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- The drawing consists of two parts: a side elevation view at the top and a cross-sectional view at the bottom.
- Side Elevation View (Top):**
- Shows a horizontal 1" service line.
  - On the left, a "WATER MAIN" is shown with a "SADDLE & STOP" and a "1" SERVICE" connection.
  - A "LOCKABLE SHUTOFF" is located on the service line.
  - The meter is shown in profile with a "18" DIA." (diameter) and a "12"-18" (length) section.
  - A "METER NUT" is indicated on the right side of the meter.
  - The distance from the shutoff to the meter is labeled "VARIES".
  - The distance from the meter to the "RIGHT-OF-WAY EASEMENT LINE" is labeled "PRIVATE PROPERTY".
  - The "METER SETTER & BOX TO BE SET AT FINAL GRADE OF SITE" is shown below the meter.
  - The "FINAL GRADE" is indicated by a horizontal line with hatching below it.
- Cross-Sectional View (Bottom):**
- Shows the meter installed in a trench.
  - The "METER BY PARTICIPATING UTILITY" is shown inside the meter box.
  - The meter is supported by a "6" STONE VDOUT 57" (vent drain outlet).
  - The trench is filled with gravel.
  - The "METER SETTER & BOX" is shown with dimensions: "15" (height from final grade to top of box), "2'-0" (width of box), and "15" (height from final grade to bottom of box).
  - The "CTS COMPRESSION CONNECTION" is shown on the right side of the meter box.
  - The "1" SERVICE" line is shown at the bottom of the trench.
  - The "TRACER WIRE SEE GENERAL DETAIL" is shown running along the service line.
  - The "EXISTING SERVICE LINE" is shown on the right side of the trench.
  - The "1" CORPORATION STOP WITH CTS COMPRESSION CONNECTION SEE NOTE #4" is shown on the left side of the trench.
  - The angle of the trench walls is labeled "30"-45".
  - The "FINAL GRADE" is indicated by a horizontal line with hatching above the trench.

W-2

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- WATER MAIN
- VARIABLES
- RIGHT-OF-WAY EASEMENT LINE
- PRIVATE PROPERTY
- PROPERTY CORNER
- SADDLE & STOP
- U BRANCH
- LOCKABLE SHUTOFF (TYP.)
- DUAL CHECK VALVE
- METER SETTER & BOX TO BE SET AT FINAL GRADE OF SITE
- FINAL GRADE
- METER BY PARTICIPATING UTILITY
- 6" STONE VDOT 57
- 3/4" Ø x 6' PIG TAIL TO BE CAPPED & MARKED OR STAKED
- 15"
- 15"
- 30°-45°
- 1" SERVICE
- TRACER WIRE SEE GENERAL DETAIL
- 1" CORPORATION STOP WITH CTS COMPRESSION

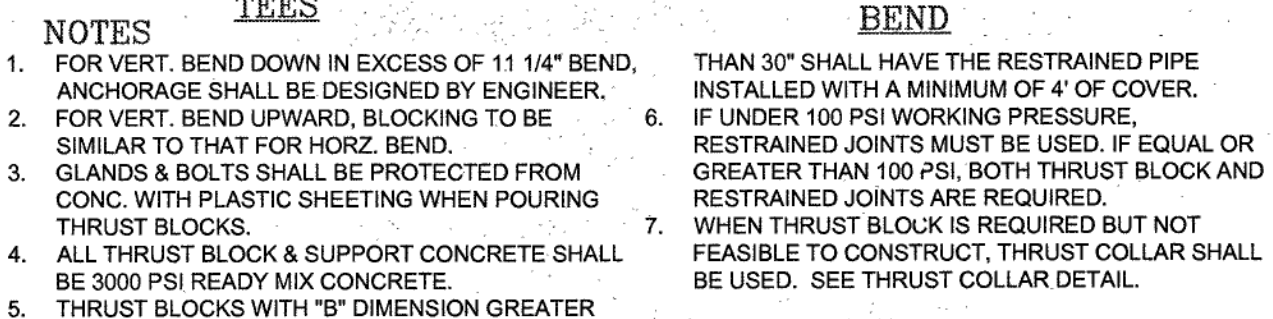
W-4

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- PAVEMENT
- FINISHED GRADE
- 12" MAX. VERTICAL
- ADJUSTMENT RING (WHEN REQUIRED)
- 12" MIN.
- COMBINATION AIR VALVE  
AFCO 143C,  
A.R.I. D-040,  
VAL-MATIC 201C.2,  
OR EQUIVALENT
- 1" CORPORATION STOP MUELLER  
H-15000 OR EQUIVALENT
- 6" MIN.
- GROUND BAR  
SEE GENERAL DETAIL  
PROVIDE  
SS SCREEN  
(CHRISTY'S VCI OR  
APPROVED EQUAL)
- PRECAST WATER VALVE  
VAULT OR PRECAST  
MANHOLE SECTION(S)  
WHEN DEPTH EXCEEDS 5'
- TRACER & GROUND  
WIRES SEE GENERAL  
DETAIL
- 6" MINIMUM  
VDOT 57
- WATER MAIN
- SEE NOTE #1
- GROUND ROD  
SEE GENERAL DETAIL
- 1" GATE VALVE
- 1" THREADED LEAD FREE BRASS PIPE  
LENGTH AS REQUIRED TO COMPLETE  
FULL ASSEMBLY AS SHOWN ABOVE
- 1" CORPORATION STOP MUELLER  
H-15000 OR EQUIVALENT
- WATER MAIN
- COMPACTED VDOT 57  
TO BOTTOM OF VAULT  
AS SHOWN ABOVE
- FOR DEEP WATERLINES

W-1

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- VARIES  
(NO OBSTRUCTIONS)
- 2 - 2 1/2" NOZZLES
- 1 - 4 1/2" PUMPER NOZZLE (FACING THE ROAD)
- AVK MODEL 2780, AFC MODEL B-84-B, MUELLER CENTURION A423, KENNEDY K81D EQUIVALENT.
- 1/8" TO 2" CURB OR EDGE OF PAVEMENT
- 2'X2'4" CONCRETE PAD
- VALVE BOX OUTSIDE PAVEMENT OR VALVE VAULT UNDER PAVEMENT
- STANDARD INSTALLATION INCLUDES FOSTER ADAPTER OR APPROVED EQUAL
- FINISHED GRADE
- 3' MIN. COVER
- CONTINUOUS SECTION OF PIPE
- CONTINUOUS SECTION OF PIPE
- WATER MAIN
- 0.5 CY CLEAN STONE VDOT #57 FOR DRAINAGE
- 3/4" DIA. "GORTEN" THREADED ROD AND NUTS
- TRACER WIRE SEE GENERAL DETAIL
- CONCRETE BASE AND THRUST BLOCK AGAINST UNDISTURBED SOIL. CONCRETE SHALL NOT COVER HYDRANT DRAIN
- APPROVED M.J. GLAND RESTRAINT (i.e. MEGALUGS, GRIP RINGS OR UNI-FLANGE) MAY BE SUBSTITUTED FOR CONCRETE THRUST BLOCKS
- CONCRETE THRUST BLOCK
- TEE - MAIN LINE SIZE BY 6"
- M.J. FITTINGS SHALL NOT

W-17



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"	8"	6"	6"	6"	6"	1 1/4"	9"	10"	6"
6"	18"	12"	8"	10"	8"	8"	8"	8"	1 1/4"	10"	12"	18"
8"	18"	13"	10"	10"	8"	8"	8"	8"	1 1/4"	12"	12"	24"
10"	20"	16"	12"	14"	8"	12"	8"	12"	1 1/4"	14"	16"	36"
12"	20"	16"	12"	14"	8"	12"	8"	12"	1 1/4"	16"	16"	36"
14"	28"	20"	16"	18"	10"	14"	10"	11 1/4"	1 1/4"	18"	20"	36"
24"	28"	42"	62"	30"	42"	42"	22"	18"	82"	42"	82"	42"
30"	185"	42"	100"	42"	52"	42"	40"	30"	185"	42"	185"	42"

W-18

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. REDUCED OR ONE SIZE SMALLER THAN PIPE LISTED. RESTRAINED LENGTH IS UPSTREAM ON THE LARGE SIDE OF THE REDUCER.
3. IF UNDER 100 PSI WORKING PRESSURE, RESTRAINED JOINT(S) ARE TO BE USED, IF EQUAL TO OR OVER 100 PSI WORKING PRESSURE, BOTH THRU BLOCK AND RESTRAINED JOINTS SHALL BE USED.
4. FOR RESTRAINED JOINT PIPING REQUIREMENTS AT FITTING R.J. PVC AND R.J. DIP MAY BE USED INTERCHANGEABLY.

W-1

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Nominal Pipe Size (inches)	Deflection Angle - $\Phi$ (degree)	Maximum Offset - S" (inches)		Approximate Radius of Curve - R" Produced by Succession of Joints	
		Joint Length 18-Ft	Joint Length 20-Ft	Joint Length 18-Ft	Joint Length 20-Ft
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

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# PORTLAND AVENUE DRAINAGE IMPROVEMENTS

CITY OF ROANOKE, VIRGINIA



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