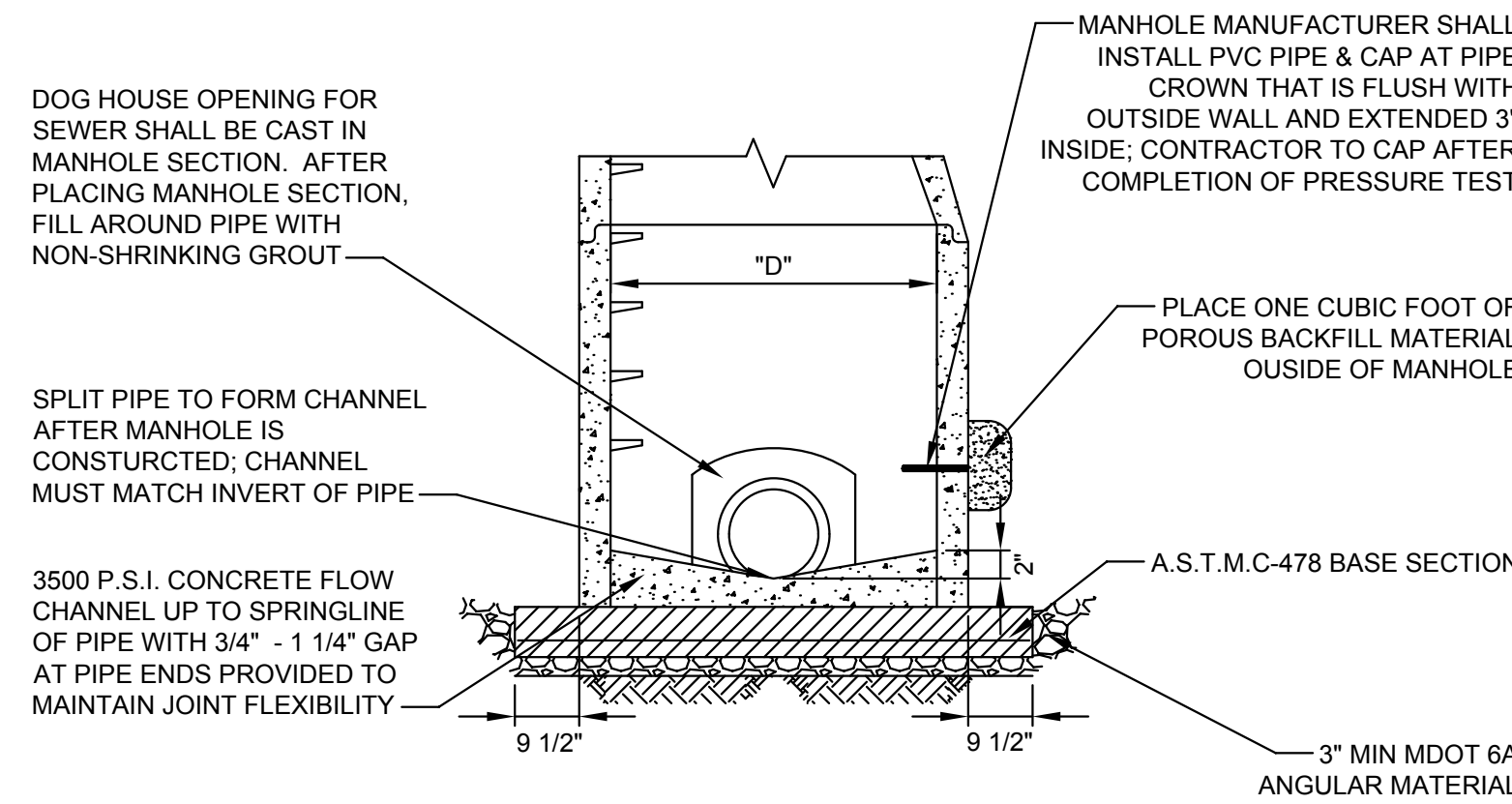
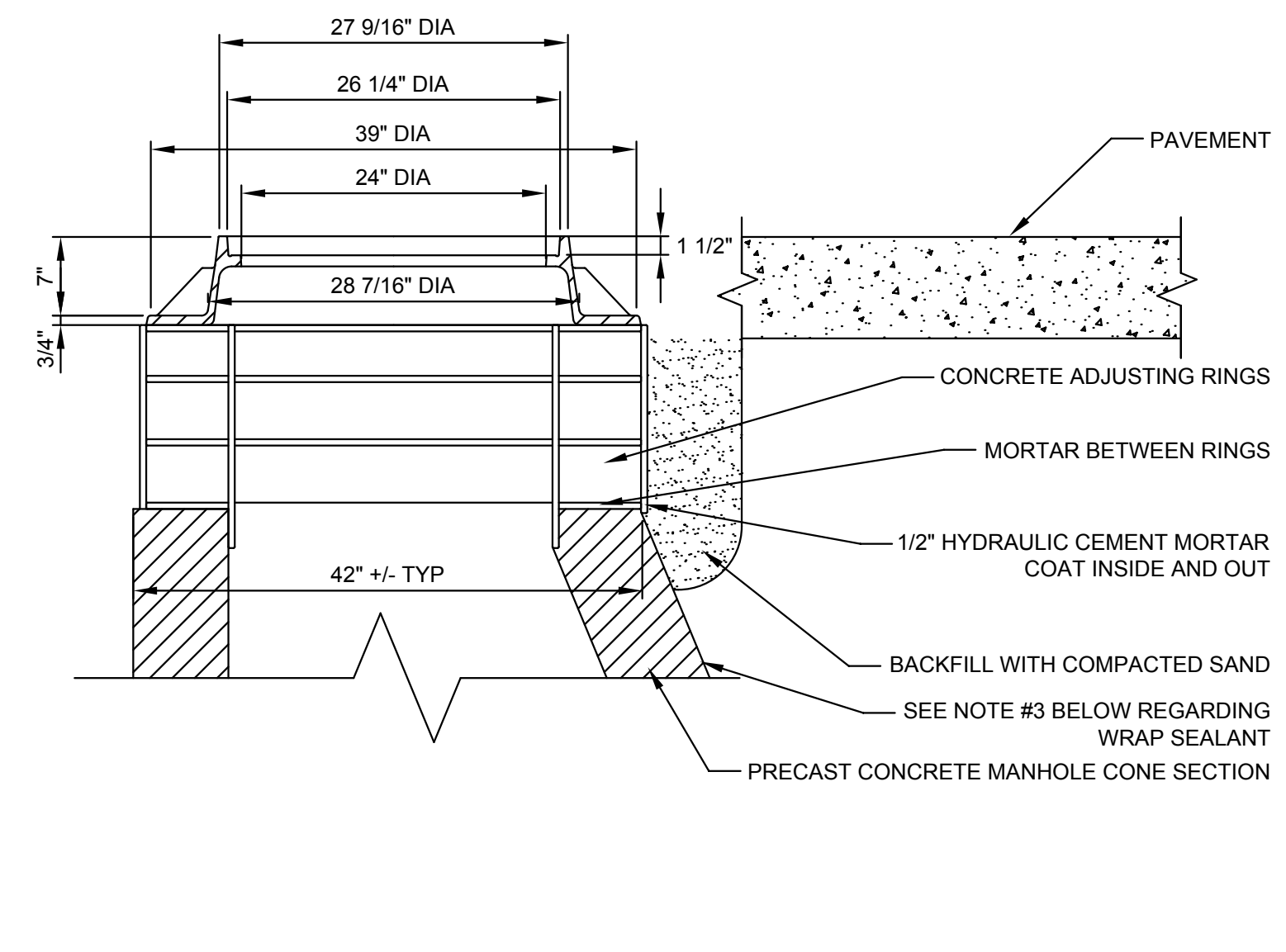


**MANHOLE FOR SEWERS 8" THROUGH 18"**

**DOG HOUSE CUT OUT SIZES**  
 1. 8" THROUGH 10" : 17 1/2" MAX CUT OUT SIZE  
 2. 12" THROUGH 15" : 20" MAX CUT OUT SIZE  
 3. "D" = 4'-0" DIA FOR 8" TO 18" SEWER  
 4. "D" = 5'-0" DIA FOR 21" TO 42" SEWER



**MANHOLE INSTALLED ON EXISTING SEWERS**



**NOTES:**  
 1. THIS DETAIL TO BE USED IN PAVED AREAS.  
 2. OUTSIDE DIAMETER OF FRAME SHALL NOT EXCEED OUTSIDE DIAMETER OF RINGS.  
 3. WHEN MANHOLES ARE LOCATED IN IMPERVIOUS AREAS, A WRAP SEALANT IS REQUIRED. SEE "MANHOLE STRUCTURES" NOTE #9 FOR DETAILS.

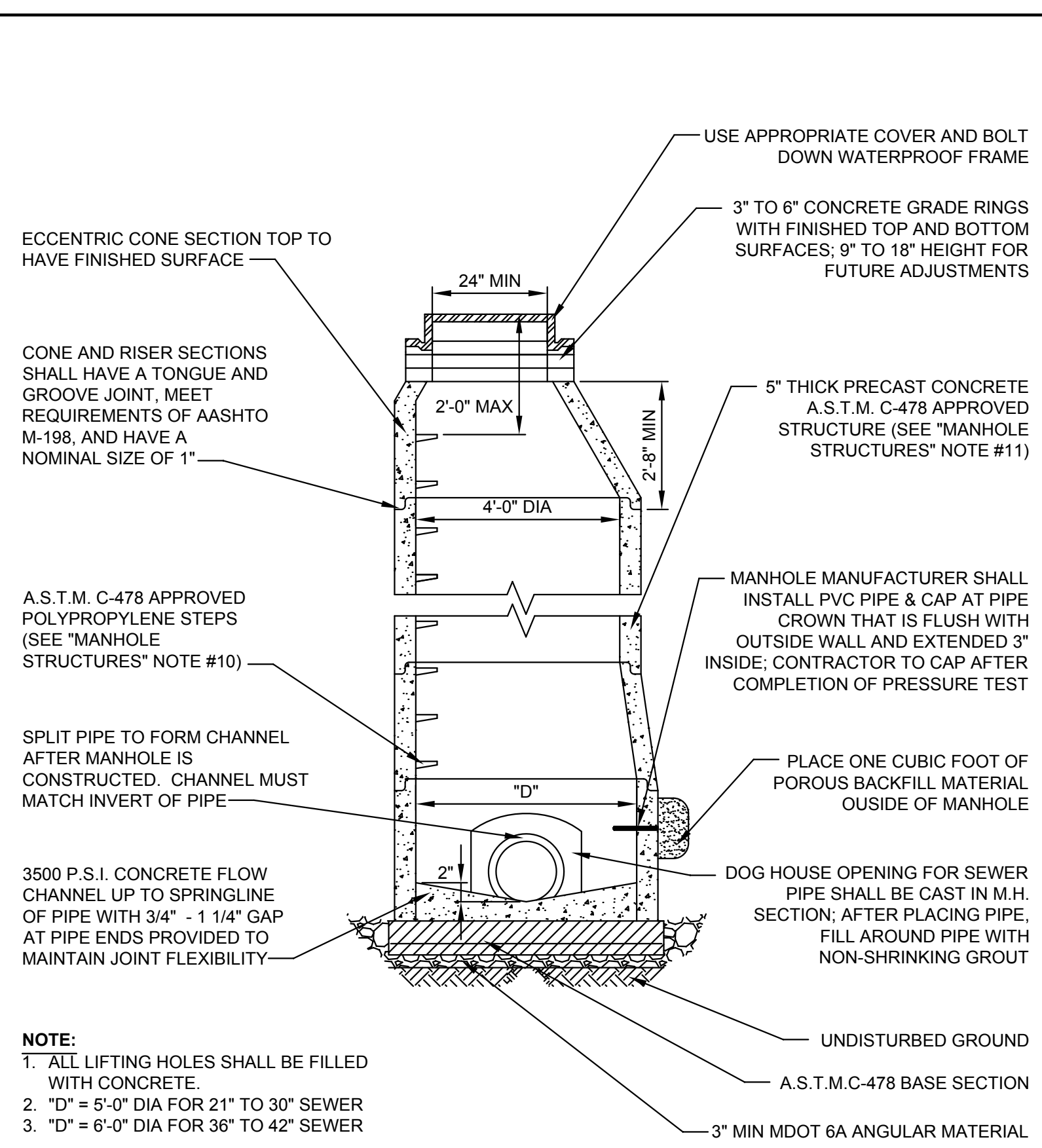
**EXTERNAL FRAME SEAL DETAIL**

**SANITARY SEWER NOTES CONTINUED:**

- MANHOLE STRUCTURES CONTINUED**  
 3. ALL MANHOLE RIMS SHALL BE SET TO GRADE OR AS INDICATED ON THE PLANS.  
 4. DIFFERENTIAL OF EXCAVATION AROUND EXISTING MANHOLES SHALL NOT EXCEED 6 FEET.  
 5. ALL STRUCTURES SHALL HAVE 95% CRUSHED ANGULAR STONE BEDDING (MDO 6A).  
 6. FINISH GRADE FOR MANHOLES SHALL BE 3/4 OF AN INCH PER FOOT ABOVE THE TOP OF THE SIDEWALK.  
 7. EXTERIOR DROP CONNECTIONS ARE REQUIRED WHENEVER A SEWER INVERT IS 18 INCHES OR GREATER ABOVE THE MANHOLE FLOW CHANNEL INVERT. INTERIOR DROP CONNECTIONS MUST BE APPROVED BY THE CANTON TOWNSHIP ENGINEER.  
 8. ALL PRE-CAST PRODUCTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478.  
 9. "WRAP SEAL" (OR APPROVED EQUAL) MUST BE USED WHEN A MANHOLE IS WITHIN, OR A PORTION IS TOUCHING A PAVED AREA (INCLUDING SIDEWALKS AND DRIVEWAYS) TO A DEPTH OF 18 INCHES FROM THE TOP OF THE MANHOLE.  
 10. MANHOLE STEPS ARE TO BE INSTALLED AT THE PLANT BY THE MANUFACTURER OF THE STRUCTURE. THE STEPS ARE TO BE 16 INCHES ON CENTER, MADE OF POLYPROPYLENE AND A.S.T.M. C-478 APPROVED. STEPS ARE TO BE LOCATED AT 90 DEGREES TO THE CENTERLINE OF THE MAIN SEWER LINE, FACING AWAY FROM THE ROAD WHERE POSSIBLE. THE BOTTOM STEP SHOULD BE LOCATED A MAXIMUM OF 24 INCHES ABOVE THE FLOOR.  
 11. ALL STRUCTURES MUST BE 5-INCH THICK PRE-CAST CONCRETE. A.S.T.M. C-478 APPROVED, WITH 1/2-INCH CEMENT PLASTER ON JOINTS INSIDE AND OUT. UNDER CANTON TOWNSHIP ENGINEER APPROVAL, STRUCTURES MAY BE 5-INCH THICK CONCRETE BLOCK STRUCTURE CONSTRUCTED IN THE FIELD WITH 1/2-INCH CEMENT PLASTER COAT INSIDE AND OUT.  
 12. MANHOLE SPACING SHALL NOT BE MORE THAN 400 FEET.  
 13. MANHOLE SECTION JOINTS SHALL HAVE O-RING SEALS OR PREMIUM RUBBER GASKETS.  
 14. PIPE TO MANHOLE CONNECTIONS SHALL BE FLEXIBLE AND WATERTIGHT.  
 15. MANHOLES ARE REQUIRED AT ALL DEAD ENDS, PIPE INTERSECTIONS, AND CHANGES IN PIPE ALIGNMENT, SLOPE, AND SIZE.

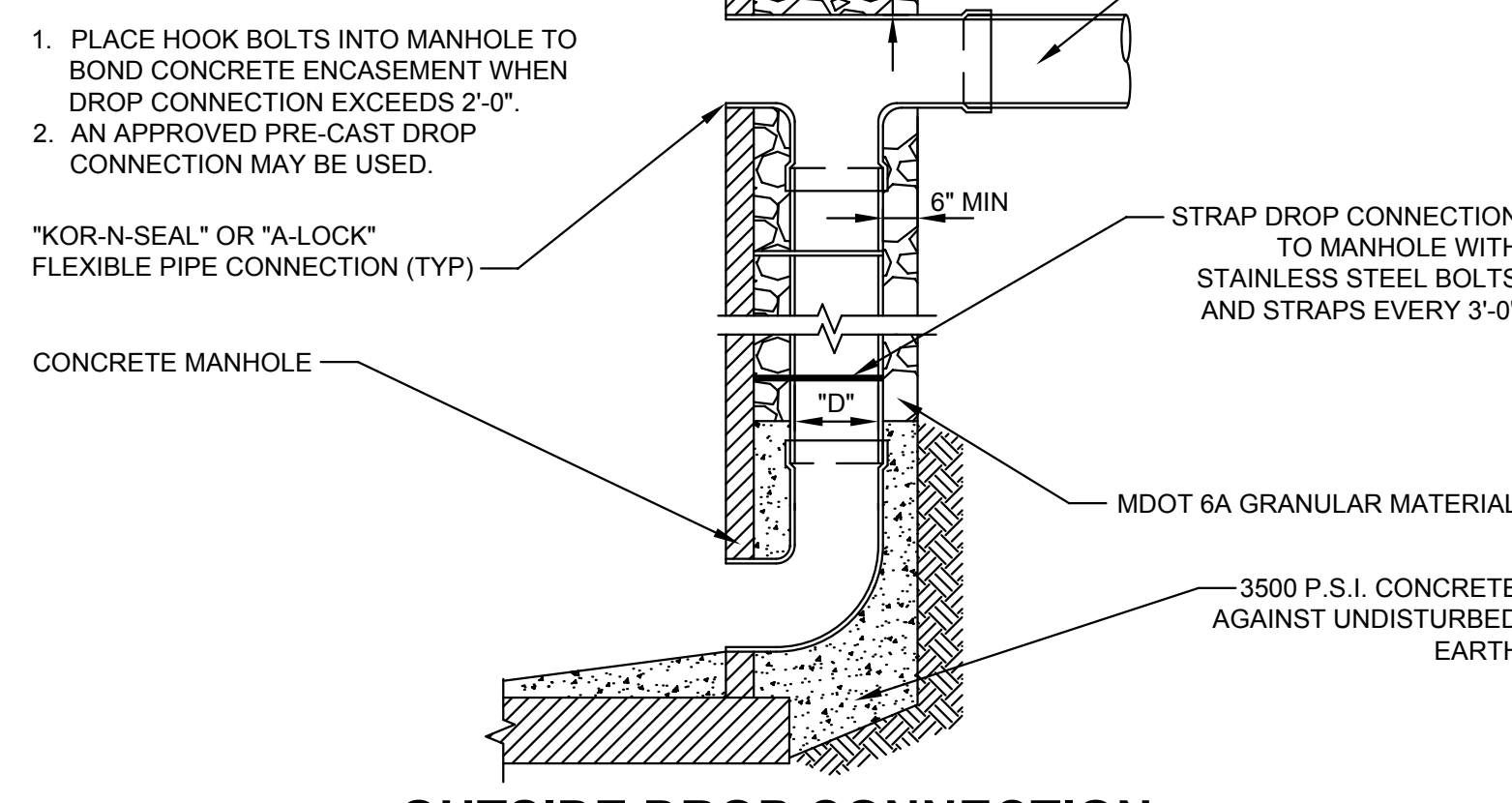
- PIPES & LEADS**  
 1. THE SANITARY SEWER PIPE FOR INDUSTRIAL USE SHALL BE ASTM C-76 CL-IV R.C.P. OR C-700 E.S. V.C.P.  
 2. THE SANITARY SEWER PIPE FOR RESIDENTIAL/COMMERCIAL USE SHALL USE PVC TRUSS OR ABS TRUSS MEETING ASTM D-2880.  
 3. THE 6-INCH SANITARY LEAD WILL BE C-700 E.S. V.C.P. FOR INDUSTRIAL USE. FOR RESIDENTIAL/COMMERCIAL USE SDR 23.5 PLASTIC PIPE FOR THE SERVICE LEAD.  
 4. CLEANOUTS ARE REQUIRED AT ALL SANITARY LEAD BENDS, CHANGES IN DIRECTION, AND AT 100-FOOT INCREMENTS.  
 5. PLACE A 6-INCH SERVICE LEAD FOR EACH LOT OR PARCEL AS SHOWN ON PLAN. FOR PARCELS IN EXCESS OF 100 FEET A WYE MUST BE PLACED EVERY 100 FEET UNLESS OTHERWISE NOTED.  
 6. LEADS ARE NOT PERMITTED TO CONNECT INTO A MANHOLE; THEY MUST BE CONNECTED ON THE MAIN LINE WITH A WYE OR WITH AN APPROVED SADDLE TAP.  
 7. PRIOR TO THE BACKFILLING OF A SERVICE LEAD, A 4-FOOT LENGTH OF 1/4-INCH DIAMETER STEEL BAR SHALL BE PLACED FROM A POINT IMMEDIATELY IN FRONT OF THE SERVICE CONNECTION TO 2 FEET BELOW THE FINISH GROUND SURFACE. DO NOT REST THE MARKER ON ANY PORTION OF THE SERVICE CONNECTION OR STOPPER.  
 8. RISERS ON SANITARY SEWERS SHALL BE INSTALLED TO A DEPTH OF 9 FEET BELOW PROPERTY LINE ELEVATION.  
 9. BULKHEADS SHALL BE PLACED WHERE THE EXISTING AND PROPOSED SEWERS CONNECT. THE BULKHEADS ARE NOT TO BE REMOVED UNTIL THE SEWERS HAVE BEEN TESTED AND ACCEPTED FOR USE BY THE CANTON TOWNSHIP ENGINEER.  
 10. ALL STUBS SHALL HAVE A WATER TIGHT BULKHEAD.  
 11. PIPE ALIGNMENT MUST BE SET WITH A LASER.

- TESTING**  
 1. ALL SEWERS SHALL BE TESTED IN ACCORDANCE WITH THE PROCEDURES OUTLINED BELOW NOT LESS THAN 30 DAYS AFTER THE TRENCH BACKFILL AND COMPACTION HAS BEEN COMPLETED.  
 2. ALL EXISTING SANITARY LEADS THAT ARE REUSED MUST BE AIR TESTED OR VIDEO TAPED.  
 3. ALL SEWERS SHALL BE TESTED AS OUTLINED BELOW WITH RESULTS APPROVED BY THE CANTON TOWNSHIP ENGINEER PRIOR TO ACCEPTANCE. THE CONTRACTOR SHALL PROVIDE THE CANTON TOWNSHIP ENGINEER WITH VERIFICATION OF THE TEST (IN THE CASE OF TELEVISION, A COPY MUST BE PROVIDED). THE TESTING MUST BE WITNESSED BY A CANTON TOWNSHIP REPRESENTATIVE.  
 4. TESTING PROCEDURES:  
 A. VIDEO INSPECTION SHALL BE CONSIDERED COMPLETE WHEN ALL NECESSARY CONSTRUCTION REPAIRS HAVE BEEN MADE AND RE-TELEVISION TO VERIFY THAT THE REPAIR IS ACCEPTABLE.  
 AIR  
 A. THE PROCEDURE FOR AIR TESTING OF VCP PIPE SHALL BE IN ACCORDANCE WITH THE C826-90 STANDARD/  
 B. THE PROCEDURE FOR PVC / ABS TRUSS PIPE SHALL BE IN ACCORDANCE WITH THE ASTM F-1417 STANDARD.

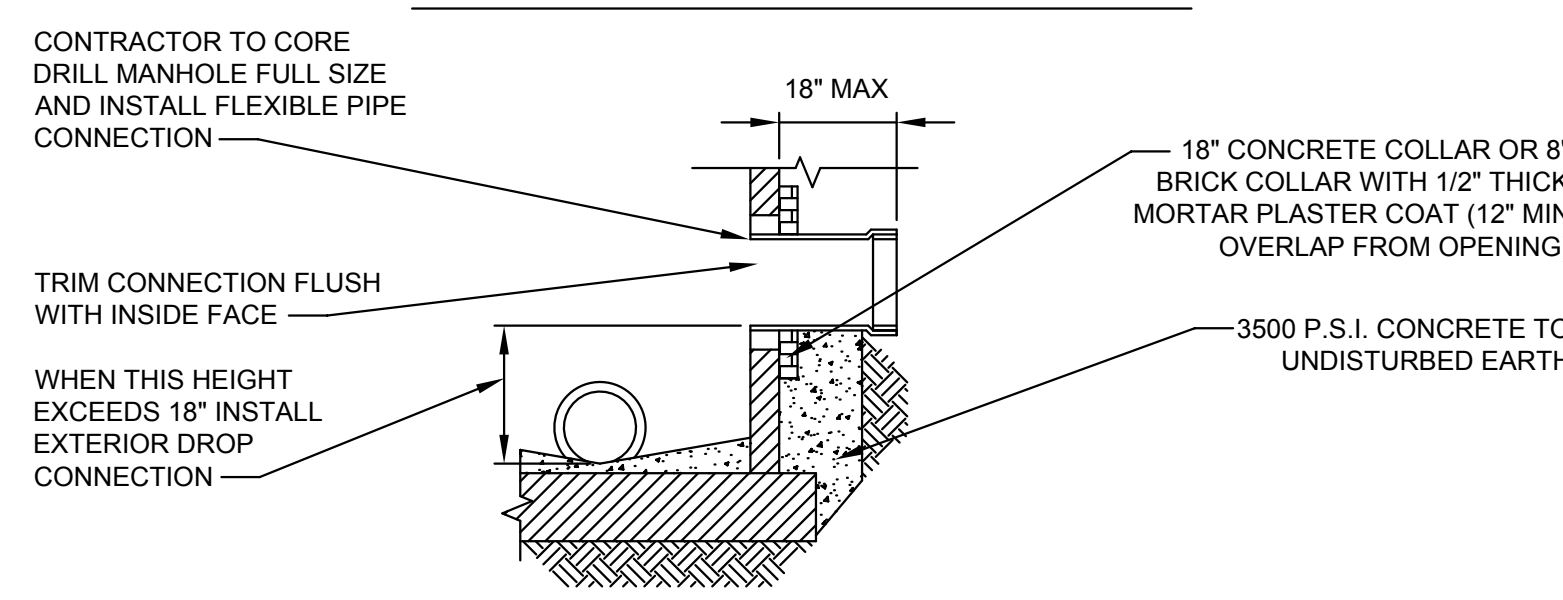


**MANHOLE FOR SEWERS 21" THROUGH 42"**

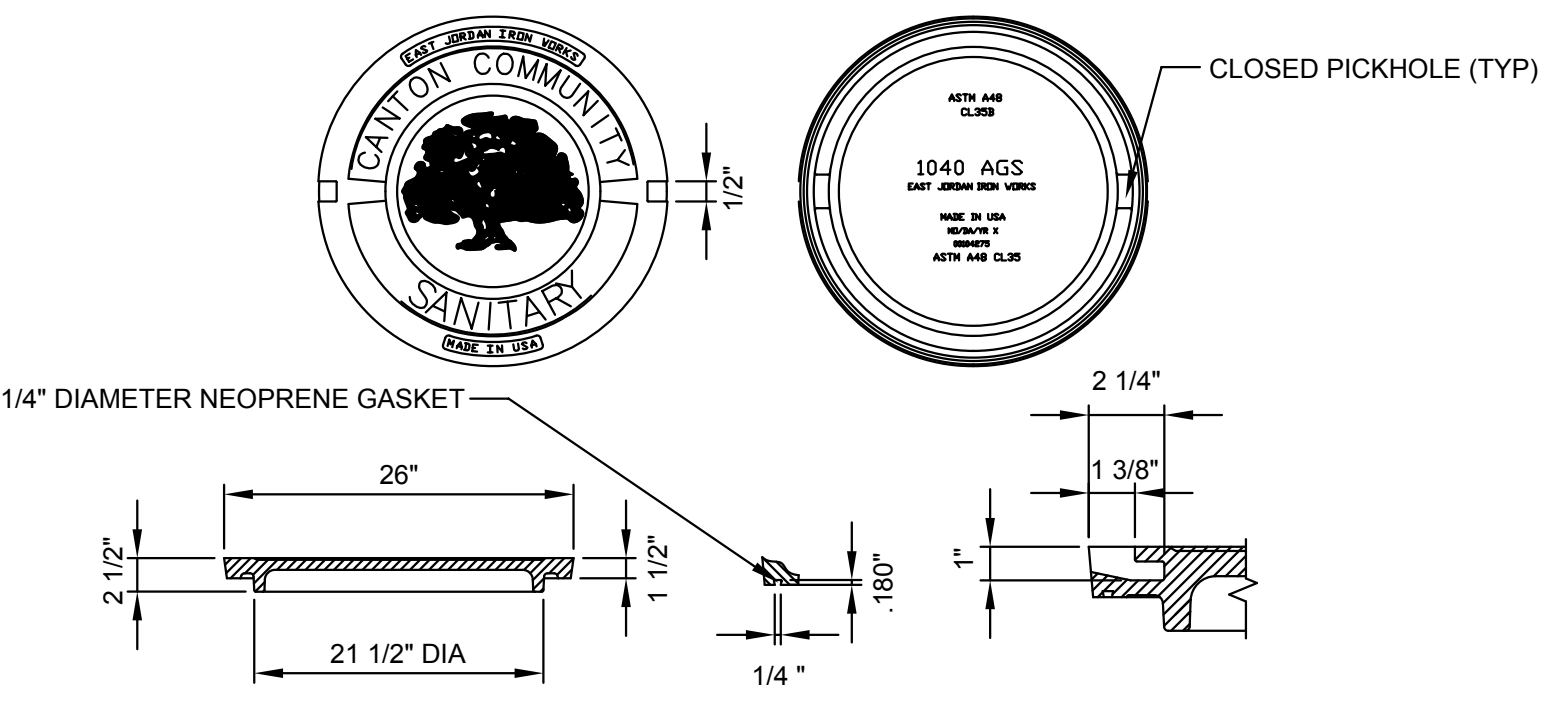
**DIAMETER OF DROP CONNECTION, "D"**  
 SEWER DIA: DROP CONN. DIA ("D"):  
 8" - 10" 6"  
 12" - 8" 10"  
 21" - 30" 18"  
 36" + 24"



**OUTSIDE DROP CONNECTION**



**CONNECTION TO EXISTING MANHOLE**



**STANDARD FRAME AND COVER**  
 E.J.I.W. #1040-1 ZPT FRAME WITH 1040 AGS  
 (NARROW SKIRT) SOLID LID WITH CANTON LOGO

**SANITARY SEWER NOTES:**

- GENERAL**  
 1. ALL SEWER SYSTEM CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND GENERAL SPECIFICATION OF CANTON TOWNSHIP PUBLIC WORKS. IN ADDITION, ALL WORK WITHIN THE WAYNE COUNTY ROAD RIGHT-OF-WAY SHALL CONFORM TO WAYNE COUNTY GENERAL NOTES.  
 2. CONSTRUCTION SHALL NOT COMMENCE WITHOUT A REPRESENTATIVE OF CANTON TOWNSHIP ENGINEERING SERVICES PRESENT.  
 3. NO SEWER MAINS SHALL BE CONSTRUCTED LESS THAN 10-INCH IN DIAMETER WITHOUT SPECIFIC APPROVAL OF THE CANTON TOWNSHIP ENGINEER.  
 4. NO CONNECTION SHALL BE MADE TO SANITARY SEWERS RECEIVING STORM WATER, SURFACE WATER, OR GROUND WATER.  
 5. NO FOOTING DRAINS SHALL BE CONNECTED TO THE SANITARY SEWER.  
 6. CONSTRUCTION IS REQUIRED TO BE IN A DRY TRENCH - DEWATERING IF NECESSARY MUST BE PROVIDED.  
**MANHOLE STRUCTURES**  
 1. DETAILS ARE FOR STRUCTURES WITH NO MORE THAN TWO PIPES ENTERING 180 DEGREES APART. LARGER DIAMETER STRUCTURES MAY BE REQUIRED FOR DIFFERENT CONFIGURATIONS.  
 2. A MANHOLE STRUCTURE REQUIRES A MINIMUM OF 8 INCHES OF CONCRETE WALL BETWEEN PIPE OPENINGS. LARGER DIAMETER STRUCTURES MAY BE REQUIRED WHERE PIPES ENTERING THE STRUCTURE ARE LESS THAN 90 DEGREES APART IN ANY DIRECTION.



**CHARTER TOWNSHIP OF CANTON**  
 1150 CANTON CENTER S.  
 CANTON, MI 48188-1699  
 PH: 734-394-5150 / FAX: 734-394-5183

DATE:	REVISIONS:	BY:
5/17/2007	SUBMITTED FOR DEQ REVIEW	CJL
5/31/2007	PUBLIC RELEASE	CJL

**SANITARY SEWER STANDARD DETAILS**

DATE: 9/5/2007	SHEET: <b>SS-1</b>
SCALE: NONE	