

VARIES

NOTE: COMPLETE FIRE HYDRANT ASSEMBLY INCLUDES BRANCH PIPE, FITTINGS, GATE VALVE AND BOX, CONCRETE BASE, AND THRUST BLOCKS OR M.J. GLAND RESTRAINT.

2-2 1/2" NOZZLES

AVK MODEL 2780, AFC MODEL MC-3 OR APPROVED EQUIVALENT.

1-4 1/2" PUMPER NOZZLE

1" 6" TO 2" 0" ABOVE GRADE

2"X2"X4" CONCRETE PAD

STANDARD INSTALLATION INCLUDES FOSTER ADAPTER OR APPROVED EQUAL.

CONCRETE THRUST BLOCK

M.J. FITTINGS SHALL NOT BE ENCASED IN CONCRETE

APPROVED M.J. GLAND RESTRAINT (I.E. MEGALUGS, GRIP RINGS OR UNI-FLANGE) MAY BE SUBSTITUTED FOR CONCRETE THRUST BLOCKS.

3/4" DIA. "CORTEN" THREADED ROD AND NUTS.

CONCRETE BASE AND THRUST BLOCK AGAINST UNDISTURBED SOIL. CONCRETE SHALL NOT COVER HYDRANT DRAIN.

7 CU. FT. GRAVEL

3' MIN. COVER

OUT SLOPE

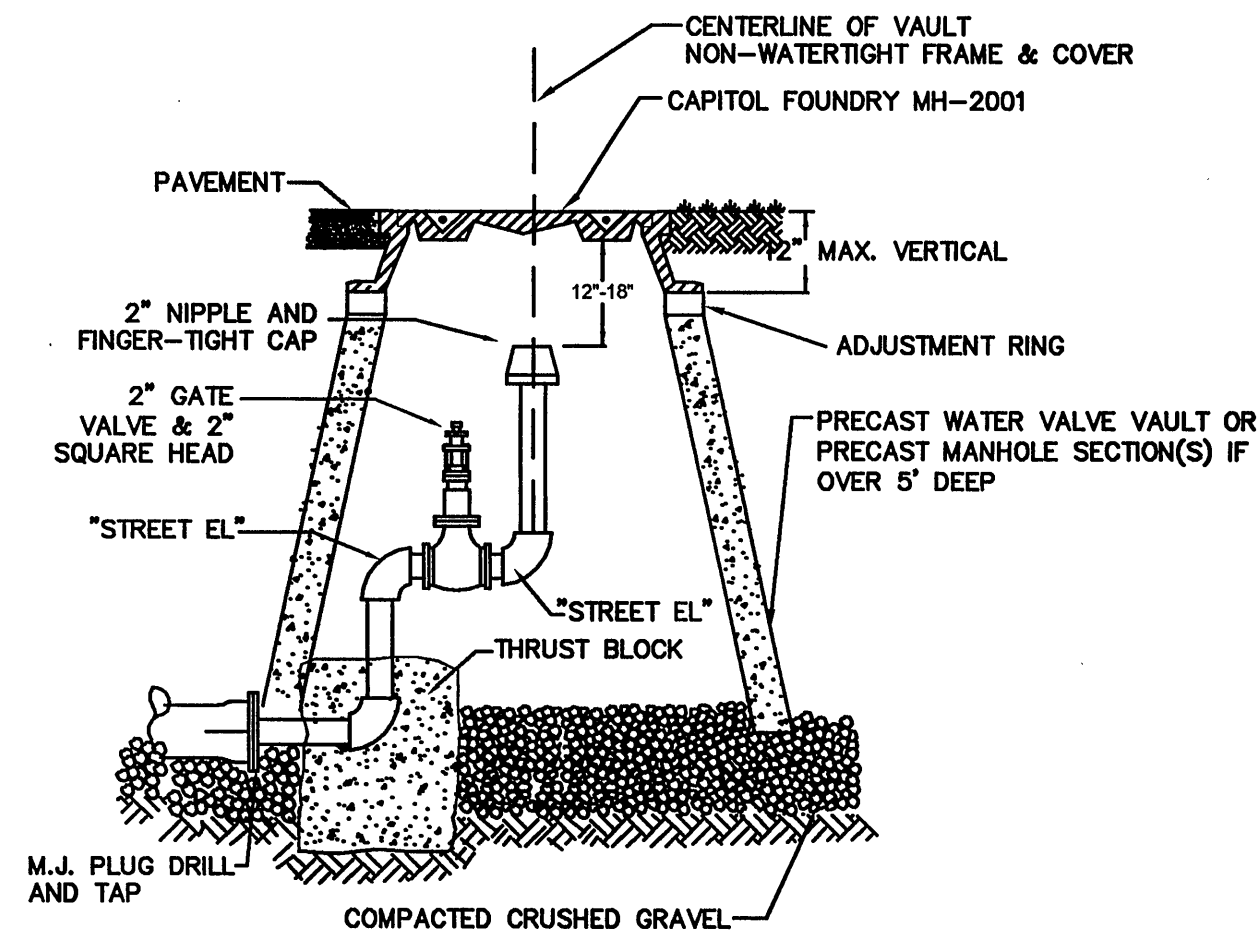
FILL SLOPE

CONTINUOUS SECTION OF PIPE

CONTINUOUS SECTION OF PIPE

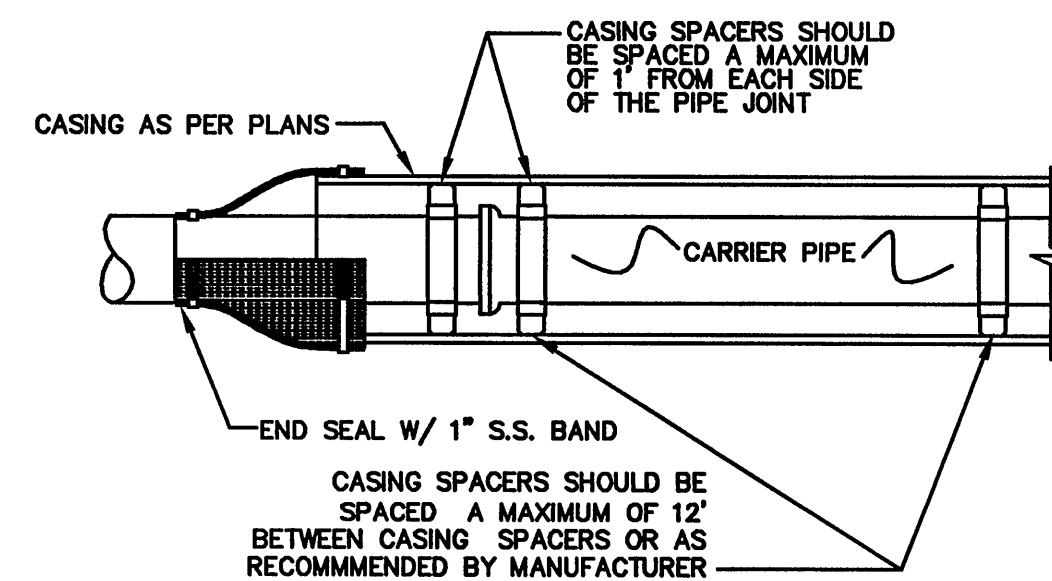
CONCRETE THRUST BLOCK

FIRE HYDRANT ASSEMBLY



1. FIRE HYDRANT ASSEMBLIES MAY BE USED AS PERMANENT END OF LINES.
2. DETAIL FOR UP TO 8" 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.

BLOWOFF ASSEMBLY



PIPE SUPPORT IN CASING PIPE

1. SETTERS TO BE A.Y. McDONALD #20-215 WOLL33, FORD V6H772-15W-1133 OR APPROVED ALIKE.

2. PRESSURE REDUCING VALVE TO BE WATTS 600 OR APPROVED EQUAL.

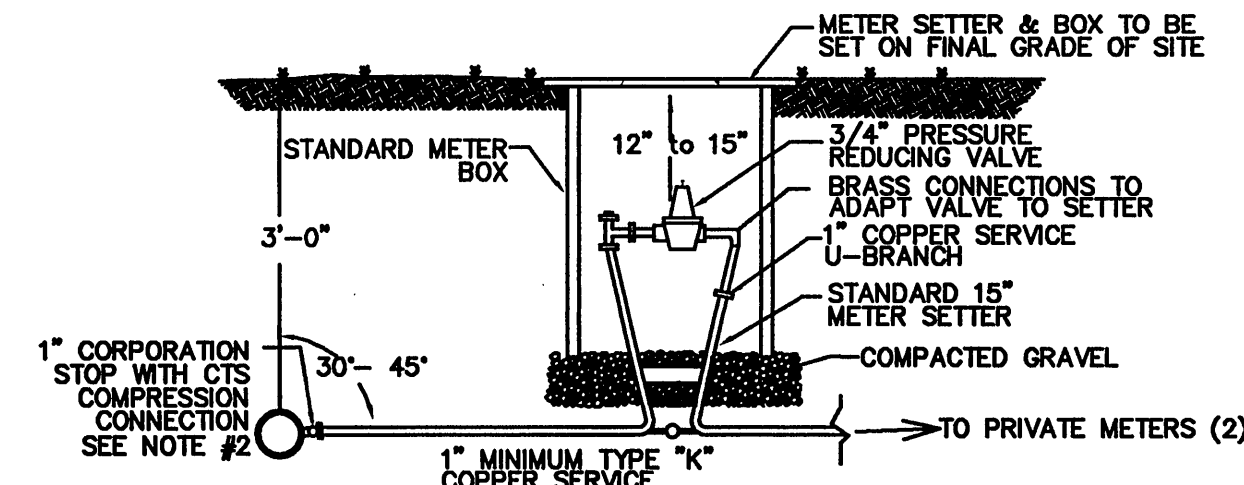
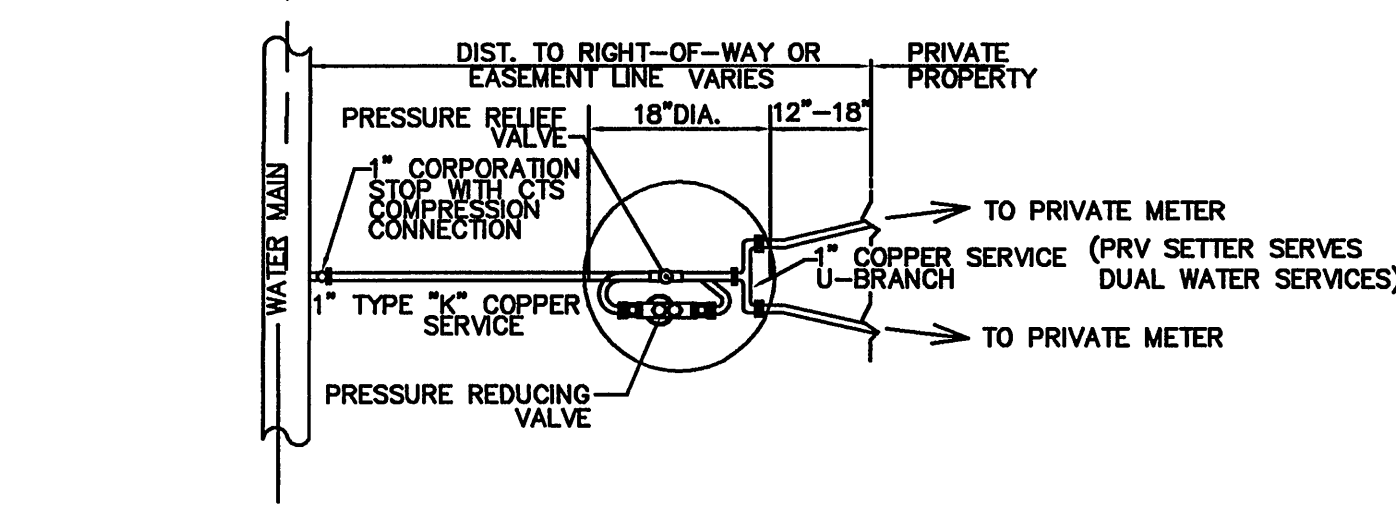
3. 5 BAR TO BE STD-3108A-01 WITH PIPY IN PLASTIC BOX WITH WATTS 600 OR APPROVED EQUAL. PLASTIC BOX MUST BE MID-STATE TYPE OR A.Y. McDONALD MODEL 74M32C-TC CAST IRON BASE & COVER OR APPROVED.

4. PRESSURE REDUCING VALVE TO BE WATTS 600 OR APPROVED EQUAL. PLASTIC BOX MUST BE MID-STATE TYPE OR A.Y. McDONALD MODEL 74M32C-TC CAST IRON BASE & COVER OR APPROVED.

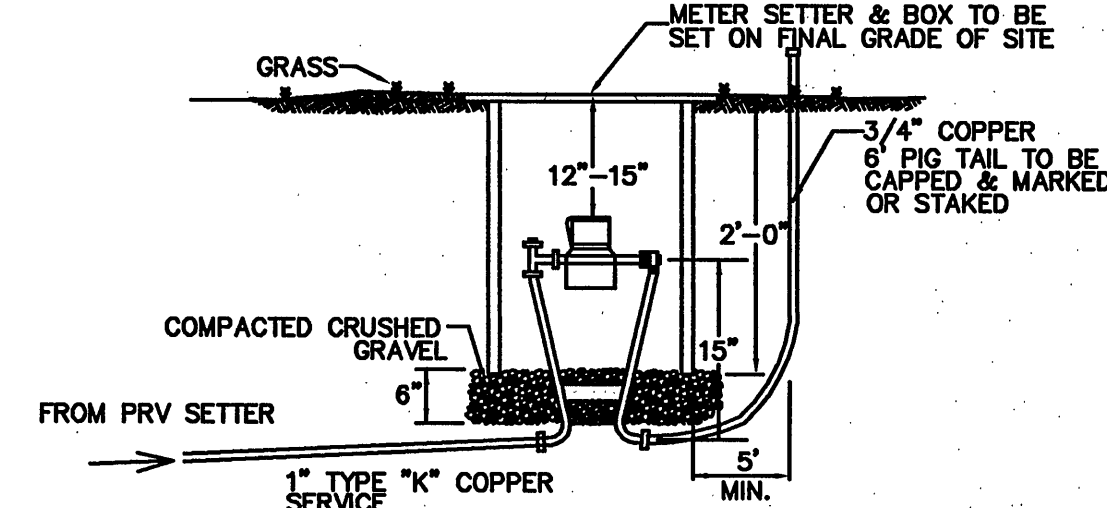
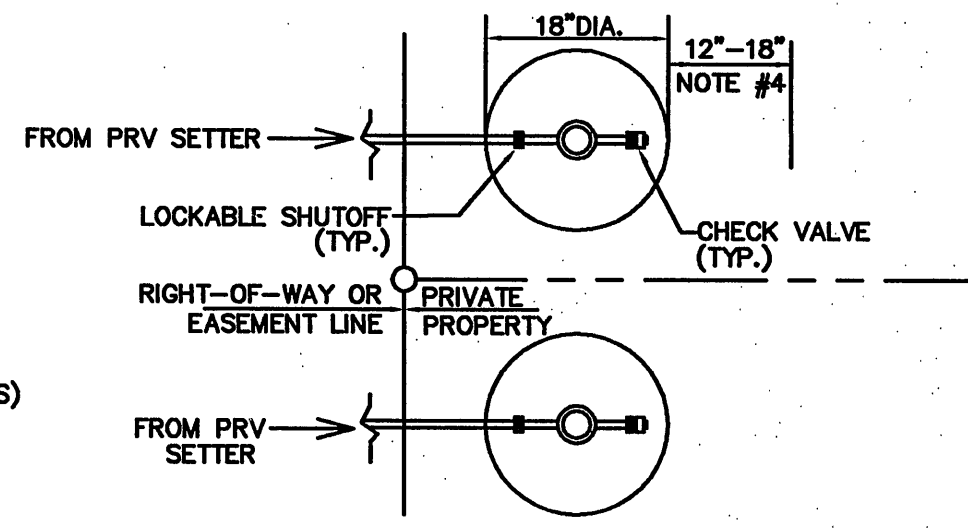
5. THIS SERVICE IS REQUIRED WHEN THE WATER PRESSURE AT THE WATER MAIN EXCEEDS 80 PSI. 6. PRESSURE REDUCING VALVE SHALL SERVICE NO MORE THAN 2 PRIVATE WATER SERVICES.

6. SADDLES MUST BE USED WITH ALL PLASTIC & CLASS 5 DUCTILE IRON PIPE. SERVICE SADDLES SHALL BE USED IN ACCORDANCE WITH SECTION 2668 OF THE WATER STANDARDS SPECIFICATIONS. SADDLES SHALL BE: POWERWALL 3417, OR 3412AS, ROMAC 202S, OR 306, OR FORD METER FS202 OR FS303. FOR DUCTILE IRON PIPE USE THE ABOVE OR POWERWALL 3413, ROMAC 202 OR FORD METER F202.

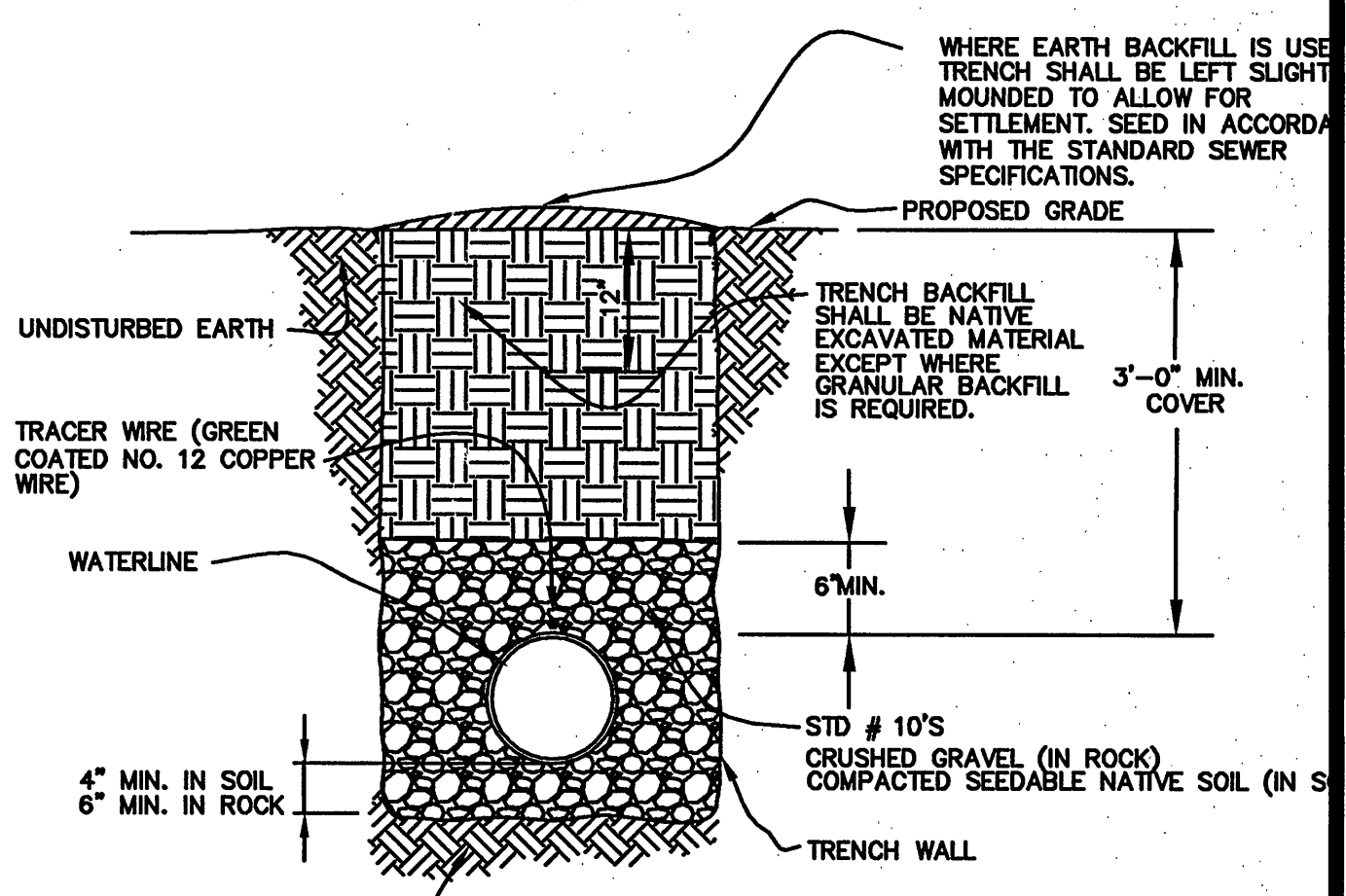
18" DIA



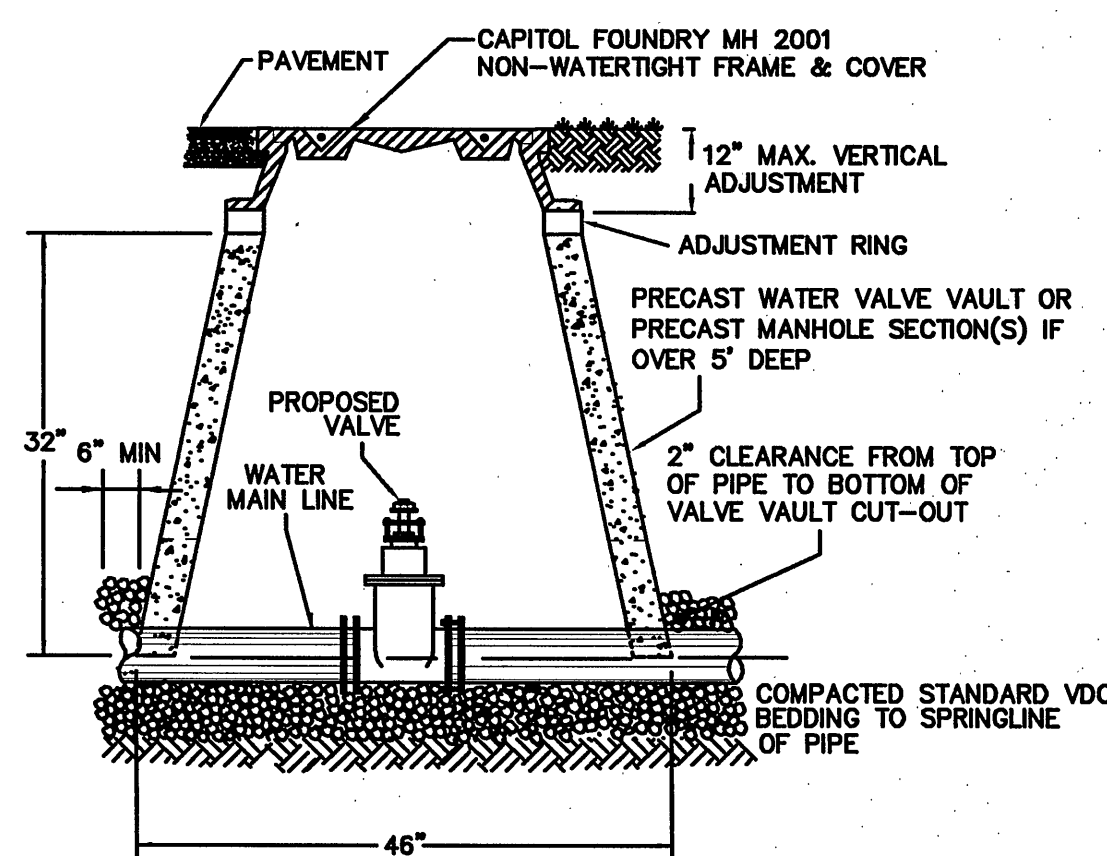
TYPE "C" TANDEM PRESSURE SETTER
FOR DUAL SERVICE
(LINE PRESSURE OVER 80 PSI)



DUAL RESIDENTIAL WATER SERVICE



WATERLINE INSTALLATION



WATERLINE VALVE INSTALLATION

The image contains five technical drawings of thrust block details:

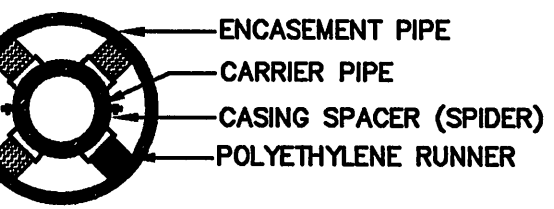
- PLAN BENDS:** Shows a cross-section of a bend in a pipe. The thrust block is a trapezoidal mass of concrete with a minimum width of 6 inches. It is embedded in undisturbed soil. Section lines X-X are indicated.
- PLAN AND ELEVATION PLUGS:** Shows a cross-section of a plug. The thrust block is a trapezoidal mass of concrete with a minimum width of 6 inches. It is embedded in undisturbed soil. Section lines X-X are indicated. The drawing also shows a plan view of the plug with a 18-inch diameter and a 16-inch square (SQ) area.
- SECTION X-X:** Shows a cross-section of a bend. The thrust block is a trapezoidal mass of concrete with a minimum width of 6 inches. It is embedded in undisturbed soil. Section lines X-X are indicated. The drawing also shows a plan view of the bend with a 18-inch diameter and a 16-inch square (SQ) area.
- BENDS AND TEES:** Shows a cross-section of a bend or tee. The thrust block is a trapezoidal mass of concrete with a minimum width of 6 inches. It is embedded in undisturbed soil. Section lines X-X are indicated. The drawing also shows a plan view of the bend with a 18-inch diameter and a 16-inch square (SQ) area.
- SECTION OF VERTICAL BEND:** Shows a cross-section of a vertical bend. The thrust block is a trapezoidal mass of concrete with a minimum width of 6 inches. It is embedded in undisturbed soil. Section lines X-X are indicated. The drawing also shows a plan view of the bend with a 18-inch diameter and a 16-inch square (SQ) area.

1. FOR VERT. BEND DOWN IN EXCESS OF 11 1/4" BEND, ANCHORAGE SHALL BE CONC. 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 THRU BLOCKS.
4. ALL THRUST BLOCKS & SUPPORT CONC. SHALL BE 3000 PSI READY MIX
5. THRUST BLOCKS WITH "B" DIMENSION GREATER THAN 30" SHALL HAVE THE RESTRAINED PIPE INSTALLED WITH A MINIMUM OF 4' COVER.

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

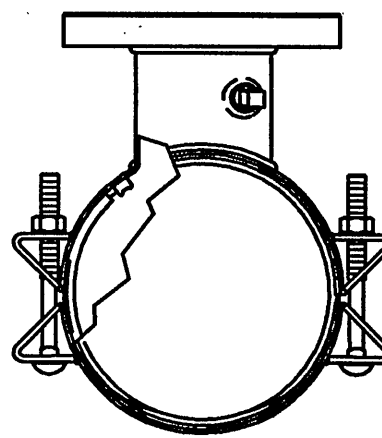
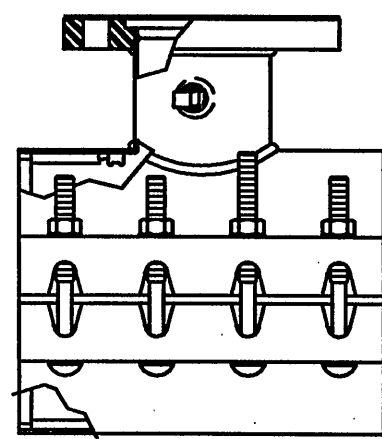
PIPE SIZE	90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND		TEE		PLUG		
	A	B	A	B	A	B	A	B	A	B	C	D	
4" 8	12"	8"	8"	6"	6"	6"	6"	11"	9"	10"	6"	10"	6"
6" 12	18"	12"	8"	10"	8"	8"	8"	11"	11"	12"	8"	12"	8"
8" 18"	13"	10"	10"	8"	8"	8"	8"	8"	8"	12"	12"	12"	12"
10" 20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	16"	30"	
12" 20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	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"		

THRUST BLOCK CONSTRUCTION



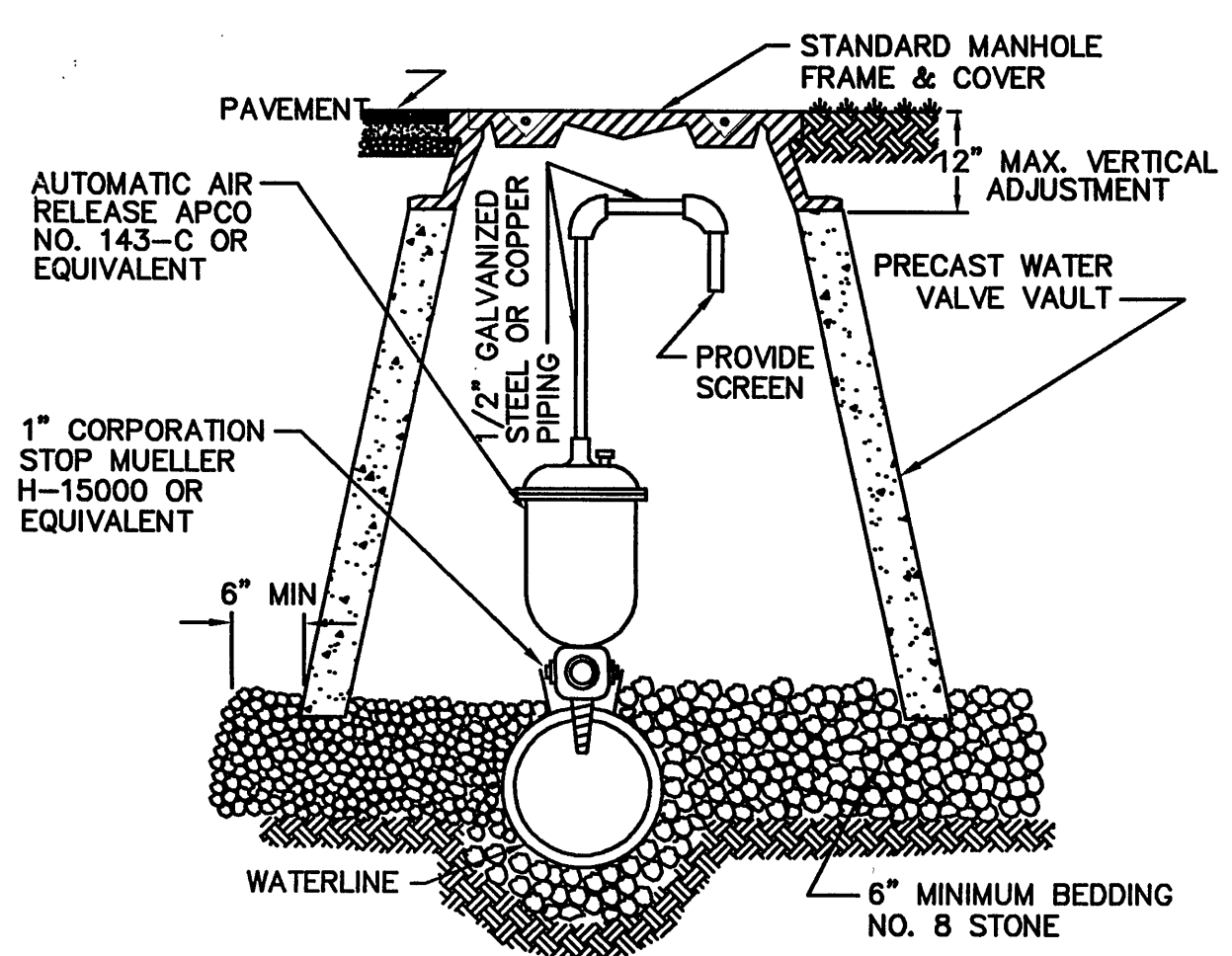
ALTERNATE PIPE SUPPORT IN CASING PIPE: 18" LONG TREATED TIMBER SKIDS OF APPROPRIATE WIDTH SO THAT BELLS OR FLANGES DO NOT REST ON CASING WITH MORE THAN 3/4" FREE PLAY. SKIDS TO BE PLACED AT 4'-0" O.C. AND SECURED WITH 2"x 1/4" GALV. STEEL STRAPS OR 1" S.S. BANDS. SOAP- BASED LUBRICANT MAY BE USED FOR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



1. TAPPING SLEEVE SHALL BE POWERSEAL MODEL 3490 TYPE 304 STAINLESS STEEL WITH CARBON 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.

TAPPING SLEEVE AND VALVE



AUTOMATIC AIR RELEASE ASSEMBLY

FACTOR OF SAFETY = 1.5

PIPE SIZE	PIPE MATERIAL	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	VALVE /PLUG	TEE BRANCH	REDUCER (NOTE 2)	VERT. 45°	VERT. 22 1/2°	VERT. 11 1/4°
6"	D.I.	28'	12'	6'	3'	38'	34'	20'	23'	11'	5'
8"	D.I.	37'	15'	7'	4'	51'	47'	21'	30'	15'	7'
10"	D.I.	45'	19'	9'	4'	61'	57'	20'	37'	18'	9'
12"	D.I.	53'	22'	11'	5'	73'	69'	38'	43'	21'	10'
6"	PVC	30'	12'	6'	3'	56'	38'	29'	35'	17'	8'
8"	PVC	40'	16'	8'	4'	74'	56'	31'	46'	22'	11'
10"	PVC	47'	20'	9'	5'	89'	82'	30'	56'	27'	13'
12"	PVC	56'	23'	11'	6'	106'	88'	56'	66'	32'	16'

1. ALL JOINTS SHALL BE RESTRAINED ON BOTH SIDES OF THE FITTING FOR THE LENGTH SHOWN UNLESS OTHERWISE INDICATED.
2. REDUCER IS ONE SIZE SMALLER THAN PIPE LISTED. RESTRAINED LENGTH IS UPSTREAM ON THE LARGE SIDE OF THE REDUCER.

THRUST RESTRAINT OF PIPE JOINTS DESIGN LENGTHS

ACS DESIGN

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Construction Management

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**WATERLINE 900/1000/1100 DETAILS
PLANNED COMMERCIAL DEVELOPMENT
LAKEWATCH PLANTATION
GILLS CREEK MAGISTERIAL DISTRICT
FRANKLIN COUNTY, VIRGINIA**

DRAWN BY: DME

DESIGNED BY: CEK

CHECKED BY: DME

DATE: 05/15/07

SCALE: NOT TO SCALE

SHEET No.
27 OF 32

WATERLINE DETAILS

JOB No. 05076