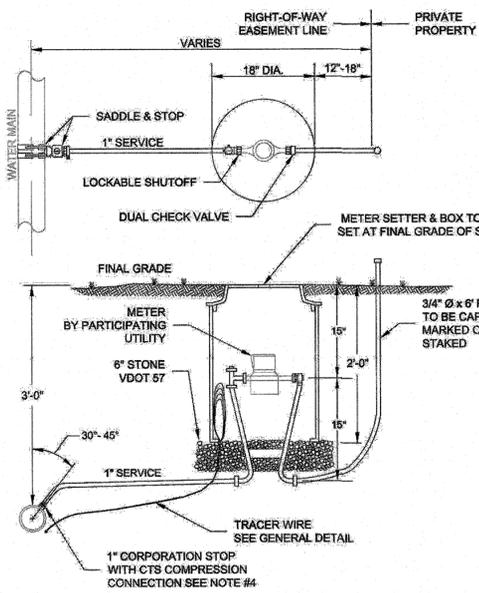


1. SETTER TO BE A.Y. McDONALD 720-215WDD33, FORD VBH72-15W-11-33 OR APPROVED EQUAL.
2. SADDLES MUST BE USED WITH ALL PLASTIC & DUCTILE IRON PIPE. SERVICE SADDLES SHALL BE USED IN ACCORDANCE WITH WATER DISTRIBUTION PIPING SPECIFICATION. SERVICE SADDLES FOR PLASTIC PIPE SHALL BE: POWERSSEAL 3417, OR 3412AS, ROMAC 202S, OR 306, OR FORD METER FS202 OR FS303. FOR DUCTILE IRON PIPE USE THE ABOVE OR POWERSSEAL 3413, ROMAC 202 OR FORD METER F202.
3. METER BOX SHALL BE CARSONMID-STATES PLASTICS, INC. PLASTIC BOX WITH FORD "A" DOMESTIC SERIES FRAME WITH A NICOR DOMESTIC 12.25 CX LID WITH SENSUS RECESS AND WVA LOGO, ADS CORRUGATED HDPE BOX WITH FORD "A" DOMESTIC SERIES FRAME WITH A NICOR DOMESTIC 12.25 CX LID WITH SENSUS RECESS AND WVA LOGO OR APPROVED EQUAL. METER BOX SHALL NOT BE PLACED IN AREAS SUBJECT TO VEHICULAR TRAFFIC. IF TRAFFIC BEARING BOX IS REQUIRED, DESIGN ENGINEER SHALL CONSULT WITH PARTICIPATING UTILITY TO DETERMINE SITE SPECIFIC REQUIREMENTS.
4. CORPORATION STOP SHALL BE FORD FB1000-4-G-NL, MUELLER B-2508 OR APPROVED EQUAL.
5. SERVICES SHALL BE "K" TYPE COPPER, OR COPPER TUBE SIZE POLYETHYLENE (PE) #710, SODR-9 (200 PSI).
6. WHENEVER SIDEWALK EXISTS OR IS PROPOSED, MODIFY METER LOCATION AS DIRECTED.

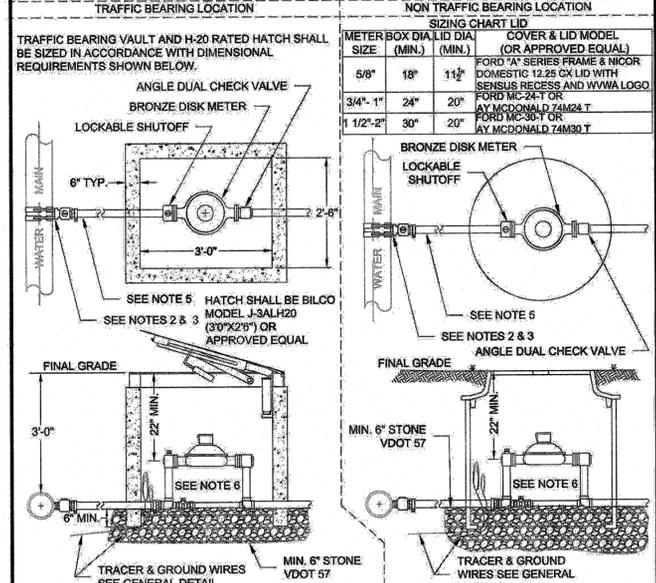


WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

SINGLE RESIDENTIAL WATER SERVICE - (NEW DEVELOPMENT) (LINE PRESSURE UNDER 120 PSI)

W-1 09/07/17

1. ALL METERS ARE TO BE PROVIDED AND INSTALLED BY PARTICIPATING UTILITY AT OWNER/DEVELOPER'S EXPENSE. METER BOX, SERVICE, AND SETTER TO BE FURNISHED AND INSTALLED BY OWNER/DEVELOPER IN ACCORDANCE WITH THE MINIMUM REQUIREMENTS SHOWN BELOW.
2. SADDLES MUST BE USED WITH ALL PLASTIC & DUCTILE IRON PIPE. SERVICE SADDLES SHALL BE USED IN ACCORDANCE WITH WATER DISTRIBUTION PIPING SPECIFICATION. SERVICE SADDLES FOR PLASTIC PIPE SHALL BE: POWERSSEAL 3417, OR 3412AS, ROMAC 202S, OR 306, OR FORD METER FS202 OR FS303. FOR DUCTILE IRON PIPE USE THE ABOVE OR POWERSSEAL 3413, ROMAC 202 OR FORD METER F202.
3. CORPORATION STOP SHALL BE FORD FB1000-4-G-NL, MUELLER B-2508 OR APPROVED EQUAL.
4. METER BOXES LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC SHALL BE CONCRETE WITH H-20 RATED TRAFFIC BEARING HATCH. ALL OTHER METER BOXES SHALL BE CARSONMID-STATES PLASTICS, INC. PLASTIC BOX, ADS CORRUGATED HDPE BOX, OR APPROVED EQUAL. MINIMUM METER BOX & LID DIAMETERS SHALL BE IN ACCORDANCE WITH SIZING CHART BELOW.
5. SERVICE SHALL BE "K" TYPE COPPER OR P.E. #710, CTS O.D., MINIMUM CELL CLASS 445474E AND 445474D.
6. COPPER METER SETTER TO BE FORD, A.Y. McDONALD OR APPROVED EQUAL WITH ANGLE DUAL CHECK VALVE AND BYPASS HAVING LOCKABLE SHUTOFF VALVE.
7. SERVICES REQUIRING METERS LARGER THAN 2-INCH SHALL BE REVIEWED BY THE PARTICIPATING UTILITY ON A CASE BY CASE BASIS.

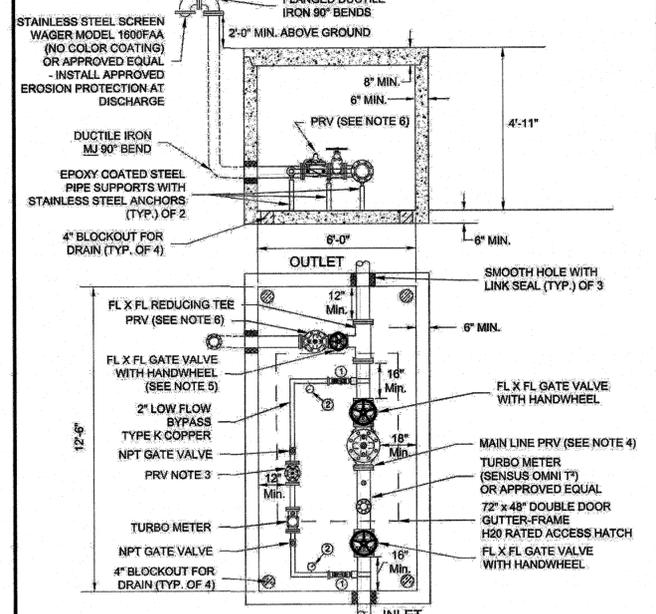


WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

COMMERCIAL WATER SERVICE METER SIZES 5/8" - 2"

W-5 09/07/17

1. CORPORATION STOP, MUELLER B-2508, FORD FB1000-4-G-NL OR EQUIVALENT.
2. LIQUID FILLED PRESSURE GAUGE.
3. 2" FLANGED PRESSURE REGULATING VALVE (CLA-VAL MODEL 90-01 OR APPROVED EQUAL) SET AT WORKING PRESSURE.
4. FLANGE x FLANGE MAIN LINE PRESSURE REGULATING VALVE (CLA-VAL MODEL 90-01 OR APPROVED EQUAL) SET AT 5 PSI LESS THAN #3. (CLA-VAL 650-01 OR APPROVED EQUAL) MAY BE ALLOWED IN SOME INSTALLATIONS. CONFIRM WITH PARTICIPATING UTILITY.
5. FLANGE x FLANGE GATE VALVE, WITH HAND WHEEL. ONE SIZE LESS THAN MAIN LINE.
6. FLANGE x FLANGE PRESSURE RELIEF VALVE, ONE SIZE LESS THAN MAIN LINE (CLA-VAL MODEL 650-01 OR APPROVED EQUAL) SET AT 5 PSI GREATER THAN #3.
7. VAULT SHALL BE PRE-CAST 5000 PSI REINFORCED CONCRETE.
8. MAIN LINE (INLET, OUTLET, AND INTERIOR) PIPING SHALL BE FLANGED - PLAIN END, OR PLAIN END DUCTILE IRON PIPE WITH APPROVED FLANGE ADAPTER. MIN. PRESSURE CLASS 350 OR THICKNESS CLASS 50.
9. VAULT TO BE INSTALLED ON MIN. 6" COMPACTED VDOT #57 STONE WITH FILTER FABRIC PLACED BETWEEN BOTTOM OF VAULT AND STONE BEDDING. FILTER FABRIC TO EXTEND VERTICALLY A MINIMUM OF 6" ON ALL FOUR SIDES OF VAULT.

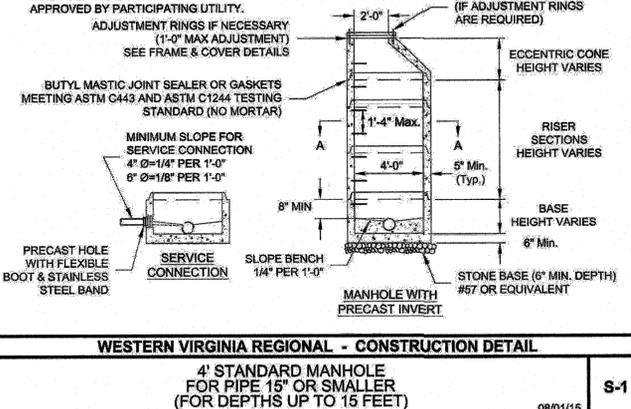


WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

MAIN LINE - PRESSURE REDUCING VALVE ASSEMBLY

W-14 1/26/16

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 IN ACCORDANCE WITH ASTM D412 OR POLYOLEFIN BACKED EXTERIOR JOINT WRAP IN ACCORDANCE WITH ASTM E-1745, C-877, AND C-990. EPDM 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. 6" MINIMUM DIAMETER MANHOLE SHALL BE REQUIRED WHEN DEPTHS EXCEED 15' UNLESS OTHERWISE APPROVED BY PARTICIPATING UTILITY.
13. ADJUSTMENT RINGS IF NECESSARY (1"-0" MAX ADJUSTMENT) SEE FRAME & COVER DETAILS

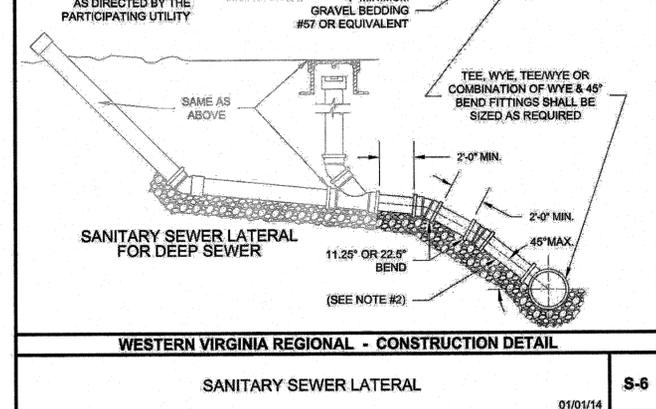


WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

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

S-1 08/01/15

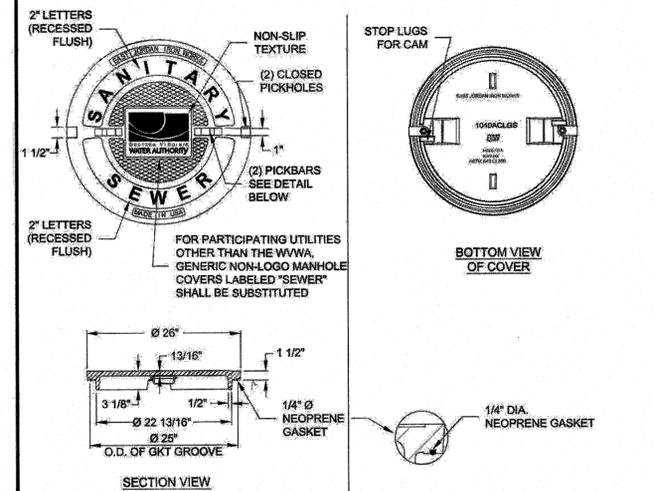
1. TRAFFIC BEARING BOX AND LID REQUIRED IN TRAFFIC AREAS (CAPITOL FOUNDRY VB-8'S).
2. SEWER LATERAL AND CLEANOUT PIPING SHALL BE ASTM D3034 SDR 26. SEWER LATERAL FITTINGS SHALL BE OF SAME SDR RATING AS THE SEWER MAIN. SCHEDULE 40 SOLVENT WELD PIPE AND FITTINGS MAY BE USED FOR THE SEWER LATERAL AND CLEANOUT 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.



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

SANITARY SEWER LATERAL

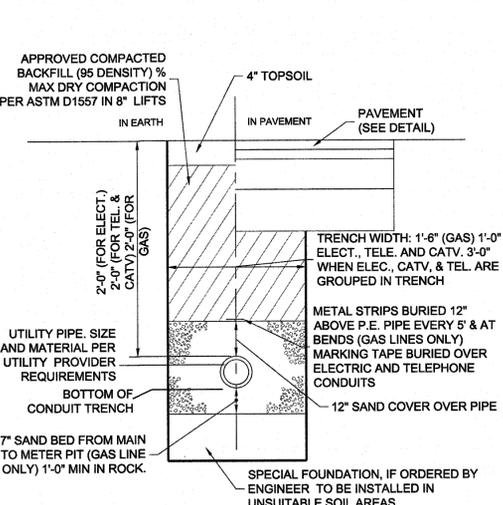
S-6 01/01/14



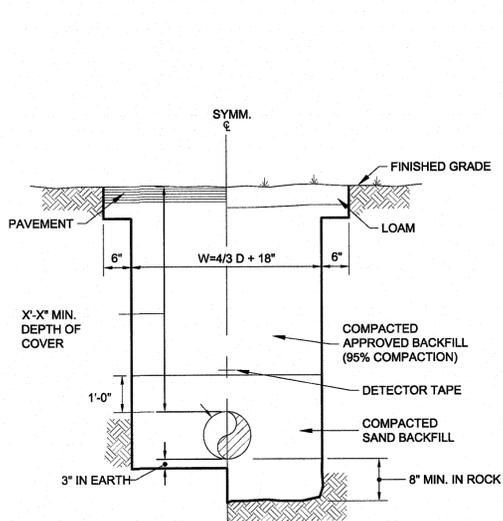
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

WATERTIGHT MANHOLE COVER

S-5 01/01/14



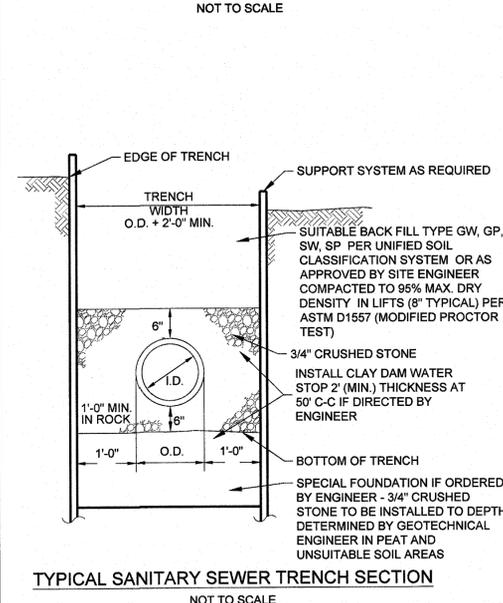
ELECTRICAL, TELEPHONE AND GAS TRENCH SECTION



TYPICAL SANITARY SEWER TRENCH SECTION

NOTE: 1. FIRE LINE PIPING AND SERVICE PIPING > 3" I.D. TO BE CLASS 53 DUCTILE IRON WITH RESTRAINED JOINTS 40 FT. EACH SIDE OF ALL FITTINGS, ELBOWS AND APPURTENANCES. DOMESTIC PIPING < 3" I.D. TO BE TYPE K COPPER PER ASTM B 88. 2. NOTE: PIPING TO BE HYDROSTATIC TESTED 2 HOURS @ 100 PSI. OVER NORMAL OPERATING PRESSURE AFTER INSTALLATION.

TYPICAL WATER MAIN & SERVICE TRENCH SECTION



TYPICAL SANITARY SEWER TRENCH SECTION

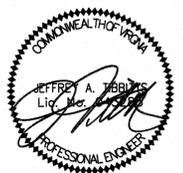
NOT TO SCALE



NO.	REVISIONS	DATE
10.19.18		
10.04.18		
08.24.18		
08.01.18		
07.17.18		

ISSUED FOR FINAL APPROVAL
 BID SET
 ISSUED FOR DEVELOPMENT PLAN RESUBMITTAL
 ISSUED FOR DEVELOPMENT PLAN REVIEW
 ISSUED FOR OWNER REVIEW

VALVOLINE INSTANT OIL CHANGE
 4025 CHALLENGER AVE. NE
 ROANOKE, VA



Project No. 755208
 Scale AS NOTED
 Drawn JLL
 Checked EJB
 Date 07/17/18
 Drawing Title

UTILITY DETAILS

Drawing No. C6.1

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