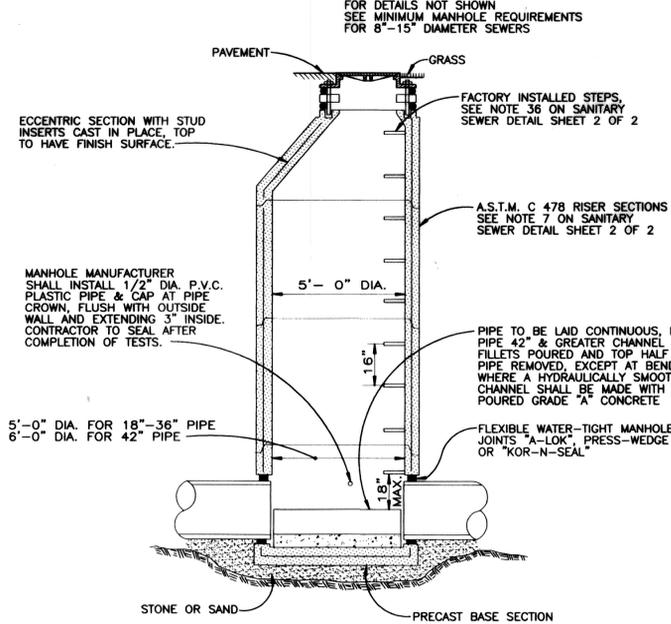


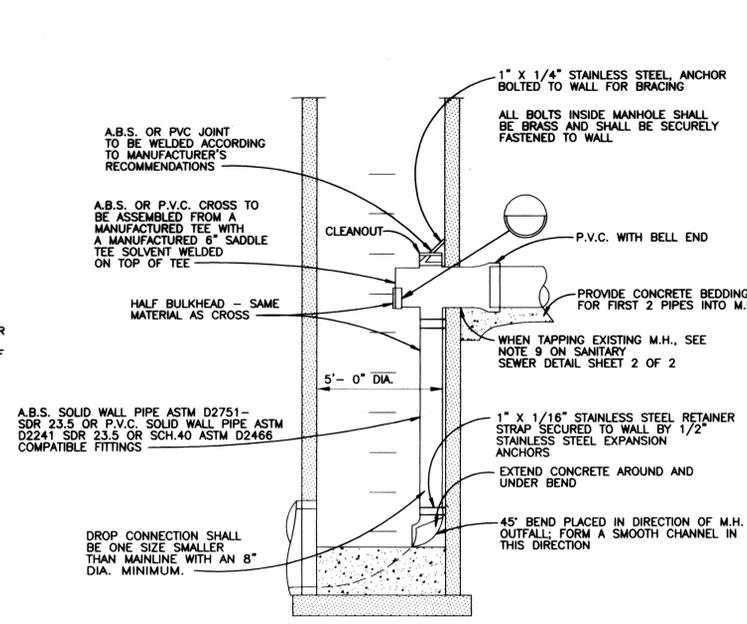
**SANITARY SEWER MANHOLE**

( 8" THRU 15" DIA. SEWERS )



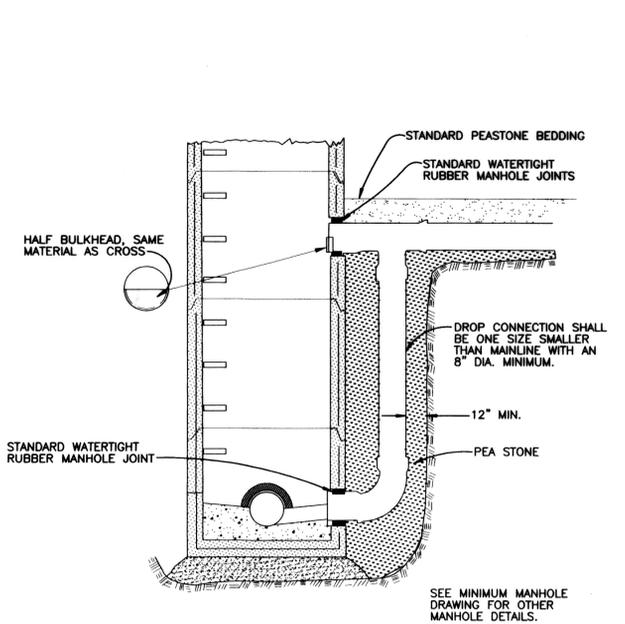
**SANITARY SEWER MANHOLE**

( 18" THRU 42" DIA. SEWERS )



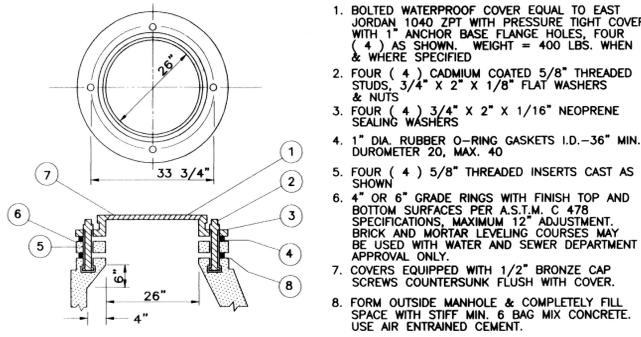
**INTERIOR DROP ASSEMBLY**

( ONLY WITH SEWER AND WATER DEPARTMENT APPROVAL )

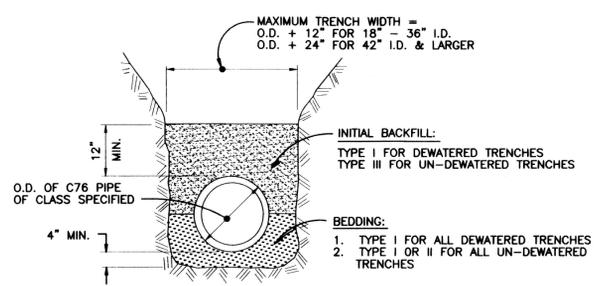


**EXTERIOR DROP CONNECTION**

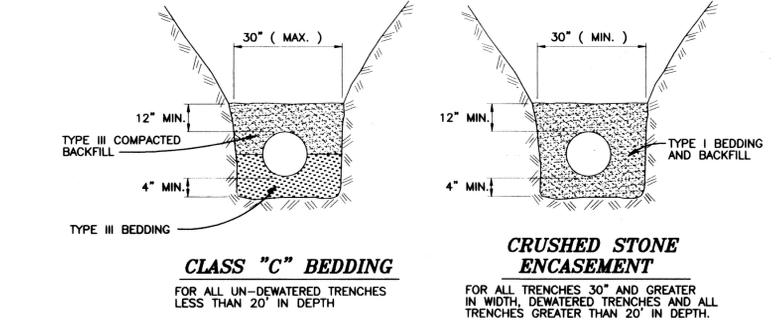
FOR ALL DROP CONNECTIONS



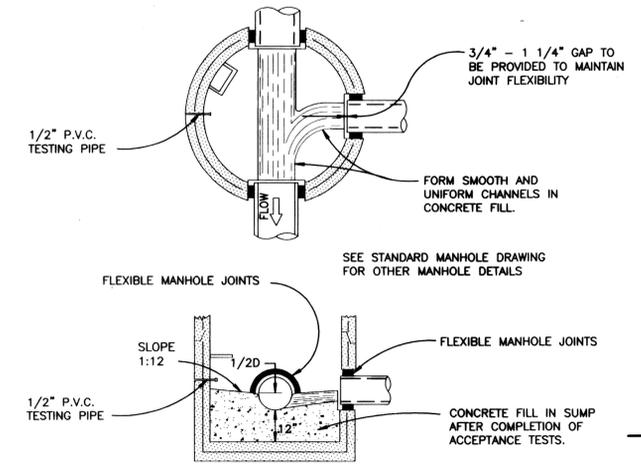
**WATERPROOF MANHOLE FRAME & COVER**



**BEDDING & TRENCH DETAIL, 18" & LARGER SEWER**

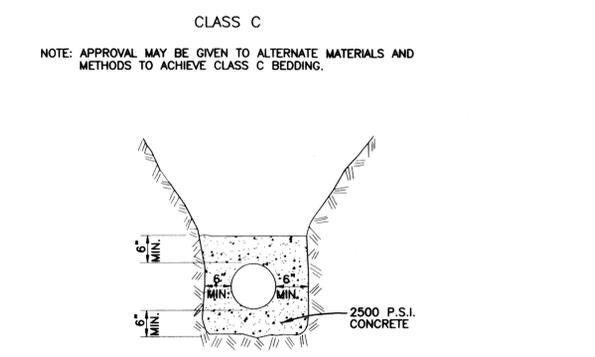


**BEDDING & TRENCH DETAIL, 6"-15" SEWERS**



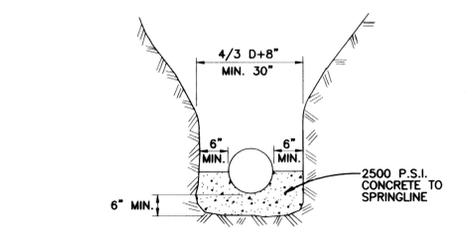
**SUMP MANHOLE**

FOR TESTING, CLEANING & DEWATERING



**CONCRETE ENCASEMENT DETAIL**

1. PLACE 2,500 PSI CONCRETE AGAINST UNDISTURBED EARTH FOR ENTIRE WIDTH OF TRENCH.
2. CONCRETE ENCASEMENT SHALL BE USED UNDER ALL RIVERS OR COUNTY DRAINS WHERE THE WIDTH FROM TOP OF BANK TO TOP OF BANK IS IN EXCESS OF 10 FEET & CROWN OF SEWER IS NOT COVERED BY 5 FEET.
3. CONCRETE ENCASEMENT SHALL EXTEND A DISTANCE OF 10 FEET BEYOND THE TOP OF BANK ON EACH SIDE OF THE STREAM. (MINIMUM ENCASEMENT 30 FEET).
4. FOR SANITARY SEWER IN EXCESS OF 15 INCHES IN DIAMETER CLASS V REINFORCED PIPE MAY BE SUBSTITUTED FOR CONCRETE ENCASEMENT, WITH OWNER'S APPROVAL.



**CONCRETE CRADLE DETAIL**

1. CONCRETE CRADLE MAY BE SPECIFIED AT OWNER'S DISCRETION WHERE THE TRENCH WIDTH IS EXCESSIVE, OR WHERE THE TRENCH IS NOT SUITABLE FOR PIPE LAYING.

**GENERAL PIPE BEDDING TRENCH NOTES**

1. THE CONTRACTOR SHALL INSTALL THE PIPE IN ACCORDANCE WITH THE CLASS BEDDING DETAIL REQUIRED FOR THE PIPE DEPTH (MEASURED FROM THE TOP OF THE PIPE) AND TRENCH WIDTH (MEASURED ACROSS THE TRENCH AT THE TOP OF THE PIPE) CONSTRUCTED. A CONTRACTOR MAY ALWAYS USE A HIGHER QUALITY BEDDING CLASS THAN REQUIRED. ANY OTHER VARIATIONS MUST BE APPROVED IN WRITING BY THE ENGINEER.
2. CRUSHED STONE ENCASEMENT SHALL BE UTILIZED FOR ALL DEWATERED TRENCHES AND SHALL UTILIZE A TRENCH WIDTH OF 30" (MINIMUM).
3. BACKFILL MATERIAL SHALL BE AS FOLLOWS:
  - TYPE I: SHALL CONSIST OF WELL GRADED CRUSHED STONE. THE STONE SHALL CONFORM TO ASTM D 448 #5, 56, 57, 6, 67 & 68. ASTM D 2321 CLASS I, OR ALTERNATIVE APPROVED BY THE ENGINEER ANY MATERIAL INCORPORATED SHALL PROVIDE A MINIMUM OF 90% CRUSHED MATERIAL. MDT COURSE AGGREGATES 6A, 6AA, 9A, 17A & 25 SERIES ARE ALSO APPROVED FOR USE IF THEY ARE MANUFACTURED WITH SUFFICIENT CRUSHED MATERIAL AND NO STONE IS LARGER THAN 1".
  - TYPE II: SHALL CONSIST OF WELL GRADED COURSE SANDS AND GRAVEL (1 INCH MAXIMUM DIAMETER) CONTAINING A SMALL PERCENTAGE OF FINES. THE MATERIAL SHALL CONFORM TO ASTM D 2321 CLASS II AND SHALL INCLUDE PEA PEBBLE AND MDT AGGREGATES 20 SERIES, 21 SERIES, 22 SERIES, 23A, 26A, 28 SERIES & 31 SERIES. 90% MINIMUM DENSITY REQUIRED. TYPE II MAY BE SUBSTITUTED FOR TYPE III BACKFILL.
  - TYPE III: SHALL CONSIST OF FINE SAND AND CLAYEY GRAVELS CONFORMING TO ASTM 2321 CLASS III AND SHALL INCLUDE PEA PEBBLE. IT SHALL NOT CONTAIN ANY STONE LARGER THAN 1 INCH IN DIAMETER AND SHALL REQUIRE 90% MINIMUM DENSITY.

**CITY OF ROSEVILLE**

**STANDARD SANITARY SEWER DETAILS ( 1 OF 2 )**

**SEWER AND WATER DEPARTMENT**

APPROVED BY:  DATE: JANUARY 8, 2004

BRIAN D. McGRAIL, DIRECTOR

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Phone 586-726-1234 Fax 586-726-8780

PROJECT NO. SHEET NO.  
DATE: MARCH 2003  
DRAWN BY: GML/KJP CHECKED BY: CFL

**B**

SCOTT LOCKWOOD  
LICENSED PROFESSIONAL ENGINEER  
No. 44355  
PE No. 44355

REVISIONS  
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