

WATER NOTES

- ALL WATER FACILITIES SHALL BE INSTALLED ACCORDING TO THE WESTERN VIRGINIA WATER AUTHORITY (WVWA) DESIGN AND CONSTRUCTION STANDARDS (LATEST REVISION)
- ALL CONNECTIONS TO THE EXISTING WATER MAINS SHALL BE COORDINATED WITH THE WVWA
- A MINIMUM COVER OF 3 FEET IS REQUIRED OVER PROPOSED LINES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND UNCOVERING VALVE VAULTS AFTER PAVING AND ADJUSTMENT TO FINAL GRADE IF NECESSARY.
- ALL EXISTING UTILITIES MAY NOT BE SHOWN IN THE EXACT LOCATION. THE CONTRACTOR SHALL COMPLY WITH THE STATE WATER WORKS REGULATION, SECTION 12.05.03 WHERE LINES CROSS.
- ALL EXCAVATION, BACKFILL AND PAVEMENT REPLACEMENT IN THE VDOT RIGHT OF WAY SHALL BE REPLACED IN ACCORDANCE WITH THELUP-SP & LUP-OC PROVISIONS.
- ALL TRENCHES IN EXISTING RIGHT OF WAYS SHALL BE COMPACTED ACCORDING TO VDOT STANDARDS.
- ALL WATER MAINS SHALL BE CLASS 350 DUCTILE IRON IN ACCORDANCE WITH AWWA C151 OR DR-14 PVC IN ACCORDANCE WITH AWWA C-900. ALL PAVEMENT CUTS SHOULD BE SAW CUT AND EDGES TACK COATED PRIOR TO PAVING.
- DUCTILE IRON PIPE IN ACCORDANCE WITH THE WESTERN VIRGINIA WATER AUTHORITY DESIGN AND CONSTRUCTION STANDARDS SHALL BE REQUIRED FOR ALL PIPE WITH A WORKING PRESSURE EQUAL TO OR GREATER THAN 100 PSI.
- THE CONTRACTOR SHALL FLUSH AND DISINFECT IN ACCORDANCE WITH AWWA SPECIFICATION C651, LATEST REVISION.

SURVEY NOTES

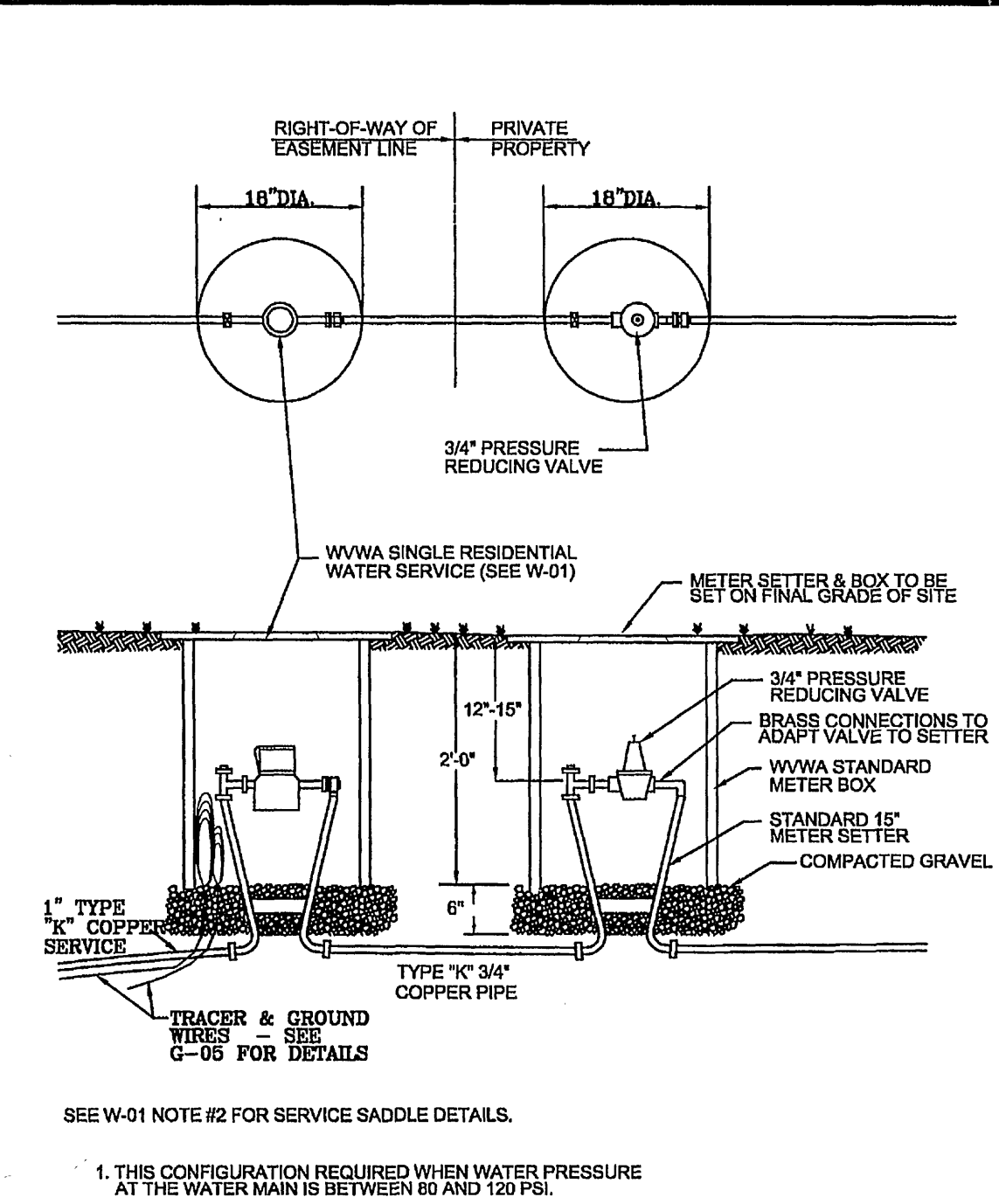
- THIS PLAN WAS PREPARED WITHOUT BENEFIT OF A TITLE REPORT AND IS SUBJECT THERETO. THEREFORE, THERE MAY EXIST ENCUMBRANCES WHICH AFFECT THE PROPERTY NOT SHOWN HEREON.
- THE SUBJECT PROPERTY IS NOT WITHIN THE LIMITS OF ZONE "X" AS SHOWN ON THE FEMA FLOOD INSURANCE RATE MAP PANEL 51161CQ262G, REVISED SEPTEMBER 28, 2007. THIS DETERMINATION IS BASED ON SAID MAP AND HAS BEEN VERIFIED BY ACTUAL FIELD ELEVATIONS.
- THIS MAP WAS PREPARED FROM THE COUNTY OF ROANOKE & WVWA MAPPING AND FIELD SURVEY INFORMATION CONDUCTED BY WVWA ON JUNE 22 & NOVEMBER 3, 2009.
- CONTOURS ARE SHOWN AT ONE (2) FOOT INTERVALS AND ARE BASED ON NAVD 88 DATUM. BENCHMARKS ARE SHOWN ON PLAN.
- UTILITIES SHOWN ARE AS LOCATED IN THE FIELD AND AVAILABLE RECORDS AND SHOULD BE CONSIDERED APPROXIMATE. "MISS UTILITY" HAS NOT MARKED ANY UTILITIES. THE WVWA DOES NOT WARRANT THE LOCATION OF THE UNDERGROUND UTILITIES.
- REFERENCE MAPS: PB 30 PG 178 PLAT SHOWING SURVEY PROPERTY OF PHILIP L. BOONE JR., CECILA & BARBARA BOONE O. W. BOONE ESTATE BY PARKER DESIGN GROUP DATED JUNE 5, 2006.

OFFSITE WASTE AND BORROW NOTE:

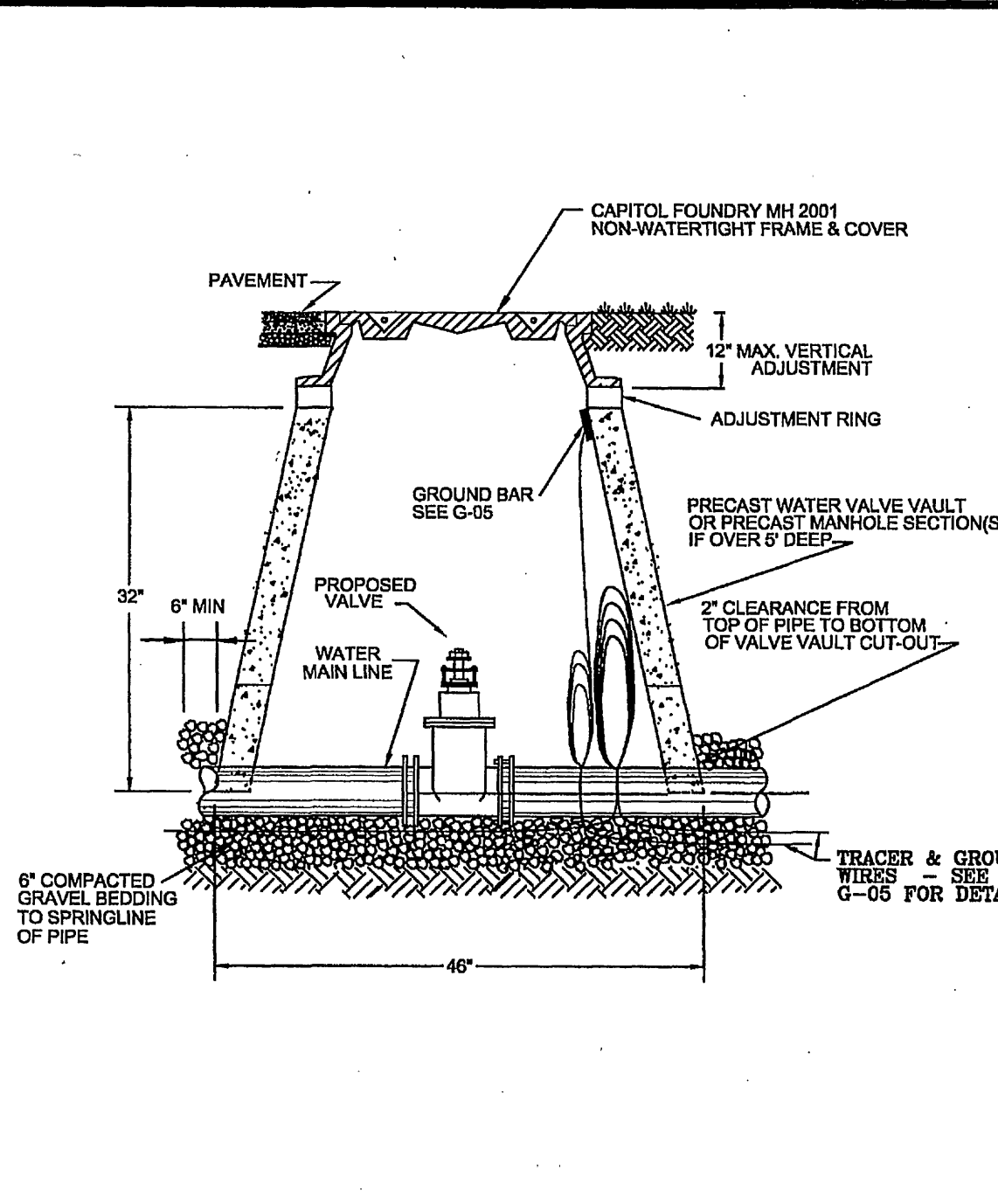
THE LOCATION OF ALL OFF-SITE FILL, BORROW AND STORAGE AREAS ASSOCIATED WITH THE CONSTRUCTION PROJECT SHALL BE PROVIDED BY THE CONTRACTOR OR WVWA TO ROANOKE COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT. AN EROSION PLAN OR MEASURES MAY BE REQUIRED FOR THIS AREA.

MATERIAL STORAGE AND STOCKPILES

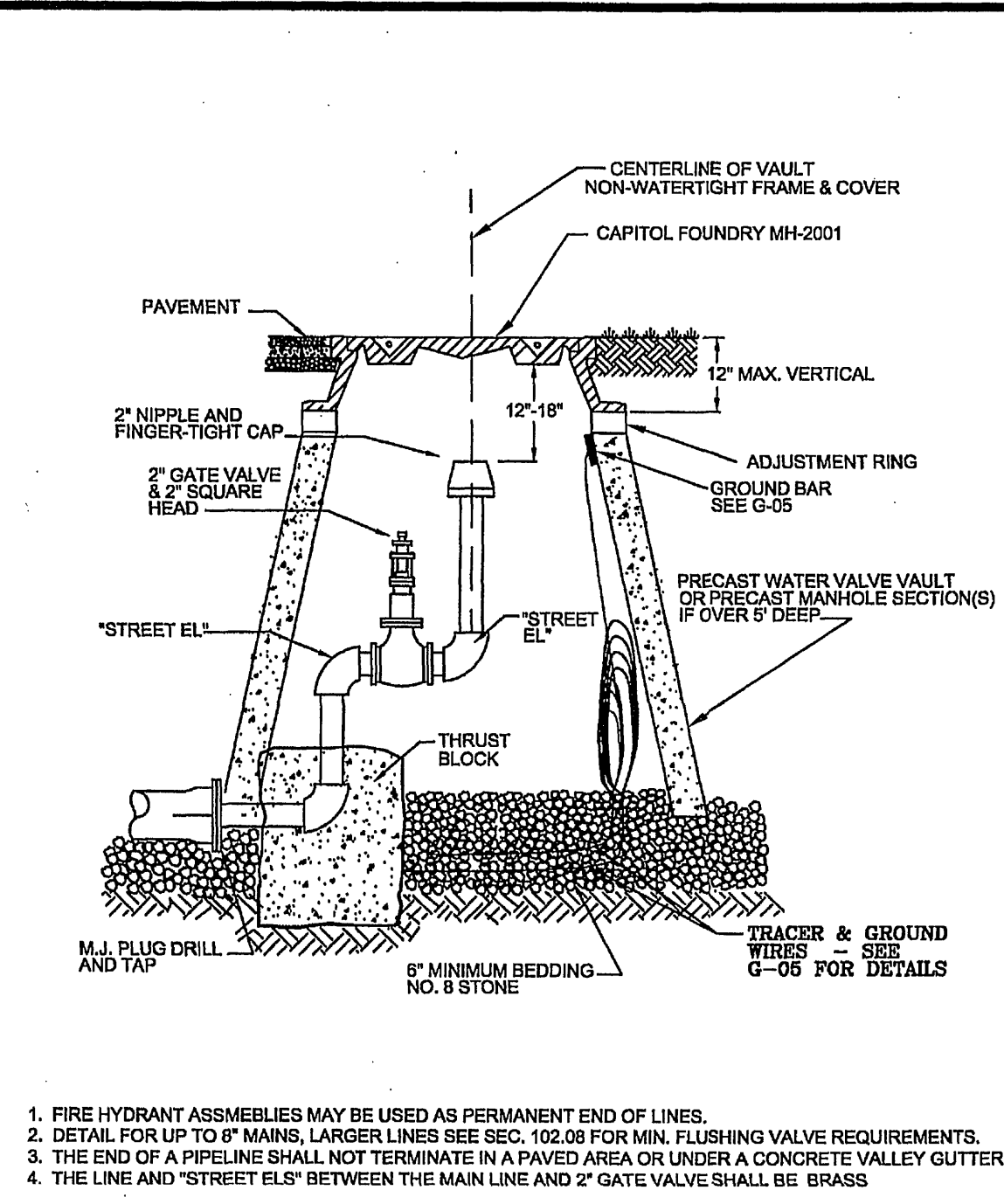
THE CONTRACTOR WILL BE RESPONSIBLE FOR MATERIAL STORAGE AND STOCKPILES. THIS PLAN DOES NOT ACCOUNT FOR ANY LOCATION FOR SUCH. THE CONTRACTOR WILL UTILIZE THE EXISTING MATERIAL STORAGE AREAS ALREADY ESTABLISHED FOR THE ROUTE 220 WATERLINE EXTENSION PROJECT. IF ADDITIONAL STORAGE AREAS ARE REQUIRED FOR THIS PROJECT, THE CONTRACTOR WILL COORDINATE THOSE LOCATIONS WITH THE COUNTY INSPECTOR AND MAKE REDLINED CHANGES TO THE APPROVED PLAN.



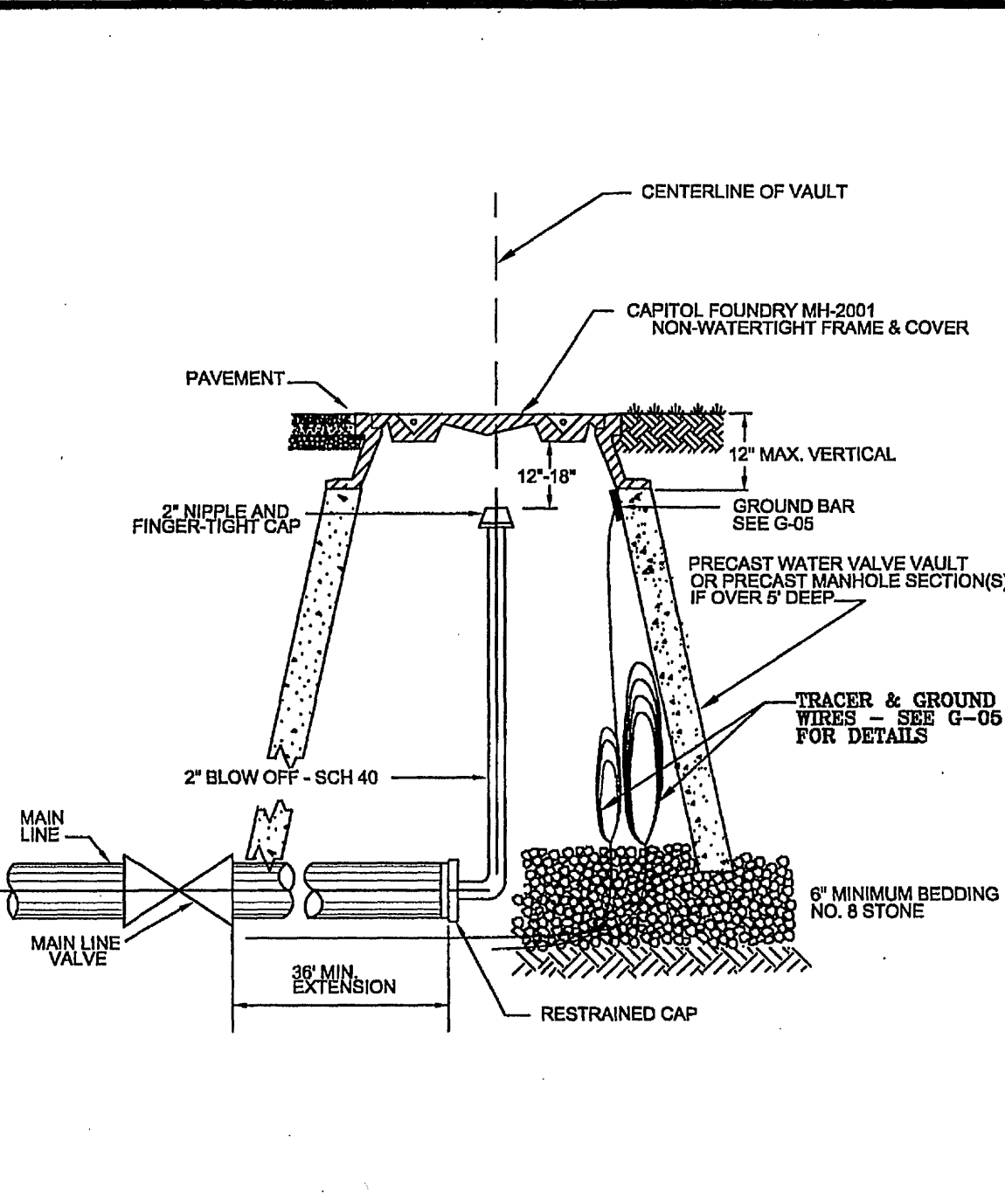
WESTERN VIRGINIA WATER AUTHORITY -- CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	W-02
07/01/04	TYPE "B" SINGLE RESIDENTIAL WATER SERVICE (LINE PRESSURE UNDER 90 TO 120 PSI)	
03/01/06		



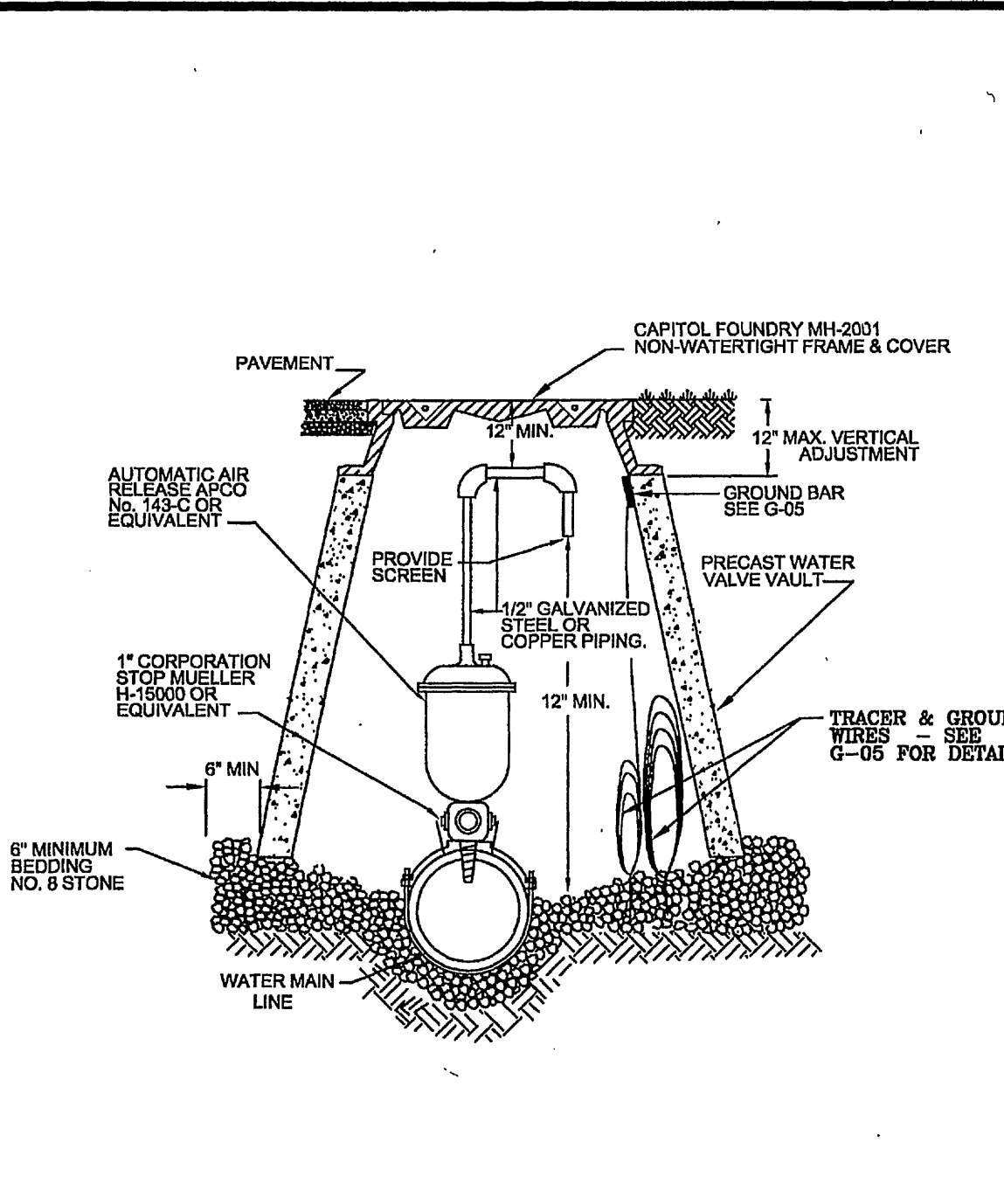
WESTERN VIRGINIA WATER AUTHORITY -- CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	W-08
07/01/04	WATER LINE VALVE INSTALLATION	
03/01/06		



WESTERN VIRGINIA WATER AUTHORITY -- CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	W-09
07/01/04	PERMANENT END OF LINE	
03/01/06		

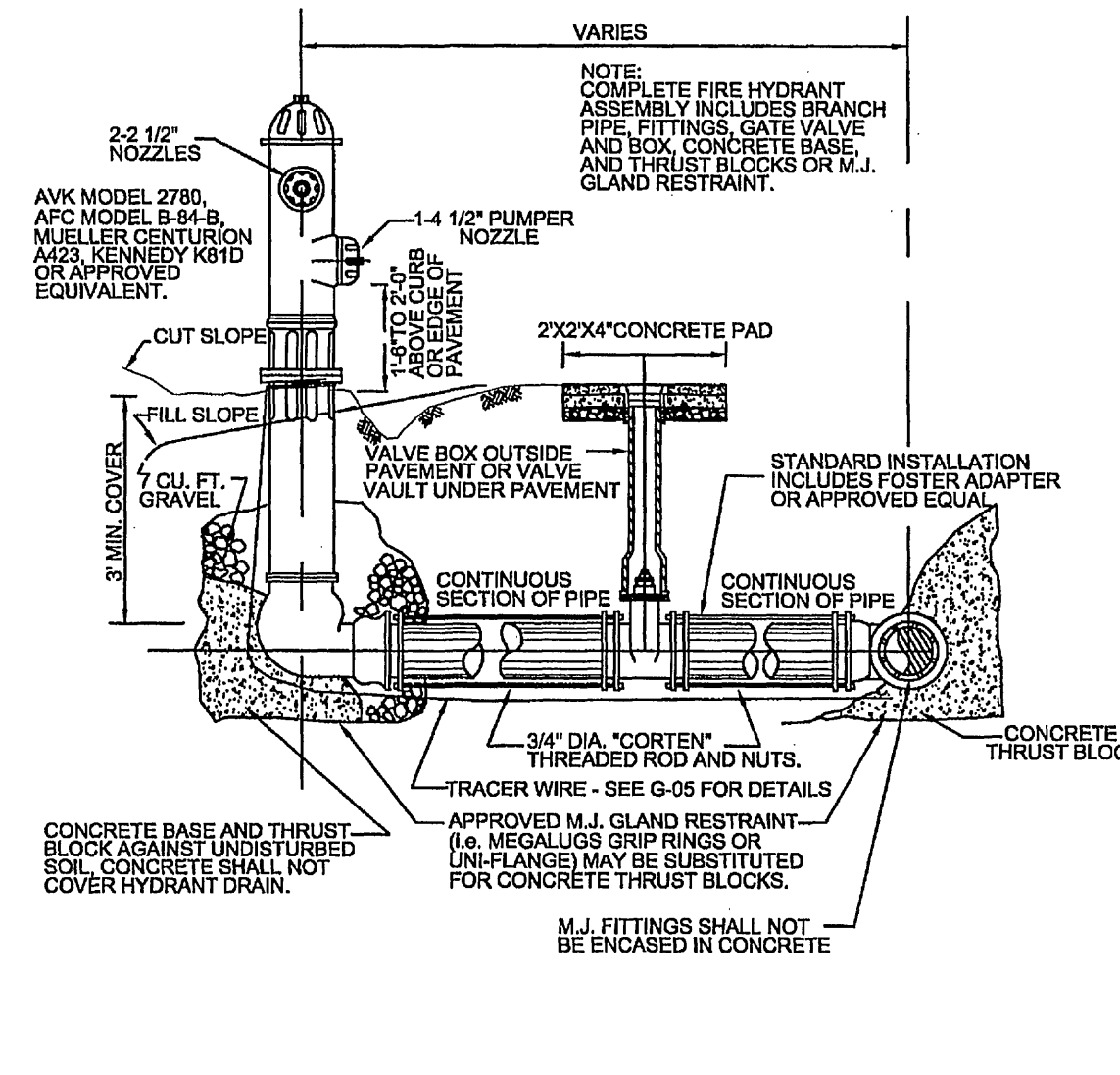


WESTERN VIRGINIA WATER AUTHORITY -- CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	W-10
07/01/04	BLOW-OFF ASSEMBLY FOR MAIN LINE TEMPORARY TERMINATION	
03/01/06		



WESTERN VIRGINIA WATER AUTHORITY -- CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	W-12
07/01/04	AUTOMATIC AIR RELEASE ASSEMBLY	
03/01/06		

- NOTES:
- PUBLIC HYDRANTS SHALL BE PAINTED SILVER WITH AN OIL-BASED PAINT AND PRIVATE HYDRANTS SHALL BE PAINTED WHITE WITH AN OIL-BASED PAINT.
 - FIRE HYDRANT SHALL BE INSTALLED 2" MIN. AND 4" MAX. FROM BACK OF CURB OR 6" MIN. AND 12" MAX. WHEN CURB IS NOT PRESENT. FIRE HYDRANT TO BE INSTALLED WITHIN RIGHT-OF-WAY OR EASEMENT LINE.
 - AREA AROUND HYDRANT AT A RADIUS OF 4' TO BE LEVEL AND UNDISTURBED.
 - WATERPROOF BAGS SHALL BE PLACED OVER ALL NEWLY INSTALLED FIRE HYDRANTS.
 - HIGH PRESSURE (OVER 120 PSI) REQUIRES THE USE ALL 3 RESTRAINTS.



WESTERN VIRGINIA WATER AUTHORITY -- CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	W-18
07/01/04	FIRE HYDRANT ASSEMBLY	
03/01/06		

- NOTES:
- ALL JOINTS SHALL BE RESTRAINED ON BOTH SIDES OF THE FITTING FOR THE LENGTH SHOWN UNLESS OTHERWISE INDICATED.
 - REDUCER IS ONE SIZE SMALLER THAN PIPE LISTED. RESTRAINED LENGTH IS UPSTREAM ON THE LARGE SIDE OF THE REDUCER.
 - IF UNDER 100 PSI WORKING PRESSURE, RESTRAINT JOINT(S) ARE TO BE USED IF EQUAL TO OR OVER 100 PSI WORKING PRESSURE, BOTH THRUST BLOCK AND RESTRAINT JOINTS SHALL BE USED.

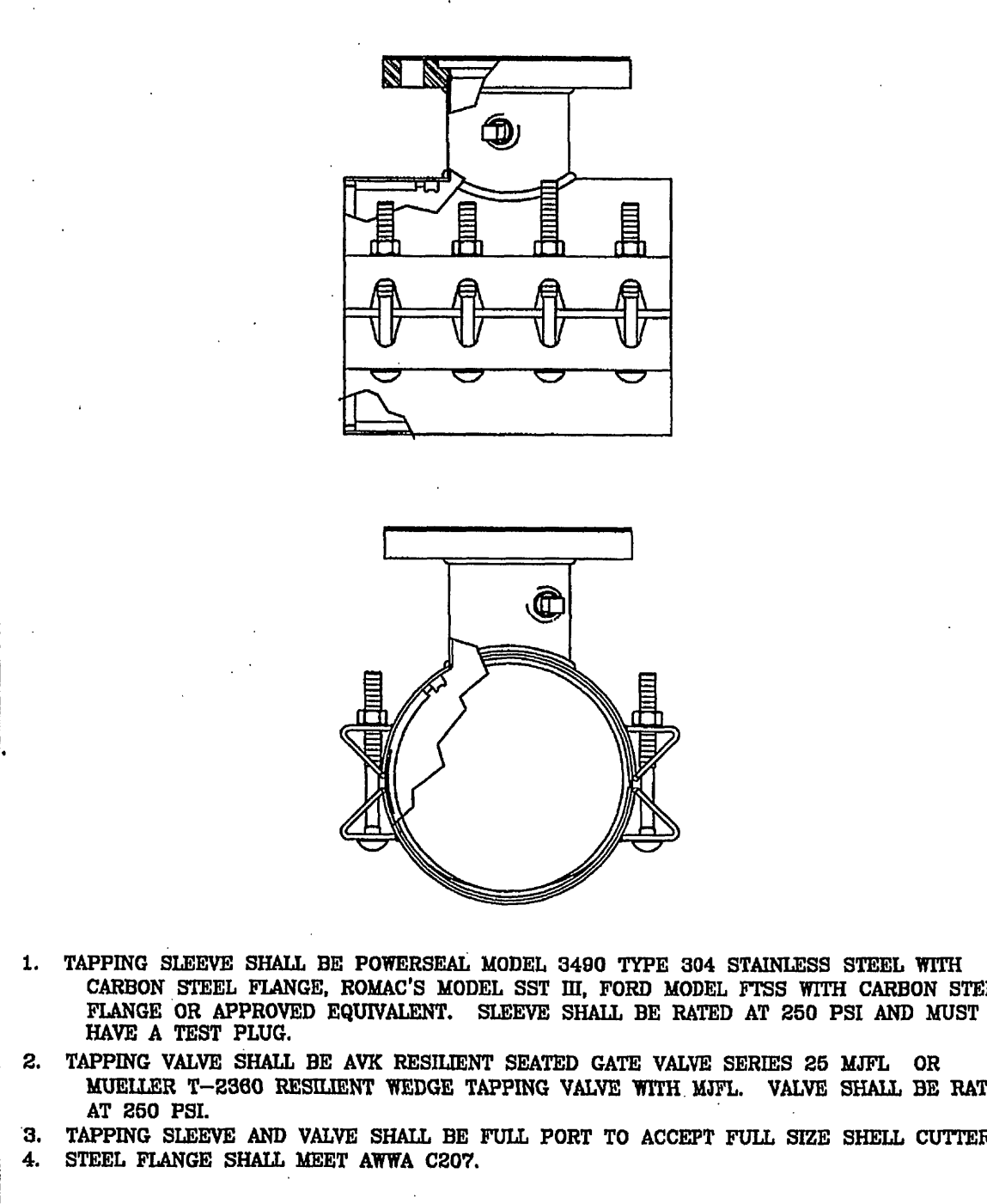
FACTOR OF SAFETY = 1.5											
PIPE SIZE	PIPE MATL.	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	VALVE / PLUG BRANCH	TEE REDUCER VERT.	22 1/2°	11 1/4°	VERT.	VERT.
6"	D.I.	28'	12'	6'	3'	38'	20'	23'	11'	6'	6'
8"	D.I.	37'	15'	7'	4'	51'	47'	21'	30'	15'	7'
10"	D.I.	46'	19'	9'	4'	61'	57'	20'	37'	18'	9'
12"	D.I.	53'	22'	11'	5'	73'	69'	38'	43'	21'	10'
6"	PVC	30'	12'	6'	3'	66'	38'	29'	36'	17'	6'
8"	PVC	40'	16'	8'	4'	74'	56'	31'	46'	22'	11'
10"	PVC	47'	20'	9'	5'	89'	82'	30'	56'	27'	13'
12"	PVC	56'	23'	11'	6'	106'	88'	36'	66'	32'	16'

1. ALL JOINTS SHALL BE RESTRAINED ON BOTH SIDES OF THE FITTING FOR THE LENGTH SHOWN UNLESS OTHERWISE INDICATED.

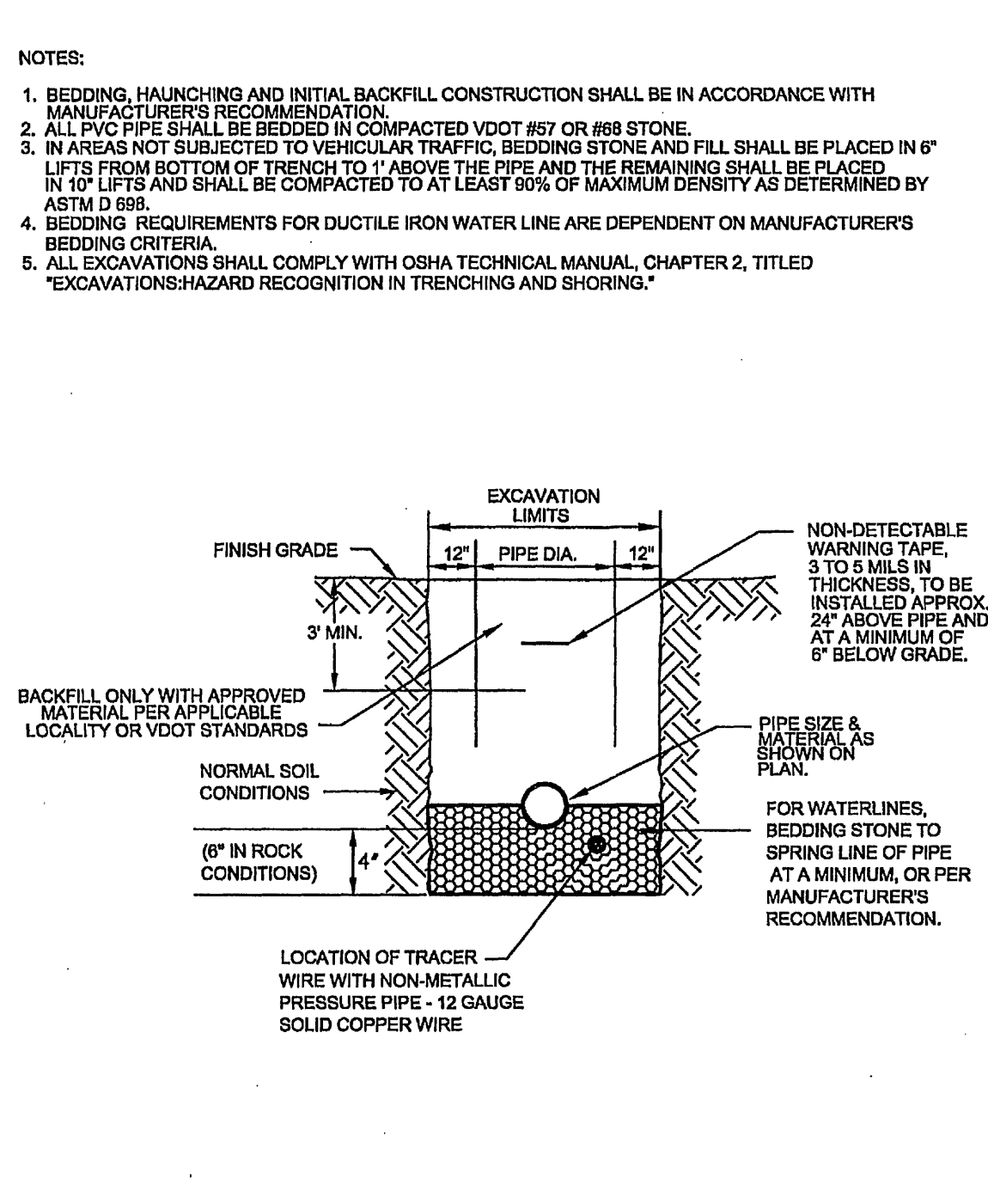
2. REDUCER IS ONE SIZE SMALLER THAN PIPE LISTED. RESTRAINED LENGTH IS UPSTREAM ON THE LARGE SIDE OF THE REDUCER.

3. IF UNDER 100 PSI WORKING PRESSURE, RESTRAINT JOINT(S) ARE TO BE USED IF EQUAL TO OR OVER 100 PSI WORKING PRESSURE, BOTH THRUST BLOCK AND RESTRAINT JOINTS SHALL BE USED.

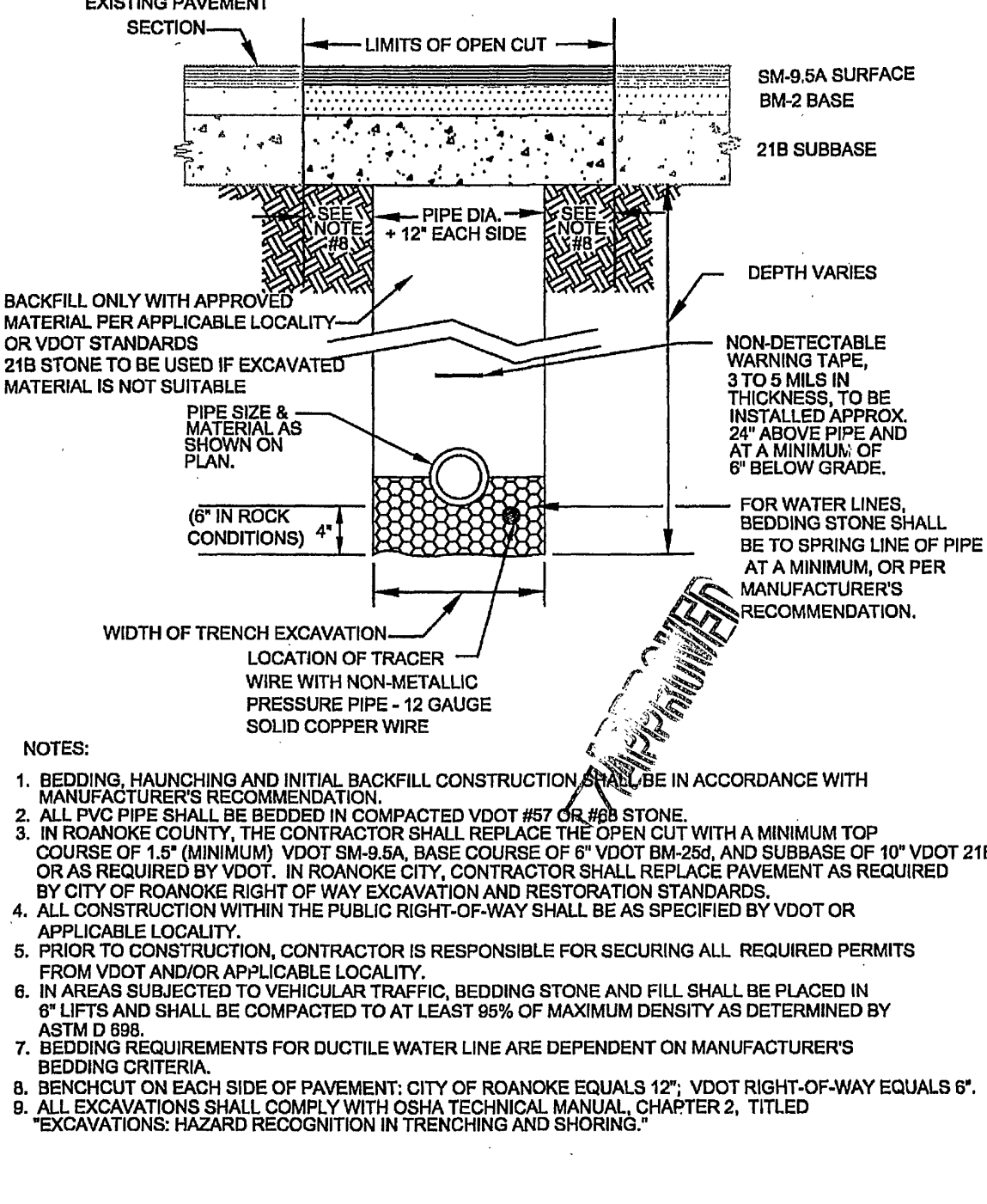
WESTERN VIRGINIA WATER AUTHORITY -- CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	W-20
07/01/04	THRUST RESTRAINT OF PIPE JOINTS DESIGN LENGTHS	
03/01/06		



WESTERN VIRGINIA WATER AUTHORITY -- CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	W-23
07/01/04	TAPPING SLEEVE AND VALVE	
03/01/06		

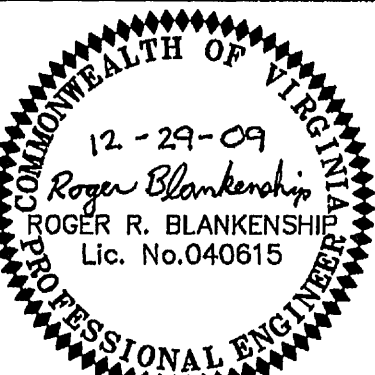


WESTERN VIRGINIA WATER AUTHORITY -- CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	W-24
07/01/04	BEDDING AND BACKFILL OUTSIDE OF PAVED AREAS	
03/01/06		



WESTERN VIRGINIA WATER AUTHORITY -- CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	W-25
07/01/04	BEDDING AND BACKFILL UNDER PAVEMENT AND RIGHT-OF-WAY	
03/01/06		

ENGINEERING SERVICES
601 S JEFFERSON ST, SUITE 300
ROANOKE, VA 24011
540-853-5700



PINE NEEDLE
PROPOSED WATER LINE
DETAILS

Rev	Description	Revisions per Roanoke County and VDOT comments 12/23/09	Revisions per Roanoke County comments 12/29/09
1	Designed: AAS		
2	Drawn: AAS		
	Checked: RRB		
	Approved:		
	Date: 23 NOV 2009		
	Project:		
	C4		
	Sheet 4 of 6		