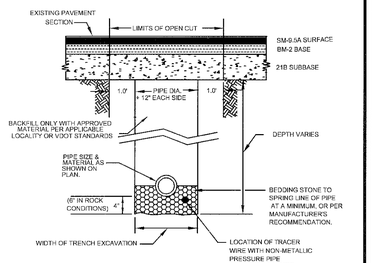
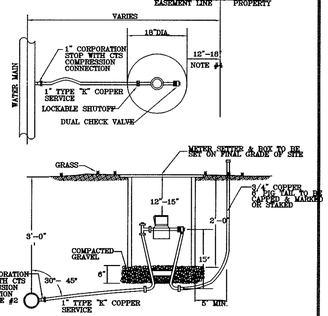


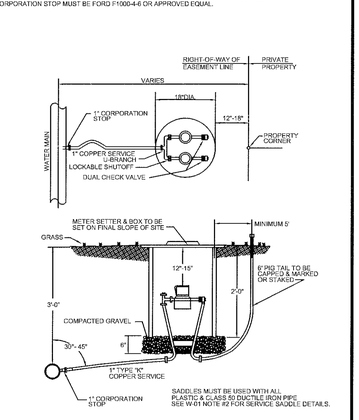
NOTES:
A. IN ROANOKE COUNTY, THE CONTRACTOR SHALL REPLACE THE OPEN CUT WITH A MINIMUM TOP COURSE OF 2" VDOT SM-9.5A, BASE COURSE OF 3" VDOT BM-2, AND SUBBASE OF 8" VDOT 21B, OR AS REQUIRED BY VDOT. IN ROANOKE CITY, CONTRACTOR SHALL MATCH EXISTING PAVEMENT LAYERS OR AS REQUIRED BY CITY STANDARDS.
B. ALL CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE AS SPECIFIED BY VDOT OR APPLICABLE LOCALITY.
C. PRIOR TO CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR SECURING ALL REQUIRED PERMITS FROM VDOT AND/OR APPLICABLE LOCALITY.
D. ALL WATER LINES BENEATH PAVEMENT SHALL BE DUCTILE IRON UNLESS INSTALLED IN CASING PIPE OR BY DIRECTIONAL BORING.
E. IN AREAS SUBJECTED TO VEHICULAR TRAFFIC, BEDDING STONE AND FILL SHALL BE PLACED IN 6" LIFTS AND SHALL BE COMPACTED TO AT LEAST 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D 698.
F. ALL SEWER LINE PIPE SHALL BE BEDDED IN COMPACTED GRANULAR MATERIAL. BEDDING REQUIREMENTS FOR DUCTILE WATER LINE ARE DEPENDENT ON MANUFACTUER'S BEDDING CRITERIA.

WESTERN VIRGINIA WATER AUTHORITY – CONSTRUCTION STANDARDS		
REVISION DATE 07/01/04	BEDDING AND BACKFILL UNDER PAVEMENT	G-02

1. SETTER TO BE A.Y. McDONALD #20-215 WDLL33 , FORD VBH172-15W-1133 OR APPROVED EQUAL.
2. METER BOX MUST BE MID-STATES PLASTICS, INC. PLASTIC BOX WITH FORD A32-T (ELECTRONIC READ LID) OR A. Y. McDONALD MODEL 74M32C-TC CAST IRON BASE & COVER OR APPROVED EQUAL.
3. CORPORATION STOP MUST BE FORD F1000-4-6 OR APPROVED EQUAL.

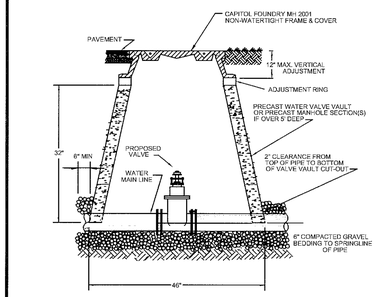


WESTERN VIRGINIA WATER AUTHORITY – CONSTRUCTION STANDARDS		
REVISION DATE 07/01/04	TYPE "A" SINGLE RESIDENTIAL WATER SERVICE (LINE PRESSURE UNDER 80 PSI)	W-01



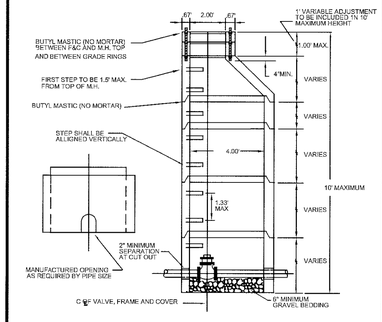
SADDLES MUST BE USED WITH ALL PLASTIC & CLASS 50 DUCTILE IRON PIPE. SEE W-01 NOTE #2 FOR SERVICE SADDLE DETAILS.

WESTERN VIRGINIA WATER AUTHORITY – CONSTRUCTION STANDARDS		
REVISION DATE 07/01/04	DOUBLE RESIDENTIAL WATER SERVICE	W-04

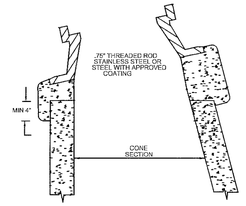


WESTERN VIRGINIA WATER AUTHORITY – CONSTRUCTION STANDARDS		
REVISION DATE 07/01/04	WATER LINE VALVE INSTALLATION	W-08

1. TO BE USED WHEN STANDARD VAULT CONSTRUCTION EXCEEDS MAXIMUM VERTICAL HEIGHT OF 5'.
2. BEDDING SHALL BE PLACED AS REQUIRED BY PIPE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS.
3. IN ORDER TO LOCATE PVC WATER PIPE, 12 GAUGE SOLID COPPER WIRE SHALL BE LAID WITH PIPE (SEE DETAIL).



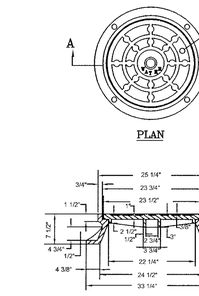
WESTERN VIRGINIA WATER AUTHORITY – CONSTRUCTION STANDARDS		
REVISION DATE 07/01/04	ALTERNATE VALVE VAULT (MANHOLE)	W-15



SECTION

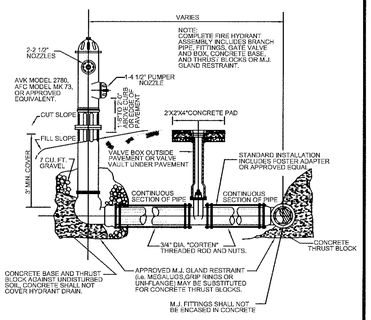
NOTE:
1. USE MODERATELY STIFF MIX OF NON SHRINK CEMENT, SAND AND 1/2" AND LESS DIAMETER GRAVEL WITH 28 DAYS, STRENGTH AT 3,000 P.S.I.
2. MIX IS TO BE FORCED INTO ALL GROOVES AND UNDER FLANGE OF FRAME AND LEFT AT OR ABOVE TOP OF FLANGE.
3. MAX. OF 4 BRICK OR CONCRETE BLOCKS TO BE USED UNDER FRAME AND COVER.
4. DO NOT BACKFILL AROUND FRAME AND COVER, FOR 48 HOURS AFTER CON. IS PLACED. THE USE OF HIGH EARLY STRENGTH CONCRETE WOULD REDUCE TIME TO (24=RS).
5. RESTRICT TRAFFIC LOAD FOR MIN. 24 HOURS.

WESTERN VIRGINIA WATER AUTHORITY – CONSTRUCTION STANDARDS		
REVISION DATE 07/01/04	INSTALLATION DETAIL FOR ALL FRAMES AND COVERS	W-16

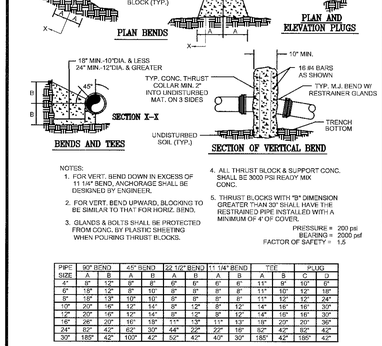


WESTERN VIRGINIA WATER AUTHORITY – CONSTRUCTION STANDARDS		
REVISION DATE 07/01/04	MANHOLE FRAME AND COVER	W-17

NOTES:
1. MAIN BODY OF HYDRANT MUST BE PAINTED SILVER WITH RED REFLECTIVE CAPS AND BONNET.
2. FIRE HYDRANT SHALL BE INSTALLED 2' MIN. AND 4' MAX. FROM BACK OF CURB OR 6' MIN. AND 12' MAX. WHEN CURB IS NOT PRESENT. FIRE HYDRANT TO BE INSTALLED WITHIN RIGHT-OF-WAY OR EASEMENT LINE.
3. AREA AROUND HYDRANT AT A RADIUS OF 4' TO BE LEVEL AND UNOBSTRUCTED.
4. WATERPROOF BAGS SHALL BE PLACED OVER ALL NEWLY INSTALLED FIRE HYDRANTS.
5. HIGH PRESSURE (OVER 120 PSI) REQUIRES THE USE ALL 3 RESTRAINTS.



WESTERN VIRGINIA WATER AUTHORITY – CONSTRUCTION STANDARDS		
REVISION DATE 07/01/04	FIRE HYDRANT ASSEMBLY	W-18

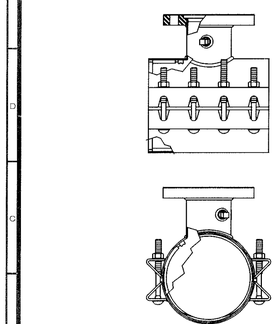


NOTES:
1. FOR VERT. BEND DOWN IN EXCESS OF 11 1/4" BEND, ANCHORAGE SHALL BE DESIGNED BY ENGINEER.
2. FOR VERT. BEND UPWARD, BLOCKING TO BE SIMILAR TO THAT FOR HORIZ. BEND.
3. GLANDS & BOLTS SHALL BE PROTECTED FROM CONC. BY PLASTIC SHEETING WHEN POURING THRUST BLOCKS.
4. ALL THRUST BLOCK & SUPPORT CONC. SHALL BE 3000 PSI READY MIX CONC.
5. THRUST BLOCKS WITH "B" DIMENSION GREATER THAN 33" SHALL HAVE THE RESTRAINED PIPE INSTALLED WITH A MINIMUM OF 4' OF COVER.

PRESSURE = 200 psi
BEARING = 2000 psf
FACTOR OF SAFETY = 1.5

PIPE SIZE	90° BEND A	90° BEND B	45° BEND A	45° BEND B	22 1/2° BEND A	22 1/2° BEND B	11 1/4° BEND A	11 1/4° BEND B	TEE A	TEE B	TEE C	PLUG D
4"	8"	12"	8"	8"	6"	6"	6"	6"	11"	9"	10"	6"
6"	18"	12"	8"	10"	8"	8"	8"	8"	11"	10"	12"	18"
8"	18"	13"	10"	10"	8"	8"	8"	8"	11"	12"	12"	24"
10"	20"	14"	12"	14"	8"	12"	8"	12"	14"	14"	16"	30"
12"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
16"	26"	20"	16"	18"	11"	13"	13"	13"	16"	20"	20"	36"
24"	0'0"	42"	62"	30"	44"	22"	22"	18"	62"	42"	62"	42"
30"	185"	42"	102"	42"	52"	42"	40"	35"	185"	42"	185"	42"

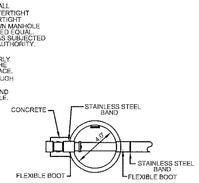
WESTERN VIRGINIA WATER AUTHORITY – CONSTRUCTION STANDARDS		
REVISION DATE 07/01/04	THRUST BLOCK CONSTRUCTION	W-19

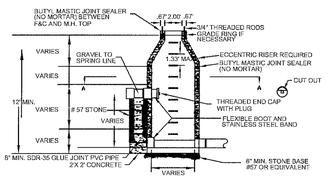


1. TAPPING SLEEVE SHALL BE POWERSEAL MODEL 3490 TYPE 304 STAINLESS STEEL WITH CASHON STEEL FLANGE, ROMAC'S MODEL SST III OR APPROVED EQUIVALENT . SLEEVE SHALL BE RATED AT 250 PSI AND MUST HAVE A TEST PLUG.
2. TAPPING VALVE SHALL BE AVK RESILIENT SEATED GATE VALVE SERIES 25 MJFL OR MUELLER T-2360 RESILIENT WEDGE TAPPING VALVE WITH MJFL VALVE SHALL BE RATED AT 250 PSI.
3. TAPPING SLEEVE AND VALVE SHALL BE FULL PORT TO ACCEPT FULL SIZE SHELL CUTTER.

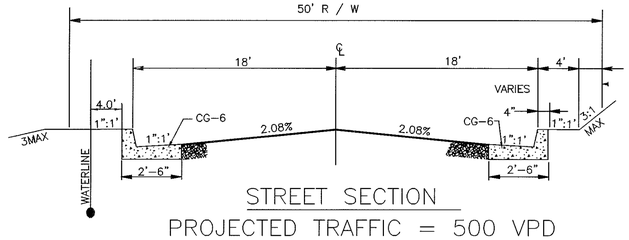
WESTERN VIRGINIA WATER AUTHORITY – CONSTRUCTION STANDARDS		
REVISION DATE 07/01/04	TAPPING SLEEVE AND VALVE	W-23

NOTES:
1. ALL MANHOLE FRAMES AND COVERS SHALL BE EAST JORDAN IRON WORKS, INC. WATERTIGHT MANHOLE FRAME MODEL #1043Z, WATERTIGHT COVER MODEL #1043AGS AND BOLT-DOWN MANHOLE COVER MODEL #1916AGS GS, OR APPROVED EQUAL BOLT-DOWN MODEL TO BE USED IN AREAS SUBJECTED TO FLOODING OR AS DIRECTED BY THE AUTHORITY.
2. STEPS TO BE VERTICALLY ALIGNED.
3. THE FRAME AND COVER SHALL BE PROPERLY ALIGNED WITH THE 2 FOOT OPENING OF THE MANHOLE STRUCTURE AND BOLTED IN PLACE.
4. TOP INVERT LINE SHALL NOT ENTER THROUGH RISER (CONE) SECTION OR JOINT.
5. GROUT ANNULAR SPACE BETWEEN PIPE AND PRECAST MANHOLE ON INSIDE OF MANHOLE.

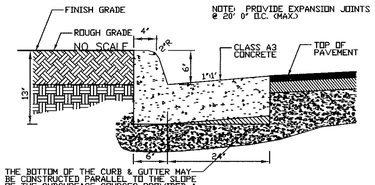




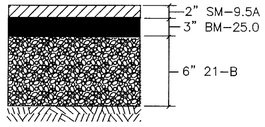
WESTERN VIRGINIA WATER AUTHORITY – CONSTRUCTION STANDARDS		
REVISION DATE 07/01/04	OUTSIDE DROP MANHOLE (FOR USE WITH PVC PIPE)	S-03



STREET SECTION
PROJECTED TRAFFIC = 500 VPD



CG-6 (WET) DETAIL
N.T.S.



ROAD PAVEMENT SECTION
NO SCALE

COMMONWEALTH OF VIRGINIA
ROGER I. STURGILL
No. 033058
PROFESSIONAL ENGINEER

BALZER AND ASSOCIATES, INC.
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New Century Industrial Park

DETAILS

Hollins District
ROANOKE COUNTY, VIRGINIA

DRAWN BY: SMH
DESIGNED BY: SMH
CHECKED BY: RIS
DATE: 2-28-05

REVISIONS:
4-15-05
5-15-05
6-7-05
6-8-05
7-5-05
7-29-05

SCALE: NO SCALE

SHEET NO.
C8

JOB NO.
R0500002.00