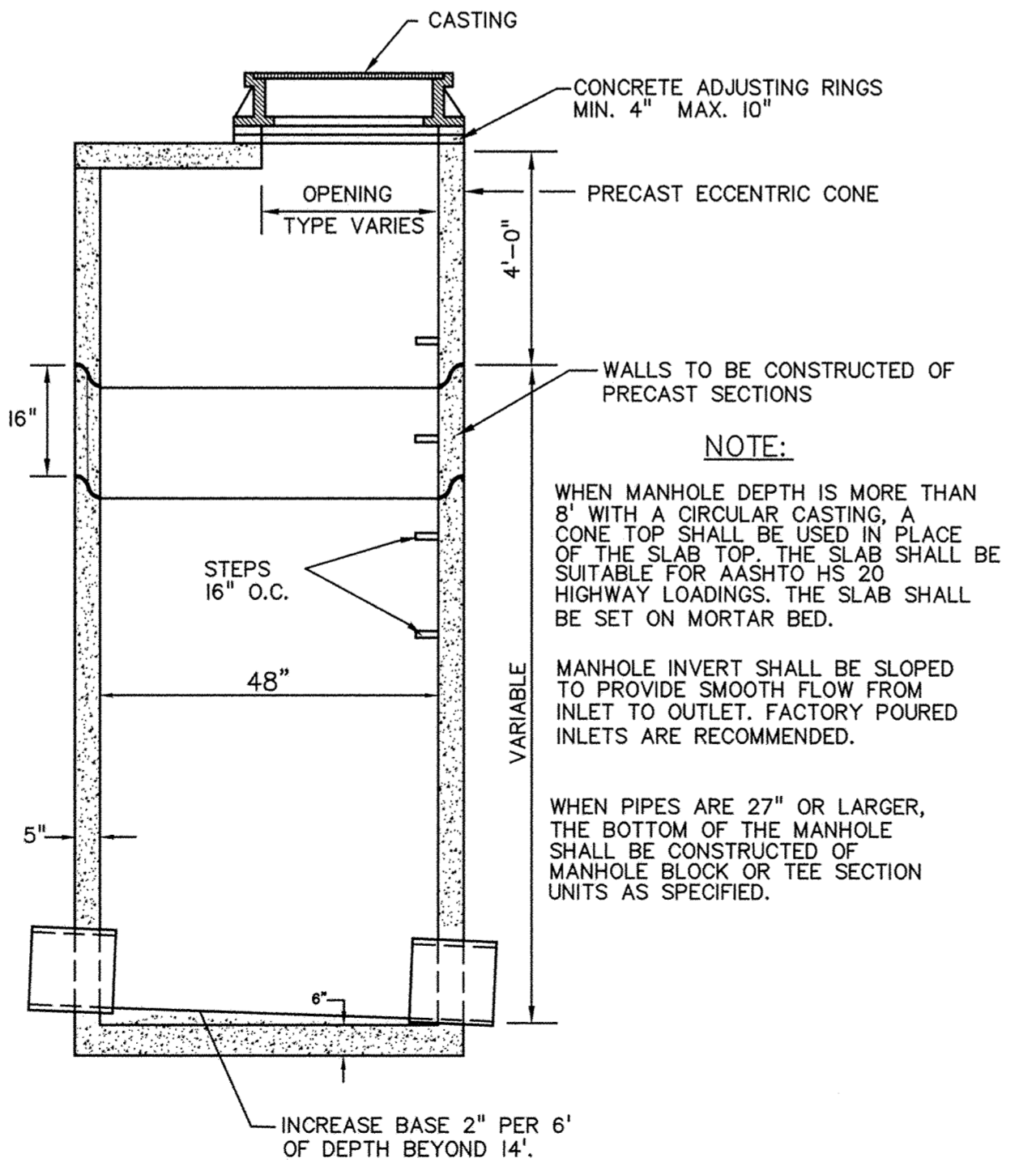
CLASS B BEDDING  
 NOTE: THE ZONE IMMEDIATELY BENEATH THE PIPE SHALL BE COMPACTED SUFFICIENTLY TO PRODUCE A UNIFORM SUPPORT

DUAL WALL PIPE BEDDING



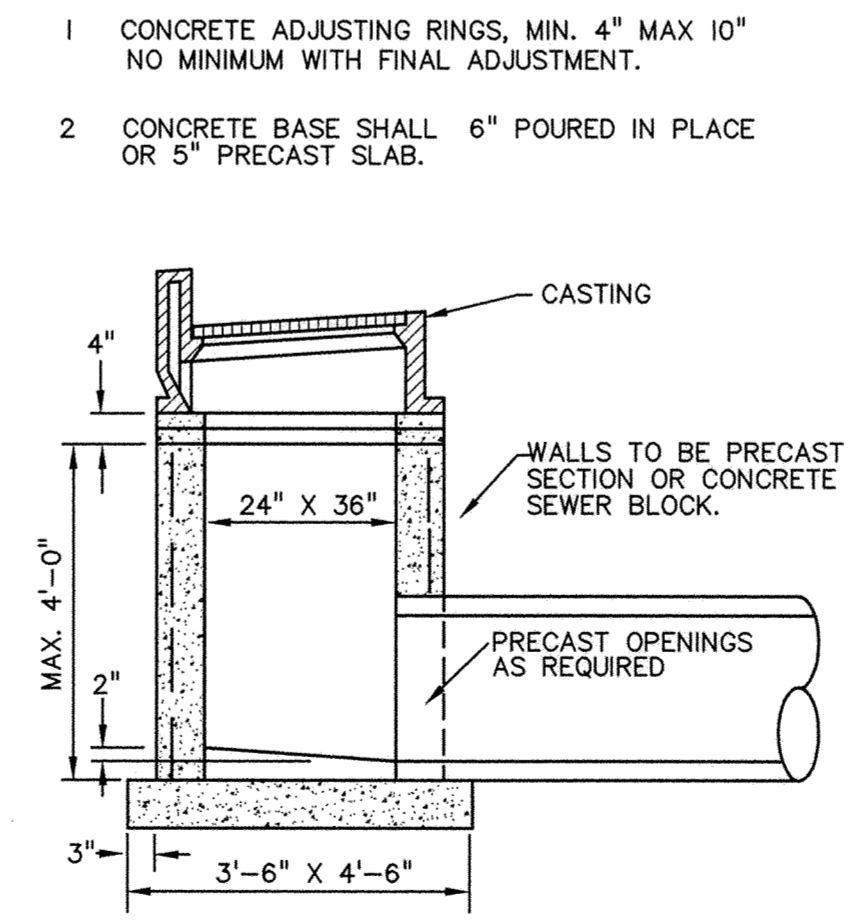
REFERENCE: CONCRETE PIPE DESIGN MANUAL PREPARED BY AMERICAN CONCRETE PIPE INSTITUTE  
 NOTE: FOR ROCK OR OTHER INCOMPRESSIBLE MATERIALS, THE TRENCH SHOULD BE OVEREXCAVATED A MINIMUM OF 6" AND REPLIED WITH GRANULAR MATERIAL.

CLASS C PIPE BEDDING



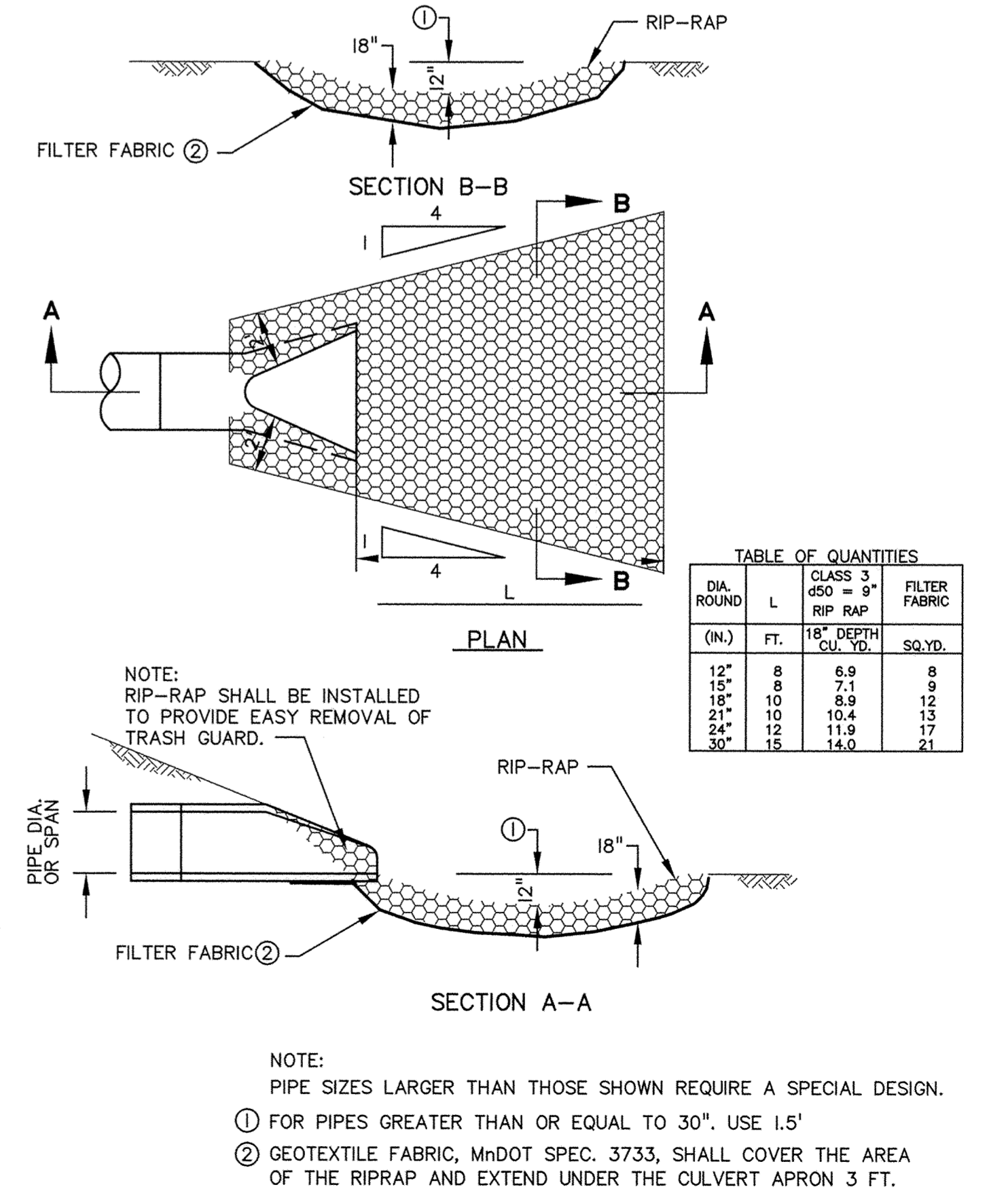
NOTE: WHEN MANHOLE DEPTH IS MORE THAN 8' WITH A CIRCULAR CASTING, A CONE TOP SHALL BE USED IN PLACE OF THE SLAB TOP. THE SLAB SHALL BE SUITABLE FOR AASHTO HS 20 HIGHWAY LOADINGS. THE SLAB SHALL BE SET ON MORTAR BED.  
 WHEN PIPES ARE 27" OR LARGER, THE BOTTOM OF THE MANHOLE SHALL BE CONSTRUCTED OF MANHOLE BLOCK OR TEE SECTION UNITS AS SPECIFIED.

STANDARD MANHOLE FOR STORM SEWER



- 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.

CATCHBASIN - RECTANGULAR - 24" X 36"



DIA. ROUND (IN.)	L (FT.)	CLASS 3 450 = 9" RIP RAP (CU. YD.)	FILTER FABRIC (SQ. YD.)
12"	8	5.9	8
15"	8	7.1	8
18"	10	9.9	12
21"	10	10.4	13
24"	12	11.9	17
30"	15	14.0	21

NOTE: PIPE SIZES LARGER THAN THOSE SHOWN REQUIRE A SPECIAL DESIGN.  
 ① FOR PIPES GREATER THAN OR EQUAL TO 30", USE I.5'  
 ② GEOTEXTILE FABRIC, MnDOT SPEC. 3733, SHALL COVER THE AREA OF THE RIPRAP AND EXTEND UNDER THE CULVERT APRON 3 FT.

RIp-RAP INSTALLATION

DATE: 08/10/05  
 DESIGN BY: MG  
 DRAWN BY: MG  
 CHECKED BY: DS  
 DWG FILE: 5\_DETAILS  
 FILE NO.: 05-03566.00

REVISIONS TO EROSION CONTROL MEASURES  
 REVISIONS TO PROFILE STATIONING

DESCRIPTION

DATE: 08/10/05  
 DESIGN BY: MG  
 DRAWN BY: MG  
 CHECKED BY: DS  
 DWG FILE: 5\_DETAILS  
 FILE NO.: 05-03566.00

BOGART, PEDERSON & ASSOCIATES, INC.  
 LAND SURVEYING  
 CIVIL ENGINEERING  
 13076 FIRST STREET, BECKER, MN 55308-9322  
 TEL: 763-622-8822 FAX: 763-622-8844

Signed: *Greg Bowles*  
 Greg Bowles  
 Civil Engineer  
 Reg. No. 41929

KINGDOM ESTATES 2ND ADD.  
 City of Elk River, Mn.  
 Dennis T. Wurm

Details

SHEET NO. 5

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