

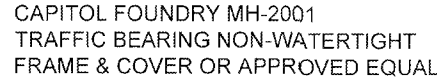


WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

COMBINATION AIR VALVE ASSEMBLY

W-13

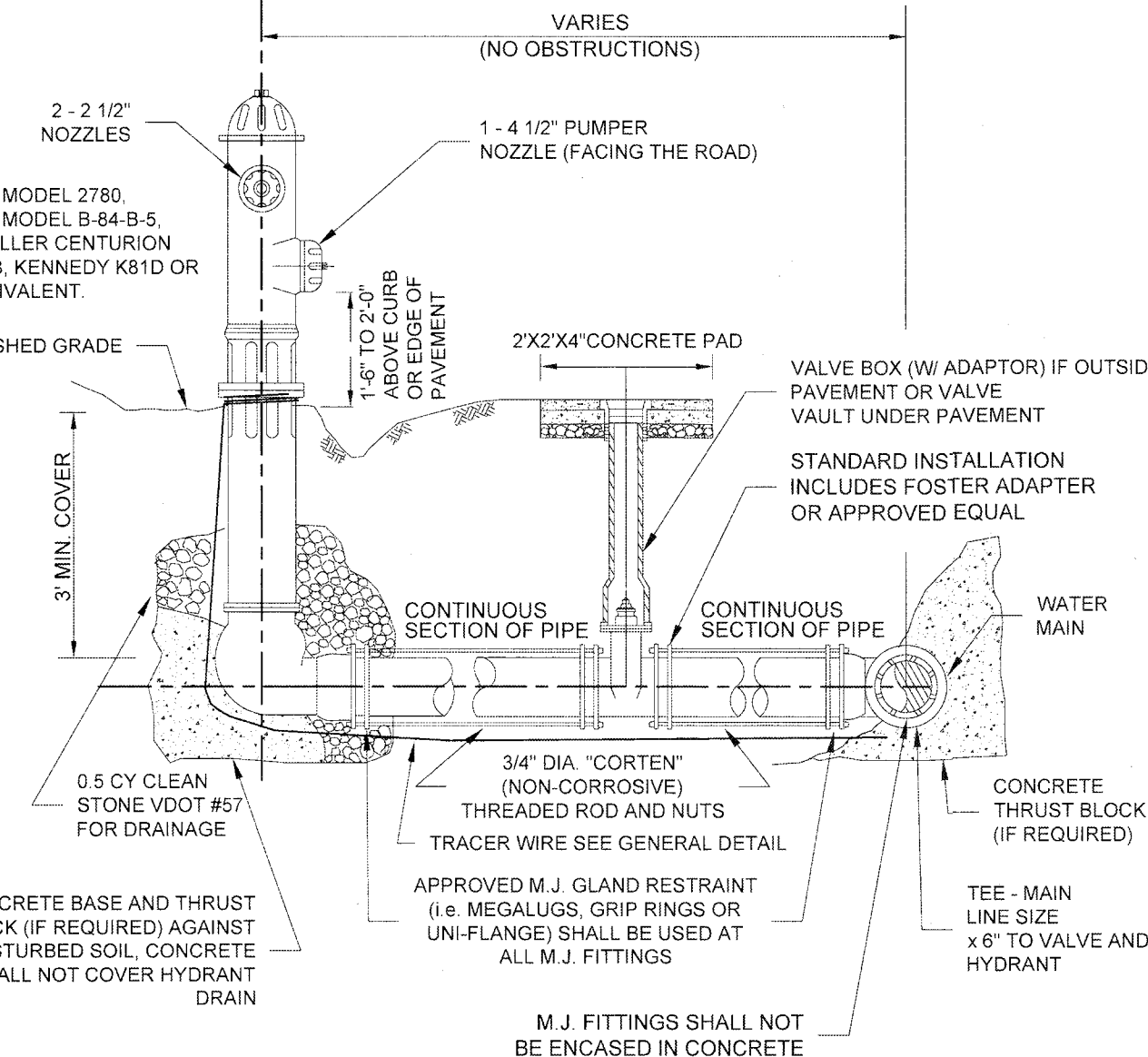
02/10/15



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

VAULT FRAME
AND COVER

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WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

FIRE HYDRANT ASSEMBLY

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- | | | | |
|----|---|----|--|
| 1. | FOR VERT. BEND DOWN IN EXCESS OF 11 1/4" BEND, ANCHORAGE SHALL BE DESIGNED BY ENGINEER | 5. | THRUST BLOCKS WITH "B" DIMENSION GREATER THAN 30" SHALL HAVE THE RESTRAINED PIPE INSTALLED WITH A MINIMUM OF 4' OF COVER REFER TO "MINIMUM COVER REQUIREMENTS" PIPE JOINTS DESIGN LENGTHS' DETAIL FOR WHEN THRUST BLOCKS ARE REQUIRED TO BE USED |
| 2. | FOR VERT. BEND UPWARD, BLOCKING TO BE SIMILAR TO THAT FOR HORIZ. BEND | 6. | WHEN THRUST BLOCKS IS REQUIRED BUT NOT FEASIBLE TO CONSTRUCT, THRUST COLLARS SHALL BE USED. SEE THRUST COLLAR DETAIL. |
| 3. | GLANDS & BOLTS SHALL BE PROTECTED FROM CONC. WITH PLASTIC SHEETING WHEN POURING THRUST BLOCKS | | |
| 4. | ALL THRUST BLOCKS & SUPPORT CONCRETE SHALL BE 3000 PSI READY MIX CONCRETE | | |

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

PIPE SIZE	90° BEND			45° BEND			22 1/2° BEND			11 1/2° BEND			TEE		PLUG	
	A	B		A	B		A	B		A	B		A	B	C	D
4"	8"	12"	8"	8"	8"	6"	6"	6"	6"	6"	11"	9"	10"	6"	10"	6"
6"	18"	12"	8"	10"	8"	8"	8"	8"	8"	8"	11"	10"	12"	18"	18"	18"
8"	18"	13"	10"	10"	10"	8"	8"	8"	8"	8"	11"	11"	12"	12"	24"	24"
10"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	16"	16"	30"	30"	30"
12"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	16"	16"	30"	30"	30"
16"	26"	20"	16"	18"	11"	13"	11"	13"	18"	20"	20"	20"	20"	20"	36"	36"
24"	82"	42"	62"	30"	44"	22"	22"	16"	82"	42"	82"	42"	82"	42"	82"	42"
30"	185"	42"	100"	42"	52"	42"	42"	40"	30"	185"	42"	42"	185"	42"	185"	42"

WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

THRUST BLOCK REQUIREMENTS

W-18

FACTOR OF SAFETY = 1.5											
PIPE SIZE	PIPE MAT'L	90° BEND	45° BEND	22 1/2° BEND	11 1/2° BEND	VALVE/ PLUG (NOTE 2)	TEE BRANCH (NOTE 3)	REDUCER (NOTE 4)	22 1/2° VERT.	11 1/2° VERT.	
6"	D.I.	28'	21'	6'	3'	50'	26'	26'	21'	10'	5'
8"	D.I.	36'	21'	8'	4'	65'	41'	27'	27'	13'	7'
10"	D.I.	43'	21'	9'	5'	77'	53'	26'	32'	16'	8'
12"	D.I.	51'	21'	10'	5'	91'	67'	27'	38'	18'	9'
6"	PVC	29'	21'	6'	3'	78'	25'	40'	32'	16'	8'
8"	PVC	37'	21'	8'	4'	102'	49'	43'	42'	21'	10'
10"	PVC	44'	21'	9'	5'	122'	68'	41'	51'	25'	12'
12"	PVC	51'	21'	11'	6'	143'	89'	42'	60'	29'	15'

1. ALL JOINTS SHALL BE RESTRAINED ON BOTH SIDES OF THE FITTING AND DOCUMENTED BY THE INSPECTOR FOR THE LENGTH SHOWN UNLESS OTHERWISE INDICATED.
2. RESTRAINED LENGTH SHOWN REFERS TO ANY DESIGNED OR POTENTIAL LINE STOP, INCLUDING ALL GATE VALVES.
3. RESTRAINED LENGTH SHOWN REFERS TO THE BRANCH LINE ONLY. THE CONTINUOUS PIPE LENGTH OF THE MAIN RUN SHALL BE A MINIMUM OF 10' ON EACH SIDE OF THE TEE.
4. RESTRAINED LENGTH SHOWN IS BASED ON REDUCING PIPE DIAMETER TO ONE SIZE SMALLER THAN PIPE LISTED (ANY OTHER DIAMETER REDUCTION WILL REQUIRE ADDITIONAL CALCULATIONS BEFORE INSTALLATION). RESTRAINED LENGTH SHOWN IS UPSTREAM ON THE LARGE SIDE OF THE REDUCER.
5. 12" AND SMALLER DIAMETER: IF UNDER 150 PSI WORKING PRESSURE, RESTRAINED JOINT(S) ARE TO BE USED. IF EQUAL TO OR OVER 150 PSI WORKING PRESSURE, BOTH THRUST BLOCK(S) AND RESTRAINED JOINT(S) SHALL BE USED.
6. LARGER THAN 12" DIAMETER: IF UNDER 100 PSI WORKING PRESSURE, RESTRAINED JOINT(S) ARE TO BE USED. IF EQUAL TO OR OVER 100 PSI WORKING PRESSURE, BOTH THRUST BLOCK(S) AND RESTRAINED JOINT(S) SHALL BE USED (UNLESS OTHERWISE APPROVED BY THE PARTICIPATING UTILITY).
7. FOR RESTRAINED JOINT PIPING REQUIREMENTS AT FITTING R, PVC AND R, J, DIP MAY BE USED INTERCHANGEABLY WITH APPROVAL FROM PARTICIPATING UTILITY. CONTRACTOR MUST PLAN ACCORDINGLY FOR THE DIFFERENCE IN PVC AND DIP BELL AND SPIGOT DIMENSIONS.

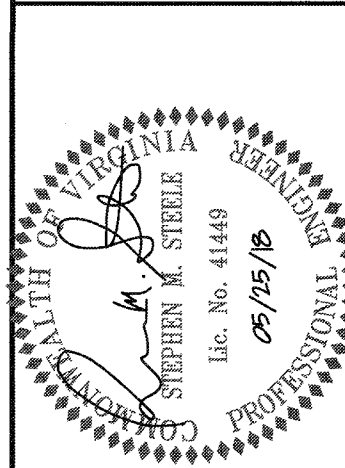
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

MINIMUM THRUST RESTRAINT OF PIPE JOINTS DESIGN LENGTHS

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WESTERN VIRGINIA
WATER AUTHORITY

WESTERN VIRGINIA WATER AUTHORITY
ROANOKE, VIRGINIA



WESTERN VIRGINIA WATER AUTHORITY
SUNNYBROOK DRIVE
WATER MAIN REPLACEMENT
ROANOKE COUNTY, VIRGINIA

No.	Submittal / Revision	App'd By	Date
1	90% SUBMITTAL	SMS /M/	5-18-18
2	CLIENT REVIEW	SMS /M/	5-25-18

WATER DETAILS

Designed By: MBH	Drawn By: RAS	Checked By: LES
Issue Date: 05/18/18	Project No: 33834	Scale: AS SHOWN

Drawing No.:

C-503