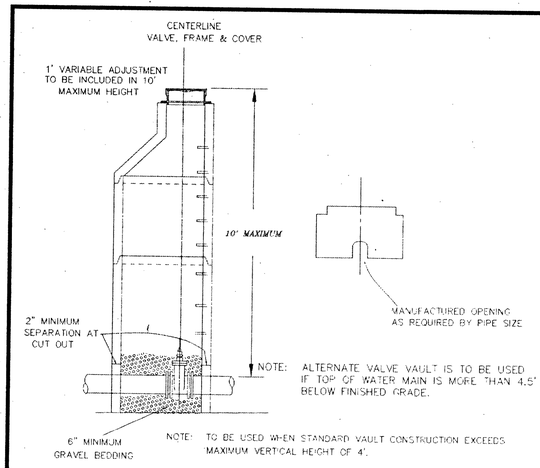
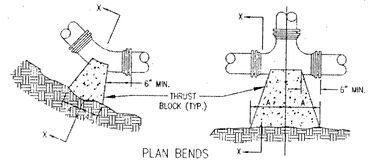
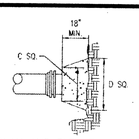


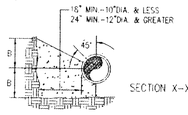

ALTERNATE VALVE VAULT (MANHOLE)




PLAN BENDS

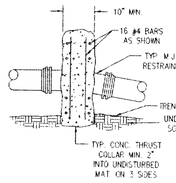



PLAN AND ELEVATION PLUGS




SECTION X-X

BENDS AND TEES



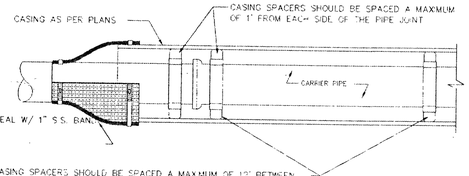

SECTION OF VERTICAL BEND

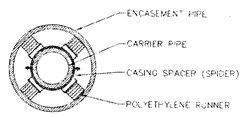
NOTES:
1. FOR VERT. BEND DOWN IN EXCESS OF 1:25", ANCHORAGE SHALL BE RECOMMENDED BY ENGINEER.
2. FOR VERT. BEND UPWARD, BLOCKING TO BE SIMILAR TO THAT FOR HORIZ. BEND.
3. GLANDS & BOLTS SHALL BE PROTECTED FROM CONC. WHEN POURING THRUST BLOCKS.
4. ALL THRUST BLOCK & SUPPORT CONC. SHALL BE CLASS B.
5. 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 psi
FACTOR OF SAFETY = 1.5

| PIPE SIZE | 90° BEND | | 45° BEND | | 22 1/2° BEND | | 11 1/4° BEND | | TEE | | | PLUG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | A | B | A | B | A | B | A | B | C | D |
| 4" | 8" | 12" | 8" | 8" | 6" | 6" | 6" | 6" | 11" | 9" | 10" | 6" |
| 6" | 18" | 12" | 8" | 10" | 8" | 8" | 8" | 6" | 11" | 10" | 12" | 18" |
| 8" | 18" | 13" | 10" | 10" | 8" | 8" | 8" | 5" | 11" | 12" | 12" | 24" |
| 10" | 20" | 16" | 12" | 14" | 8" | 12" | 8" | 7" | 14" | 15" | 16" | 30" |
| 12" | 20" | 16" | 12" | 14" | 8" | 12" | 8" | 7" | 14" | 16" | 16" | 30" |
| 16" | 28" | 20" | 16" | 18" | 11" | 13" | 11" | 13" | 18" | 20" | 20" | 36" |
| 24" | 82" | 42" | 42" | 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




ALTERNATE PIPE SUPPORT IN CASING PIPE:
18" LONG TREATED TIMBER SKIDS OF APPROPRIATE WIDTH SO THAT BELLS OR FLANGES DO NOT REST ON CASING WITH MORE THAN 3/4" FREE PLAY. SKIDS TO BE PLACED AT 4'-0" O.C. AND SECURED WITH 2"x 1/4" GALV. STEEL STRAPS OR 1" S.S. BANDS. SOAP-BASED LUBRICANT MAY BE USED FOR SLIDING OF SKID WITH DUCTILE IRON PIPE AND FLAX-BASED LUBRICANT MAY BE USED FOR SLIDING OF SKID WITH PVC PIPE.

NOTE: A 1" DRAIN WILL BE REQUIRED ON THE LOWER END OF THE CASING IF THE CASING ENDS ARE SEALED WITH MORTER AND BRICK.

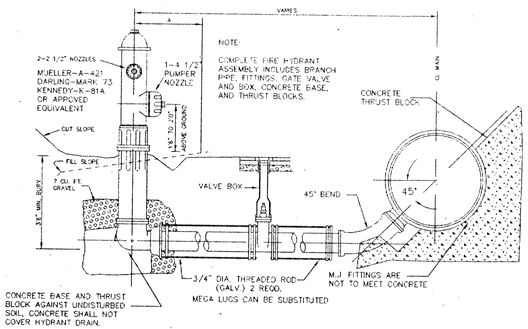
PIPE SUPPORTS IN CASING PIPE

NOTES:
(1) MAIN BODY OF HYDRANT MUST BE SILVER AND HAVE RED CAPS AND BONNET.

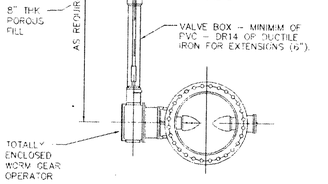
(2) DISTANCE "A" WITH CURB AND GUTTER, 2' MIN., 4' MAX. FROM BACK OF CURB.

(3) DISTANCE "A" WITHOUT CURB AND GUTTER, 6' MIN., 12' MAX. FROM EDGE OF PAVEMENT.

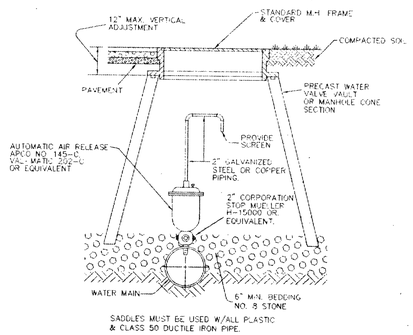
(4) AREA AROUND HYDRANT AT A RADIUS OF 4' TO BE APPROXIMATELY LEVEL AND UNOBSTRUCTED FOR ROAD CONSTRUCTION.




FIRE HYDRANT ASSEMBLY

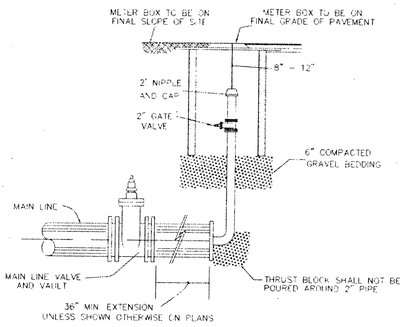



BURIED BUTTERFLY VALVE (BFV)

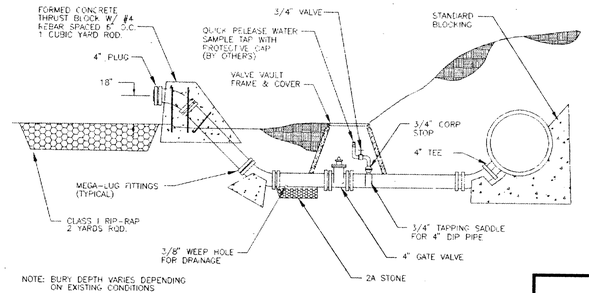



SADDLES MUST BE USED W/ALL PLASTIC & CLASS 50 DUCTILE IRON PIPE.

AUTOMATIC AIR RELEASE ASSEMBLY




BLOW OFF ASSEMBLY
TEMPORARY TERMINATION

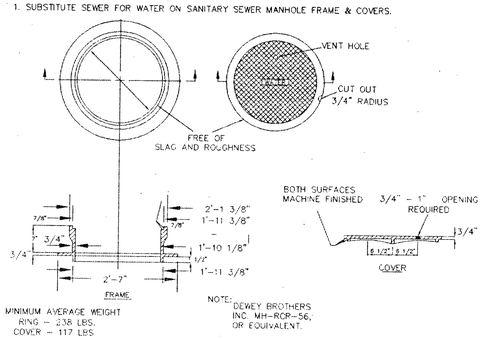



NOTE: BURY DEPTH VARIES DEPENDING ON EXISTING CONDITIONS

NOTES:
1. INSTALL FLUSH TYPE BLOW OFF WITH A SAMPLING TAP WHERE SPECIFICALLY CALLED OUT ON CONSTRUCTION DRAWINGS. WHERE NO SAMPLING TAP IS SPECIFIED OMIT 1" SAMPLING TAP AND ALL ASSOCIATED APPURTENANCES. IN ALL OTHER INSTANCES THE STANDARD BLOW OFF DETAIL SHOULD BE USED FOR CONSTRUCTION OF BLOW OFF ASSEMBLY.
2. SAMPLING TAP SHALL BE CONSTRUCTED USING GUIDELINES AS SET FORTH IN THE ROANOKE COUNTY PLUMBING STANDARDS.

FLUSH TYPE BLOW OFF

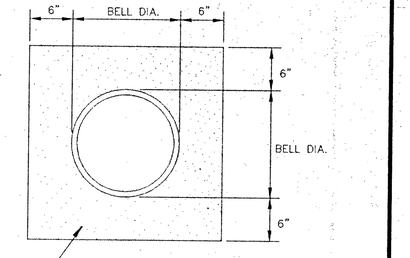
NOTE:
1. SUBSTITUTE SEWER FOR WATER ON SANITARY SEWER MANHOLE FRAME & COVERS.



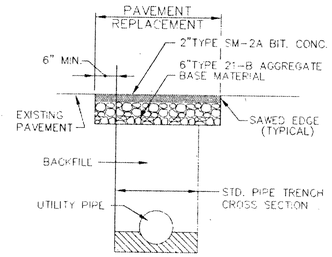

MINIMUM AVERAGE WEIGHT
RING - 238 LBS.
COVER - 117 LBS

NOTE: DEWEY BROTHERS INC. MH-RCR-56, OR EQUIVALENT.

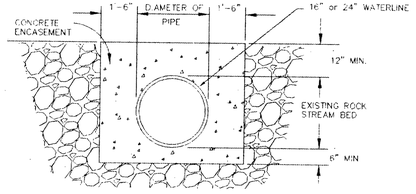
MANHOLE FRAME AND COVER



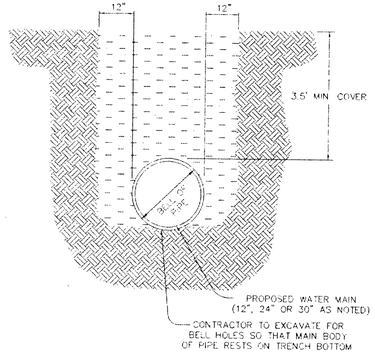

CONCRETE ENCASED PIPE




PAVEMENT REPLACEMENT




STREAM CROSSING DETAIL




WATER MAIN INSTALLATION

VAULT AND 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 6" 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. MH - RCR - 56.
   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 EXCEPT FOR ROAD CONSTRUCTION.

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-WO.
   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-1500
   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.

AS-BUILT
08-12-97

WATER DETAILS
FOR
NORTH LOOP WATER TRANSMISSION MAIN
PHASE 2
FOR
THE COUNTY OF ROANOKE
SITUATE CATAWBA MAGISTERIAL DISTRICT
COUNTY OF ROANOKE, VIRGINIA

SCALE: AS SHOWN
DATE: JULY 9, 1996

DESIGNED BY
DRAWN BY
CHECKED BY
W.O. # 92-1077
N.B.
TAX NO.

TPP&S
ENGINEERS
SURVEYORS
PLANNERS

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