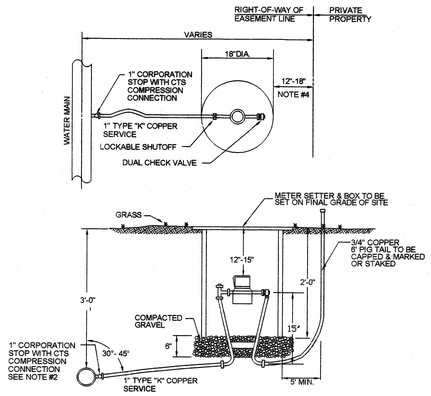
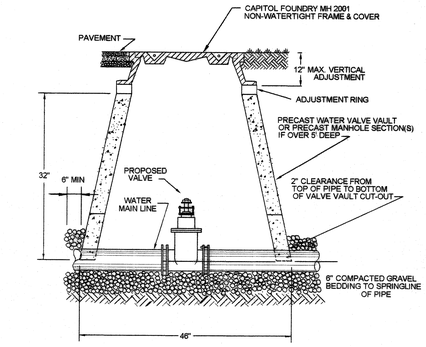
1. SETTER TO BE A.Y. McDONALD #26-215 WDLL-33, FORD VBHH72-15N-1133 OR APPROVED EQUAL.
2. SADDLES MUST BE USED WITH ALL PLASTIC & CLASS 50 DUCTILE IRON PIPE. SERVICE SADDLES SHALL BE USED IN ACCORDANCE WITH SECTION 2665 OF THE WATER STANDARDS. SERVICE SADDLES FOR PLASTIC PIPE SHALL BE: POWERSEAL 3417, OR 3412AS, ROMAC 202S, OR 306, OR FORD METER FS202 OR FS303. FOR DUCTILE IRON PIPE USE THE ABOVE OR POWERSEAL 3413, ROMAC 202 OR FORD METER F202.
3. METER BOX MUST BE MID-STATES PLASTICS, INC., PLASTIC BOX WITH FORD, A52-7 (ELECTRONIC READ LID ) OR A. Y. McDONALD MODEL 74M32C-TC CAST IRON BASE & COVER OR APPROVED EQUAL.
4. WHENEVER SIDEWALK EXISTS OR IS PROPOSED, MODIFY METER LOCATION AS DIRECTED.
5. CORPORATION STOP MUST BE FORD F1000-4-6 OR APPROVED EQUAL.

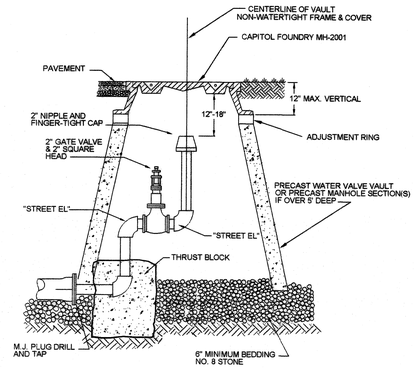



## TYPE "A" SINGLE RESIDENTIAL WATER SERVICE

(LINE PRESSURE UNDER 80 PSI)

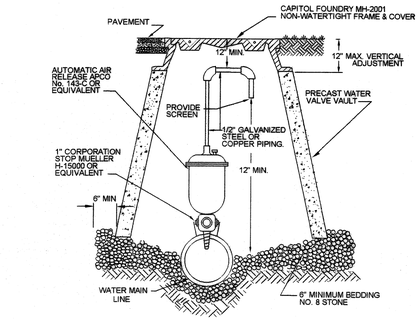



## WATER LINE VALVE INSTALLATION

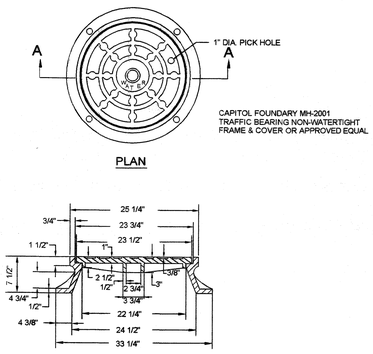



1. FIRE HYDRANT ASSMEBLIES MAY BE USED AS PERMANENT END OF LINES.
2. DETAIL FOR UP TO 6" MAINS, LARGER LINES SEE SEC. 101.10 FOR MIN. FLUSHING VALVE REQUIREMENTS.
3. THE END OF A PIPELINE SHALL NOT TERMINATE IN A PAVED AREA OR UNDER A CONCRETE VALLEY GUTTER.

## PERMANENT END OF LINE

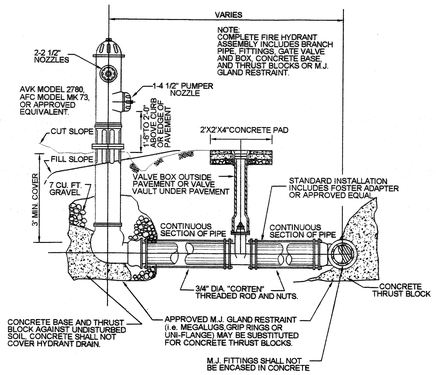



## AUTOMATIC AIR RELEASE ASSEMBLY

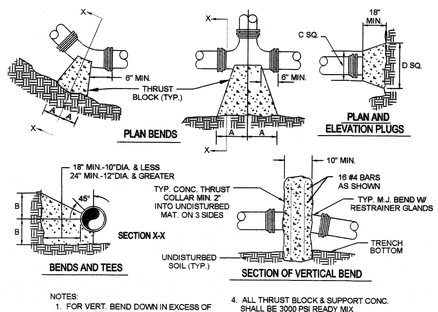



## MANHOLE FRAME AND COVER

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.




## FIRE HYDRANT ASSEMBLY

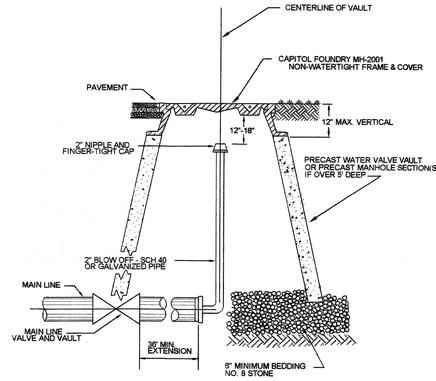



NOTES:
1. FOR VERT. BEND DOWN IN EXCESS OF 11 1/4" BEND, ANCHORAGE SHALL BE DESIGNED BY ENGINEER.
2. FOR VERT. BEND UPWARD, BLOCKING TO BE SIMILAR TO THAT FOR HORIZ. BEND.
3. GLANDS & BOLTS SHALL BE PROTECTED FROM CONC. BY PLASTIC SHEETING WHEN POURING THRUST BLOCKS.
4. ALL THRUST BLOCK & SUPPORT CONC. 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.

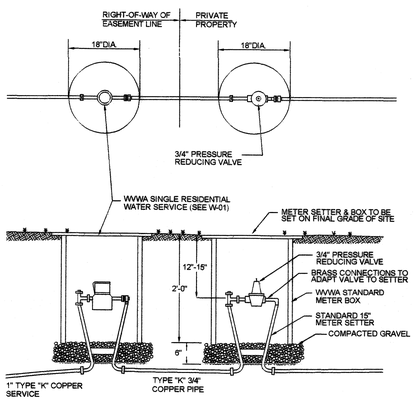
PRESSURE = 200 psi
BEARING = 2000 psf
FACTOR OF SAFETY = 1.5

| PIPE | 90° BEND | | 45° BEND | | 22 1/2° BEND | | 11 1/4° BEND | | TEE | | PLUG | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SIZE | A | B | A | B | A | B | A | B | A | B | C | D |
| 4" | 8" | 12" | 8" | 8" | 8" | 8" | 8" | 8" | 11" | 9" | 10" | 8" |
| 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" | 26" | 20" | 16" | 18" | 11" | 13" | 11" | 13" | 18" | 20" | 20" | 36" |
| 24" | 82" | 42" | 62" | 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




## BLOW-OFF ASSEMBLY FOR MAIN LINE TEMPORARY TERMINIATION




1. THIS CONFIGURATION REQUIRED WHEN WATER PRESSURE AT THE WATER MAIN IS BETWEEN 80 AND 120 PSI.

## TYPE "B" SINGLE RESIDENTIAL WATER SERVICE

(LINE PRESSURE UNDER 80 PSI TO 120 PSI)

LUMSDEN ASSOCIATES, P.C.
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ROANOKE, VIRGINIA
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ROANOKE, VIRGINIA 24018

COMMONWEALTH OF VIRGINIA
27 MAY 05
B. LEE HENDERSON
No. 17591
PROFESSIONAL ENGINEER

# WATER DETAILS

Mason's Crest

SECTION No. 1
MASON'S CREST
PREPARED FOR
RADFORD & COMPANY
CAVE SPRING MAGISTERIAL DISTRICT
ROANOKE COUNTY, VIRGINIA

| REVISIONS | | |
|---|---|---|
| NO. | DATE | DESCRIPTION |
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |

DATE: MAY 27, 2005
SCALE: AS SHOWN
COMMISSION NO: 04-139
SHEET 5 OF 18

WWWA ID# 6KVKBC