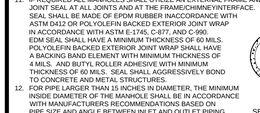
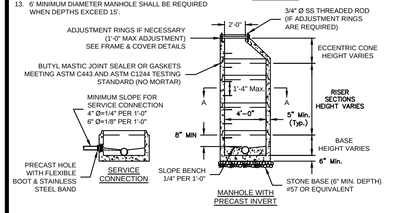
1. MATERIALS AND FABRICATION IN ACCORDANCE WITH ASTM C478-09.
2. WHEN USED AS SAMPLING MANHOLE FLOW SHALL PASS STRAIGHT THROUGH, i.e., 180°.
3. STEPS SHALL BE VERTICALLY ALIGNED. FIRST STEP SHALL BE WITHIN 12" OF COVER, BOTTOM STEP SHALL BE WITHIN 24" OF BOTTOM OF MANHOLE.
4. FRAME AND COVER SHALL BE PROPERLY ALIGNED WITH THE 2 FOOT OPENING OF THE MANHOLE STRUCTURE AND BOLTED IN PLACE.
5. FLAT TOP MANHOLES MAY ONLY BE SUBSTITUTED WITH THE PERMISSION OF THE PARTICIPATING UTILITY.
6. FLEXIBLE JOINT MANHOLE CONNECTION SHALL BE AS MANUFACTURED BY PRES-SEAL GASKET CORPORATION OR EQUAL.
7. GROUT ANNULAR SPACE BETWEEN PIPE AND PRECAST MANHOLE ON INSIDE OF MANHOLE.
8. WHEN REPLACING AN EXISTING MANHOLE OR INSTALLING A NEW PRECAST MANHOLE ON AN EXISTING SEWER, A MINIMUM OF SIX FEET (6) OF EXISTING PIPE SHALL BE REMOVED AND REPLACED WITH NEW MATERIAL ON INLET AND OUTLET OF MANHOLE.
9. MANHOLES WHERE THE INVERT IS LOWER THAN THE NORMAL GROUNDWATER ELEVATION (I.E., ALONG CREEKS, RIVERS, LOW-LYING AREAS, ETC.) SHALL HAVE A FULL EXTERIOR COATING AND JOINT WRAP APPLIED IN ADDITION TO JOINT SEALANT. SEE NOTES 10 & 11.
10. IF REQUIRED EXTERIOR VERTICAL WALL SURFACES SHALL BE FACTORY COATED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATION. COATING SHALL BE HIGH BUILD COAL TAR EPOXY MEETING ASTM D1227. COATING SHALL BE APPLIED IN TWO COATS TO A MINIMUM TOTAL THICKNESS OF 16 MILS.
11. IF REQUIRED ALL MANHOLES SHALL UTILIZE AN EXTERNAL FRAME AND JOINT SEAL AT ALL JOINTS AND AT THE FRAME/CHIMNEY/INTERFACE. SEAL SHALL BE MADE OF EPDM RUBBER INACCORDANCE WITH ASTM D412 OR POLYOLEFIN BACKED EXTERIOR JOINT WRAP IN ACCORDANCE WITH ASTM E-1745, C-877, AND C-990. EDM SEAL SHALL HAVE A MINIMUM THICKNESS OF 60 MILS. POLYOLEFIN BACKED EXTERIOR JOINT WRAP SHALL HAVE A BACKING BAND ELEMENT WITH MINIMUM THICKNESS OF 4 MILS. AND BUTYL ROLLER ADHESIVE WITH MINIMUM THICKNESS OF 60 MILS. SEAL SHALL AGGRESSIVELY BOND TO CONCRETE AND METAL STRUCTURES.
12. FOR PIPE LARGER THAN 15 INCHES IN DIAMETER, THE MINIMUM INSIDE DIAMETER OF THE MANHOLE SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS BASED ON PIPE SIZE AND ANGLE BETWEEN INLET AND OUTLET PIPING.
13. 6' MINIMUM DIAMETER MANHOLE SHALL BE REQUIRED WHEN DEPTHS EXCEED 15'.



SECTION A-A



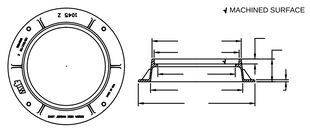
MANHOLE WITH PRECAST INVERT

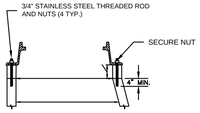
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

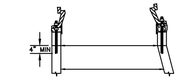
4' STANDARD MANHOLE
FOR PIPE 15" OR SMALLER
(FOR DEPTHS UP TO 15 FEET)

01/01/14 **S-1**

1. WATERTIGHT MANHOLE FRAME MODEL #10452 BY EAST JORDAN IRON WORKS, INC. OR EQUIVALENT.
2. HDPE ADJUSTMENT RINGS SHALL MEET H-20 LOAD RATING, AND SHALL BE INTERLOCKING OR UTILIZE BUTYL MASTIC JOINT SEALANT BETWEEN EACH RING TO FORM A WATERTIGHT JOINT.
3. CONCRETE ADJUSTMENT RINGS SHALL MEET H-20 LOAD RATING AND UTILIZE BUTYL MASTIC JOINT SEALANT BETWEEN EACH RING AND FRAME AN COVER TO FORM A WATERTIGHT JOINT.
4. FRAME HEIGHT SHALL BE 7" FOR BURIED LOCATIONS AND 4" FOR EXPOSED LOCATIONS.



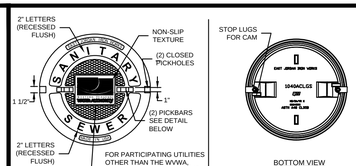


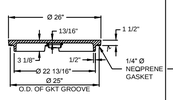


WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

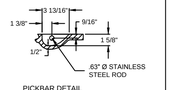
WATERTIGHT
MANHOLE FRAME

01/01/14 **S-4**





SECTION VIEW



PICKBAR DETAIL

STANDARD MANHOLE COVER

BOTTOM VIEW OF COVER

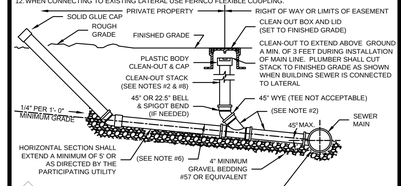
BOLT-DOWN MANHOLE COVER

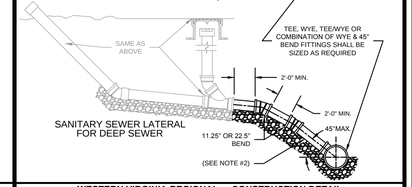
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

WATERTIGHT
MANHOLE COVER

01/01/14 **S-5**

1. TRAFFIC BEARING BOX AND LID REQUIRED IN TRAFFIC AREAS (CAPITOL FOUNDRY VB-9*S).
2. SEWER LATERAL AND CLEANOUT PIPING SHALL BE ASTM D3034 SDR 26. SEWER LATERAL FITTINGS SHALL BE OF SAME SDR RATING AS THE SEWER MAIN. SCHEDULE 40 SOLVENT WELD PIPE AND FITTINGS MAY BE USED FOR THE SEWER LATERAL AND CLEANOUT ASSEMBLY WITH APPROVAL FROM THE PARTICIPATING UTILITY.
3. ALL PIPE SHALL BE OF SAME SIZE.
4. NO BENDS ARE ALLOWED IN THE LATERAL FROM THE MAIN TO THE CLEANOUT STACK WYE. (EXCEPT FOR DEEP SEWER, AS SHOWN BELOW).
5. ALL MAIN LINE TAPS ON ACTIVE MAINS SHALL BE PERFORMED BY PARTICIPATING UTILITY.
6. PIPING ON PRIVATE SIDE OF CLEANOUT TO BE INSTALLED PER GOVERNING JURISDICTION REQUIREMENTS.
7. MINIMUM LATERAL SIZE: 4" FOR RESIDENTIAL SERVICE, 6" FOR NON-RESIDENTIAL SERVICE.
8. SEWER CLEANOUTS SHALL BE SAME SIZE AS SEWER LATERAL.
9. MINIMUM COVER FOR ALL SEWER LATERALS SHALL BE THREE (3) FEET.
10. PROPERTY OWNER RESPONSIBLE FOR INSTALLING CLEANOUT ON PROPERTY LINE (IN ACCORDANCE WITH THIS DETAIL) WHEN MAINTENANCE OCCURS.
11. LOWEST SERVED FINISHED FLOOR ELEVATION SHALL BE A MINIMUM OF THREE FEET (3') ABOVE THE TOP OF THE MAIN AT THE POINT WHERE THE SERVICE LATERAL CONNECTS TO THE MAIN.
12. WHEN CONNECTING TO EXISTING LATERAL USE FERNCO FLEXIBLE COUPLING.





SANITARY SEWER LATERAL FOR DEEP SEWER

WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

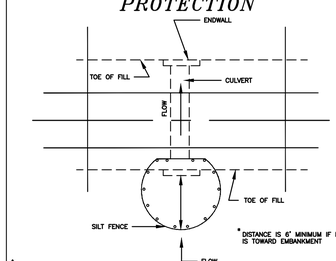
SANITARY SEWER LATERAL

01/01/14 **S-6**

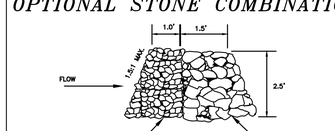
EROSION AND SEDIMENT CONTROL MEASURES:

- (SF) *SILT FENCE VA ESCH STD. & SPEC. 3.05*
- (CIP) *CULVERT INLET PROTECTION VA ESCH STD. & SPEC. 3.08*
- (PS) *PERMANENT SEEDING VA ESCH STD & SPEC 3.32*

SILT FENCE CULVERT INLET PROTECTION



* *OPTIONAL STONE COMBINATION*

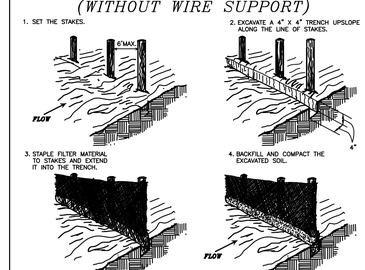


*VDOT #3, #357, #5, #56 OR #57 COARSE AGGREGATE TO REPLACE SILT FENCE IN " HORSESHOE " WHEN HIGH VELOCITY OF FLOW IS EXPECTED

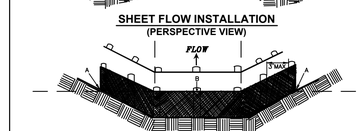
SOURCE: ADAPTED from VDOT Standard Sheets and Va. DSWC

PLATE. 3.08-1

CONSTRUCTION OF A SILT FENCE (WITHOUT WIRE SUPPORT)



SHEET FLOW INSTALLATION
(PERSPECTIVE VIEW)



POINTS A SHOULD BE HIGHER THAN POINT B.
DRAINAGEWAY INSTALLATION
(FRONT ELEVATION)

SOURCE: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control,VA. DSWC. Sherwood & Wyant PLATE. 3.05-2

WESTERN VIRGINIA
WATER AUTHORITY
ENGINEERING SERVICES
601 S JEFFERSON ST, SUITE 300
ROANOKE, VA 24011
540-853-5700

OLD MOUNTAIN RD
SEWER EXTENSION

SEWER AND
E&S DETAILS

Rev	Description	Date	By

Designed:
Drawn: DRJ
Checked: WNR, AAS
Approved: WNR
Date: 1-4-17
Project:

3
Sheet 3 of 3