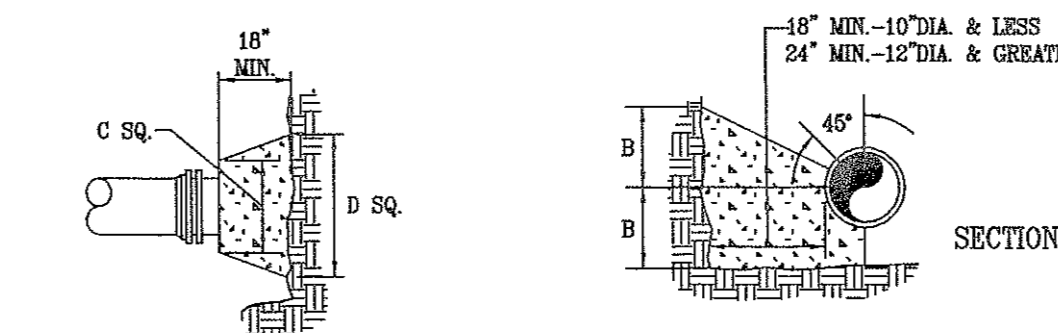


## PLAN BENDS

SECTION OF VERTICAL BEND



### PLAN AND ELEVATION PLUGS

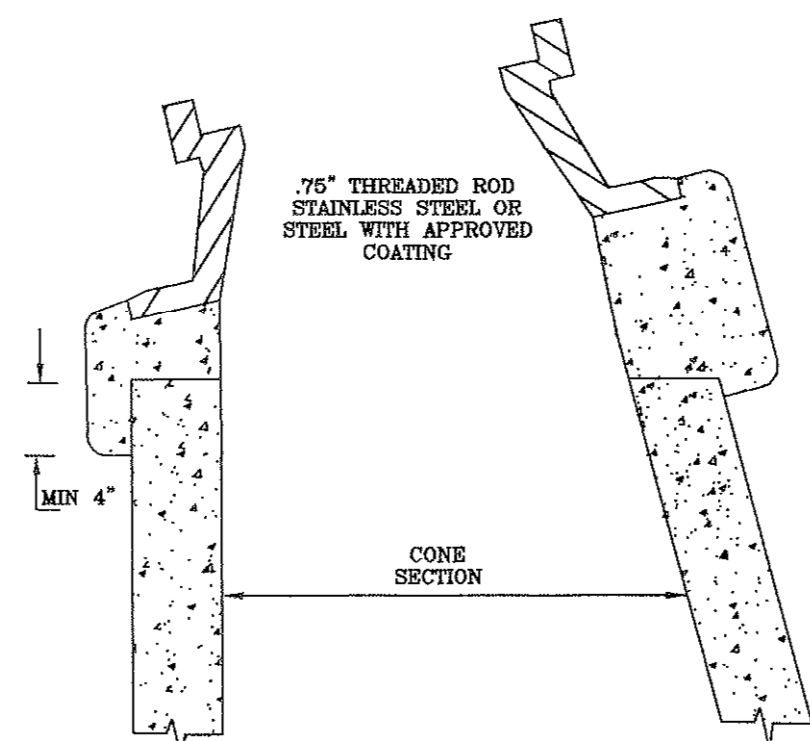
## BENDS AND TEES

- NOTES:
1. FOR VERT. BEND DOWN IN EXCESS OF 11 1/4" HEND, 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 "8" DIMENSION GREATER THAN 12" 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	A	B
4"	8"	12"	8"	10"	8"	6"	8"	8"	11"	9"	10"	6"
6"	16"	12"	8"	10"	8"	8"	8"	8"	11"	9"	10"	12"
8"	16"	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"	32"	42"	82"	42"
30"	185"	42"	100"	30"	52"	42"	40"	30"	185"	42"	185"	42"

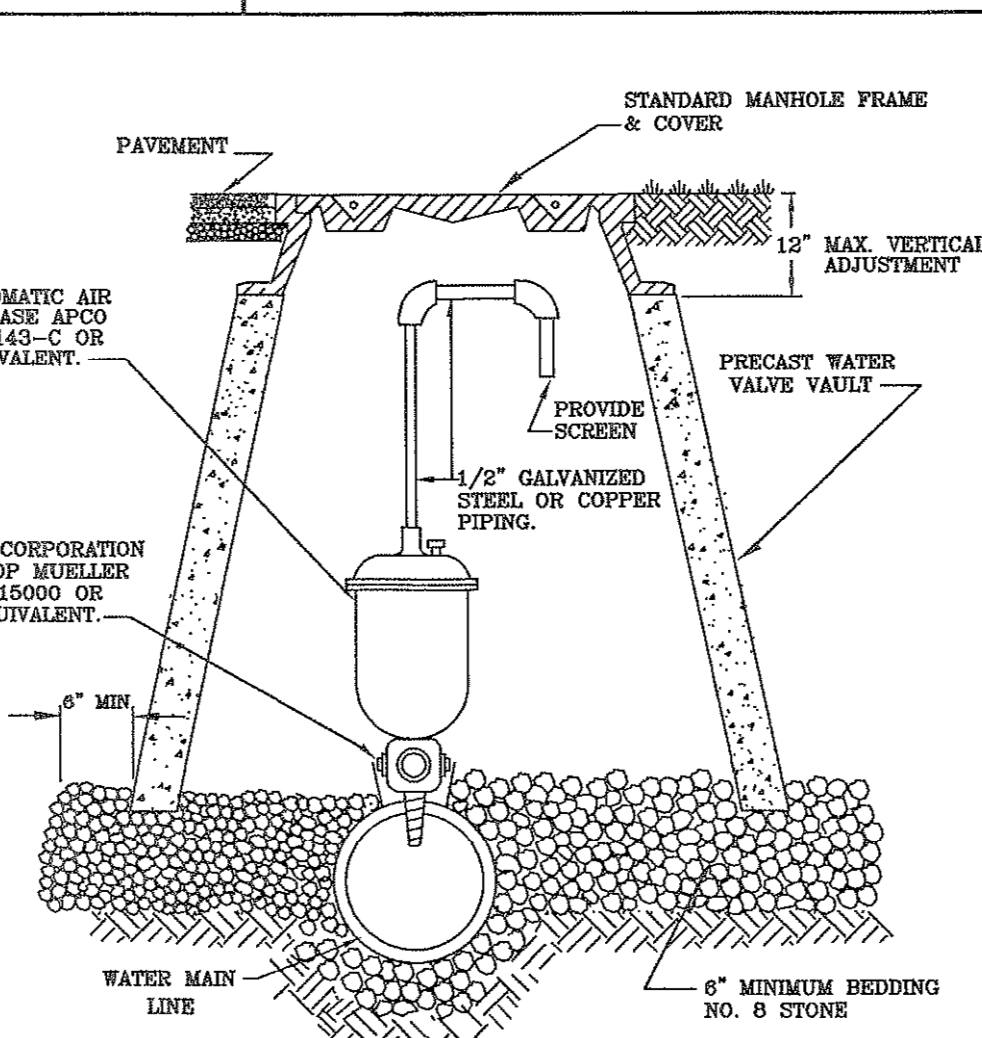
THRUST BLOCK CONSTRUCTION  
NO SCALE



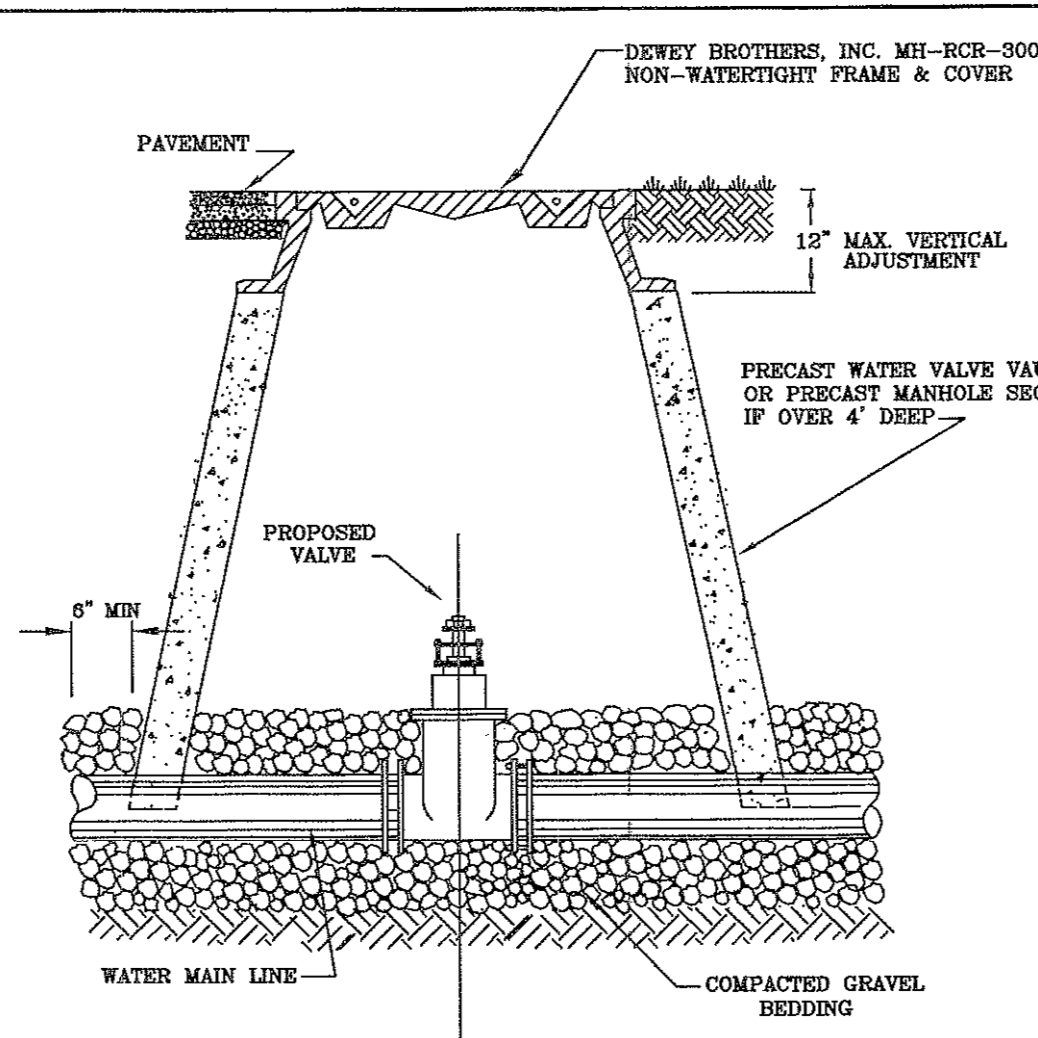
SECTION

## INSTALLATION DETAIL

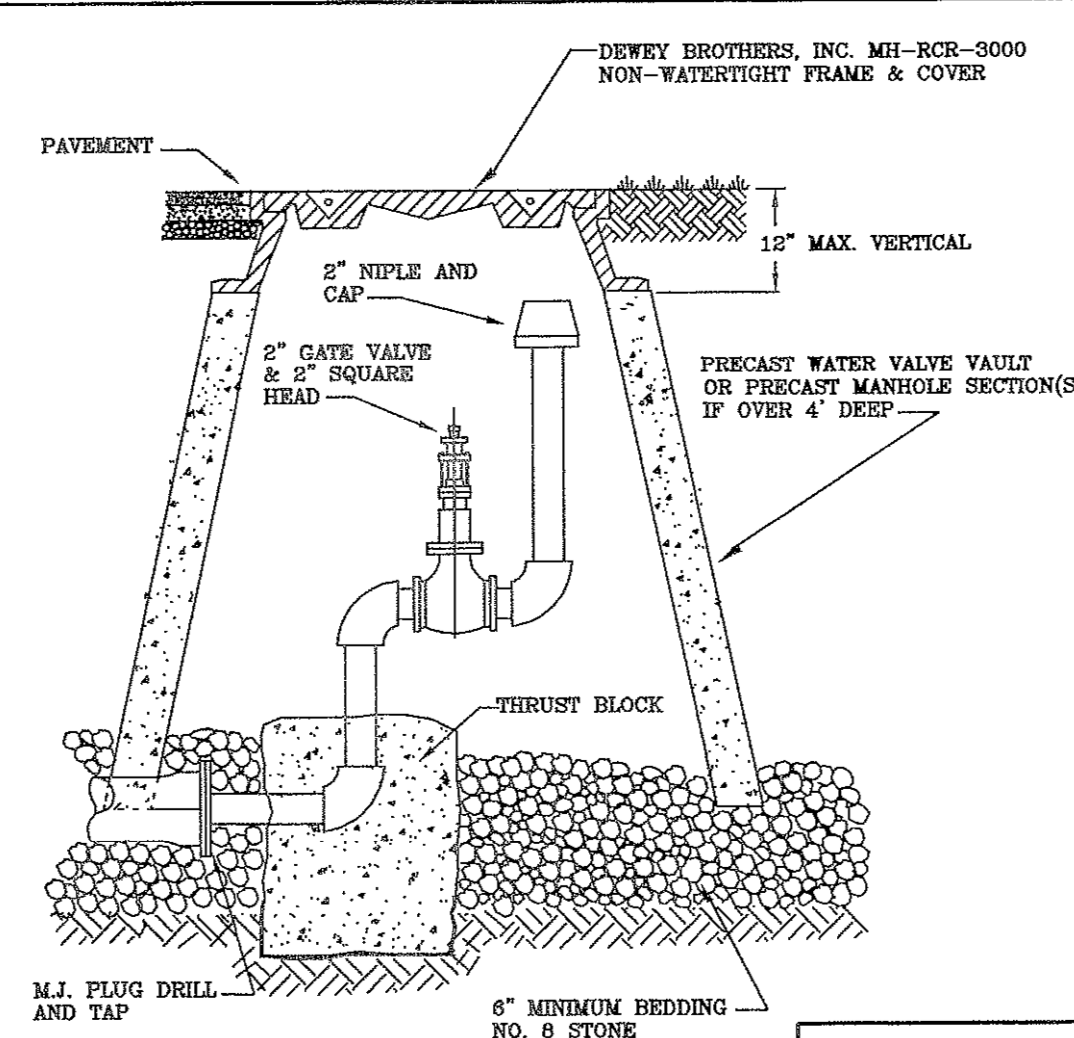
### FOR ALL FRAMES AND COVERS



AUTOMATIC AIR  
RELEASE ASSEMBLY

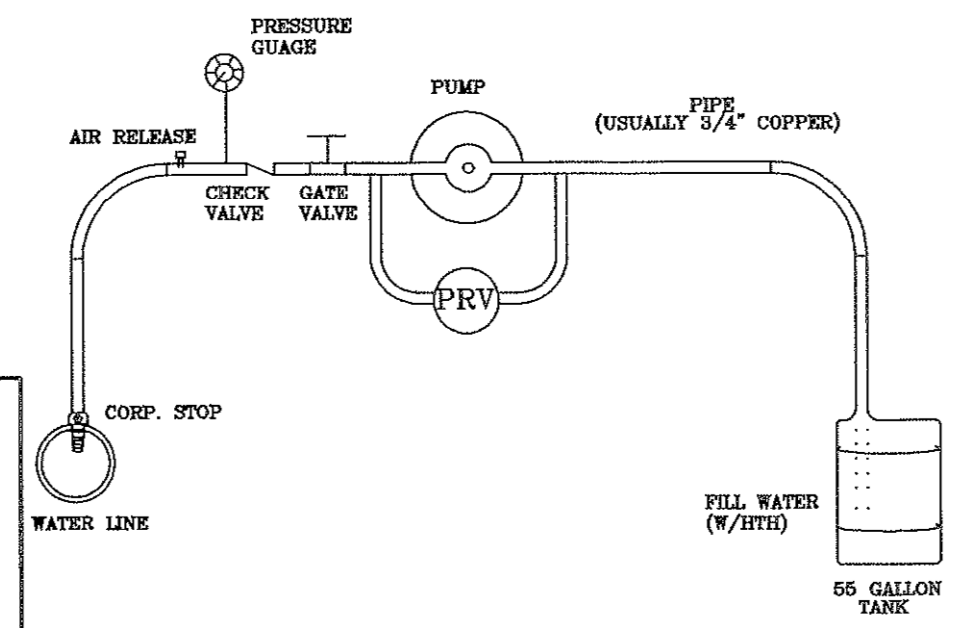


## WATER LINE VALVE INSTALLATION

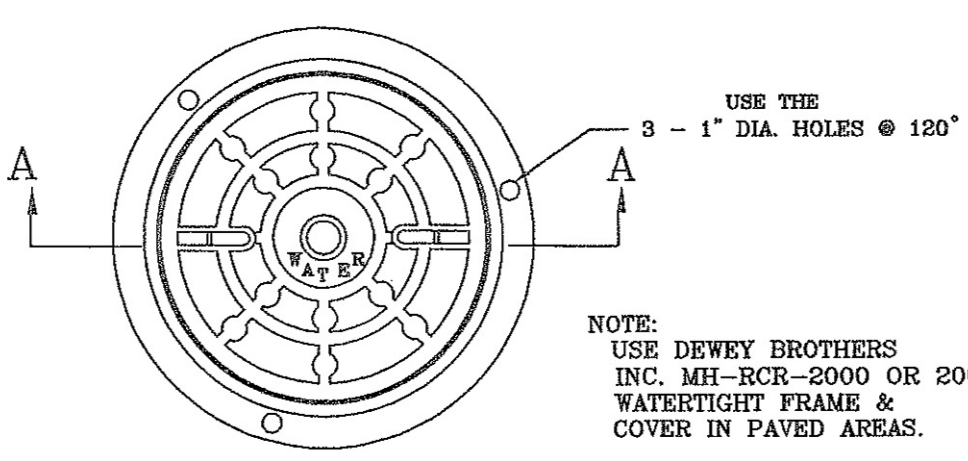


PERMANENT END OF LINE

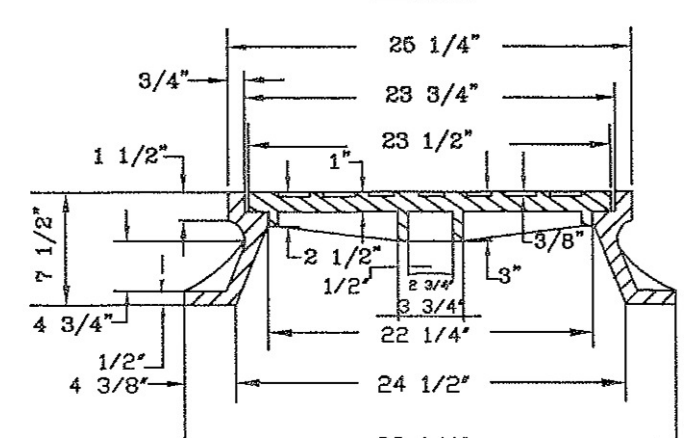
- NOTES:
- (1) MAIN BODY OF HYDRANT MUST BE SILVER AND HAVE RED CAPS AND BONNET.
  - (2) DISTANCE "A" WITH CURB AND GUTTER, 2' MIN., 4' MAX. FROM BACK OF CURB.
  - (3) DISTANCE "A" WITHOUT CURB AND CUTTER, 6' MIN., 12' MAX. FROM EDGE OF PAVEMENT.
  - (4) AREA AROUND HYDRANT AT A RADIUS OF 4' TO BE APPROXIMATELY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



TYPICAL WATER PRESSURE TEST RIG



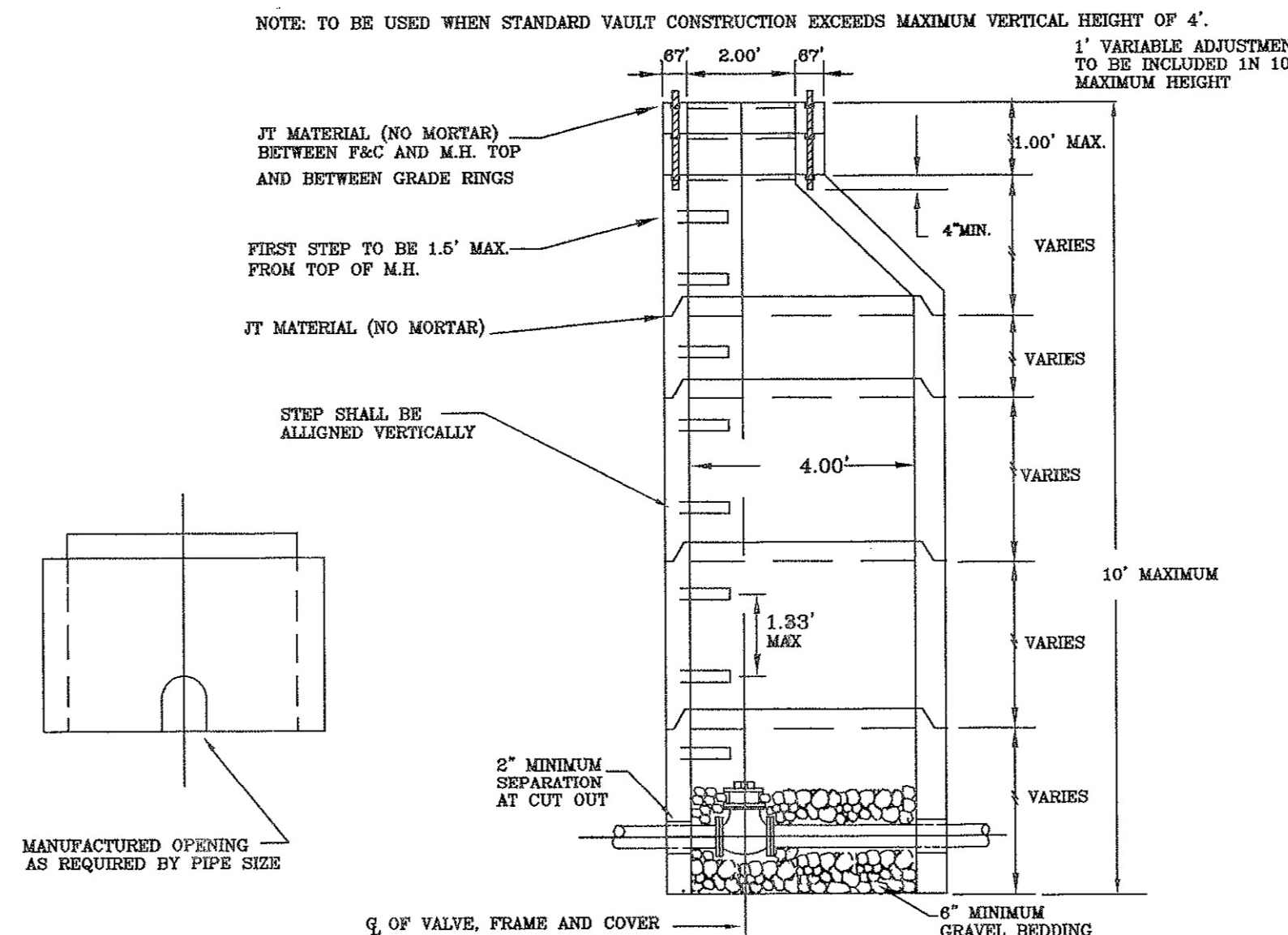
## PLAN



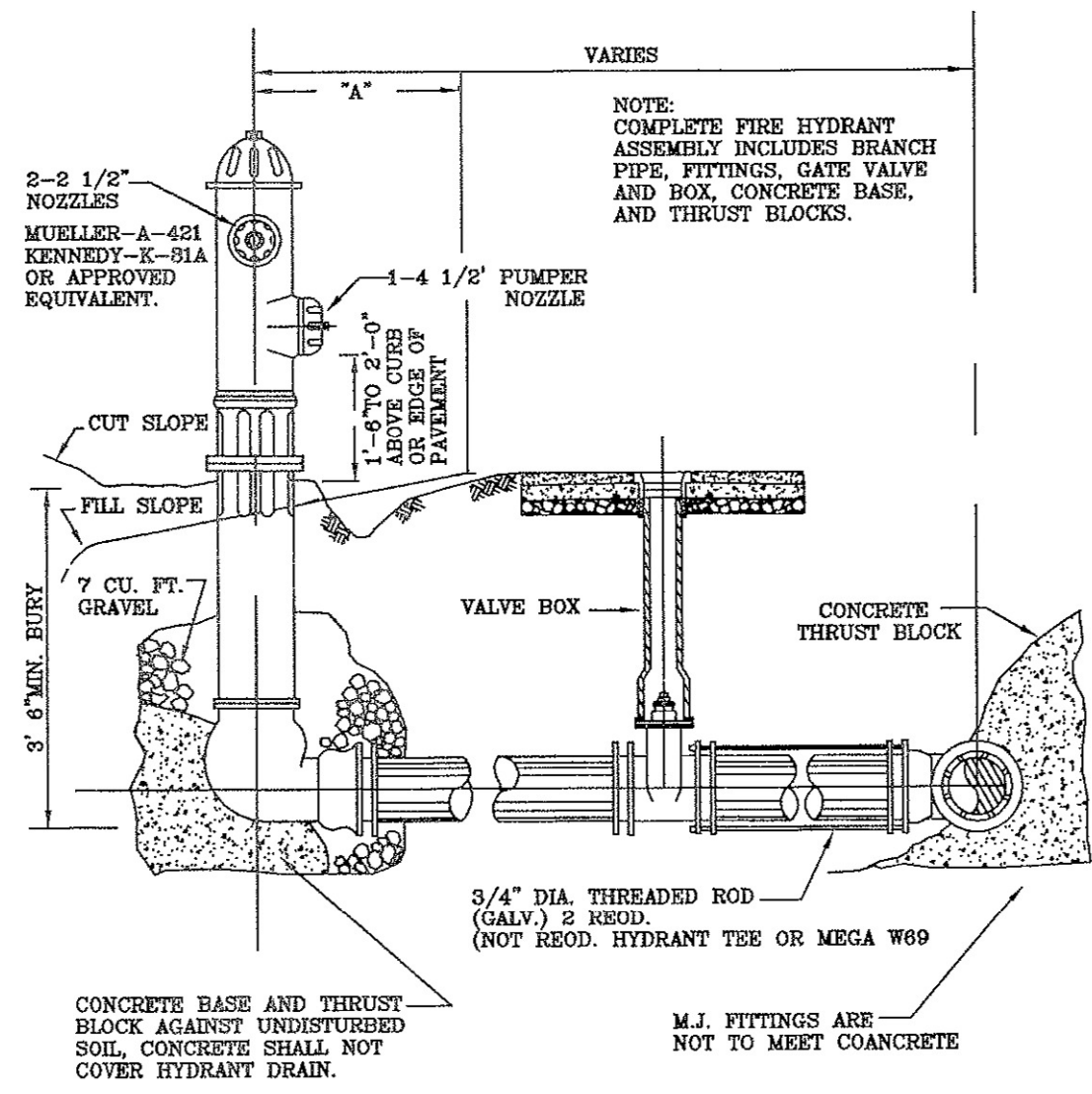
SECTION A-A

MANHOLE FRAME AND COVER

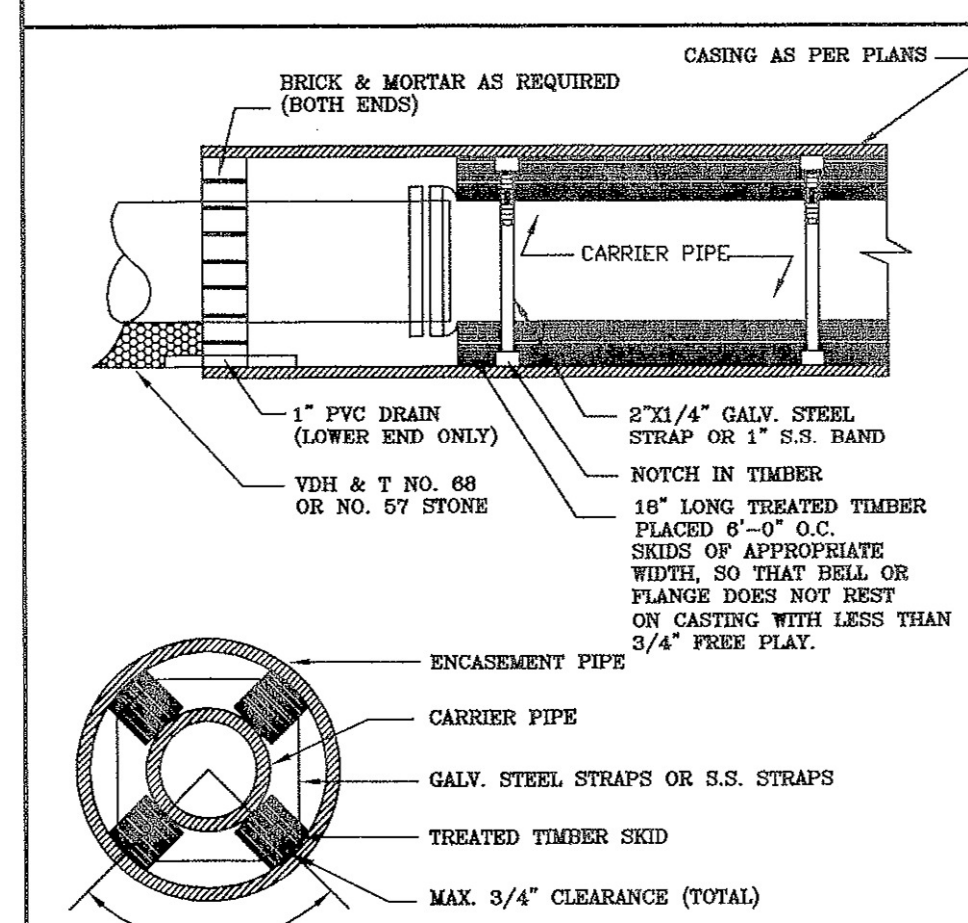
PAVED 2001EC	UNPAVED 2001(ABOVE)
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
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82	82
83	83
84	84
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86	86
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90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100



ALTERNATE VALVE VAULT (MANHOLE)



## FIRE HYDRANT ASSEMBLY



## PIPE SUPPORT IN CASING PIPE

COUNTY OF ROANOKE  
DEPARTMENT  
OF  
ENGINEERING AND INSPECTIONS

1		05/23/95	
2		06/30/95	
3			DATE: 04/26/94
4			SCALE: NO SCALE
5			DRAWING BY: CN,TB,AF (G:\CAD\DETAILS\SEWER\SEWER)
6			DESIGNED BY: ROANOKE COUNTY ENGINEERING DEPT.
7			APPROVED BY:
NO.	REVISIONS	DATE	

## WATER DETAILS

KROGER STORE R-375  
SITE PLAN  
ROANOKE COUNTY, VIRGINIA

**LMW P.C.**  
ENGINEERING • ARCHITECTURE • SURVEYING  
☎ (540) 345-0675 102 ALBEMARLE AVE., S.E.  
FAX (540) 342-4456 ROANOKE, VIRGINIA 24013

SHEET  
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