

1. FILTER FABRIC TO BE INSTALLED BOTTOM BOTTOM OF PIPE AND STONE BEDDING. FABRIC TO BE COVERED VERTICALLY A MINIMUM OF 8" FROM BOTTOM OF VAULT (FULL CIRCUMFERENCE).

PAVEMENT

ADJUSTMENT RINGS

GROUND BAR
SEE GENERAL DETAIL

PROPOSED VALVE

GROUND ROD
SEE GENERAL DETAIL

8" MAX. VERTICAL ADJUSTMENT

PRECAST WATER VALVE VAULT
OR PRECAST MANHOLE SECTION(S)
IF DEPTH EXCEEDS 8'

TRACER & GROUND WIRES
SEE GENERAL DETAIL

FILTER FABRIC

2" CLEARANCE FROM TOP OF PIPE TO BOTTOM OF VAULT CUT-OUT

WATER

SEWER

12" (MIN. TYPE)

8" COMPACTED VDOT 97

60"

[illegible]

1. PREE HYDANTS MAY BE USED AT LOW POINTS IN PLACE OF BLOW-OFFS.

2. THE INPIPE AND "STREET-BELL" SHALL BE INSTALLED FROM CORPORATION STOP AND 2" GATE VALVE SHALL BE LEAD FREE BRASS WITH 1/2" NPT END.

3. THE POINT OF CONNECTION TO THE WATER MAIN SHALL BE LOCATED NEAR THE BOTTOM OF THE MAIN (A/B BROWN) TO FACILITATE REMOVAL OF ACCUMULATED WATER.

4. BAZOLES FOR PLASTIC PIPE SHALL BE PER PERMANENT WATER SERVICE DETAIL.

Labels in diagram:

- PAYMENT
- ADJUSTMENT RING (WHEN REQUIRED)
- 2" THREADED INSOLE WITH FINGER TIGHT CAP OR 1/2" HOLE IN CAP
- 2" GATE VALVE WITH 1/2" SQUARE
- 2" CORPORATION STOP WALLER 14-10000 OR EQUIVALENT
- 2" MIN.
- WATER MAIN
- 3" MIN.
- 2" TAPPING BAZOLE
- CAPITOL FOUNDRY MH 2001
- NON-WATER TIGHT FRAME & COVER LABELED "WATER"
- FINISHED GRADE
- 12" MAX. VERTICAL
- 12" - 16"
- GROUND BAR SEE GENERAL DETAIL
- PREFRAGT WATER VALVE VAULT OR PREFRAGT MANHOLE RECTANGULAR WHEN DEPTH EXCEEDS 9'
- TRACER & GROUND WIRES SEE GENERAL DETAIL
- 6" MINIMUM VOLT 57
- GROUND ROD SEE GENERAL DETAIL

PAVEMENT

CAPITOL FOUNDRY MH-2001
NON-WATER TIGHT FRAME AND
COVER LABELED "WATER"

FINISHED GRADE

1" MAX. VERTICAL

ADJUSTMENT RING
(WHEN REQUIRED)

COMBINATION
AIR VALVE
APOD 140C
1/2" DIA.
VALVEMATIC 200.2C
OR EQUIVALENT

1" COPORATION
BTOM MILLER
H-1500 OR
EQUIVALENT

GROUND BAR
SEE GENERAL DETAIL

PROVIDE
6B SCREEN
CHERRY'S VCI OR
APPROVED EQUAL

PRECAST WATER VALL
MOUNT ON PRECAST
MANHOLE RECTIONS
MINIMUM DEPTH 6" EXCESS IF

12" MIN.

COPPER
PIPING

TRACER & GROUND
WIRE SEE GENERAL
DETAIL

4" WIRING
VOOT 51

WATER
MAN

1" MAX.

GROUND ROD
SEE GENERAL DETAIL

SEE NOTE #1

1" GATE VALVE

1" THREADED LEAD FREE BRASS PIPE
LENGTH AS REQUIRED TO COMPLETE
FULL ASSEMBLY AS SHOWN ABOVE

1" COPORATION
BTOM MILLER
H-1500 OR
EQUIVALENT

COMPACTED VOOT 51
TO BOTTOM OF WALT
AS SHOWN ABOVE

WATER
MAN

SEE NOTE #1

FOR DEEP WATERLINES

[illegible]

WESTERN VIRGINIA REGIONAL — CONSTRUCTION DETAIL

WATER LINE VALVE
& VALVE

0010114

W-9

FACTOR OF SAFETY = 1.5

PIPE SIZE	PIPE WALL	16" BEND	48" BEND	24 1/2" BEND	12 1/4" BEND	VALVE P.C.B.B	TEE BRANCH	REDUCER (NOTES)	VERT. 4"	VERT. 12"	VERT. 11 1/4"
6"	D.I.	20"	21"	6"	3"	30"	34"	20"	23"	11"	6"
8"	D.I.	27"	21"	7"	4"	43"	47"	21"	30"	18"	7"
10"	D.I.	33"	21"	8"	4"	51"	57"	22"	37"	18"	9"
12"	D.I.	53"	22"	11"	5"	70"	80"	38"	43"	21"	10"
8"	P.V.C.	30"	21"	6"	3"	35"	38"	23"	28"	17"	6"
8"	P.V.C.	32"	21"	6"	3"	35"	38"	23"	28"	17"	6"
10"	P.V.C.	47"	21"	8"	4"	50"	56"	32"	36"	22"	8"
12"	P.V.C.	58"	22"	11"	5"	70"	80"	38"	43"	21"	10"

1. ALL JOINTS SHALL BE RESTRAINED ON BOTH SIDES OF THE FITTING AND DOCUMENTED BY THE INSPECTOR FOR THE LENGTH AND BEND UNLESS OTHERWISE INDICATED.
2. REDUCER IS ONE SIZE SMALLER THAN PIPE LISTED. RESTRAINED LENGTH IS UPSTREAM ON THE LARGER SIDE OF THE REDUCER.
3. IF UNDER 100 PSI WORKING PRESSURE, RESTRAINED JOINTS MAY BE USED, IF EQUAL TO OR OVER 100 PSI WORKING PRESSURE, BOTH THRUST BLOCK AND RESTRAINED JOINTS SHALL BE USED.

RESTRAINED JOINT PIPING REQUIREMENTS AT FITTING R.J. PVC AND R.J. DIP MAY BE USED INTERCHANGEABLY.

WESTERN VIRGINIA REGIONAL — CONSTRUCTION DETAIL

PERMANENT END OF LINE BLOW-OFF ASSEMBLY

C107/14

W-1

1. TAPPING SLEEVE SHALL BE POISSERAIL MODEL 3405 TYPE 304 STAINLESS STEEL WITH CARBON STEEL FLANGE. ROMACOR MODEL 867 IS FORD MODEL T780 WITH CARBON STEEL FLANGE OR APPROVED EQUIVALENT. SLEEVE SHALL BE RATED AT 700 PSI OVER WORKING PRESSURE AND MUST HAVE A TEST PLUG.
2. TAPPING VALVE SHALL BE A/K/R RESILIENT SEATED GATE VALVE SERIES 265 MAFI, MUELLER T2300 RESILIENT WEDGE TAPPING VALVE WITH MUF, OR APC SERIES 2800 RESILIENT WEDGE TAPPING VALVE WITH MUF. VALVE SHALL BE RATED AT 250 PSI.
3. TAPPING SLEEVE AND VALVE SHALL BE FULL PORT TO ACCEPT FULL SIZE SHELL CUTTING.
4. STEEL FLANGE SHALL MEET AWWA C207.
5. SIZE-ON-SIZE TAPPING NOT ALLOWED UNLESS APPROVED BY PARTICIPATING UTILITY.

[illegible]

WESTERN VIRGINIA REGIONAL — CONSTRUCTION DETAIL

COMBINATION AIR VALVE ASSEMBLY

010114

1. WATERTIGHT MANHOLE FRAME MODEL #1042 BY EAST JORDAN ROW WORKS, INC. OR EQUIVALENT.
2. HOPE ADJUSTMENT RINGS SHALL MEET #40 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 #30 LOAD RATING AND UTILIZE BUTYL MASTIC JOINT SEALANT BETWEEN EACH RING AND FRAME AND COVER TO FORM A WATERTIGHT JOINT.
4. FRAME HEIGHT SHALL BE 7" FOR BURIED LOCATIONS AND 4" FOR EXPOSED LOCATIONS.

4 MACHINED SURFACE

3/4\"/>

WESTERN VIRGINIA REGIONAL -- CONSTRUCTION DETAIL

VAULT FRAME
AND COVER

010104

W/

2" LETTERS
(RECESSED
FLANGE)

NON-SLIP
TEXTURE

(2) GLOVED
TWOCHOLDS

1"

2" PICKABASS
SEE DETAIL
BELOW

12"

FOR PARTICIPATING UTILITIES
OTHER THAN THE WVA,
SEE STANDARD MANHOLE
COVERS BE LABELED "SEWER"

2" LETTERS
(RECESSED
FLANGE)

STOP LUGS
FOR GUM

**BOTTOM VIEW
OF COVER**

3/8"

1 1/2"

1"

22 13/16"

1/4" x
NEOPRENE
GASKET

6 3/8"

O.A. OF GRI GROOVE

1 1/2" DIA.
NEOPRENE GASKET

SECTION VIEW

1 3/8"

1 1/2"

3/8"

24" x STAINLESS
STEEL ROD

PICKABASS DETAIL

STANDARD MANHOLE COVER

BOLT-DOWN MANHOLE COVER

WESTERN VIRGINIA REGIONAL -- CONSTRUCTION DETAIL

FIRE HYDRANT ASSEMBLY

010104

1. TRAFFIC BARRIER AND L&D REQUIRED IN SCHEDULED AREA (CONDUIT, FOUNDRY, WAREHOUSE)

2. BARRIER LATERAL AND CLEANOUT PIPE SHALL BE 12" MINIMUM DRAIN OR 8" MINOR LATERAL. FITTINGS SHALL BE BEND RATING AS THE BARRIER MAN. THE SCHEDULE 40 SOLVENT WELD PIPE AND FITTINGS MAY BE USED FOR THE BARRIER LATERAL AND CLEANOUT ASSEMBLY WITH APPROVAL FROM THE PARTICIPATING UTILITY.

3. ALL PIPE SHALL BE 6" OF B&E SIZE.

4. NO BUREN IS ALLOWED IN THE LATERAL FROM THE MAIN TO THE BARRIER L&D WYE. EXCEPT FOR BUREN, AS SHOWN BELOW.

5. ALL MAIN TO PIPE OR ACTIVE MAINS SHALL BE PERFORMED BY PARTICIPATING UTILITY.

6. PIPING ON PRIVATE SIDE OF CLEANOUT TO BE INSTALLED PER AVOIDANCE JURISDICTION REQUIREMENTS.

7. MINORAL LATERAL, 8" OR FOR RESIDENTIAL, SERVICE, 4" FOR NON-RESIDENTIAL SERVICE.

8. SEWER CLEANOUTS SHALL BE SAME SIZE AS BARRIER LATERAL.

9. MINORAL COVER FOR ALL BARRIER LATERALS SHALL BE THREE (3) FEET.

10. OWNER OR OTHER RESPONSIBLE FOR INSTALLING CLEANOUT ON PROPERTY LINE (IN ACCORDANCE WITH DETAILS) WHEN MAINTENANCE COVERAGE.

11. LOWEST SERVICE FINISHED FLOOR ELEVATION SHALL BE A MINIMUM OF THREE FEET OF THE TOP OF THE MAIN AT THE CLEANOUT. THE SERVICE LATERAL CONNECTS TO THE MAIN.

12. WHEN CONNECTING TO EXISTING LATERAL USE PERISCO FLEXIBLE CONNECT.

13. RIGHT OF WAY OR LIMITS OF BASEMENT

14. CLEAN OUT MAY OR LIMITS OF BASEMENT

15. CLEANTO (IF FINISHED GRADE)

16. CLEANTO TO EXISTING GRADE (IF GRADE) OR 3" FEET CARING LATERAL

17. PLUMBER SHALL CUT STAKED TO FINISHED GRADE AS SHOWN WHEN BARRIER CONNECTS TO LATERAL.

18. 42" WYE (SEE NOTE ACCEPTABLE)

19. (SEE NOTE R2)

20. 42" MINIMUM

21. 42" MINIMUM

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WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

MINIMUM HARSH RESISTANT JOINT POINTS DESIGN LENGTHS

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W-18

1. A 1" DRAIN WILL BE REQUIRED ON THE LOWER END OF THE CASING PIPE.
2. SPACERS SHALL BE R40 HOPE SPACERS OR EQUIVALENT. STAINLESS STEEL SPACERS MAY BE USED IF IN COMPLIANCE WITH THE FOLLOWING CRITERIA:
 - a. INTERIOR SURFACES OF THE CIRCULAR STAINLESS STEEL BAND SHALL BE LINED WITH EPDM OR NEOPRENE MATERIAL.
 - b. ABRASION RESISTANT RUNNER/SPOUTER SHALL BE POLYMER MATERIAL, WITH EACH END INSULATED TO FACILITATE EASY DE-INSTALLATION INTO CASING PIPE.
3. SPACERS SHALL BE SPACED 5' ON 5' OR BETTER.
4. CARRIER PIPE SHALL BE DUCTILE IRD HOPE IN ACCORDANCE WITH REGIONAL STANDARDS.
5. CASING PIPE TO BE STEEL IN ACCORDANCE WITH VDOT STANDARD DETAIL J-19 OR HDPE AS SPECIFIED IN THE STANDARDS IF APPROVED BY THE PARTICIPATING UTILITY.
6. CONCRETE CASING PIPE SHALL NOT BE ALLOWED.
7. DIAMETER OF CASING PIPE SHALL BE AS SHOWN IN THE TABLE BELOW UNLESS OTHERWISE SPECIFIED BY THE PARTICIPATING UTILITY.

CASING PIPE SIZE CHART

CARRIER PIPE NOMINAL DIAMETER	CASING PIPE DIAMETER
6"	12"
8"	16"
10"	24"
14"	24"
18"	30"
24"	36"
30"	42"
36"	42"

TWO SPACERS
PLACED
AT EACH END
OF CASING
(TYP)

CASING SPACERS SHALL BE
SPACED A MAXIMUM OF 5' FROM
EACH SIDE OF THE PIPE JOINT

RUNNER R40 REAL WITH WALLLESS STEEL BANDS,
PIPELINE REAL & INSULATOR IRD, MODEL "7", "9",
OR APPROVED SUEAL

* ADDITIONAL SPACING ALLOWED AS RECOMMENDED BY PIPE MANUFACTURER.

CASING PIPE

CARRIER PIPE

[illegible]

WESTERN VIRGINIA REGIONAL -- CONSTRUCTION DETAIL.

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

0101016

S-

1. DUCTILE IRON WATER AND SEWER LINES CROSSING STREAMS MUST BE CONCRETE ENCASED UNLESS OTHERWISE SPECIFIED BY PARTICIPATING UTILITY.

The diagram illustrates a cross-section of a manhole structure. A central circular opening represents the manhole. This opening is surrounded by a thick, stippled layer representing concrete encasement. The horizontal width of this concrete layer is labeled 'BELL DIA' at the top, with dimension lines extending from the center of the manhole to the outer edges of the concrete. The vertical height of the concrete encasement is labeled 'BELL DIA' on the right side, with dimension lines extending from the top to the bottom of the concrete layer. A vertical dimension line on the right side of the concrete layer is labeled 'MIN.' at the top and '6\"

WESTERN VIRGINIA REGIONAL — CONSTRUCTION DETAIL

WATERBURY MANHOLE FRAME



S-10104

1. BEDDING, HAUNCHING AND INITIAL BACKFILL CRUSHAL SHALL BE IN ACCORDANCE WITH THIS DETAIL AND MANUFACTURER'S RECOMMENDATION.
2. ALL JOINT PIPE SHALL BE BEDDED IN COMPACTED 607 OR 608 STONE, OR GRUBBER RUN, IN AREAS SUBJECT TO VEHICULAR TRAFFIC. BEDDING STONE AND R.L.S. SHALL BE PLACED IN 6" LIFTS FROM BOTTOM OF TRENCH TO 1" ABOVE THE PIPE AND THE REMAINING SHALL BE PLACED IN 12" LIFTS AND SHALL BE COMPACTED TO AT LEAST 90% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D1557.
3. BEDDING REQUIREMENTS FOR DUCTILE IRON WATER LINE ARE DEPENDENT ON MANUFACTURER'S BEDDING CRITERIA.
4. ALL EXCAVATIONS SHALL COMPLY WITH OSHA TECHNICAL MANUAL, CHAPTER 2, TITLED "EXCAVATION: HAZARD RECOGNITION IN TRENCHING AND SHIELDING".
5. THE TRACER WIRE SHALL BE PLACED ALONG THE LOWER QUARTER OF THE PIPE. THE WIRE SHALL NOT TOUCH THE PIPE, BUT SHALL BE AT LEAST 1" FROM THE PIPE. NON-METALLIC SHIELDS MAY BE USED TO MAINTAIN A SET DISTANCE FROM THE UTILITY.

WIDTH OF TRENCH EXCAVATION
PIPE DIA. + 6" EACH SIDE (MINIMUM)

LOCATION OF TRACER WIRE WITH
NON-METALLIC INSULATING PIPE
TRACER WIRE NOT REQUIRED FOR
TYPICAL QUANTITY SCHEDULE SEE
SEE DETAIL S-4 FOR TRENCHING
REQUIREMENTS

[illegible]

WESTERN VIRGINIA REGIONAL -- CONSTRUCTION DETAIL			
-5	SANITARY SEWER LATERAL		
			0101154

SEE SHEET 33 FOR BULK METER DETAIL

WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL	
PIPE SUPPORT IN CASING PIPE	0-6
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WESTERN VIRGINIA REGIONAL		CONSTRUCTION DETAIL
CONCRETE PIER		G-6
		050714

WESTERN VIRGINIA REGIONAL -- CONSTRUCTION DETAIL.	
CONCRETE ENCASED PIPE	G-
0101114	

	WESTERN VIRGINIA REGIONAL -- CONSTRUCTION DETAIL	
9	BEDDING AND BACKFILL OUTSIDE OF PAVED AREAS	0-010014

	MANUFACTURER'S RECOMMENDATION. FOR SEWER LINES, BEDDING SHALL BE MINIMUM 6" ABOVE PIPE.	
	WESTERN VIRGINIA REGIONAL	CONSTRUCTION DETAIL
11	BEDDING AND BACKFILL UNDER PAVEMENT AND IN RIGHT-OF-WAY	6 010154

12

ZIPPERED