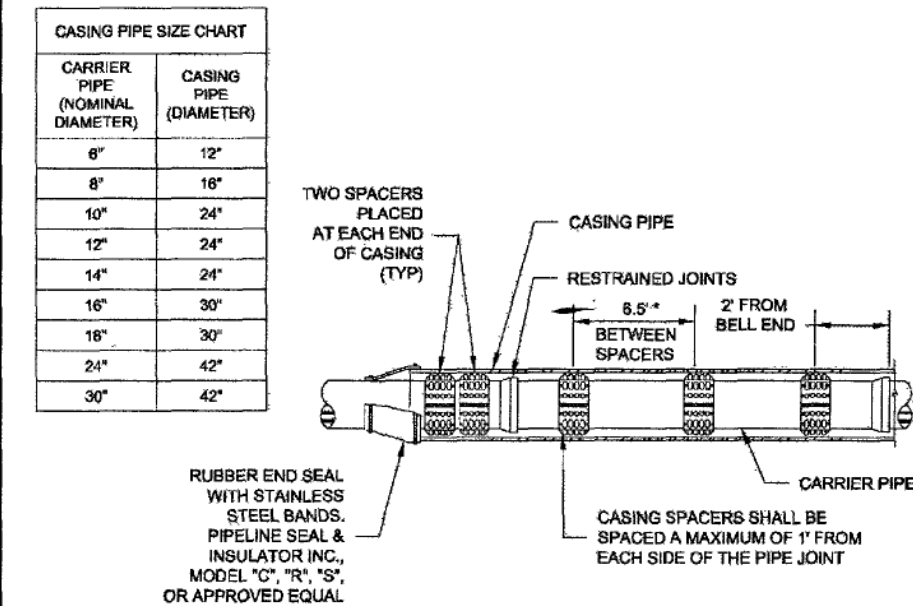
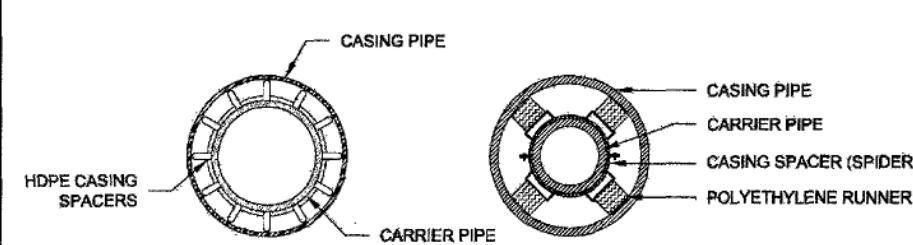


1. A 1" DRAIN WILL BE REQUIRED ON THE LOWER END OF THE CASING PIPE.
2. SPACERS SHALL BE 1/2" HOLE SPIDER OR EQUIVALENT.
3. SPACERS SHALL BE SPACED 8" ON SEWER PIPE.
4. CARRIER PIPE SHALL BE DUCTILE OR HDPE IN ACCORDANCE WITH REGIONAL STANDARDS.
5. CASING PIPE TO BE STEEL IN ACCORDANCE WITH VDOT STANDARD DETAIL EP-1, OR HDPE AS SPECIFIED IN THE STANDARDS APPROVED BY THE PARTICIPATING UTILITY.
6. CONCRETE CASING PIPE WILL NOT BE ALLOWED.
7. DIAMETER OF CASING PIPE SHALL BE AS SHOWN IN THE TABLE BELOW UNLESS OTHERWISE SPECIFIED BY THE PARTICIPATING UTILITY.



\* ADDITIONAL SPACING ALLOWED AS RECOMMENDED BY PIPE MANUFACTURER.

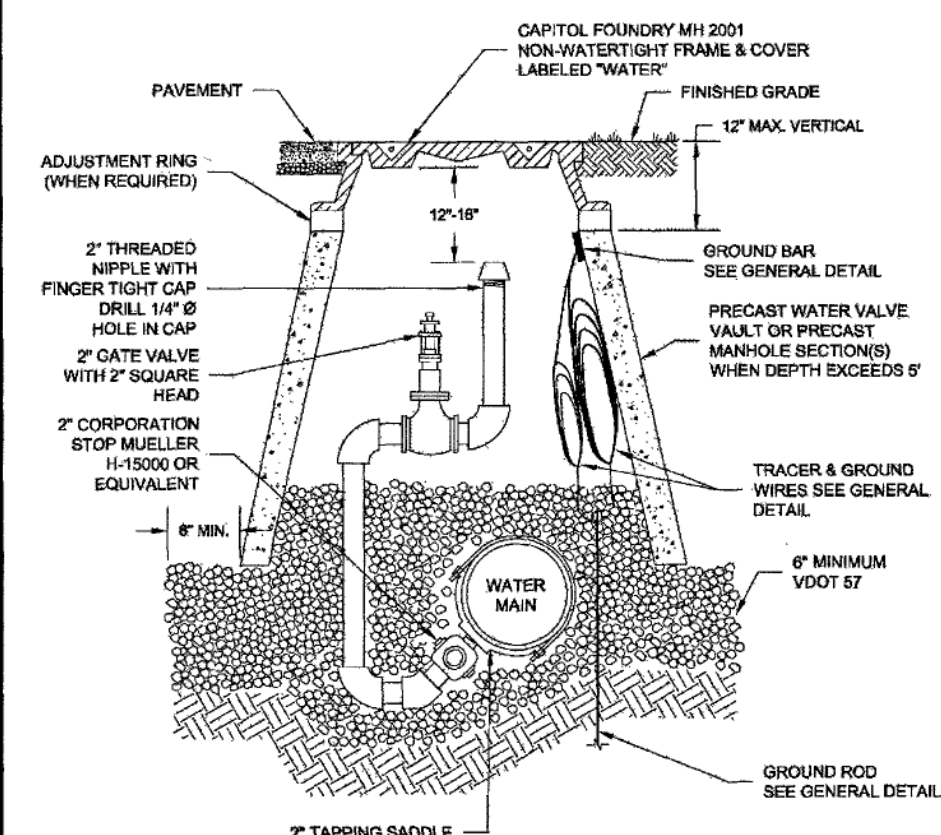


WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

PIPE SUPPORT IN CASING PIPE

G-6

1. FIRE HYDRANTS MAY BE USED AT LOW POINTS IN PLACE OF BLOW-OFFS.
2. THE PIPING AND "STREET ELB" BETWEEN CORPORATION STOP AND 2" GATE VALVE SHALL BE LEAD FREE BRASS OR DUCTILE IRON PIPE.
3. THE POINT OF CONNECTION TO THE WATER MAIN SHALL BE LOCATED NEAR THE BOTTOM OF THE MAIN (AS SHOWN) TO FACILITATE REMOVAL OF ACCUMULATED SEDIMENT.
4. SADDLES FOR PLASTIC PIPE SHALL BE PER RESIDENTIAL WATER SERVICE DETAIL.



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

IN-LINE BLOW-OFF ASSEMBLY

W-12

PIPE SIZE	PIPE MATL.	80' BEND	45' BEND	22.5' BEND	11.25' BEND	VALVE (PLUG)	TEE BRANCH (NOTE 2)	REDUCER (VERT. 45°)	VERT. 90°	VERT. 11.25°
6"	D.I.	28'	21'	7'	4'	51'	47'	21'	30'	15'
8"	D.I.	37'	21'	7'	4'	61'	57'	22'	37'	18'
10"	D.I.	45'	21'	9'	4'	61'	57'	22'	37'	18'
12"	D.I.	53'	22'	11'	5'	73'	69'	23'	43'	21'
6"	PVC	30'	21'	7'	4'	56'	52'	23'	35'	17'
8"	PVC	40'	21'	9'	4'	66'	62'	24'	45'	22'
10"	PVC	47'	21'	9'	5'	69'	65'	25'	48'	24'
12"	PVC	56'	22'	11'	6'	78'	74'	26'	56'	28'

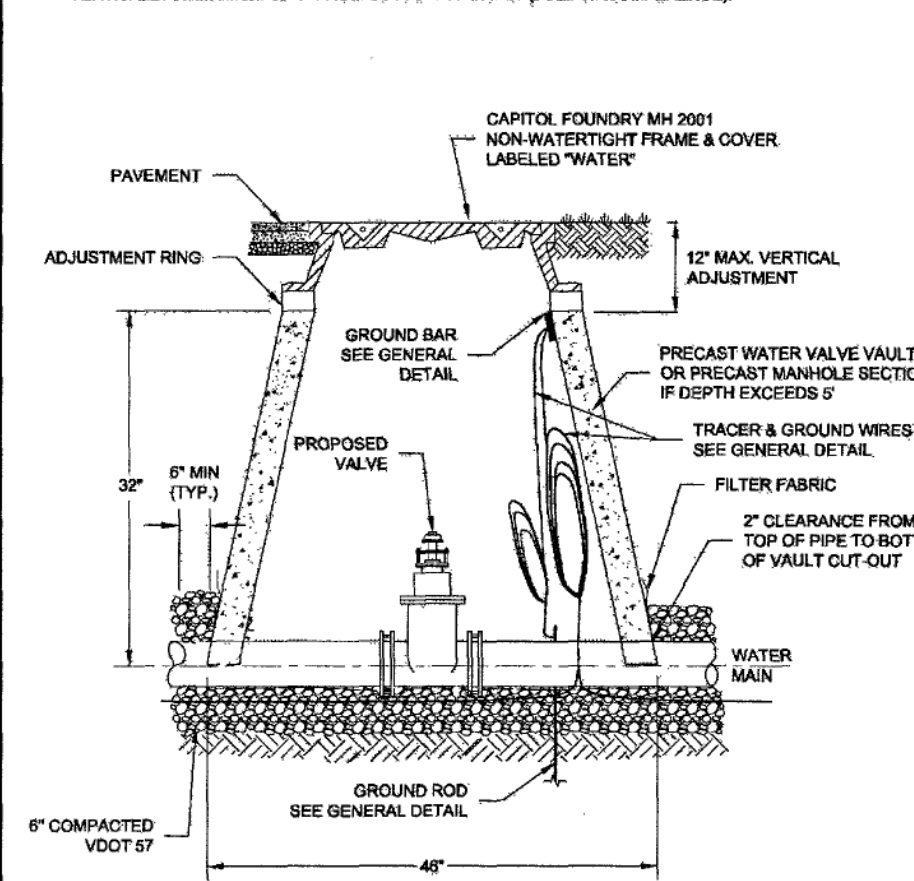
1. ALL JOINTS SHALL BE RESTRAINED ON BOTH SIDES OF THE FITTING AND DOCUMENTED BY THE INSPECTOR FOR THE LENGTH SHOWN UNLESS OTHERWISE INDICATED.
2. REDUCERS ARE ONE SIZE SMALLER THAN PIPE LISTED. RESTRAINED LENGTH IS UPSTREAM ON THE LARGE SIDE OF THE REDUCER.
3. IF UNDER 100 PSI WORKING PRESSURE, RESTRAINED JOINTS ARE TO BE USED. IF EQUAL TO OR OVER 100 PSI WORKING PRESSURE, BOTH THRUST 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.

WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

MINIMUM THRUST RESTRAINT OF PIPE JOINTS DESIGN LENGTHS

W-19

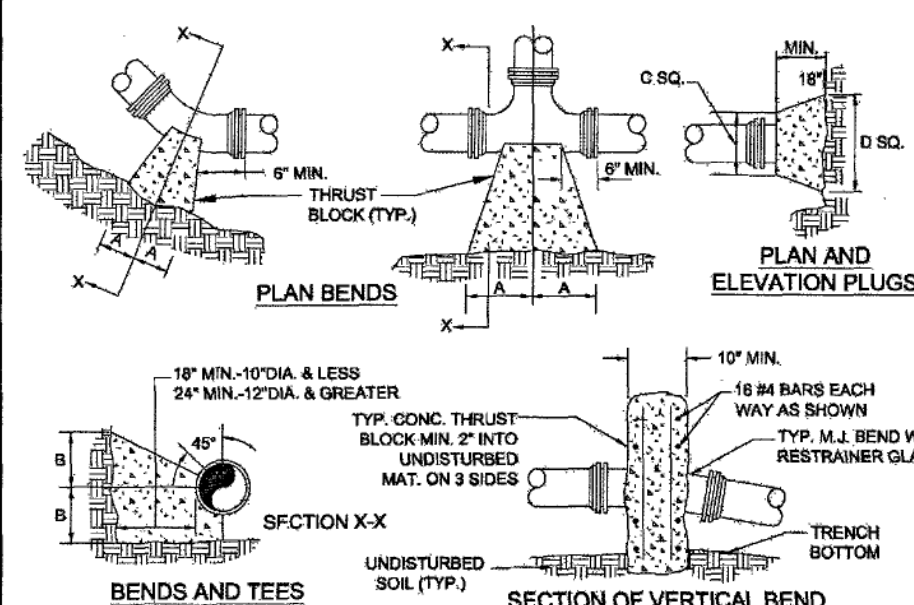
1. FILTER FABRIC TO BE NOT ALLOWED BETWEEN BOTTOM OF PIPE AND STONE BEDDING. FABRIC TO EXTEND VERTICALLY A MINIMUM OF 6" FROM BOTTOM OF VAULT (FULL CIRCUMFERENCE).



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

WATER LINE VALVE &amp; VAULT

W-9



1. FOR VERT. BEND DOWN IN EXCESS OF 11 1/4" BEND, ANCHORAGE SHALL BE DESIGNED BY ENGINEER.
2. FOR VERT. BEND UPWARD, BLOWING TO BE SIMILAR TO THAT FOR HORIZ. BEND.
3. GLANDS & BOLTS SHALL BE PROTECTED FROM CONC. WITH PLASTIC SHEETING WHEN POURING THRUST BLOCKS.
4. ALL THRUST BLOCK & SUPPORT CONCRETE SHALL BE 3000 PSI READY MIX CONCRETE.
5. THRUST BLOCKS WITH 12" DIMENSION GREATER THAN 8" SHALL HAVE THE RESTRAINED PIPE INSTALLED WITH A MINIMUM OF 4" OF COVER.
6. IF UNDER 100 PSI WORKING PRESSURE, RESTRAINED JOINTS MUST BE USED. IF EQUAL OR GREATER THAN 100 PSI, BOTH THRUST BLOCK AND RESTRAINED JOINTS ARE REQUIRED.
7. WHEN THRUST BLOCK IS REQUIRED BUT NOT FEASIBLE TO CONSTRUCT, THRUST COLLAR SHALL BE USED. SEE THRUST COLLAR DETAIL.

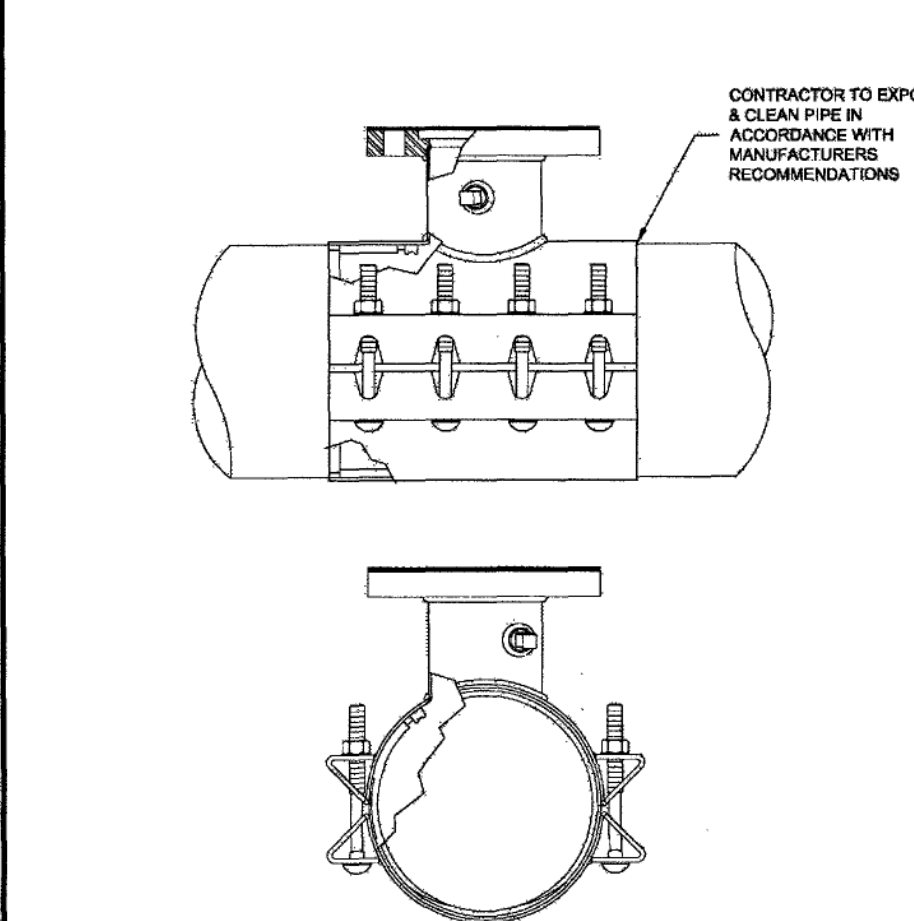
PIPE SIZE	80' BEND	45' BEND	22.5' BEND	11.25' BEND	TEE	PLUG
6"	28'	21'	7'	4'	51'	47'
8"	37'	21'	7'	4'	61'	57'
10"	45'	21'	9'	4'	61'	57'
12"	53'	22'	11'	5'	73'	69'
6"	30'	21'	7'	4'	56'	52'
8"	40'	21'	9'	4'	66'	62'
10"	47'	21'	9'	5'	69'	65'
12"	56'	22'	11'	6'	78'	74'

WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

THRUST BLOCK REQUIREMENTS

W-18

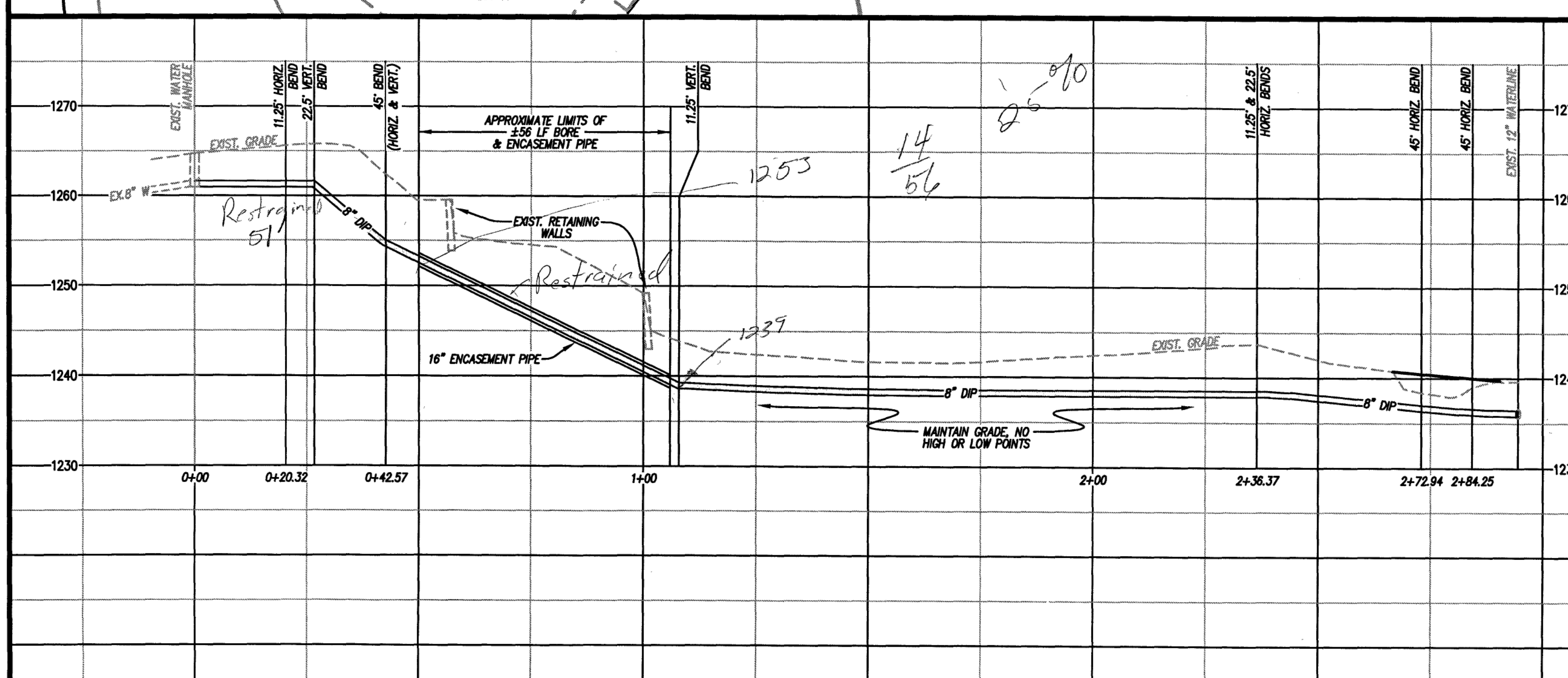
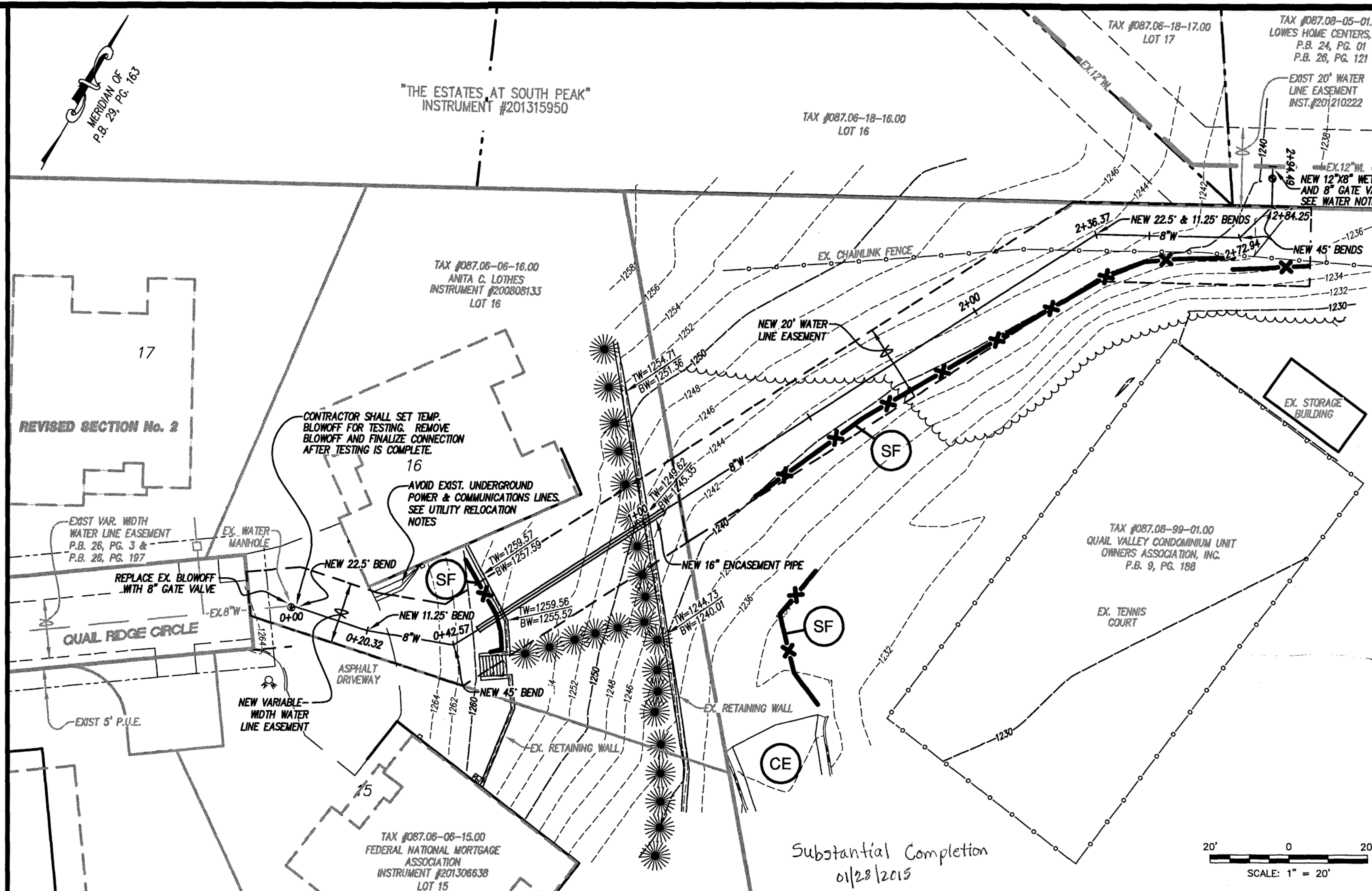
1. TAPPING SLEEVE SHALL BE POWERLESS MODEL 3400 TYPE 5M STAINLESS STEEL WITH CARBON STEEL FLANGE, ROMANUS MODEL 887 N, FORD MODEL 1788 WITH CARBON STEEL FLANGE OR APPROVED EQUIVALENT. SLEEVE SHALL BE RATED AT 100 PSI OVER WORKING PRESSURE AND MUST HAVE A TEST PLUG.
2. TAPPING VALVE SHALL BE ANK REBILIT SEATED GATE VALVE SERIES 29 MFL, MULLER T-2880 RESILIENT WEDGE TAPPING VALVE WITH MFL, OR APC SERIES 2600 RESILIENT WEDGE TAPPING VALVE WITH MFL. VALVE SHALL BE RATED AT 500 PSI.
3. TAPPING SLEEVE AND VALVE SHALL BE FULL PORT TO ACCEPT FULL SIZE 8" BELL OUTER.
4. STEEL FLANGE SHALL MEET ANS/ASME C151.
5. SIZE-ON-SIZE TAPPING NOT ALLOWED UNLESS APPROVED BY PARTICIPATING UTILITY.



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

TAPPING SLEEVE AND VALVE

W-21



## UTILITY RELOCATION NOTES:

1. ALTHOUGH NO UTILITY CONFLICTS ARE ANTICIPATED, CONTRACTOR SHALL COORDINATE THE RELOCATION OF ANY AFFECTED SERVICES, TO INCLUDE DISCONNECTION AND RECONNECTION, TEMPORARY SERVICE PROVISION, AND REMOVAL OR ABANDONMENT OF SERVICES, WITH EACH SERVICE PROVIDER. CONTRACTOR SHALL HAVE ALL UTILITIES IN PROXIMITY TO THE PROJECT AREA MARKED PRIOR TO THE START OF WORK, AND THE RESOLUTION OF ANY APPARENT CONFLICTS BETWEEN EXISTING OR PROPOSED UTILITIES SHALL BE ACCOMPLISHED WITH THE INVOLVEMENT OF THE RESPECTIVE UTILITY PROVIDERS AND THE OWNER PRIOR TO START OF WORK.
2. CONTRACTOR SHALL NOTIFY OWNER AND RESIDENTS OF POTENTIAL SERVICE DISRUPTIONS PRIOR TO START OF WORK, AND MINIMIZE SERVICE INTERRUPTIONS TO THE EXTENT POSSIBLE.

## WATER NOTES:

1. ALL WATER LINES SHALL HAVE A MINIMUM OF 3.0 FEET OF COVER.
2. MAINTAIN A MINIMUM OF 18" CLEARANCE FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE AT ALL WATER, SANITARY SEWER AND STORM DRAIN CROSSINGS. WHERE THIS CLEARANCE CANNOT BE ACHIEVED, CONCRETE PIERS SHALL BE UTILIZED IN ACCORDANCE WITH THE STANDARDS OF THE WESTERN VIRGINIA WATER AUTHORITY.
3. NEW WATERLINE MAIN PIPE MATERIAL SHALL BE DUCTILE IRON, IN ACCORDANCE WITH ANS/ASME C151, MINIMUM PRESSURE CLASS 350, UNLESS OTHERWISE INDICATED.
4. NEW TAP TO THE EXISTING WATER MAIN IS TO BE PERFORMED BY THE WESTERN VIRGINIA WATER AUTHORITY. THE CONTRACTOR TO PERFORM EXCAVATION AND PROVIDE SHORING FOR THE TRENCH IN ACCORDANCE TO OSHA STANDARDS, CLEAN THE EXISTING WATER LINE, AND INSTALL THE TAPPING SLEEVE AND VALVE. CONTRACTOR TO COORDINATE THE TAP WITH THE WESTERN VIRGINIA WATER AUTHORITY.
5. NEW WATERLINE RELOCATION WILL REQUIRE EXISTING LINE TO BE ISOLATED WITH CUT OFF VALVES. NEW LINE TO BE INSTALLED AND TESTED PRIOR TO MAKING CONNECTIONS TO EXISTING LINE. COORDINATE TIMING OF CONNECTION WORK WITH THE WESTERN VIRGINIA WATER AUTHORITY.

**Dig With CARE**  
Keep Virginia Safe!

- A Call Miss Utility at 811 before you dig.
- B Allow the required time for marking.
- C Respect the marks.
- D Excavate carefully.



**LUMSDEN ASSOCIATES, P.C.**  
ENGINEERS-SURVEYORS-PLANNERS  
ROANOKE, VIRGINIA

**COMMONWEALTH OF VIRGINIA**  
LANDSCAPE ARCHITECT  
HOWARD P. BOGGESS, II  
Lic. No. 000920

**OFFSITE WATERLINE  
EXTENSION PLAN,  
PROFILE & DETAILS**

**SITE DEVELOPMENT PLANS FOR  
QUAIL RIDGE TOWNHOMES**  
PREPARED FOR  
**FYG PROPERTIES, L.L.C.**  
CAVE SPRING MAGISTERIAL DISTRICT  
ROANOKE COUNTY, VIRGINIA

NO.	DATE	DESCRIPTION
1	2/19/14	ADD WATERLINE EXTENSION
2		
3		
4		
5		

DATE: February 20, 2014

SCALE: 1"=20'(H), 1"=10'(V)

COMMISSION NO.

10-111

SHEET 5A OF 11

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