

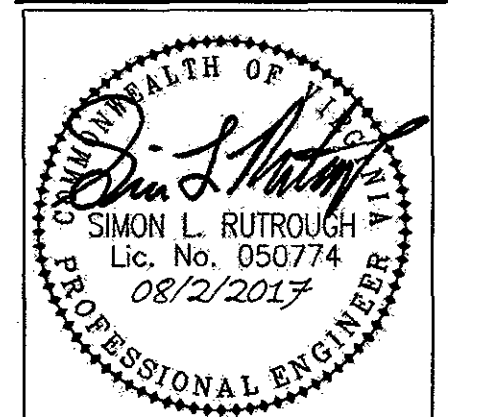
UTILITY DEVELOPMENT NOTES:

1. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO THE LATEST WWA DESIGN AND CONSTRUCTION STANDARDS.
2. THE CONTRACTOR OR DEVELOPER IS REQUIRED TO NOTIFY THE WESTERN VIRGINIA WATER AUTHORITY IN WRITING AT LEAST THREE (3) DAYS PRIOR TO ANY CONSTRUCTION. PLEASE CONTACT MARK SINK AT (540) 537-3460.
3. ALL WORK SHALL BE SUBJECT TO INSPECTION BY THE WESTERN VIRGINIA WATER AUTHORITY.
4. FIELD CORRECTIONS SHALL BE APPROVED BY THE WESTERN VIRGINIA WATER AUTHORITY PRIOR TO SUCH CONSTRUCTION.
5. THE CONTRACTOR SHALL MAINTAIN A MINIMUM OF 18" CLEARANCE VERTICALLY AND 2' MINIMUM HORIZONTALLY FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE AT ALL WATER, SANITARY SEWER CROSSINGS OF ANY OTHER UTILITIES. WHERE THIS CANNOT BE ACHIEVED ADDITIONAL MEASURES IN ACCORDANCE WITH WWA STANDARDS SHALL BE ENFORCED.
6. ANY EXISTING APPURTENANCES SHALL BE ADJUSTED TO GRADE AND NEW FRAME AND COVERS SHALL BE INSTALLED WHERE REQUIRED.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAVE ALL EXISTING UTILITIES LOCATED AND POTHOLED TO VERIFY LOCATIONS. THIS PLAN REVIEW DOES NOT REMOVE THE CONTRACTOR'S RESPONSIBILITY TO RELOCATE ANY EXISTING CONFLICTS FOUND DURING CONSTRUCTION.
8. ALL WATER AND SANITARY SEWER FACILITIES ARE TO BE INSTALLED ACCORDING TO THE WESTERN VIRGINIA WATER AUTHORITY DESIGN AND CONSTRUCTION STANDARDS.
9. ALL WATER CONNECTIONS TO EXISTING LINES SHALL BE COORDINATED WITH AND PERFORMED BY THE WESTERN VIRGINIA WATER AUTHORITY.
10. ALL WATER AND SANITARY SEWER FACILITIES ARE TO BE INSTALLED ACCORDING TO THE WESTERN VIRGINIA WATER AUTHORITY DESIGN AND CONSTRUCTION STANDARDS.
11. CONTRACTOR TO PROVIDE THE WWA WITH 5 BUSINESS DAYS' NOTICE TO SCHEDULE ANY EXPECTED WATER OUTAGES. PLEASE CONTACT MARK SINK AT (540) 537-3460.
12. CONTRACTOR TO SUBMIT TO WWA A SHOP DRAWING OF WATER VAULT PRIOR TO VAULT INSTALLATION. PLEASE SUBMIT TO STEVEN.EAKIN@WESTERNVA.WA.ORG.

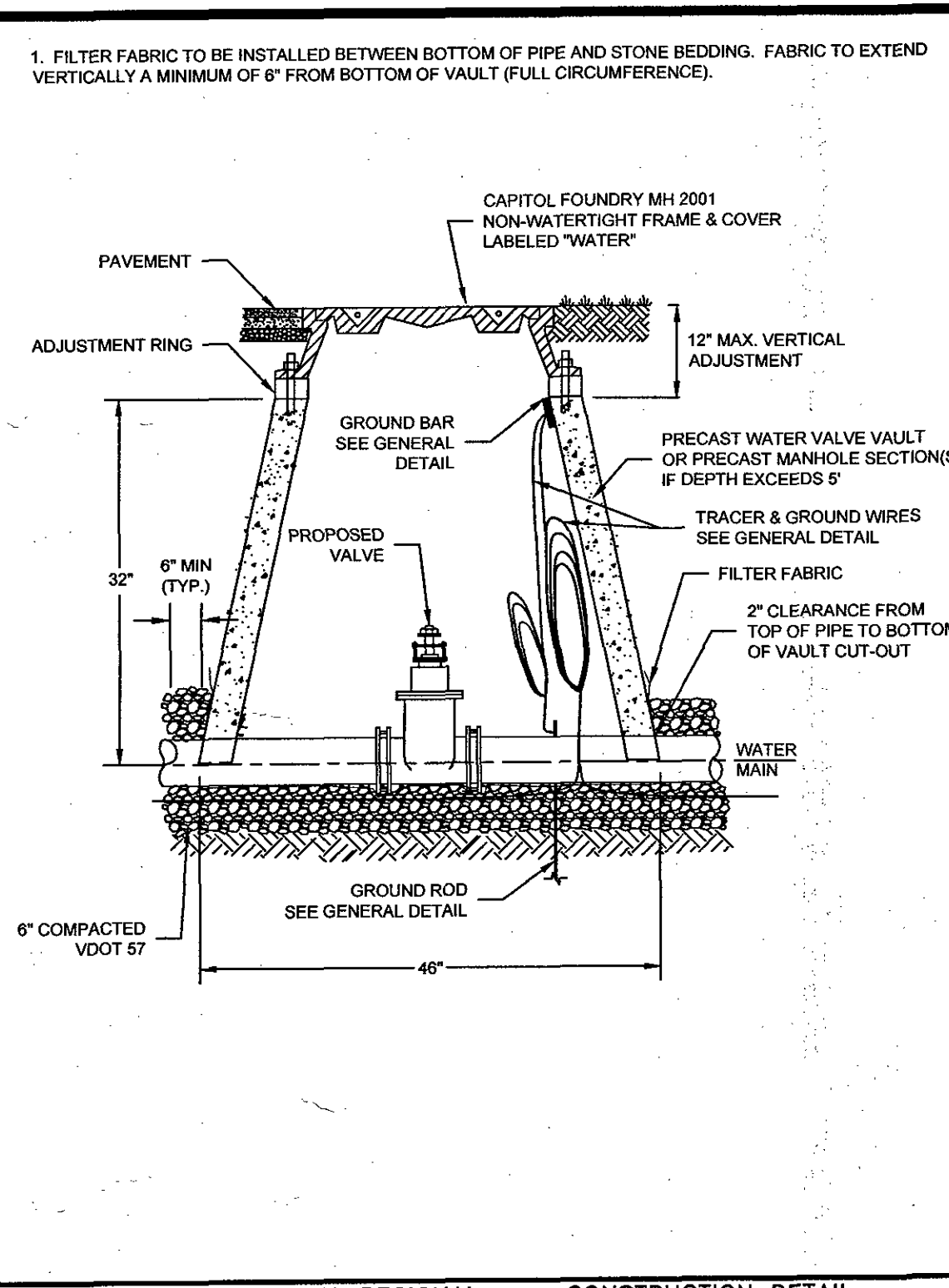
**parker**  
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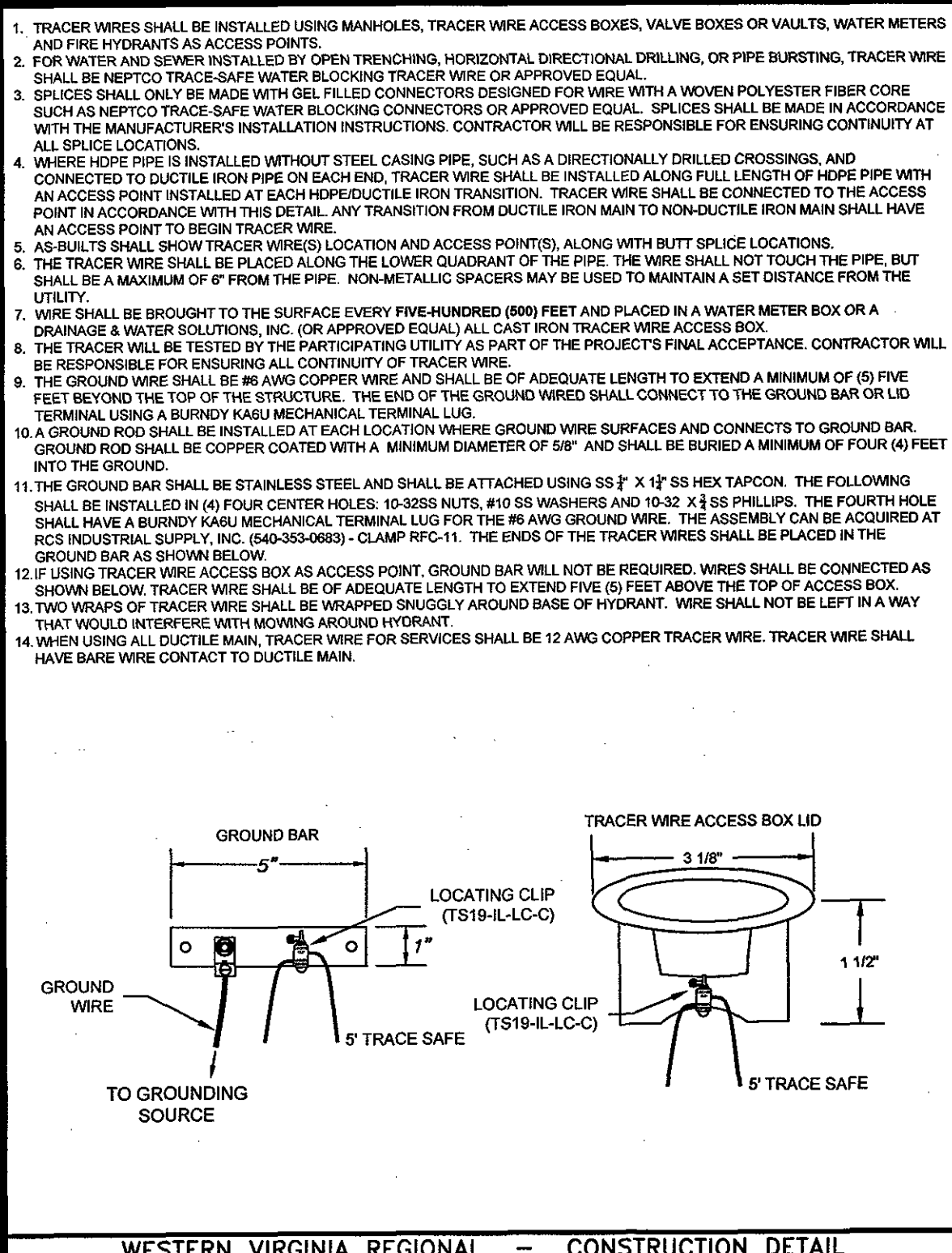
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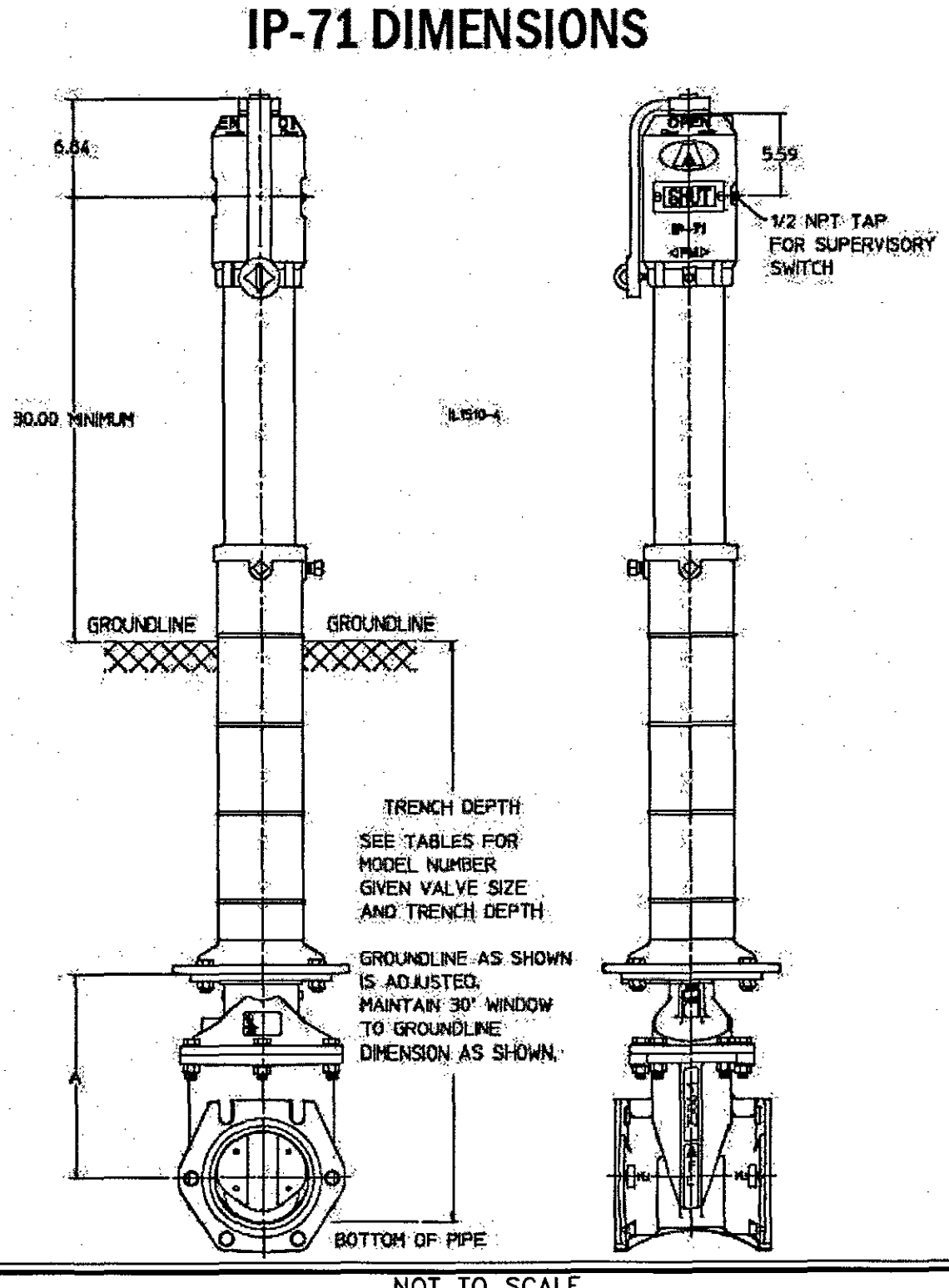
**Koppers Waterline Extension**  
for Koppers Industries, Inc.  
4020 Koppers Road  
Catawba Magisterial District  
Roanoke County, Virginia



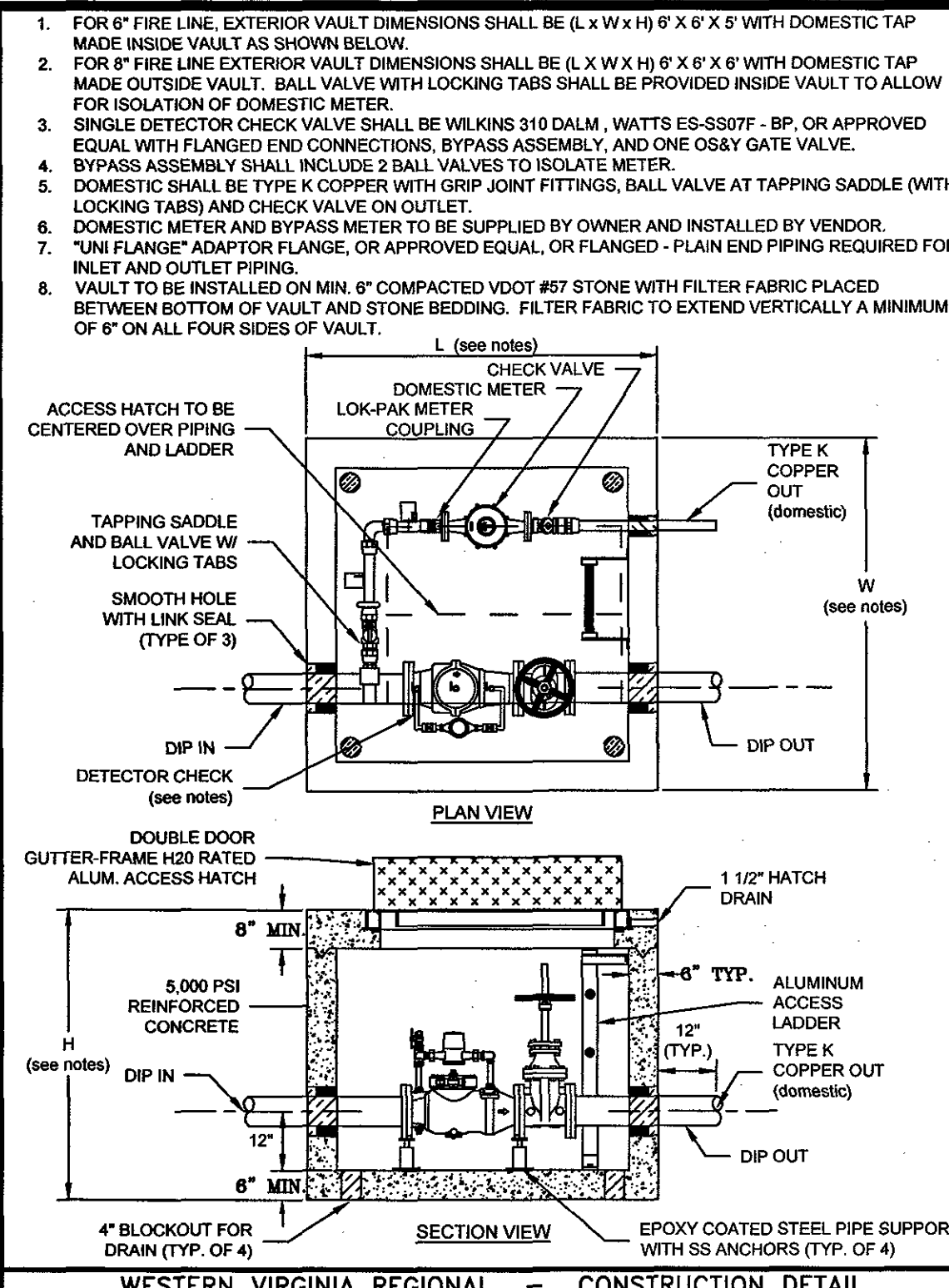
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL  
WATER LINE VALVE & VAULT  
01/01/14 W-9



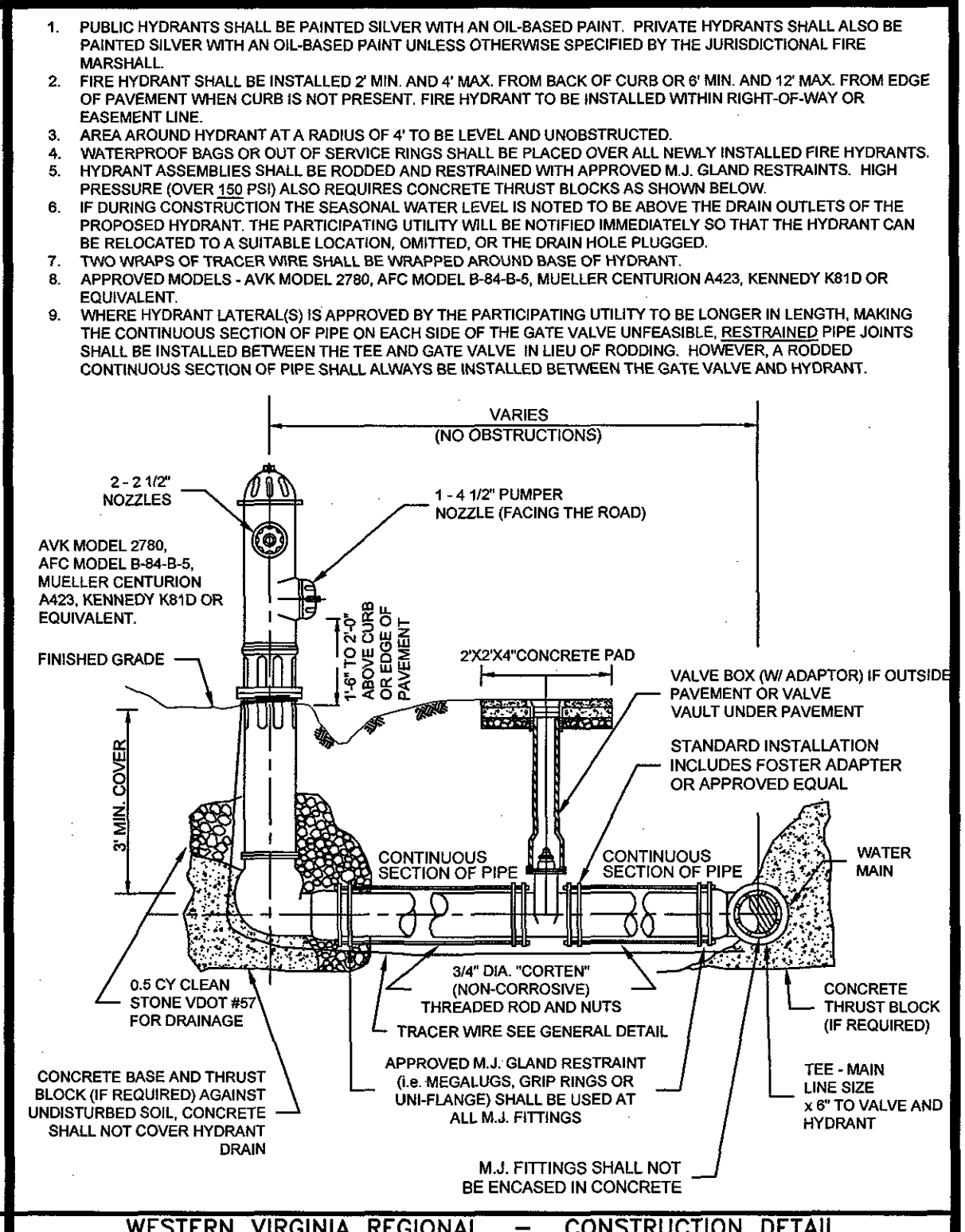
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL  
TRACER WIRE FOR NON-METALLIC PRESSURE PIPE  
09/06/16 G-4



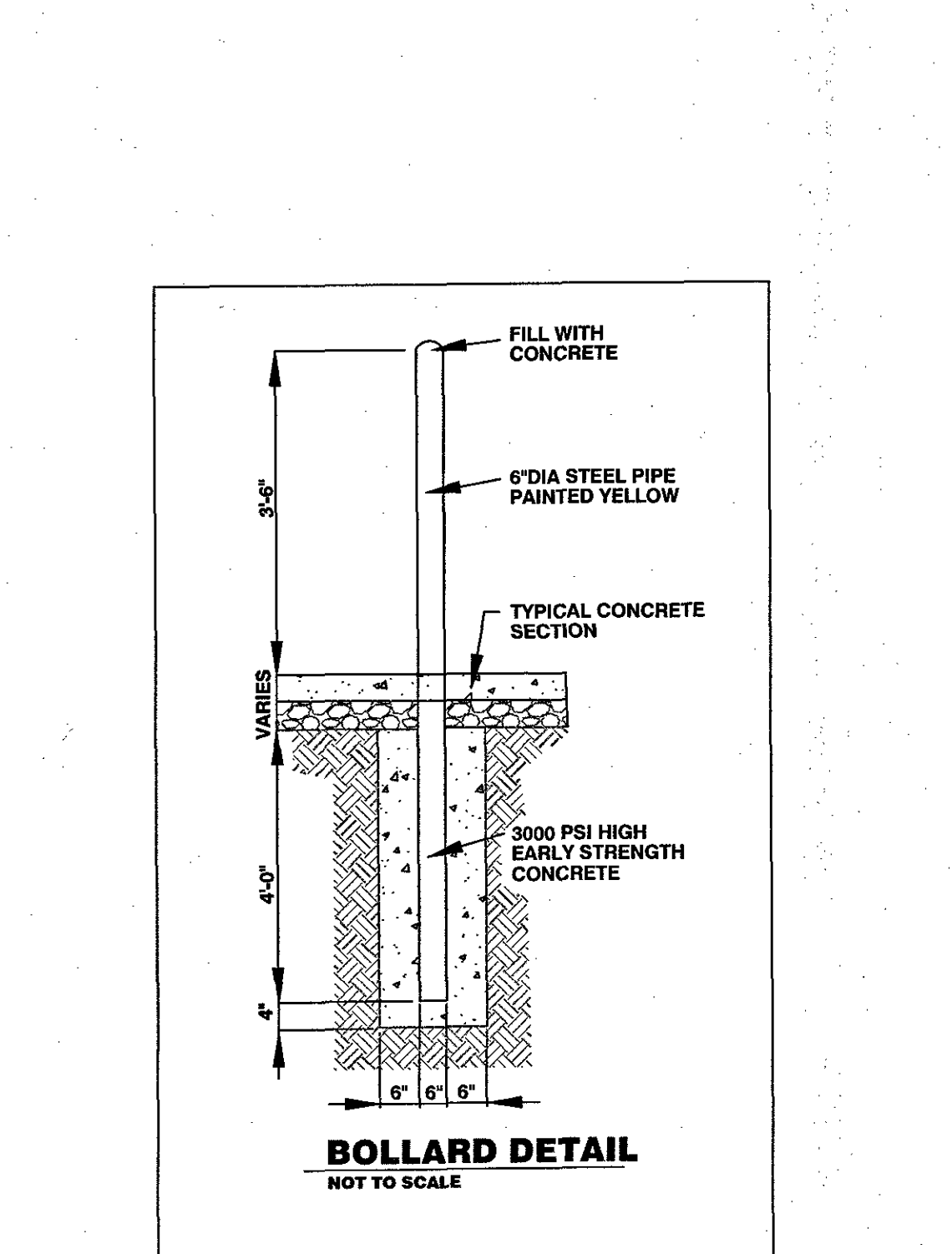
NOT TO SCALE  
AMERICAN POST INDICATOR VALVE (PIV)  
08/01/15



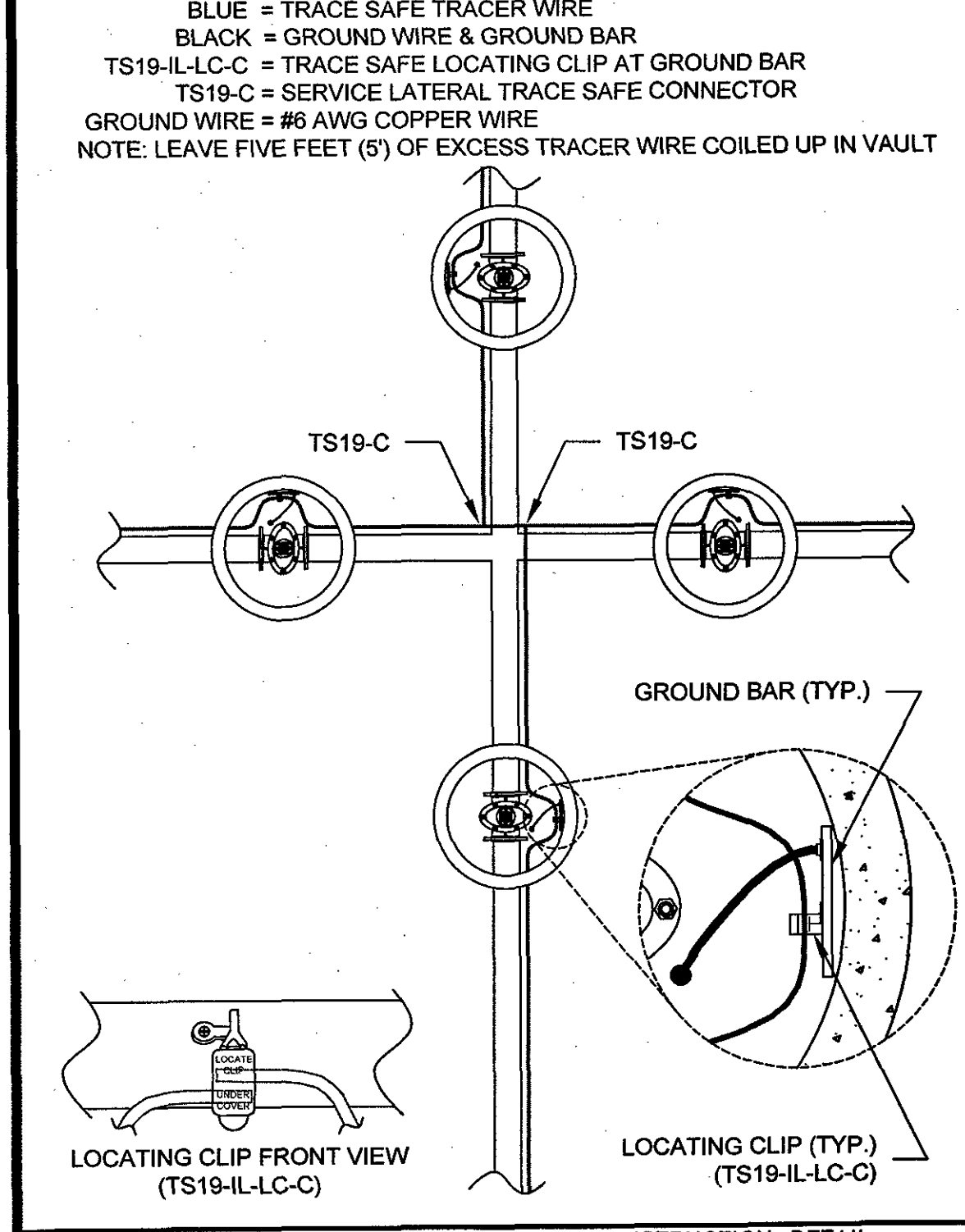
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL  
COMMERCIAL METER VAULT  
02/10/15 W-7



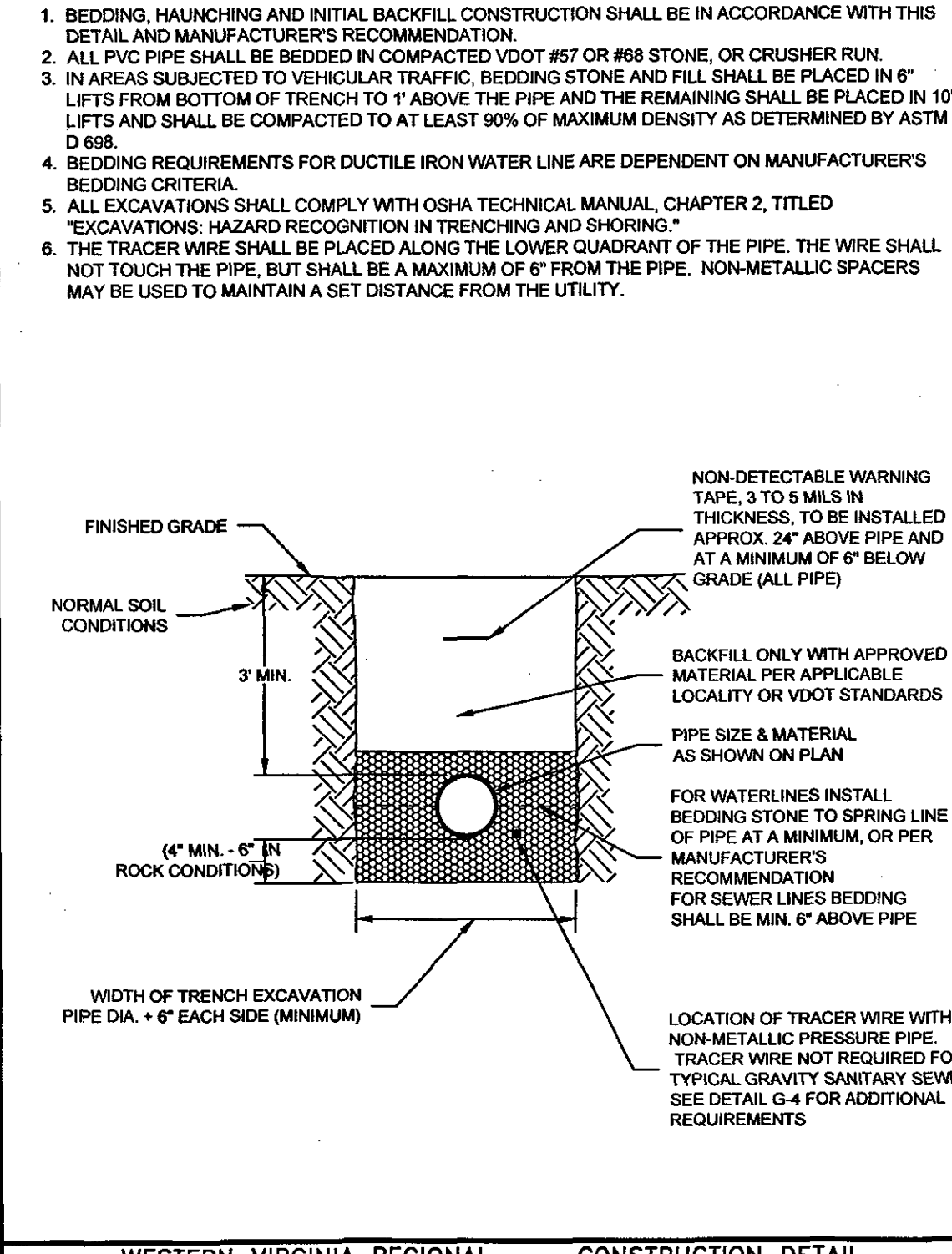
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL  
FIRE HYDRANT ASSEMBLY  
02/10/15 W-17



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL  
TRACER WIRE SAMPLE TEE/CROSS INTERSECTION  
09/06/16 G-4A



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL  
BEDDING AND BACKFILL OUTSIDE OF PAVED AREAS  
08/01/15 G-11



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL  
THRUST BLOCK REQUIREMENTS  
02/10/15 W-18

MINIMUM THRUST RESTRAINT OF PIPE JOINTS DESIGN LENGTHS

PIPE SIZE	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	TEE	PLUG
4"	8'	12'	14'	16'	11'	10'
6"	12'	18'	22'	26'	17'	16'
8"	16'	24'	30'	36'	23'	22'
10"	20'	30'	38'	46'	29'	28'
12"	24'	36'	46'	56'	35'	34'
16"	32'	48'	60'	72'	47'	46'
20"	40'	60'	76'	92'	59'	58'
24"	48'	72'	92'	112'	71'	70'
30"	60'	90'	116'	140'	89'	88'

WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL  
THRUST BLOCK REQUIREMENTS  
02/10/15 W-18

MINIMUM THRUST RESTRAINT OF PIPE JOINTS DESIGN LENGTHS

PIPE SIZE	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	TEE	PLUG
4"	8'	12'	14'	16'	11'	10'
6"	12'	18'	22'	26'	17'	16'
8"	16'	24'	30'	36'	23'	22'
10"	20'	30'	38'	46'	29'	28'
12"	24'	36'	46'	56'	35'	34'
16"	32'	48'	60'	72'	47'	46'
20"	40'	60'	76'	92'	59'	58'
24"	48'	72'	92'	112'	71'	70'
30"	60'	90'	116'	140'	89'	88'

WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL  
MINIMUM THRUST RESTRAINT OF PIPE JOINTS DESIGN LENGTHS  
02/10/15 W-19

REVISIONS:

NO.	DESCRIPTION	DATE
1	APPROVED	07 April 2017

DESIGNED BY: JPA  
DRAWN BY: JPA  
CHECKED BY: SLR  
SCALE: AS SHOWN  
DATE: 07 April 2017

SHEET TITLE:  
WATERLINE  
DETAILS & UTILITY  
NOTES  
C07  
07 OF 09  
PROJECT NUMBER:  
16-0151-03