

The diagram illustrates a cross-section of a dry storage facility. On the left, a slope is labeled 'DESIGN HIGH WATER (65'-10" STORM ELEV.)'. Below this, two storage areas are identified: '67 C.Y./AC. "DRY" STORAGE' (indicated by a dotted pattern) and '67 C.Y./AC. "WET" STORAGE' (indicated by a cross-hatched pattern). A 'SEDIMENT CLEANOUT POINT ("WET" STORAGE, REDUCED TO 34 C.Y./AC.)' is shown at the base of the wet storage area. A central structure features a 'RISER CREST' and a 'DEWATERING DEVICE'. The top of the structure is marked with 'MIN. 10'' dimensions. On the right, the 'CREST OF EMERGENCY SPILLWAY' is shown. A '65'' dimension is also indicated near the top of the central structure.

A cross-sectional diagram of a wet storage pond. The diagram shows a pond with a riser crest and a dewatering device. Labels include: DESIGN HIGH WATER (25-YR. STORM ELEV.), 67 CY./AC. 'DRY' STORAGE, 67 CY./AC. 'WET' STORAGE, SEDIMENT CLEANOUT POINT, MIN. 2'0", MIN. 3'0", MIN. 1'0", RISER CREST, and DEWATERING DEVICE.

6. EMBANKMENT EXCEEDING 95% DENSITY DEPARTMENTS

7. FIELD DATA ON SOILS TESTS GEOTECHNICAL SUBMITTALS CONSTITUTED DENSITY PERIODIC FAILING AND/OR ACHIEVED

8. ANTI-SLOPE REQUIREMENTS HANDBOOK

9. ALL DIST TOPSOIL

10. THE MIN GRADED

The diagram illustrates a cross-section of a road embankment. At the top left, a layer is labeled 'RUNOFF WATER WITH SEDIMENT'. Below this is a layer of 'SEDIMENT'. The main body of the embankment is composed of 'GRAVEL 12" MIN. DEPTH'. A '16" MIN.' layer is indicated on the left side of the gravel. At the base of the embankment, there is a 'WIRE MESH' layer. The entire structure is supported by a foundation of 'SEDIMENT'.

IP GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER

1. DESIGN OF DETENTION BASINS SHALL CONFORM TO THE REQUIREMENTS OF THE COUNTY OF ROCKHIDE-DRAINAGE STANDARDS (REF. SECTIONS 50302, 50303, AND 50502). THE DESIGN OF THE FACILITY AND PREPARATION OF AS-BUILT PLANS SHALL BE BY A CERTIFIED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE COMMONWEALTH OF VIRGINIA.
2. ACCESS TO THE FACILITY MUST BE PROVIDED IN ACCORDANCE WITH THE COUNTY OF ROCKHIDE DESIGN AND CONSTRUCTION STANDARDS FOR DETENTION PONDS, LATEST EDITION.
3. IF THE FACILITY IS OVER FOUR (4) FEET DEEP, TAKES OVER TWO (2) HOURS TO DRAIN IF THE INTERIOR SLOPE EXCEEDS 3 (4) : 1 (V), PERMANENT FENCING MAY BE REQUIRED. ADDITIONALLY, IF THE FACILITY IS IN A CONGESTED AREA DR WILL IN ANY WAY POSE A HAZARD TO THE GENERAL PUBLIC, FENCING MAY BE REQUIRED. FENCING SHALL BE MINIMUM OF SIX (6) FEET HIGH, A MINIMUM OF STANDARD NINE GAUGE LINK FENCE, AND MUST HAVE ONE OR MORE LOCKING DOUBLE GATES (MINIMUM TEN FEET VIDE) FOR ACCESS.
4. DETENTION PONDS SHALL BE BONDED IN ACCORDANCE WITH THE ROCKHIDE COUNTY BONDING POLICY FOR SUBDIVISION AND SITE DEVELOPMENT. A SEPARATE BOND FOR THE DETENTION FACILITY WILL BE REQUIRED AND ADMINISTERED APART FROM THE SUBDIVISION DEVELOPMENT BOND. REFERENCE ESTIMATE - THIS SHEET.
5. REFERENCE THE COUNTY OF ROCKHIDE DESIGN AND CONSTRUCTION STANDARDS FOR DETENTION PONDS, LATEST EDITION, FOR ACCEPTANCE AND MAINTENANCE OF THE FACILITY. CERTIFIED AS-BUILTS ARE REQUIRED AND MUST INCLUDE:
 - A. DIMENSIONS OF THE FACILITY
 - B. VOLUME @ MAXIMUM DEPTH
 - C. ELEVATIONS OF STRUCTURES, SPILLWAYS, AND TDP
 - D. MATERIALS VERIFICATION INCLUDING RESULTS OF DENSITY TESTS CONDUCTED BY AN INDEPENDENT SOIL TESTING LABORATORY
 - E. LOCATION AND ELEVATION OF BENCHMARK.
6. ONE FOOT MINIMUM FIBERBOARD FOR THE 100 YR WATER SURFACE ELEVATION.

1. SITE PREPARATION SHALL BE IN ACCORDANCE WITH THE COUNTY OF ROCKSDE DESIGN AND CONSTRUCTION STANDARDS FOR DETENTION PONDS, LATEST EDITION.
2. SLOPES STEEPER THAN 3 TO 1 (HORIZONTAL TO VERTICAL) SHALL BE BENCHED OR STEPPED PRIOR TO PLACING FILL ON THEM.
3. ON-SITE FILL MATERIAL OR BORROW FILL MATERIAL MAY BE UTILIZED. FILL MATERIAL SOILS, IN GENERAL:
 - A. SHALL BE COMPACTABLE.
 - B. SHALL BE WITHIN AN ACCEPTABLE RANGE OF MOISTURE CONTENT WHICH IS READILY CONTROLLED.
 - C. SHALL NOT BE HIGHLY SUSCEPTIBLE TO VOLUME CHANGE (SHRINKAGE OR SWELL) OR SETTLEMENT
4. FILL MATERIALS CONTAINING ROCKS LARGER THAN SIX (6) INCHES (15.8 CM) SHALL NOT BE USED. THE UPPERMOST TWO (2) FEET (61 CM) SHALL NOT HAVE ANY ROCK LARGER THAN TWO (2) INCHES (5.1 CM) IN DIAMETER.
5. THE APPROVED FILL SHALL BE PLACED IN EIGHT (8) INCH (20 CM) LODES/LIFTS. EACH LIFT SHALL BE SPREAD IN UNIFORM LAYERS. FILL SOIL SHALL BE UTILIZED ONLY WITHIN A MOISTURE RANGE OF +/- 5% OF THE OPTIMUM MOISTURE CONTENT. COMPACTION OF THE FILL SHALL BE PERFORMED WITH APPROVED EQUIPMENT. COMPACTION OF THE LAYERS SHALL BE CONTINUOUS AND UNIFORM.
6. EMBANKMENT MATERIAL IN FILL AREAS SHALL BE PLACED IN LIFTS NOT EXCEEDING EIGHT (8) INCHES AND SHALL BE COMPACTED TO A MINIMUM 95% DENSITY IN ACCORDANCE WITH SECTION 303 OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS.
7. FIELD DENSITY TESTS ARE TO BE CONDUCTED BY AN INDEPENDENT SOILS TESTING LABORATORY UNDER THE DIRECTION OF A QUALIFIED GEOTECHNICAL ENGINEER. THE RESULTS OF THESE TESTS SHALL BE SUBMITTED TO THE COUNTY OF ROCKSDE WITH AS-BUILT PLANS AS A CONDITION OF ACCEPTANCE. THE ACTIVITY OF THE COUNTY, FIELD DENSITY TESTS, AS DIRECTED BY THE ENGINEER SHALL BE PERFORMED PERIODICALLY TO DETERMINE THE DEGREE OF COMPACTION. ANY AREAS FAILING TO MEET THE ABOVE REQUIREMENTS SHALL BE REWORKED AND/OR RECOMPACTED UNTIL THE REQUIRED DEGREE OF COMPACTION IS ACHIEVED.
8. ANTI-SEEP COLLARS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.
9. ALL DISTURBED AREAS SHALL BE COVERED WITH FOUR (4) INCHES OF TOPSOIL AND SEEDS.
10. THE MINIMUM SLOPE OF THE BASIN /FLOOR SHALL BE ONE (1) PERCENT GRADED TO DRAIN TO THE PRINCIPAL SPILLWAY.

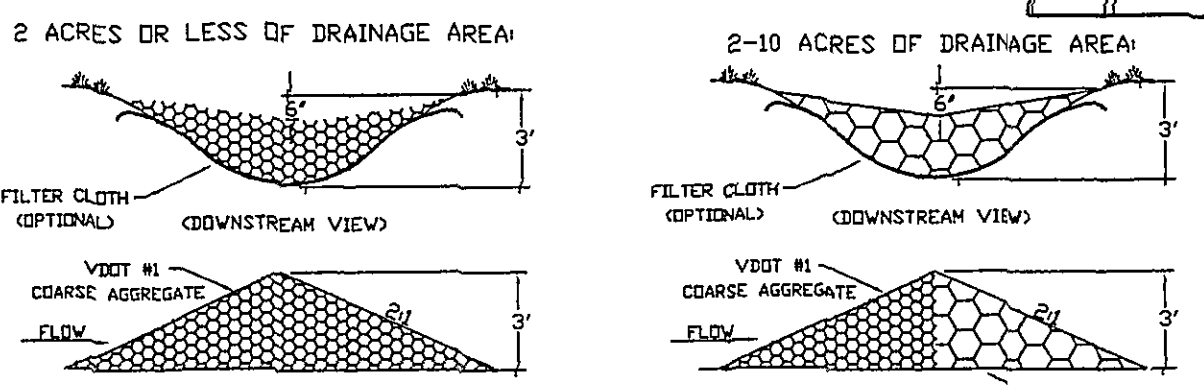
This method of Inlet protection is applicable where heavy flows are expected and where an overflow capability and ease of maintenance are desirable.

This method of Inlet protection is applicable where heavy flows are expected and where an overflow capability and ease of maintenance are desirable.

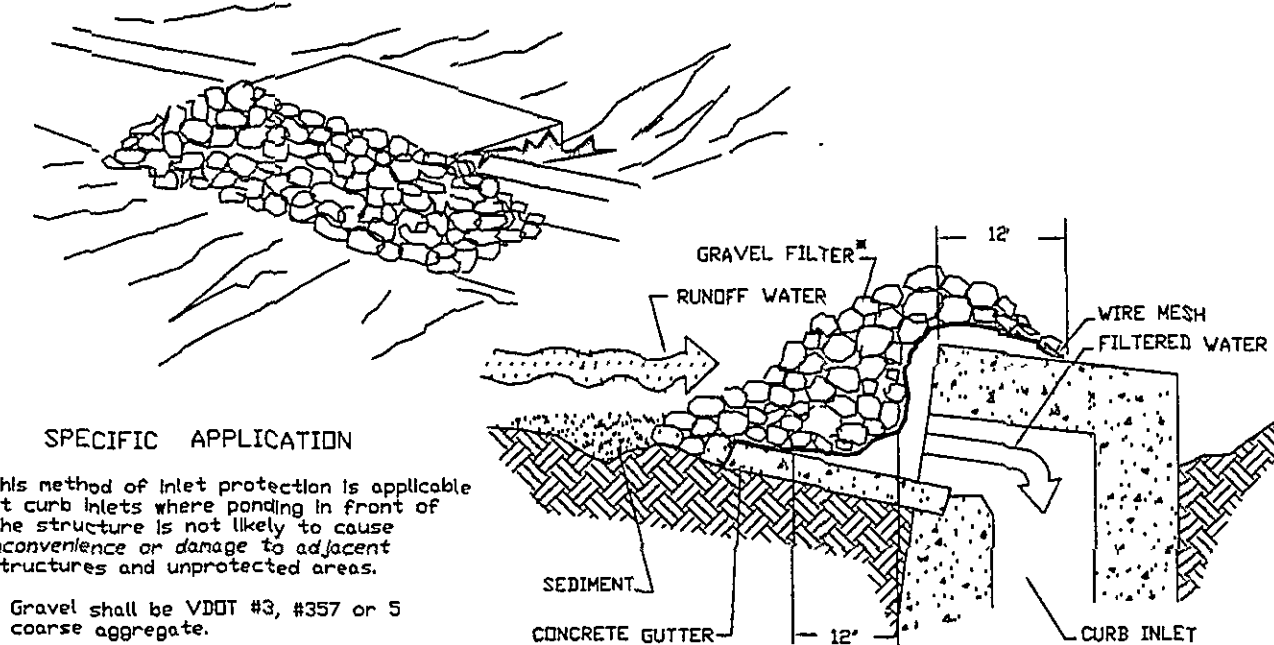
This method of Inlet protection is applicable where heavy flows are expected and where an overflow capability and ease of maintenance are desirable.

This method of Inlet protection is applicable where heavy flows are expected and where an overflow capability and ease of maintenance are desirable.

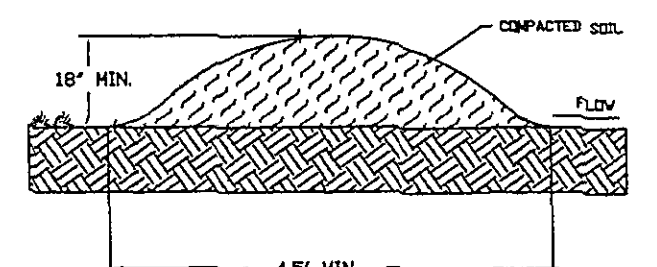
NO.	TITLE	KEY	SYMBOL	NO.	TITLE	KEY	SYMBOL
3.01	SAFETY FENCE	(SAF)		3.20	ROCK CHECK DAMS	(CD)	
3.02	TEMPORARY GRAVEL CONSTRUCTION ENTRANCE	(CE)		3.21	LEVEL SPREADER	(LS)	
3.03	CONSTRUCTION ROAD STABILIZATION	(CRS)		3.22	VEGETATIVE STREAMBANK STABILIZATION	(VSS)	
3.04	STRAW BALE BARRIER	(STB)		3.23	STRUCTURAL STREAMBANK STABILIZATION	(SSS)	
3.05	SILT FENCE	(SF)		3.24	TEMPORARY VEHICULAR STREAM CROSSING	(VSC)	
3.06	BRUSH BARRIER	(BB)		3.25	UTILITY STREAM CROSSING	(USC)	
3.07	STORM DRAIN INLET PROTECTION	(IP)		3.26	DEWATERING STRUCTURE	(DS)	
3.08	CULVERT INLET PROTECTION	(CIP)		3.27	TURBIDITY CURTAIN	(TC)	
3.09	TEMPORARY DIVERSION DIKE	(DD)		3.28	SUBSURFACE DRAIN	(SD)	
3.10	TEMPORARY FILL DIVERSION	(FD)		3.29	SURFACE ROUGHENING	(SR)	
3.11	TEMPORARY RIGHT-OF-WAY DIVERSION	(RWJ)		3.30	TOPSOILING	(TD)	
3.12	DIVERSION	(DV)		3.31	TEMPORARY SEEDING	(TS)	
3.13	TEMPORARY SEDIMENT TRAP	(ST)		3.32	PERMANENT SEEDING	(PS)	
3.14	TEMPORARY SEDIMENT BASIN	(SB)		3.33	SODDING	(SD)	
3.15	TEMPORARY SLOPE DRAIN	(TSD)		3.34	BERMUDA GRASS AND ZDYSIAURASS ESTABLISHMENT	(B/G)	
3.16	PAVED FLUME	(PF)		3.35	MULCHING	(MU)	
3.17	STORMWATER CONVEYANCE CHANNEL	(SCC)		3.36	SOIL STABILIZATION BLANKETS AND MATTING	(SE/ZE)	
3.18	OUTLET PROTECTION	(OP)		3.37	TREES, SHRUBS, VINES AND GROUND COVERS	(VEG)	
3.19	RIPRAP	(RR)		3.38	TREE PRESERVATION AND PROTECTION	(TP)	
				3.39	DUST CONTROL	(DC)	



CD ROCK CHECK DAM



(IP) GRAVEL CURB INLET SEDIMENT FILTER

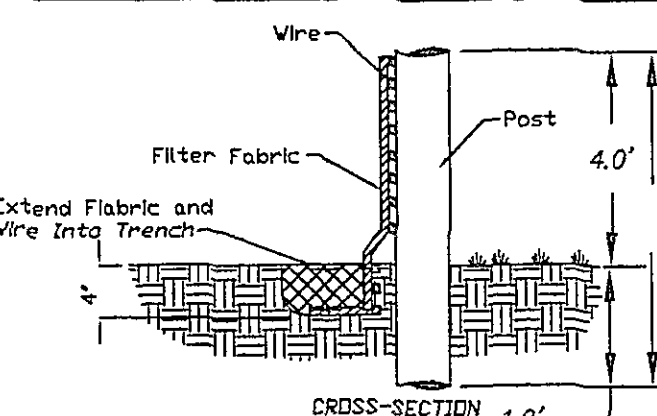


(DD) TEMPORARY DIVERSION DIKE

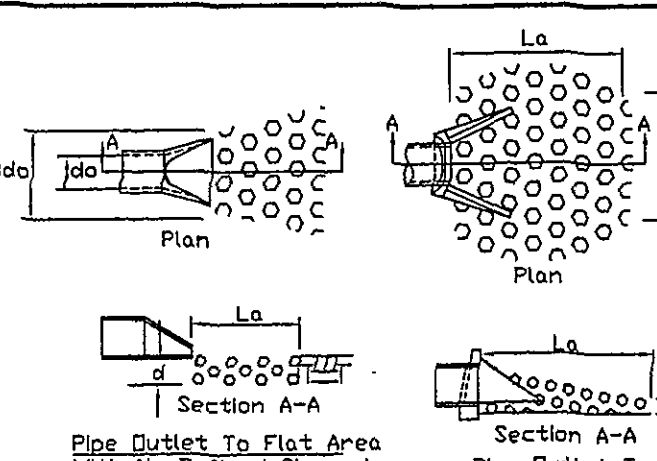
(FD) TEMPORARY FILL DIVERSION

(RWD) TEMPORARY RIGHT-OF-WAY DIVERSION

(DV) DIVERSION



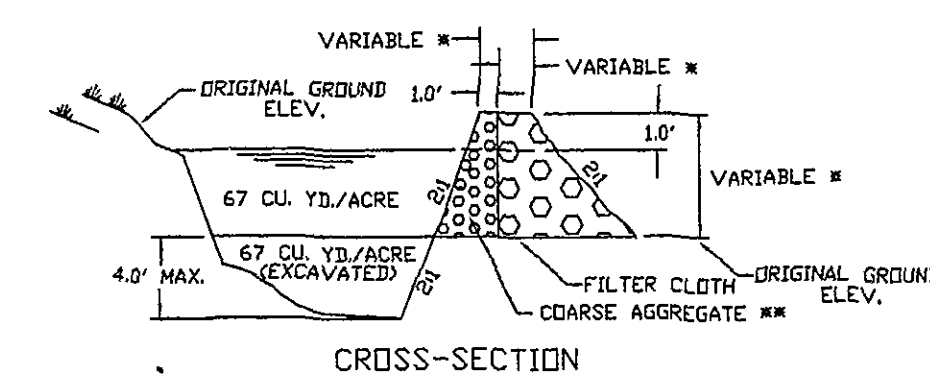
(SF) CONSTRUCTION OF A SILT FENCE



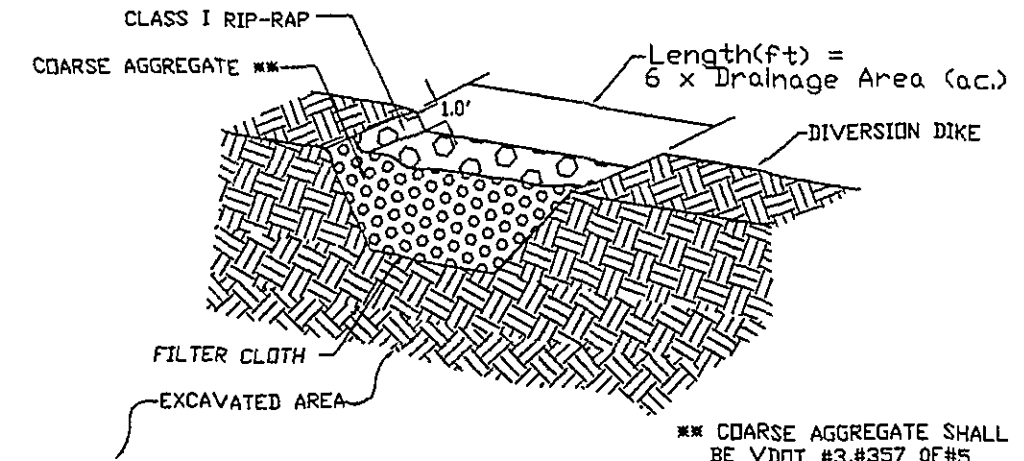
(OP) OUTLET PROTECTION

NOTES

1. Apron lining may be rip-rap, grouted rip-rap, or concrete.
2. La is the length of the rip-rap apron as calculated using plates 1.36d and 1.36e.
3. $d = 1.5$ times the maximum stone diameter, but not less than 6'.



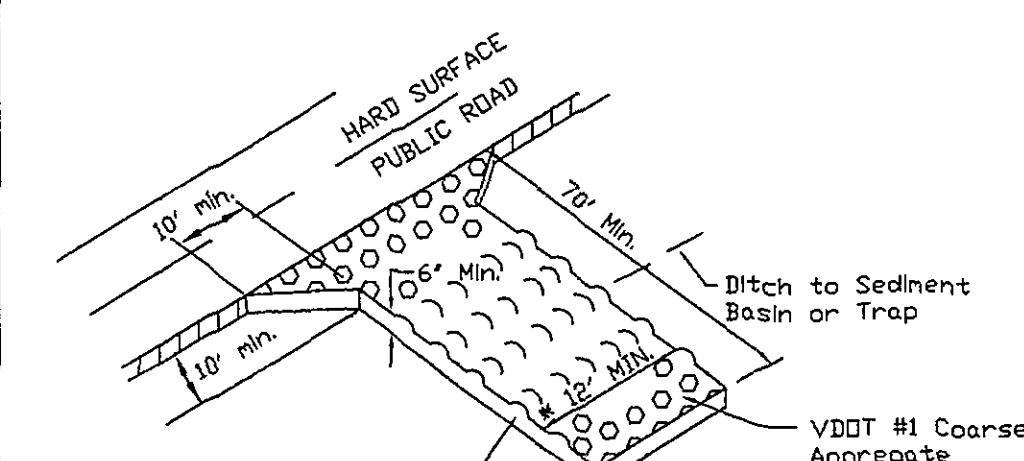
SEE PLATE 3.13-1



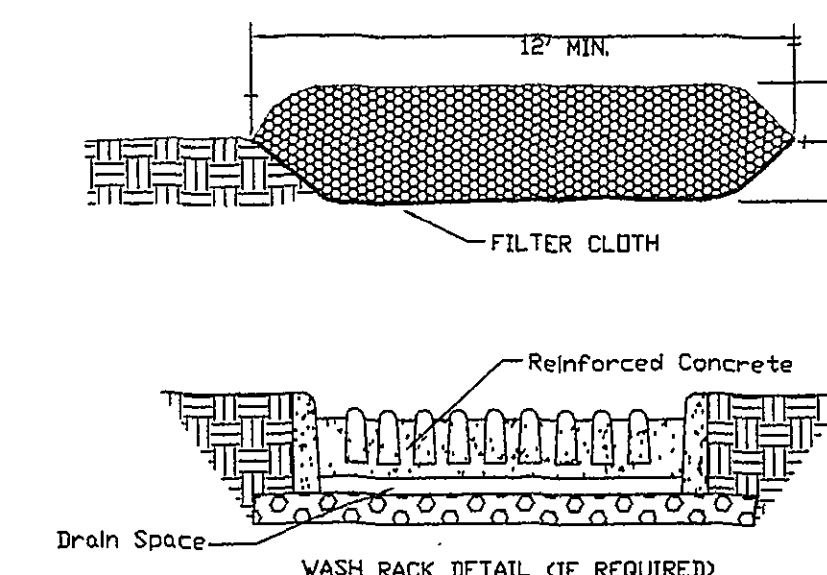
(ST) SEDIMENT TRAP

NOTE:
FOR AREAS LESS THAN 3.0 ACRES. FOR AREAS
LARGER THAN 3.0 ACRES A SEDIMENT BASIN
IS REQUIRED. SEE DETAIL THIS SHEET.

STRUCTURE	DRAINAGE AREA (ACRES)	STORAGE (C.Y.)		WEIR LENGTH (FT.)	WEIR HEIGHT (FT.)	BERM HEIGHT (FT.)
		REQ'D	DESIGN			
1	0.9 AC	118 CY	139 CY	6'	1.5'	2.5'
		WET: 56' (L) x 20' (W) x 2' (D) DRY: 62' (L) x 26' (W) x 1.5' (D)				
2	0.7 AC	96 CY	109 CY	5'	1.5'	2.5'
		WET: 44' (L) x 20' (W) x 2' (D) DRY: 50' (L) x 26' (W) x 1.5' (D)				
3	1.7 AC	229 CY	238 CY	11'	1.5'	2.5'
		WET: 68' (L) x 28' (W) x 2' (D) DRY: 74' (L) x 34' (W) x 2' (D)				
4	1.2 AC	166 CY	180 CY	8'	1.5'	2.5'
		WET: 63' (L) x 23' (W) x 2' (D) DRY: 69' (L) x 29' (W) x 2' (D)				



* MUST EXTEND FULL WIDTH OF INGRESS
& EGRESS OPERATION.



CE TEMPORARY GRAVEL
CONSTRUCTION ENTRANCE

ALL COSTS GIVEN ARE COMPLETE IN PLACE				
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
CONSTRUCTION ENTRANCE	EA	1	\$ 700.00	\$ 700.00
SILT FENCE	LF	650	\$ 3.00	\$ 1,950.00
INLET PROTECTION	EA	6	\$ 75.00	\$ 450.00
TEMPORARY DIVERSION DIKE	LF	1,470	\$ 2.00	\$ 2,940.00
SEDIMENT TRAP	EA	4	\$ 1,000.00	\$ 4,000.00
PERMANENT SEEDING	ACRE	3.0	\$ 1,500.00	\$ 4,500.00
OUTLET PROTECTION	EA	2	\$ 125.00	\$ 250.00
ROCK FILTER DAM	EA	4	\$ 75.00	\$ 300.00
SUB-TOTAL				\$ 15,270.00
10% CONTINGENCY				\$ 1,530.00
TOTAL PROJECT COST				\$ 16,800.00

1. ALL SOIL EROSION & SEDIMENT CONTROL MEASURES SHALL BE ACCOMPLISHED IN STRICT ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS CONTAINED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.
2. THE APPROVING AUTHORITY MAY ADD TO, DELETE, RELOCATE, CHANGE, OR OTHERWISE MODIFY CERTAIN EROSION AND SEDIMENT CONTROL MEASURES WHERE FIELD CONDITIONS ARE ENCOUNTERED THAT WARRANT SUCH MODIFICATIONS.
3. ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN ON THE PLAN SHALL BE PLACED IN ADVANCE OF THE WORK BEING PERFORMED, AS FAR AS PRACTICAL.
4. IN NO CASE DURING CONSTRUCTION SHALL WATER RUNOFF BE DIVERTED OR ALLOWED TO FLOW TO LOCATIONS WHERE ADEQUATE PROTECTION HAS NOT BEEN PROVIDED.
5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LEAVE THE SITE ADEQUATELY PROTECTED AGAINST EROSION, SEDIMENTATION, OR ANY DAMAGE TO ANY ADJACENT PROPERTY AT THE END OF EACH DAY'S WORK.
6. FOR THE EROSION CONTROL KEY SYMBOLS SHOWN ON THE PLANS, REFER TO THE VIRGINIA UNIFORM CODING SYSTEM FOR EROSION AND SEDIMENT CONTROL PRACTICES CONTAINED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION. THESE SYMBOLS AND KEYS ARE TO BE UTILIZED ON ALL EROSION CONTROL PLANS SUBMITTED TO ROANOKÉ COUNTY.

TYPE A	TYPE B (SLOPES 3:1 OR STEEPER)
15 FEBRUARY TO 1 FEBRUARY	15 MARCH TO 1 MAY
K-31 FESCUE @ 5 LB / 1000 SF	CROWN VETCH @ 1/2 LB / 1000 SF
BORZY WINTER RYE @ 1/2 LB / 1000 SF	PERENNIAL RYEGRASS @ 1/2 LB / 1000 SF
	RED TOP @ 1/8 LB / 1000 SF
1 FEBRUARY TO 1 JUNE	15 AUGUST TO 1 OCTOBER
K-31 FESCUE @ 5 LB / 1000 SF	CROWN VETCH @ 1/2 LB / 1000 SF
ANNUAL RYE @ 1/2 LB / 1000 SF	PERENNIAL RYEGRASS @ 1/2 LB / 1000 SF
1 JUNE TO 1 SEPTEMBER	RED TOP @ 1/8 LB / 1000 SF
K-31 FESCUE @ 5 LB / 1000 SF	
GERMAN MILLET @ 1/2 LB / 1000 SF	
1 SEPTEMBER TO 15 OCTOBER	
K-31 FESCUE @ 5 LB / 1000 SF	
ANNUAL RYE @ 1/2 LB / 1000 SF	
LIME: 140 LB / 1000 SF PULVERIZED AGRICULTURAL LIMESTONE	
FERTILIZER: 5-20-10 @ 25 LB / 1000 SF	
38-0-0 @ 7 LB / 1000 SF	
MULCH: IF REQUIRED, SHALL BE USED OVER ALL SEEDED AREAS AND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 1.75 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.	
SOIL CONDITIONING: INCORPORATION OF LIME AND FERTILIZER, SELECTION OF CERTIFIED SEED, MULCHING, MAINTENANCE OF NEW SEED BEDS, AND RESEEDING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE VIRGINIA SOIL EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION. ADDITIONAL SEEDING TO BE PERFORMED AS REQUIRED BY THE INSPECTOR.	
SEED APPLICATION: APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, MULTIPACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRIABLE, SEEDBED. MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH.	
TOTAL DISTURBED AREA = 5.24 AC.	

TOTAL DISTURBED AREA = 5.24 AC

1	ENGR. & INSPEC.	04-10-93
2	ENGR. & INSPEC.	08-05-93
3	ENGR. & INSPEC.	10-27-93
4		
5		
6		
NO.	REVISIONS	DATE

DATE:	11/02/93
SCALE:	NO SCALE
DRAWING BY:	CLN,AF
DESIGNED BY:	G:\CAD\DETAILS\EROSION\EROSION\
APPROVED BY:	GWS,III

COMM. No.: 2003-332

SHEET
11
OF
11