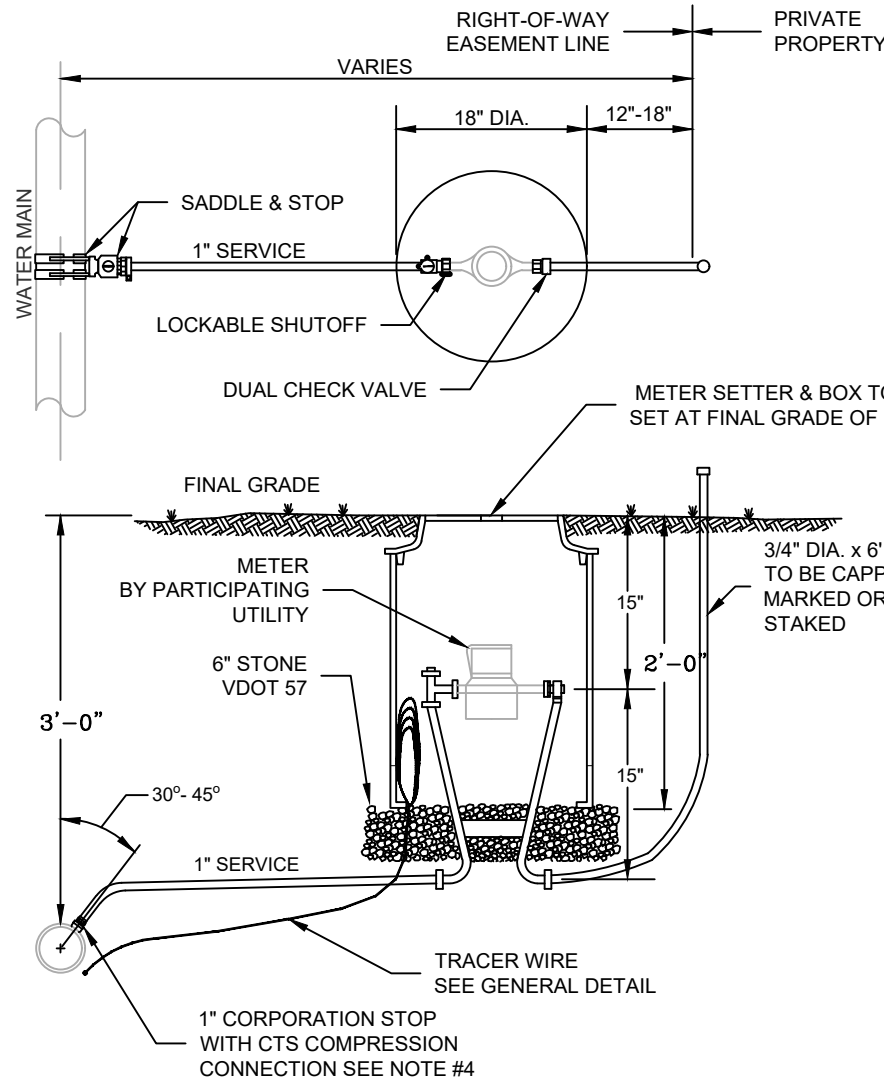


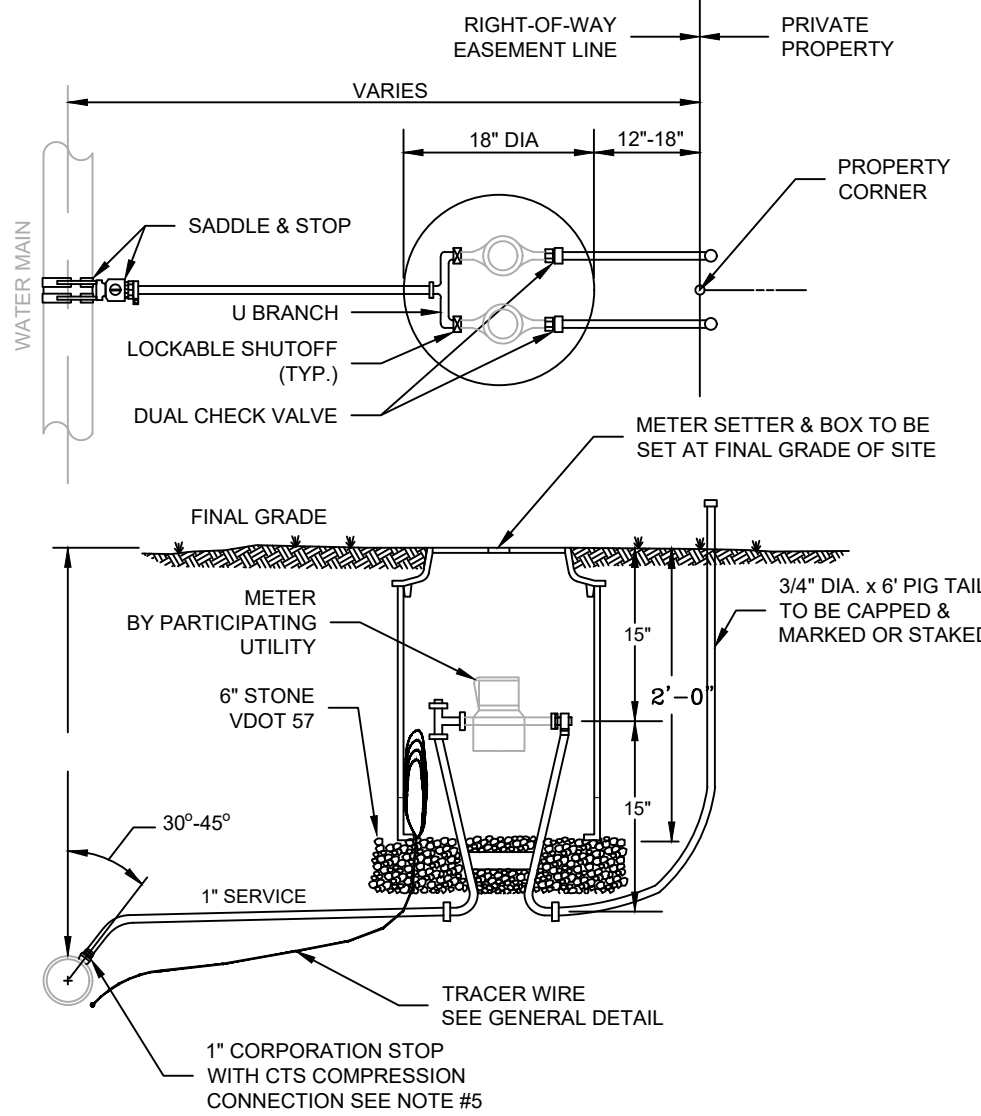
1. SETTER TO BE A.Y. McDONALD 720-215WDD33, FORD VBH72-15W-11-33 OR APPROVED EQUAL.
2. SADDLES MUST BE USED WITH ALL PLASTIC & DUCTILE IRON PIPE. SERVICE SADDLES SHALL BE USED IN ACCORDANCE WITH WATER DISTRIBUTION PIPING SPECIFICATION. SERVICE SADDLES FOR PLASTIC PIPE SHALL BE: POWERSEAL 3417, OR 3412AS, 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 2202.
3. METER BOX SHALL BE CARSONMID-STATES PLASTICS, INC. PLASTIC BOX WITH FORD A32-T (ELECTRONIC READ LID), ADS CORRUGATED HDPE BOX WITH FORD A32-T (ELECTRONIC READ LID), OR A.Y. McDONALD MODEL 74M32AT CAST IRON BASE & COVER OR APPROVED EQUAL. METER BOX SHALL NOT BE PLACED IN AREAS SUBJECT TO VEHICULAR TRAFFIC. IF TRAFFIC BEARING BOX IS REQUIRED, DESIGN ENGINEER SHALL CONSULT WITH PARTICIPATING UTILITY TO DETERMINE SITE SPECIFIC REQUIREMENTS.
4. CORPORATION STOP SHALL BE FORD FB1000-4-G-NL, MUELLER B-2508 OR APPROVED EQUAL.
5. SERVICE SHALL BE 1/2" TYPE COPPER, OR COPPER TUBE SIZE POLYETHYLENE (PE) 4710, SCDR-9 (200 psi).
6. WHENEVER SIDEWALK EXISTS OR IS PROPOSED, MODIFY METER LOCATION AS DIRECTED.



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL
SINGLE RESIDENTIAL
WATER SERVICE - (NEW DEVELOPMENT)
(LINE PRESSURE UNDER 120 PSI)
02/10/15

W-1

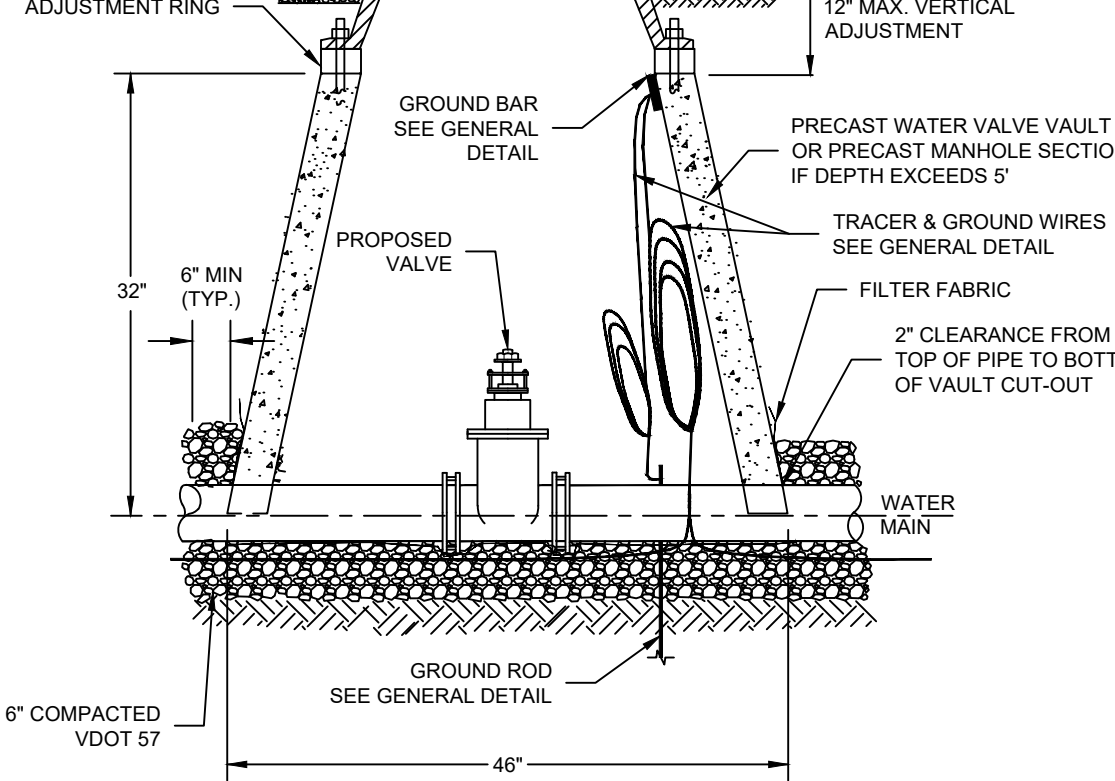
1. SETTER TO BE A.Y. McDONALD 720-215 WDD33, FORD VBH72-15W-11-33 OR APPROVED EQUAL.
2. SADDLES MUST BE USED WITH ALL PLASTIC DUCTILE IRON PIPE. SERVICE SADDLES SHALL BE USED IN ACCORDANCE WITH WATER DISTRIBUTION PIPING SPECIFICATION. SERVICE SADDLES FOR PLASTIC PIPE SHALL BE POWERSEAL 3417, OR 3412AS, 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 2202.
3. METER BOX SHALL BE CARSONMID-STATES PLASTICS, INC. PLASTIC BOX WITH FORD A32-T (ELECTRONIC READ LID), ADS CORRUGATED HDPE BOX WITH FORD A32-T (ELECTRONIC READ LID), OR A.Y. McDONALD MODEL 74M32AT CAST IRON BASE & COVER OR APPROVED EQUAL. USE OF TRAFFIC BEARING BOX SHALL BE APPROVED BY THE AUTHORITY. METER BOX SHALL NOT BE PLACED IN AREAS SUBJECT TO VEHICULAR TRAFFIC. IF TRAFFIC BEARING BOX IS REQUIRED, DESIGN ENGINEER SHALL CONSULT WITH PARTICIPATING UTILITY TO DETERMINE SITE SPECIFIC REQUIREMENTS.
4. WHENEVER SIDEWALK EXISTS OR IS PROPOSED, MODIFY METER LOCATION AS DIRECTED.
5. CORPORATION STOP SHALL BE FORD FB1000-4-G-NL, MUELLER B-2508 OR APPROVED EQUAL.
6. SERVICE SHALL BE 1/2" TYPE COPPER, OR COPPER TUBE SIZE POLYETHYLENE (PE) 4710, SCDR-9 (200 psi).



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL
DOUBLE RESIDENTIAL
WATER SERVICE
(LINE PRESSURE UNDER 120 PSI)
02/10/15

W-4

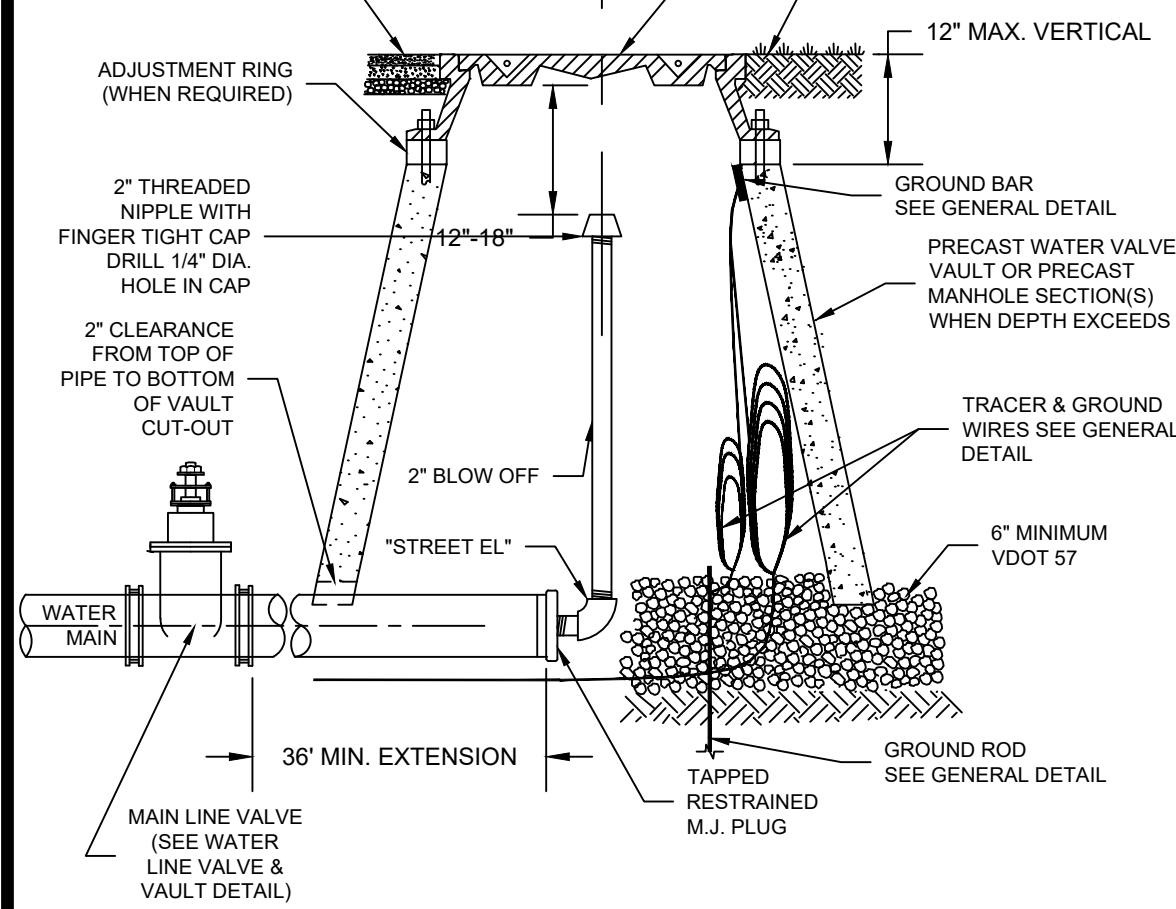
1. FILTER FABRIC TO BE INSTALLED BETWEEN BOTTOM OF PIPE AND STONE BEDDING. FABRIC TO EXTEND VERTICALLY A MINIMUM OF 6" FROM BOTTOM OF VAULT (FULL CIRCUMFERENCE).
2. THE 2" PIPING AND "STREET EL" SHALL BE LEAD FREE BRASS OR DUCTILE IRON.
3. PIPE JOINTS SHALL BE RESTRAINED BEFORE GATE VALVE IN ACCORDANCE WITH DISTANCE SHOWN IN THE "MINIMUM THRUST RESTRAINT OF PIPE JOINTS DESIGN LENGTHS" DETAIL FOR VALVE / PLUG. PIPE JOINTS BETWEEN GATE VALVE AND BLOWOFF SHALL ALSO BE RESTRAINED.



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL
WATER LINE VALVE
& VAULT
01/01/14

W-9

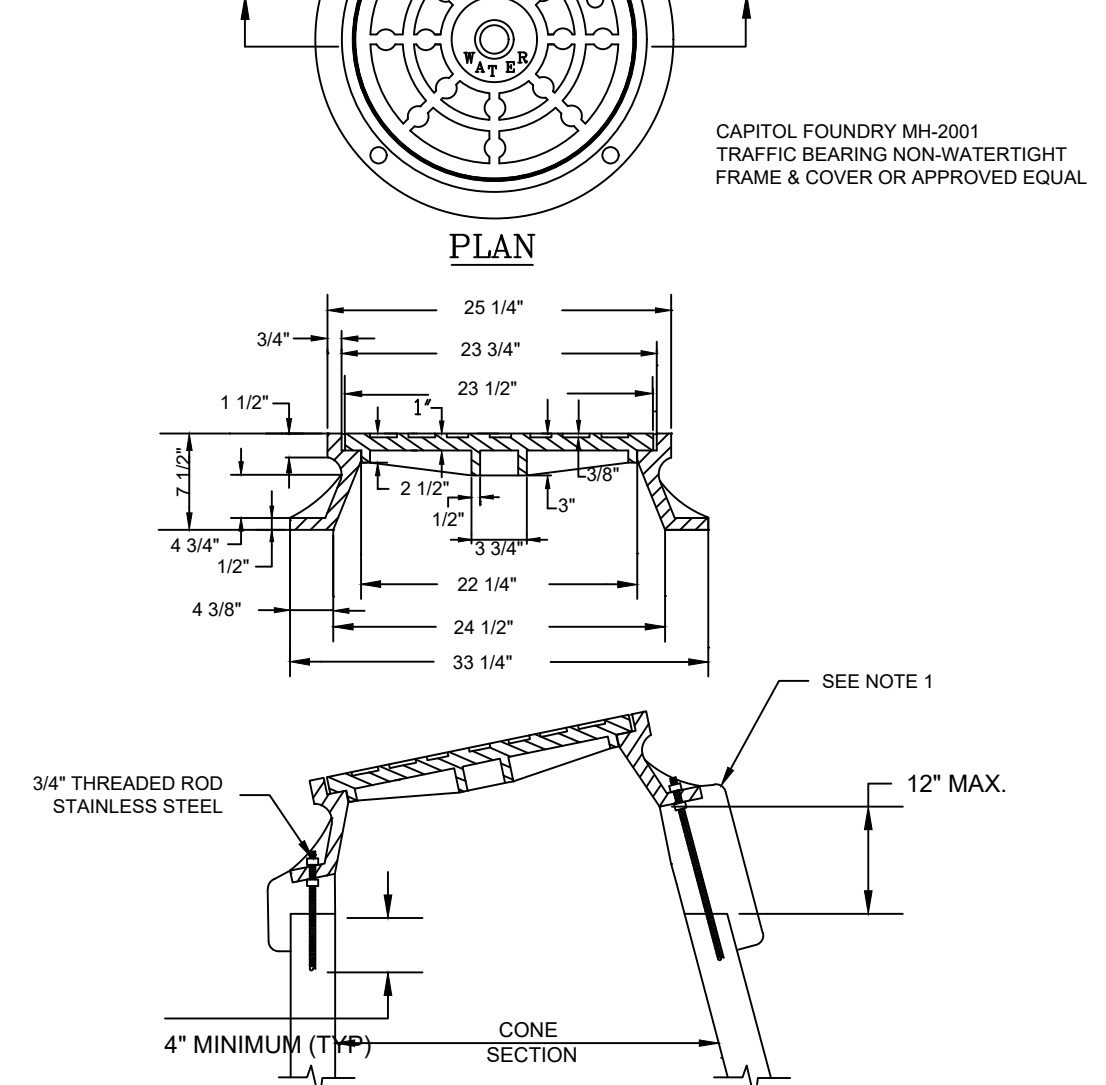
1. THE 2" PIPING AND "STREET EL" SHALL BE LEAD FREE BRASS OR DUCTILE IRON.
2. PIPE JOINTS SHALL BE RESTRAINED BEFORE GATE VALVE IN ACCORDANCE WITH DISTANCE SHOWN IN THE "MINIMUM THRUST RESTRAINT OF PIPE JOINTS DESIGN LENGTHS" DETAIL FOR VALVE / PLUG. PIPE JOINTS BETWEEN GATE VALVE AND BLOWOFF SHALL ALSO BE RESTRAINED.



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL
TEMPORARY END OF LINE
BLOW-OFF ASSEMBLY
01/01/14

W-11

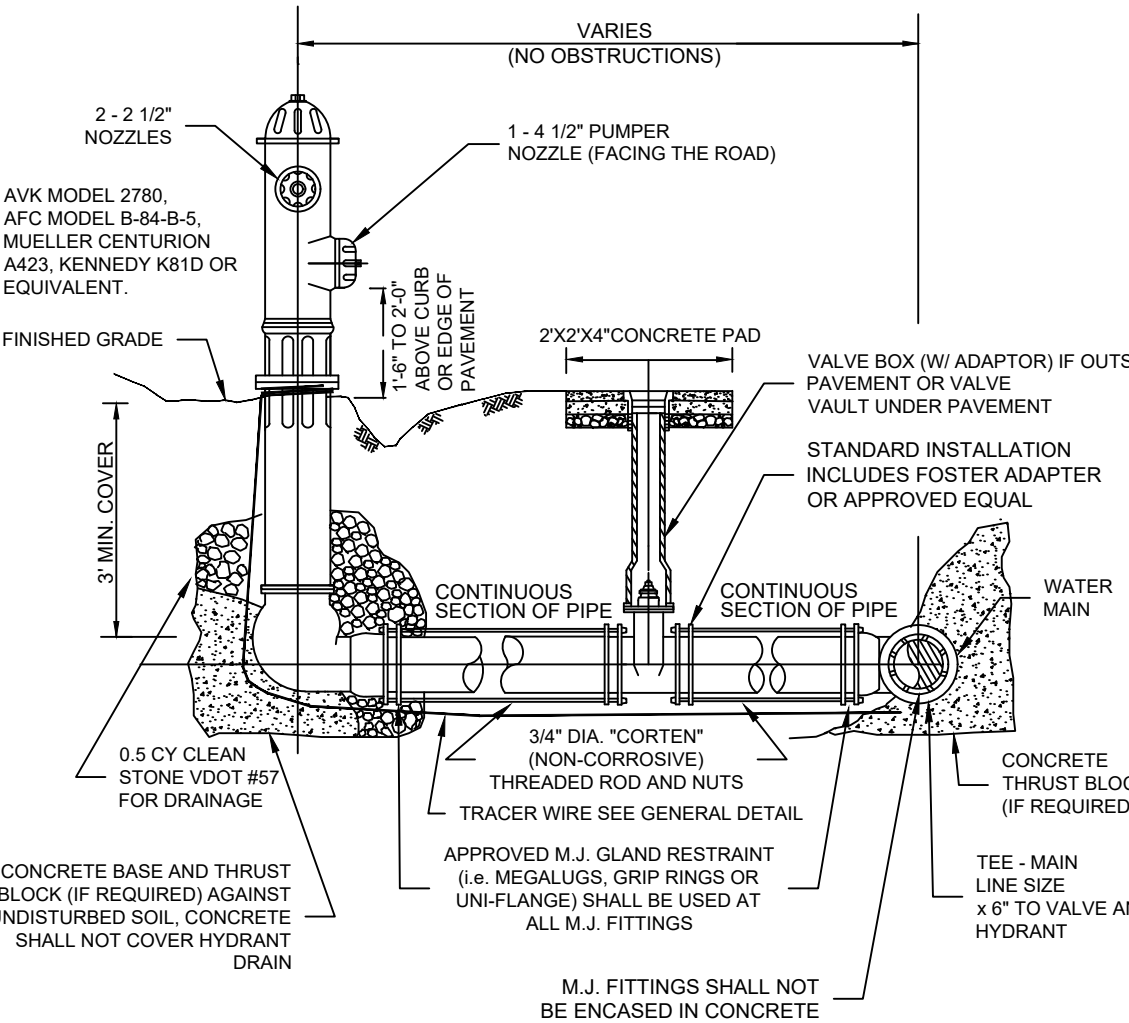
1. USE MODERATELY STIFF MIX OF NON SHRINK GROUT, SAND, AND 1/2" AND LESS DIAMETER GRAVEL WITH 28 DAYS STRENGTH AT MINIMUM 3,000 P.S.I.
2. MIX IS TO BE FORCED INTO ALL GROOVES AND UNDER FLANGE OF FRAME AND LEFT AT OR ABOVE TOP OF FLANGE.
3. DO NOT BACKFILL AROUND FRAME AND COVER FOR 48 HOURS AFTER CONCRETE IS PLACED. THE USE OF HIGH EARLY STRENGTH CEMENT WOULD REDUCE TIME TO (24 HRS.)
4. RESTRICT TRAFFIC LOAD FOR A MINIMUM OF 24 HOURS.



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL
VAULT FRAME
AND COVER
01/01/14

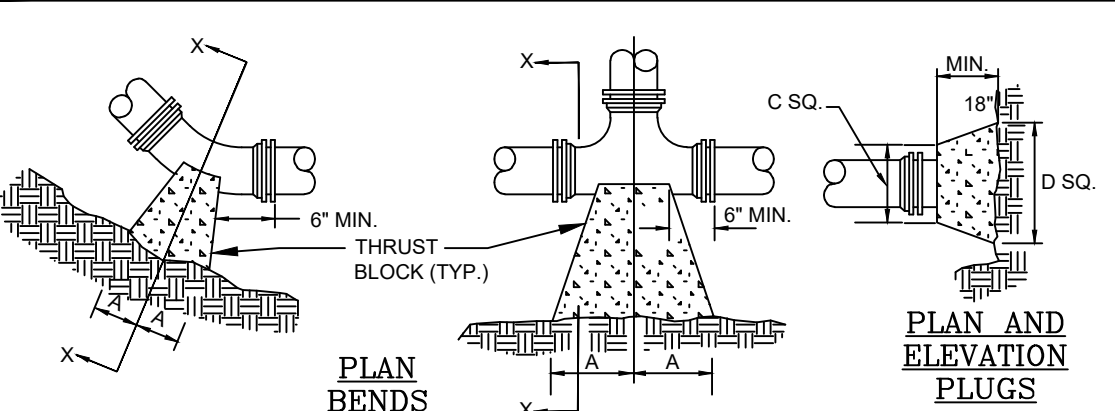
W-16

1. PUBLIC HYDRANTS SHALL BE PAINTED SILVER WITH AN OIL-BASED PAINT. PRIVATE HYDRANTS SHALL ALSO BE PAINTED SILVER WITH AN OIL-BASED PAINT UNLESS OTHERWISE SPECIFIED BY THE JURISDICTIONAL FIRE MARSHALL.
2. FIRE HYDRANT SHALL BE INSTALLED 2' MIN. AND 4' MAX. FROM BACK OF CURB OR 8' MIN. AND 12' MAX. FROM EDGE OF PAVEMENT 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 OR OUT OF SERVICE RINGS SHALL BE PLACED OVER ALL NEWLY INSTALLED FIRE HYDRANTS.
5. HYDRANT ASSEMBLIES SHALL BE RODDED AND RESTRAINED WITH APPROVED M.J. GLAND RESTRAINTS. HIGH PRESSURE (OVER 150 PSI) ALSO REQUIRES CONCRETE THRUST BLOCKS AS SHOWN BELOW.
6. IF DURING CONSTRUCTION THE SEASONAL WATER LEVEL IS NOTED TO BE ABOVE THE DRAIN OUTLETS OF THE PROPOSED HYDRANT, THE PARTICIPATING UTILITY WILL BE NOTIFIED IMMEDIATELY SO THAT THE HYDRANT CAN BE RELOCATED TO A SUITABLE LOCATION, OMITTED, OR THE DRAIN HOLE PLUGGED.
7. TWO WRAPS OF TRACER WIRE SHALL BE WRAPPED AROUND BASE OF HYDRANT.
8. APPROVED MODELS - AVK MODEL 2780, AFG MODEL B-84-B-5, MUELLER CENTURION A423, KENNEDY K81D OR EQUIVALENT.
9. WHERE HYDRANT LATERAL(S) IS APPROVED BY THE PARTICIPATING UTILITY TO BE LONGER IN LENGTH, MAKING THE CONTINUOUS SECTION OF PIPE ON EACH SIDE OF THE GATE VALVE UNFEASIBLE, RESTRAINED PIPE JOINTS SHALL BE INSTALLED BETWEEN THE TEE AND GATE VALVE IN LIEU OF RODDING. HOWEVER, A RODDED CONTINUOUS SECTION OF PIPE SHALL ALWAYS BE INSTALLED BETWEEN THE GATE VALVE AND HYDRANT.



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL
FIRE HYDRANT
ASSEMBLY
02/10/15

W-17



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL
THRUST BLOCK
REQUIREMENTS
02/10/15

W-18

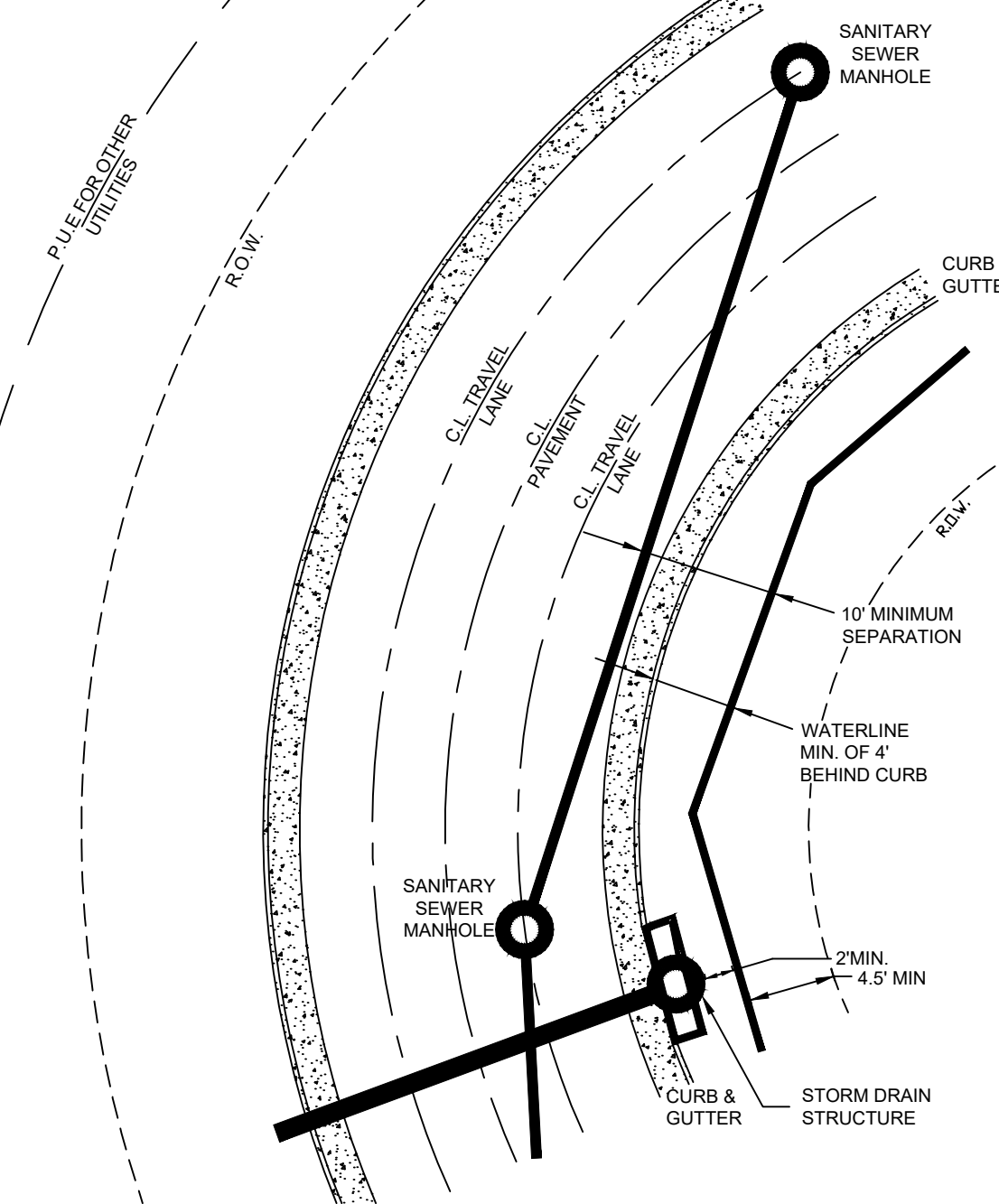
FACTOR OF SAFETY = 1.5													
PIPE SIZE	PIPE MAT'L	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	VALVE / PLUG (NOTE 2)	TEE / BRANCH (NOTE 3)	REDUCER (NOTE 4)	45° VERT.	22 1/2° VERT.	11 1/4° VERT.		
6"	D.I.	28'	21'	6'	3'	50'	26'	26'	21'	10'	5'		
8"	D.I.	36'	21'	8'	4'	65'	41'	27'	27'	13'	7'		
10"	D.I.	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.
- 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).
6. FOR RESTRAINED JOINT PIPING REQUIREMENTS AT FITTING R.J. 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 SPOUT DIMENSIONS.

WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL
MINIMUM THRUST
RESTRAINT
OF PIPE JOINTS
DESIGN LENGTHS
02/10/15

W-19

1. A WORK AREA WITH A MINIMUM CLEAR SPACE OF TEN FEET BEHIND THE BACK OF CURB SHALL BE PROVIDED FOR ALL WATER AND SEWER MAINS. A DEDICATED WATER OR SEWER EASEMENT MUST BE PROVIDED IF THERE IS LESS THAN TEN FEET BEHIND THE BACK OF CURB AND THE LIMITS OF RIGHT-OF-WAY.



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL
PUBLIC WATER AND SANITARY SEWER
STANDARD CONFIGURATION IN PUBLIC ROADS
01/01/14

G-1

RIVER OAKS SECTION 3

DETAILS II

DRAWN BY KAM
DESIGNED BY CPB
CHECKED BY CPB
DATE 1/6/2021
SCALE N/A
REVISIONS
3/8/2021
3/30/2021

C8.2
PROJECT NO. 04200041.00

APPROVED, 5/13/2021