

3. "D" = 4'-0" DIA FOR 8" TO 18" SEWER 27 9/16" DIA 4. "D" = 5'-0" DIA FOR 21" TO 42" SEWER 26 1/4" DIA 39" DIA — PAVEMENT 24" DIA MANHOLE MANUFACTURER SHALL 28 7/16" DIA **INSTALL PVC PIPE & CAP AT PIPE** CROWN THAT IS FLUSH WITH DOG HOUSE OPENING FOR **OUTSIDE WALL AND EXTENDED 3"** - CONCRETE ADJUSTING RINGS SEWER SHALL BE CAST IN INSIDE; CONTRACTOR TO CAP AFTER MANHOLE SECTION. AFTER COMPLETION OF PRESSURE TEST PLACING MANHOLE SECTION, - MORTAR BETWEEN RINGS FILL AROUND PIPE WITH NON-SHRINKING GROUT — "D" - PLACE ONE CUBIC FOOT OF - 1/2" HYDRAULIC CEMENT MORTAR POROUS BACKFILL MATERIAL COAT INSIDE AND OUT 42" +/- TYP **OUSIDE OF MANHOLE** SPLIT PIPE TO FORM CHANNEL AFTER MANHOLE IS CONSTURCTED: CHANNEL — BACKFILL WITH COMPACTED SAND MUST MATCH INVERT OF PIPE - SEE NOTE #3 BELOW REGARDING WRAP SEALANT — A.S.T.M.C-478 BASE SECTION 3500 P.S.I. CONCRETE FLOW - PRECAST CONCRETE MANHOLE CONE SECTION CHANNEL UP TO SPRINGLINE OF PIPE WITH 3/4" - 1 1/4" GAP

-3" MIN MDOT 6A

- DIA OF PIPE

- STRAP DROP CONNECTION

STAINLESS STEEL BOLTS

AND STRAPS EVERY 3'-0"

· MDOT 6A GRANULAR MATERIAL

TO MANHOLE WITH

AS CALLED

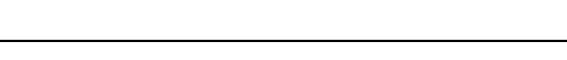
ANGULAR MATERIAL

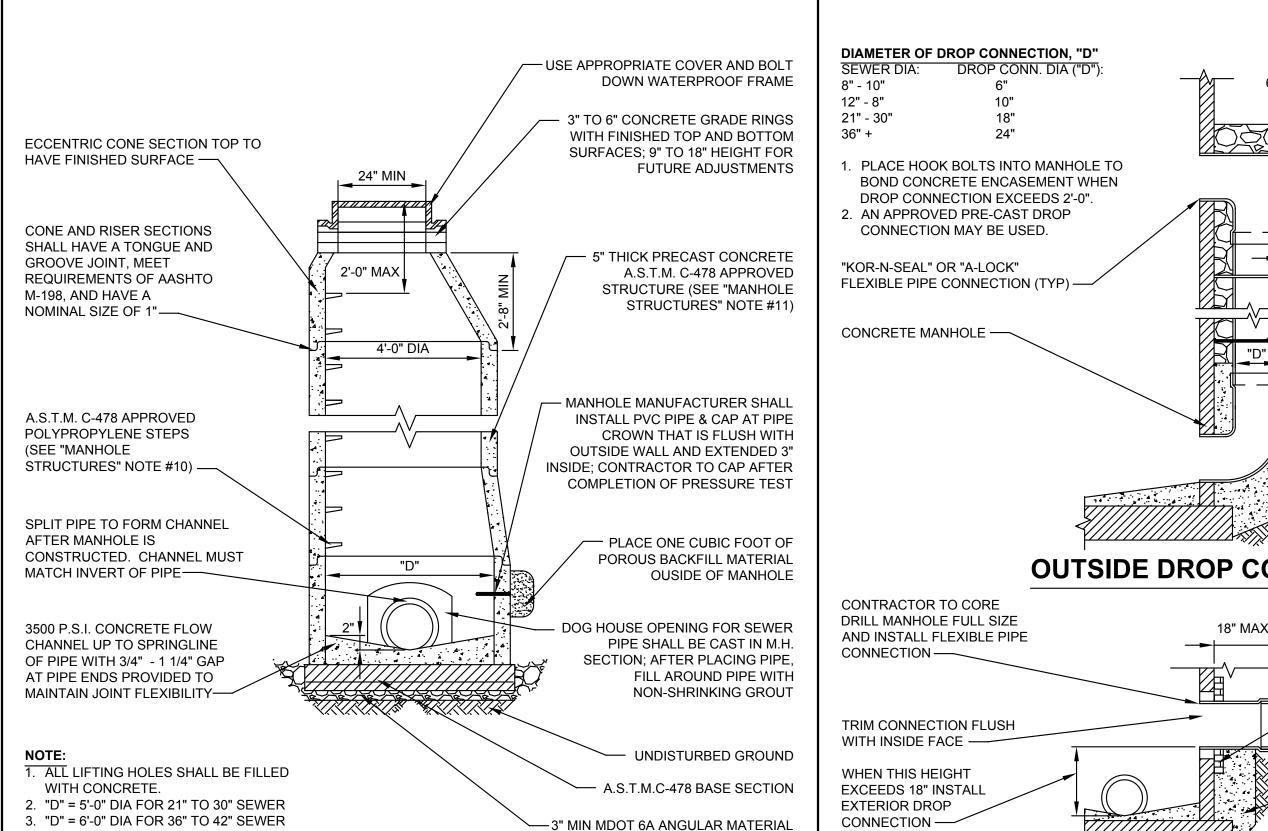
- 1. THIS DETAIL TO BE USED IN PAVED AREAS. 2. OUTSIDE DIAMETER OF FRAME SHALL NOT EXCEED OUTSIDE DIAMETER OF
- . WHEN MANHOLES ARE LOCATED IN IMPERVIOUS AREAS, A WRAP SEALANT IS REQUIRED. SEE "MANHOLE STRUCTURES" NOTE #9 FOR DETAILS.

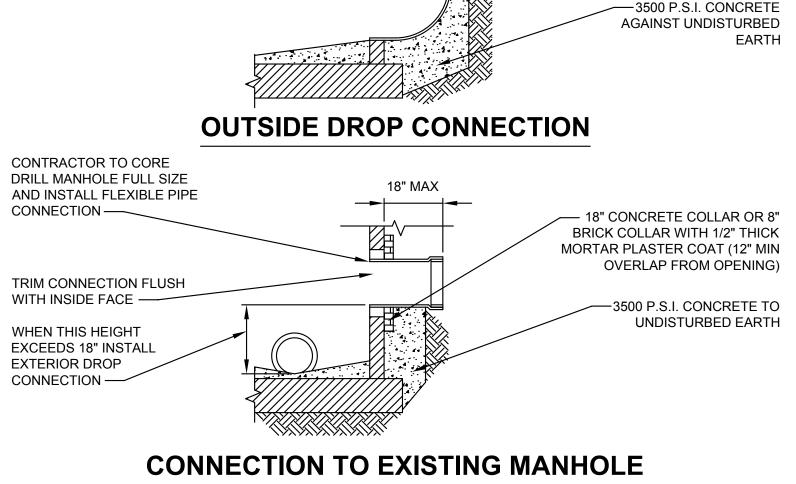
MANHOLE INSTALLED ON EXISTING SEWERS

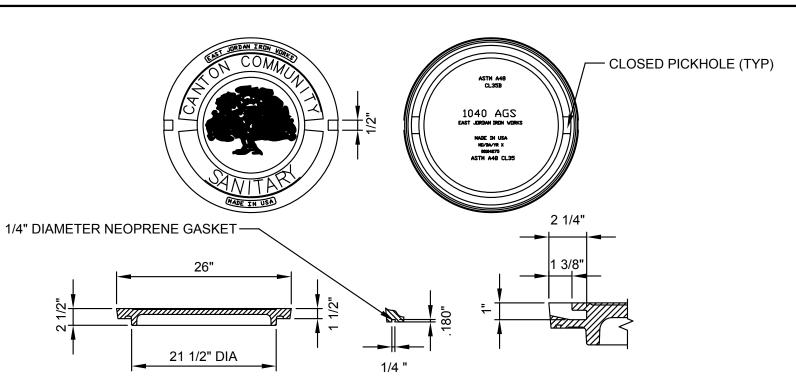
9 1/2"

9 1/2"









EXTERNAL FRAME SEAL DETAIL

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:

THE CANTON TOWNSHIP ENGINEER.

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

3. NO SEWER MAINS SHALL BE CONSTRUCTED LESS THAN 10-INCH IN DIAMETER WITHOUT SPECIFIC APPROVAL OF

4. NO CONNECTION SHALL BE MADE TO SANITARY SEWERS RECEIVING STORM WATER, SURFACE WATER, OR

6. CONSTRUCTION IS REQUIRED TO BE IN A DRY TRENCH - DEWATERING IF NECESSARY MUST BE PROVIDED.

5. NO FOOTING DRAINS SHALL BE CONNECTED TO THE SANITARY SEWER.

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.

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 (MDOT 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. "WRAPID 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.

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-2680.

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 TELEVISING, A COPY MUST BE PROVIDED). THE TESTING MUST BE WITNESSED BY A CANTON TOWNSHIP REPRESENTATIVE.

4. TESTING PROCEDURES:

TELEVISING OF PIPES

A. VIDEO INSPECTION SHALL BE CONSIDERED COMPLETE WHEN ALL NECESSARY CONSTRUCTION REPAIRS HAVE BEEN MADE AND RE-TELEVISED TO VERIFY THAT THE REPAIR IS ACCEPTABLE.

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.

MANDREL

A. SANITARY SEWERS CONSTRUCTED OF PVC OR ABS TRUSS PIPE SHALL BE DEFLECTION TESTED. THE TEST SHALL BE COMPLETED BY PULLING AN APPROVED SOLID POINTED MANDREL THROUGH THE COMPLETED PIPELINE. THE DIAMETER OF THE MANDREL SHALL BE 95 PERCENT OF THE INSIDE DIAMETER OF THE PIPE. THE MANDREL SHALL BE A RIGID, NONADJUSTABLE, ODD-NUMBERED-LEG (9 LEGS MINIMUM) MANDREL HAVING AN EFFECTIVE LENGTH OF NOT LESS THAN ITS NOMINAL DIAMETER.

B. TESTING SHALL BE CONDUCTED ON A MANHOLE TO MANHOLE BASIS AND SHALL BE DONE AFTER THE LINE HAS BEEN COMPLETELY CLEANED AND FLUSHED. ANY PORTION OF THE SEWER WHICH FAILS TO PASS THE TEST SHALL BE EXCAVATED, REPAIRED OF REALIGNED, AND RETESTED WITH BOTH TV, AIR, AND DEFLECTION TESTS.

4. IF A SEWER FAILS TO PASS ANY OF THE PREVIOUSLY DESCRIBED TESTS, THE CONTRACTOR SHALL DETERMINE THE LOCATION OF THE LEAK, REPAIR AND RETEST THE SEWER. THE TEST SHALL BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED.

CHARTER TOWNSHIP OF CANTON 1150 CANTON CENTER S. **CANTON, MI 48188-1699**

MANHOLE FOR SEWERS 21" THROUGH 42"

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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 SCALE: NONE

SHEET: