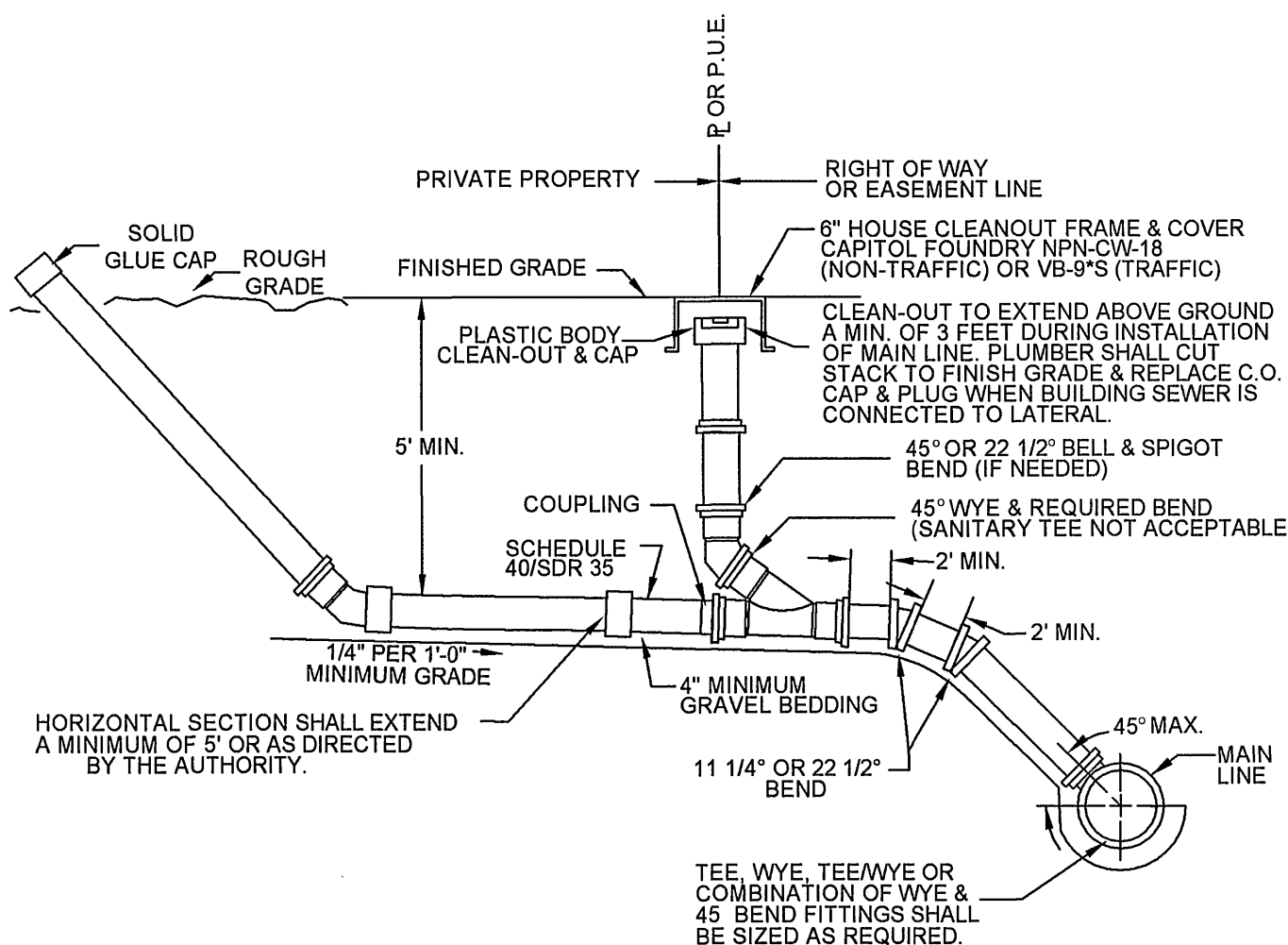
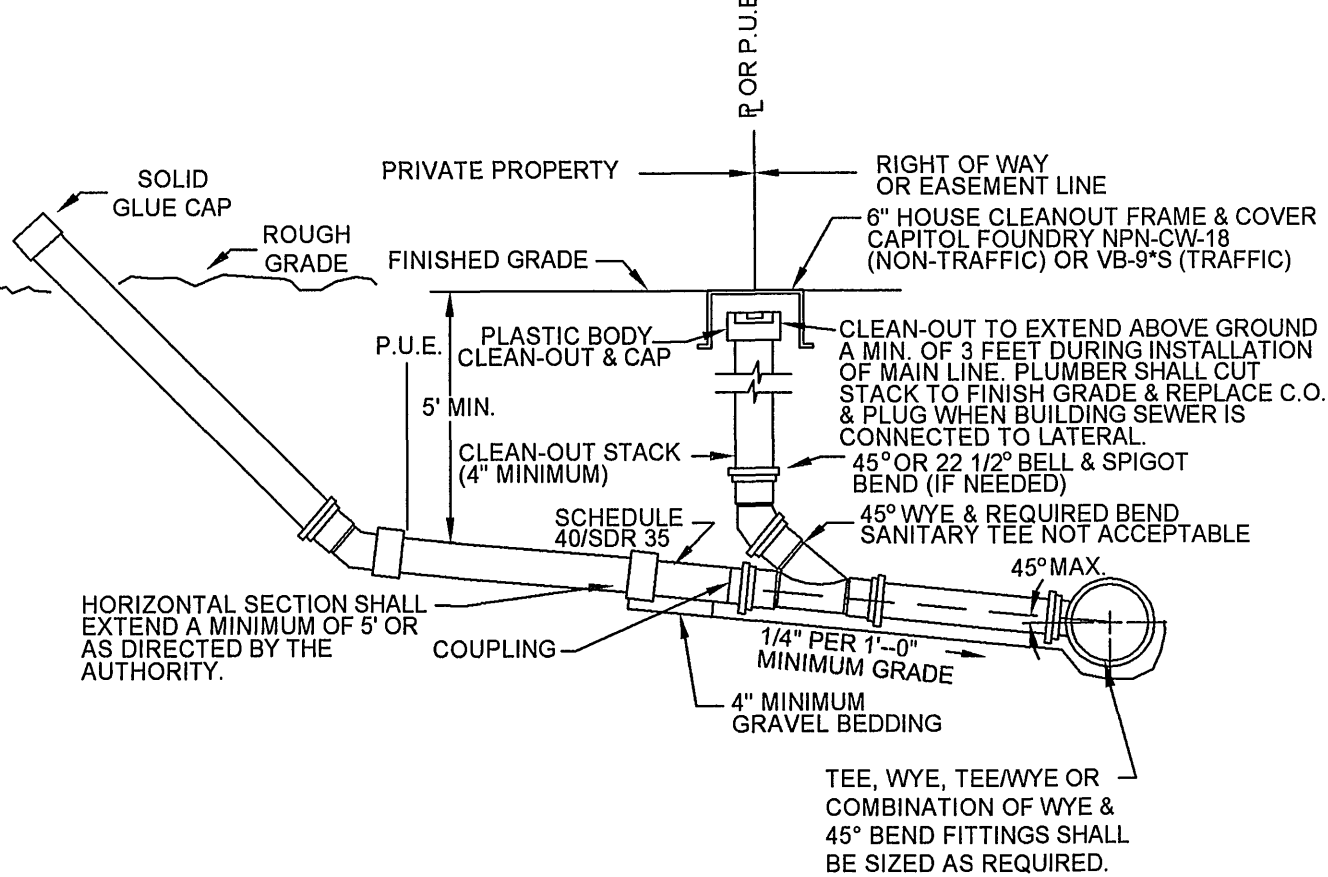


1. TRAFFIC BEARING BOB REQUIRED IN TRAFFIC AREA.
2. ALL PIPE AND FITTINGS SHALL BE OF SIMILAR MATERIAL.
3. ALL PIPE SHALL BE OF SAME SIZE.
4. NO BENDS ARE ALLOWED IN THE LATERAL FROM THE MAIN TO THE CLEAN-OUT STACK WYE (EXCEPT AS NOTED).
5. ALL MAIN LINE TAPS ON ACTIVE MAINS WILL BE PERFORMED BY THE WESTERN VIRGINIA WATER AUTHORITY.
6. PIPING BEHIND CLEANOUT TO BE INSTALLED PER BOCA CODE.
7. MINIMUM LATERAL SIZE:
  - 4" FOR RESIDENTIAL SERVICE
  - 6" FOR NON-RESIDENTIAL SERVICE
8. PROPERTY OWNER RESPONSIBLE FOR INSTALLING CLEANOUT ON PROPERTY LINE WHEN MAINTENANCE REQUIRED.

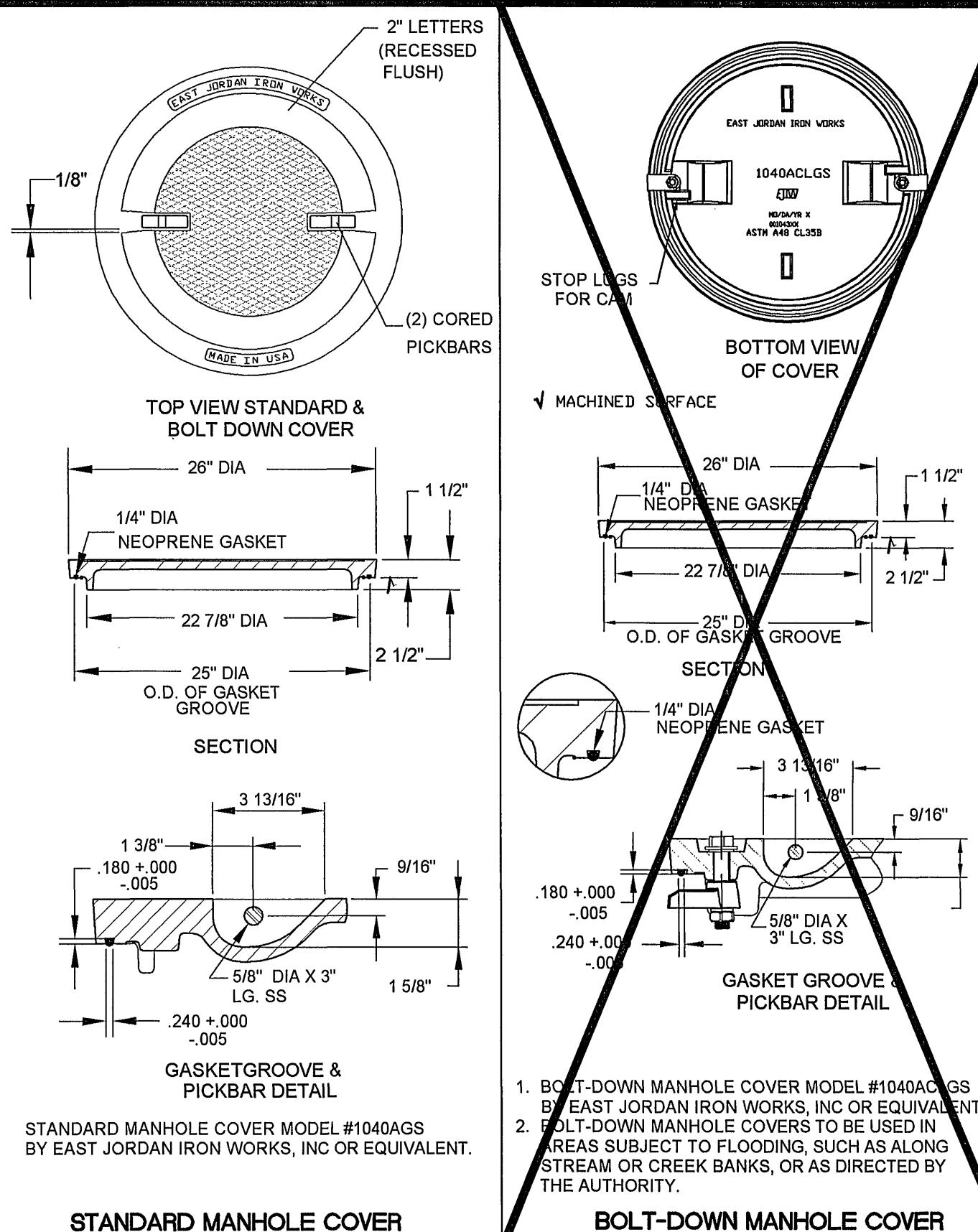


REVISION DATE			SANITARY SEWER LATERAL FOR DEEP SEWER	S-03
7/01/04				

1. TRAFFIC BEARING BOB REQUIRED IN TRAFFIC AREAS.
2. ALL PIPE AND FITTINGS SHALL BE OF SIMILAR MATERIAL.
3. ALL PIPE SHALL BE OF SAME SIZE
4. NO BONDS ARE ALLOWED TO BE LATERAL FROM THE MAIN TO THE CLEANOUT STACK WYE. (EXCEPT AS NOTED)
5. ALL MAIN LINE TAPS ON ACTIVE MAINS WILL BE PERFORMED BY WESTERN
6. NO GIGGIA WATER ALLOWED TO BE LATERAL
7. PIPING BETWEEN CLEANOUT TO BE INSTALLED PER BOCA CODE.
8. MINIMUM LATERAL SIZE:
  - 4" FOR RESIDENTIAL SERVICE
  - 6" FOR NON-RESIDENTIAL SERVICE
9. MINIMUM COVER FOR ALL SEWER LATERALS SHALL BE THREE(3) FEET.
10. PROPERTY OWNER RESPONSIBLE FOR INSTALLING CLEANOUT ON PROPERTY



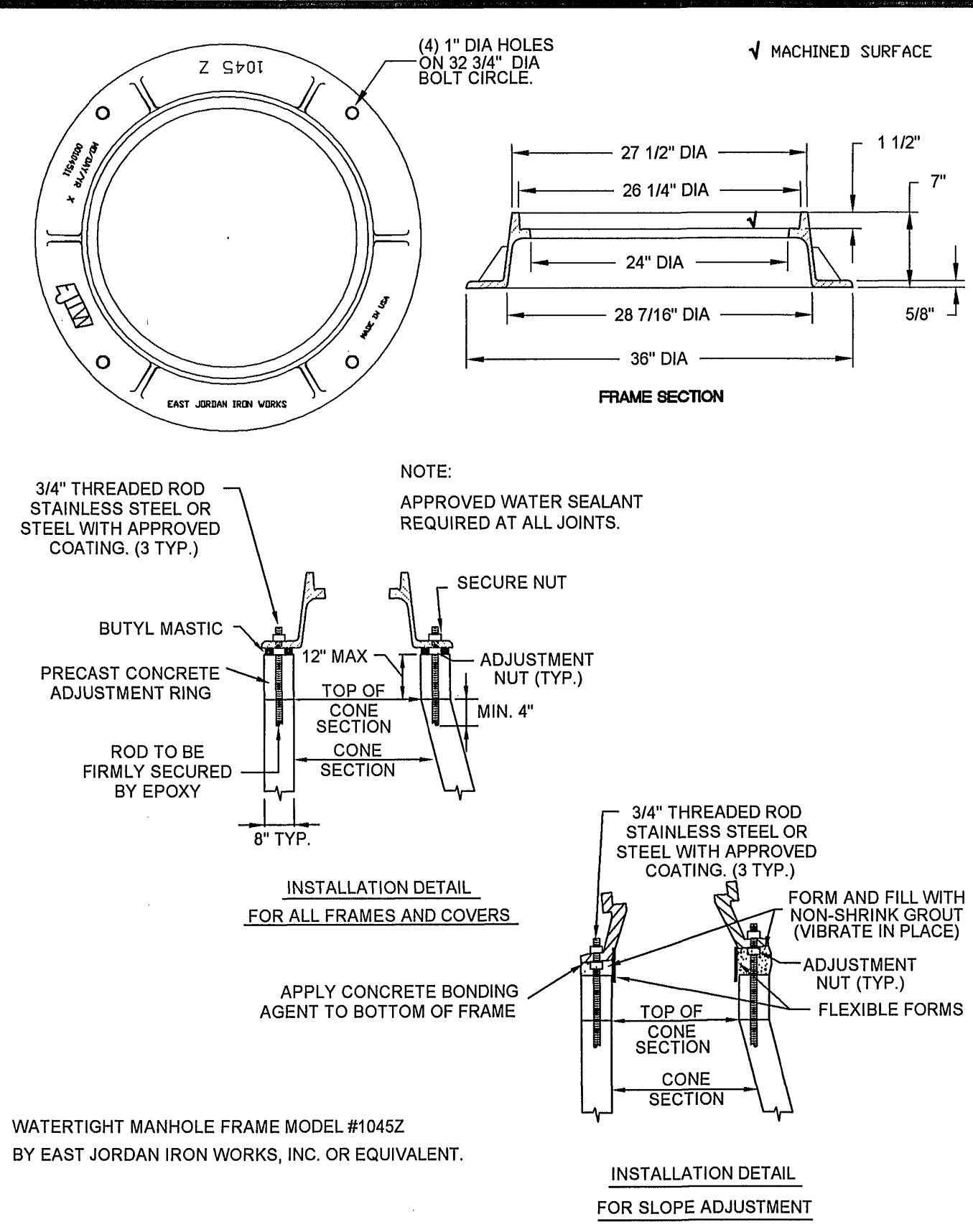
	REVISION DATE	SANITARY SEWER LATERAL	S-0
7/01/04			



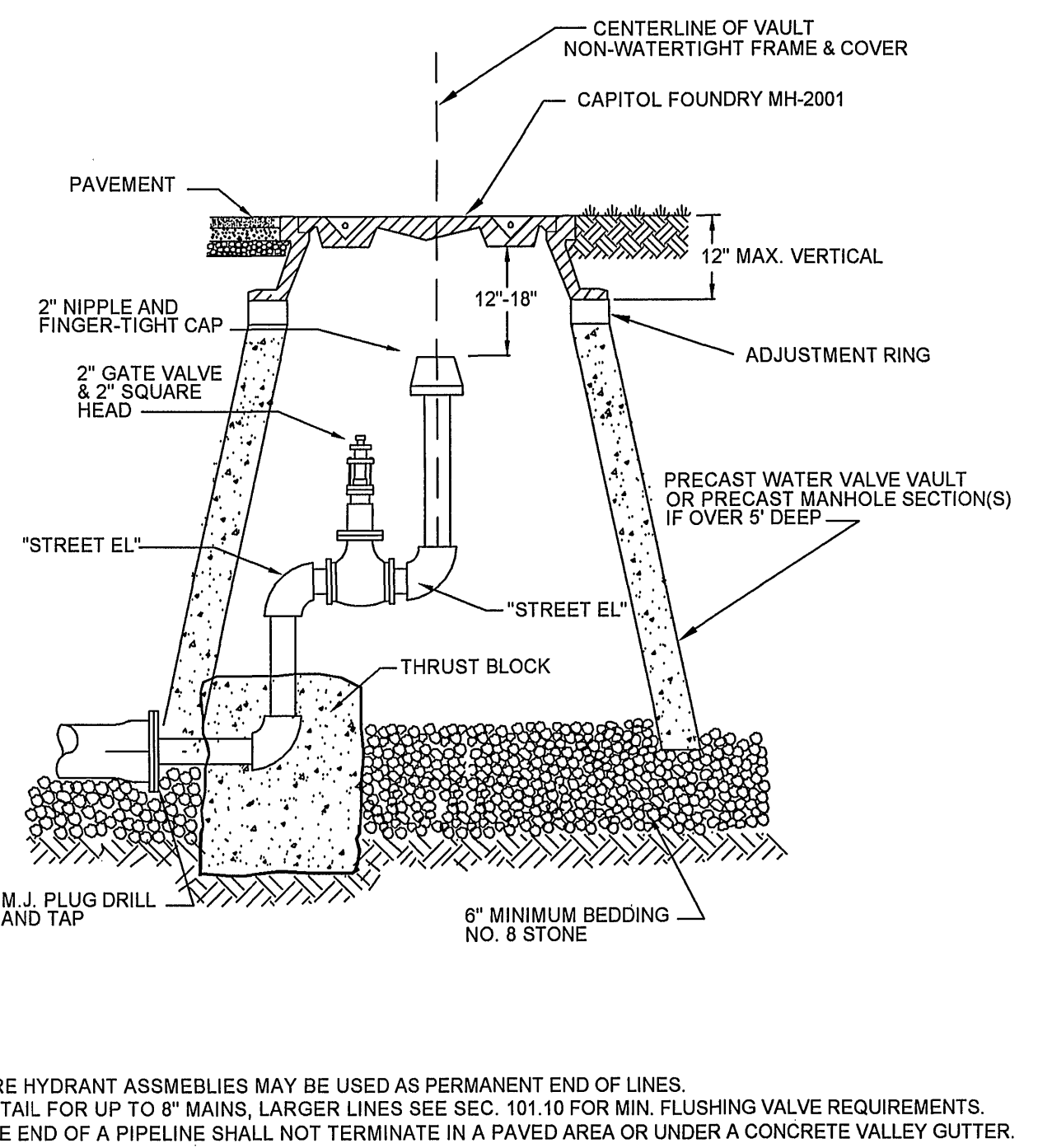
REVISION DATE		MANHOLE COVER	S-06
07/01/04			

Pipe Diameter (in.)	Min. Time for Length (sec)	Length for Time (ft)	Time for 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	3:46
6	5:40	398	484 L	5:40	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24
8	7:36	299	1,520 L	7:34	7:34	7:34	7:36	7:36	8:52	10:08	11:48	17:48
10	9:26	236	2,374 L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48	19:47
12	11:20	199	3,418 L	11:20	11:20	11:24	14:15	17:05	19:55	22:47	25:38	
15	14:10	159	5,342 L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04	
18	17:00	133	7,692 L	17:10	19:13	23:39	32:03	38:27	44:52	51:16	57:41	
21	19:50	114	10,470 L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31	
24	22:40	99	13,674 L	22:47	34:11	45:34	56:58	68:22	79:46	91:12	102:33	
27	25:30	88	17,306 L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48	
30	28:20	80	21,366 L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15	
33	31:10	72	25,682 L	43:05	64:38	89:10	107:43	129:16	150:43	172:21	193:53	
36	34:00	66	30,698 L	51:17	76:55	102:32	128:13	153:50	179:26	205:07	230:46	

REVISION DATE	MINIMUM SPECIFIED TIME REQUIRED FOR A 1.0 PSIG PRESSURE DROP FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q=0.0015	S-27
07/01/04		

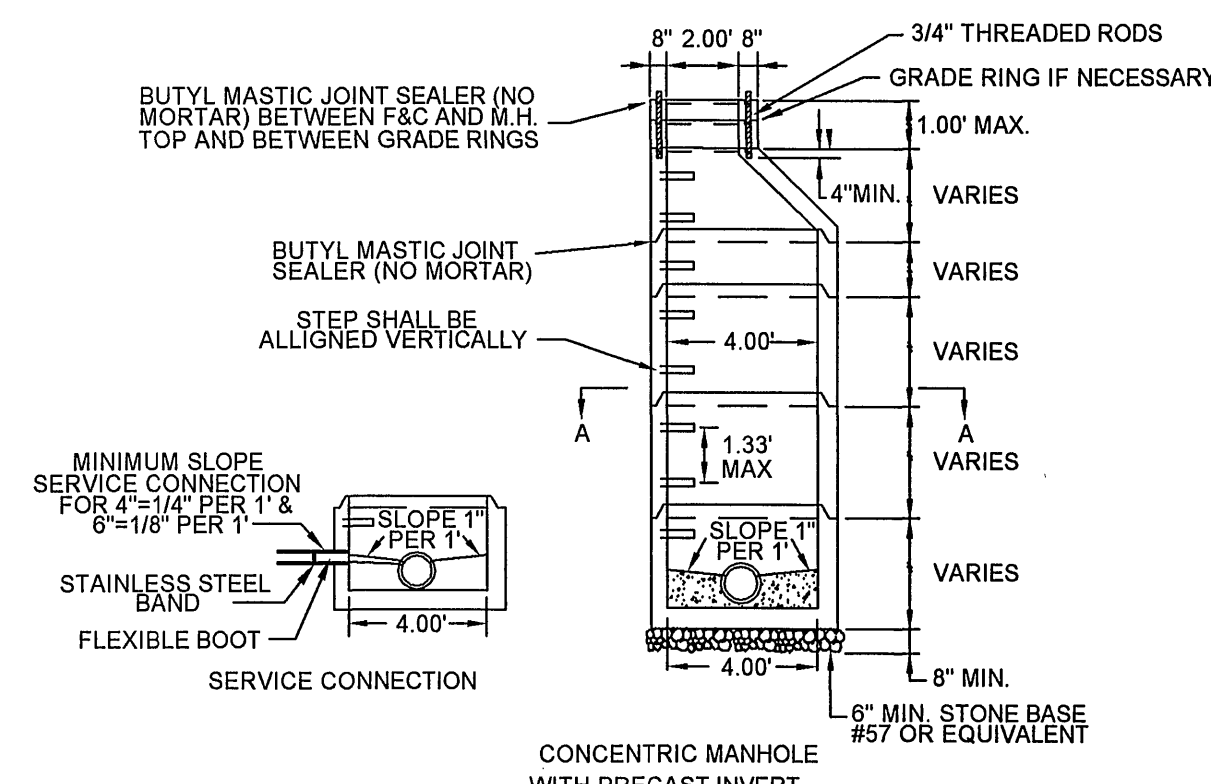


REVISION DATE	MANHOLE FRAME	S-05
7/01/04		



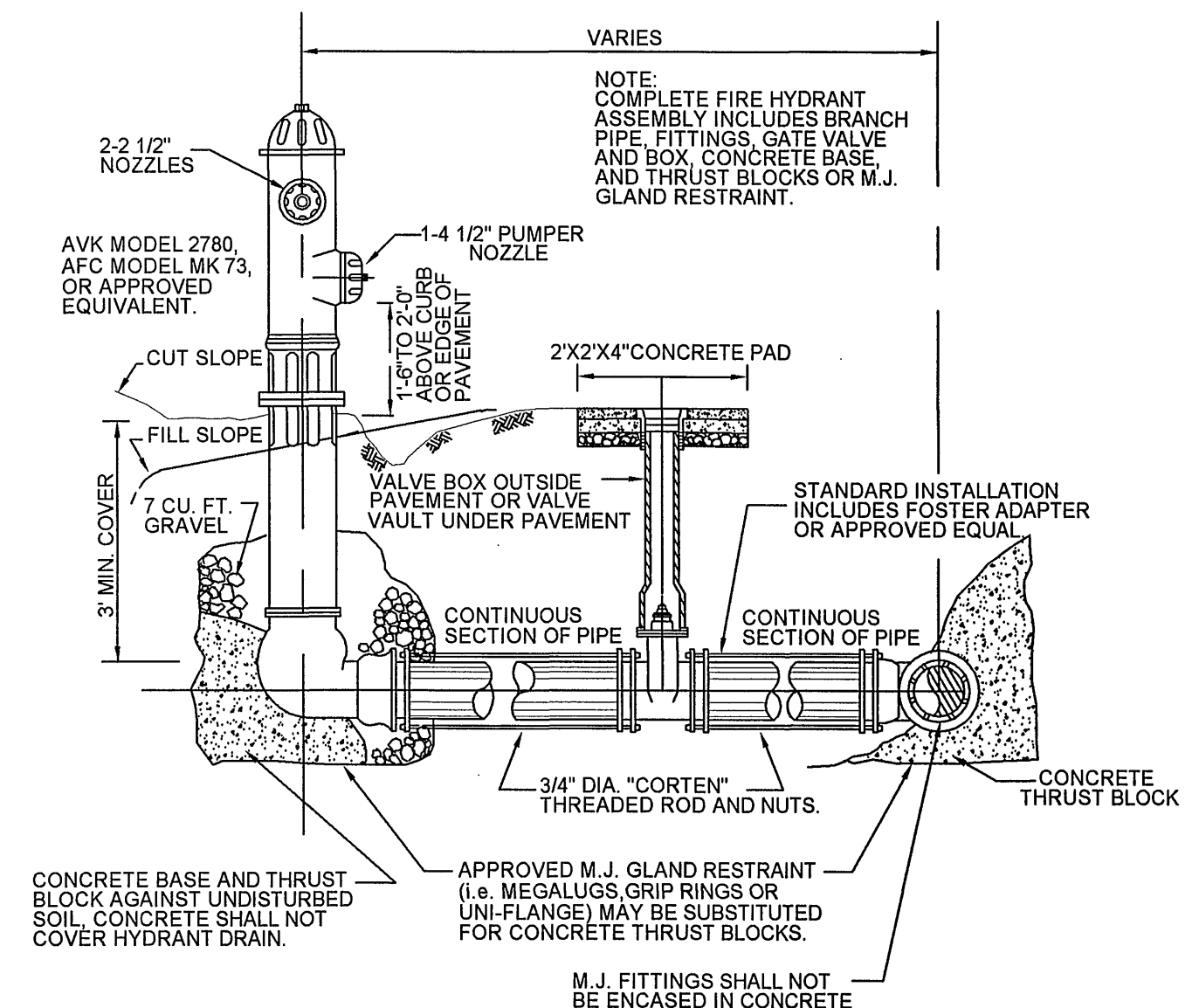
REVISION DATE		PERMANENT END OF LINE	W-09
7/01/04			

1. ALL MANHOLE FRAMES AND COVERS SHALL BE BAST JORDAN IRON WORKS, INC. WATER TIGHT MANHOLE FRAME MODEL #1045Z, WATER TIGHT COVER MODEL #1045Z, OR APPROVED EQUAL. COVER MODEL #1040ACLOS, OR APPROVED EQUAL. BOLT-DOWN MODEL TO BE USED IN AREAS SUBJECT TO TRAFFIC SHALL BE THE AUTHORITY.
2. STEPS TO BE VERTICALLY ALIGNED.
3. THE FRAME AND COVER SHALL BE PROPERLY ALIGNED WITH THE 2 FOOT OPENING OF THE EXISTING STRUCTURE TO BE REPLACED.
4. FLAT TOP MANHOLES MAY ONLY BE SUBSTITUTED WITH THE PERMISSION OF THE UTILITY DIRECTOR. WHEN USED, THE ECCENTRIC OPENING MUST LINE UP WITH THE EXISTING STEPS.
5. SAMPLING MANHOLES IN TRAFFIC AREAS SHALL BE CONSTRUCTED AS PER-MANHOLE DETAILS.
6. ALL MANHOLE JOINTS AND GASKETS SHALL BE AS MANUFACTURED BY PREH-SEAL GASKET CORPORATION OR EQUAL.
7. GROUND ANNUAL SPACE BETWEEN MANHOLE AND MANHOLE OR INSIDE OF MANHOLE SHALL BE

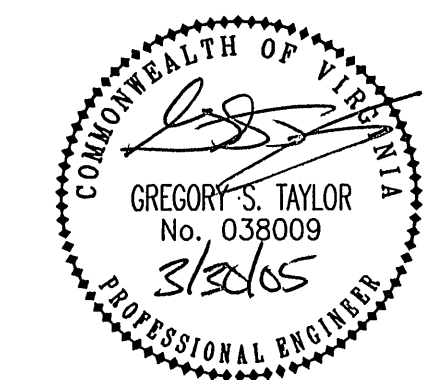
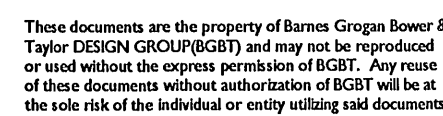


REVISION DATE			4' STANDARD MANHOLE FOR PIPE 15" OR SMALLER	S-01
01/04				

1. MAIN BODY OF HYDRANT MUST BE PAINTED SILVER WITH RED REFLECTIVE CAPS AND BONNET.
2. 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.
3. AREA AROUND HYDRANT AT A RADIUS OF 4' TO BE LEVEL AND UNOBSTRUCTED.
4. WATERPROOF BAGS SHALL BE PLACED OVER ALL NEWLY INSTALLED FIRE HYDRANTS.
5. HIGH PRESSURE (OVER 120 PSI) REQUIRES THE USE ALL 3 RESTRAINTS.



REVISION DATE	FIRE HYDRANT ASSEMBLY	W-18
7/01/04		



# Riverland Vineyards

**Catawba Magisterial District  
Roanoke County, Virginia**

County Comment	December 14, 200
County & VDOT Comment	February 9, 200
County & VDOT Comment	March 30, 200

DESIGNED BY: \_\_\_\_\_

CHECKED BY: \_\_\_\_\_ GS: \_\_\_\_\_

SCALE: N/A

**DATE.** September 20, 200

## Sanitary Sewer and Water Details

**C11**  
**11 OF 12**  
**PROJECT NUMBER:**  
**S03046-02**

S:\2003 Projects\03046 Riverside Subdivision Const Plans\dwg\03046-02 Const Docs Proto4a.dwg, 7/27/2005 11:13:33 AM