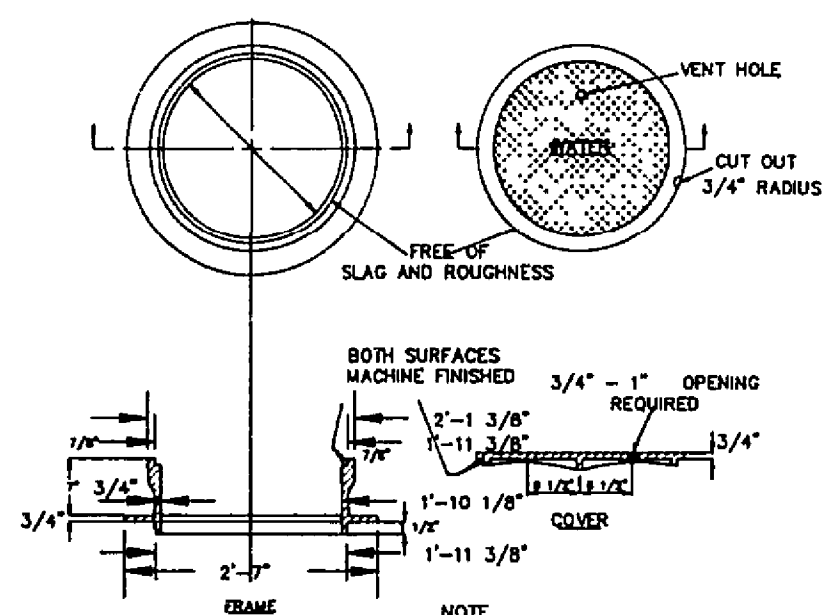
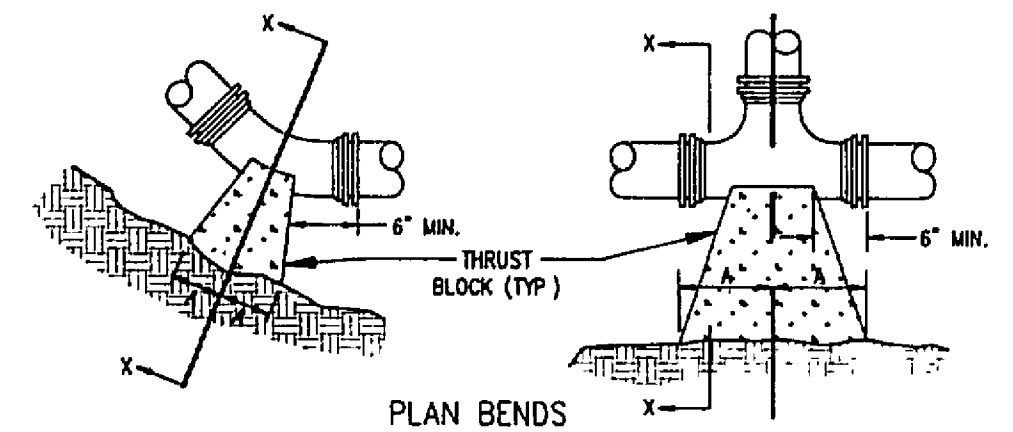


TYPICAL WATER PRESSURE TEST RIG

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

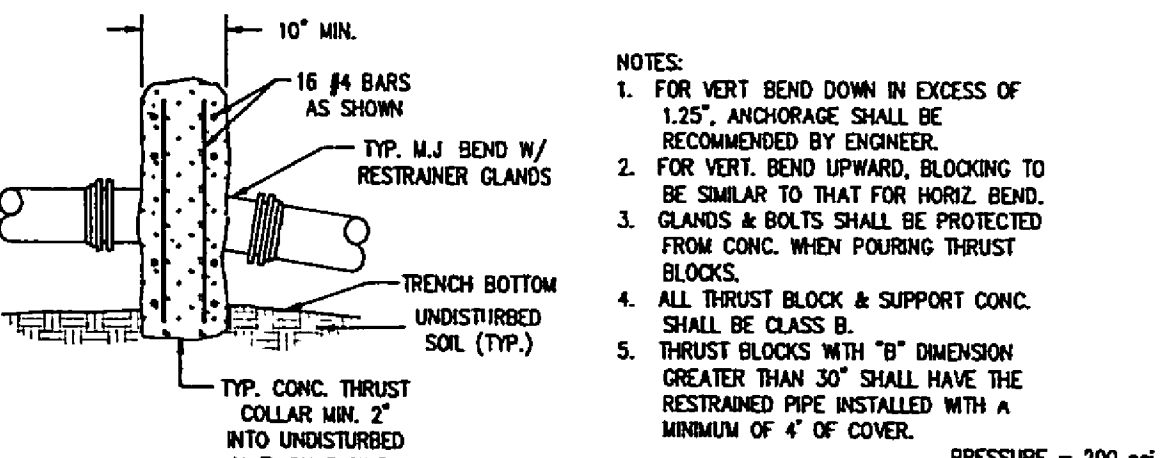


MANHOLE FRAME AND COVER



PLAN AND ELEVATION PLUGS

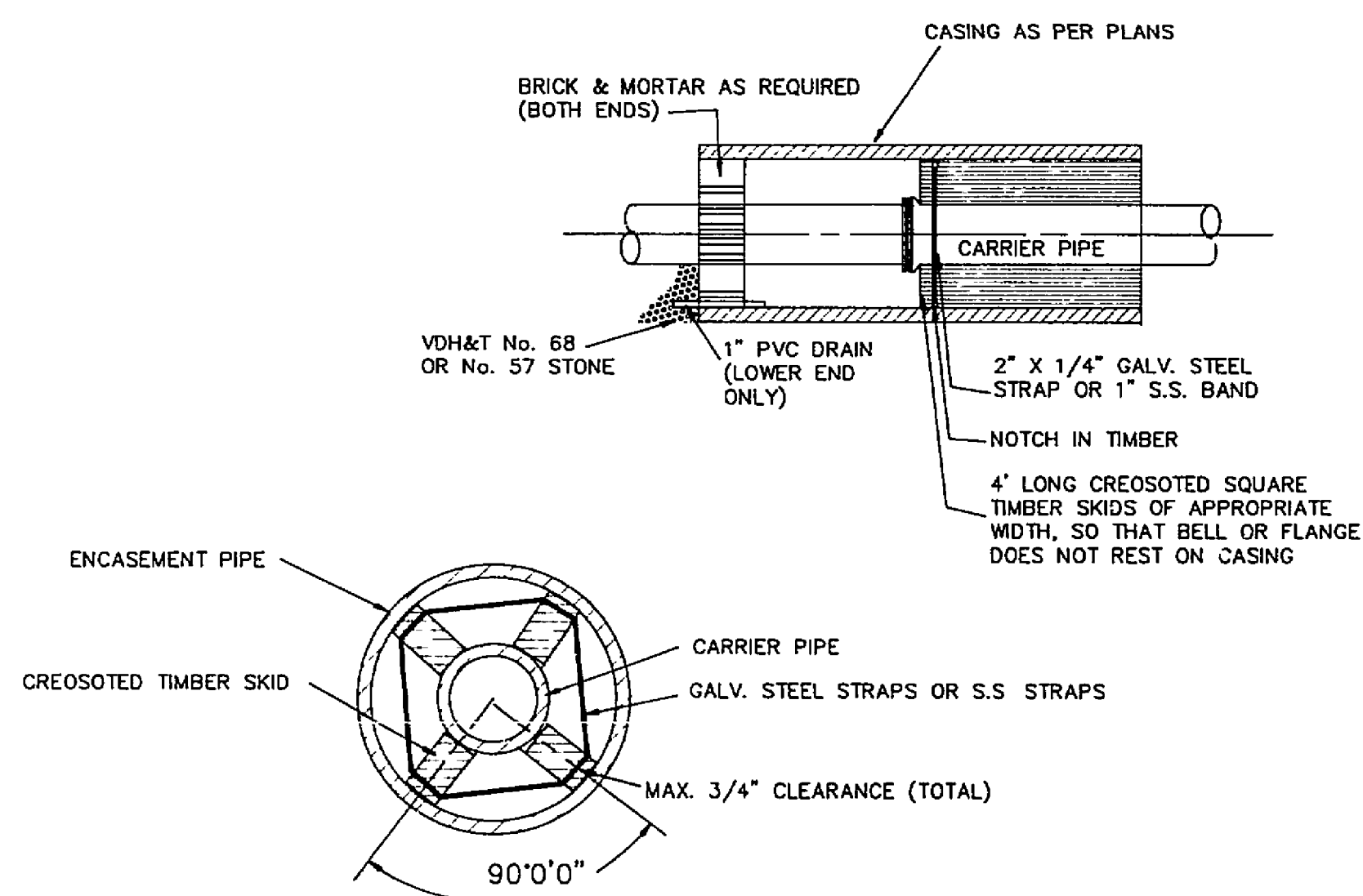
BENDS AND TEES



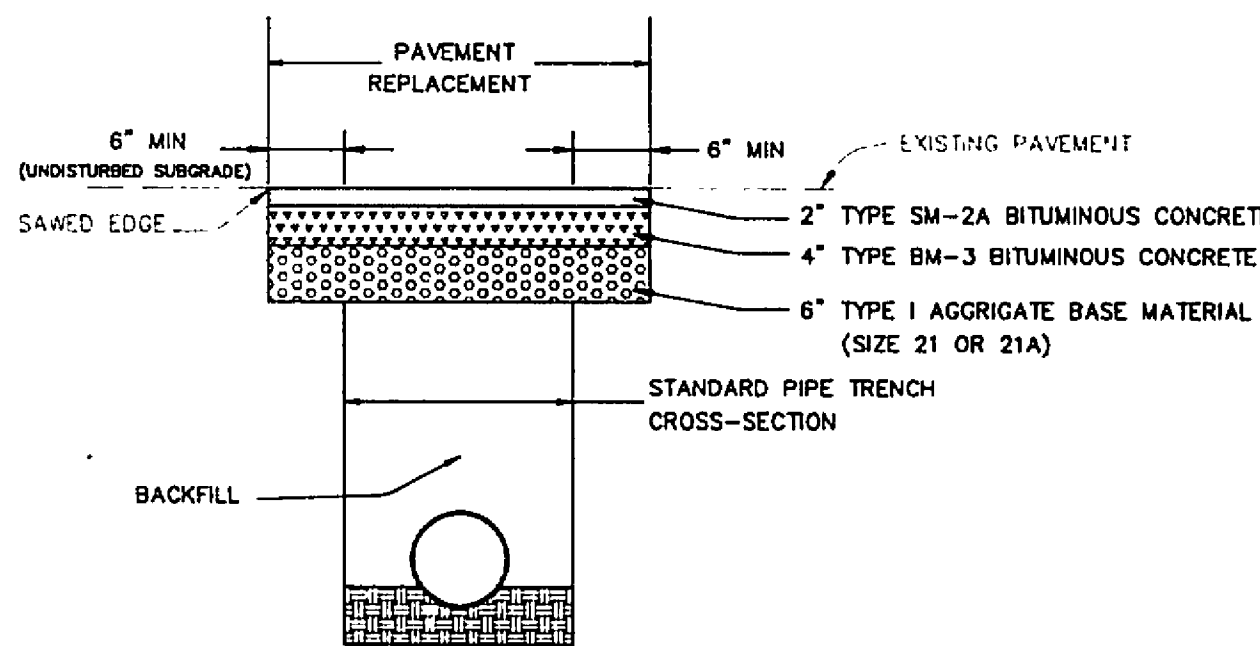
SECTION OF VERTICAL BEND

PIPE SIZE	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	TEE	PLUG
4"	8"	8"	8"	8"	8"	8"
6"	12"	12"	12"	12"	12"	12"
8"	16"	16"	16"	16"	16"	16"
10"	20"	20"	20"	20"	20"	20"
12"	24"	24"	24"	24"	24"	24"
14"	28"	28"	28"	28"	28"	28"
16"	32"	32"	32"	32"	32"	32"
18"	36"	36"	36"	36"	36"	36"
20"	40"	40"	40"	40"	40"	40"
22"	44"	44"	44"	44"	44"	44"
24"	48"	48"	48"	48"	48"	48"
26"	52"	52"	52"	52"	52"	52"
28"	56"	56"	56"	56"	56"	56"
30"	60"	60"	60"	60"	60"	60"

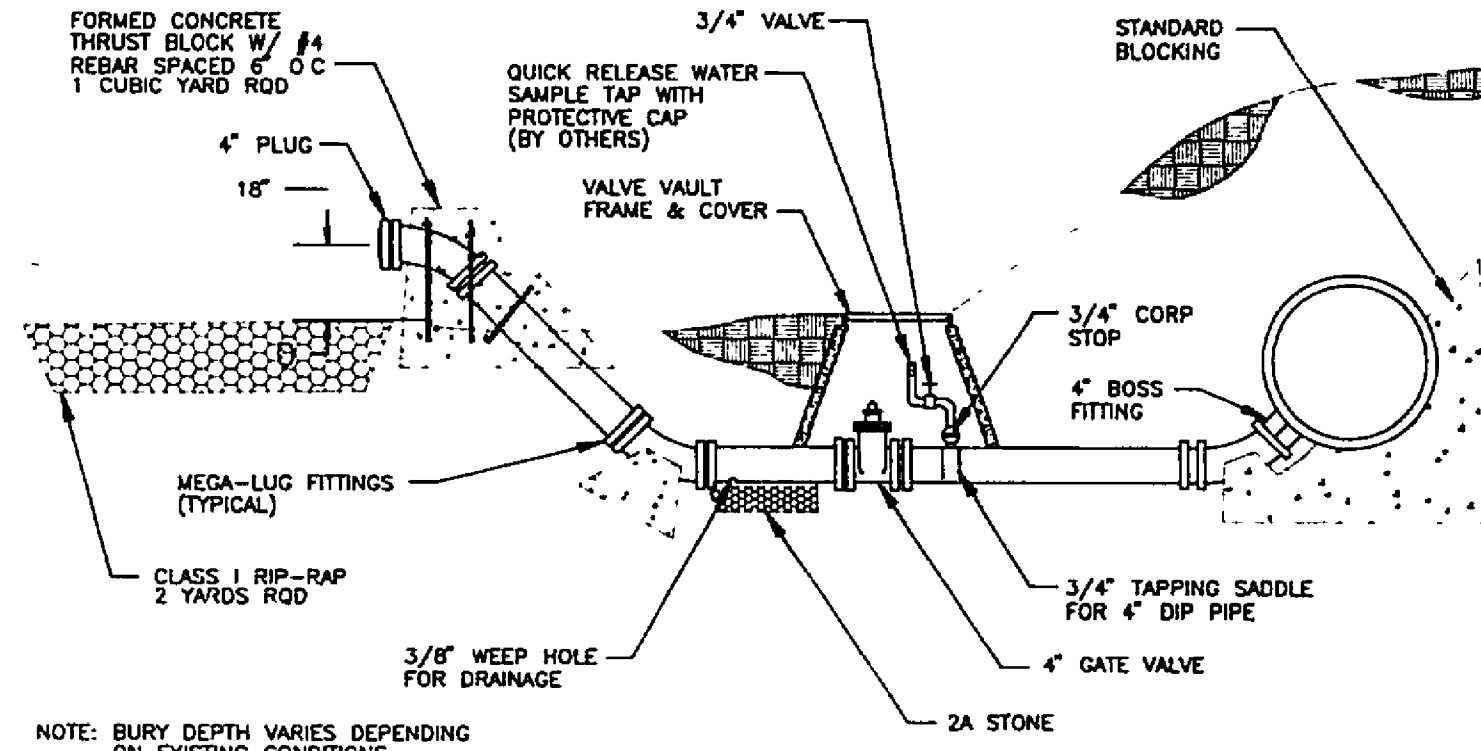
THRUST BLOCK CONSTRUCTION  
NO SCALE



PIPE SUPPORT IN CASING PIPE



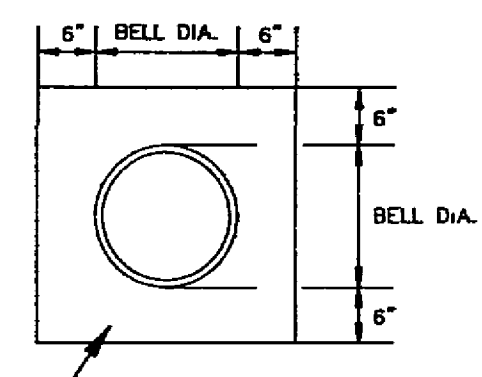
PAVEMENT REPLACEMENT



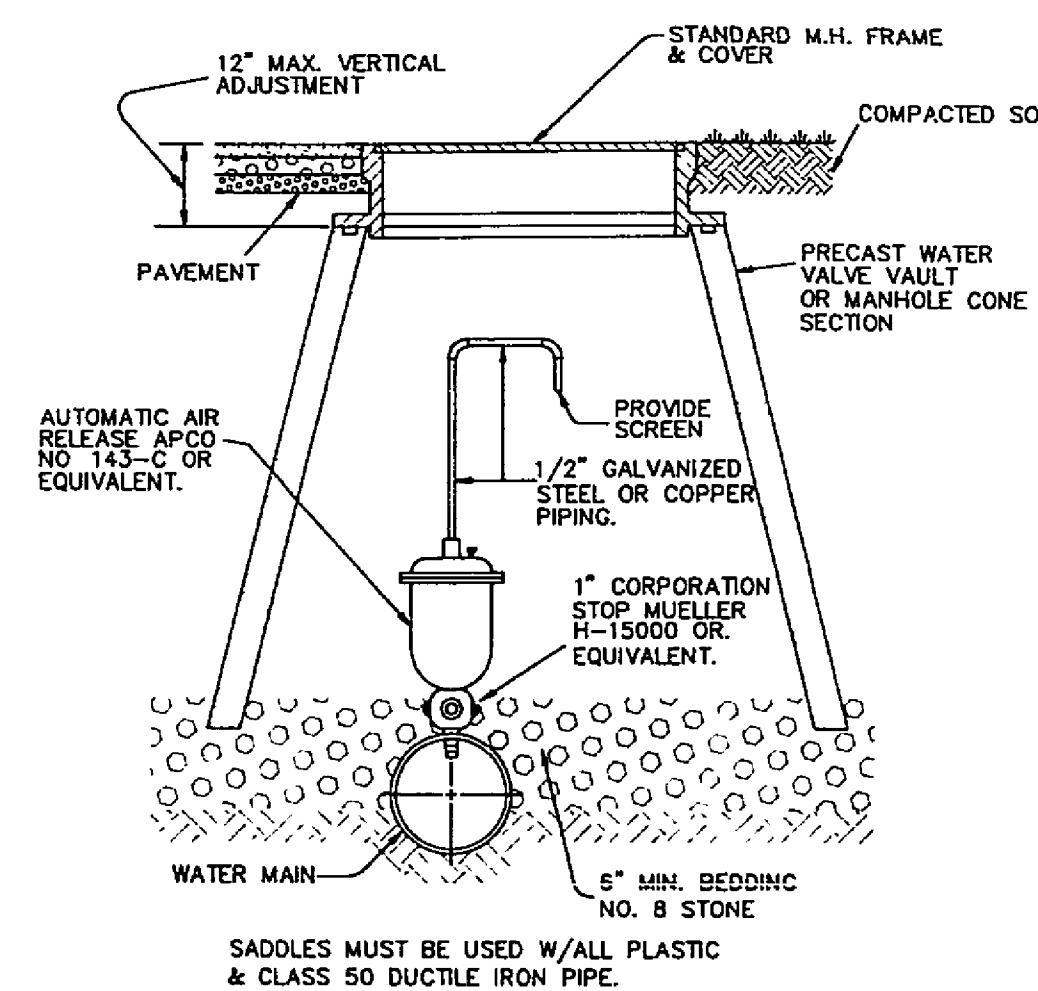
NOTE: BURY DEPTH VARIES DEPENDING ON EXISTING CONDITIONS

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

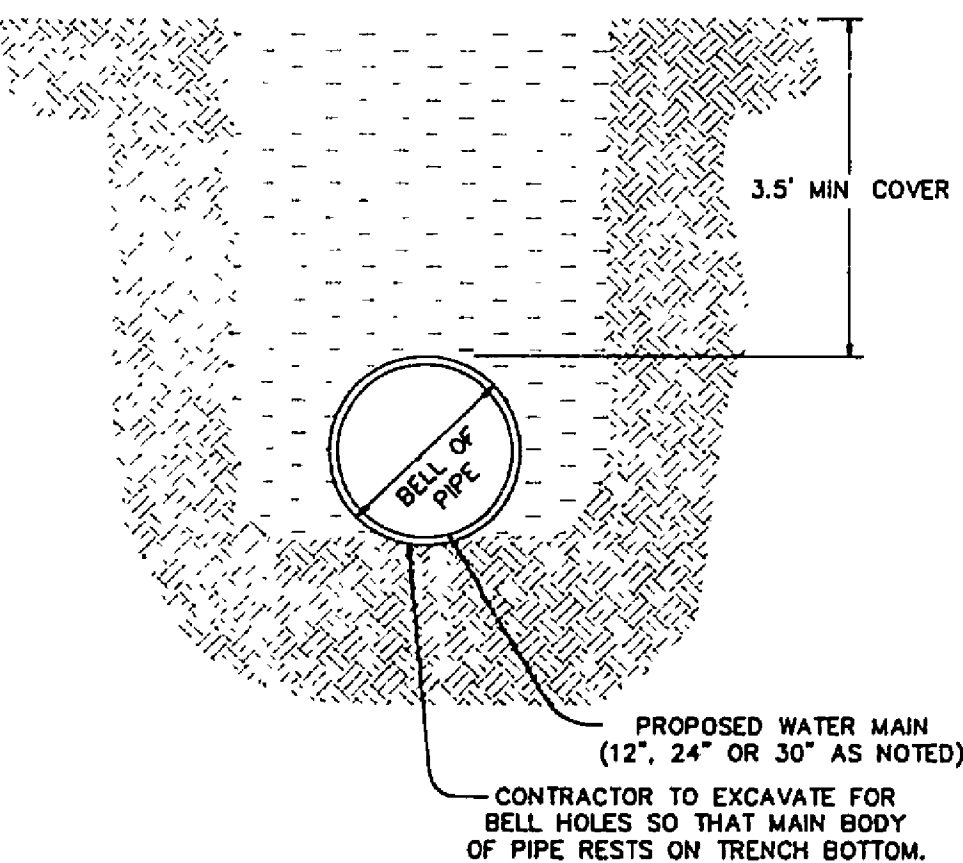


CONCRETE ENCASED PIPE



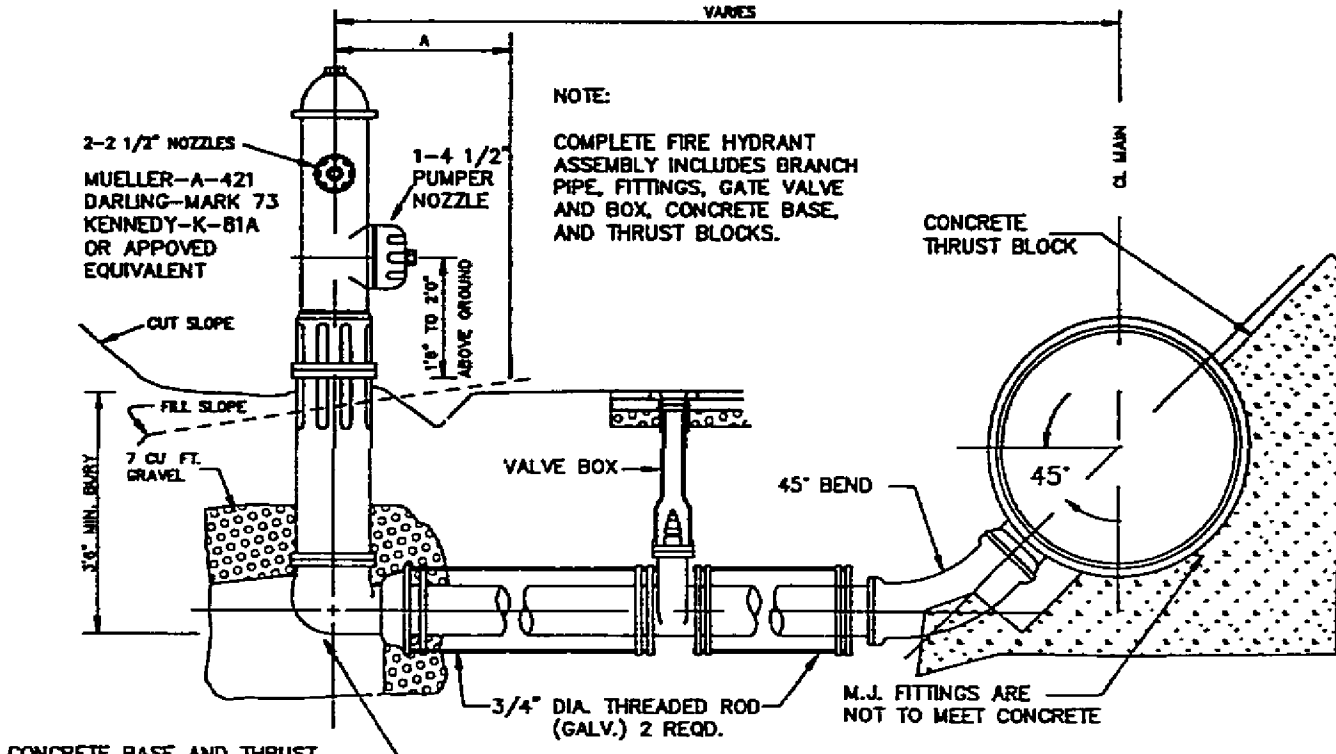
NOTE: FOR FORCEMAIN AIR RELEASE VALVES USE APCO No. 400 OR EQUIVALENT WITH 2" CORPORATION STOP.

AUTOMATIC AIR RELEASE ASSEMBLY

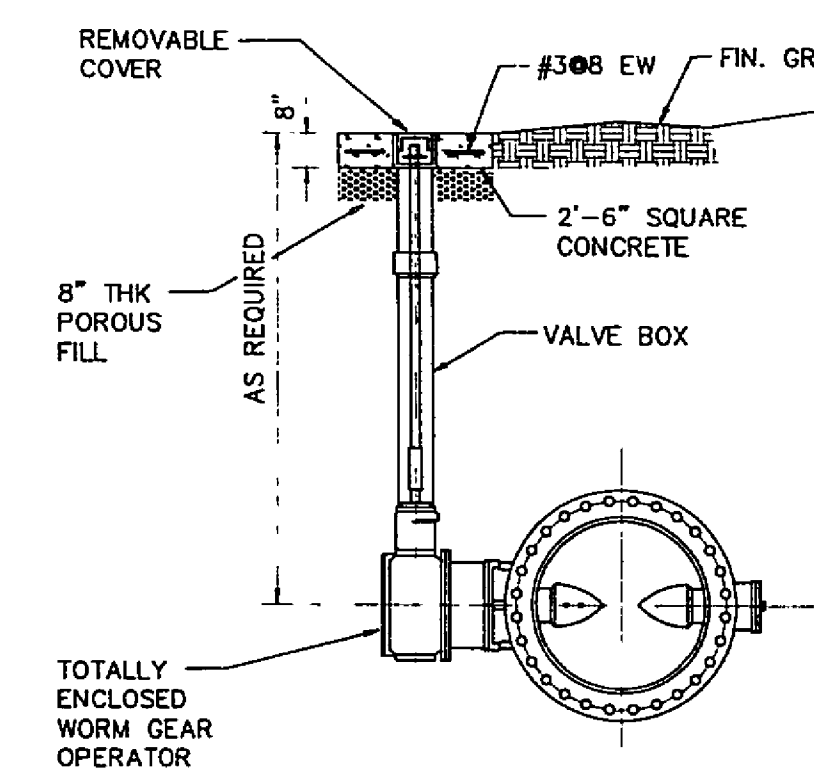


WATER MAIN INSTALLATION

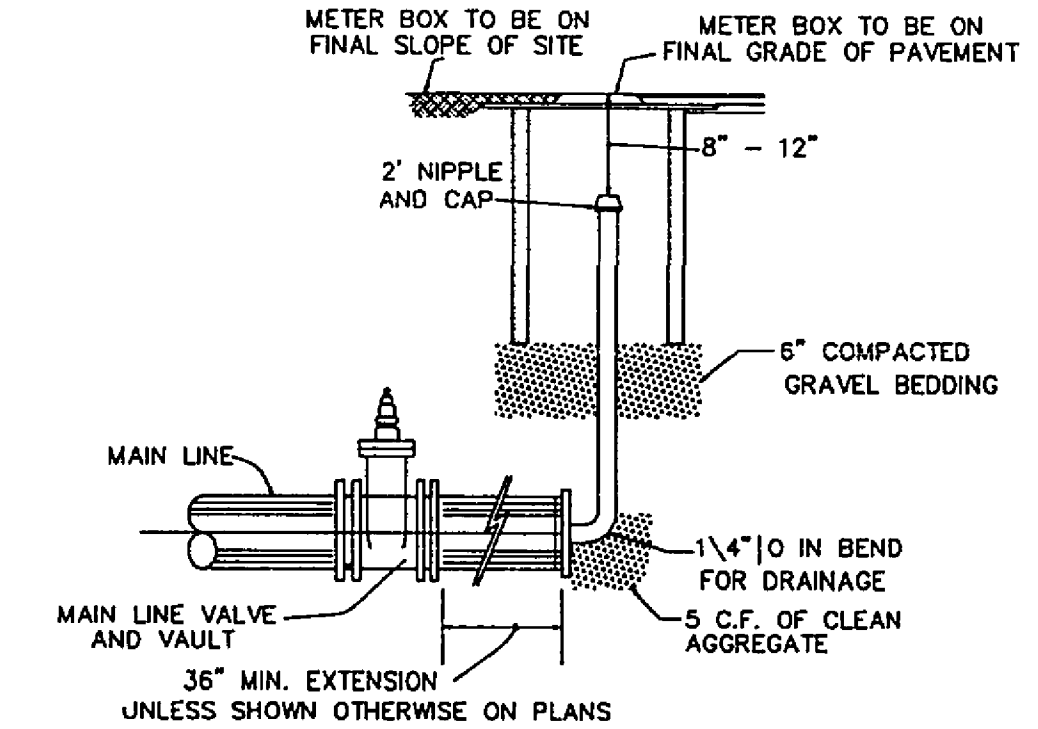
NOTES:  
(1) MAIN BODY OF HYDRANT MUST BE SILVER AND HAVE RED CAPS AND BONNET.  
(2) DISTANCE "A" WITH CURB AND GUTTER, 2" MIN., 4" MAX. FROM BACK OF CURB.  
(3) DISTANCE "A" WITHOUT CURB AND GUTTER, 6" MIN., 12" MAX. FROM EDGE OF PAVEMENT.  
(4) AREA AROUND HYDRANT AT A RADIUS OF 4' TO BE APPROXIMATELY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



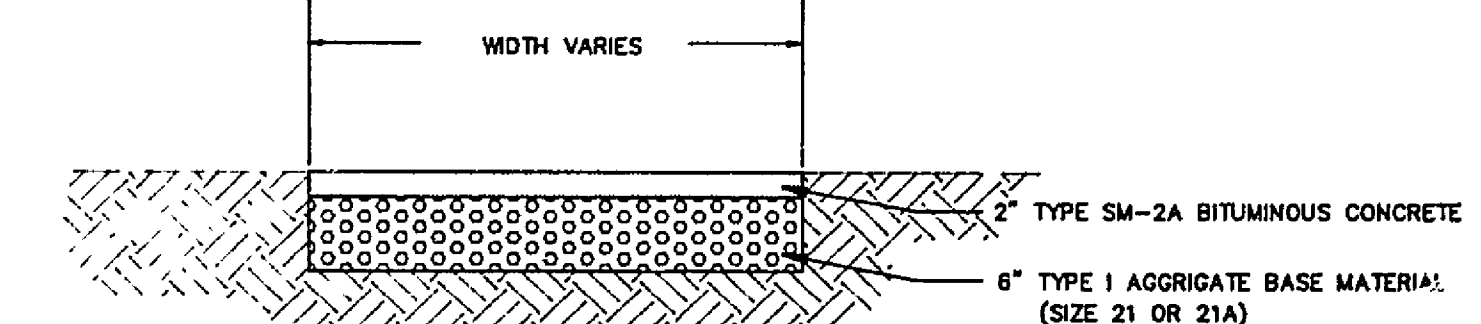
BLOW OFF ASSEMBLY



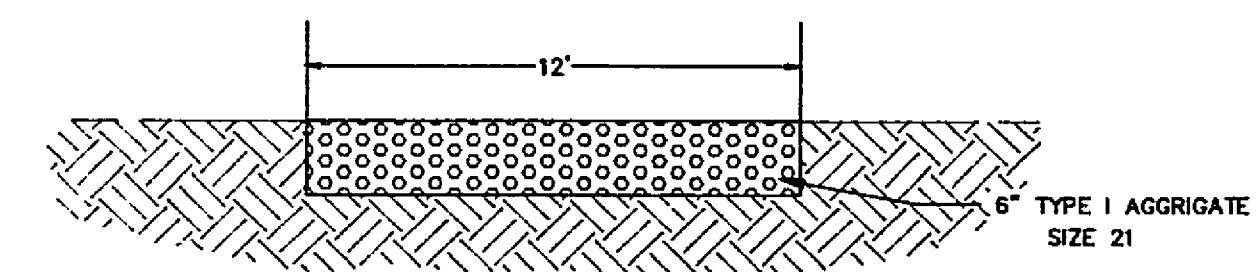
BURIED BUTTERFLY VALVE (BFV)



BLOW OFF ASSEMBLY  
TEMPORARY TERMINATION



DRIVEWAY PAVEMENT DETAIL



GRAVEL DRIVEWAY DETAIL

- 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 CUTTER, ETC.
  5. JOINTS AND OPENINGS IN MANHOLE UNITS SHALL BE MADE WATER TIGHT 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 CONCRETE 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 VEH 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-800  
C) APPROVED EQUAL.
5. U-BRANCH  
A) FORD MODEL U28-43  
B) MUELLER MODEL H 15382  
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		DESCRIPTION	
REVISION	DATE	WATER DETAILS	
DESIGNED - PAM		PHASE 4	
DRAWN - PAM-JNG		SOUTH LOOP TRANSMISSION MAIN	
CHECKED - MSW		PREPARED FOR	
		ROANOKE COUNTY UTILITY DEPARTMENT	
		CAVE SPRING, WINDSOR HILLS, & CATAWBA MAGISTERIAL DISTRICTS	
		ROANOKE COUNTY, VIRGINIA	
LUMSDEN ASSOCIATES, P.C.		SCALE: NONE	COMM: 91-376
ENGINEERS-SURVEYORS-PLANNERS		DATE: 7/9/96	SHEET 18 of 19
ROANOKE, VIRGINIA			

