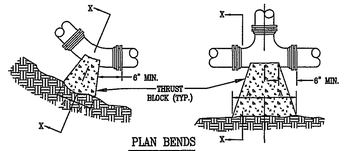
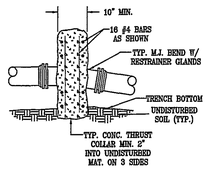
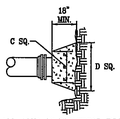


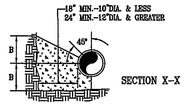
PLAN BENDS



SECTION OF VERTICAL BEND



PLAN AND ELEVATION PLUGS



BENDS AND TEES

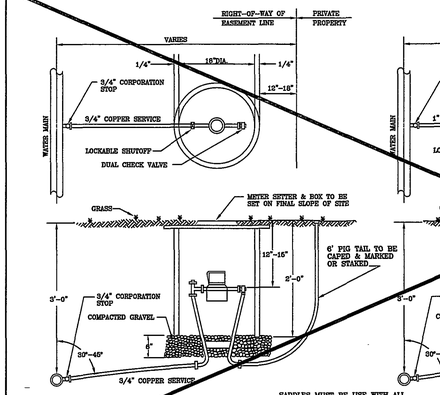
NOTES:
1. FOR VERT. BEND DOWN IN EXCESS OF 11 1/4" BEND, ANCHORAGE SHALL BE DESIGNED BY ENGINEER.
2. FOR VERT. BEND UPWARD, BLOCKING TO BE SIMILAR TO THAT FOR HORIZ. BEND.
3. GLANDS & BOLTS SHALL BE PROTECTED FROM CONC. BY PLASTIC SHEETING WHEN POURING THRUST BLOCKS.
4. ALL THRUST BLOCK & SUPPORT CONC. SHALL BE 3000 PSI READY MIX CONC.
5. THRUST BLOCKS WITH "B" DIMENSION GREATER THAN 30" SHALL HAVE THE RESTRAINED PIPE INSTALLED WITH A MINIMUM OF 4' OF COVER.

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

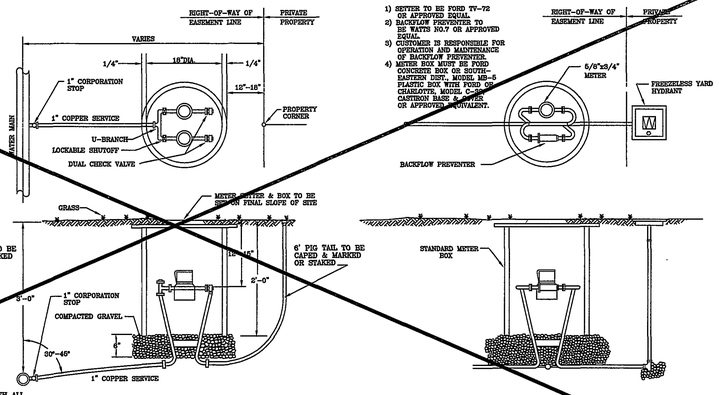
PIPE SIZE	90° BEND A	90° BEND B	45° BEND A	45° BEND B	22 1/2° BEND A	22 1/2° BEND B	11 1/4° BEND A	11 1/4° BEND B	TEE A	TEE B	PLUG C	PLUG D
4"	8"	12"	8"	8"	6"	6"	6"	6"	11"	9"	10"	6"
6"	18"	12"	8"	10"	8"	8"	8"	8"	11"	10"	12"	18"
8"	18"	13"	10"	10"	8"	8"	8"	8"	11"	12"	12"	24"
10"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
12"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
16"	28"	20"	16"	18"	11"	13"	11"	13"	16"	20"	20"	35"
24"	60"	42"	60"	30"	44"	22"	22"	16"	82"	42"	82"	42"
30"	185"	42"	100"	42"	52"	42"	40"	30"	185"	42"	185"	42"

THRUST BLOCK CONSTRUCTION

NO SCALE



SINGLE RESIDENTIAL WATER SERVICE



SADDLES MUST BE USE WITH ALL PLASTIC & CLASS 50 DUCTILE IRON PIPE

DOUBLE RESIDENTIAL WATER SYSTEM

1) SETTER TO BE FORD VV-72 OR APPROVED EQUAL.
2) BACKFLOW PREVENTER TO BE WATTS NO.7 OR APPROVED EQUAL.
3) CUSTOMER IS RESPONSIBLE FOR OPERATION AND MAINTENANCE OF BACKFLOW PREVENTER.
4) METER BOX MUST BE FORD CONCRETE BOX OR SOUTH-EASTERN DIST., MODEL MB-5 PLASTIC BOX WITH FORD OR CHARLOTTE, MOVEL C-32 CASTIRON RING & COVER OR APPROVED EQUIVALENT.

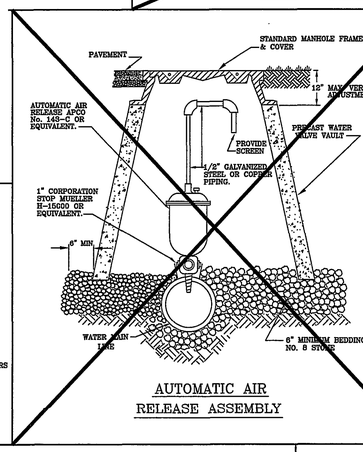
TYPICAL SPRINKLER SERVICE

VAULT & WATER STANDARDS FOR CONSTRUCTION

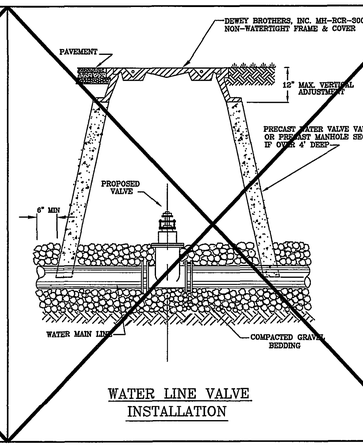
1. VAULTS, MANHOLE BASES, RISERS, TAPERS AND GRADE RINGS SHALL BE PRECAST REINFORCED CONCRETE MANUFACTURED IN ACCORDANCE WITH VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS, SECTION 503.
2. MANHOLE BASE AND RISER SECTIONS CONSTRUCTION SHALL BE VERTICAL WITH MAXIMUM 1" IN 4' TILT.
3. A MAXIMUM OF 2 CONSTRUCTION GRADE RINGS OR MAXIMUM OF 1' OF GRADE RINGS AND FRAME AND COVER ADJUSTMENT ARE ALLOWABLE.
4. FINAL ADJUSTMENT OF FRAME AND COVER SHALL BE IN ACCORDANCE TO FRAME AND COVER ADJUSTMENT DETAIL USING NON SHRINK CONCRETE WITH MAXIMUM OF 4 BRICKS OR CONCRETE BLOCKS FOR GRADE CONTROL. FRAME AND COVER ARE TO BE SET AT FINISH GRADE OR 1/4" ABOVE FINISH GRADE IN PAVEMENT AND YARD AREAS AND MINIMUM 8" ABOVE FINISH GRADE IN OTHER AREAS. MANHOLE FRAMES AND COVERS ARE NOT TO BE SET IN DRAINAGE SWALE, VALLEY GUTTER, ETC.
5. JOINTS AND OPENINGS IN MANHOLE UNITS SHALL BE MADE WATERTIGHT BY USING BUTYL SEALANTS, "O" RING GASKETS OR MASTIC. THE CONCRETE SURFACE SHALL BE CLEANED PRIOR TO USE OF SEALANT.
6. FRAME AND COVERS
   A) DEWEY BROTHERS INC. SERIES 2000 OR 2001.
   B) APPROVED EQUAL.
7. ALL LIFT HOLES, OPENINGS AROUND PIPE, ETC. SHALL BE FILLED FROM INSIDE AND OUTSIDE TO THICKNESS OF STRUCTURE.
8. ALL UNITS USED IN MANHOLE AND VAULT CONSTRUCTION SHALL BE SECURELY CONNECTED BY INTERLOCKING BETWEEN UNITS, CONCRETE COLLARS OR OTHER APPROVED METHODS.
9. AREA AROUND METER BOX AT A RADIUS OF 4' TO BE ON FINISH GRADE AND UNOBSTRUCTED.

APPROVED MATERIALS

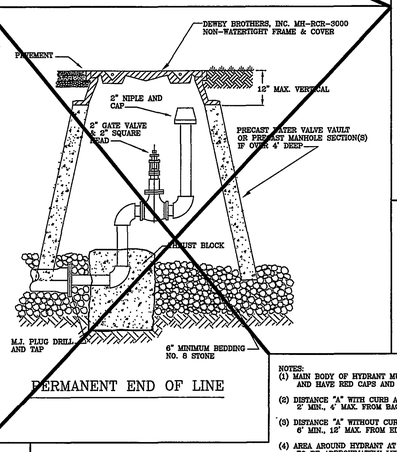
1. METER BOXES
   A) FORD IRONCRETE METER BOX WITH NO. 2 IRONCRETE TOP OR APPROVED EQUAL.
   B) SOUTHEASTERN DISTRIBUTOR MODEL MB-5 PLASTIC BOX WITH FORD OR CHARLOTTE MODEL C-32 CAST IRON BASE AND COVER (NOT APPROVED FOR ROADWAY AREA).
   C) APPROVED EQUAL.
2. METER SETTER (INCLUDING INLET RISER VALVE AND DOUBLE CHECK VALVE ON OUTLET).
   A) FORD VBHH 72-15-WD.
   B) APPROVED EQUAL.
3. METER SETTER EXTENDER OR RISER
   A) NOT ALLOWED UNLESS APPROVED BY THE UTILITY DIRECTOR.
4. CORPORATION STOP
   A) MUELLER MODEL H-15000
   B) FORD MODEL F-600
   C) APPROVED EQUAL.
5. U-BRANCH
   A) FORD MODEL U28-43
   B) MUELLER MODEL H 15362
   C) APPROVED EQUAL
6. SERVICE SADDLES (FOR PVC PIPE)
   A) FORD MODEL FS 202 AND FC 202 WITH STAINLESS STEEL BAND AND BOLTS.
   B) APPROVED EQUAL.



AUTOMATIC AIR RELEASE ASSEMBLY

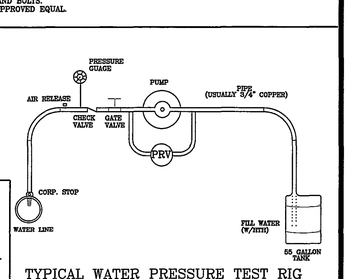


WATER LINE VALVE INSTALLATION

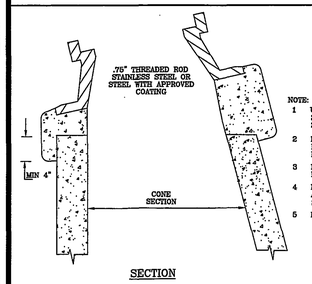


PERMANENT END OF LINE

NOTES:
(1) MAIN BODY OF HYDRANT MUST BE SILVER AND HAVE RED CAPS AND BONNET.
(2) DISTANCE "A" WITH CURB AND GUTTER, 5' MIN., 4' MAX. FROM BACK OF CURB.
(3) DISTANCE "A" WITHOUT CURB AND CUTTER, 6' MIN., 12' MAX. FROM EDGE OF PAVEMENT.
(4) AREA AROUND HYDRANT AT A RADIUS OF 4' TO BE APPROXIMATELY LEVEL AND UNOBSTRUCTED.



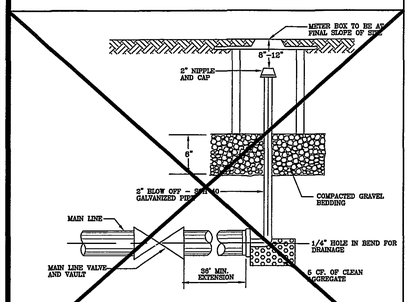
TYPICAL WATER PRESSURE TEST RIG



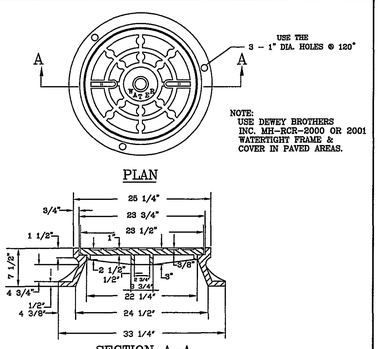
SECTION

NOTE:
1 USE MODERATELY STIF 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 FOR GRADE CONTROL.
4 DO NOT BACKFILL AROUND FRAME AND COVER, FOR 48 HOURS AFTER CON. IS PLACED. THE USE OF HIGHEARLY STRENGTH CONCRETE WOULD REDUCE TIME TO (24HRS).
5 RESTRICT TRAFFIC LOAD FOR MIN. 24 HOURS.

INSTALLATION DETAIL FOR ALL FRAMES AND COVERS

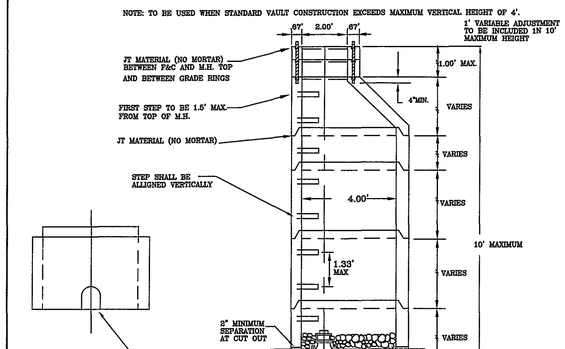


BLOW OFF ASSEMBLY FOR MAIN LINE TEMPORARY TERMINATION

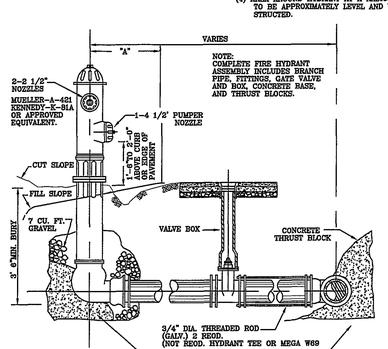


1 C7 C15 MANHOLE FRAME AND COVER

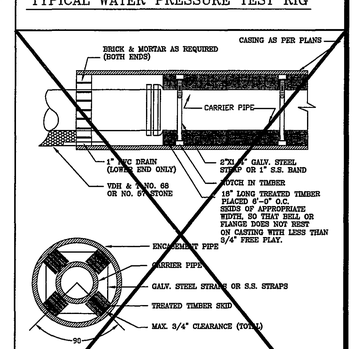
PAVED 2001EC
UNPAVED 2001(ABOVE)



2 C15 C15 ALTERNATE VALVE VAULT (MANHOLE)



3 C7 C15 FIRE HYDRANT ASSEMBLY



PIPE SUPPORT IN CASING PIPE

MENU

CADD VERSION	2006
PLOT SCALE	.
PLOT DATE	May 02, 2006
COMM NO.	
DRAWING NO.	C15

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DEPARTMENT OF ENGINEERING AND INSPECTIONS

NO.	REVISIONS	DATE
1		05-22-95
2		
3		
4		
5		
6		

COUNTY OF ROANOKE

DATE:	03-22-95
SCALE:	NOT TO SCALE
DRAWING BY:	A.M.F.
DESIGNED BY:	
APPROVED BY:	

WATER DETAILS

SHEET 16 OF 19

APPROVED:

COUNTY ENGINEER _____ DATE

COUNTY PLANNER _____ DATE

KEYPLAN

Draper Aden Associates
Engineering • Surveying • Environmental Services
2206 South Main Street, Blacksburg, VA 24060, 540-552-0444 Fax: 540-552-0291
Richmond, VA, Charlottesville, VA, Hampton Roads, VA

PROJECT TITLE

COX COMMUNICATIONS RENOVATIONS AND ADDITIONS

COX COMMUNICATIONS ROANOKE COUNTY, VIRGINIA

SFCS Inc. ▪ 305 South Jefferson Street
Roanoke, Virginia 24011.2003
540.344.6664 ▪ Fax 540.343.6925
www.sfcs.com

PROJECT DESIGNER	:
PROJECT ARCHITECT	:
PROJECT ENGINEER	: STEVEN P. SOUPIR, P.E.
DESIGNED BY	: SPS
DRAWN BY	: SPS
CHECKED BY	: CAH

NO.	REVISION DESCRIPTION	DATE
	CONSTRUCTION DRAWING SUBMITTAL	3/14/06
	COUNTY COMMENT REVISIONS	4/06/06
	COUNTY COMMENT REVISIONS	5/01/06

DRAWING TITLE

ROANOKE COUNTY WATER DETAILS

COMM. NO.	DATE
5515.00	MARCH 14, 2006
DRAWING C15	SHEET 16 OF 19