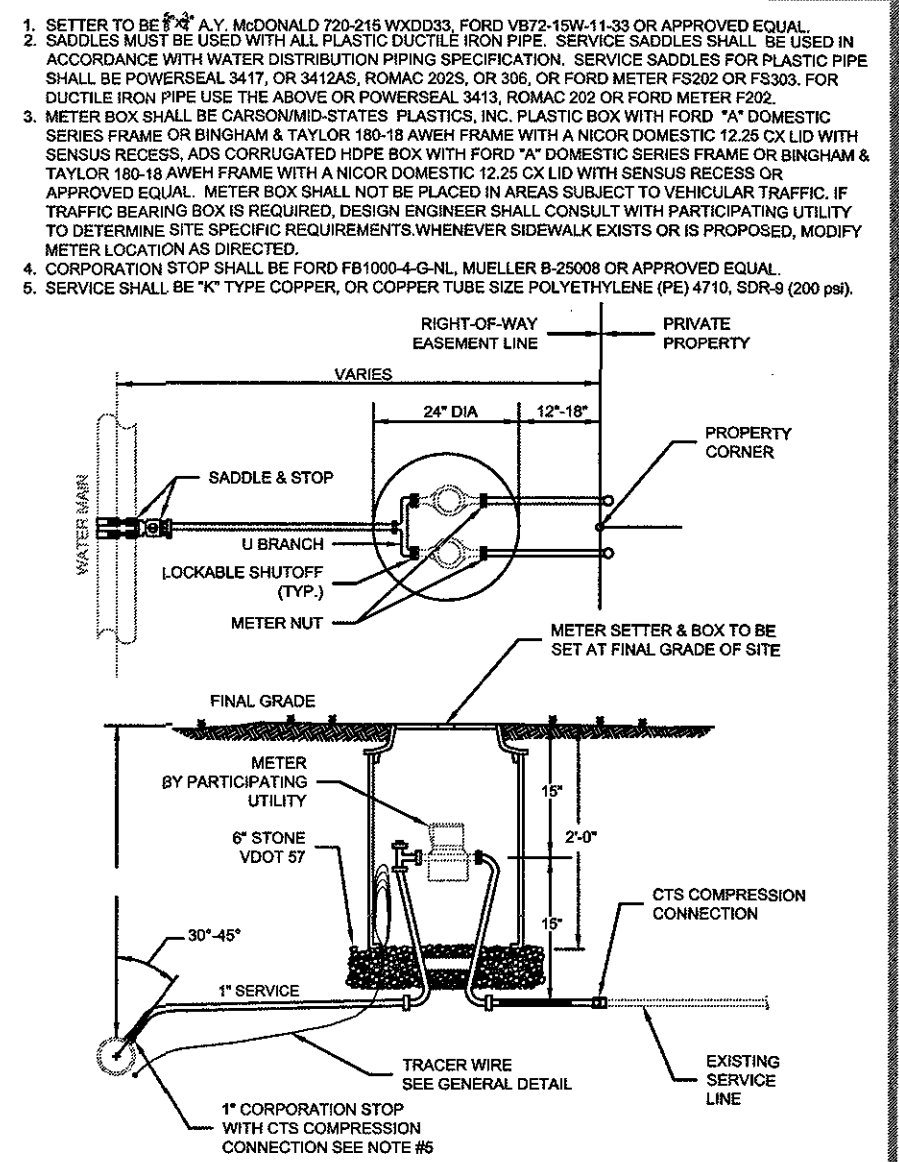
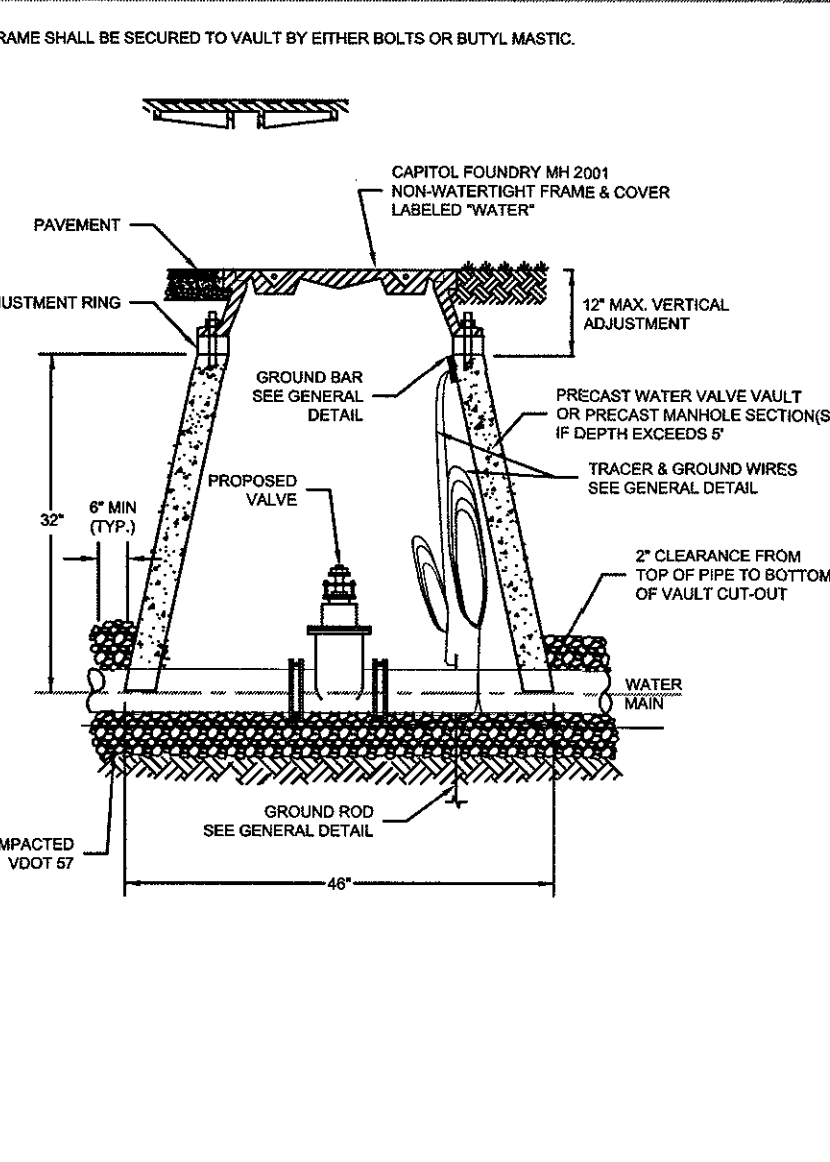


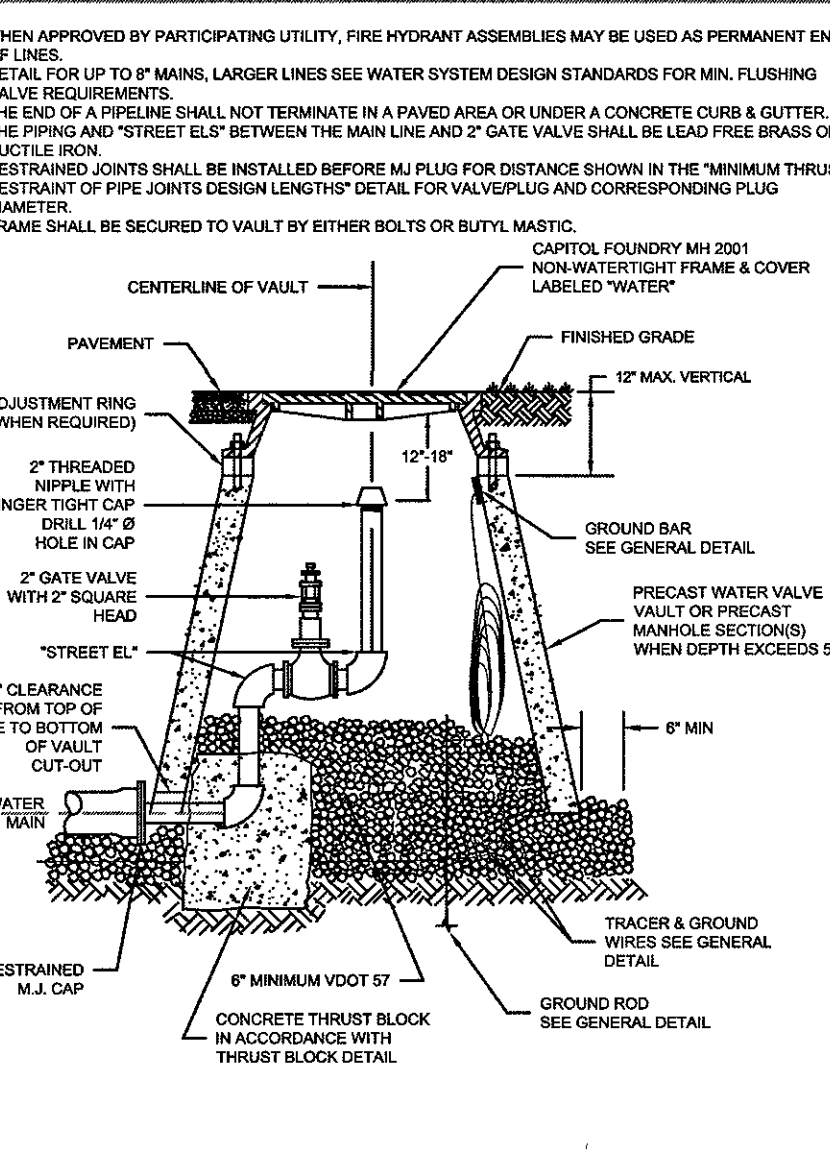
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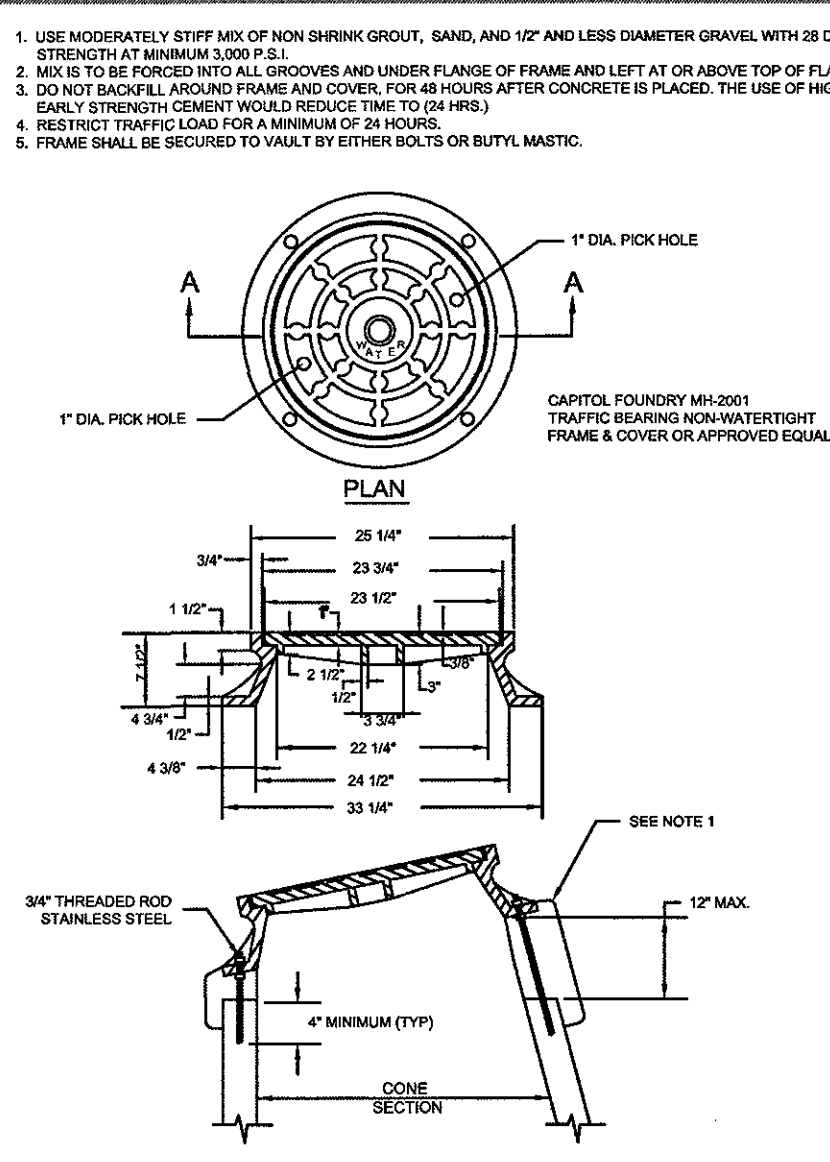
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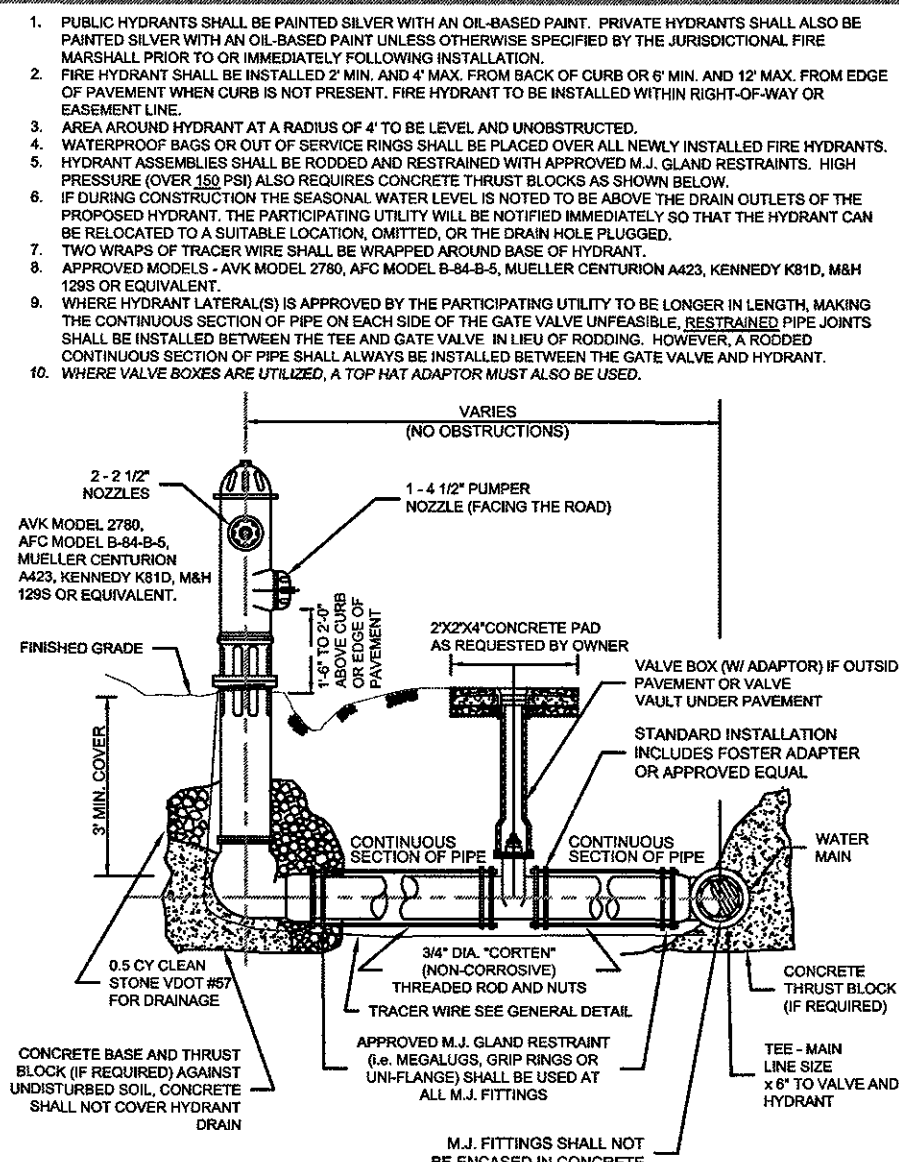
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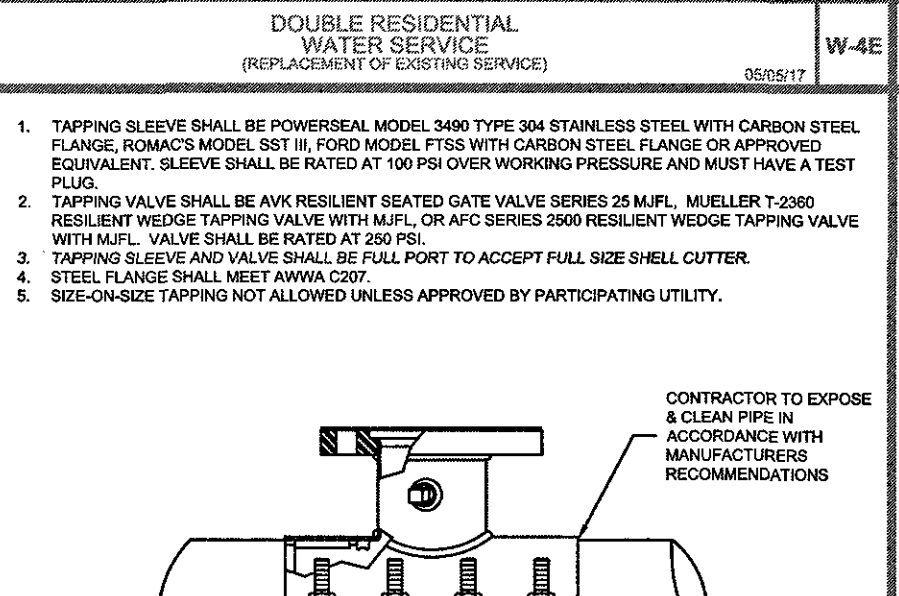
TABLE 3: TAPPING SLEEVE SHALL BE POWERSEAL MODEL 3490 TYPE 304 STAINLESS STEEL WITH CARBON STEEL FLANGE, ROMAC'S MODEL SET II, FORD MODEL FTSS WITH CARBON STEEL FLANGE OR APPROVED EQUIVALENT. SLEEVE SHALL BE RATED AT 100 PSI OVER WORKING PRESSURE AND MUST HAVE A TEST PLUG.

TABLE 4: TAPPING VALVE SHALL BE AWWA RESILIENT SEATED GATE VALVE SERIES 25 MFL, MUELLER T-2000 RESILIENT WEDGE TAPPING VALVE, OR AFW SERIES 2000 RESILIENT WEDGE TAPPING VALVE WITH MFL. VALVE SHALL BE RATED AT 200 PSI.

TABLE 5: TAPPING SLEEVE AND VALVE SHALL BE FULL PORT TO ACCEPT FULL SIZE SELL CUTTER. STEEL FLANGE SHALL MEET AWWA C207.

TABLE 6: SIZE-ON-SIZE TAPPING NOT ALLOWED UNLESS APPROVED BY PARTICIPATING UTILITY.

PIPE SIZE (INCHES)	PIPE WALL THICKNESS (INCHES)	VALVE SIZE (INCHES)	VALVE WALL THICKNESS (INCHES)	REDUCER SIZE (INCHES)	REDUCER WALL THICKNESS (INCHES)	45° VENT (INCHES)	90° VENT (INCHES)
4"	0.25	19"	6"	3"	50"	17"	21"
6"	0.25	21"	6"	3"	50"	26"	21"
8"	0.25	21"	6"	3"	50"	26"	21"
10"	0.25	21"	6"	3"	50"	26"	21"
12"	0.25	21"	6"	3"	50"	26"	21"
14"	0.25	21"	6"	3"	50"	26"	21"
16"	0.25	21"	6"	3"	50"	26"	21"
18"	0.25	21"	6"	3"	50"	26"	21"
20"	0.25	21"	6"	3"	50"	26"	21"
24"	0.25	21"	6"	3"	50"	26"	21"
30"	0.25	21"	6"	3"	50"	26"	21"
36"	0.25	21"	6"	3"	50"	26"	21"
42"	0.25	21"	6"	3"	50"	26"	21"
48"	0.25	21"	6"	3"	50"	26"	21"
54"	0.25	21"	6"	3"	50"	26"	21"
60"	0.25	21"	6"	3"	50"	26"	21"
66"	0.25	21"	6"	3"	50"	26"	21"
72"	0.25	21"	6"	3"	50"	26"	21"
78"	0.25	21"	6"	3"	50"	26"	21"
84"	0.25	21"	6"	3"	50"	26"	21"
90"	0.25	21"	6"	3"	50"	26"	21"
96"	0.25	21"	6"	3"	50"	26"	21"
102"	0.25	21"	6"	3"	50"	26"	21"
108"	0.25	21"	6"	3"	50"	26"	21"
114"	0.25	21"	6"	3"	50"	26"	21"
120"	0.25	21"	6"	3"	50"	26"	21"
126"	0.25	21"	6"	3"	50"	26"	21"
132"	0.25	21"	6"	3"	50"	26"	21"
138"	0.25	21"	6"	3"	50"	26"	21"
144"	0.25	21"	6"	3"	50"	26"	21"
150"	0.25	21"	6"	3"	50"	26"	21"
156"	0.25	21"	6"	3"	50"	26"	21"
162"	0.25	21"	6"	3"	50"	26"	21"
168"	0.25	21"	6"	3"	50"	26"	21"
174"	0.25	21"	6"	3"	50"	26"	21"
180"	0.25	21"	6"	3"	50"	26"	21"
186"	0.25	21"	6"	3"	50"	26"	21"
192"	0.25	21"	6"	3"	50"	26"	21"
198"	0.25	21"	6"	3"	50"	26"	21"
204"	0.25	21"	6"	3"	50"	26"	21"
210"	0.25	21"	6"	3"	50"	26"	21"
216"	0.25	21"	6"	3"	50"	26"	21"
222"	0.25	21"	6"	3"	50"	26"	21"
228"	0.25	21"	6"	3"	50"	26"	21"
234"	0.25	21"	6"	3"	50"	26"	21"
240"	0.25	21"	6"	3"	50"	26"	21"
246"	0.25	21"	6"	3"	50"	26"	21"
252"	0.25	21"	6"	3"	50"	26"	21"
258"	0.25	21"	6"	3"	50"	26"	21"
264"	0.25	21"	6"	3"	50"	26"	21"
270"	0.25	21"	6"	3"	50"	26"	21"
276"	0.25	21"	6"	3"	50"	26"	21"
282"	0.25	21"	6"	3"	50"	26"	21"
288"	0.25	21"	6"	3"	50"	26"	21"
294"	0.25	21"	6"	3"	50"	26"	21"
300"	0.25	21"	6"	3"	50"	26"	21"

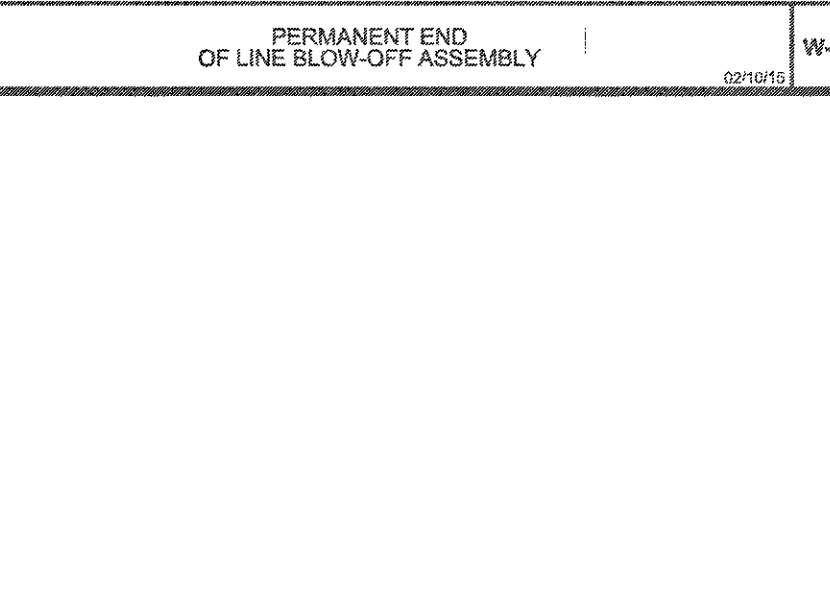


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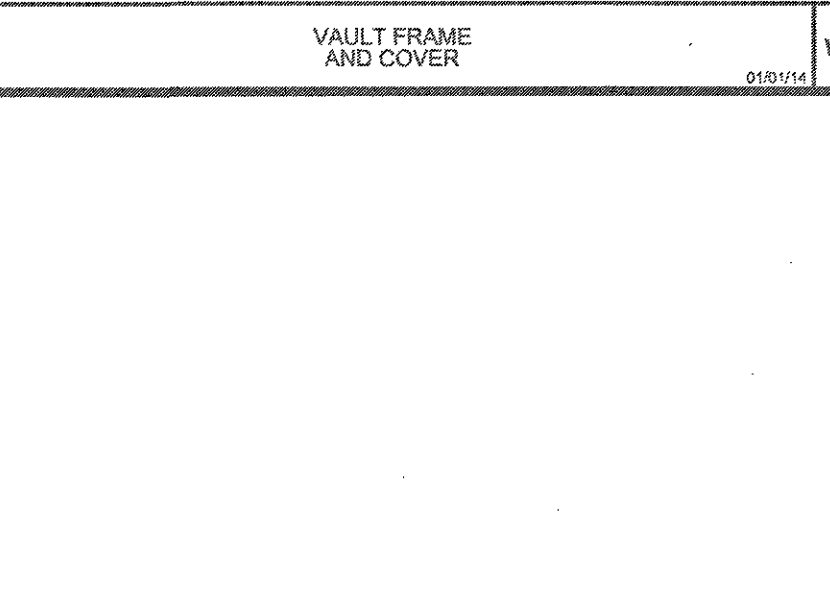
TABLE 7: INSTALLATION OF DUCTILE IRON WATER MAINS. TABLE 8: DUCTILE IRON PIPE DEFLECTION ALLOWANCE TABLES.

PIPE SIZE (INCHES)	DEFLECTION ANGLE (DEGREES)	JOINT LENGTH (FEET)	JOINT LENGTH (FEET)	JOINT LENGTH (FEET)	JOINT LENGTH (FEET)
4"	15	15	21	205	230
6"	15	15	21	205	230
8"	15	15	21	205	230
10"	15	15	21	205	230
12"	15	15	21	205	230
14"	15	15	21	205	230
16"	15	15	21	205	230
18"	15	15	21	205	230
20"	15	15	21	205	230
24"	15	15	21	205	230
30"	15	15	21	205	230
36"	15	15	21	205	230
42"	15	15	21	205	230
48"	15	15	21	205	230
54"	15	15	21	205	230
60"	15	15	21	205	230
66"	15	15	21	205	230
72"	15	15	21	205	230
78"	15	15	21	205	230
84"	15	15	21	205	230
90"	15	15	21	205	230
96"	15	15	21	205	230
102"	15	15	21	205	230
108"	15	15	21	205	230
114"	15	15	21	205	230
120"	15	15	21	205	230
126"	15	15	21	205	230
132"	15	15	21	205	230
138"	15	15	21	205	230
144"	15	15	21	205	230
150"	15	15	21	205	230
156"	15	15	21	205	230
162"	15	15	21	205	230
168"	15	15	21	205	230
174"	15	15	21	205	230
180"	15	15	21	205	230
186"	15	15	21	205	230
192"	15	15	21	205	230
198"	15	15	21	205	230
204"	15	15	21	205	230
210"	15	15	21	205	230
216"	15	15	21	205	230
222"	15	15	21	205	230
228"	15	15	21	205	230
234"	15	15	21	205	230
240"	15	15	21	205	230
246"	15	15	21	205	230
252"	15	15	21	205	230
258"	15	15	21	205	230
264"	15	15	21	205	230
270"	15	15	21	205	230
276"	15	15	21	205	230
282"	15	15	21	205	230
288"	15	15	21	205	230
294"	15	15	21	205	230
300"	15	15	21	205	230

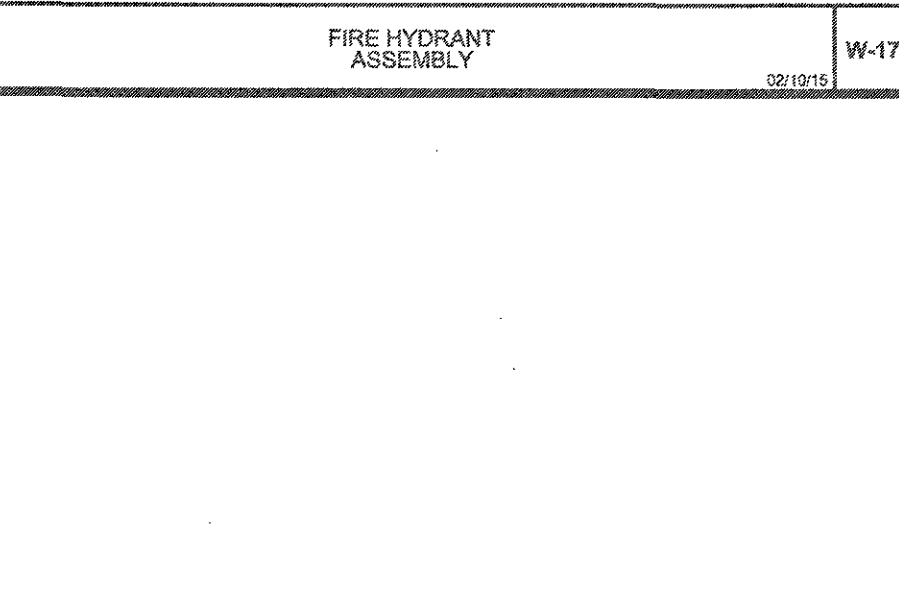
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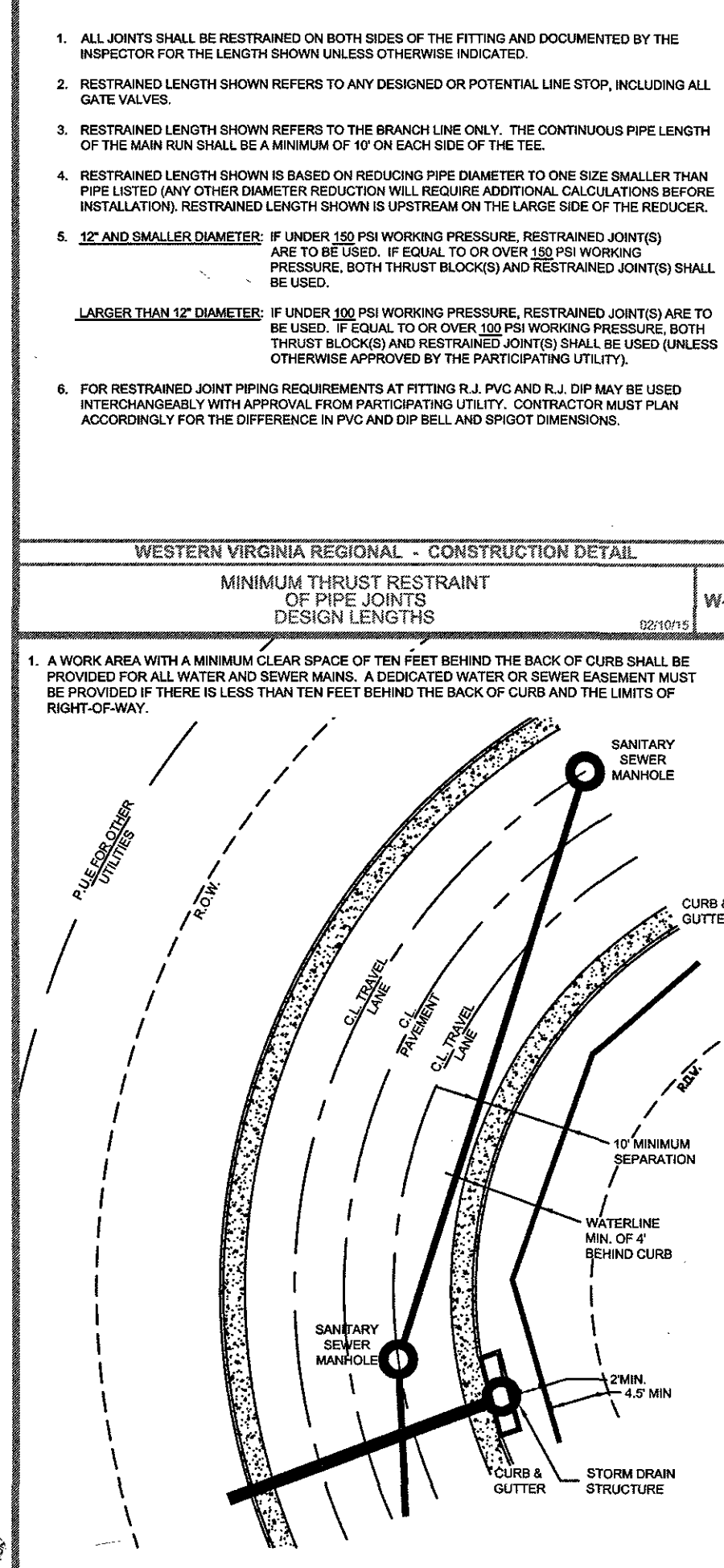
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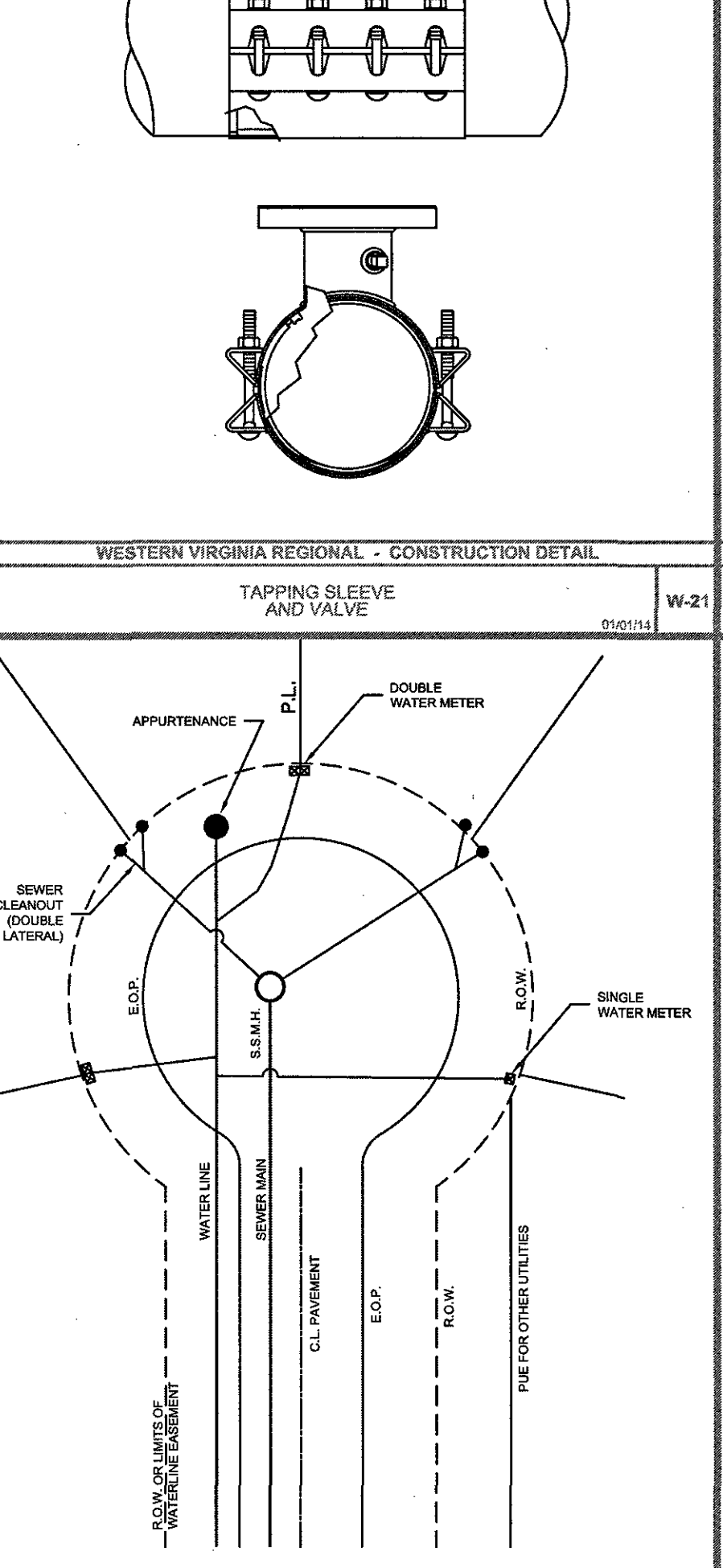
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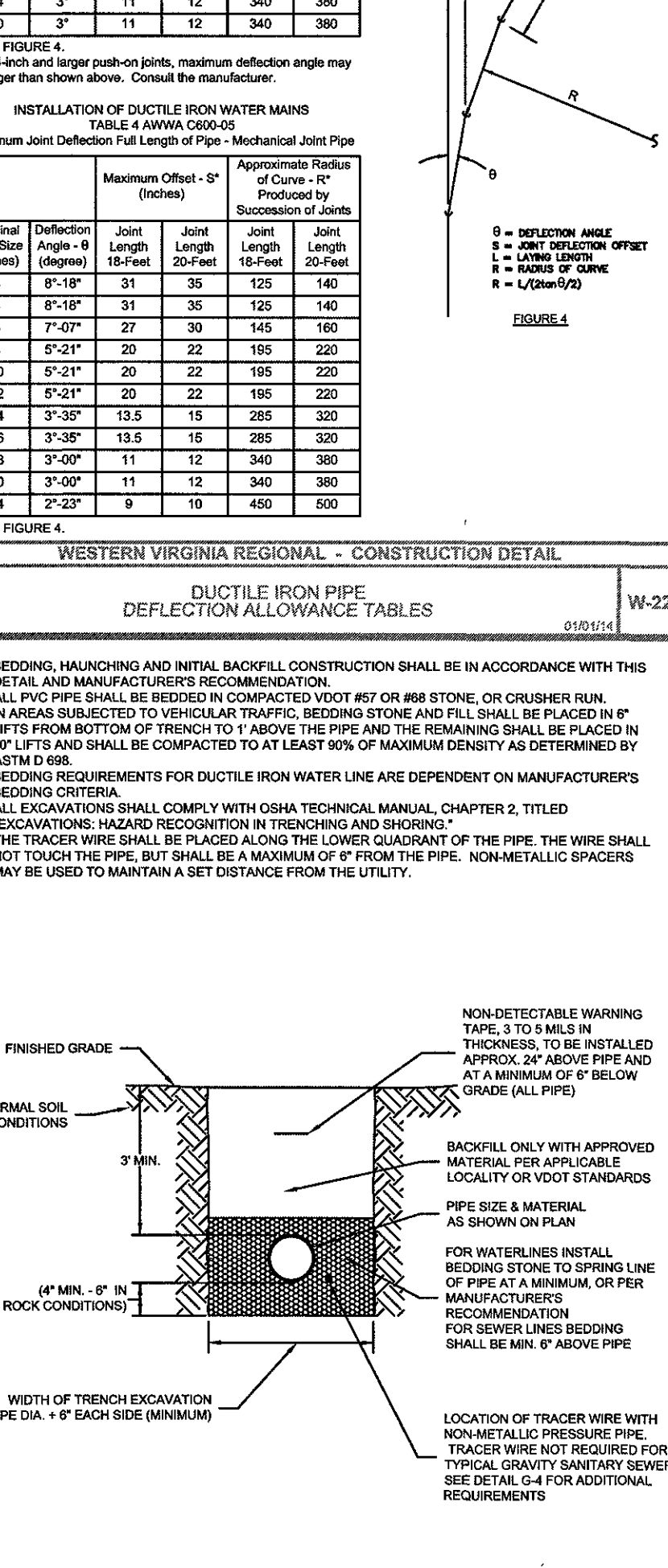
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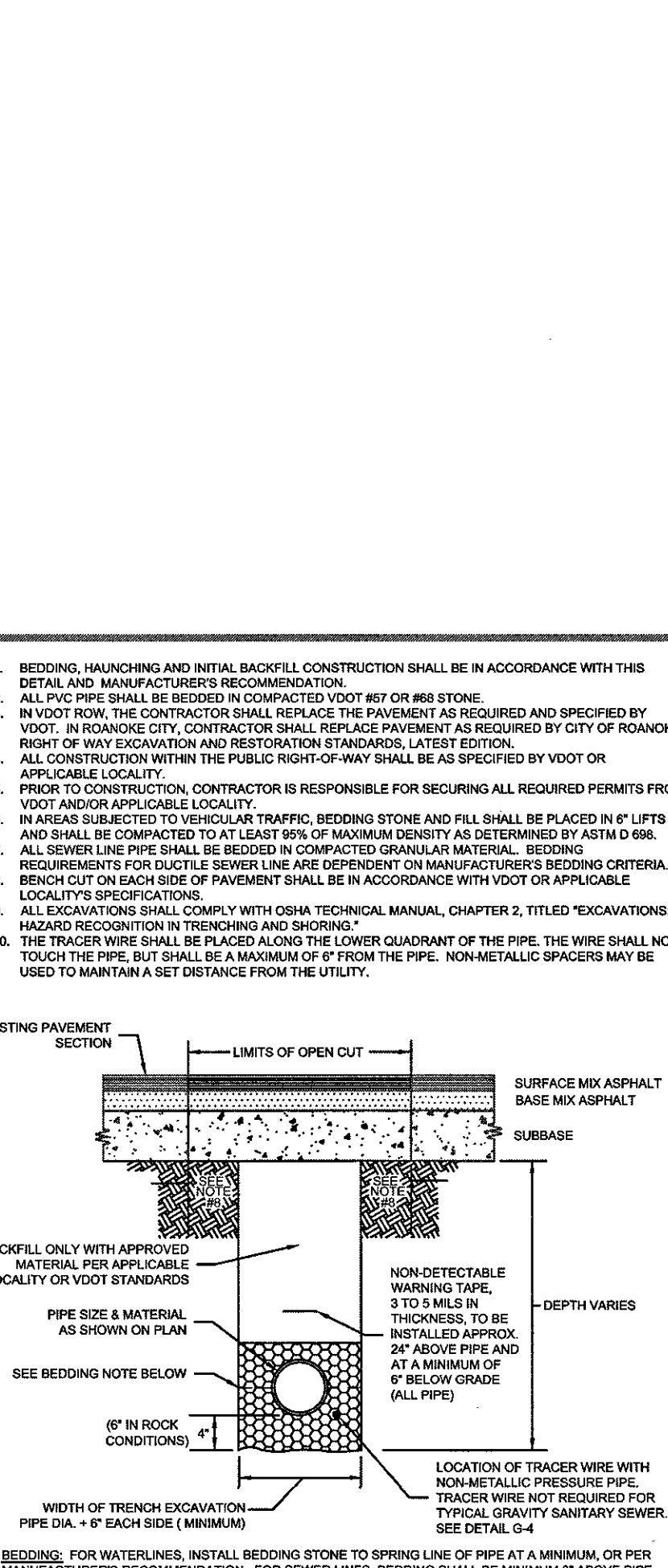
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WESTERN VIRGINIA

WATER AUTHORITY

ENGINEERING SERVICES

601 S JEFFERSON ST, SUITE 300

ROANOKE, VA 24011

540-853-5700

WESTERN VIRGINIA

W. MICHAEL ROBERTSON

Lic. No. 040203204

4/10/18

PROFESSIONAL

AMBER WAY WATERLINE REPLACEMENT

WATER & GENERAL DETAILS

By

Date

Description

Rev

Designed:

Drawn: DRJ

Checked:

WNR

Approved:

WNR

Date:

4/10/18

Project:

CIP-016/199

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Sheet 8 of 8