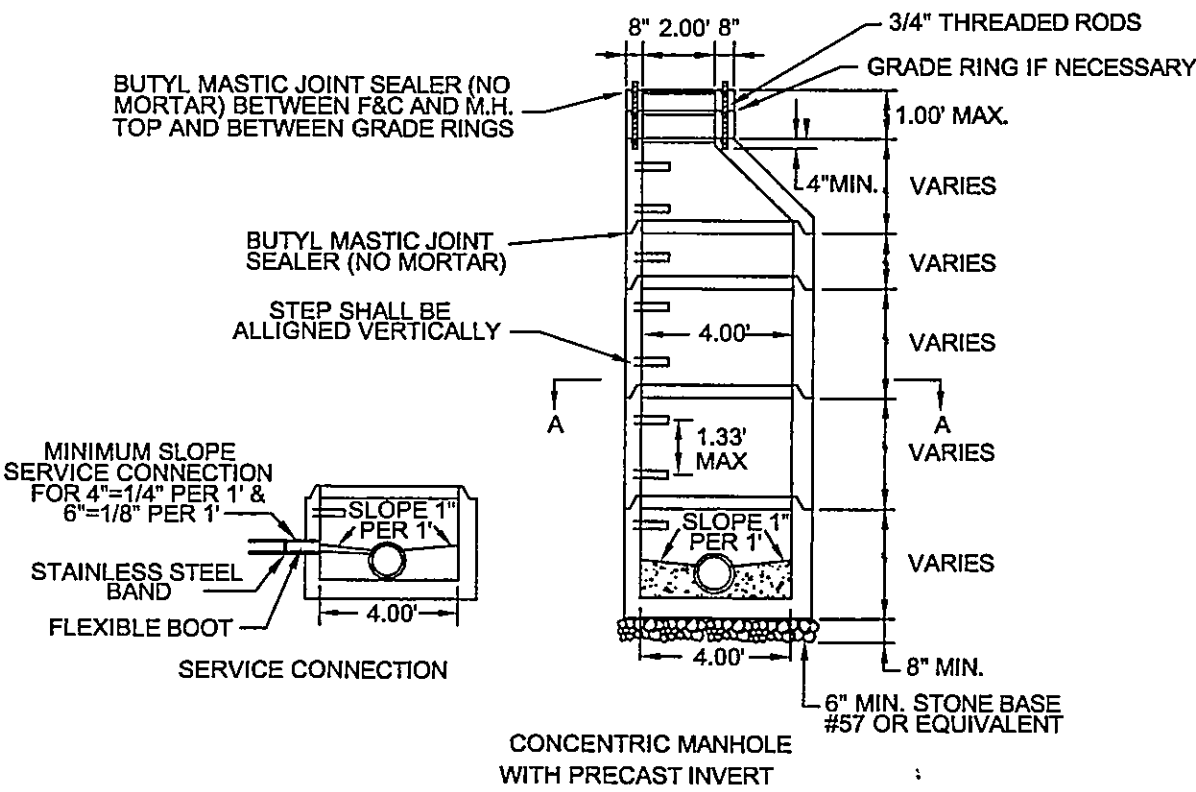
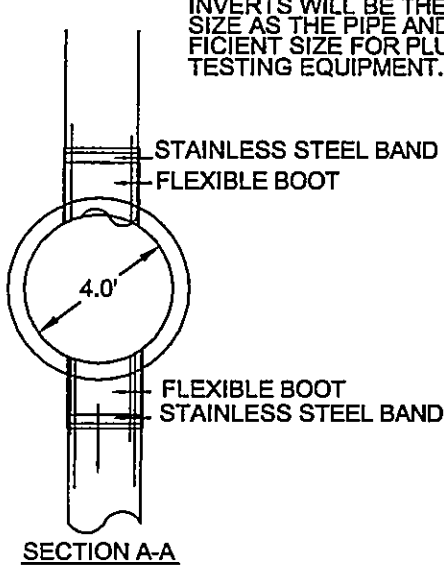


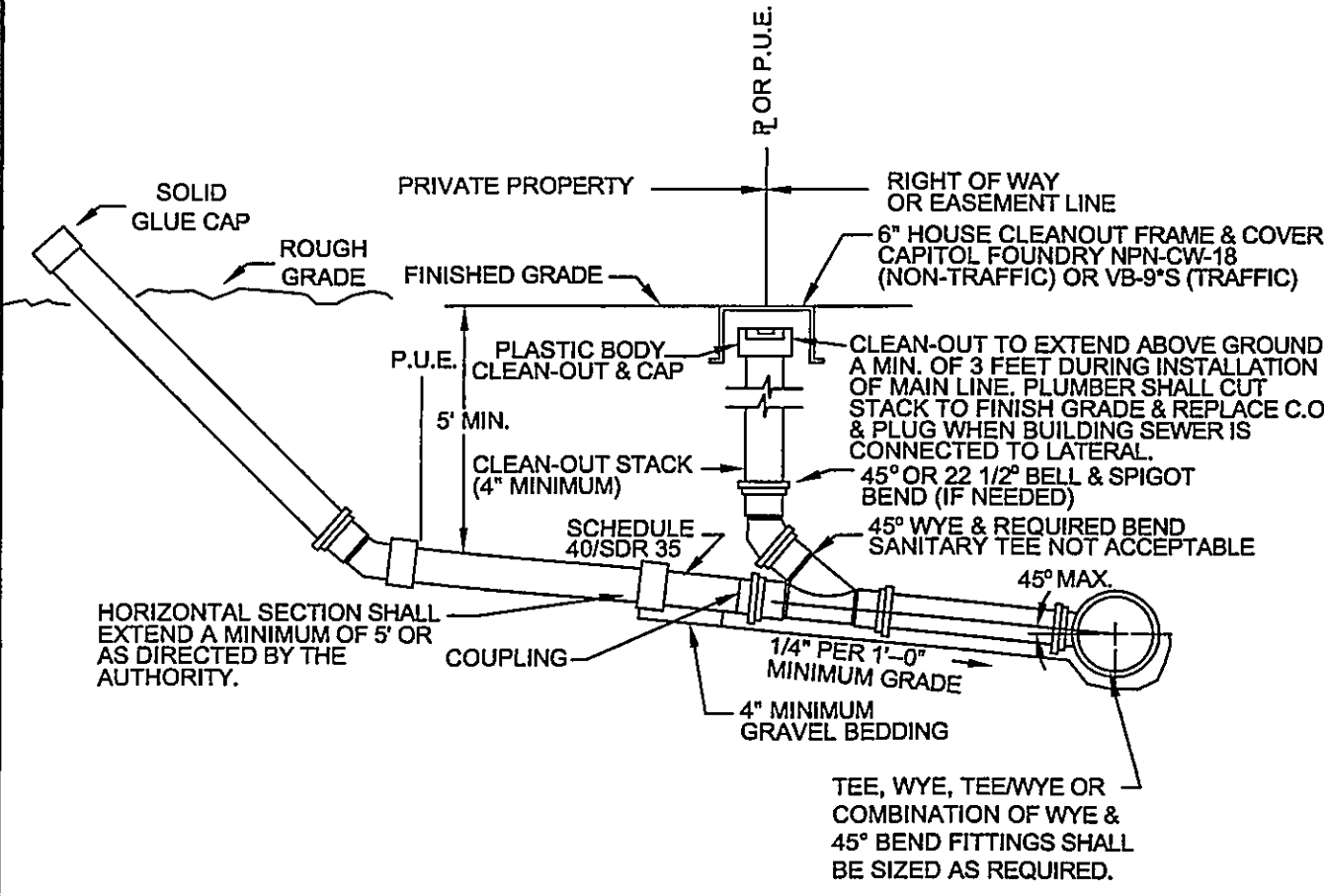
- NOTES:
- ALL MANHOLE FRAMES AND COVERS SHALL BE EAST JORDAN IRON WORKS, INC. WATERTIGHT MANHOLE FRAME MODEL #1045Z, WATERTIGHT COVER MODEL #1046AS AND BOLT-DOWN MANHOLE COVER MODEL #1040ALGS, OR APPROVED EQUAL BOLT-DOWN MODEL TO BE USED IN AREAS SUBJECT TO FLOODING OR AS DIRECTED BY THE AUTHORITY.
 - STEPS TO BE VERTICALLY ALIGNED.
 - THE FRAME AND COVER SHALL BE PROPERLY ALIGNED WITH THE 2 FOOT OPENING OF THE MANHOLE STRUCTURE AND BOLTED IN PLACE.
 - FLAT TOP MANHOLES MAY ONLY BE SUBSTITUTED WITH THE PERMISSION OF THE UTILITY DIRECTOR. WHEN USED, THE ECCENTRIC OPENING MUST LINE UP WITH THE STEPS.
 - SAMPLING MANHOLES IN TRAFFIC AREAS SHALL BE CONSTRUCTED AS PER MANHOLE DETAILS.
 - FLEXIBLE JOINT MANHOLE CONNECTION SHALL BE AS MANUFACTURED BY PRES-SEAL GASKET CORPORATION OR EQUAL.
 - GROUT ANNUAL SPACE BETWEEN PIPE AND PRECAST MANHOLE ON INSIDE OF MANHOLE.



WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	DESCRIPTION	REVISION DATE	DESCRIPTION
07/01/04	4' STANDARD MANHOLE FOR PIPE 15" OR SMALLER	S-01	

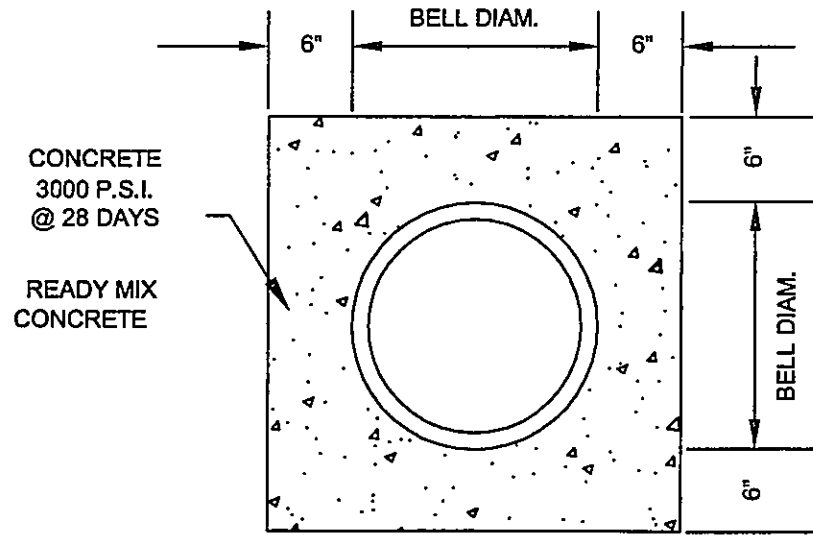
- GENERAL NOTES:
- TRAFFIC BEARING BOX REQUIRED IN TRAFFIC AREAS.
 - ALL PIPE AND FITTINGS SHALL BE OF SIMILAR MATERIAL.
 - ALL PIPE SHALL BE OF SAME SIZE.
 - NO BENDS ARE ALLOWED IN THE LATERAL FROM THE MAIN TO THE CLEANOUT STACK WYE. (EXCEPT AS NOTED)
 - ALL MAIN LINE TAPS ON ACTIVE MAINS WILL BE PERFORMED BY WESTERN VIRGINIA WATER AUTHORITY.
 - PIPING BEHIND CLEANOUT TO BE INSTALLED PER BOCA CODE.
 - MINIMUM LATERAL SIZE:
 - 4" FOR RESIDENTIAL SERVICE
 - 6" FOR NON-RESIDENTIAL SERVICE
 - MINIMUM COVER FOR ALL SEWER LATERALS SHALL BE THREE(3) FEET.
 - PROPERTY OWNER RESPONSIBLE FOR INSTALLING CLEANOUT ON PROPERTY LINE WHEN MAINTENANCE OCCURS.



WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	DESCRIPTION	REVISION DATE	DESCRIPTION
07/01/04	SANITARY SEWER LATERAL	S-08	

- NOTES:
- When water line is located below a sewer line, the sewer line to be encased along its length where it is within 10' of water line.
 - Sewer lines crossing streams must be concrete encased.

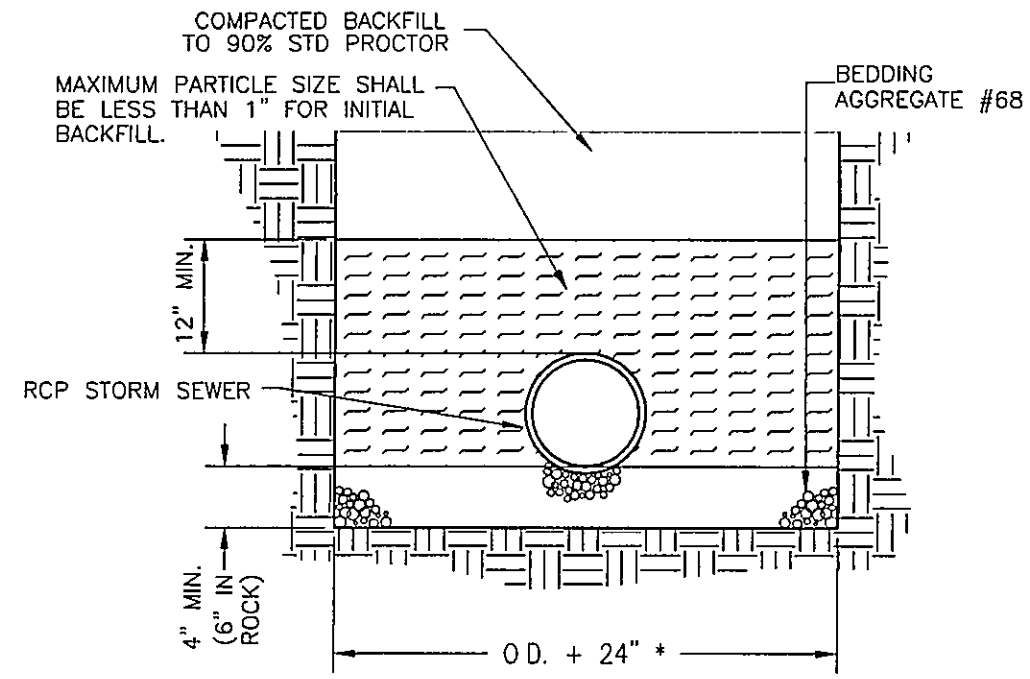


WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

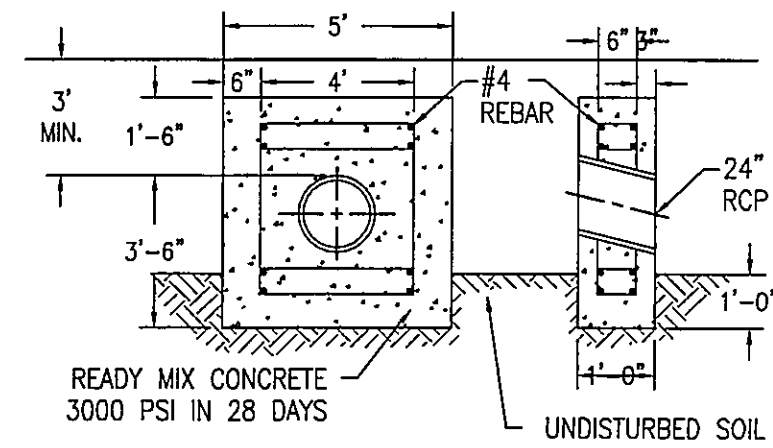
REVISION DATE	DESCRIPTION	REVISION DATE	DESCRIPTION
07/01/04	CONCRETE ENCASED PIPE	S-15	

Pipe Diameter (in.)	Min. Time (min:sec)	Length for Min. Time (ft)	Time for Longer Length (sec)	Specified Time for Length (L) Shown (min:sec)								
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft	
4	3:46	597	.380 L	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46	
6	5:40	398	.854 L	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24	
8	7:34	298	1.520 L	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24	
10	9:26	239	2.374 L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48	
12	11:20	199	3.418 L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38	
15	14:10	159	5.342 L	14:10	14:10	17:48	22:15	26:42	31:09	35:38	40:04	
18	17:00	133	7.692 L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41	

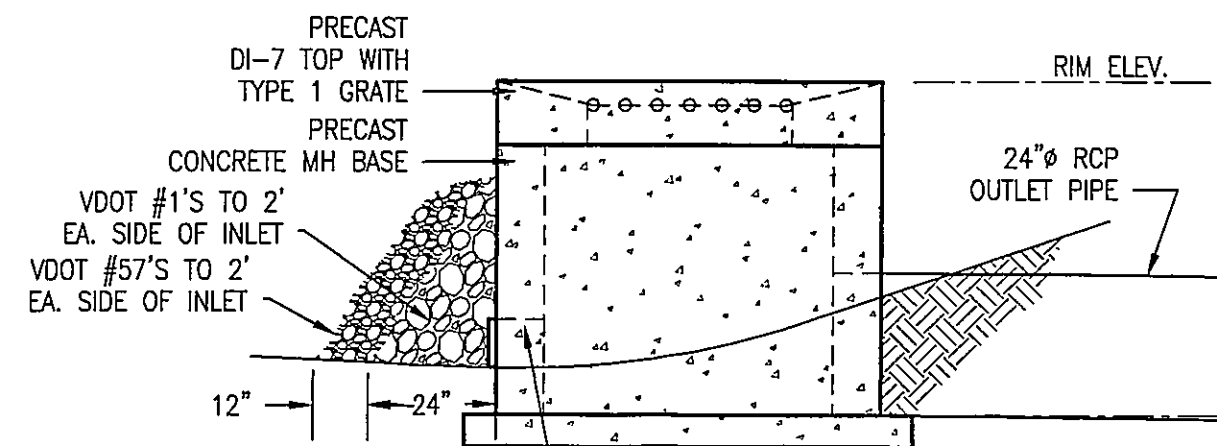
MINIMUM SPECIFIED TIME FOR A 1.0 PSIG PRESSURE DROP FOR SIZE & LENGTH OF PIPE INDICATED FOR Q=0.0015



STORM DRAIN BEDDING DETAIL

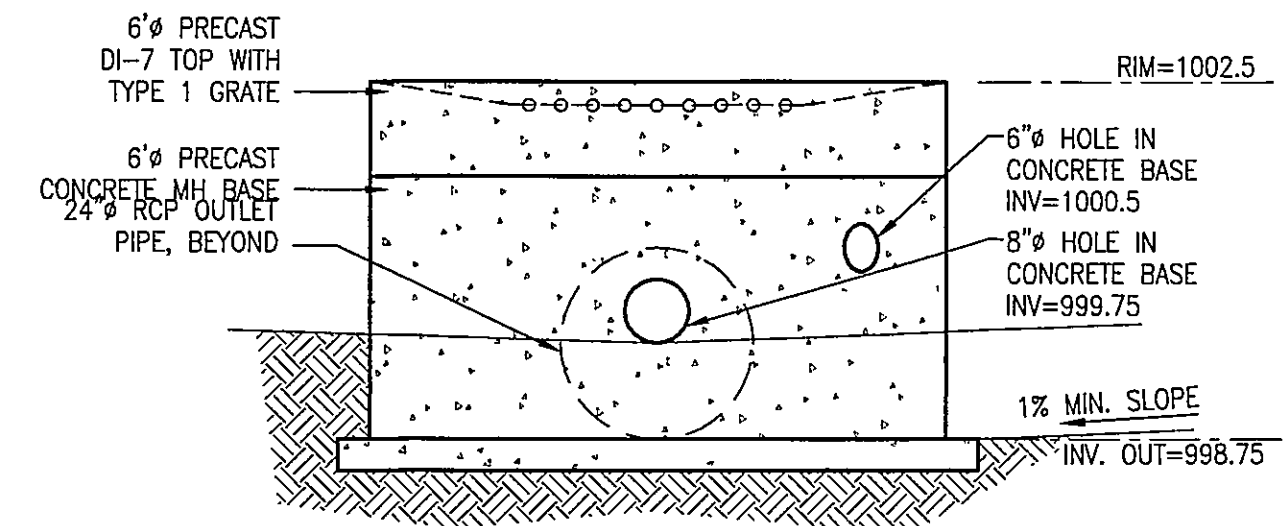


ANCHOR BLOCK

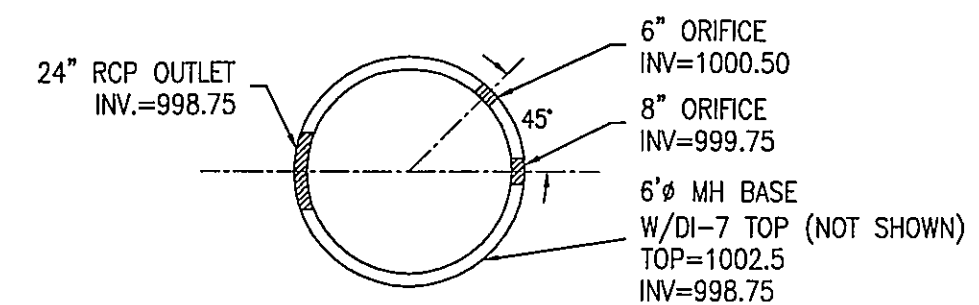


POND OUTLET SEDIMENT FILTER DETAIL

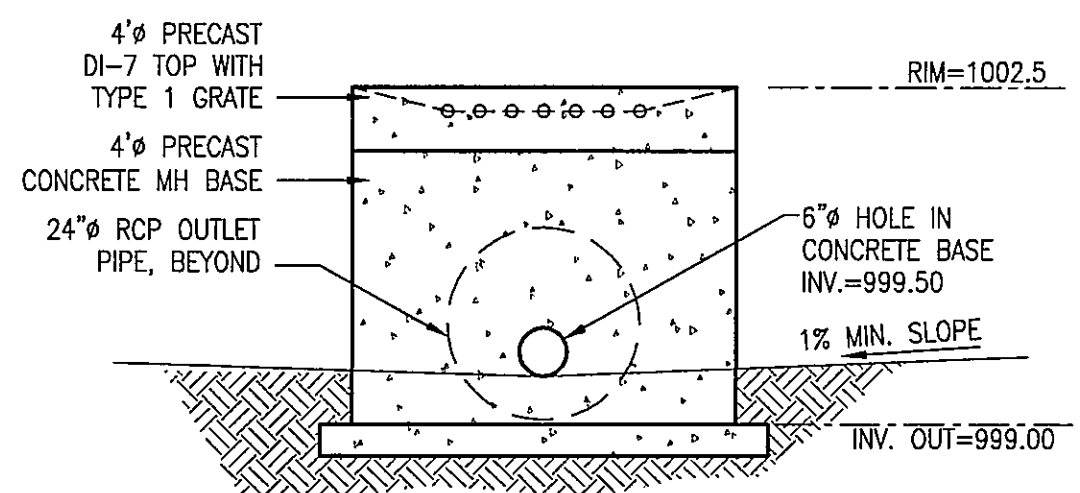
NOTE: INSTALL SEDIMENT FILTER AS INDICATED ON THE OUTLET STRUCTURE FROM BOTH PONDS



POND 1 OUTLET DETAIL



POND 1 OUTLET PLAN VIEW DETAIL



POND 2 OUTLET DETAIL

- NOTES:
- NOT ACCEPTABLE FOR USE IN TRAFFIC AREAS OR AREAS SUBJECT TO FLOODING.
 - VACUUM OR EXFILTRATION TESTING SHALL BE USED. VACUUM TESTING SHALL MEET THE SAME STANDARD FOR CONCRETE MANHOLES. EXFILTRATION TESTING SHALL HAVE NO LEAKAGE WITHIN 1 HOUR.
 - "AquaBlok" WASTEWATER ACCESS CHAMBERS MAY BE SUBSTITUTED. TRAFFIC BEARING BOXES WILL BE REQUIRED IF INSTALLED IN TRAFFIC AREAS. TESTING OF "AquaBlok" SHALL BE BY APPLICABLE PLUMBING CODE FOR SEWER LATERALS.

4. 2' DIA. CONCRETE WELL CASING 3000 PSI MAY BE SUBSTITUTED FOR ULTRA-RIB PIPE. ANY VERT. JOINTS IN THE CASING PIPE MUST BE BY BELL & SPIGOT CONNECTION WITH MASTIC.

WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

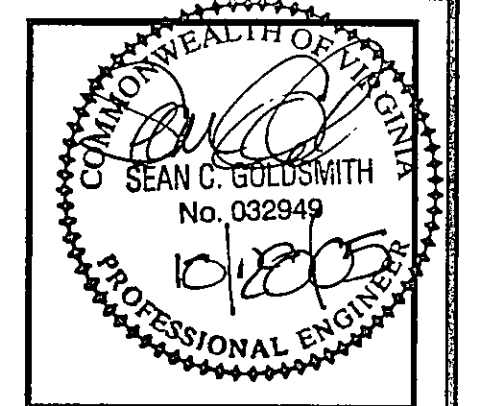
REVISION DATE	DESCRIPTION	REVISION DATE	DESCRIPTION
07/01/04	SAMPLING STRUCTURE DETAIL	S-07	

- NOTE:
- PIER REQUIRED WHEN STORM DRAIN OR OTHER PIPES CROSSES OVER THE OTHER UTILITY WITH A VERTICAL CLEARANCE OF LESS THAN 18".
 - PIER TO BE BUILT ON UNDISTURBED EARTH.
 - CONCRETE TO BE READY MIX, CLASS A3.

WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	DESCRIPTION	REVISION DATE	DESCRIPTION
07/01/04	CONCRETE PIER	S-17	

SEWER DETAILS



Revisions By	Date
SCG-Rke Co Cmnts	3/8/05
SCG-Rke Co Cmnts; SWM	8/2/05
SCG-Rke Co Cmnts; SWM	10/26/05

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(540) 334-4294 Fax: (540) 334-4293
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DRAINAGE & SEWER DETAILS

ADDITIONS & ALTERATIONS

BONSACK UNITED METHODIST CHURCH
ROANOKE COUNTY, VIRGINIA

Scale: NONE
Date: 1/26/05
Design By: SCG
CAD By: SCG
Checked By: SCG
Comm. No.: 04154

Sheet No.

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