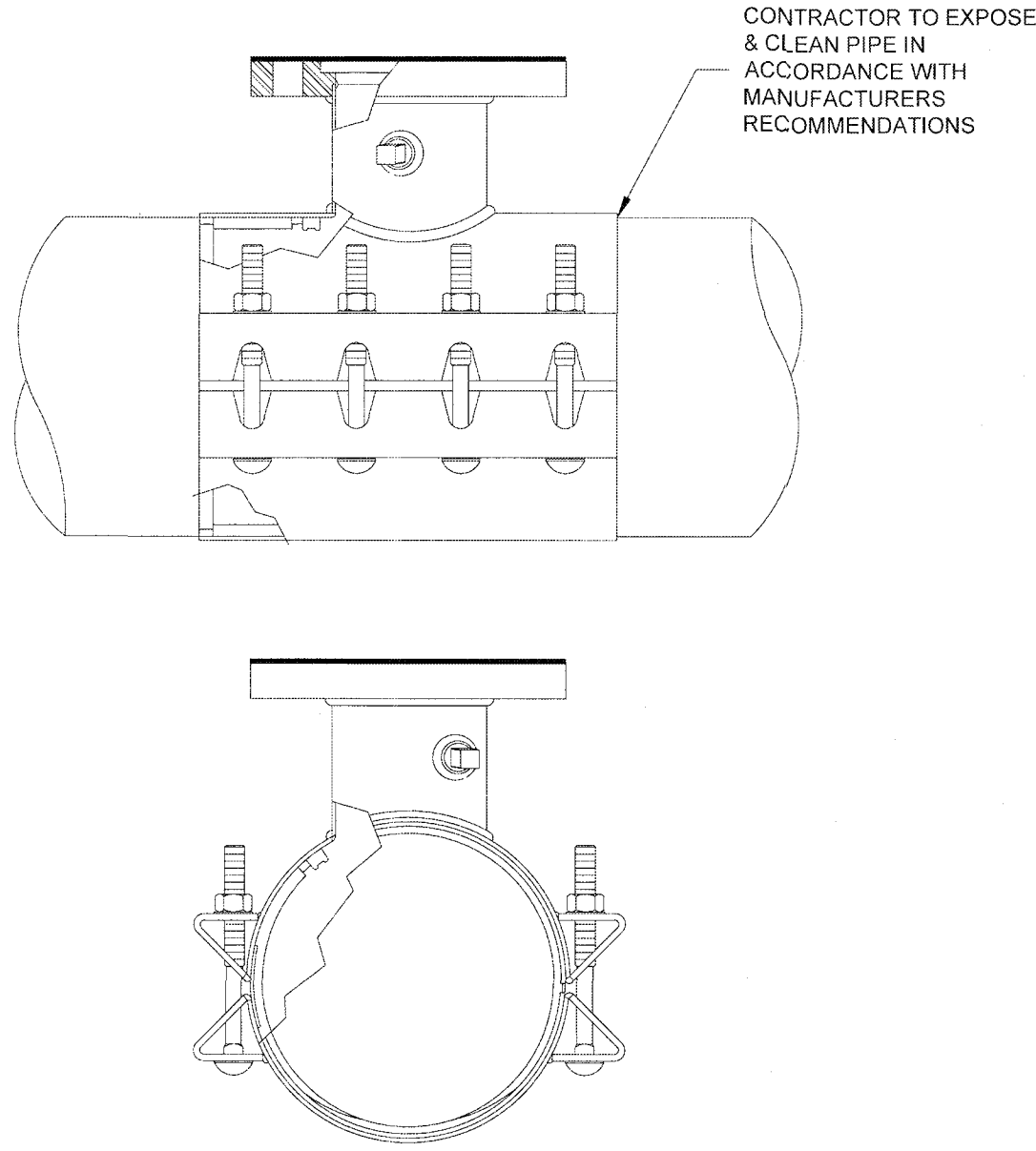


TYPICAL WATER PRESSURE TEST RIG

1. TAPPING SLEEVE SHALL BE POWERSEAL MODEL 3490 TYPE 304 STAINLESS STEEL WITH CARBON STEEL FLANGE, ROMAC'S MODEL SST III, FORD MODEL FTSS WITH CARBON STEEL FLANGE OR APPROVED EQUIVALENT. SLEEVE SHALL BE RATED AT 100 PSI OVER WORKING PRESSURE AND MUST HAVE A TEST PLUG.
2. TAPPING VALVE SHALL BE AVK RESILIENT SEATED GATE VALVE SERIES 25 MJFL, MUELLER T-2360 RESILIENT WEDGE TAPPING VALVE WITH MJFL OR AFC SERIES 2500 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.
4. STEEL FLANGE SHALL MEET AWWA C207.
5. SIZE-ON-SIZE TAPPING NOT ALLOWED UNLESS APPROVED BY PARTICIPATING UTILITY.



INSTALLATION OF DUCTILE IRON WATER MAINS  
TABLE 3 AWWA C600-05  
Maximum Joint Deflection Full Length of Pipe - Push on Type Joint

Nominal Pipe Size (inches)	Deflection Angle - $\theta$ (degree)	Maximum Offset - S* (Inches)		Approximate Radius of Curve - R* Produced by Succession of Joints	
		Joint Length 18-Feet	Joint Length 20-Feet	Joint Length 18-Feet	Joint Length 20-Feet
3	5°	19	21	205	230
4	5°	19	21	205	230
6	5°	19	21	205	230
8	5°	19	21	205	230
10	5°	19	21	205	230
12	5°	19	21	205	230
14	3°	11	12	340	380
16	3°	11	12	340	380
18	3°	11	12	340	380
20	3°	11	12	340	380
24	3°	11	12	340	380
30	3°	11	12	340	380

\* SEE FIGURE 4  
For 14-inch and larger push-on joints, maximum deflection angle may be larger than shown above. Consult the manufacturer.

INSTALLATION OF DUCTILE IRON WATER MAINS  
TABLE 4 AWWA C600-05  
Maximum Joint Deflection Full Length of Pipe - Mechanical Joint Pipe

Nominal Pipe Size (inches)	Deflection Angle - $\theta$ (degree)	Maximum Offset - S* (Inches)		Approximate Radius of Curve - R* Produced by Succession of Joints	
		Joint Length 18-Feet	Joint Length 20-Feet	Joint Length 18-Feet	Joint Length 20-Feet
3	8°-18°	31	35	125	140
4	8°-18°	31	35	125	140
6	7°-07°	27	30	145	160
8	5°-21°	20	22	195	220
10	5°-21°	20	22	195	220
12	5°-21°	20	22	195	220
14	3°-35°	13.5	15	285	320
16	3°-35°	13.5	15	285	320
18	3°-00°	11	12	340	380
20	3°-00°	11	12	340	380
24	2°-23°	9	10	450	500

\* SEE FIGURE 4.

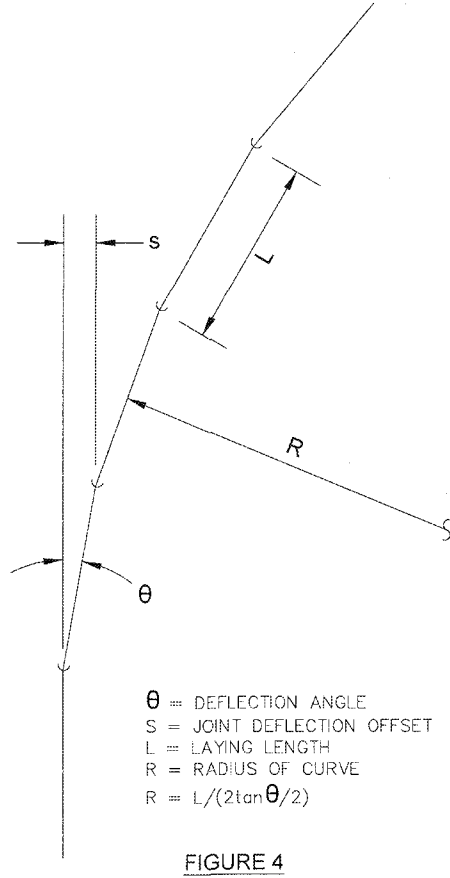


FIGURE 4

WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

TYPICAL WATER PRESSURE TEST RIG

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WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

TAPPING SLEEVE AND VALVE

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WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

DUCTILE IRON PIPE DEFLECTION ALLOWANCE TABLES

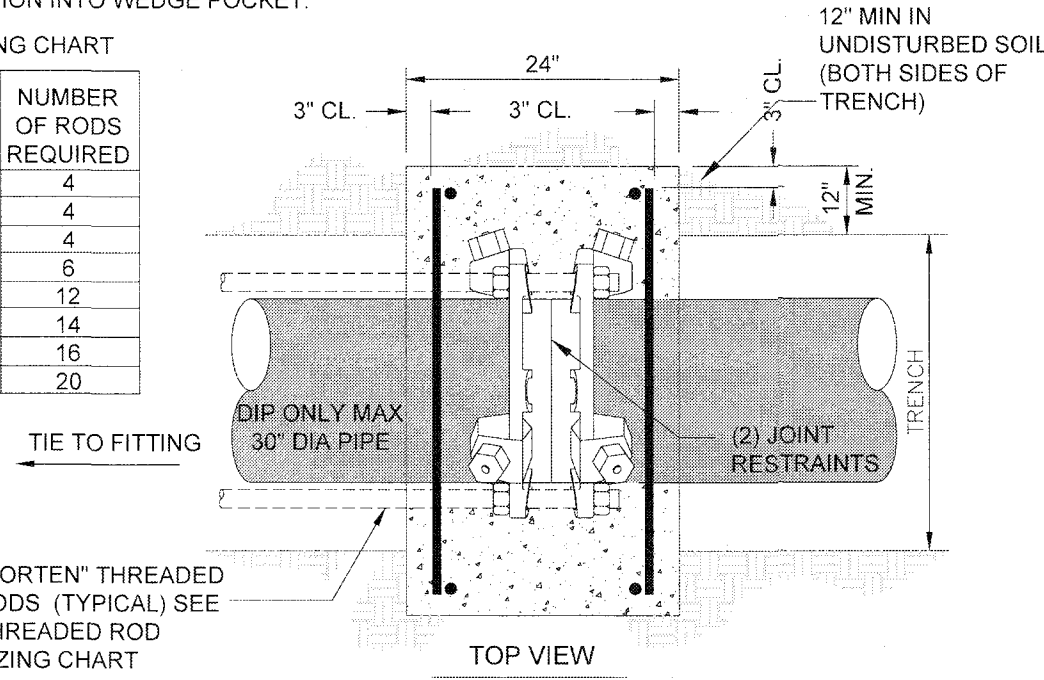
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W-22

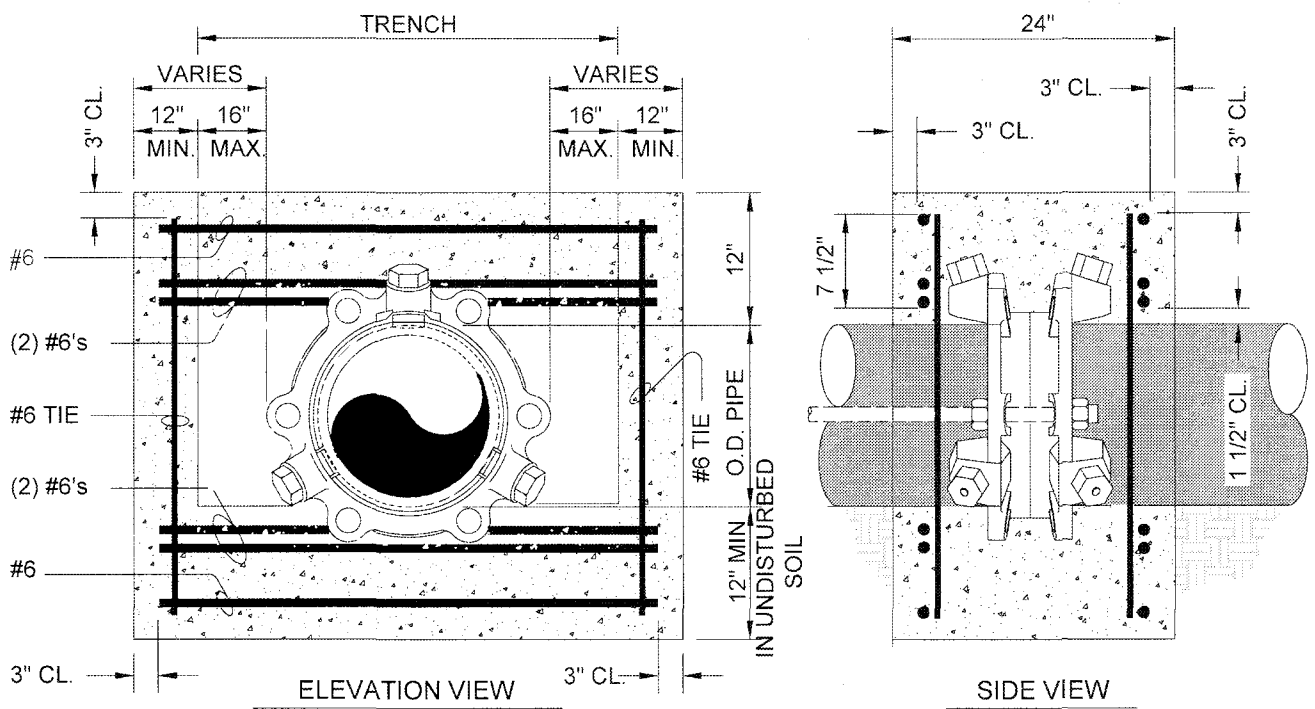
1. CONCRETE SHALL BE 3000 P.S.I. READY MIX CONCRETE.
2. REINFORCING BARS SHALL BE DEFORMED, AND TIED TOGETHER.
3. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST COLLAR INSTALLATION SHALL BE THE MINIMUM WIDTH.
4. BACKFILL AND COMPACT IN 6" LAYERS.
5. PLACE THRUST COLLAR ON ONE FULL JOINT OF PIPE.
6. LAST JOINT OF PIPE WITH THRUST COLLAR TO BE MECHANICAL JOINT PIPE.
7. PLACE RESTRAINED JOINT THRUST RING 4' FROM FITTING END OF PIPE.
8. FORMS SHALL BE USED WHEN PLACING CONCRETE TO PREVENT CONCRETE FROM INFILTRATING JOINTS.
9. ALLOW MINIMUM OF 3 DAYS FOR CONCRETE TO OBTAIN STRENGTH BEFORE WATERLINE BECOMES ACTIVE.
10. JOINT RESTRAINTS SHALL BE INSTALLED UP TO LIP AND WRAPPED WITH POLYETHYLENE TO PREVENT CONCRETE INTRUSION INTO WEDGE POCKET.

THREADED ROD SIZING CHART

PIPE SIZE (INCHES)	ROD DIAMETER (INCHES)	NUMBER OF RODS REQUIRED
6	3/4	4
8	3/4	4
10	3/4	4
12	3/4	6
16	3/4	12
20	3/4	14
24	1	16
30	1	20



"CORTEN" THREADED RODS (TYPICAL) SEE THREADED ROD SIZING CHART



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

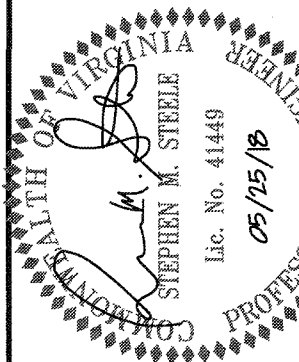
THRUST COLLAR DETAIL

01/01/14

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WESTERN VIRGINIA WATER AUTHORITY  
ROANOKE, VIRGINIA



I, STEPHEN M. STEELE, a duly Licensed Professional Engineer in the State of Virginia, hereby certify that I am the author of the design and construction of the project shown on this drawing, and that I am a duly Licensed Professional Engineer in the State of Virginia, and that I am the author of the design and construction of the project shown on this drawing.

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

No.	Submital / Revision	App'd By	Date
1	90% SUBMITTAL	SMS/MBH	5-18-18
2	CLIENT REVIEW	SMS/MBH	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-504