

DEVELOPMENT PLANS STONEGATE SUBDIVISION VALLEY MAGISTERIAL DISTRICT BOTETOURT COUNTY, VIRGINIA

PROJECT NAME: Stone Gate Subdivision
DATE: 9-1-00
TYPE: Subdivision
LOCATION: Highland Drive
TOTAL # SHEETS: 25
SHEET NO.: 25
OF SETS: 1

GENERAL NOTES

All construction methods and materials shall conform to the Construction Standards and Specifications of Roanoke/Botetourt County and/or the Virginia Department of Transportation.

The contractor or developer is required to notify the Roanoke/Botetourt County Engineering Division in writing at least three (3) days prior to any construction, including, but not limited to the following:

- Installation of approved erosion control devices
- Clearing and grubbing
- Subgrade excavation
- Installing storm sewers or culverts
- Setting curb and gutter forms
- Placing curb and gutter
- Placing other concrete
- Placing gravel base
- Placing any roadway surface
- Installing water lines
- Installing sanitary sewer lines

A pre-construction conference should be scheduled with the Roanoke/Botetourt County Engineering Division, to be held at least one (1) day prior to any construction.

Measures to control erosion and siltation must be provided prior to plan approval. Plan approval in no way relieves the developer or contractor of the responsibilities contained within the erosion and siltation control policies.

A permit must be obtained from the V.D.O.T. Residency Office, Roanoke/Botetourt County, prior to construction in the highway right-of-way.

Plan approval does not guarantee issuance of any permits by V.D.O.T.

An approved set of plans and all permits must be available at the construction site.

Field construction shall honor proposed drainage divides as shown on plans.

All unsuitable material shall be removed from the construction limits of the roadway before placing embankment.

Pavement sections on approved plans are based on a minimum CBR of 10. CBR tests are to be performed by the engineer and submitted to V.D.O.T. and to the Roanoke/Botetourt County Engineering Division prior to placement. CBR values < 10 will require revised pavement sections.

Location of guard rails shall be determined at a joint field inspection by the Roanoke/Botetourt County and V.D.O.T.

All springs shall be capped and piped to the nearest storm sewer or natural watercourse. The pipe shall be 6 inch minimum diameter and conform to V.D.O.T. Standard SB-1.

Standard street and traffic control signs shall be erected at each intersection by the developer prior to final street acceptance. All signs shall be installed in accordance with the Manual on Uniform Traffic Control Devices.

The contractor shall provide adequate means of cleaning mud from trucks and/or other equipment prior to entering public streets. It is the contractors responsibility to insure that the streets are in a clean, mud and dust free condition at all times.

The developer and/or contractor shall supply all utility companies with copies of approved plans, advising them that all grading and installation shall conform to approved plans.

Contractors shall notify utilities of proposed construction at least two (2), but not more than ten (10) working days in advance. Area public utilities may be notified thru "Miss Utility": 1-800-552-7001.

The developer or contractor shall supply the Roanoke/Botetourt County with correct As-Built plans before final acceptance.

All work shall be subject to inspection by Roanoke/Botetourt County and/or V.D.O.T. inspectors.

Field corrections shall be approved by the Roanoke/Botetourt County Engineering Division prior to such construction.

100 year floodway and floodplain information shall be shown where applicable.

Grade stakes shall be set for all curb and gutter, culvert, sanitary sewer and storm sewer.

Developer to grade front of lots not to create a ditch behind the curb & gutter.

SEWER NOTES

A minimum cover of three (3) feet is required over proposed lines.

Contractor shall be responsible for locating and uncovering all manholes after paving. Manhole tops shall be adjusted to grade if necessary.

All existing utilities may not be shown or may not be shown in the exact location. The contractor shall comply with State Water Works Regulations, Section 12.05.03, where lines cross.

House connections are to be made with 4" pipe installed at a minimum grade of 1/4 inch to 1 foot in R/W.

Laterals from manholes shall be PVC of sufficient length to provide two (2) feet of bearing on natural ground.

All trenches in existing or future rights-of-way shall be compacted according to V.D.O.T. standards.

Lines shall be staked prior to construction.

Sewer provided by Botetourt County

WATER NOTES

A minimum cover of three (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 or may not be shown in the exact location. The contractor shall comply with the State Water Works Regulations, Section 12.05.03, where lines cross.

All trenches in existing or future highway right-of-ways shall be compacted according to V.D.O.T. standards.

Lines shall be staked prior to construction.

Water main shall be minimum Class S2 Ductile Iron in accordance to AWWA C151 or DR-14 PVC in accordance with AWWA C-900.

Availability number 97-103 Roanoke County

ALL WATER UTILITIES SHALL MEET ROANOKE COUNTY STANDARDS AND SPECIFICATIONS

Water services shall include corporation stop, service line, meter box and meter yoke, (everything except the meter).

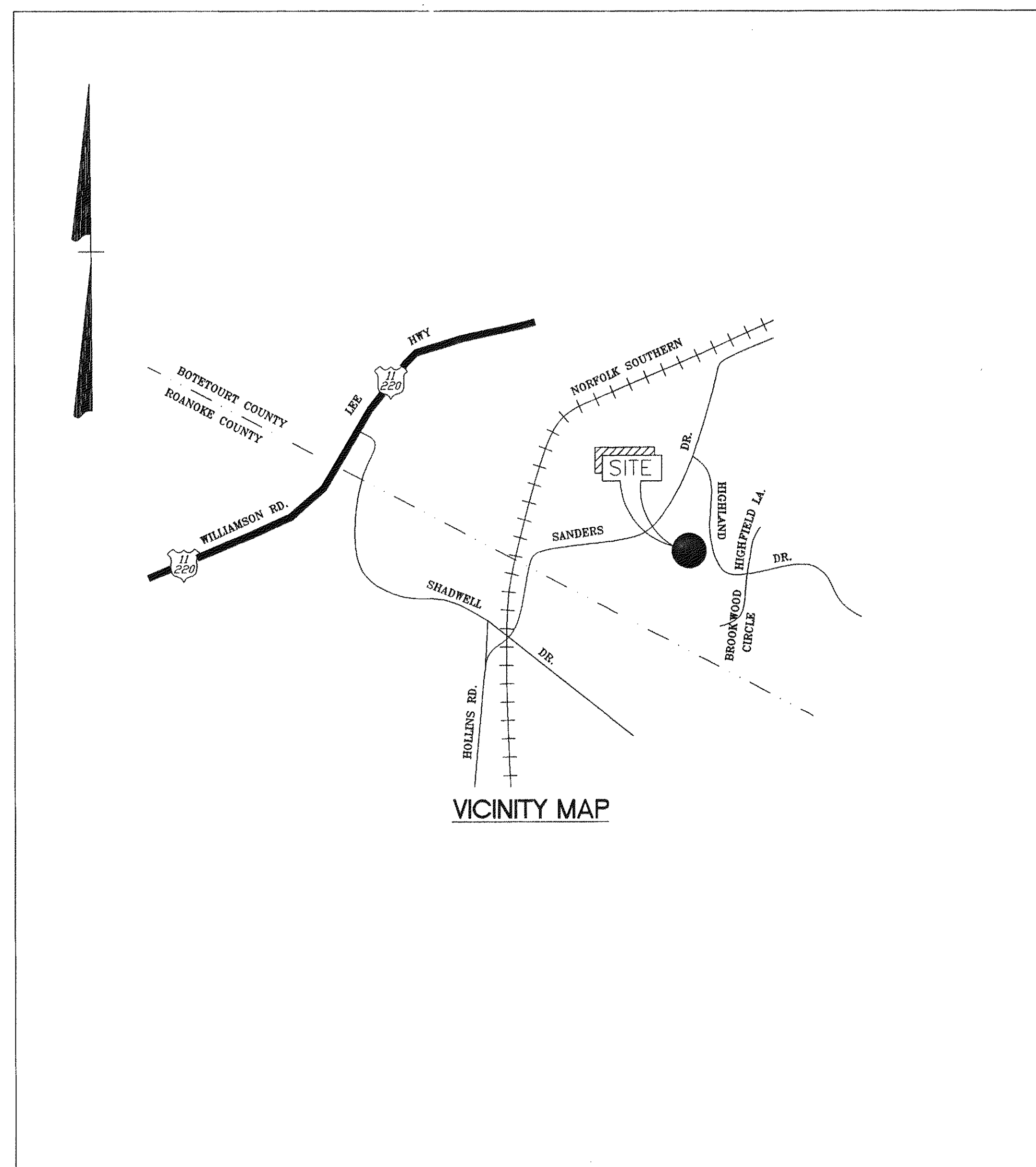
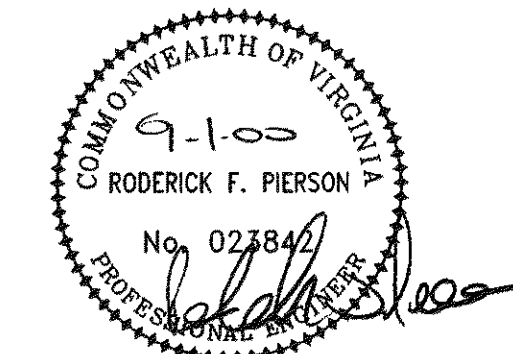
NAME OF DEVELOPMENT **STONEGATE**

MAGISTERIAL DISTRICT(S) **VALLEY MAG. DISTRICT (BOTETOURT)
HOLLINS MAG. DISTRICT (ROANOKE)**

OWNER (name, address, telephone) **SUMMERS PROPERTIES LLC
P.O. BOX 616
DALEVILLE, VA 24083**

PIERSON ENGINEERING & SURVEYING
Rodney Pierson, LLS, PE.

1332 Roanoke Road
P.O. Box 311
220 North
Daleville, VA 24083
Phone: (540) 966-3027



VICINITY MAP

REV	DATE	DESCRIPTION
1	04/10/00	REVISIONS
2	06/02/00	PER BOTETOURT COUNTY COMMENTS
3	06/06/00	PER VDOT & ROANOKE COUNTY COMMENTS
4	07/19/00	PER VDOT & BOTETOURT COUNTY COMMENTS
5	09/01/00	PER ROANOKE COUNTY COMMENTS

ENGINEER:
RODERICK PIERSON
P.O. BOX 311
DALEVILLE, VA. 24083
540.966.3027

QUANTITY + COST ESTIMATE PHASE I

ITEM	QUANTITY	UNIT	UNIT PRICE	COST	BONDABLE
CLEARING AND GRUBBING		ACRES			
EXCAVATION		C.Y.			
EMBANKMENT		C.Y.			
CURB INLET DI- 38	14	EACH	\$1500.00	\$21000.00	
CURB INLET DI- 48	3	EACH	\$1800.00	\$5400.00	
VDOT DI-7	1	EACH	\$1800.00	\$1800.00	
MANHOLE MH-		EACH			
MANHOLE MH- STORM DRAIN	1	EACH	\$1500.00	\$1500.00	
15 -IN. HDPE	265	LIN. FT.	\$20.00	\$5300.00	
18 -IN. HDPE	705	LIN. FT.	\$22.00	\$15510.00	
24 -IN. HDPE	905	LIN. FT.	\$26.00	\$23530.00	
30 -IN. HDPE	830	LIN. FT.	\$32.00	\$26560.00	
36 -IN. HDPE	260	LIN. FT.	\$20.00	\$5200.00	
48 -IN. RCP CLASS III	270	LIN. FT.	\$45.00	\$12150.00	
BOX CULVERT		LUMP SUM			
PAVED DITCH		LIN. FT.			
RIPRAP - CLASS		S.F.			
SODDED SWALE		S.Y.			
-IN. CONCRETE ENDWALL EW-		EACH			
-IN. END SECTION ES-		EACH			
HEADER CURB & GUTTER CG--		LIN. FT.			
CURB & GUTTER CG-6	5,910	LIN. FT.	12	\$70,920.00	
VALLEY GUTTER		EACH			
GRAVEL BASE		S.Y.			
GRAVEL SHOULDER		S.Y.			
SURFACE TREATMENT		S.Y.			
-IN. BIT. CONC.: TYPE B-		S.Y.			
-IN. BIT. CONC.: TYPE SM2A	1,290	TONS	\$40.00	\$51600.00	
9 -IN. BASE MATERIAL 21-B	5,650	TONS	\$12.00	\$67800.00	
-IN. SUBBASE MATERIAL		C.Y.			
TRAFFIC BARRICADE		EACH			
8" WATER LINE	4000	LIN. FT.	\$22.00	\$88000.00	
6" WATER LINE		LIN. FT.	\$18.00		
FIRE HYDRANT ASSEMBLIES	5	EACH	\$1500.00	\$7500.00	
BLOW OFFS W/VAULT, FRAME & COVER	2	EACH	\$1000.00	\$2000.00	
8 -IN. GATE VALVES, W/VAULT, FRAME & COVER	8	EACH	\$1500.00	\$12000.00	
-IN. GATE VALVES, W/VAULT, FRAME & COVER		EACH			
8 - IN. WET TAP	1	EACH	\$4000.00	\$4000.00	
8 - IN. LINE (AIR RELEASE VALVE)	1	EACH	\$1500.00	\$1500.00	
8" SANITARY SEWER	3750	LIN. FT.	\$30.00	\$112500.00	
STANDARD MANHOLE W/FRAE & COVER	20	EACH	\$1500.00	\$30000.00	
SAMPLING MANHOLE/PORT		EACH			
AS-BUILT PLANS		LUMP SUM	\$1000.00	\$1000.00	
STORMWATER MANAGEMENT		LUMP SUM			
SUBTOTAL				\$566,770.00	
10% CONTINGENCY				\$56,677.00	
ESTIMATED TOTAL				\$623,447.00	

I HEREBY CERTIFY THAT THE FOREGOING ESTIMATE REFLECTS THE CURRENT IMPROVEMENT COSTS OF THIS PROJECT.
SIGNED: DATE:

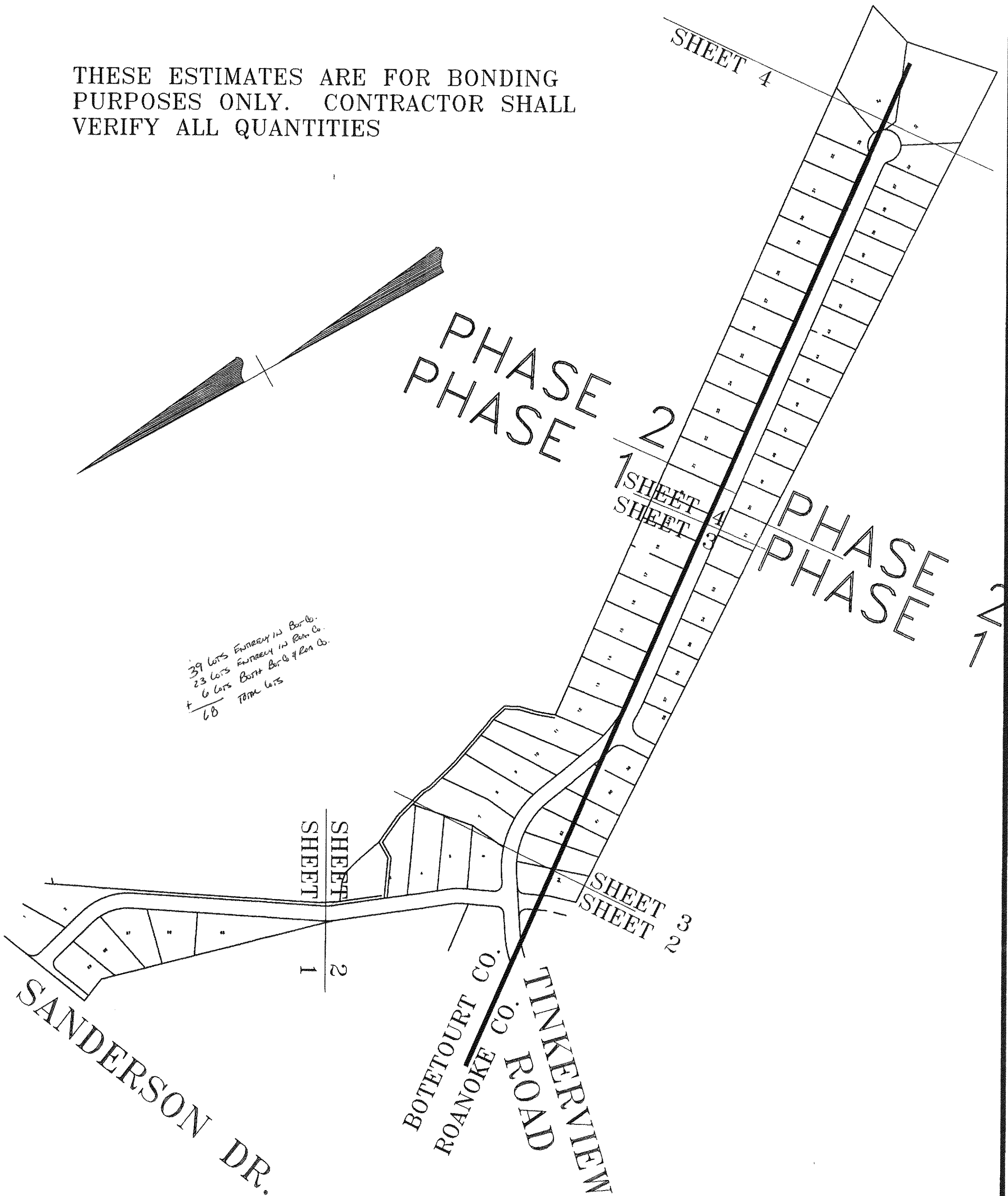
QUANTITY + COST ESTIMATE II

ITEM	QUANTITY	UNIT	UNIT PRICE	COST	BONDABLE
CLEARING AND GRUBBING		ACRES			
EXCAVATION		C.Y.			
EMBANKMENT		C.Y.			
CURB INLET DI- 38	10	EACH	\$1500.00	\$15000.00	
CURB INLET DI- 48		EACH	\$1800.00		
VDOT DI-1	1	EACH	\$1800.00	\$1800.00	
MANHOLE MH-		EACH			
MANHOLE MH- STORM DRAIN		EACH			
15 -IN. HDPE	906	LIN. FT.	\$20.00	\$18120.00	
18 -IN. HDPE	352	LIN. FT.	\$22.00	\$7744.00	
24 -IN. HDPE		LIN. FT.	\$26.00		
30 -IN. HDPE		LIN. FT.	\$32.00		
36 -IN. HDPE		LIN. FT.	\$20.00		
48 -IN. RCP CLASS III		LIN. FT.	\$45.00		
BOX CULVERT		LUMP SUM			
PAVED DITCH		LIN. FT.			
RIPRAP - CLASS		S.F.			
SODDED SWALE		S.Y.			
-IN. CONCRETE ENDWALL EW-		EACH			
-IN. END SECTION ES-		EACH			
HEADER CURB & GUTTER CG--		LIN. FT.			
CURB & GUTTER CG-6	3,117	LIN. FT.	12	\$37,404.00	
VALLEY GUTTER		EACH			
GRAVEL BASE		S.Y.			
GRAVEL SHOULDER		S.Y.			
SURFACE TREATMENT	51,550 s.f.	S.Y.			
-IN. BIT. CONC.: TYPE B-		S.Y.			
-IN. BIT. CONC.: TYPE SM2A	660	TONS	\$40.00	\$27200	
8 -IN. BASE MATERIAL 21-B	3000	TONS	\$12.00	\$36000.00	
-IN. SUBBASE MATERIAL		C.Y.			
TRAFFIC BARRICADE		EACH			
8" WATER LINE	450	LIN. FT.	\$22.00	\$9900.00	
6" WATER LINE	1620	LIN. FT.	\$18.00	\$29160.00	
FIRE HYDRANT ASSEMBLIES	2	EACH	\$1500.00	\$3000.00	
BLOW OFFS W/VAULT, FRAME & COVER	1	EACH	\$1000.00	\$1000.00	
6 -IN. GATE VALVES, W/VAULT, FRAME & COVER	1	EACH	\$1500.00	\$1500.00	
-IN. GATE VALVES, W/VAULT, FRAME & COVER		EACH			
8 - IN. WET TAP		EACH			
8 - IN. LINE (AIR RELEASE VALVE)		EACH			
8" SANITARY SEWER	1500	LIN. FT.	\$30.00	\$45000.00	
STANDARD MANHOLE W/FRAE & COVER	4	EACH	\$1500.00	\$6000.00	
SAMPLING MANHOLE/PORT		EACH			
AS-BUILT PLANS		LUMP SUM	\$1000.00	\$1000.00	
STORMWATER MANAGEMENT		LUMP SUM			
SUBTOTAL				\$239,828.00	
10% CONTINGENCY				\$23,982.80	
ESTIMATED TOTAL				\$263,810.80	

I HEREBY CERTIFY THAT THE FOREGOING ESTIMATE REFLECTS THE CURRENT IMPROVEMENT COSTS OF THIS PROJECT.
SIGNED: DATE:

INDEX MAP

THESE ESTIMATES ARE FOR BONDING PURPOSES ONLY. CONTRACTOR SHALL VERIFY ALL QUANTITIES

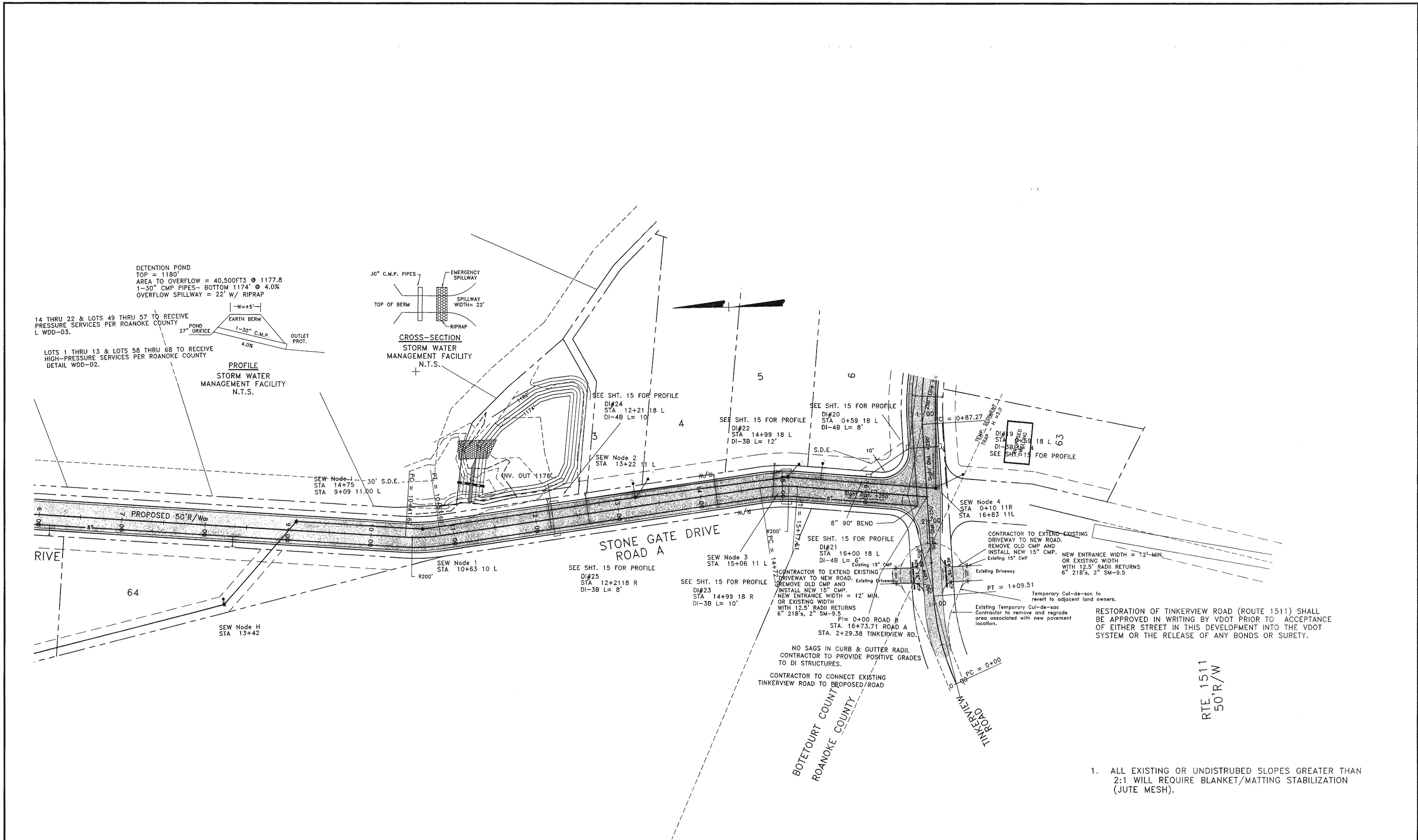


COUNTY OF ROANOKE

NAME OF DEVELOPMENT STONEGATE

MAGISTERIAL DISTRICT(S) VALLEY MAG. DISTRICT (BOTETOURT)
HOLLINS MAG. DISTRICT (ROANOKE)

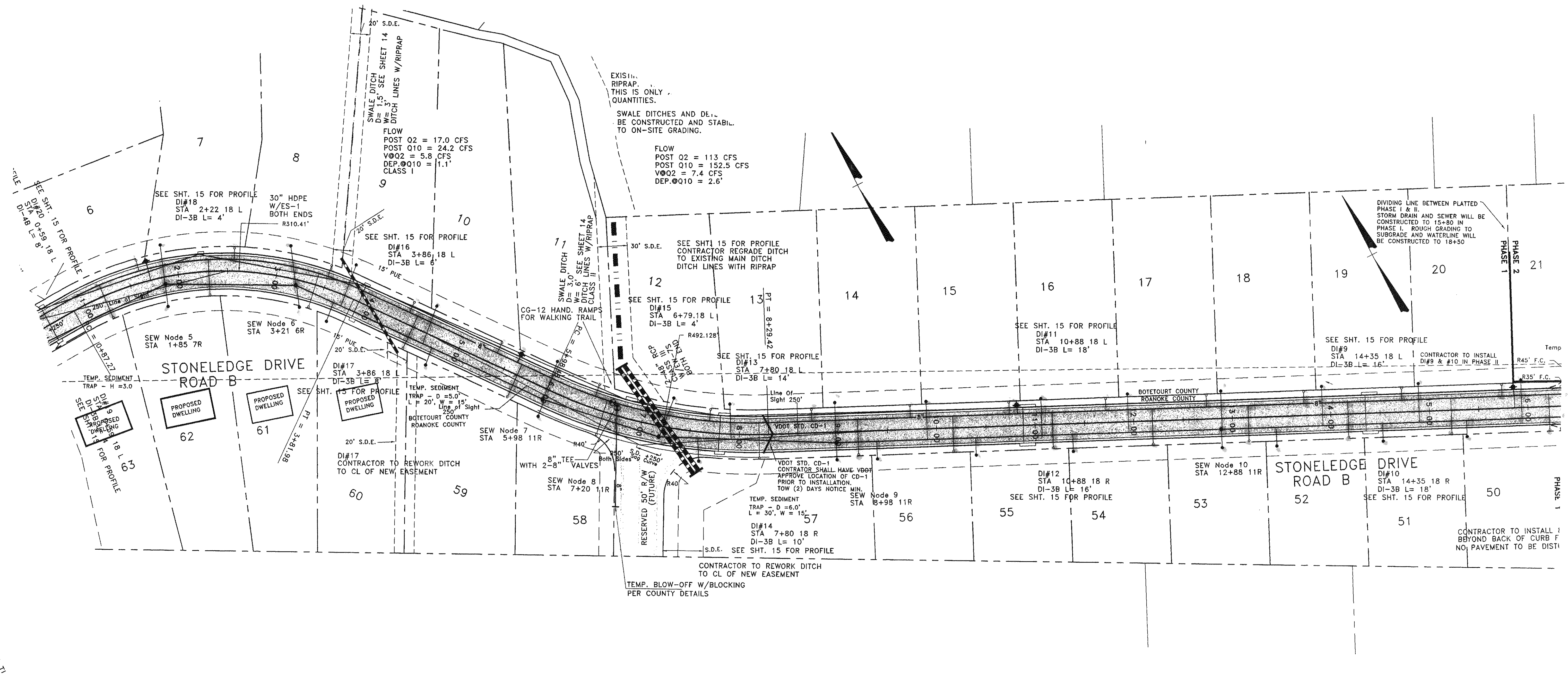
I, _____ OWNER/DEVELOPER, AM AWARE OF THE SITE DESIGN REQUIREMENTS IMPOSED BY THIS SITE DEVELOPMENT PLAN AND OTHER APPLICABLE COUNTY CODES. I HEREBY CERTIFY THAT I AGREE TO COMPLY WITH THESE REQUIREMENTS, UNLESS MODIFIED IN ACCORDANCE WITH LOCAL LAW.



1. ALL EXISTING OR UNDISTURBED SLOPES GREATER THAN 2:1 WILL REQUIRE BLANKET/MATTING STABILIZATION (JUTE MESH).

6 09/01/00 PER ROANOKE COMMENTS

Roderick F. Pierson, P.E., L.L.S. P.O. Box 311 1332 Roanoke Road, 220 North Daleville, VA 24083 (540) 966-3027		REV	DATE	DESCRIPTION	BY	APP	PLAN SHEET STONEGATE SUBDIVISION BOTETOURT/ROANOKE COUNTY, VIRGINIA		SCALE: 1" = 50' COMM. NO. R2002 DATE: 02/25/00 SHEET 2
		1	04/10/00	PER VDOT COMMENTS					
		2	06/02/00	PER VDOT/BOTETOURT COUNTY COMMENTS					
		3	06/06/00	PER VDOT & ROANOKE COUNTY COMMENTS					
		4	07/11/00	PER BOTETOURT COMMENTS					
		5	07/27/00	PER ROANOKE COMMENTS					

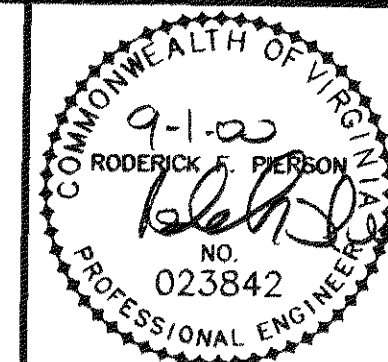


7 09/01/00 PER COUNTY COMMENTS
6 08/22/00 PER VDOT COMMENTS

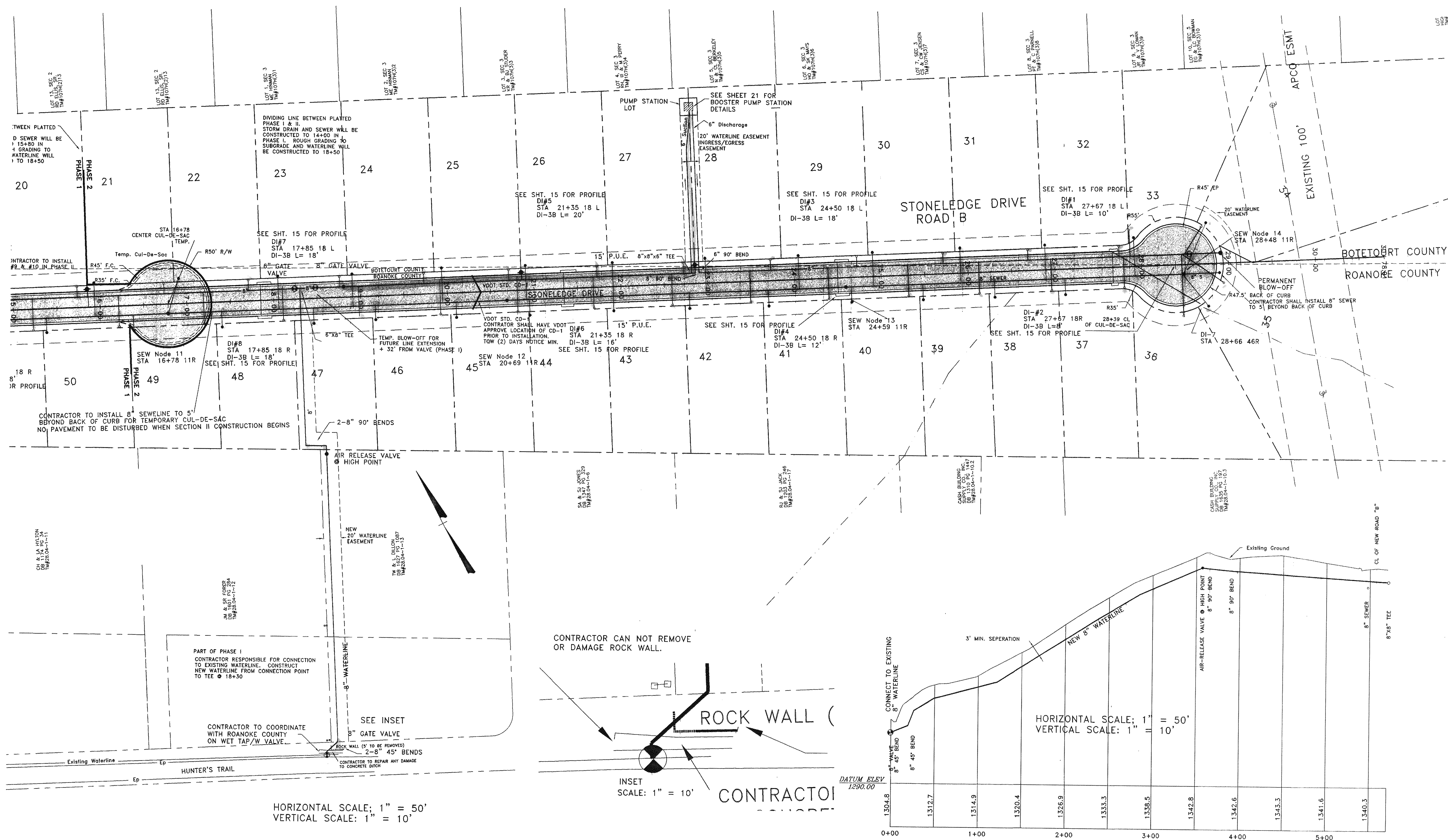
Roderick F. Pierson, P.E., L.L.S.
P.O. Box 311
1332 Roanoke Road, 220 North
Daleville, VA 24083
(540) 966-3027

REV	DATE	DESCRIPTION	BY	APP
1	04/10/00	PER VDOT COMMENTS		
2	06/02/00	PER VDOT/BOTETOURT COUNTY COMMENTS		
3	06/06/00	PER VDOT & ROANOKE COUNTY COMMENTS		
4	07/19/00	PER BOTETOURT & VDOT COMMENTS		
5	07/27/00	PER ROANOKE COMMENTS		

PLAN SHEET
STONEGATE SUBDIVISION
BOTETOURT/ROANOKE COUNTY, VIRGINIA



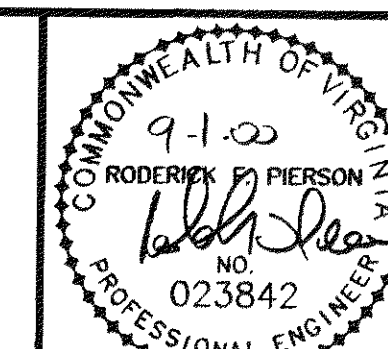
SCALE: 1" = 50'
COMM. NO. R2002
DATE: 03/20/00
SHEET 3



Roderick F. Pierson, P.E., L.L.S.
P.O. Box 311
1332 Roanoke Road, 220 North
Daleville, VA 24083
(540) 966-3027

REV	DATE	DESCRIPTION	BY	APP
1	04/10/00	REVISIONS - WATERLINE & VDOT COMMENTS		
2	06/02/00	PER VDOT/BOTETOURT COUNTY COMMENTS		
3	06/06/00	PER VDOT & ROANOKE COUNTY COMMENTS		
4	07/19/00	PER BOTETOURT & VDOT COMMENTS		
5	08/22/00	PER VDOT COMMENTS		

PLAN SHEET
STONEGATE SUBDIVISION
BOTETOURT/ROANOKE COUNTY, VIRGINIA

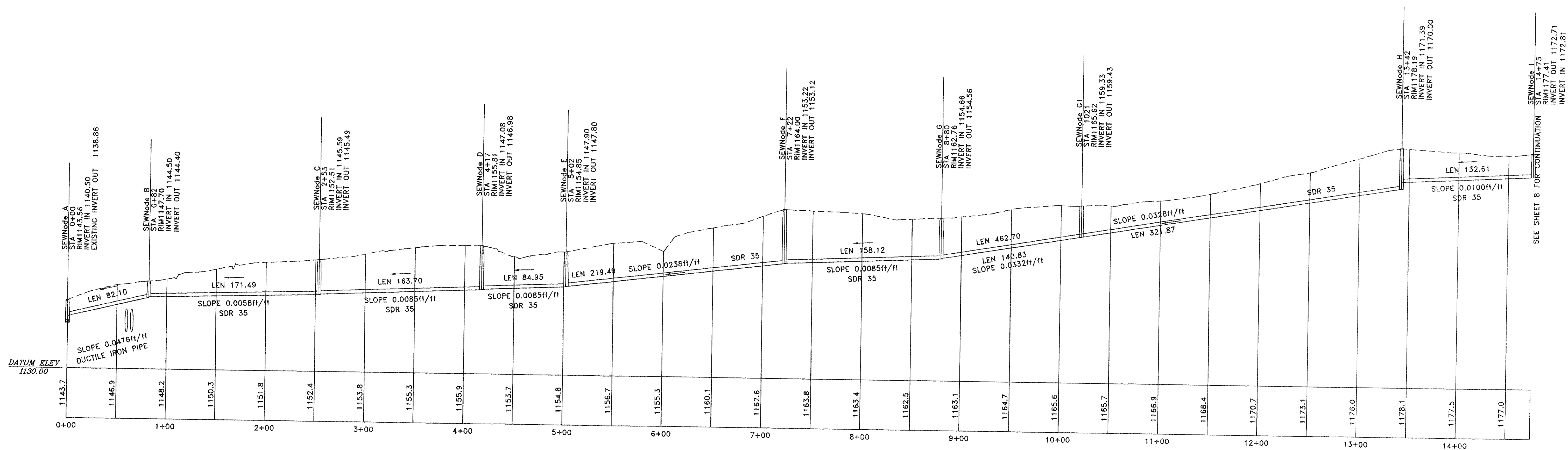


SCALE: 1" = 50'

COMM. NO. R2002

DATE: 03/20/00

SHEET 4



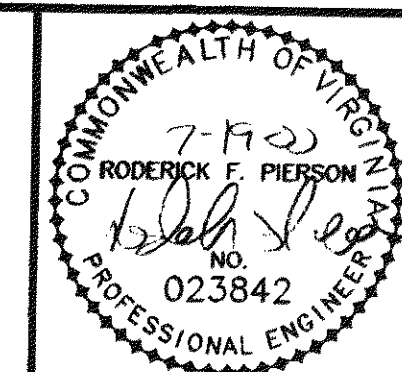
CONTRACTOR TO VERIFY CLEARANCE AND COVER PRIOR TO CONSTRUCTION. THIS SHALL BE THE FIRST PART OF CONSTRUCTION.

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

Roderick F. Pierson, P.E., L.L.S.
P.O. Box 311
1332 Roanoke Road, 220 North
Daleville, VA 24083
(540) 966-3027

REV	DATE	DESCRIPTION	BY	APP
2	06/02/00	PER VDOT/BOTETOURT COUNTY COMMENTS		
3	06/06/00	PER VDOT & ROANOKE COUNTY COMMENTS		
4	07/19/00	PER BOTETOURT COMMENTS		

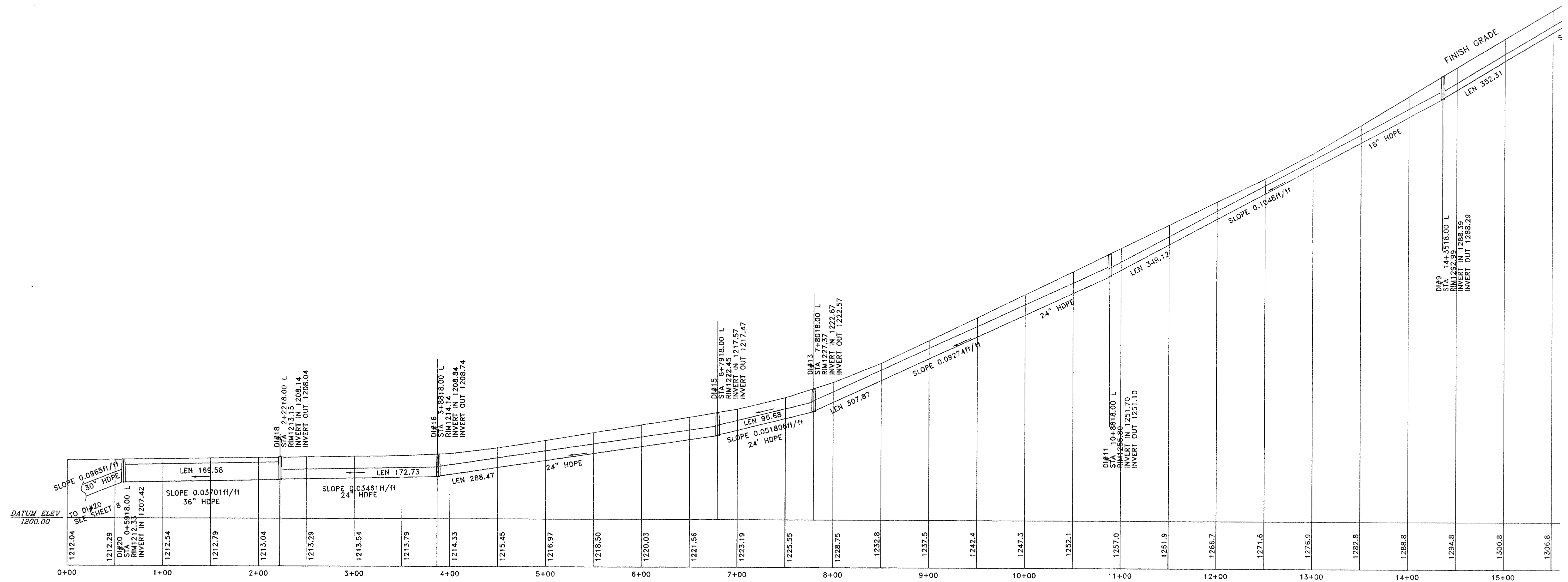
OFF-SITE SEWER PROFILE
STONEGATE SUBDIVISION
BOTETOURT/ROANOKE COUNTY, VIRGINIA



SCALE: 1" = 50'
COMM. NO. R2002
DATE: 03/20/00
SHEET 5

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

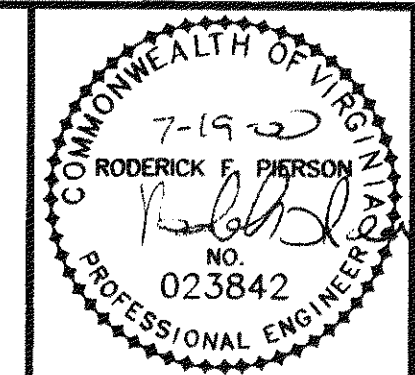
SEE SHEET 7



Roderick F. Pierson, P.E., L.L.S.
P.O. Box 311
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Daleville, VA 24083
(540) 966-3027

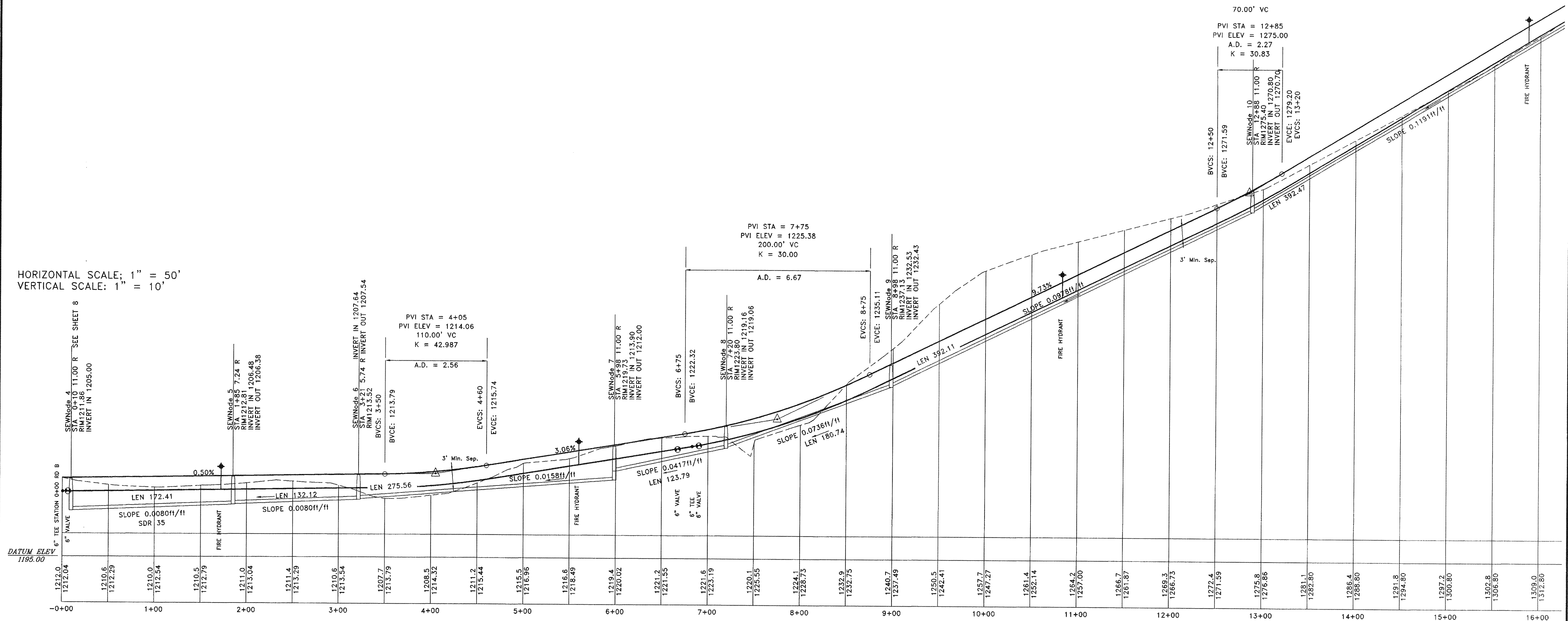
REV	DATE	DESCRIPTION	BY	APP
2	06/02/00	PER VDOT/BOTETOURT COUNTY COMMENTS		
3	06/06/00	PER VDOT & ROANOKE COUNTY COMMENTS		
4	07/19/00	PER BOTETOURT & VDOT COMMENTS		

STORM DRAIN PROFILES - ROAD "B"
STONEGATE SUBDIVISION
BOTETOURT/ROANOKE COUNTY, VIRGINIA



SCALE: 1" = 50'
COMM. NO. R2002
DATE: 03/20/00
SHEET 6

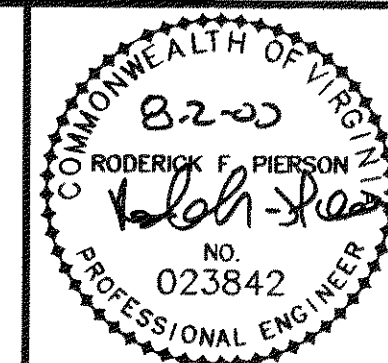
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'



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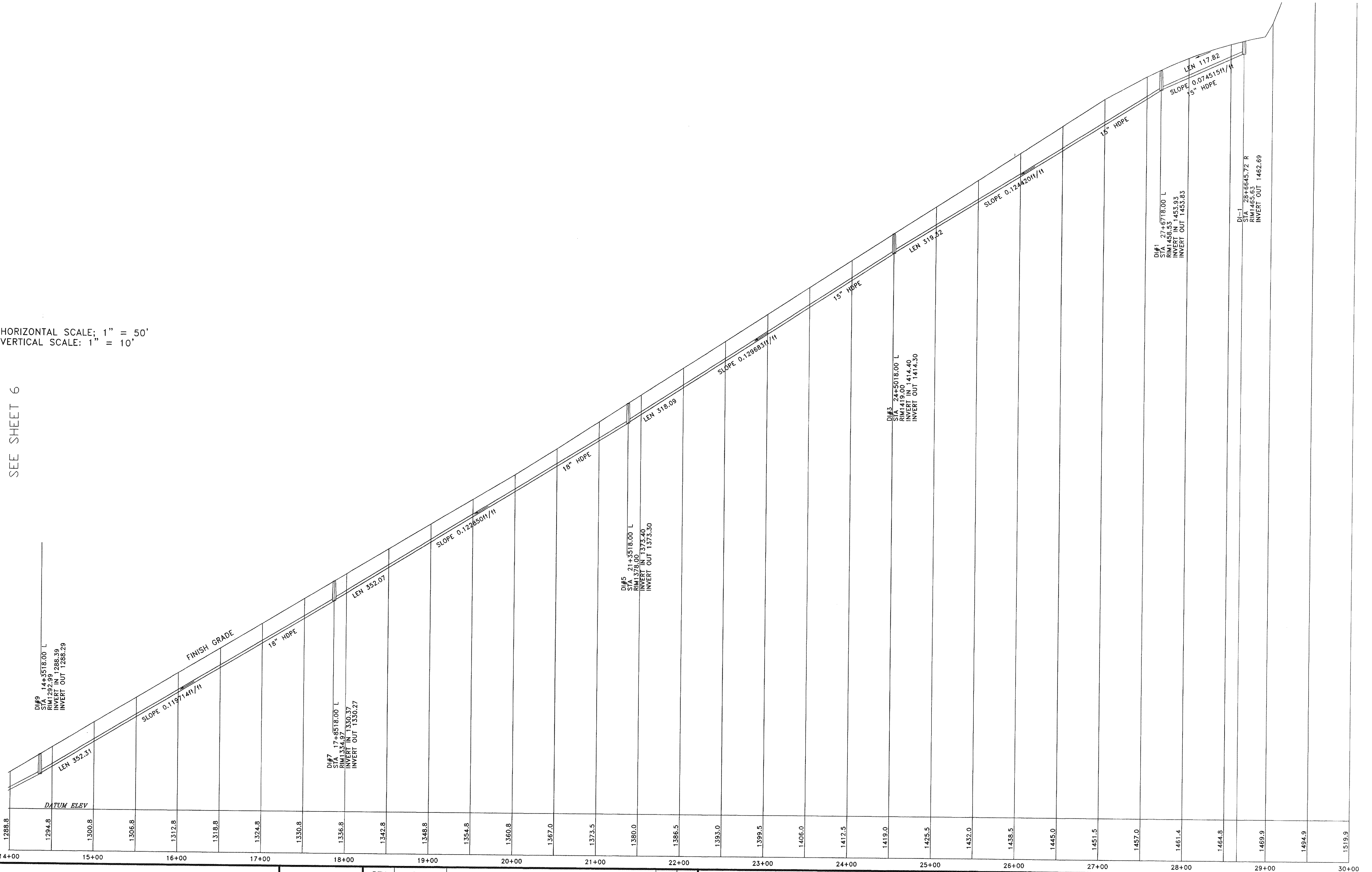
REV	DATE	DESCRIPTION	BY	APP
1	04/10/00	REVISIONS TO WATERLINE		
2	06/02/00	PER VDOT/BOTETOURT COUNTY COMMENTS		
3	06/06/00	PER VDOT & ROANOKE COUNTY COMMENTS		
4	07/19/00	PER BOTETOURT & VDOT COMMENTS		

PROFILES FOR ROAD "B"
STONEGATE SUBDIVISION
BOTETOURT/ROANOKE COUNTY, VIRGINIA



SCALE: 1" = 50'
COMM. NO. R2002
DATE: 03/20/00
SHEET 6A

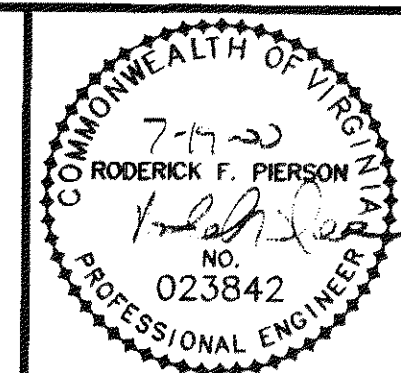
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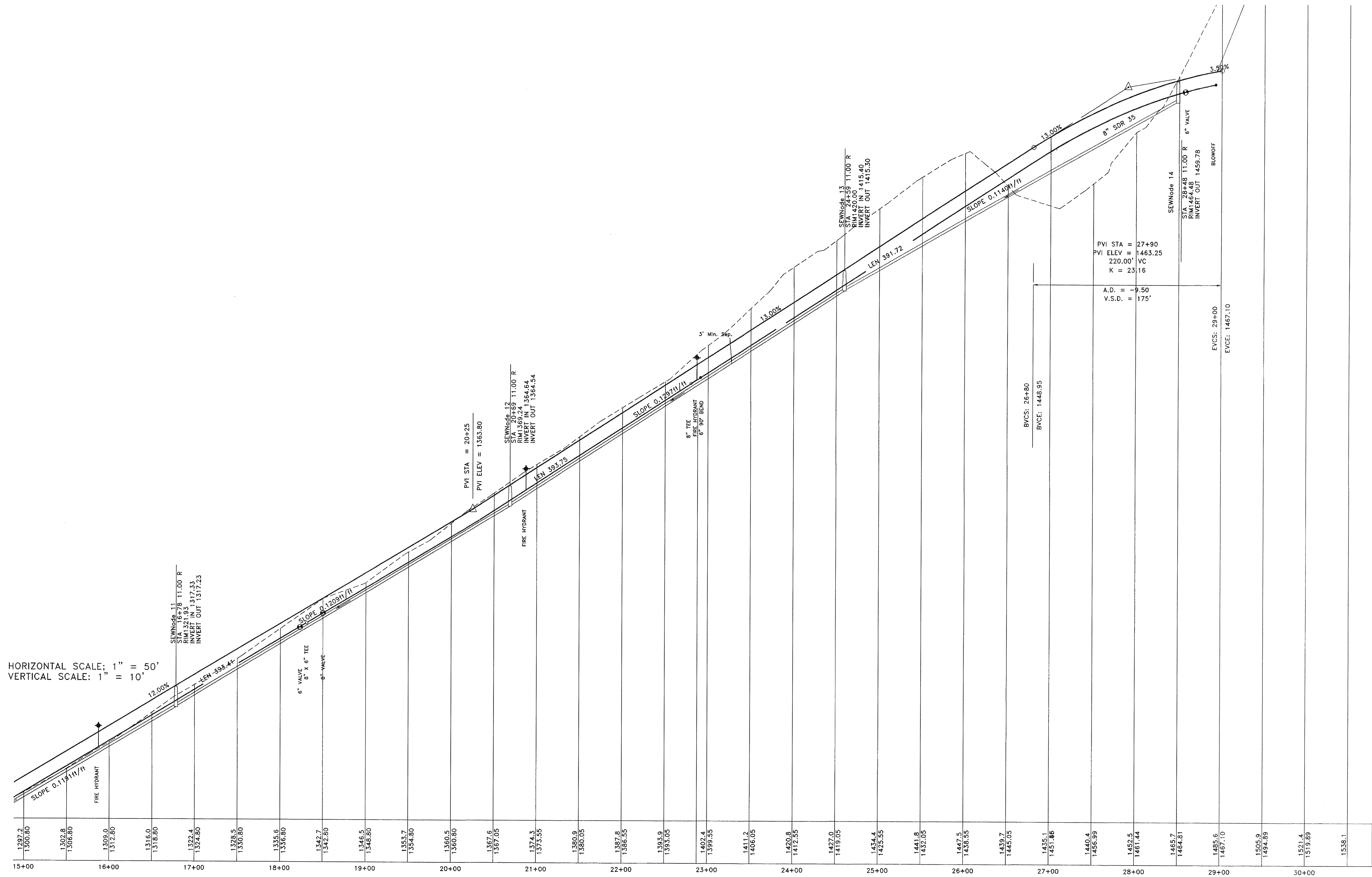
Roderick F. Pierson, P.E., L.L.S.
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REV	DATE	DESCRIPTION	BY	APP
2	06/02/00	PER VDOT/BOTETOURT COUNTY COMMENTS		
3	06/06/00	PER VDOT & ROANOKE COUNTY COMMENTS		
4	07/19/00	PER BOTETOURT & VDOT COMMENTS		

STORM DRAIN PROFILES - ROAD "B"
STONEGATE SUBDIVISION
BOTETOURT/ROANOKE COUNTY, VIRGINIA



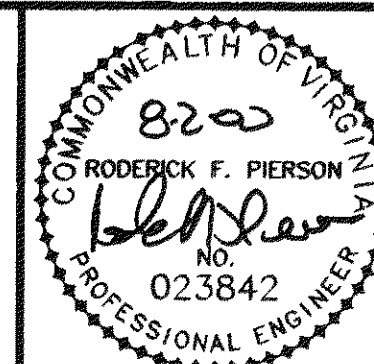
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DATE: 03/20/00
SHEET 7



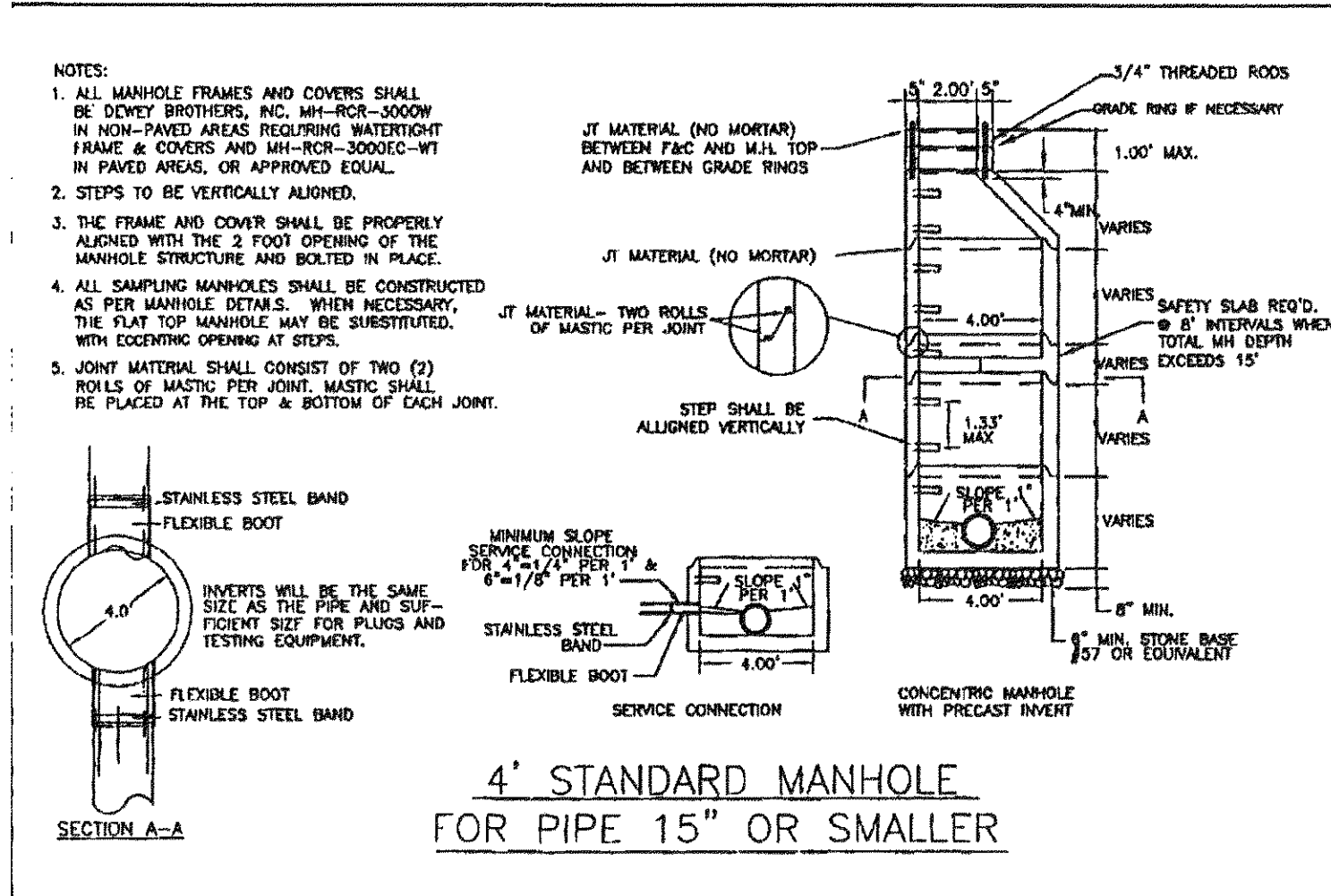
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(540) 966-3027

REV	DATE	DESCRIPTION	BY	APP
1	04/10/00	REVISIONS TO WATERLINE		
2	06/02/00	PER VDOT/BOTETOURT COUNTY COMMENTS		
3	06/06/00	PER VDOT & ROANOKE COUNTY COMMENTS		
4	07/19/00	PER BOTETOURT & VDOT COMMENTS		

PROFILES FOR ROAD "B"
STONEGATE SUBDIVISION
BOTETOURT/ROANOKE COUNTY, VIRGINIA



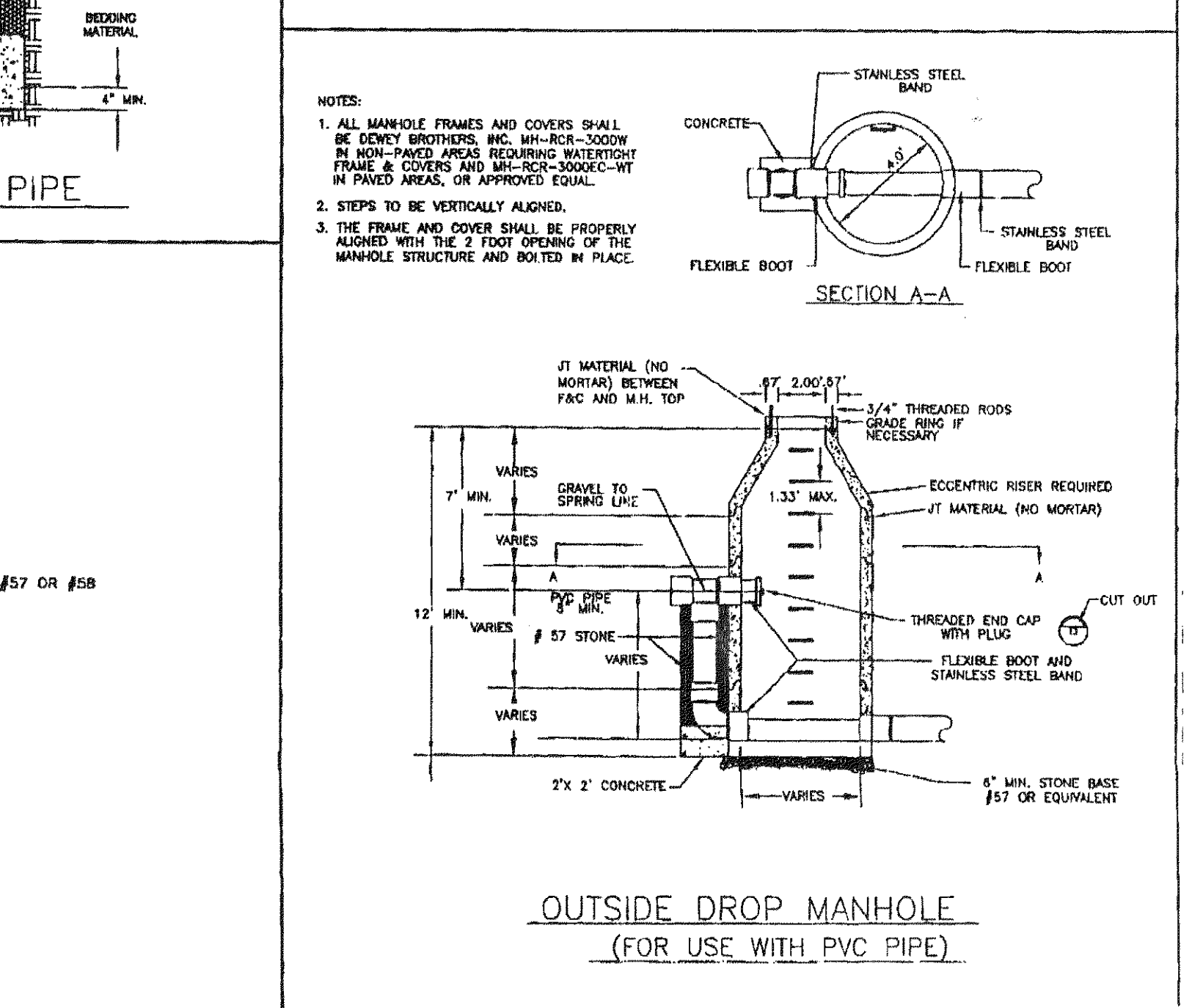
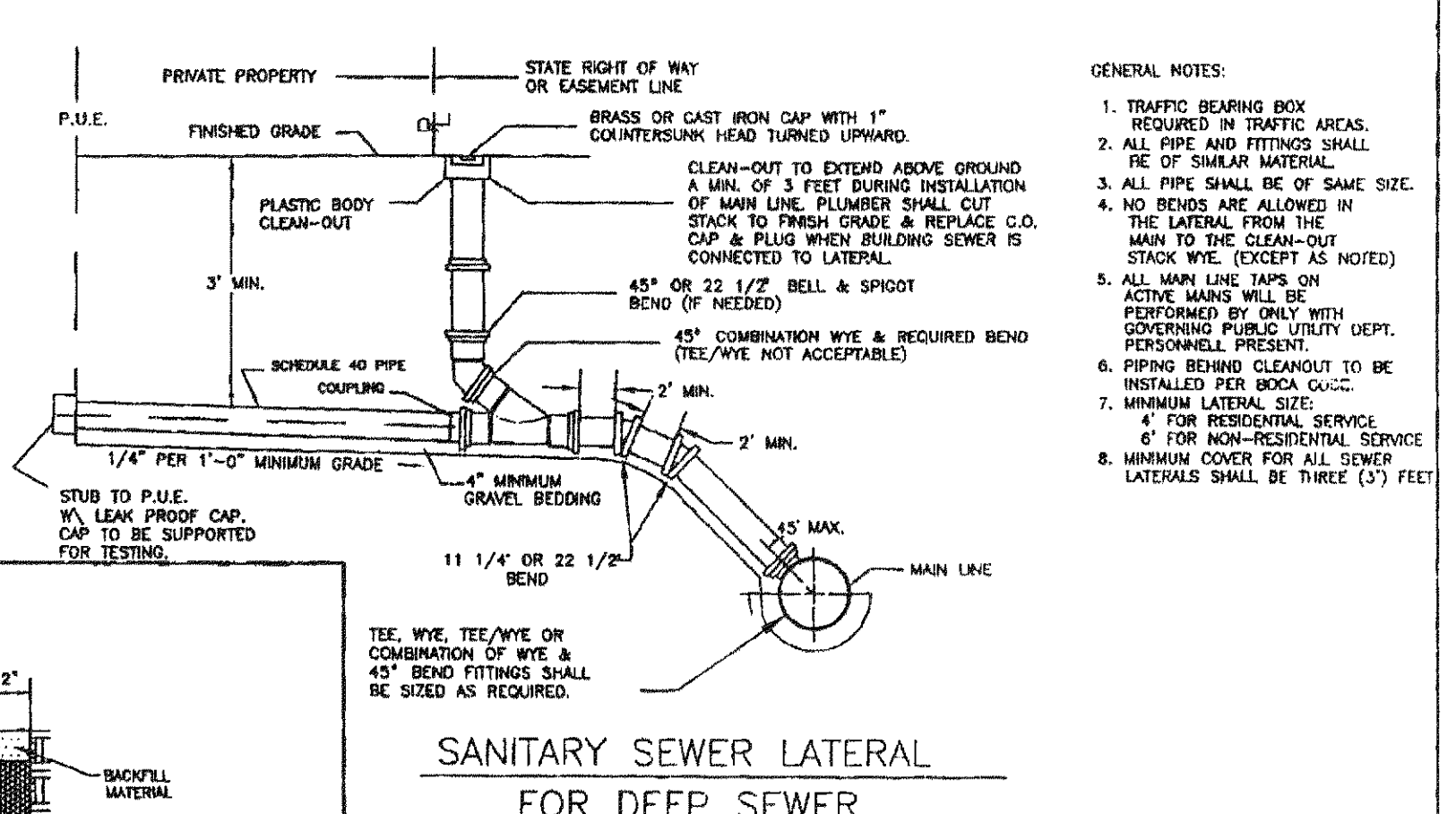
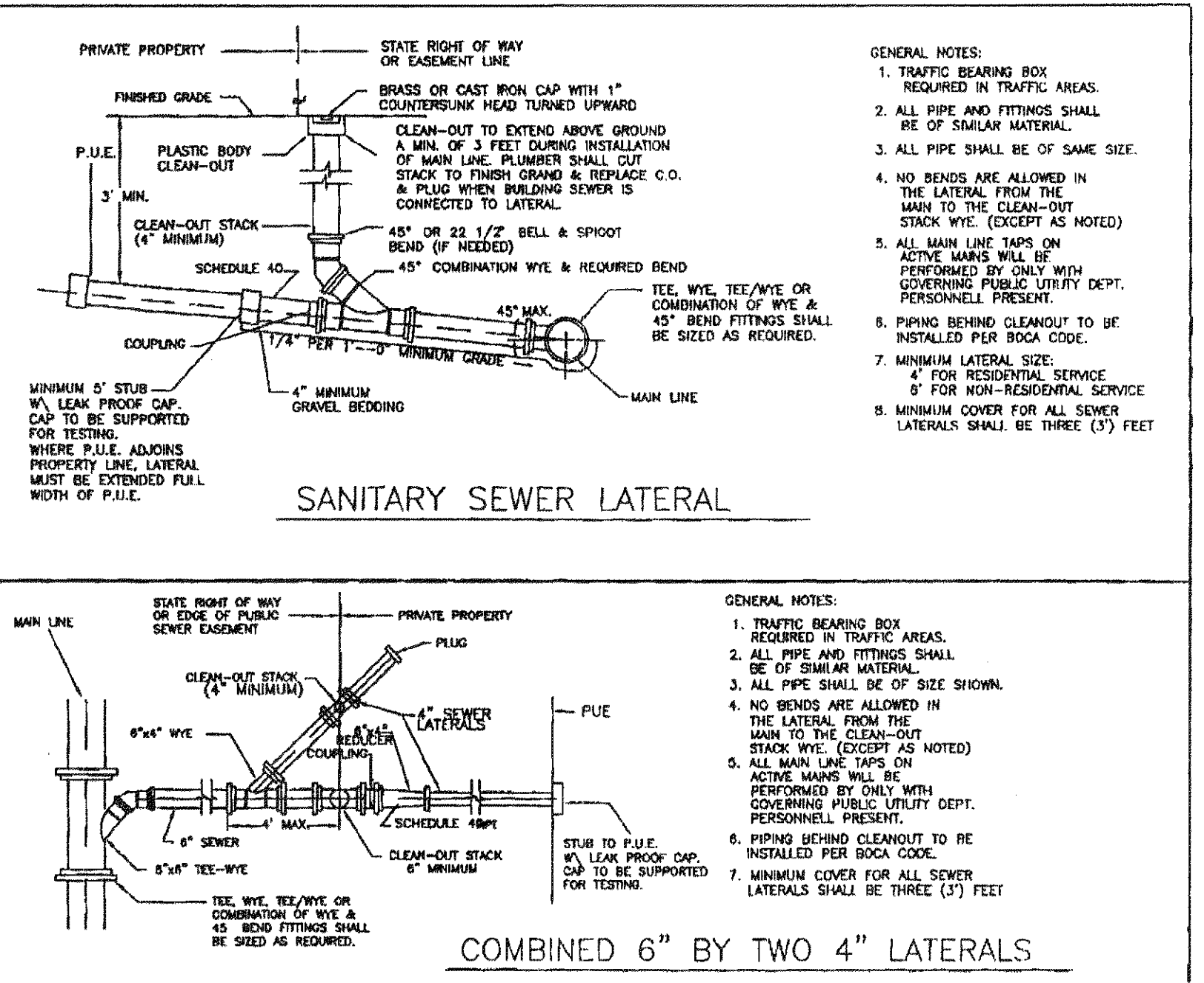
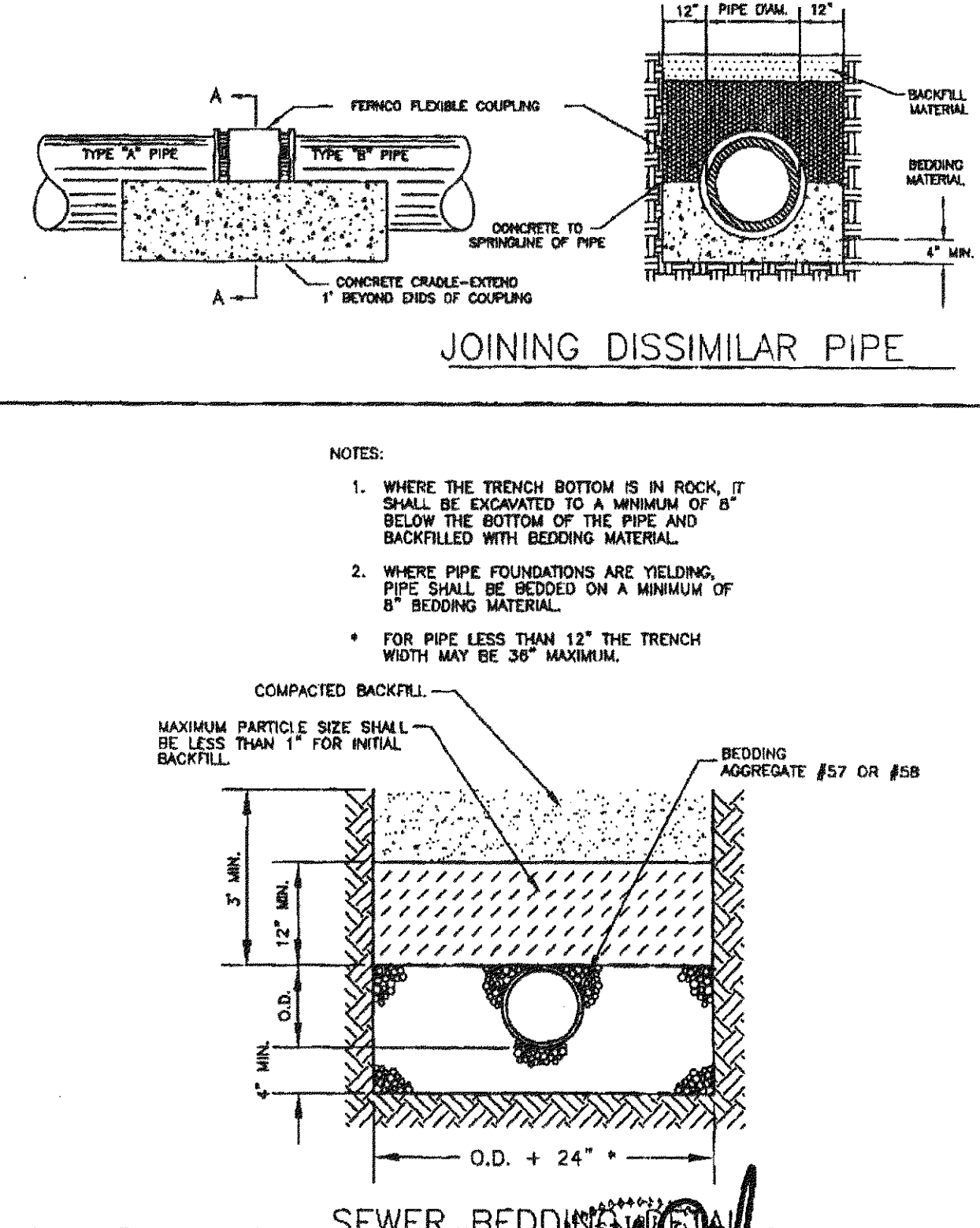
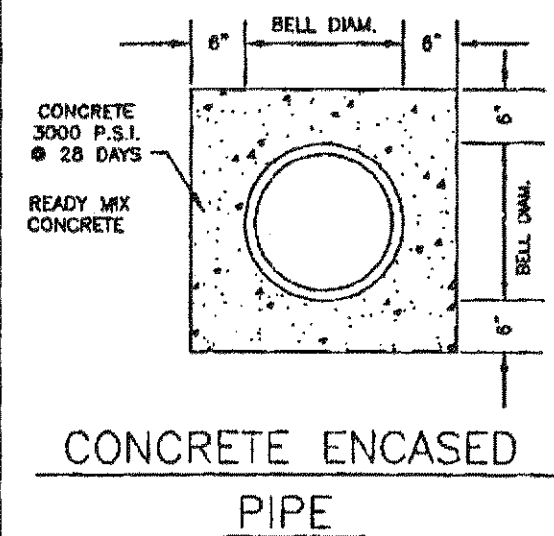
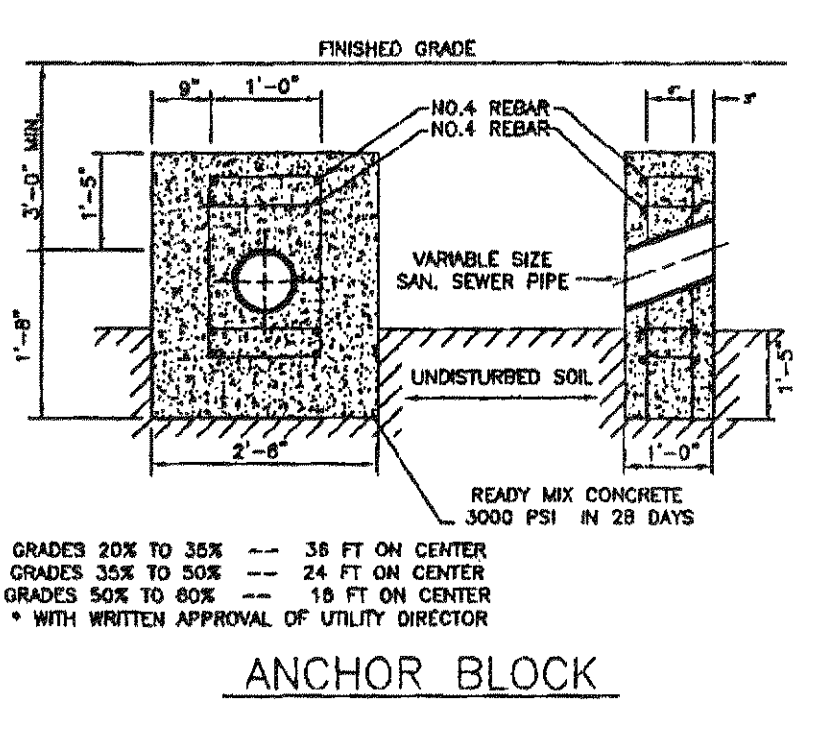
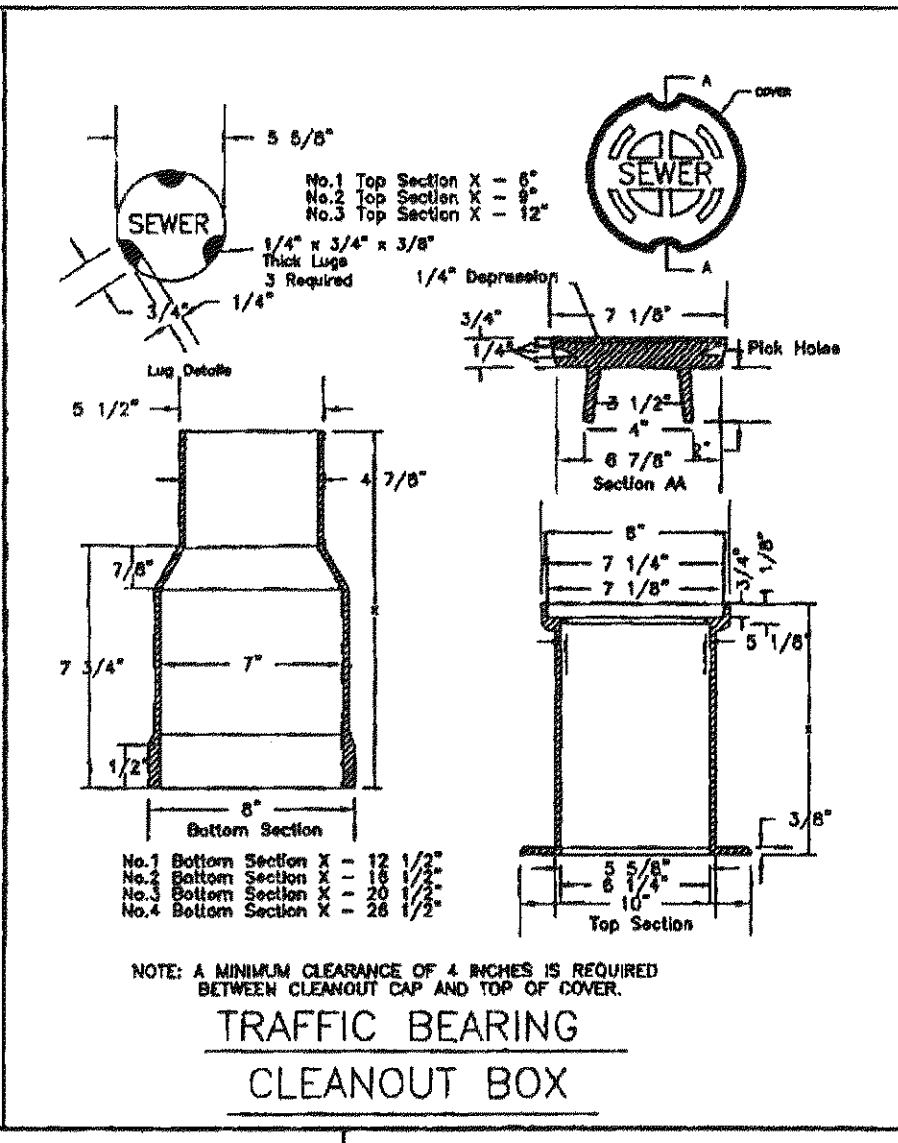
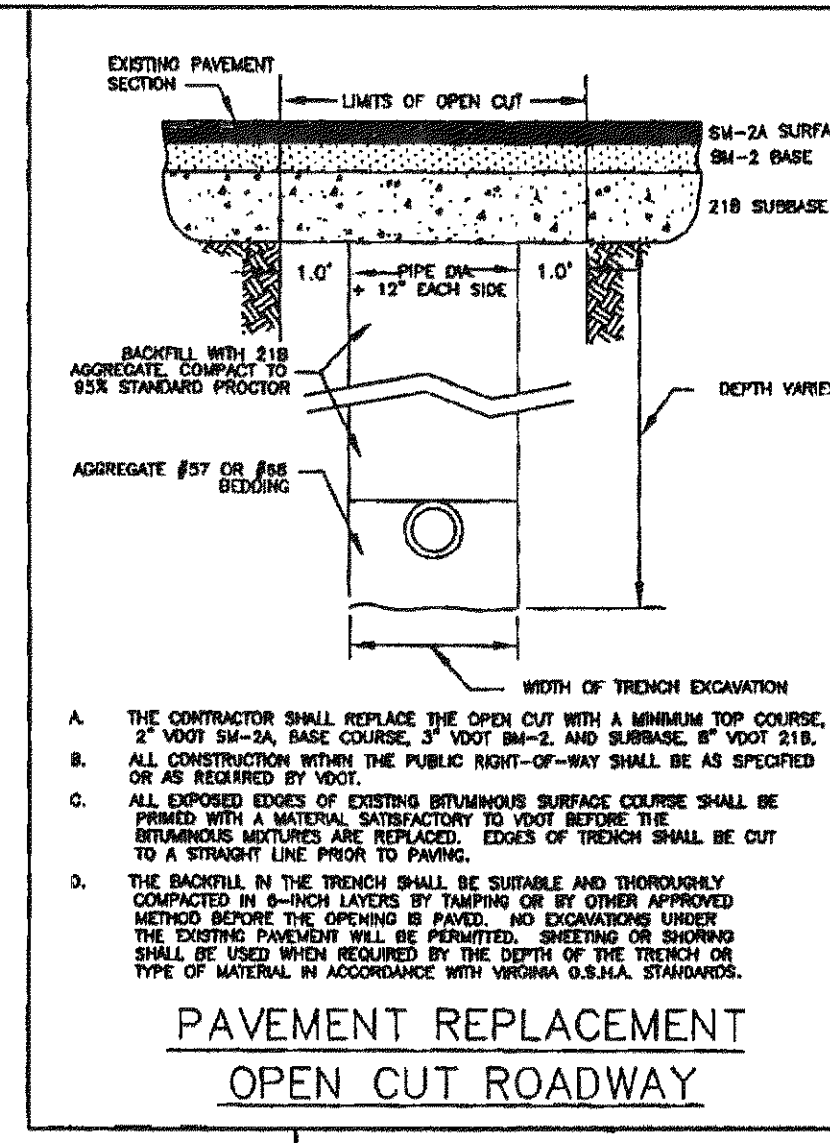
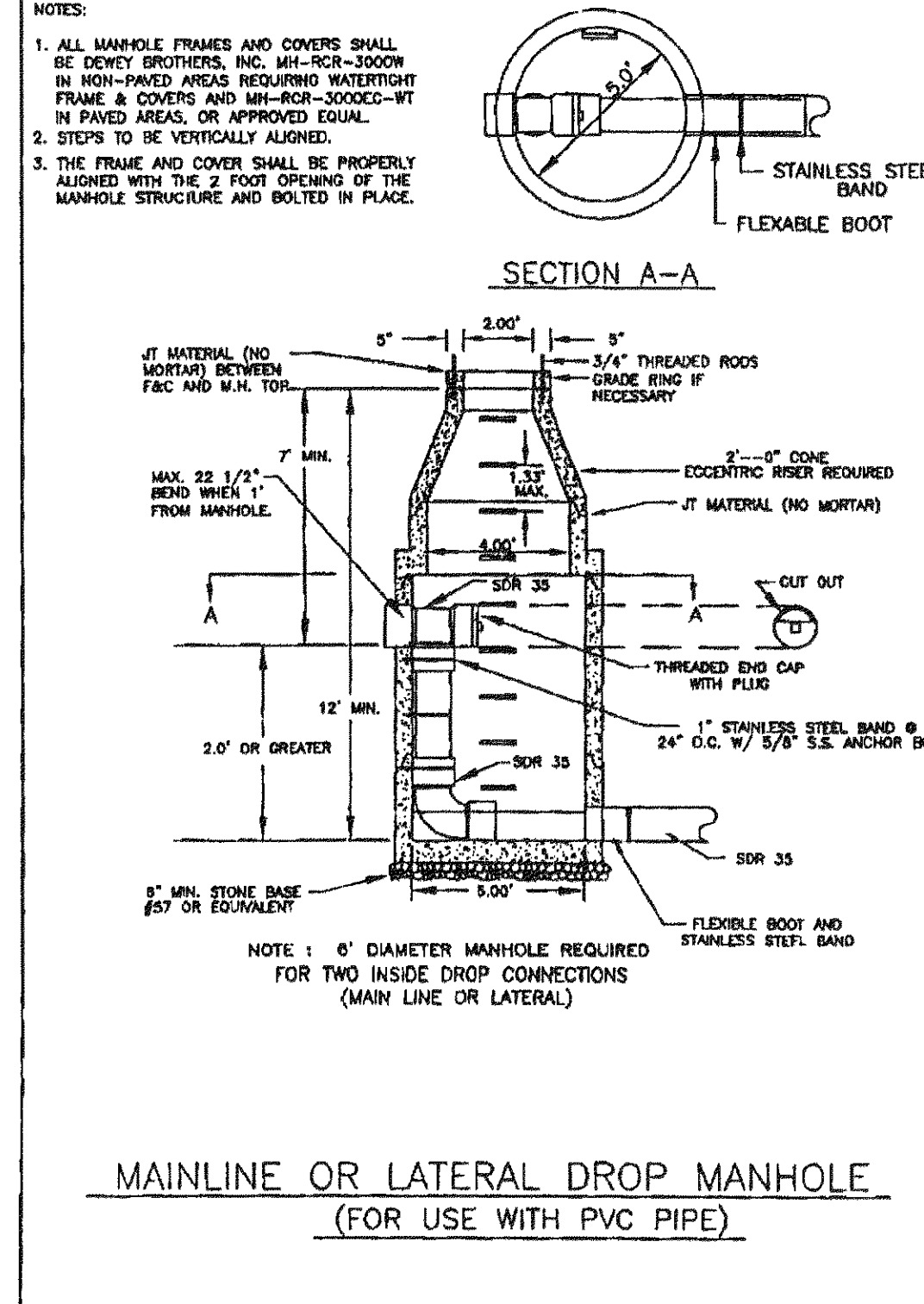
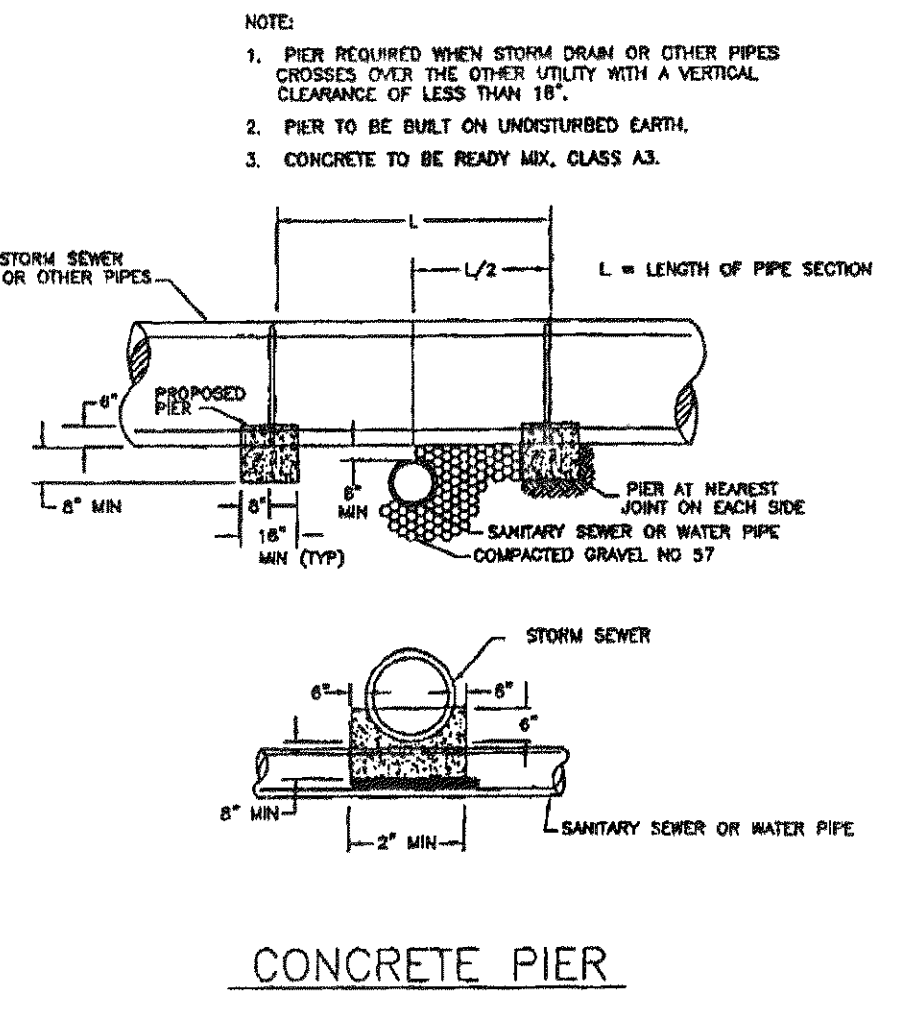
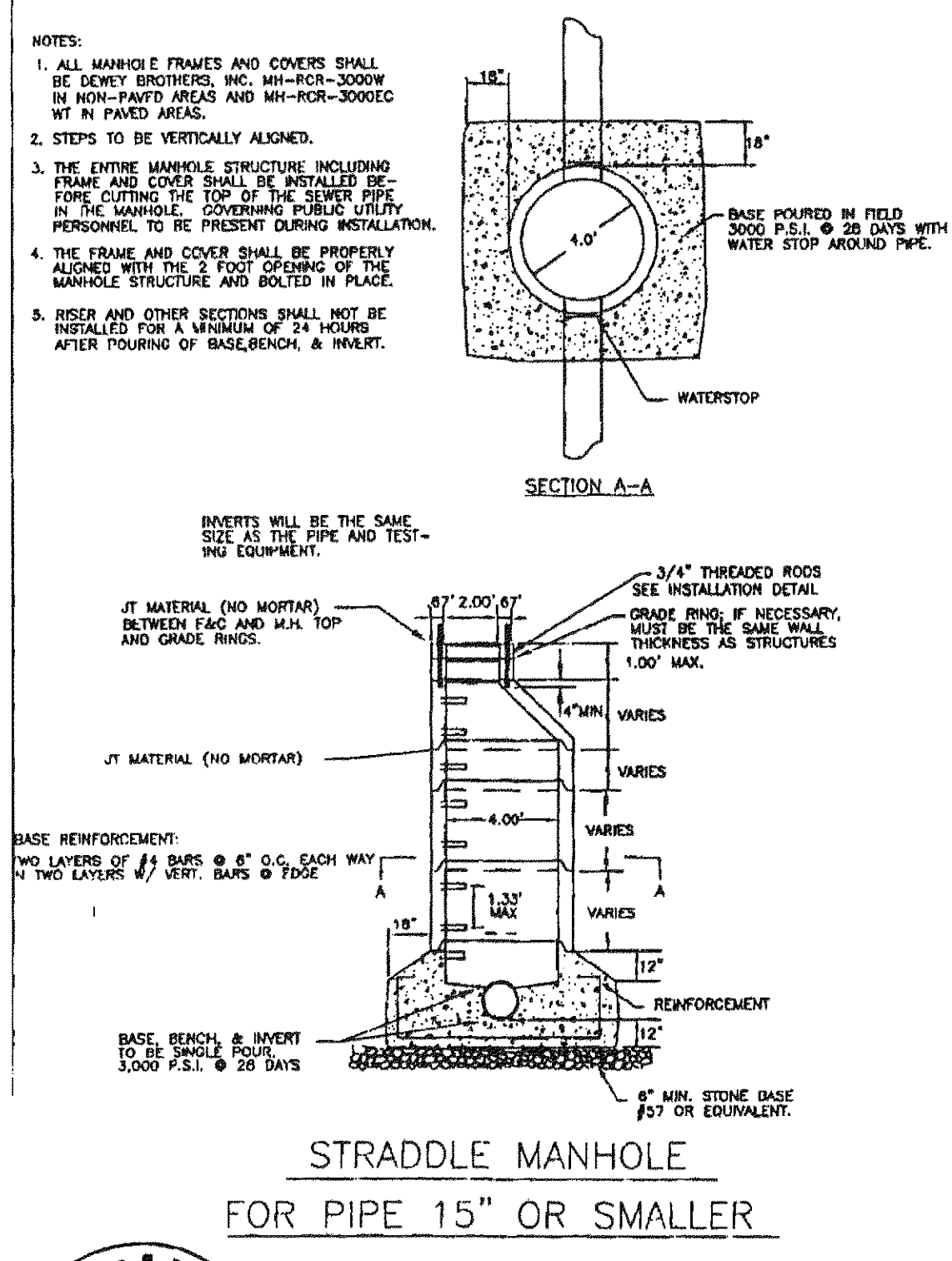
SCALE: 1" = 50'
COMM. NO. R2002
DATE: 03/20/00
SHEET 7A



Pipe Diameter (in.)	Min. Time (min)	Length for Min. Time (ft)	Specified Time for Length (L) Shown (min:sec)									
			100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft	500 ft	550 ft
4	5:46	597	3:00	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	2:54	3:40	3:40	3:40	3:40	3:40	3:40	3:40	3:40	3:40
8	7:34	298	1:50	2:34	2:34	2:34	2:34	2:34	2:34	2:34	2:34	2:34
10	9:26	238	2:34	3:18	3:18	3:18	3:18	3:18	3:18	3:18	3:18	3:18
12	11:20	199	3:46	4:30	4:30	4:30	4:30	4:30	4:30	4:30	4:30	4:30
15	14:10	159	5:42	6:26	6:26	6:26	6:26	6:26	6:26	6:26	6:26	6:26
18	17:00	133	7:34	8:18	8:18	8:18	8:18	8:18	8:18	8:18	8:18	8:18
21	19:50	114	10:40	11:24	11:24	11:24	11:24	11:24	11:24	11:24	11:24	11:24
24	22:40	99	13:04	13:48	13:48	13:48	13:48	13:48	13:48	13:48	13:48	13:48
27	25:30	88	15:08	15:52	15:52	15:52	15:52	15:52	15:52	15:52	15:52	15:52
30	28:20	80	17:08	17:52	17:52	17:52	17:52	17:52	17:52	17:52	17:52	17:52
33	31:10	72	19:08	19:52	19:52	19:52	19:52	19:52	19:52	19:52	19:52	19:52
36	34:00	66	21:08	21:52	21:52	21:52	21:52	21:52	21:52	21:52	21:52	21:52

SANITARY SEWER AIR PRESSURE TEST

MIN. SPECIFIED TIME REQUIRED FOR A 1.0 PSIG PRESSURE DROP FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q=0.0315



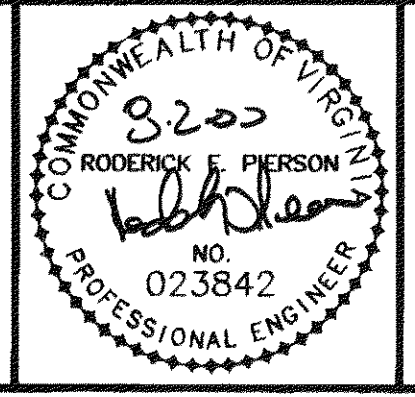
ALL FACILITIES SHALL BE INSTALLED PER THE ROANOKE COUNTY WATER AND SEWER REGULATION 2ND EDITION.

THE LOCATION OF SEWER LATERAL FOR EACH LOT SHALL MEET BOTETOURT COUNTY STANDARDS.

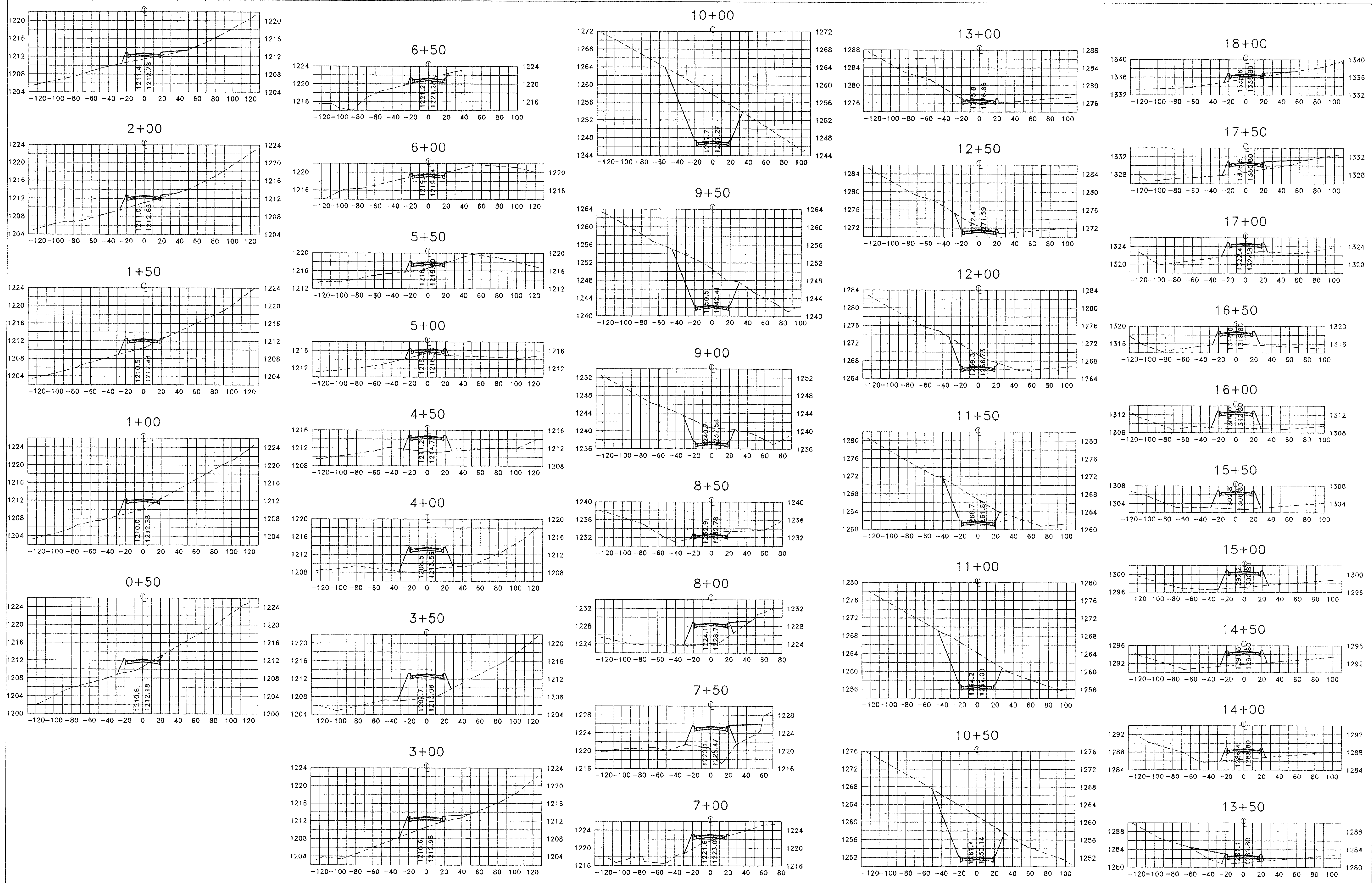
Roderick F. Pierson, P.E., L.L.S.
P.O. Box 311
1332 Roanoke Road, 220 North
Daleville, VA 24083
(540) 966-3027

REV	DATE	DESCRIPTION	BY	APP

STONEGATE SUBDIVISION
SEWER DETAIL SHEET
BOTETOURT/ROANOKE COUNTY, VIRGINIA



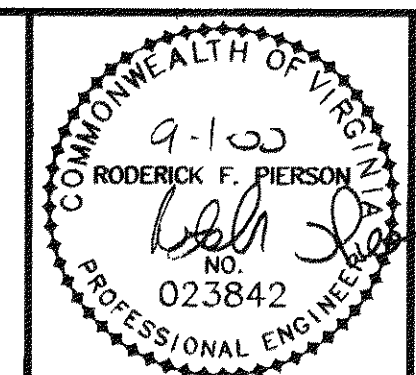
SCALE: 1" = 50'
COMM. NO. R2002
DATE: 02/25/00
SHEET 9



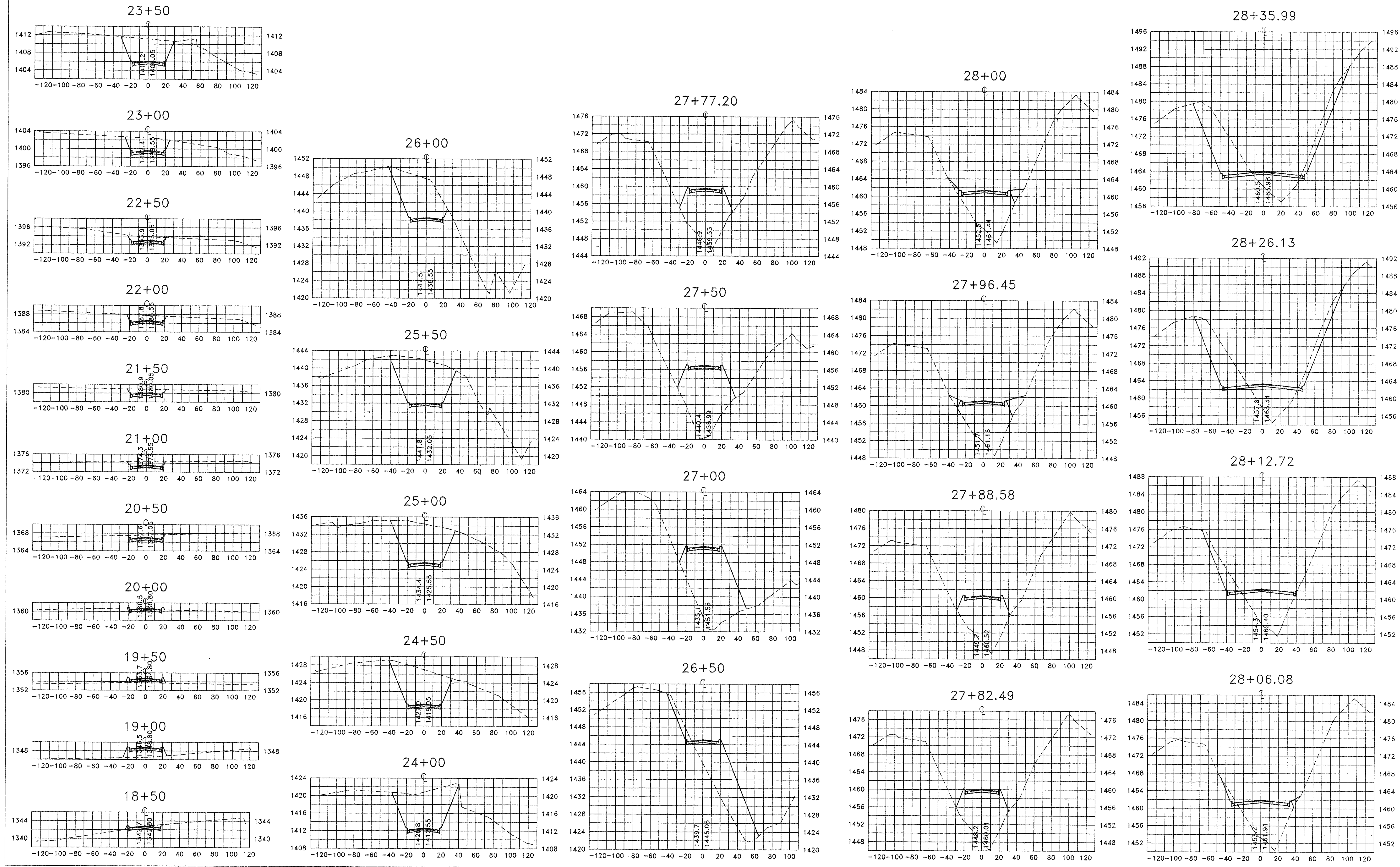
Roderick F. Pierson, P.E., L.L.S.
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1332 Roanoke Road, 220 North
Daleville, VA 24083
(540) 966-3027

REV	DATE	DESCRIPTION	BY	APP
2	06/02/00	PER VDOT/BOTETOURT COUNTY COMMENTS		

CROSS-SECTIONS ROAD B
STONEGATE SUBDIVISION
BOTETOURT/ROANOKE COUNTY, VIRGINIA



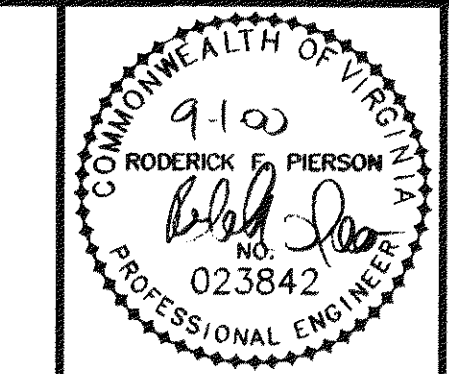
SCALE: 1" = 50'
COMM. NO. R2002
DATE: 03/20/00
SHEET 10



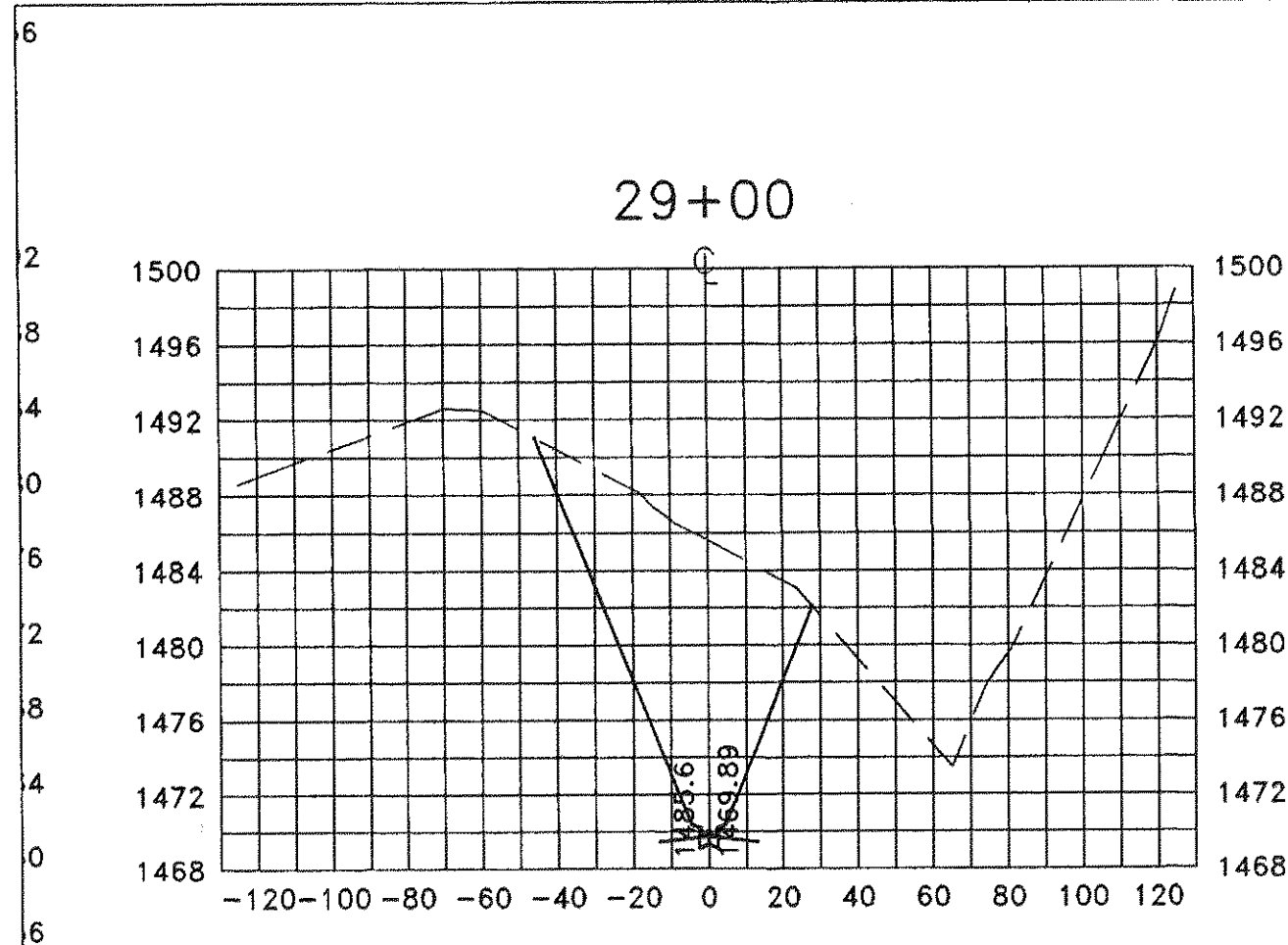
Roderick F. Pierson, P.E., L.L.S.
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REV	DATE	DESCRIPTION	BY	APP
2	06/02/00	PER VDOT/BOTETOURT COUNTY COMMENTS		

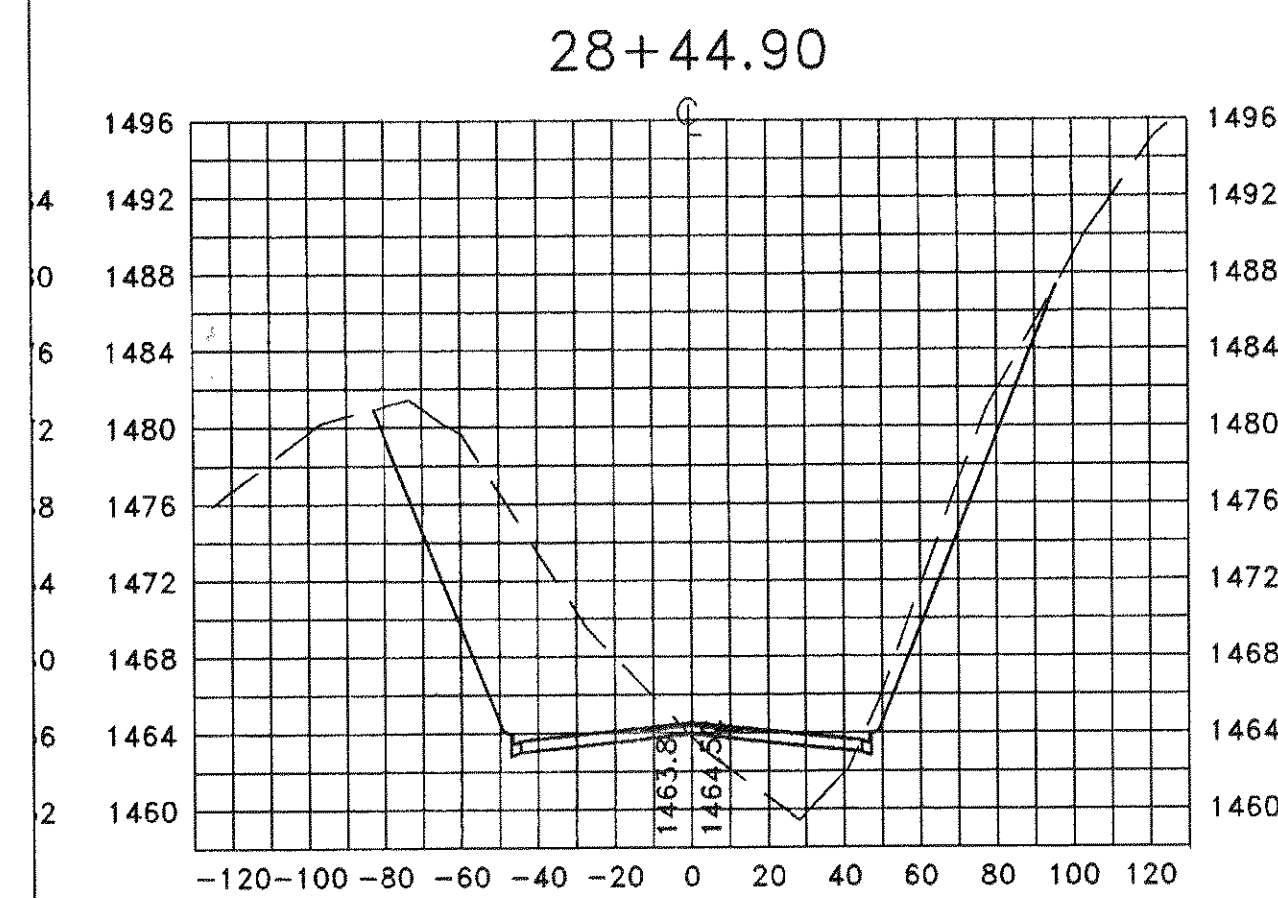
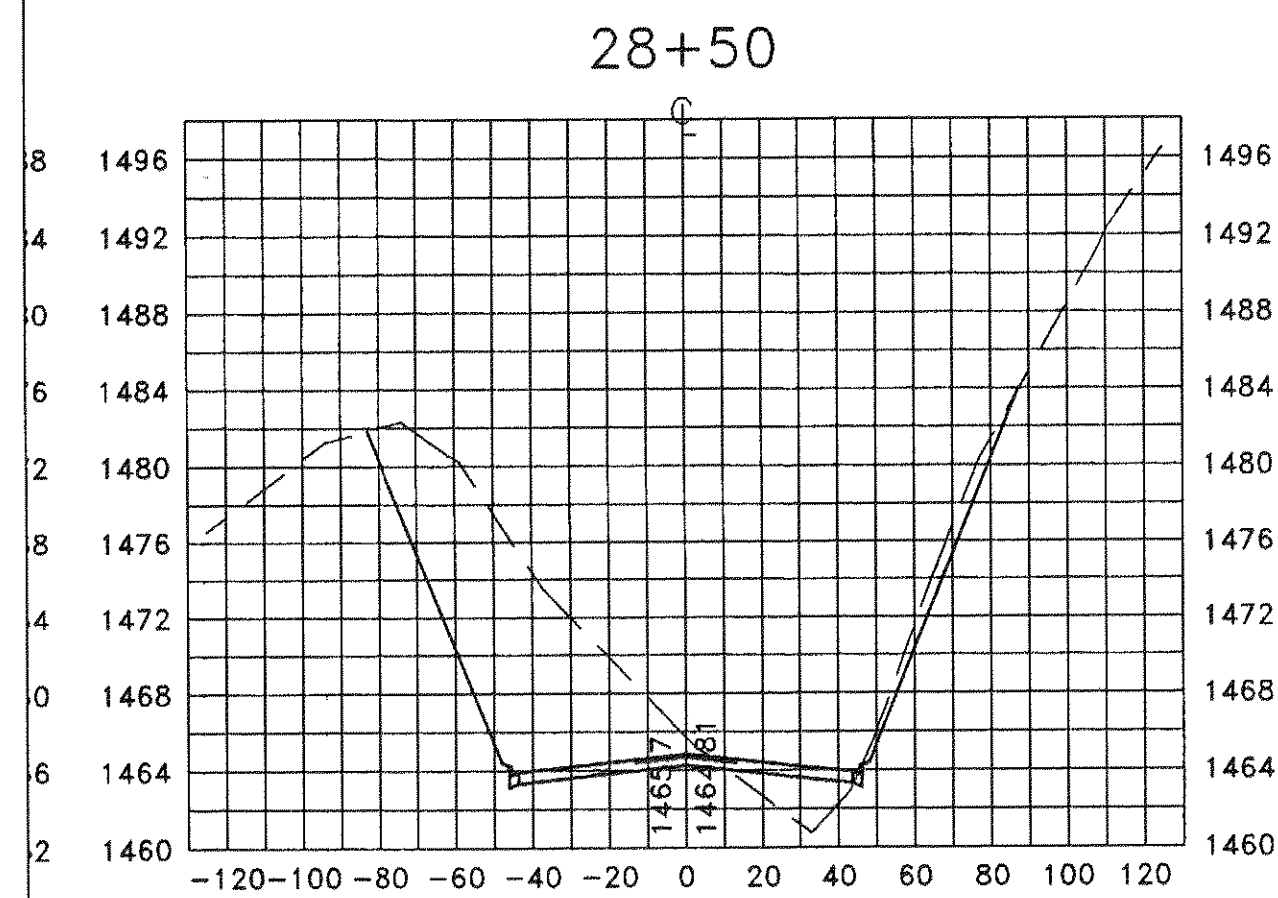
CROSS-SECTIONS ROAD B
STONEGATE SUBDIVISION
BOTETOURT/ROANOKE COUNTY, VIRGINIA



SCALE: 1" = 50'
COMM. NO. R2002
DATE: 03/20/00
SHEET 11



THIS TABLE IS ONLY APPROXIMATE.
THE CONTRACTOR SHALL VERIFY ALL
QUANTITIES OF CUT AND FILL.

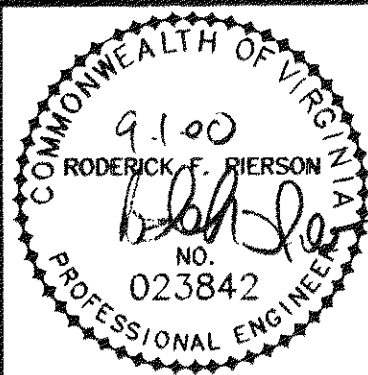


STATION	AREAS Square Feet		VOLUMES Cubic Yards		CUMULATIVE VOLUMES Cubic Yards	
	CUT	FILL	CUT	FILL	CUT	FILL
0+00	35.69	2.20	42.80	51.67	42.80	51.67
0+50	10.53	53.61	12.16	113.89	54.95	165.57
1+00	2.60	69.40	4.21	125.21	59.16	290.78
1+50	2.21	61.18	3.34	105.24	62.50	396.02
2+00	1.60	48.57	2.40	79.39	64.90	475.40
2+50	1.13	34.42	0.99	118.36	65.90	593.76
3+00	0.00	89.64	0.00	308.94	65.90	902.71
3+50	0.00	237.33	0.00	436.66	65.90	1339.36
4+00	0.00	230.22	0.00	340.39	65.90	1679.75
4+50	0.00	137.40	0.00	156.47	65.90	1836.21
5+00	0.00	31.58	2.63	61.37	68.53	1897.59
5+50	2.84	34.70	25.03	34.16	93.56	1931.74
6+00	24.19	2.19	48.71	6.23	142.27	1937.98
6+50	27.61	4.83	28.70	49.45	170.98	1987.43
7+00	2.58	50.50	2.43	281.97	173.41	2269.40
7+50	0.00	257.42	0.00	412.73	173.41	2682.13
8+00	0.00	188.79	30.90	173.27	204.30	2855.39
8+50	33.17	3.05	221.65	2.83	425.96	2858.22
9+00	206.22	0.00	667.79	0.00	1093.74	2858.22
9+50	514.99	0.00	1141.48	0.00	2235.23	2858.22
10+00	717.81	0.00	1235.79	0.00	3471.02	2858.22
10+50	616.84	0.00	992.08	0.00	4463.09	2858.22
11+00	454.60	0.00	700.47	0.00	5163.57	2858.22
11+50	301.91	0.00	440.53	0.00	5604.09	2858.22
12+00	173.86	0.00	231.60	1.72	5835.70	2859.94
12+50	76.27	1.86	78.79	9.49	5914.48	2869.43
13+00	8.82	8.39	8.17	53.38	5922.65	2922.81
13+50	0.00	49.26	0.00	120.97	5922.65	3043.78
14+00	0.00	81.39	0.00	181.64	5922.65	3225.43
14+50	0.00	114.79	0.00	244.99	5922.65	3470.42
15+00	0.00	149.80	0.00	293.30	5922.65	3763.72
15+50	0.00	166.96	0.00	301.08	5922.65	4064.80
16+00	0.00	158.20	0.00	245.91	5922.65	4310.71
16+50	0.00	107.38	0.00	175.70	5922.65	4486.41
17+00	0.00	82.38	0.00	146.74	5922.65	4633.15
17+50	0.00	76.10	1.39	93.97	5924.04	4727.11
18+00	1.50	25.39	24.92	25.70	5948.96	4752.81
18+50	25.41	2.37	23.53	70.97	5972.49	4823.78
19+00	0.00	74.28	0.05	86.08	5972.54	4909.86
19+50	0.06	18.68	16.31	19.19	5988.86	4929.06
20+00	17.56	2.04	64.34	1.89	6053.19	4930.95
20+50	51.92	0.00	104.29	0.00	6157.48	4930.95
21+00	60.71	0.00	115.51	0.00	6272.99	4930.95
21+50	64.04	0.00	134.02	0.00	6407.01	4930.95
22+00	80.70	0.00	134.04	0.00	6541.05	4930.95
22+50	64.06	0.00	207.94	0.00	6748.99	4930.95
23+00	160.51	0.00	414.86	0.00	7163.85	4930.95
23+50	287.54	0.00	754.73	0.00	7918.59	4930.95
24+00	527.57	0.00	934.50	0.00	8853.08	4930.95
24+50	481.68	0.00	944.60	0.00	9797.68	4930.95
25+00	538.49	0.00	1056.89	0.00	10854.57	4930.95
25+50	602.95	0.00	1006.31	0.00	11860.88	4930.95
26+00	483.87	0.00	500.81	552.17	12361.70	5483.12
26+50	57.01	596.34	52.79	1356.18	12414.49	6839.30
27+00	0.00	868.33	0.00	1437.12	12414.49	8276.42
27+50	0.00	683.76	0.00	607.82	12414.49	8884.24
27+77.20	0.00	522.74	0.00	99.66	12414.49	8983.90
27+82.49	0.00	496.04	0.00	108.90	12414.49	9092.79
27+88.58	0.00	469.27	0.00	132.06	12414.49	9224.85
27+96.45	0.00	436.20	0.00	56.12	12414.49	9280.97
28+00	0.00	418.48	2.37	90.15	12416.86	9371.12
28+06.08	21.08	382.76	19.05	88.93	12435.91	9460.05
28+12.72	133.78	340.24	154.28	144.28	12590.19	9604.33
28+26.13	487.17	240.44	199.62	76.80	12789.80	9681.13
28+35.99	606.56	180.35	205.40	45.11	12995.20	9726.24
28+44.90	637.86	92.96	122.17	13.32	13117.37	9739.56
28+50	656.53	48.20	111.58	5.75	13228.95	9745.31
28+54.48	688.28	21.11	200.80	3.25	13429.74	9748.57
28+61.58	839.49	3.64	243.40	0.49	13673.15	9749.05
28+68.83	973.67	0.00	188.21	0.00	13861.35	9749.05
28+73.94	1014.79	0.00	195.82	0.00	14057.18	9749.05
28+79.29	961.20	0.00	129.33	0.00	14186.51	9749.05
28+83.67	634.28	0.00	164.85	0.00	14351.36	9749.05
28+90.74	623.32	0.00	218.39	0.00	14569.74	9749.05
29+00	650.89	0.00	166.86	0.00	14736.60	9749.05
29+07.24	593.29	0.00	199.80	0.00	14936.41	9749.05
29+16.70	547.63	0.00	532.19	0.00	15468.59	9749.05
29+50	315.34	0.00	308.59	0.00	15777.19	9749.05
30+00	17.94	0.00	16.61	0.00	15793.80	9749.05
30+50	0.00	0.00	0.00	0.00	15793.80	9749.05

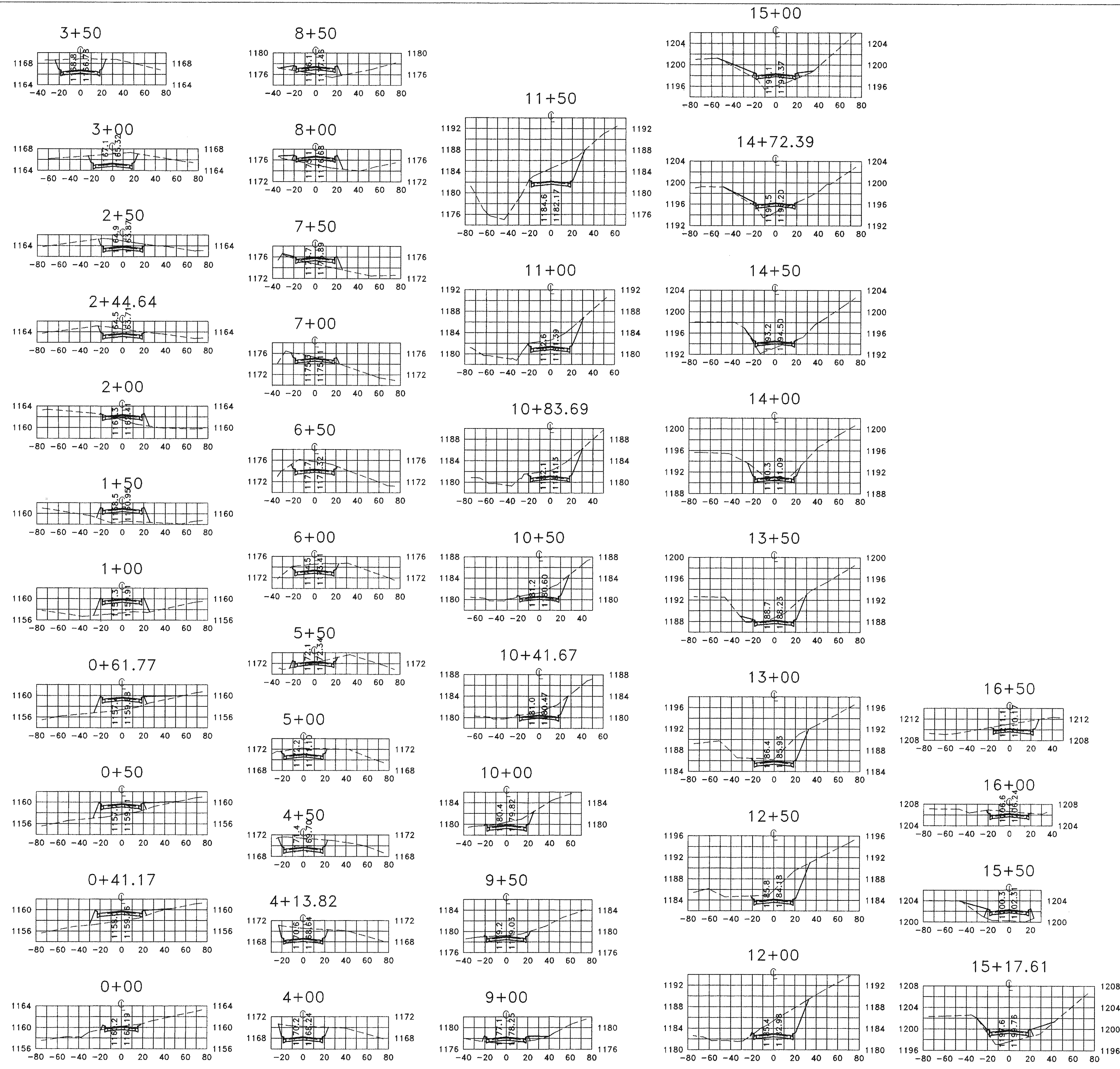
Roderick F. Pierson, P.E., L.L.S.
P.O. Box 311
1332 Roanoke Road, 220 North
Daleville, VA 24083
(540) 966-3027

REV	DATE	DESCRIPTION	BY	APP
2	06/02/00	PER VDOT/BOTETOURT COUNTY COMMENTS		

CROSS-SECTIONS ROAD B
STONEGATE SUBDIVISION
BOTETOURT/ROANOKE COUNTY, VIRGINIA



SCALE: 1" = 50'
COMM. NO. R2002
DATE: 03/20/00
SHEET 12



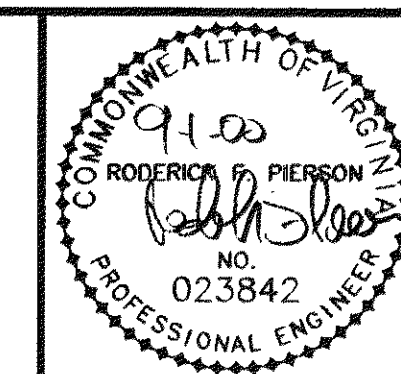
THIS TABLE IS ONLY APPROXIMATE.
THE CONTRACTOR SHALL VERIFY ALL
QUANTITIES OF CUT AND FILL.

STATION	AREAS Square Feet		VOLUMES Cubic Yards		CUMULATIVE VOLUMES Cubic Yards	
	CUT	FILL	CUT	FILL	CUT	FILL
0+00	23.21	2.08	33.28	8.52	33.28	8.52
0+16.65	84.72	25.53	7.70	4.98	40.98	13.49
0+20.98	11.39	36.61	2.34	15.81	43.32	29.30
0+30.45	1.94	53.51	0.39	22.07	43.70	51.37
0+41.17	0.02	57.66	0.00	19.03	43.71	70.41
0+49.41	0.00	62.69	0.00	1.42	43.71	71.82
0+50	0.00	63.13	0.00	30.75	43.71	102.58
0+61.77	0.00	74.46	0.00	119.81	43.71	222.39
1+00	0.00	94.76	0.00	164.42	43.71	386.81
1+50	0.00	82.81	5.52	99.83	49.23	486.64
2+00	5.96	25.00	57.74	20.67	106.97	507.30
2+44.64	63.88	0.00	13.54	0.00	120.51	507.30
2+50	70.66	0.00	162.09	0.00	282.60	507.30
3+00	103.70	0.00	203.43	0.00	486.02	507.30
3+50	116.77	0.00	215.61	0.00	701.64	507.30
4+00	115.90	0.00	59.03	0.00	760.67	507.30
4+13.82	113.85	0.00	143.80	0.00	904.47	507.30
4+50	100.78	0.00	156.10	0.00	1060.57	507.30
5+00	67.80	0.00	83.09	3.80	1143.66	511.10
5+50	21.93	4.10	88.80	3.80	1232.46	514.91
6+00	73.97	0.00	145.97	0.00	1378.43	514.91
6+50	83.68	0.00	110.03	3.18	1488.46	518.09
7+00	35.15	3.43	35.16	29.63	1523.62	547.72
7+50	2.82	28.57	2.81	66.80	1526.43	614.52
8+00	0.22	43.58	0.69	71.27	1527.11	685.79
8+50	0.52	33.40	1.16	45.53	1528.28	731.32
9+00	0.73	15.77	38.07	14.82	1566.35	746.14
9+50	40.39	0.24	92.33	0.50	1658.68	746.64
10+00	59.33	0.30	98.39	0.54	1757.07	747.18
10+41.67	68.17	0.40	23.20	0.13	1780.27	747.31
10+50	76.79	0.54	116.52	0.32	1896.79	747.63
10+83.69	103.05	0.00	64.61	0.00	1961.40	747.63
11+00	110.81	0.00	238.89	0.00	2200.29	747.63
11+50	147.19	0.00	281.54	0.69	2481.83	748.33
12+00	156.87	0.75	288.24	0.69	2770.08	749.02
12+50	154.43	0.00	249.79	0.00	3019.87	749.02
13+00	115.34	0.00	174.33	1.04	3194.19	750.06
13+50	72.93	1.12	102.15	2.20	3296.35	752.26
14+00	37.39	1.25	40.90	20.95	3337.25	773.21
14+50	6.78	21.38	4.83	21.44	3342.08	794.65
14+72.39	4.87	30.35	2.47	41.81	3344.55	836.46
15+00	0.12	49.74	0.05	32.68	3344.60	869.14
15+17.61	0.03	49.70	0.02	66.16	3344.62	935.30
15+50	0.00	60.62	41.33	56.18	3385.95	991.48
16+00	44.64	0.06	55.12	0.03	3441.07	991.50
16+24.90	74.89	0.00	49.73	0.00	3490.80	991.50
16+41.41	87.79	0.00	25.63	0.00	3516.43	991.50
16+50	73.27	0.00	9.24	0.00	3525.67	991.51
16+53.37	74.80	0.05	42.77	0.34	3568.44	991.85
16+66.68	98.74	1.35	41.85	0.52	3610.28	992.37
16+83.39	36.50	0.33	4.28	0.04	3614.56	992.41
16+89.72	0.00	0.00	0.00	0.00	3614.56	992.41

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REV	DATE	DESCRIPTION	BY	APP
2	06/02/00	PER VDOT/BOTETOURT COUNTY COMMENTS		

CROSS-SECTIONS ROAD A
STONEGATE SUBDIVISION
BOTETOURT/ROANOKE COUNTY, VIRGINIA



SCALE: 1" = 50'
COMM. NO. R2002
DATE: 03/20/00
SHEET 13

1. Quality Control

Streets to be graded and paved and all structural components erected within the proposed rights of way shall be constructed in accordance with the Virginia Department of Transportation Road and Bridge Specifications dated January 1994, Road and Bridge Standards dated January 1, 1993, and The Work Area Protection Manual dated January 1, 1996, Botetourt County. All materials used shall be tested in accordance with standard policies. The developer must contact the office of the Resident Engineer, prior to beginning of any construction at which time an inspection and Testing Procedure Policy will be drawn. The developer will produce test reports from approved independent laboratories at the developer's expense.

The pavement designs shown are based on a subgrade CBR value 10 or greater. The subgrade soil is to be tested by an independent laboratory and the results submitted to the Virginia Department of Transportation prior to pavement construction. Should the subgrade CBR values be less than 10, then additional base material will be required in accordance with departmental specifications.

The subgrade must be approved by Virginia Department of Transportation prior to placement of the base. Base must be approved by Virginia Department of Transportation for depth, template and compaction before surface is applied.

2. Utilities

All necessary utility laterals along with provisions for conduits (I.E. water, sewer, storm, gas and telephone) will be constructed prior to placement of base material.

Gas or petroleum transmission lines will not be permitted within the pavement or shoulder element (back of curb to back of curb) of the development. Service laterals crossing and pipe lines located outside the pavement but inside the right of way will be constructed in conformity with ASA B 31.8 Specifications and Safety Regulations. Distribution lines with pressure less than 120 lbs. are unaffected by the above.

Permits will be required for all utilities within street right of way prior to acceptance into the secondary highway system.

Any easements granted to a utility company for placement of power, telephone, etc. must be released prior to acceptance.

3. Private Entrances

Modified CG-9D gutter will be provided at all entrances to private lots where standard CG-6 curb and gutter is approved for use.

Driveways connecting to roads without curb & gutter shall conform to the pavement, shoulder & slope.

Permits will be required for all private entrances constructed on street rights of way prior to acceptance into the secondary highway system.

4. Erosion Control and Landscaping

Care must be taken during construction to prevent erosion, dust and mud from damaging adjacent property, clogging ditches, tracking public streets and otherwise creating a public or private nuisance to surrounding areas.

The entire construction area including ditches, channels, back of curbs and or pavement are to be backfilled and seeded at the earliest possible time after final grading.

Drainage easements must be defined by excavated ditches or channels for their full length to well defined existing natural watercourses.

This road will be reviewed during construction for the need of paved gutters. If erosion is encountered in any drainage easement, it will be the responsibility of the developer to sod, rip rap, grout, pave, or to do whatever is necessary to correct the problem.

All vegetation and overburden to be removed from shoulder to shoulder prior to the conditioning (cutting and/or preparation) of the subgrade.

5. Intersection Pavement Radius

Minimum pavement radius of 25 feet is required at all street intersections.

If the proposed streets are to be traveled by school bus, the return radii must be increased to 50' minimum.

6. Connections to State - Maintained Roads

While these plans have been approved, such approval does not exempt connections with existing state-maintained roads from critical review at the time permit applications are made. This is necessary in order that the prevailing conditions be taken into consideration regarding safety accompaniments such as turning lanes.

7. Guardrails

Standard guardrail with safety end sections may be required on fills as deemed necessary by the VDOT Resident Engineer. After completion of rough grading operations, the office of the Resident Engineer, Virginia Department of Transportation, shall be notified so that a field review may be made of the proposed locations.

Where guardrails are to be installed the shoulder width shall be increased in accordance with VDOT Road and Bridge Standards.

8. Storm Drainage

Field review will be made by the VDOT Resident Engineer during construction to determine the need and limits of paved ditches and/or ditch stabilization treatments, and to determine the need and limits of additional easements. All drainage easements must be cut and made to function to a natural watercourse. Any erosion problems encountered in an easement must be corrected by whatever means necessary prior to subdivision acceptance.

Ditch slopes are to be four to one (4:1) for shoulder widths of six feet (6') or greater and three to one (3:1) for shoulder widths of four feet (4') or five feet (5'), unless otherwise specified in the plans.

9. Entrance Permit

Contractor shall obtain entrance permit to the existing Virginia Department of Transportation Right of Way from Resident Engineer prior to road construction.

10. Inspection

An Inspector will not be furnished except for periodic progress inspection, the above mentioned field reviews and for required stone depths. The developer will be required to post a surety to guarantee the road free of defects for one year after acceptance by the Department of Transportation.

11. Street Maintenance

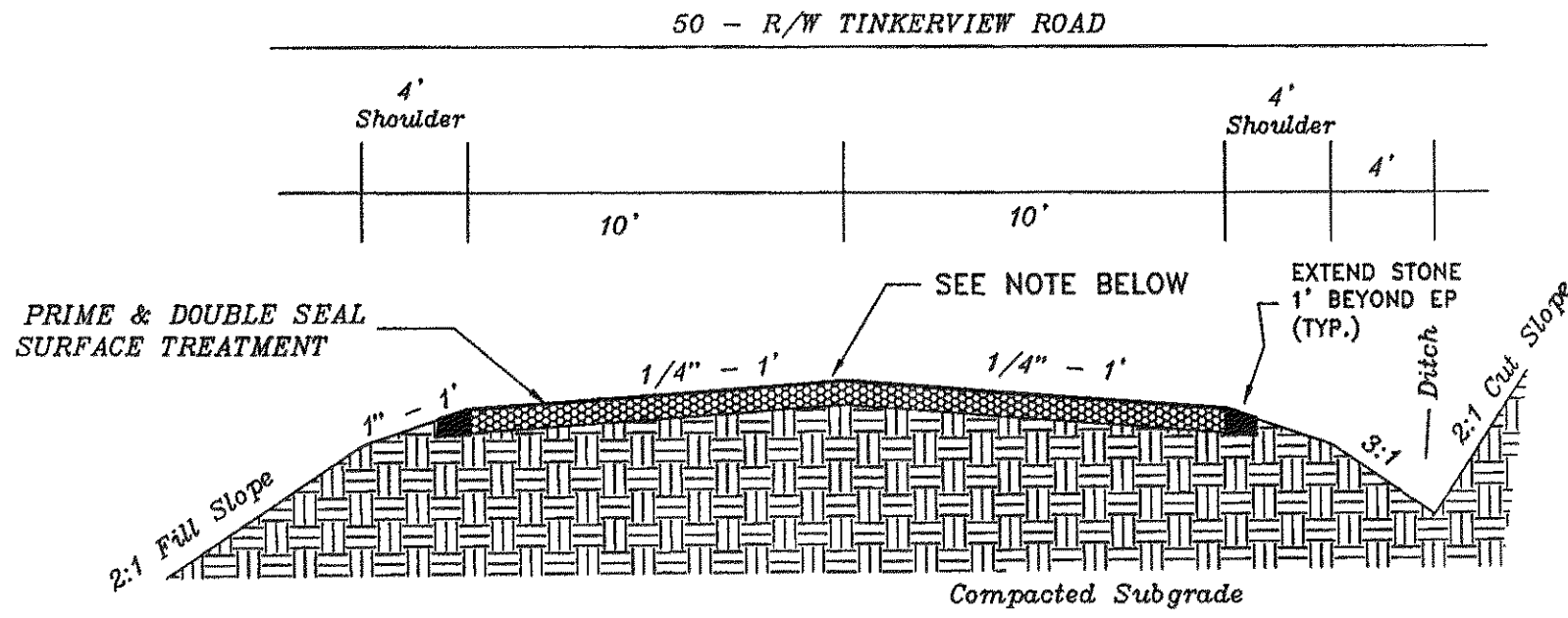
The streets must be properly maintained until acceptance. At such time as all requirements have been met for acceptance, another inspection will be made to determine that the street has been properly maintained.

12. Underground Utilities

Contractor shall verify location and elevation of all underground utilities shown on the plans in areas of construction prior to starting work by contacting Miss Utility. Contact site engineer immediately if location or elevation is different from that shown on the plans. If there appears to be a conflict, and upon discovery of any utility not shown on the plans call "Miss Utility" of central Virginia at 1-800-552-7001.

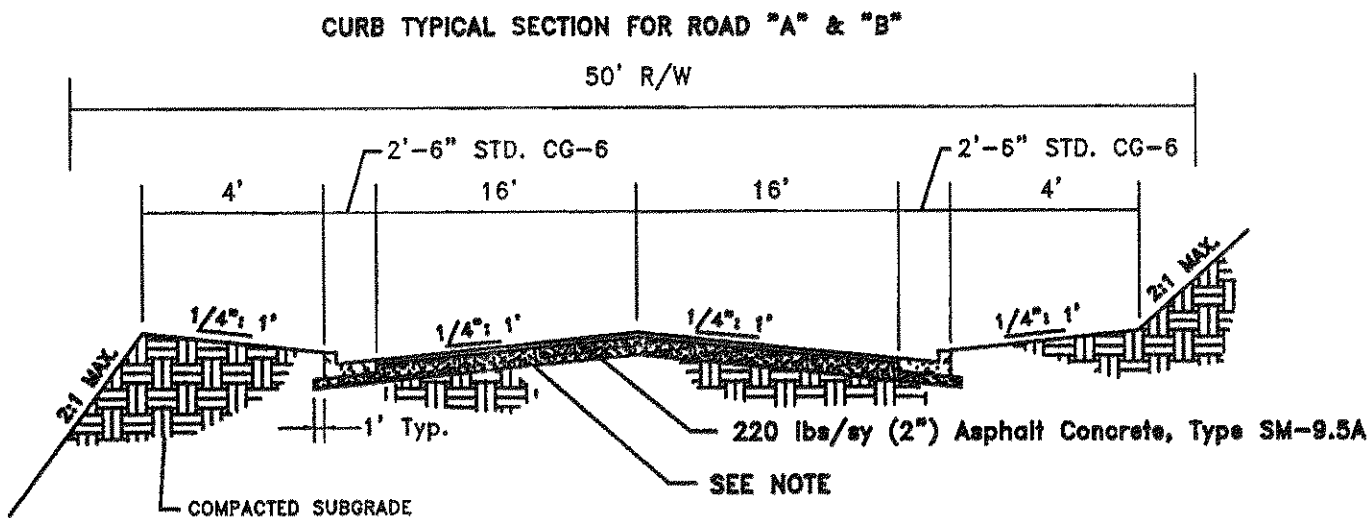
13. Revisions of Specifications and Standards

Approval of these plans will be based on specifications and standards in effect at the time of approval and will be subject, until completion of the roadway and acceptance by the Department, to future revisions, of the Specifications and Standards.



Roadway Typical Section
Not To Scale

TINKERVIEW ROAD = 9" 21B'S



CL ROAD "A" 0+00 - 16+88 = 9" 21B'S

CL ROAD "B" 0+00 - 0+50 = 9" 21B'S

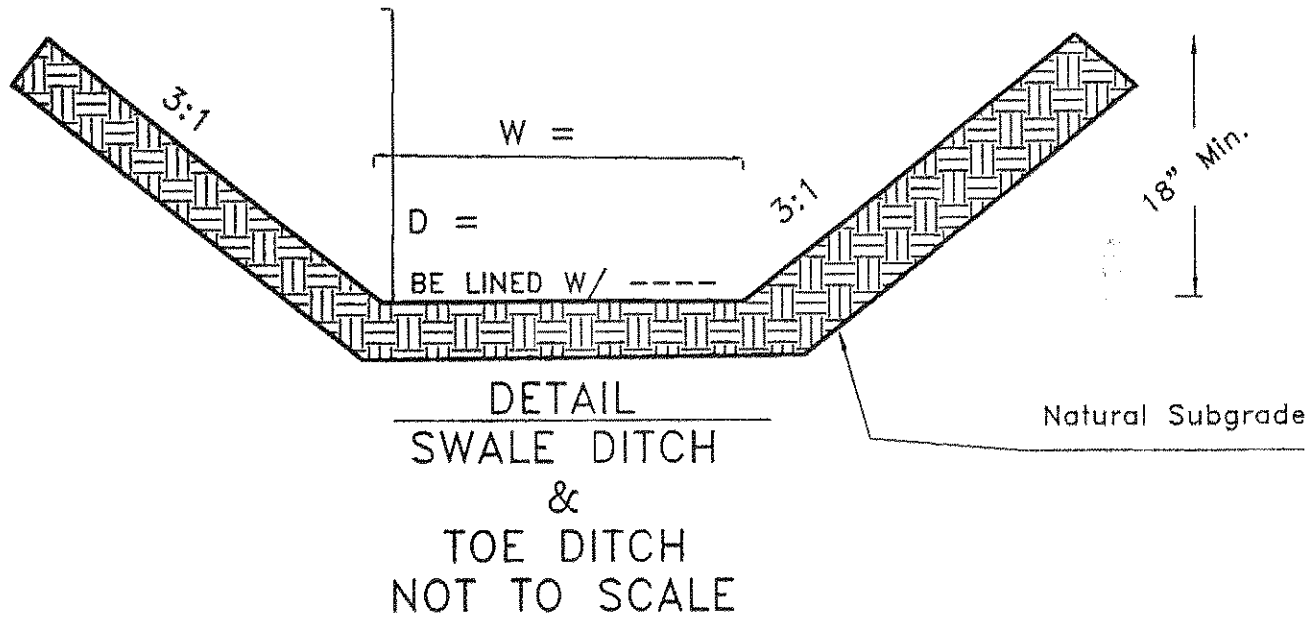
CL ROAD "B" 0+50 TO END = 8" 21B'S

ALL PAVEMENT ITEMS SHALL MEET VDOT 211F-SECTION 211 ASPHALT CONCRETE MIXTURES (SUPERPAVE)
PAVEMENT DESIGN WILL BE REVISED AFTER THE RESULTS OF CBR TESTING ARE OBTAINED.

NOTE:

ALL WATER AND SANITARY SEWER FACILITIES TO BE INSTALLED ACCORDING TO THE ROANOKE COUNTY WATER REGULATIONS AND SPECIFICATIONS AND BOTETOURT COUNTY SEWER REGULATIONS.

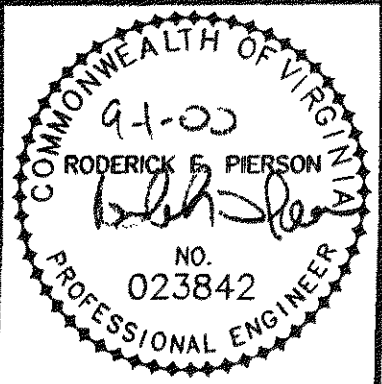
CBR NOTE: SUB-BASE DEPTH FOR SUBGRADE BASED ON CBR VALUE OF 10. SOIL TEST OF SUBGRADE MUST BE TAKEN FOR ACTUAL DETERMINATION OR REQUIRED SUB-BASE THICKNESS PRIOR TO CONSTRUCTION.



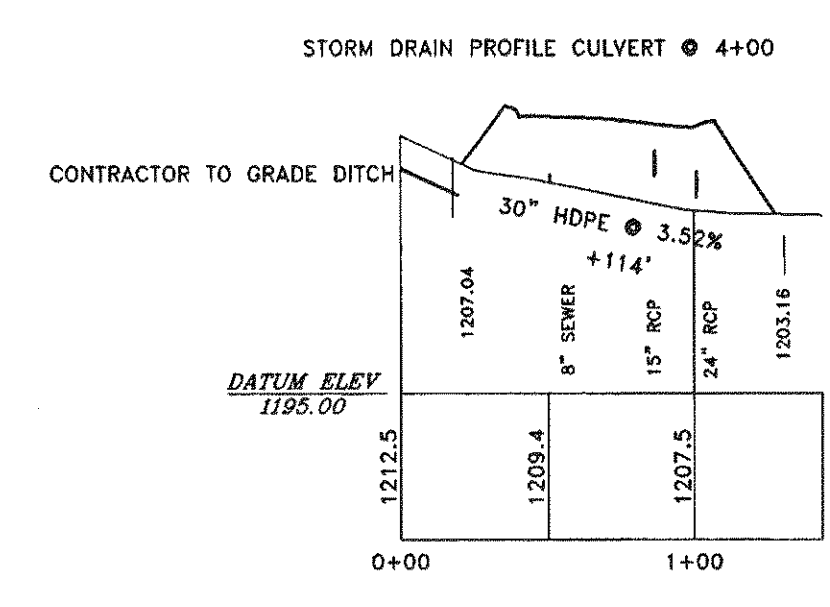
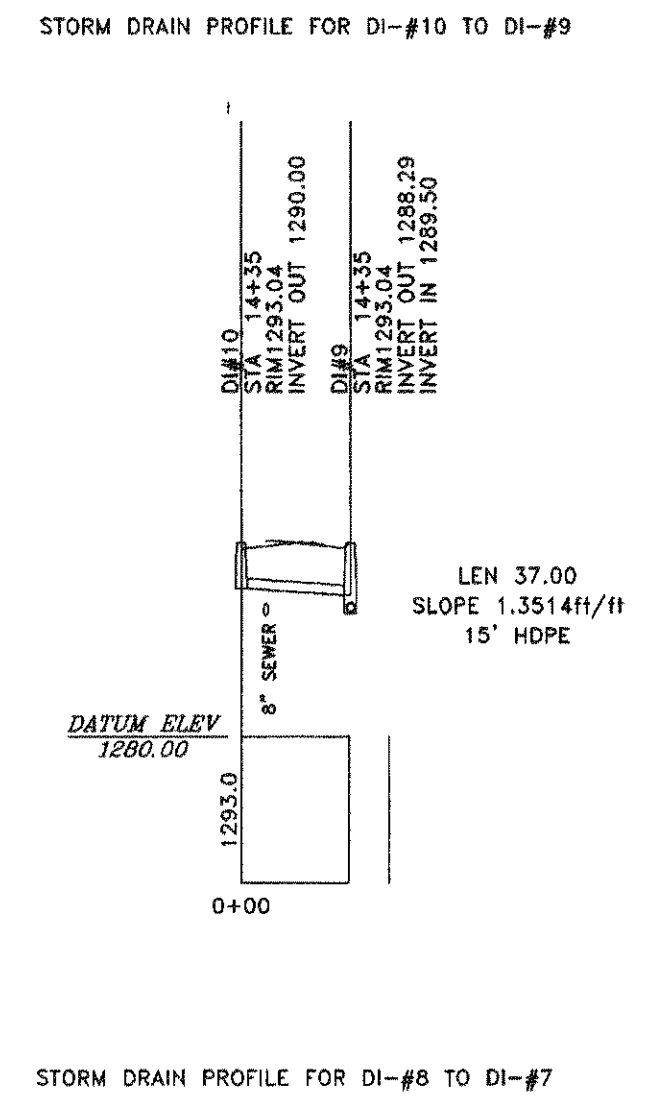
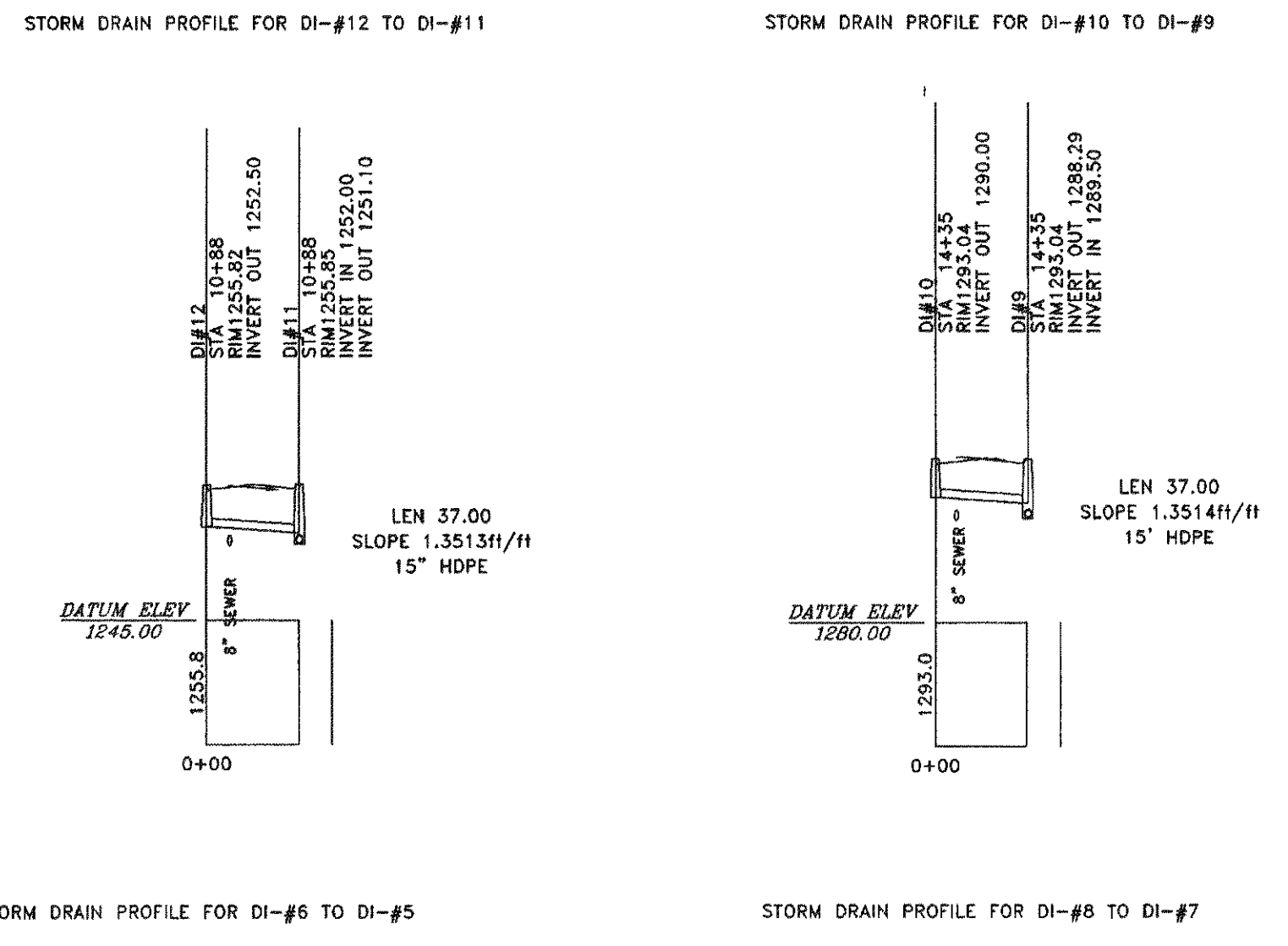
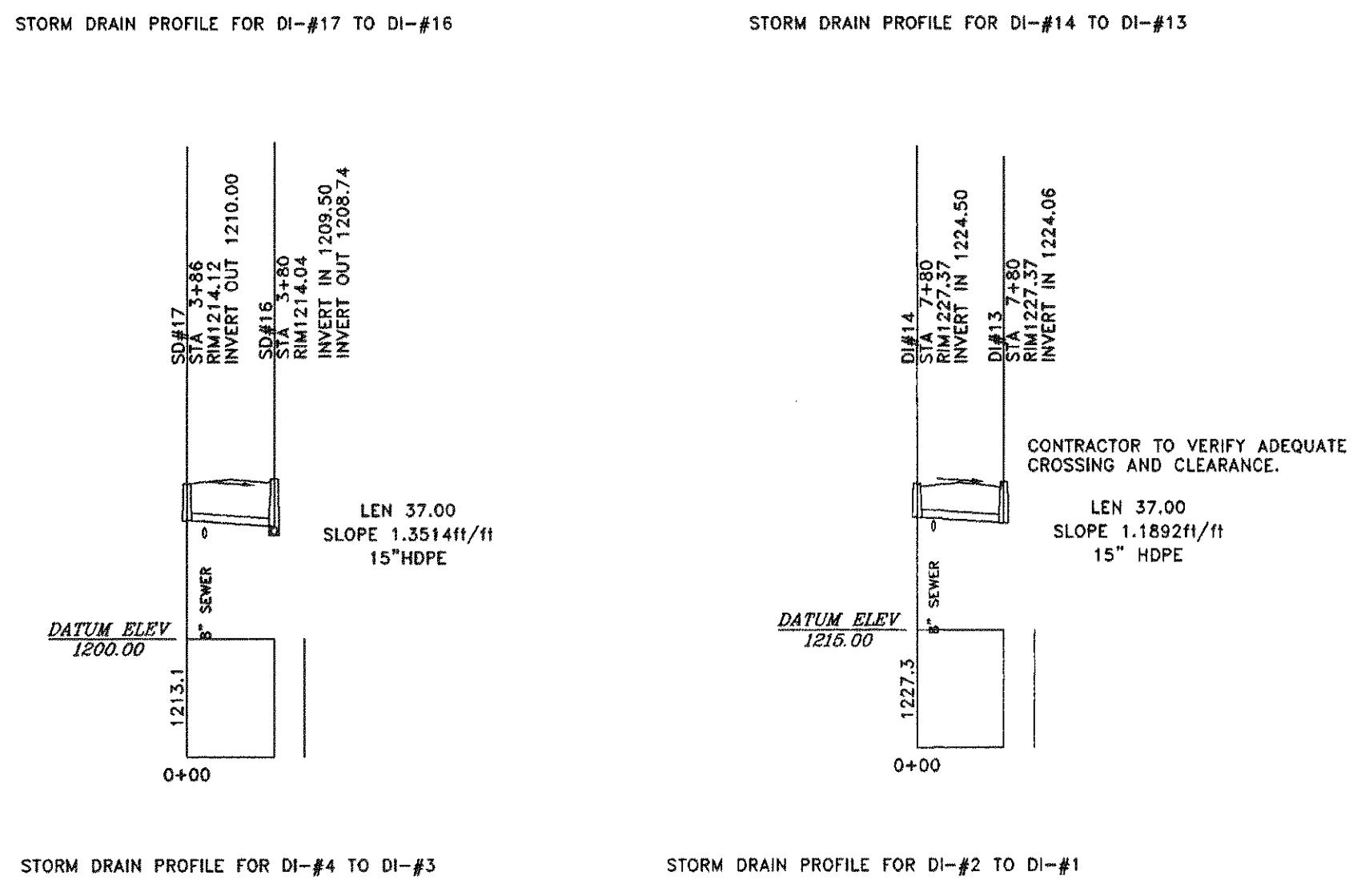
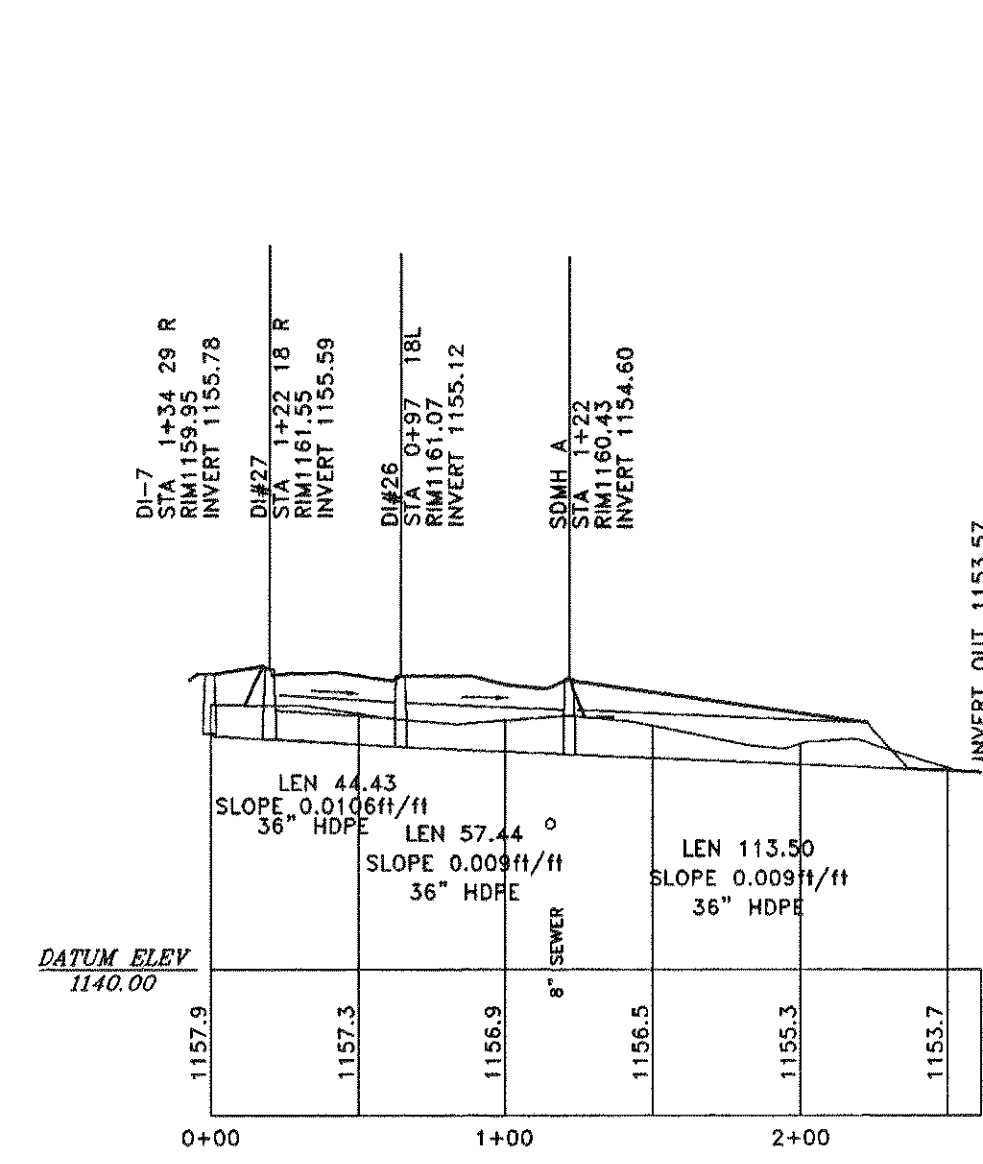
Roderick F. Pierson, P.E., L.L.S.
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1332 Roanoke Road, 220 North
Daleville, VA 24083
(540) 966-3027

REV	DATE	DESCRIPTION	BY	APP
1	4/10/00	PER VDOT COMMENTS		
2	06/02/00	PER VDOT/BOTETOURT COUNTY COMMENTS		
3	06/06/00	PER VDOT & ROANOKE COUNTY COMMENTS		
4	07/11/00	PER BOTETOURT COMMENTS		

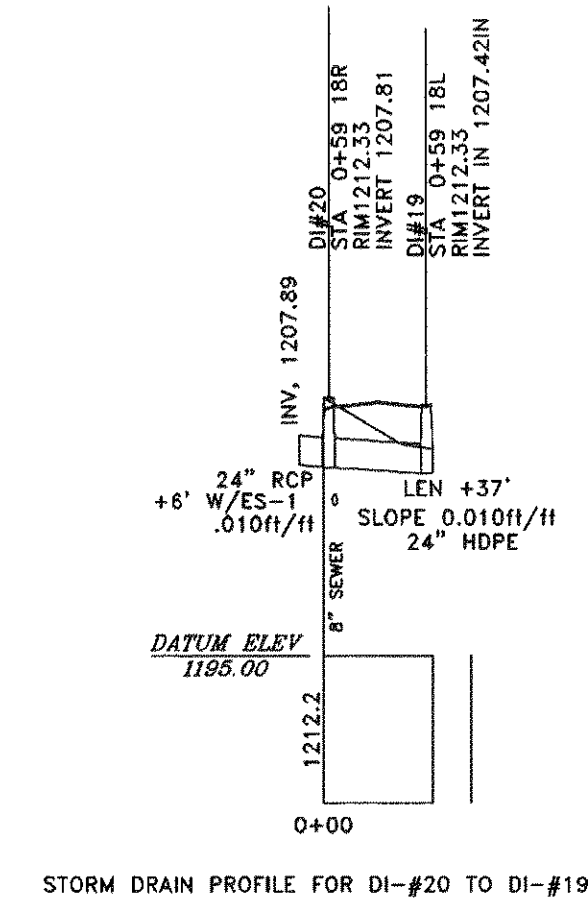
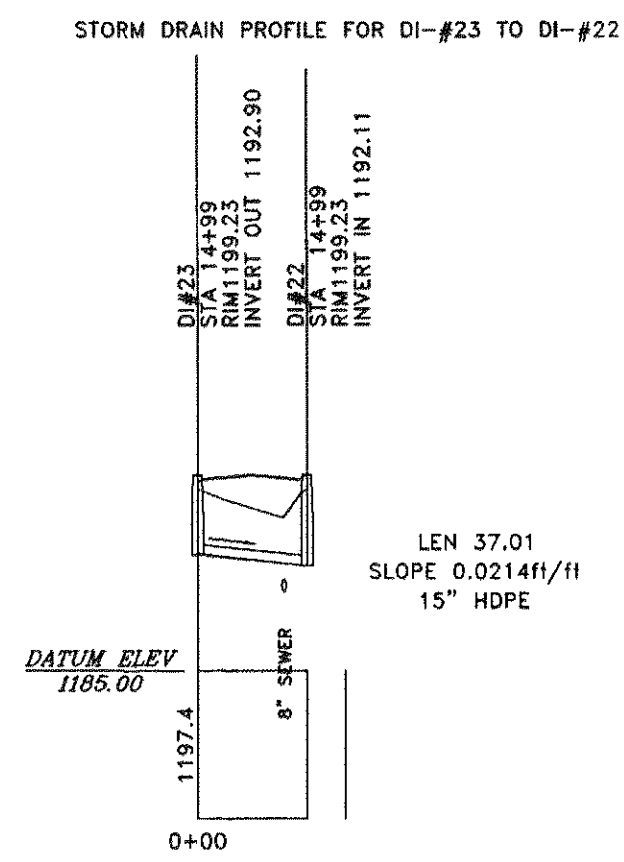
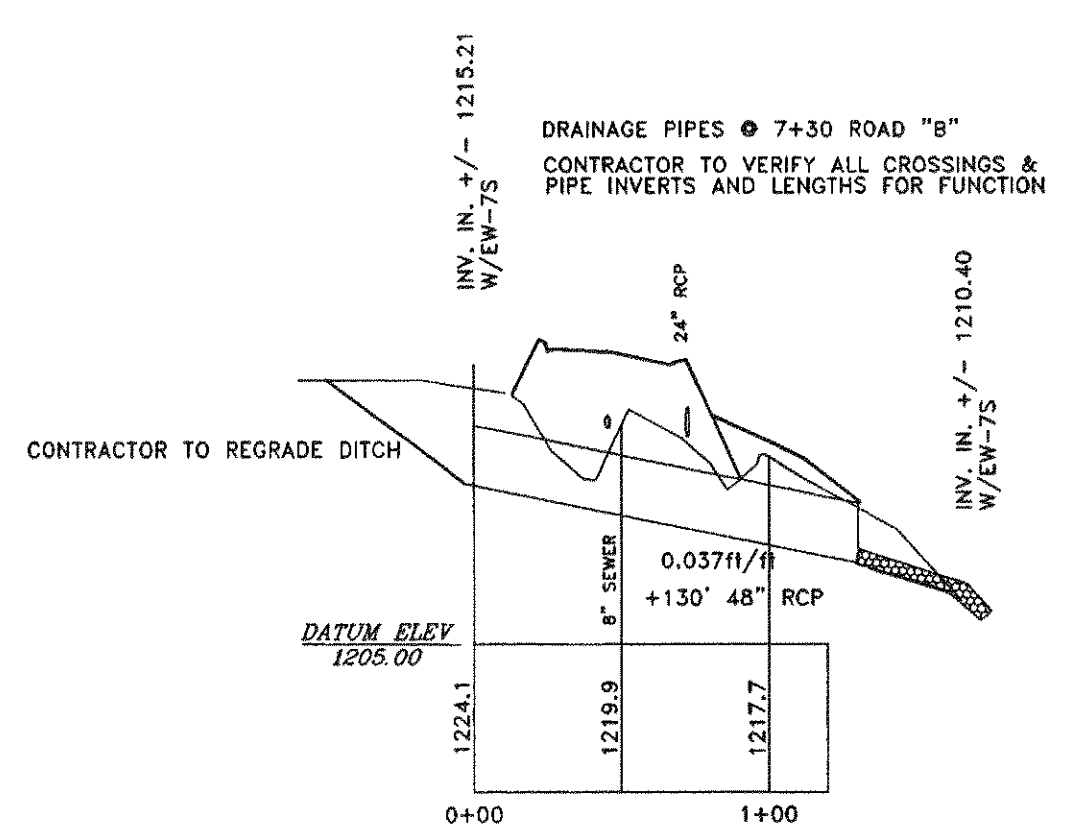
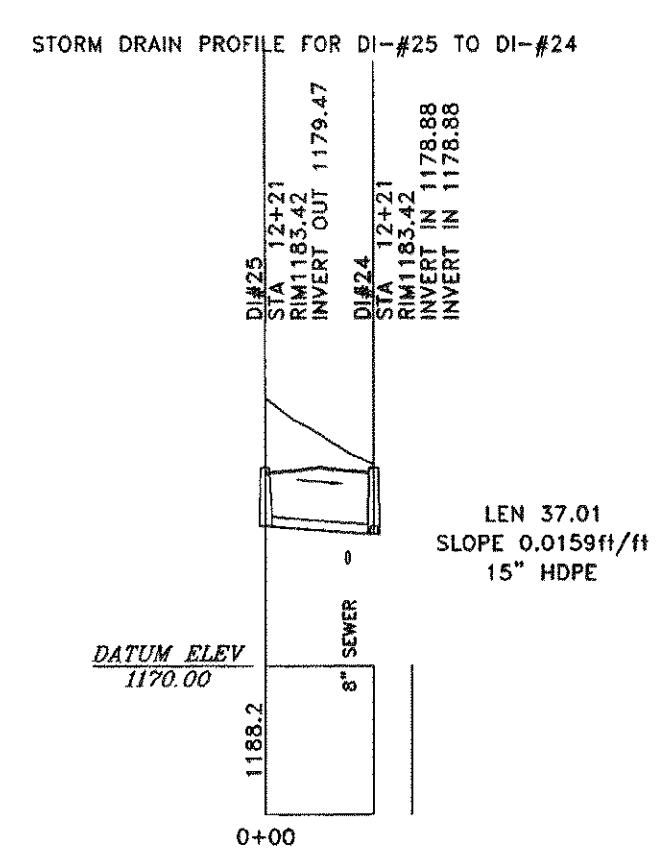
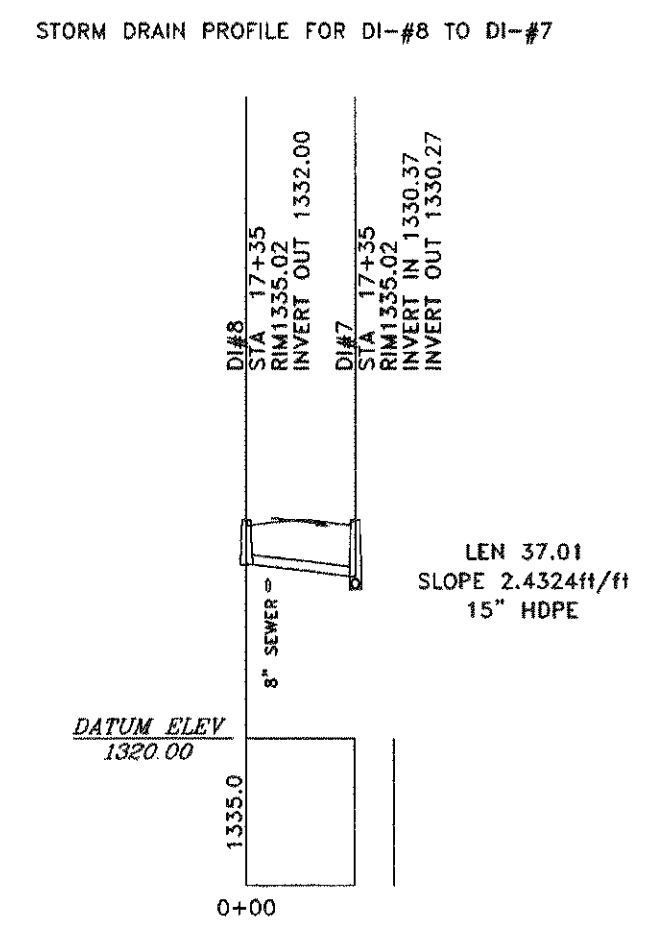
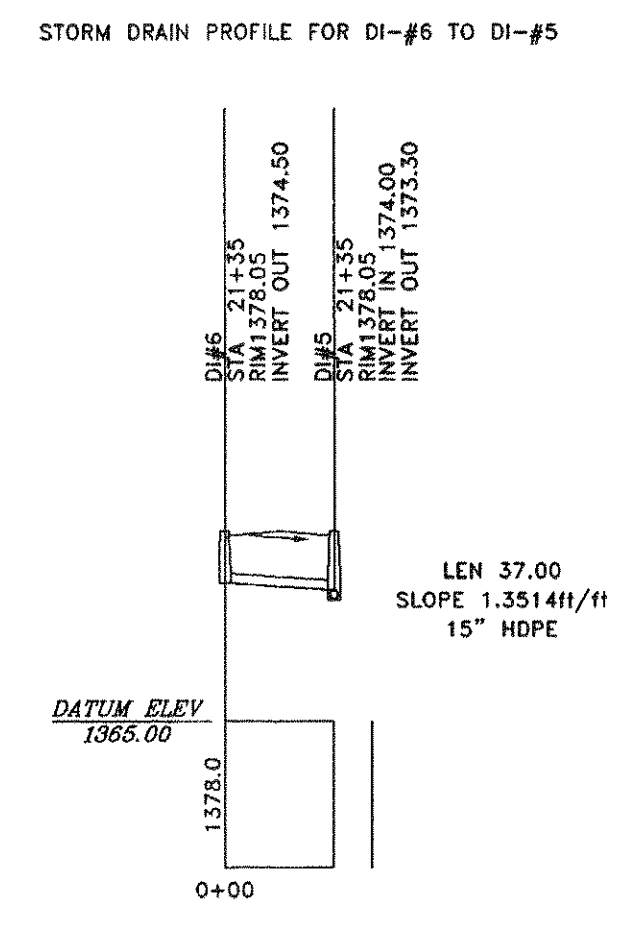
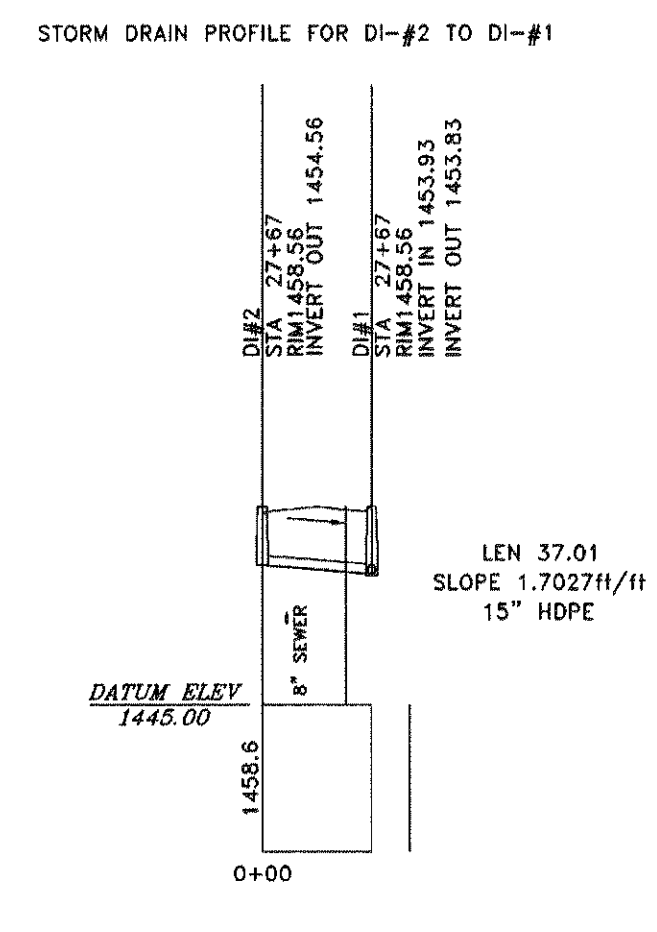
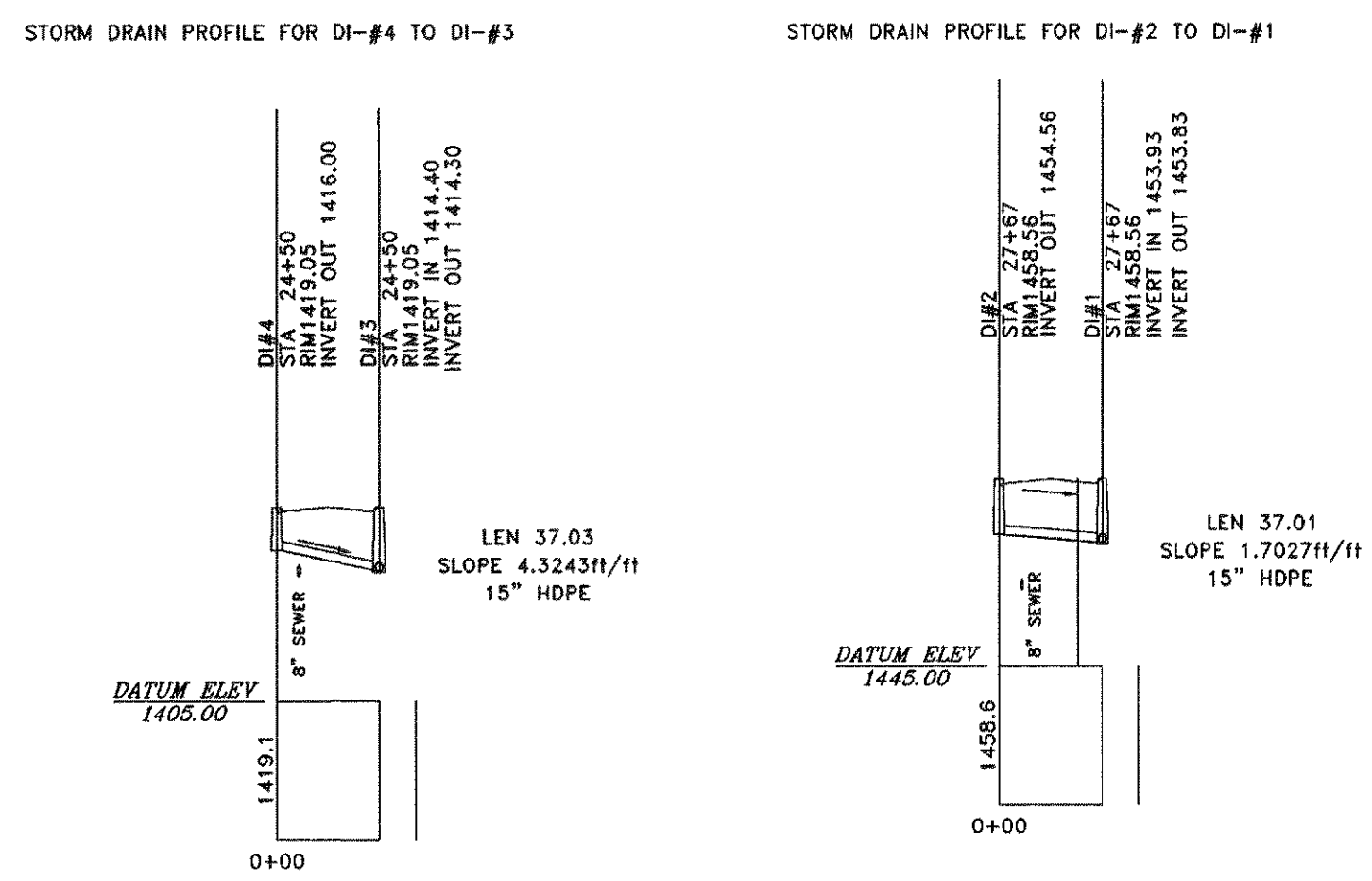
TYPICAL SECTIONS
STONEGATE SUBDIVISION
BOTETOURT/ROANOKE COUNTY, VIRGINIA



SCALE: NONE
COMM. NO. R2002
DATE: 03/20/00
SHEET 14



CONTRACTOR TO VERIFY CLEARANCE AND ADEQUATE COVER.

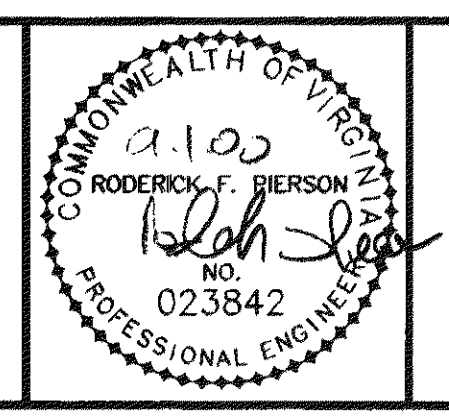


HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

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REV	DATE	DESCRIPTION	BY	APP
2	06/02/00	PER VDOT/BOTETOURT COUNTY COMMENTS		
3	06/06/00	PER VDOT & ROANOKE COUNTY COMMENTS		
4	09/01/00	PER ROANOKE COUNTY COMMENTS		

MISCELLANEOUS PROFILES
STONEGATE SUBDIVISION
BOTETOURT/ROANOKE COUNTY, VIRGINIA



SCALE: 1" = 50'
COMM. NO. R2002
DATE: 03/20/00
SHEET 15

Erosion and Control Narrative

Project Description

The project is located in the Cloverdale area of Botetourt County, Virginia. This plans shows the construction of roadways associated with a +/- 64 lot subdivision. The disturbed area consists of approximately 7 acres.

Existing Site Condition

Most of the site consists of woods.
The terrain slopes in the 0.0% to 40% range.

Adjacent areas

The site is bordered on the north and south by residential areas, to the west by Sanderson road and to the east by Read Mountain.

Soils

Soils found at this site are common to the area. None of these soils have high erosion tendencies.

Critical Areas

There are no critical erosion areas.

Erosion and Sediment Control Measures

Unless otherwise indicated, all vegetative and structural erosion and sediment control practices shall be constructed and maintained according to minimum standards and specifications of the handbook. The minimum standards of the VESCR shall be adhere to unless otherwise waived or approved by a variance.

Structural Practices

- Temporary Construction Entrance (Section 3.02) ;
One temporary construction entrance will be installed.
- Silt Fence (Section 3.05)
Temporary silt fence will be installed as indicated on the site plan.
- Culvert Inlet Protection (Section 3.08)
Culvert Inlet Protection will be installed as indicated on the site plan.
- Outlet Protection (Section 3.18)
Outlet Protection will be installed as indicated on the site plan.
- Temporary & Permanent Seeding (Section 3.31 & 3.32)
Temporary seeding will be placed on all disturbed areas that will not be brought to final grade within one year or less. Temporary seeding will aid in the reduction of dust and sediment.
Temporary Seeding (Section 3.31)
Rates per acre:
Winter - 40 lbs. annual rye and 40 lbs. cereale rye.
Summer - 40 lbs. annual rye and 40 lbs. foxtail millet.
Fertilizer - 1500 lbs. of 10-18-10 per acre.
Lime - 2 tons per acre.

- Permanent Seeding (Section 3.32)
After final grading, permanent seeding will be employed to reduce erosion and sediment.

Seeding Specifications:

Seasonal rates per acre:

Feb. 1 to May 15	Aug. 1 to Sept. 15
100 lbs. tall fescue	100 lbs. tall fescue
15 lbs. annual rye	15 lbs. annual rye
2 lbs. red clover	2 lbs. red clover
May 16 to July 31	Sept. 16 to Jan. 31
120 lbs. tall fescue	120 lbs. tall fescue
10 lbs. foxtail millet	10 lbs. cereale rye
2 lbs. red clover	2 lbs. red clover

Fertilizer - all seasons - 1500 lbs. of 10-18-10 per acre
Lime - all seasons - 2 tons per acre
A mulch cover is required on every seeding:
Straw at 80 bales per acre or an approved manufactured mulch/stabilization material.

All seeding, with required associated practices, will be in accordance with all applicable sections of the Virginia Erosion and Sediment Control Handbook.

- Dust Control (Section 3.39)
If arid condition prevail, dust control practices will be employed as required.

Management

- Construction should be sequenced so that grading operations can begin and end as quickly as possible.
- Erosion and Sediment control devices shall be installed as the first step of construction.
- Areas which are not to be disturbed shall be clearly marked by flags, signs, etc.
- The grading contractor shall be responsible for the installation and maintenance of all erosion and sediment control practices. Inspections are to be made periodically and after every significant rainfall.

Maintenance

In general, all erosion and sediment control measures will be checked daily and after each significant rainfall. Any items not found in accordance with the Virginia Erosion and Sediment Control Handbook will be immediately replaced and/or repaired. The following items will be checked inn particular:

- The silt fence barrier will be checked regularly for undermining of deterioration of the fabric. Sediment shall be removed when the level of sediment deposition reaches half way to the top of the barrier.
- The seeded areas will be checked regularly to ensure that a good stand is maintained. Areas should be fertilized and reseeded as needed.
- All graveled areas shall be checked for a uniform grade with no ruts or channels and top dressed with new gravel as required.
- All measures shall be maintained until a stabilized stand of grass is obtained.
- If, during construction, the Erosion and Sediment Control reviewing Officers considers the Erosion and Sediment items to be inadequate, he or she, at their discretion require the addition of other control measures.

NOTES:

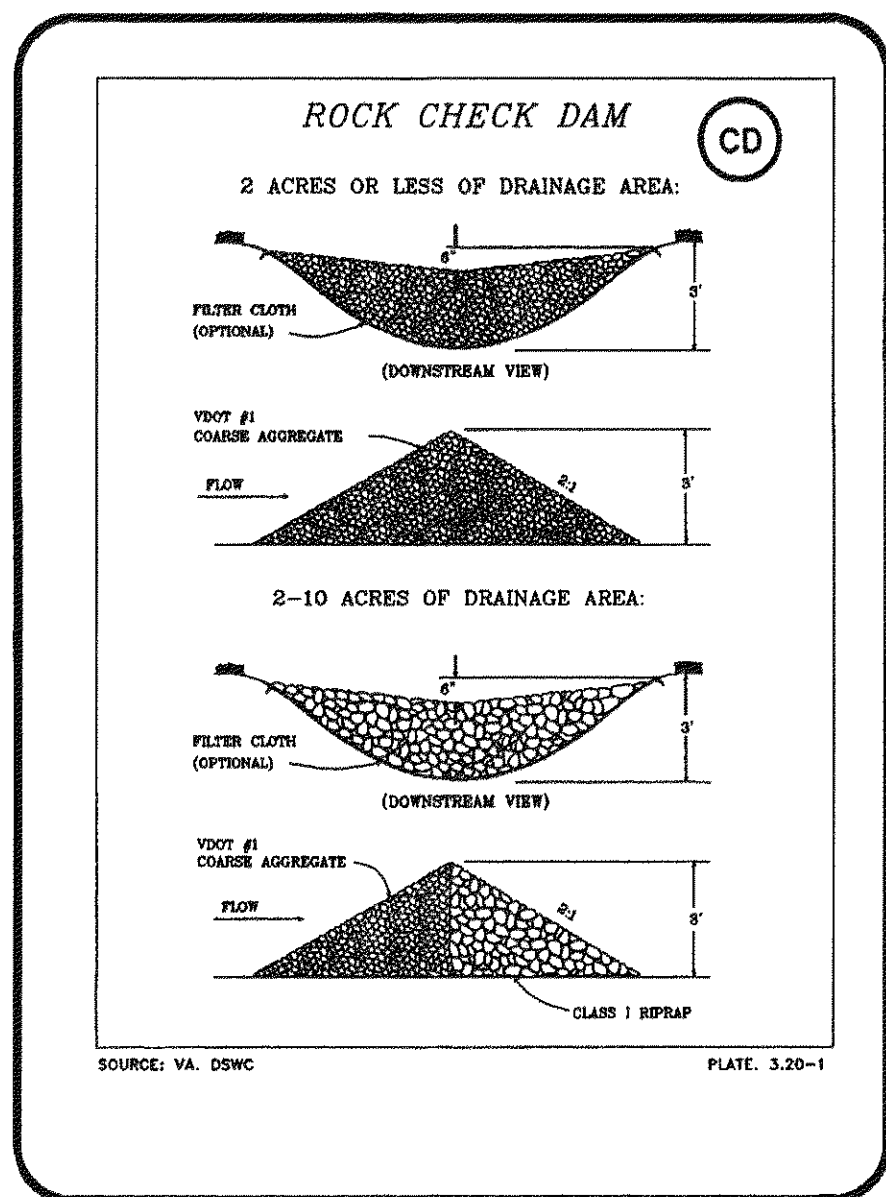
- ALL SLOPES GREATER THAN 2:1 WILL REQUIRE BLANKET/MATTING STABILIZATION (JUTE MESH).
- ALL DENUDED AREAS MUST BE SEEDED WITHIN 7 DAYS OF REACHING FINAL GRADE AND ANY DENUDED AREAS THAT WILL LAY DORMANT FOR LONGER THAN 30 DAYS WILL REQUIRE TEMPORARY SEEDING.

PHASE I

E & S QUANTITIES AND COST ESTIMATE				
ITEM	QUANTITY	UNIT PRICE	COST	
CONSTRUCTION ENTRANCE	1	\$1200.00	\$1200	
SILT FENCE	1460 LF	\$1.75/LF	\$2555	
SEEDING	1	\$9000	\$9000	
OUTLET PROTECTION	3	\$300	\$900	
INLET PROTECTION	3	\$300	\$900	
RIP RAP	+2500 TN	\$15/TN	\$37500	
EC-3 MAT		\$2.50/LF		
DENTENTION POND	LS		\$8000	
CURB INLET PROTECTION	19	\$10EA.	\$190	
ROCK CHK. DAM	4	\$100EA	\$400	
2:1SLOPE MAT. STAB.	6000SQ/YD	\$150/YD	\$6,000	
WATER BREAK	5	\$200	\$1,000	
SEDIMENT TRAP	2	\$200	\$400	
SUBTOTAL			\$68,045	
20% CONTINGENCY			\$13,610	
TOTAL			\$81,655	

PHASE II

E & S QUANTITIES AND COST ESTIMATE				
ITEM	QUANTITY	UNIT PRICE	COST	
CONSTRUCTION ENTRANCE	1	\$1200.00	\$1200	
SILT FENCE	200 LF	\$1.75/LF	\$350	
SEEDING	1	\$3000	\$3000	
OUTLET PROTECTION		\$300		
INLET PROTECTION		\$300		
RIP RAP		\$15/TN		
EC-3 MAT		\$2.50/LF		
DENTENTION POND				
CURB INLET PROTECTION	11	\$10EA.	\$110	
ROCK CHK. DAM	2	\$100EA	\$200	
2:1SLOPE MAT. STAB.	2000SQ/YD	\$150/YD	\$2,000	
WATER BREAK		\$200		
SEDIMENT TRAP		\$200		
SUBTOTAL			\$6,860	
20% CONTINGENCY			\$1,380	
TOTAL			\$8,240	

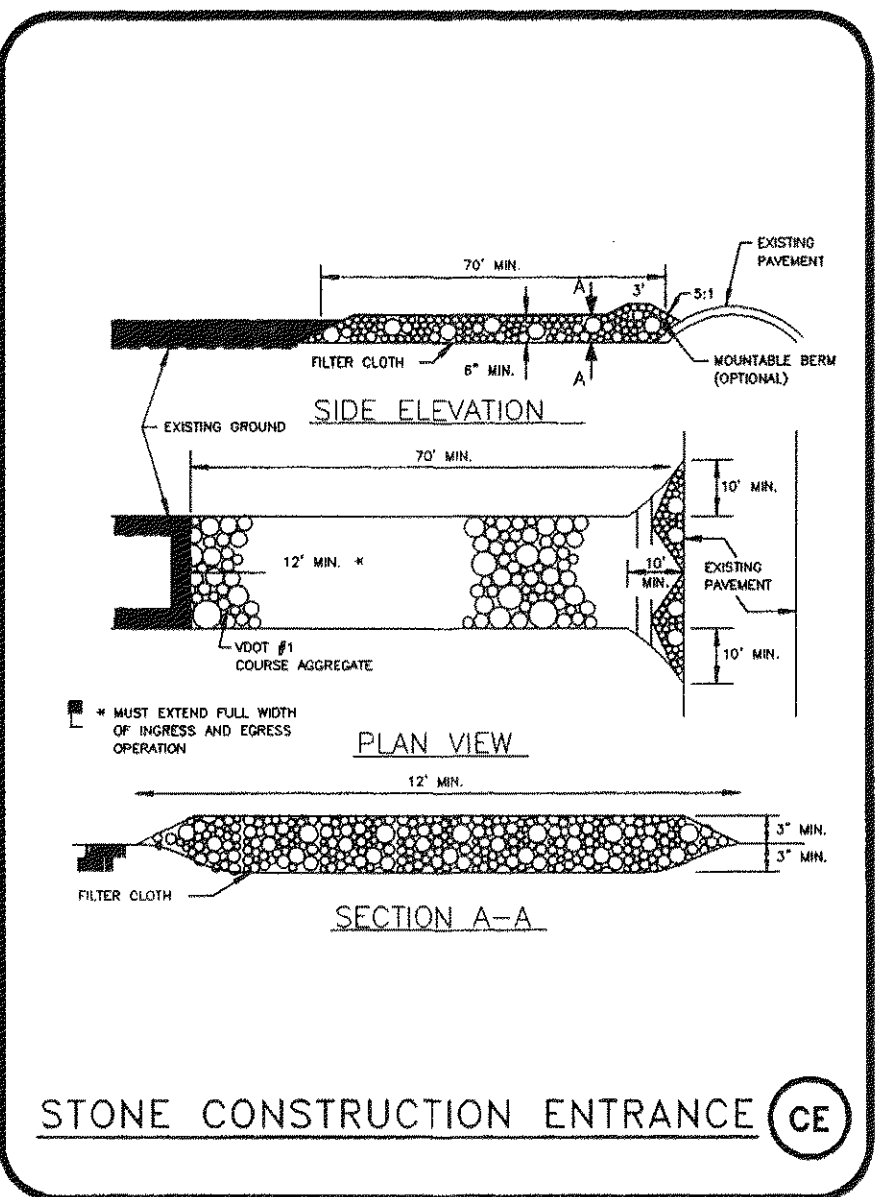
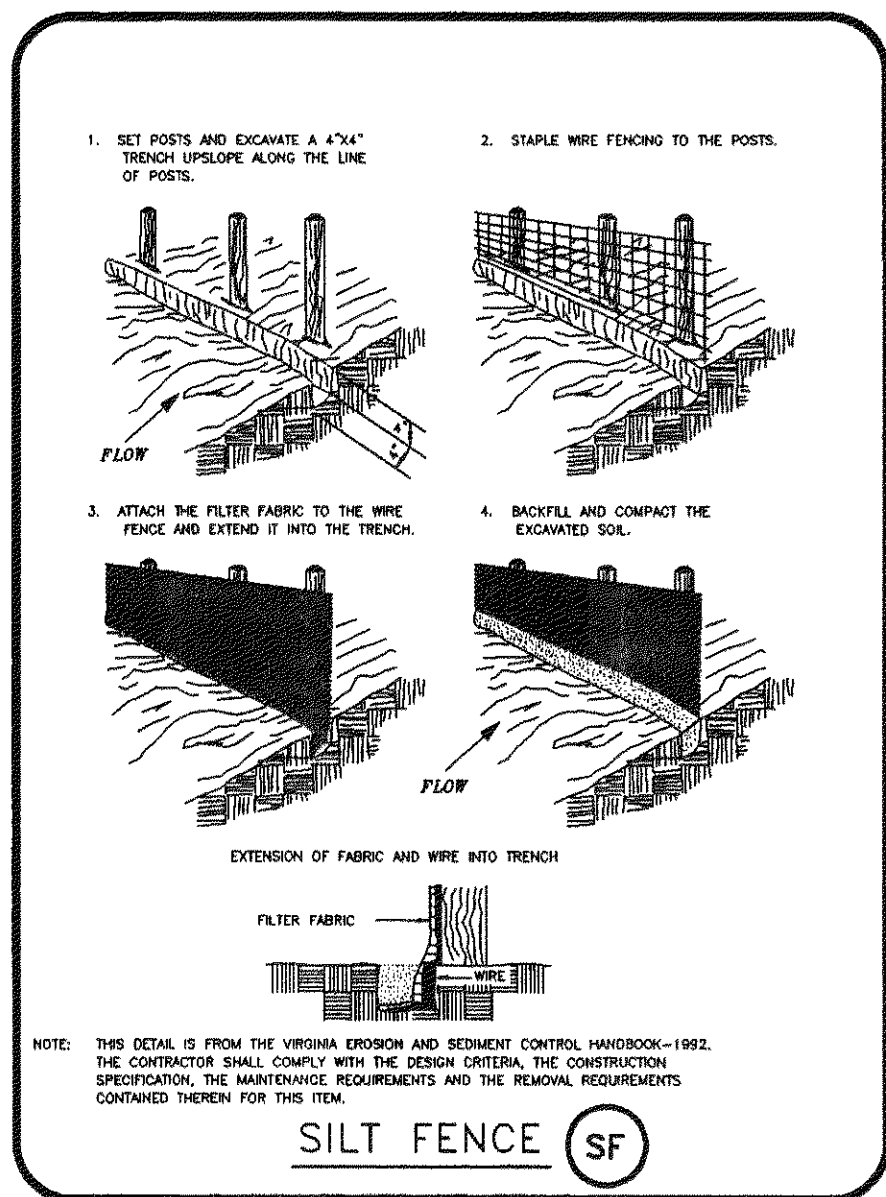
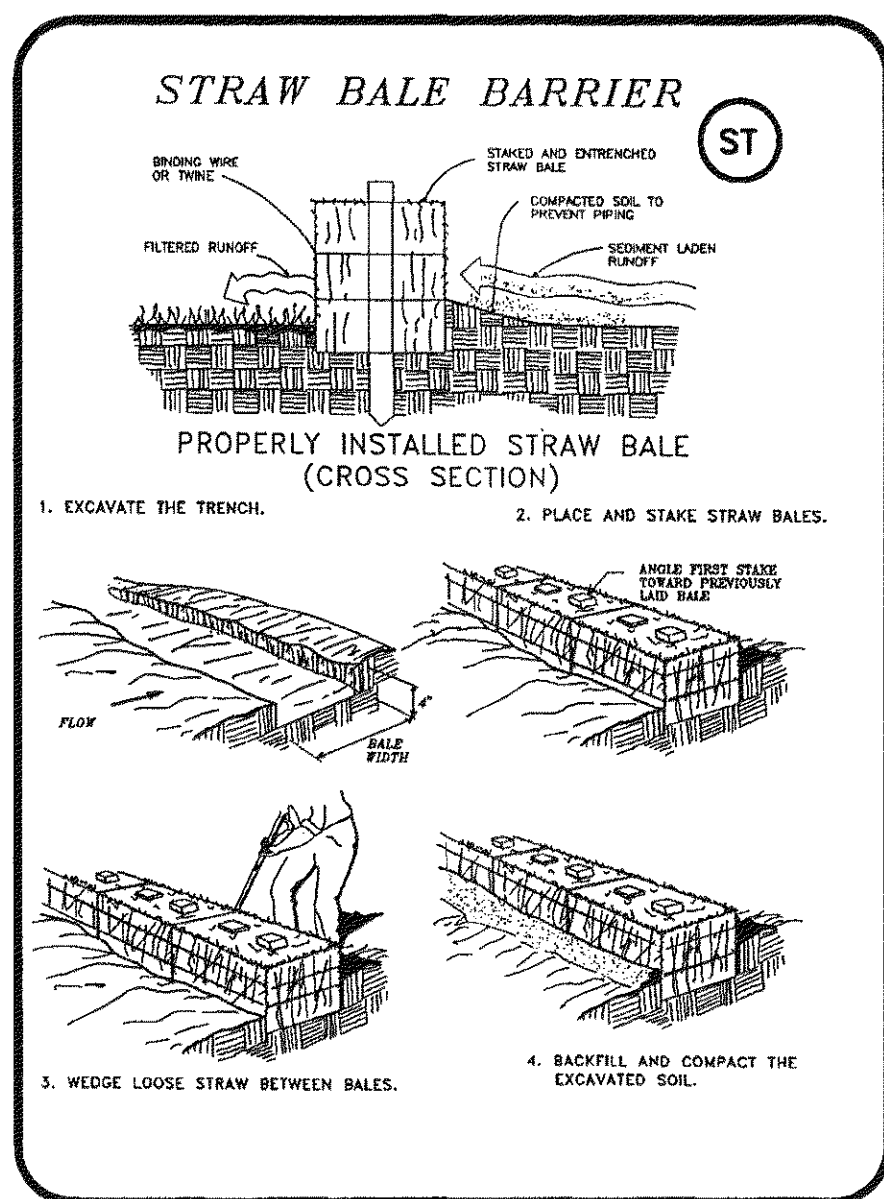
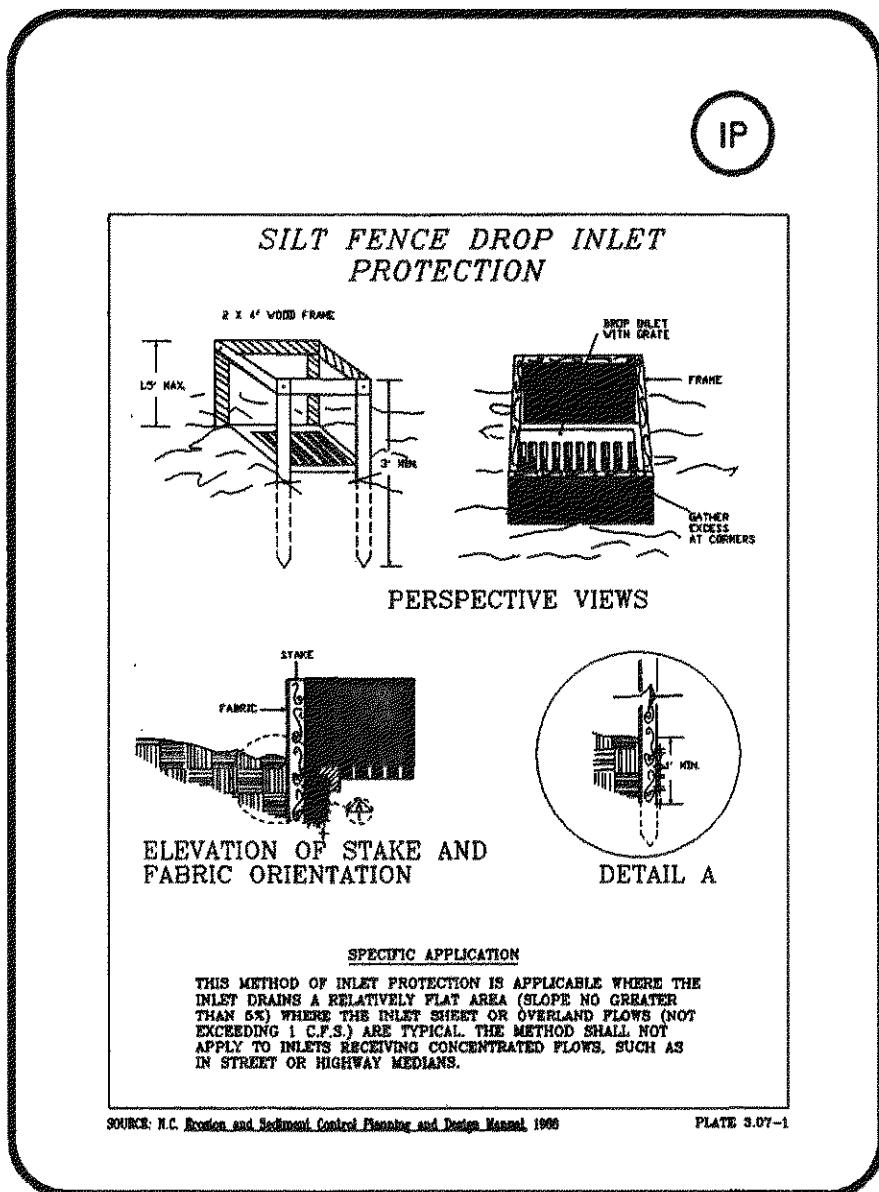


GENERAL EROSION AND SEDIMENT CONTROL NOTES

- ES-1: Unless otherwise indicated, all vegetative and structural erosion and sediment control practices will be constructed and maintained according to minimum standards and specifications of the Virginia Erosion and Sediment Control Handbook and Virginia Regulations VR 625-02-00 Erosion and Sediment Control Regulations.
- ES-2: The plan approving authority must be notified one week prior to the preconstruction conference, one week prior to the commencement of land disturbing activity, and one week prior to the final inspection.
- ES-3: All erosion and sediment control measures are to be placed to or as the first step in clearing.
- ES-4: A copy of the approved erosion and sediment control plan shall be maintained on the site at all times.
- ES-5: Prior to commencing land disturbing activities in areas to her than indicated on these plans (including, but not limited to, off-site borrow or waste areas), the contractor shall submit supplementary erosion control plan to the owner for review and approval by the plan approving authority.
- ES-6: The contractor is responsible for installation of any additional erosion control measures necessary to prevent erosion and sedimentation as determined by the plan approving authority.
- ES-7: All disturbed areas are to drain to approved sediment control measures at all times during land disturbing activities and during site development until final stabilization is achieved.
- ES-8: During any dewatering operations, water will be pumped into an approved filtering device.
- ES-9: The contractor shall inspect all erosion control measures periodically and after each runoff-producing rainfall event. Any necessary repairs or cleanup to maintain the effectiveness of the erosion control devices shall be made immediately.

TS

PS



EC-3 TREATMENT TWO

EC-3 erosion blankets must be a three dimensional geomatrix of UV stabilized nylon, polyethylene or polypropylene sewn with UV stabilized polyester thread to form a mat. Nag C350 or P300, Miromat Heavyweight Enkamat 7012 are some of the products that fit this description.

General

The erosion and sediment control measures shown on the construction plans are the minimum measures required. Due to construction phasing and other considerations, all measures can not be shown. The owner, through his contractor will employ whatever measures which may be required to assure that sediment laden runoff does not leave the site.

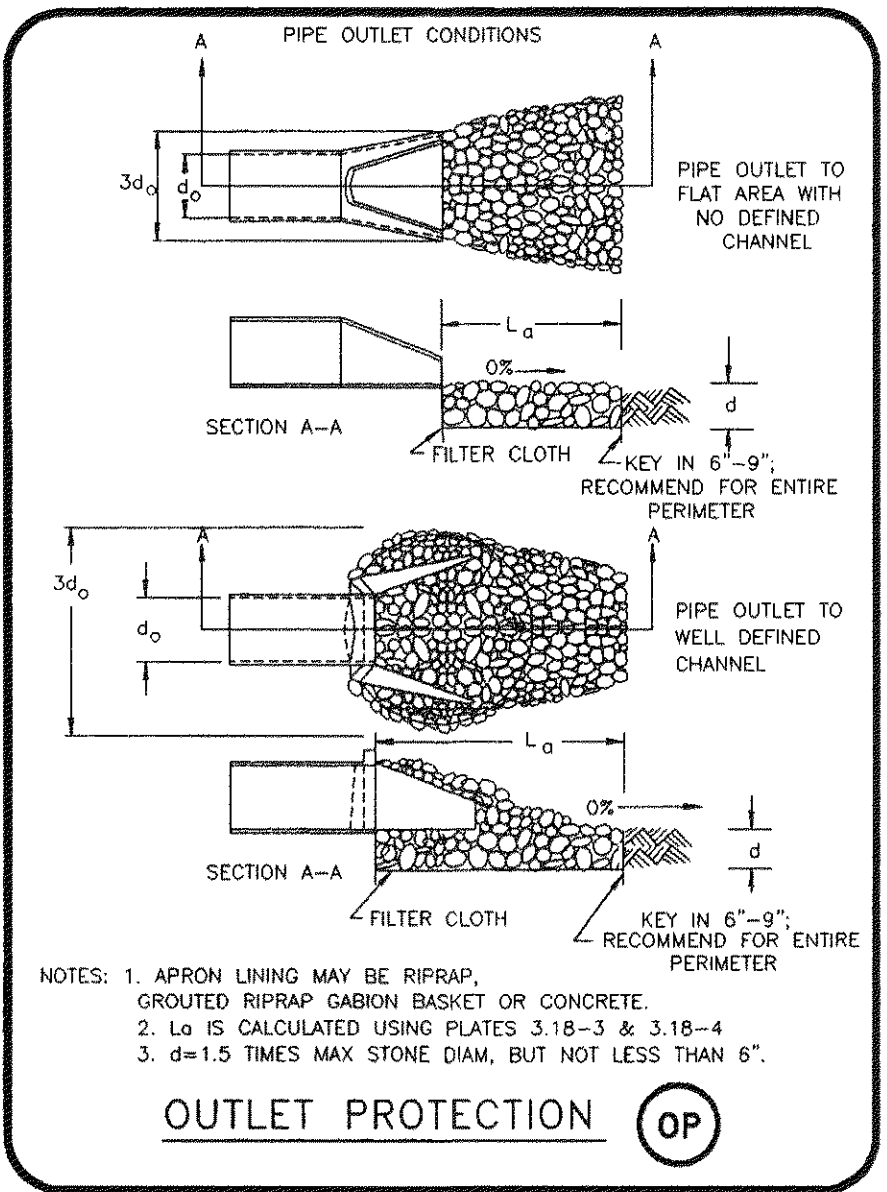
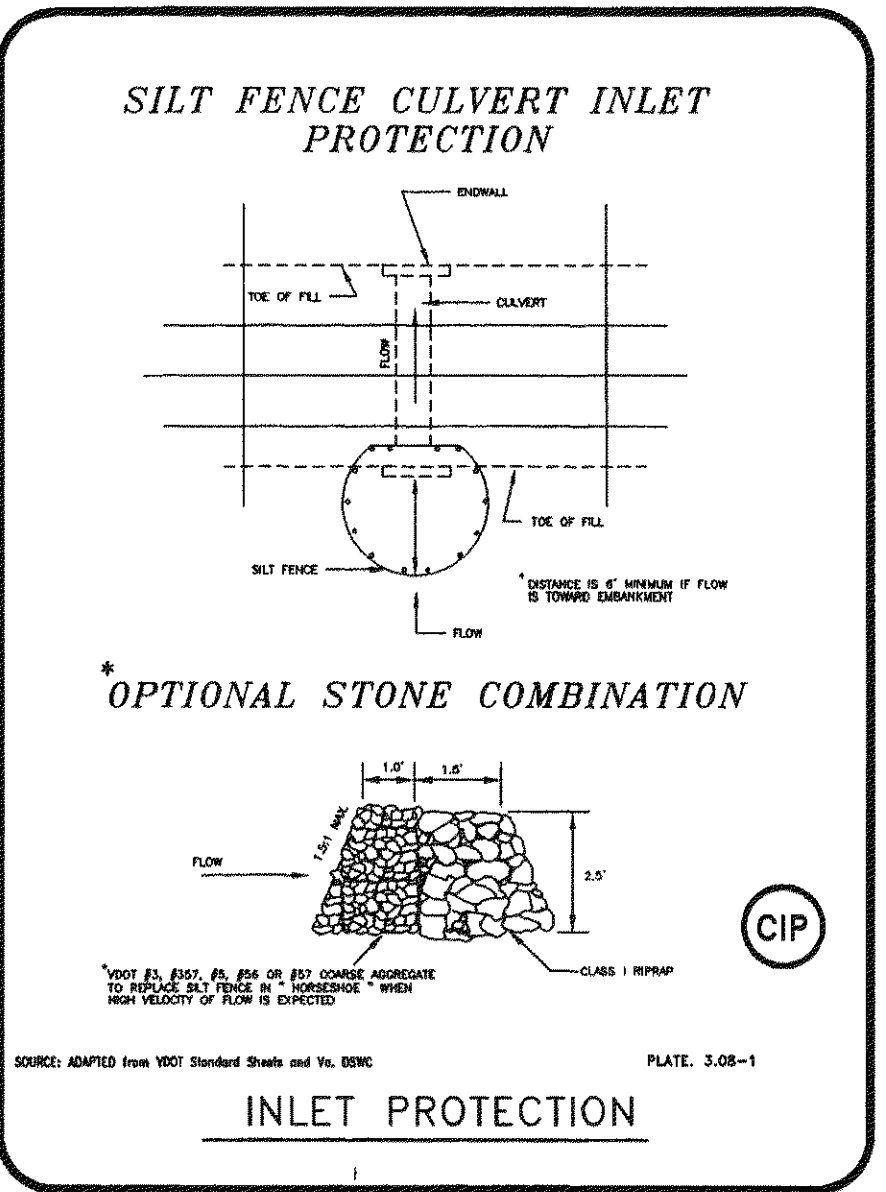
All materials and measures employed for erosion and sediment control will be in accordance with the Virginia Erosion and Sediment Control Handbook, latest edition.

If during construction, additional Erosion and Sediment Control measures are deemed necessary, they shall be installed as directed by the Owner, Engineer or County agent.

This project is to be constructed consistent with the Virginia Erosion and Sediment Control Regulations, (Latest Edition).

GENERAL NOTES:

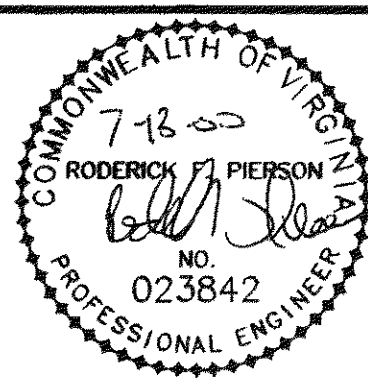
- NO SEARCH OF UNDERGROUND UTILITIES WAS CONDUCTED.
- CONTRACTOR SHALL CONTACT THE COUNTY OF BOTETOURT AND MISS UTILITY PRIOR TO WORK FOR LOCATION OF UNDERGROUND UTILITIES.



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(540) 966-3027

REV	DATE	DESCRIPTION	BY	APP
1	04/03/00	PER BOTETOURT E & S COMMENTS		
2	06/02/00	PER BOTETOURT E & S COMMENTS		
4	07/11/00	PER BOTETOURT COMMENTS		

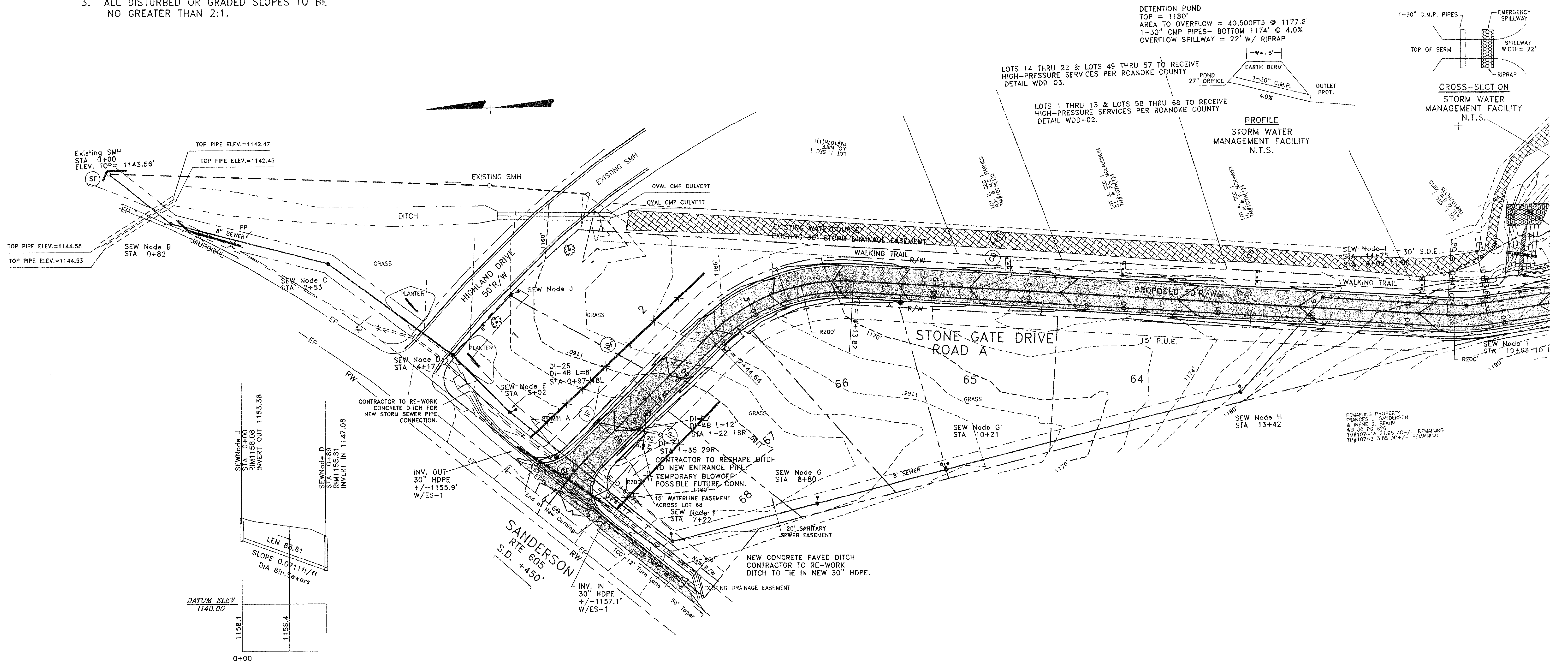
E & S DETAIL SHEET
STONEGATE
BOTETOURT COUNTY, VIRGINIA



SCALE: -
COMM. NO. R2002
DATE: 03/20/2000
SHEET 16

NOTES:

1. ALL 2:1 SLOPES WILL REQUIRE BLANKET/MATTING STABILIZATION (JUTE MESH).
2. ALL DENUDED AREAS MUST BE SEEDED WITHIN 7 DAYS OF REACHING FINAL GRADE AND ANY DENUDED AREAS THAT WILL LAY DORMANT FOR LONGER THAN 30 DAYS WILL REQUIRE TEMPORARY SEEDING.
3. ALL DISTURBED OR GRADED SLOPES TO BE NO GREATER THAN 2:1.

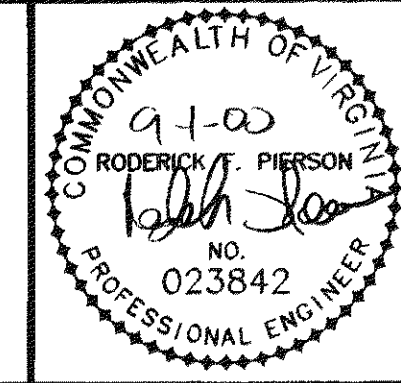


6 09/01/00 PER ROANOKE COMMENTS

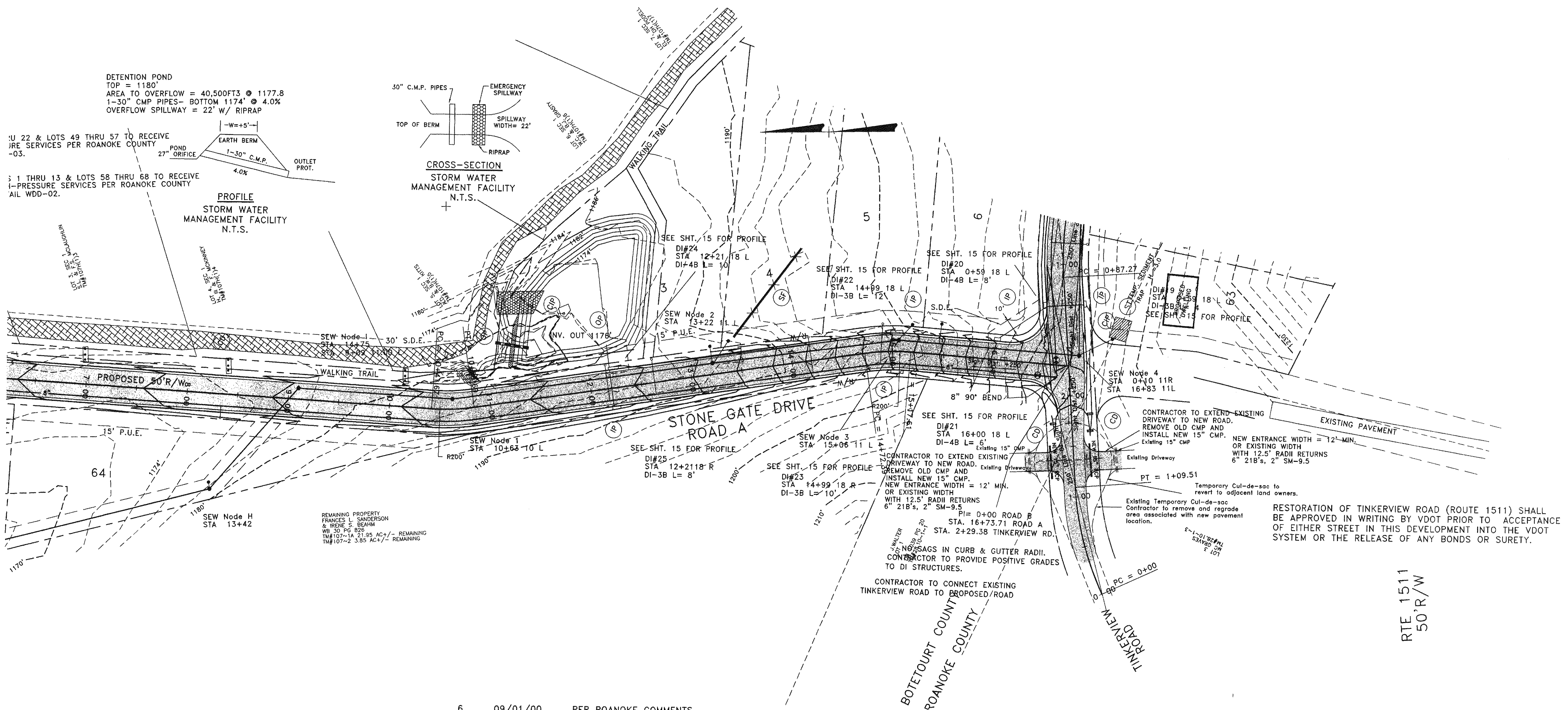
Roderick F. Pierson, P.E., L.L.S.
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1332 Roanoke Road, 220 North
Daleville, VA 24083
(540) 966-3027

REV	DATE	DESCRIPTION	BY	APP
1	04/03/00	PER BOTETOURT E & S COMMENTS		
2	06/02/00	PER BOTETOURT E & S COMMENTS		
3	06/06/00	PER VDOT & ROANOKE COUNTY COMMENTS		
4	07/11/00	PER BOTETOURT COMMENTS		
5	07/27/00	PER ROANOKE COMMENTS		

E & S PLAN SHEET
STONEGATE SUBDIVISION
BOTETOURT/ROANOKE COUNTY, VIRGINIA



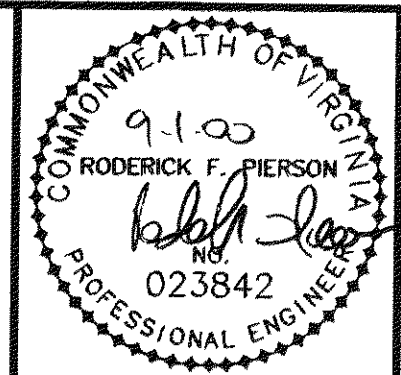
SCALE: 1" = 50'
COMM. NO. R2002
DATE: 03/20/00
SHEET 17



Roderick F. Pierson, P.E., L.L.S.
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 1332 Roanoke Road, 220 North
 Daleville, VA 24083
 (540) 966-3027

REV	DATE	DESCRIPTION	BY	APP
1	04/03/00	PER BOTETOURT E & S COMMENTS		
2	06/02/00	PER BOTETOURT E & S COMMENTS		
3	06/06/00	PER VDOT & ROANOKE COUNTY COMMENTS		
4	07/11/00	PER BOTETOURT COMMENTS		
5	07/27/00	PER ROANOKE COMMENTS		

E & S PLAN SHEET
 STONEGATE SUBDIVISION
 BOTETOURT/ROANOKE COUNTY, VIRGINIA

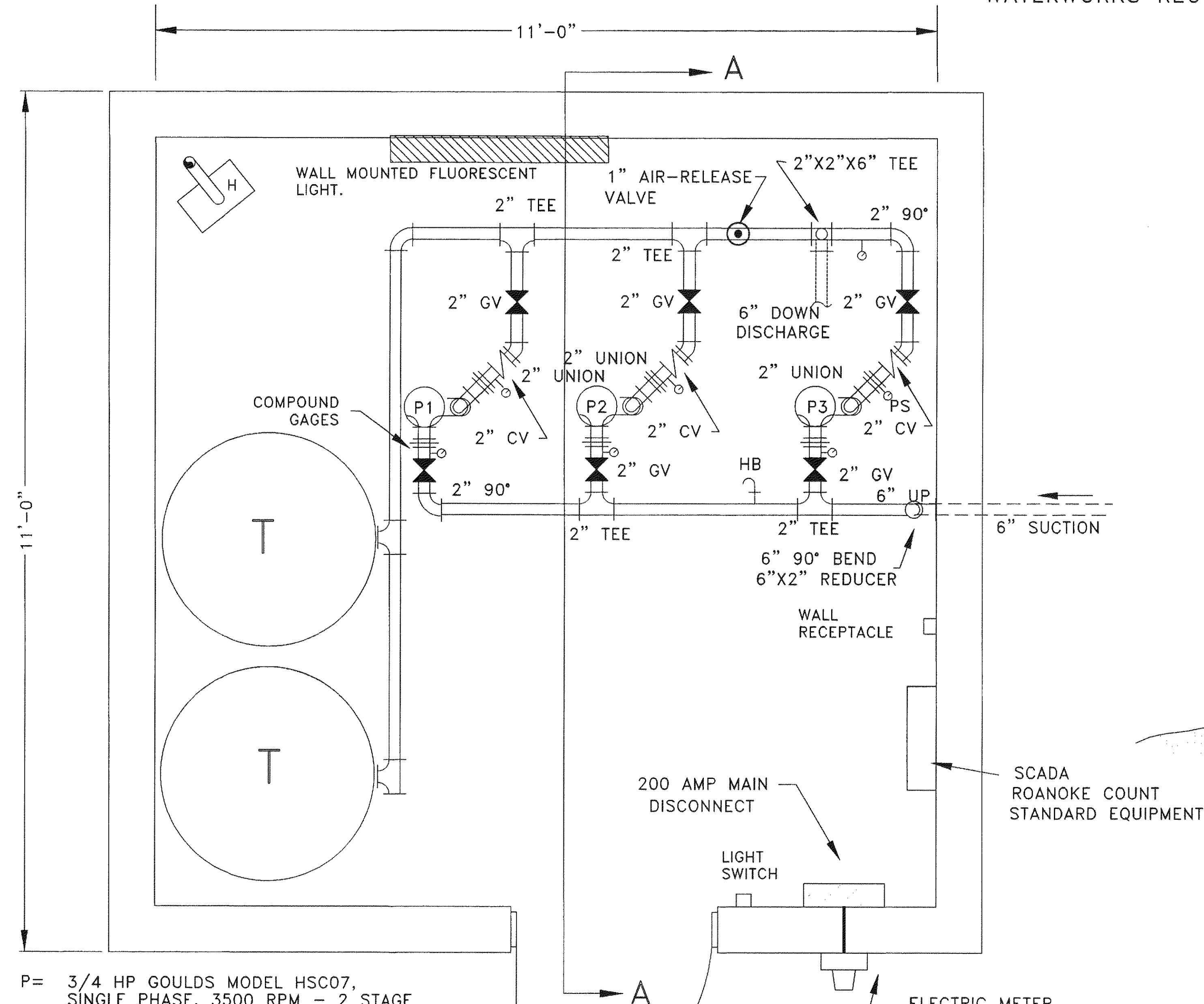


SCALE: 1" = 50'
 COMM. NO. R2002
 DATE: 03/20/00
 SHEET 18

BOOSTER PUMP STATION PLAN SCHEMATIC

NOT TO SCALE

THE PUMP STATION MUST MEET ALL REQUIREMENTS OF ROANOKE COUNTY WATER AND SEWER REGULATIONS 2nd EDITION AND VIRGINIA DEPARTMENT OF HEALTH WATERWORKS REGULATIONS



P= 3/4 HP GOULDS MODEL HSC07, SINGLE PHASE, 3500 RPM - 2 STAGE

T = WELL-X-TROL MODEL WX-454. PRESSURE TANKS (2).

PS = PRESSURE SWITCH: 1ST PS (80/60) PSI PSI OPERATING CYCLE, 1ST PUMP
2ND PS (75/55) PSI 2ND PUMP

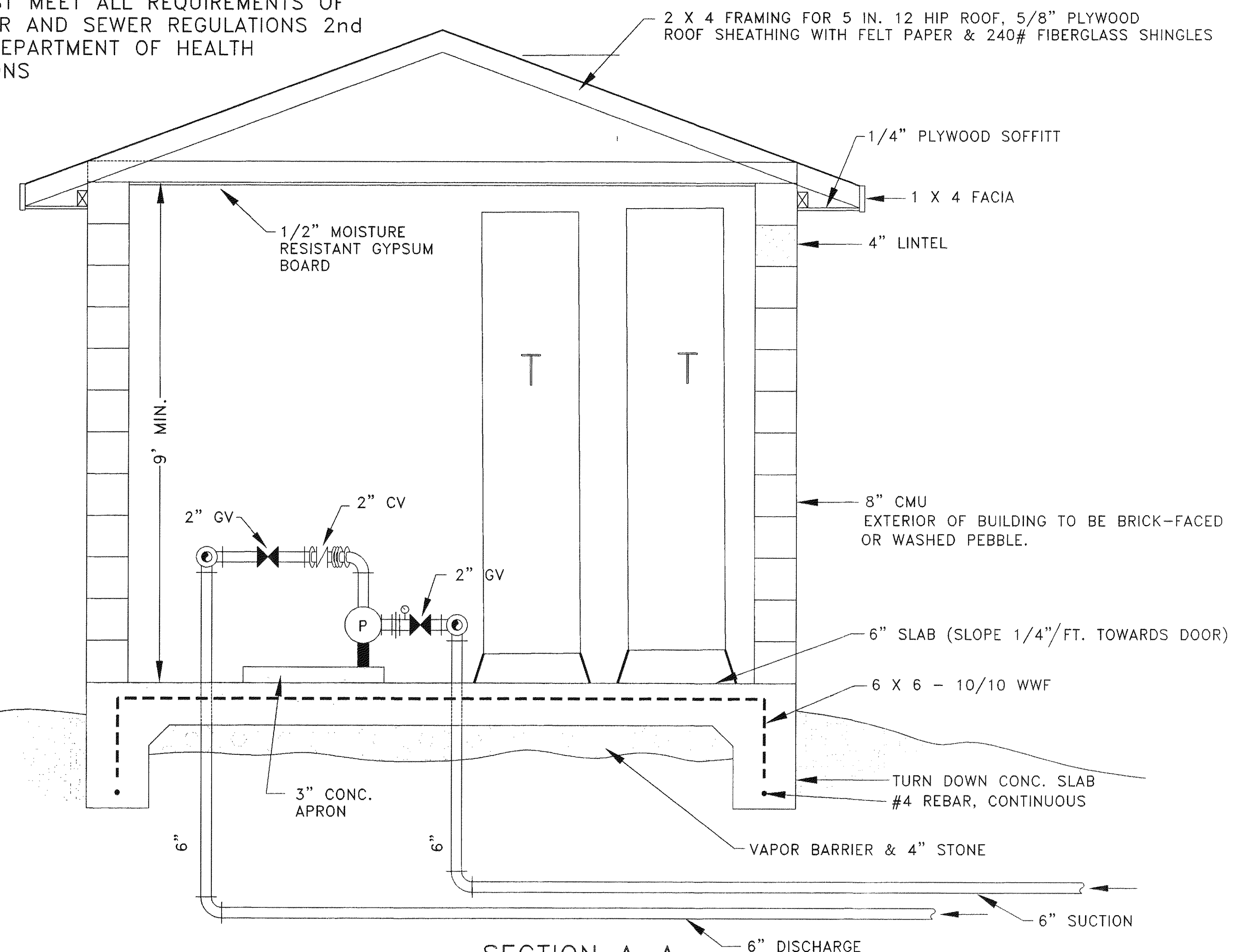
H = 110V OR 220V WALL HEATER
SITH THERMOSTAT 3000
WATTS MIN.

GV = GATE VALVE
CV = CHECK VALVE

3 (THREE) SMALL BOOSTER PUMPS WILL BE UTILIZED. BY USING ANY 2 TO MEET PEAK DEMAND, RATHER THAN 2 PUMPS (EACH CAPABLE TO PEAK DEMAND), WILL HELP ON PUMP CYCLE TIME. THE 3 PUMP SET UP WOULD ALLOW 1 PUMP TO OPERATE AT A TIME ON A NORMAL CYCLE, AND SWITCH ON THE 2ND PUMP IF THE FIRST PUMP DID NOT KEEP UP. THE PUMPS WILL UTILIZE A 3 PUMP ALTERNATOR OPERATED BY A PRESSURE SWITCH. PRESSURE SWITCH #1 WILL BE SET @ 60/80psi AND #2 WILL BE SET @ 55/75psi. THIS TYPE OF SETUP WOULD PROVIDE A PUMP RUN TIME OF +/- 4 MINUTES.

ELECTRIC METER
NOTES:

- BUILDING AND PLUMBING CONSTRUCTION SHALL COMPLY WITH BOCA BUILDING CODES.
- ELECTRICAL CONSTRUCTION SHALL COMPLY WITH NATIONAL ELECTRIC CODE.
- INTERIOR PIPING SHALL BE FLANGED COPPER.
- UNDERGROUND PIPING SHALL BE DUCTILE IRON, CLASS 52 OR PVC, AWWA C-900.
- UNDERGROUND FITTINGS SHALL BE DUCTILE IRON, CLASS 250, WITH MECHANICAL JOINTS.
- ALL PIPING SHALL BE BRACED AND SECURED TO PREVENT MOVEMENT.
- ALL PIPING SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA C653-87
- BOOSTER PUMPS SHALL BE CONTROLLED BY A PRESSURE SWITCH, OPERATING SETTINGS AT 80/60 PSI.
- A PRESSURE SWITCH ON SUCTION PIPING SHALL TURN PUMPS OF, IF INLET PRESSURE DROPS TO 10 PSI.



SECTION A-A
NOT TO SCALE

ELECTRICAL NOTES:

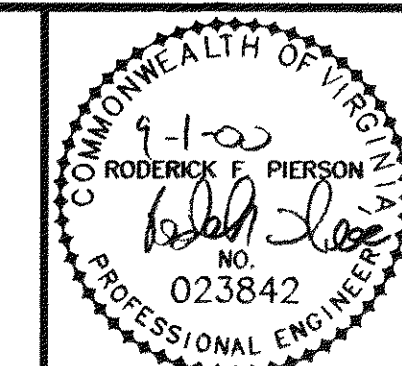
- THE PUMP STATION SHALL BE EQUIPPED WITH AN WELL X-TROL PRE-PRESSURIZED HYDRO PNEUMATIC TANK, MODEL WX-454 (2)
- AN ELECTRODE TRANSFER SWITCH SHALL BE PROVIDED TO ALLOW THE CONNECTION OF A GENERATOR.
- HOOR RUN METERS SHALL BE REQUIRED FOR EACH PUMP MOTOR.
- ISOLATION VALVES SHALL BE REQUIRED BETWEEN THE CONNECTION TO THE PIPING AND ALL GAUGES AND ALL OTHER SMALLER DIAMETER TAPS.
- BLEEDER VALVES (PETCOCKS) SHALL BE PROVIDED ON ALL PUMP DISCHARGE LINES.
- PUMP SHUTOFF CONTROLS (HIGH LEVEL PRESSURE SWITCH) WITH MANUAL RESET IS REQUIRED FOR EACH PUMP WHEN DISCHARGE EXCEEDS 90 PSI UNLESS OTHERWISE APPROVED BY THE UTILITY DIRECTOR.

- ALL PUMPS SHALL BE CONTROLLED BY STARTERS WITH INDIVIDUAL HOA SWITCHES.
- STARTERS SHALL BE SIZED ONE SIZE LARGER THAN HORSEPOWER REQUIRED. HEATERS SHALL BE SIZED FOR ACTUAL CURRENT LOAD.
- ALL CONTROL CIRCUITS SHALL BE 120 VOLT.
- ELECTRICAL SERVICE SHALL BE PROVIDED WITH LIGHTNING ARRESTERS.
- ELECTRICAL PANEL SHALL HAVE A MINIMUM OF 20 CIRCUITS.
- ALL ELECTRICAL WIRING SHALL BE PLACED IN CONDUIT.
- WATER PUMP STATIONS SHALL BE CONSIDERED A WET LOCATION FOR INTERPRETATION OF THE NATIONAL ELECTRICAL CODE REQUIREMENTS.
- ALL RECEPTACLES AND SWITCHES SHALL HAVE A MINIMUM 20-AMP RATING.
- AT LEAST ONE 20-AMP CIRCUIT EQUIPPED WITH GFI PROTECTION SHALL BE PROVIDED.
- ALL ELECTRICAL EQUIPMENT AND PANELS SHALL BE MANUFACTURED UNITS WITH UL LISTING AND SHALL INCLUDE THE MANUFACTURER'S WARRANTY.

PIERSON ENGINEERING AND SURVEYING
RODERICK F. PIERSON
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1332 ROANOKE ROAD
DALEVILLE, VIRGINIA 24083
(540)966-3027

REV	DATE	DESCRIPTION	BY	APP
1	09/01/00	PER ROANOKE COUNTY COMMENTS		

WATER BOOSTER PUMP STATION
SCHEMATIC
STONEGATE SUBDIVISION



SCALE: 1" = 30'
COMM. NO. R2001
DATE: APRIL 5, 2000
SHEET 21