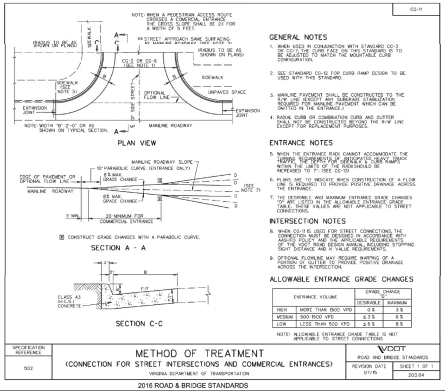
2016 ROAD & BRIDGE STANDARDS



GENERAL NOTES

1. WHEN USED IN CONJUNCTION WITH STANDARD CG-2, THE HEIGHT OF THE CURB RAMP DESIGN TO BE ADJUSTED TO MATCH THE ADJACENT CURB CONFIGURATION.
2. SEE STANDARD CG-12 FOR CURB RAMP DESIGN TO BE USED WITH THIS STANDARD.
3. MAINLINE PAVEMENT SHALL BE CONSTRUCTED TO THE ROW LINE WHEN ADJACENT SIDEWALK STANDARD REQUIRED FOR MAINLINE PAVEMENT WHICH CAN BE OMITTED IN THE ENTRANCE.
4. RADIAL CURB OR COMBINATION CURB AND GUTTER (WHICH MAY BE CONSTRUCTED BEYOND THE R/W LINE EXCEPT FOR REPLACEMENT PURPOSES.

ENTRANCE NOTES

5. WHEN THE ENTRANCE END CANNOT ACCOMMODATE THE FULLWIDTH REQUIREMENTS OF ADJACENT SIDEWALK, BREAK INTO THE SIDEWALK AT THE ENTRANCE. THE RAMP WITHIN THE LIMITS OF THE ROW SHOULD BE REPRESENTED TO 7'; SEE CG-12.
6. PLANS ARE TO INDICATE WHICH CONSTRUCTION OF A FLOW LINE IS REQUIRED TO PROVIDE POSITIVE DRAINAGE ACROSS THE ENTRANCE.
7. THE DESIRABLE AND MAXIMUM ENTRANCE GRADE CHANGES SHOWN IN THE ALLOWABLE ENTRANCE GRADE CHANGES TABLE, THESE VALUES ARE NOT APPLICABLE TO STREET CONNECTIONS.

INTERSECTION NOTES

8. WHEN CG-11 IS USED FOR STREET CONNECTIONS, THE CONNECTION MUST BE DESIGNED IN ACCORDANCE WITH AASHTO POLICY FOR GEOMETRIC REQUIREMENTS. ADJUST THE LOCATION OF THE CROSSWALK, STOPPING SIGHT DISTANCE AND 'R' VALUE REQUIREMENTS.
9. OPTIONAL FLOWLINE MAY REQUIRE WARPING OF A PARABOLIC GUTTER TO PROVIDE POSITIVE DRAINAGE ACROSS THE INTERSECTION.

ALLOWABLE ENTRANCE GRADE CHANGES

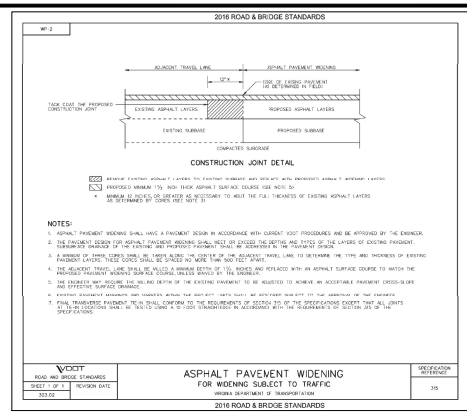
ENTRANCE VOLUME		GRADE CHANGE	
		DESIRABLE	MAXIMUM
HIGH	MORE THAN 800 VPD	0 % 0.75 %	3 % 4.5 %
MEDIUM	300-800 VPD	0.75 %	6 %
LOW	LESS THAN 300 VPD	0.75 %	8 %

NOTE: ALLOWABLE ENTRANCE GRADE CHANGE IS NOT APPLICABLE TO STREET CONNECTIONS

SPECIFICATION REFERENCE	METHOD OF TREATMENT (CONNECTION FOR STREET INTERSECTIONS AND COMMERCIAL ENTRANCES)	VDOT ROAD AND BRIDGE STANDARDS
502	VIRGINIA DEPARTMENT OF TRANSPORTATION	REVISION DATE 01/19 · SHEET 1 OF 1 · 203.04

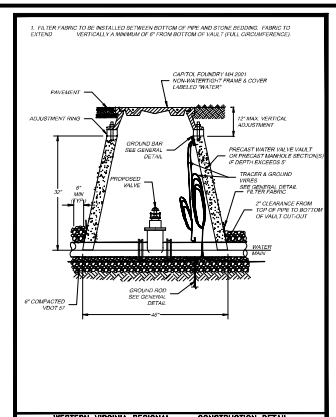
2016 ROAD & BRIDGE STANDARDS

2016 ROAD & BRIDGE STANDARDS



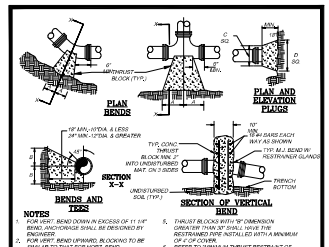
SPECIFICATION REFERENCE	ASPHALT PAVEMENT WIDENING FOR WIDENING SUBJECT TO TRAFFIC	VDOT ROAD AND BRIDGE STANDARDS
315.02	VIRGINIA DEPARTMENT OF TRANSPORTATION	SHEET 1 OF 1 · REVISION DATE · 315

2016 ROAD & BRIDGE STANDARDS



WESTERN VIRGINIA REGIONAL – CONSTRUCTION DETAIL

WATER LINK VALVE & VAULT — W-9 — 01/01/19



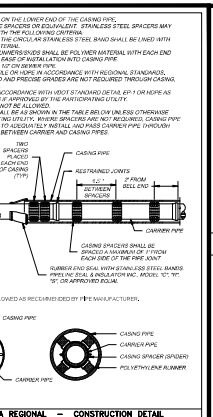
PIPE SIZE	90° BEND		45° BEND		22 1/2° BEND		11 1/2° BEND		TEE			PLUG	
	A	B	A	B	A	B	A	B	A	B	C	L	U
4"	8"	12"	8"	8"	6"	6"	6"	6"	11"	9"	10"	6"	6"
6"	18"	12"	8"	10"	8"	8"	8"	8"	11"	10"	12"	18"	18"
8"	18"	13"	10"	10"	8"	8"	8"	8"	11"	12"	12"	24"	24"
10"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"	30"
12"	20"	18"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"	30"
16"	26"	20"	16"	18"	11"	13"	11"	13"	18"	20"	20"	36"	36"
24"	82"	42"	62"	30"	44"	22"	22"	22"	16"	82"	42"	22"	42"
30"	185"	42"	100"	42"	52"	42"	40"	30"	185"	42"	185"	42"	

WESTERN VIRGINIA REGIONAL – CONSTRUCTION DETAIL

THRUST BLOCK REQUIREMENTS — W-18 — 02/10/19

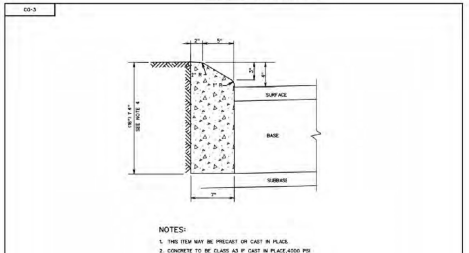
1. A 1" DRAIN WILL BE REQUIRED ON THE LOWER END OF THE CASING PIPE.
2. SPACERS SHALL BE RACH HDPE SPACERS OR EQUIVALENT. STAINLESS STEEL SPACERS MAY BE USED IF IN COMPLIANCE WITH THE FOLLOWING CRITERIA:
   - FITTINGS SHALL BE 304 OR 316 STAINLESS STEEL BAND SHALL BE LINED WITH ELASTOMER NEOPRENE MATERIAL.
   - ABRASION RESISTANT RUNNERS/ENDS SHALL BE POLYMER MATERIAL WITH EACH END BEVELED TO FACILITATE EASE OF INSTALLATION INTO CASING PIPE.
3. SPACERS SHALL BE SPACED 8 1/2' ON SEWER PIPE.
4. CARRIER PIPE SHALL BE DUCTILE OR HDPE IN ACCORDANCE WITH REGIONAL STANDARDS.
5. 16" HDPE CARRIER PIPE IS USED AND PRECISE GRADES ARE NOT REQUIRED THROUGH CASING, SPACERS MAY BE OMITTED.
6. CASING PIPE TO BE STEEL IN ACCORDANCE WITH VDOT STANDARD DETAIL EP-1 OR HDPE AS SPECIFIED IN THE STANDARDS IF APPROVED BY THE PARTICIPATING UTILITY.
7. CONCRETE CASING PIPE WILL NOT BE ALLOWED.
8. DIAMETER OF CASING PIPE SHALL BE AS SHOWN IN THE TABLE BELOW UNLESS OTHERWISE SPECIFIED BY THE PARTICIPATING UTILITY. WHERE SPACERS ARE NOT REQUIRED, CASING PIPE SHALL BE MINIMUM OVAL SIZE TO ADEQUATELY INSTALL AND PASS CARRIER PIPE THROUGH AND TO MINIMIZE VOID SPACE BETWEEN CARRIER AND CASING PIPES.

CASING PIPE SIZE CHART	
CARRIER PIPE NOMINAL (DIAMETER)	CASING PIPE (DIAMETER)
8"	12"
8"	18"
10"	24"
12"	24"
14"	24"
16"	30"
18"	30"
24"	42"
30"	60"



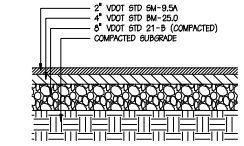
WESTERN VIRGINIA REGIONAL – CONSTRUCTION DETAIL

PIPE SUPPORT IN CASING PIPE — G-6 — 09/01/15

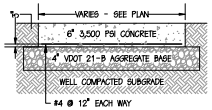


SPECIFICATION REFERENCE	STANDARD 4" CURB	VDOT ROAD AND BRIDGE STANDARDS
502.02	VIRGINIA DEPARTMENT OF TRANSPORTATION	SHEET 1 OF 1 · REVISION DATE · 105 / 502

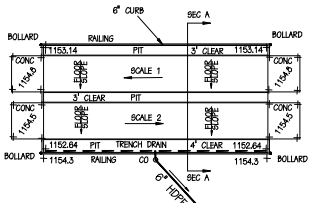
2016 ROAD & BRIDGE STANDARDS



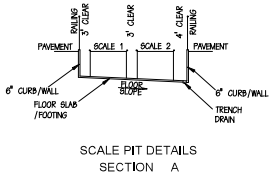
HEAVY DUTY PAVEMENT SECTION
NOT TO SCALE
NOTE: AGGREGATE BASE #21B TO BE PRIMED AND SEALED



TYPICAL SECTION
TRUCK PAD
(NO SCALE)



SCALE PIT DETAILS
PLAN VIEW
(NO SCALE)

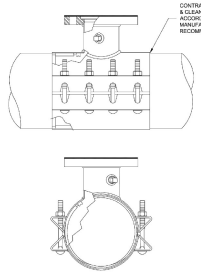


SCALE PIT DETAILS
SECTION A
(NO SCALE)

NOTES:

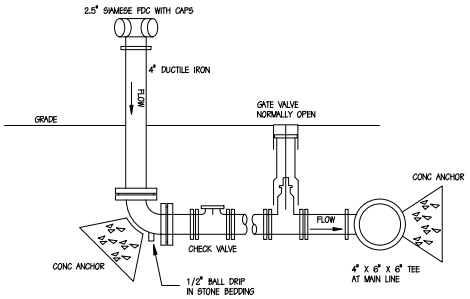
1. THE ABOVE SCALE PIT DETAILS ARE SHOWN FOR GRADE CONTROL. SEE SCALE PLAN BY SUPPLIER FOR COMPLETE DETAILS AND DIMENTSIONS.
2. 6" CURB TO EXTEND 0.5' MINIMUM ABOVE PAVEMENT.
3. CLEAR DIMENSIONS ARE FROM EDGE OF 6"CURB/WALL AND EDGE OF SCALE GUIDE RAIL.
4. 10' LONG MINIMUM APPROACH AND EXIT PADS INSTALLED FLAT.

1. TAPPING SLEEVE SHALL BE POWERSEAL MODEL 3490 TYPE 304 STAINLESS STEEL WITH CARBON STEEL FLANGE, ROMACTS MODEL 95T II, FORD MODEL FTSS WITH CARBON STEEL FLANGE OR APPROVED EQUIVALENT. SLEEVE SHALL BE RATED AT 150 PSI OVER WORKING PRESSURE AND MUST HAVE A TEST PLUG.
2. TAPPING VALVE SHALL BE AVK RESILIENT SEATED GATE VALVE SERIES 25 MJFL, MUELLER T-2360 RESILIENT WEDGE TAPPING VALVE WITH MJ/FL OR APC SERIES 2500 RESILIENT WEDGE TAPPING VALVE MJ/FL. VALVE SHALL BE RATED AT 250PSI.
3. TAPPING SLEEVE AND VALVE SHALL BE FULL PORT TO ACCEPT FULL SIZE SHELL CUTTER.
4. STEEL FLANGE SHALL MEET AWWA C207.
5. SIZE-ON-SIZE TAPPING IS NOT ALLOWED UNLESS APPROVED BY PARTICIPATING UTILITY.



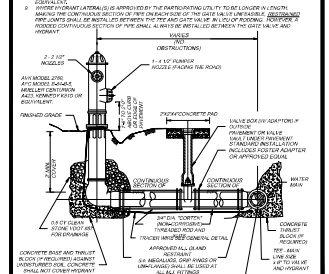
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

TAPPING SLEEVE AND VALVE — W-21 — 01/01/14



FIRE DEPARTMENT CONNECTION (FDC)
NTS

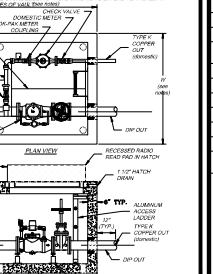
1. PUBLIC HYDRANTS SHALL BE PAINTED SILVER WITH AN OIL-BASED PAINT. PRIVATE HYDRANTS SHALL ALSO BE PAINTED BLUE WITH AN OIL-BASED PAINT UNLESS OTHERWISE SPECIFIED BY THE JURISDICTIONAL FIRE MARSHALL.
2. FIRE HYDRANT SHALL BE INSTALLED 2' MIN. AND 4' MAX. FROM BACK OF CURB OR 8' MIN. AND 12' MAX. FROM EDGE OF PAVEMENT WHEN CURB IS NOT PRESENT. FIRE HYDRANT TO BE INSTALLED WITHIN RIGHT-OF-WAY OR EASEMENT LINE.
3. ABOVEGROUND HYDRANT AT A MINIMUM OF 4' TO BE LEVEL AND UNOBSTRUCTED.
4. HYDRANT LOCATION AT DEAD-END OR OUT OF SERVICE MAINS SHALL BE PLACED OVER ALL MAINS IF INSTALLED FIRE HYDRANTS.
5. HYDRANT ASSEMBLIES SHALL BE RODDED AND RESTRAINED WITH APPROVED MJ, GLAND RESTRAINTS WHICH PRESSURE OVER 150 PSI ALSO REQUIRES CONCRETE THRUST BLOCKS AS SHOWN BELOW.
6. IF DURING CONSTRUCTION THE SEASONAL WATER LEVEL IS NOTED TO BE ABOVE THE DRAIN OUTLETS OF THE HYDRANT, THE HYDRANT SHALL BE INSTALLED WITH A DRY BARREL HYDRANT. THE DRAIN OUTLET OF THE HYDRANT CAN BE RELOCATED TO A SUITABLE LOCATION (NOTED ON THE DRAIN HOLE PLACEMENT).
7. TWO WRAPS OF TRACER WIRE SHALL BE WRAPPED AROUND BASE OF HYDRANT.
8. APPROVED MODELS: AVK MODEL 2780, AFC MODEL 8-INCH, WATER, CENTURION AMES, KENNEDY K81D OR EQUIVALENT.
9. SHORT HYDRANT (LATERAL)(S) IS APPROVED BY THE PARTICIPATING UTILITY TO BE LONGER IN LENGTH MAKING THE CONTINUOUS SECTION OF PIPE ON EACH SIDE OF THE GATE VALVE UNREALISTIC. DESIGNERS MAY REQUEST THE USE OF A SHORT HYDRANT. THE SHORT HYDRANT SHALL BE INSTALLED ON THE PROVIDED CONTINUOUS SECTION OF PIPE SHALL ALWAYS BE INSTALLED BETWEEN THE GATE VALVE AND HYDRANT.



WESTERN VIRGINIA REGIONAL – CONSTRUCTION DETAIL

FIRE HYDRANT ASSEMBLY — W-17 — 02/20/19

1. FOR 2" AND LINE, EXTERIOR VAULT DIMENSIONS SHALL BE (L X W x H) 6' X 3' X 3' WITH DOMESTIC TAP METER VAULT AS SHOWN BELOW.
2. FOR 3" AND LINE SIZE TAPS, VAULT DIMENSIONS SHALL BE (L X W X H) 8' X 3' X 3' WITH DOMESTIC TAP METER VAULT AS SHOWN BELOW. ALL ADJACENT PIPING TAPS SHALL BE PROVIDED WITH BALL VALVE TO ALLOW FOR ISOLATION OF DOMESTIC METER.
3. SINGLE DETECTOR CHECK VALVE SHALL BE VALMATIC 310 DALM, WATTS ES-SSD31 - BP, OR APPROVED EQUAL WITH FLANGED END CONNECTIONS. BYPASS ASSEMBLY, AND ONE OSBY GATE VALVE.
4. BYPASS ASSEMBLY SHALL INCLUDE 2 BALL VALVES TO ISOLATE METER.
5. DOMESTIC SHALL BE TYPE K COPPER WITH GRIP JOINT FITTINGS. BALL VALVE AT TAPPING SADDLE WITH LOCKING TABS AND CHECK VALVE ON OUTLET.
6. DOMESTIC METER AND BYPASS METER TO BE SUPPLIED BY OWNER AND INSTALLED BY VENDOR.
7. "SINUFLEX" ADAPTOR FLANGE, OR APPROVED EQUAL, OR FLANGED + PLAIN END PIPING REQUIRED FOR INLET AND OUT JET PIPING.
8. VAULT SHALL BE BACKFILLED WITH 3/4" CLEAN CONNECTED VDOT #57 STONE WITH TE TER FABRIC PLACED BETWEEN BOTTOM OF VAULT AND STONE BEDDING. FILTER FABRIC TO EXTEND VERTICALLY A MINIMUM OF 6" ON ALL FOUR SIDES OF VAULT FROM BOTTOM.



WESTERN VIRGINIA REGIONAL – CONSTRUCTION DETAIL

COMMERCIAL METER VAULT — W-7 — 09/01/15

PERKINS & ORRISON
ENGINEERS ▲ PLANNERS ▲ SURVEYORS

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CONSULTANTS

COMMONWEALTH OF VIRGINIA
NORMAN B. WALTON JR.
No. 036517
11/13/2020
PROFESSIONAL ENGINEER

JOB:

BOTETOURT CONVENIENCE CENTER AND TRANSFER STATION

BOTETOURT COUNTY, VIRGINIA

CLIENT:
COUNTY WASTE SOUTHWEST VIRGINIA, LLC
CO: DELBERT BEASLEY

MARK	DATE	DESCRIPTION
3	11/13/20	REV PER AGENCY COMMENTS
2	10/05/20	REV PER AGENCY COMMENTS
1	8/25/20	REV PER AGENCY COMMENTS

ISSUE:	4/6/20
CONTOUR INTERVAL:	2'
DESIGNED BY:	RTM
DRAWN BY:	RTM/DBM
CHECKED BY:	NBW/RTM

SHEET TITLE

DETAILS

SHEET C-105B

JOB NO. 18108 · SHEET NO. 13 of 21

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