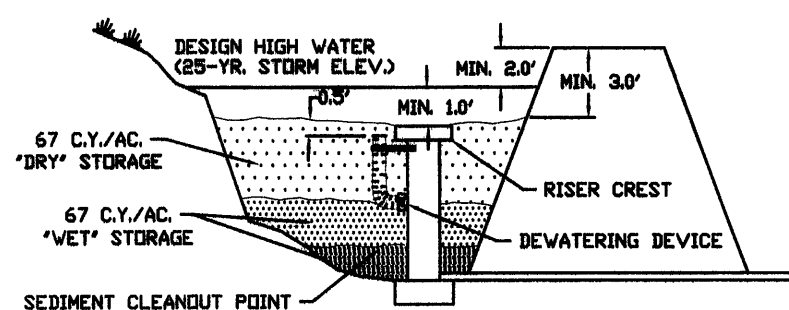


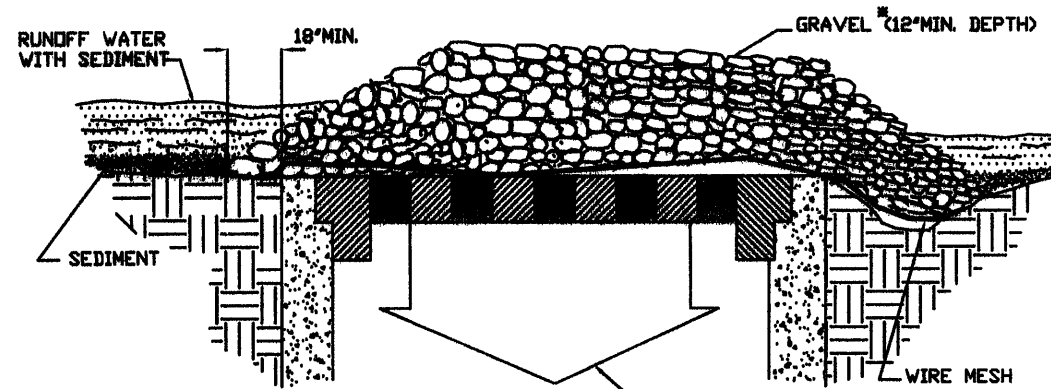
The diagram illustrates a spillway cross-section. Key features include:
 

- DESIGN HIGH WATER (22-YR. STORM ELEV.)**: Indicated by a dashed line at the top left.
- MIN. 1'0"**: Two vertical dimension lines indicating minimum clearances above the crest and riser crest.
- CREST OF EMERGENCY SPILLWAY**: The top horizontal edge of the spillway structure.
- 0'5"**: A vertical dimension line indicating the height of the riser crest above the dewatering device.
- C.Y./AC. STORAGE**: The volume of water stored above the design high water level.
- 67 C.Y./AC. STORAGE**: The volume of water stored between the design high water level and the riser crest.
- 1'4" STORAGE REDUCED TO 34 C.Y./ACRE**: The volume of water stored below the riser crest, which is reduced to 34 C.Y./ACRE when the dewatering device is in operation.
- RISER CREST**: The vertical structure that allows water to pass over the spillway.
- DEWATERING DEVICE**: A structure at the base of the riser crest that reduces the storage volume below it.

## DESIGN ELEVATIONS WITH EMERGENCY SPILLWAY



DESIGN ELEVATIONS WITHOUT  
EMERGENCY SPILLWAY  
(RISER PASSES 25-YR. EVENT)



**SPECIFIC APPLICATION**

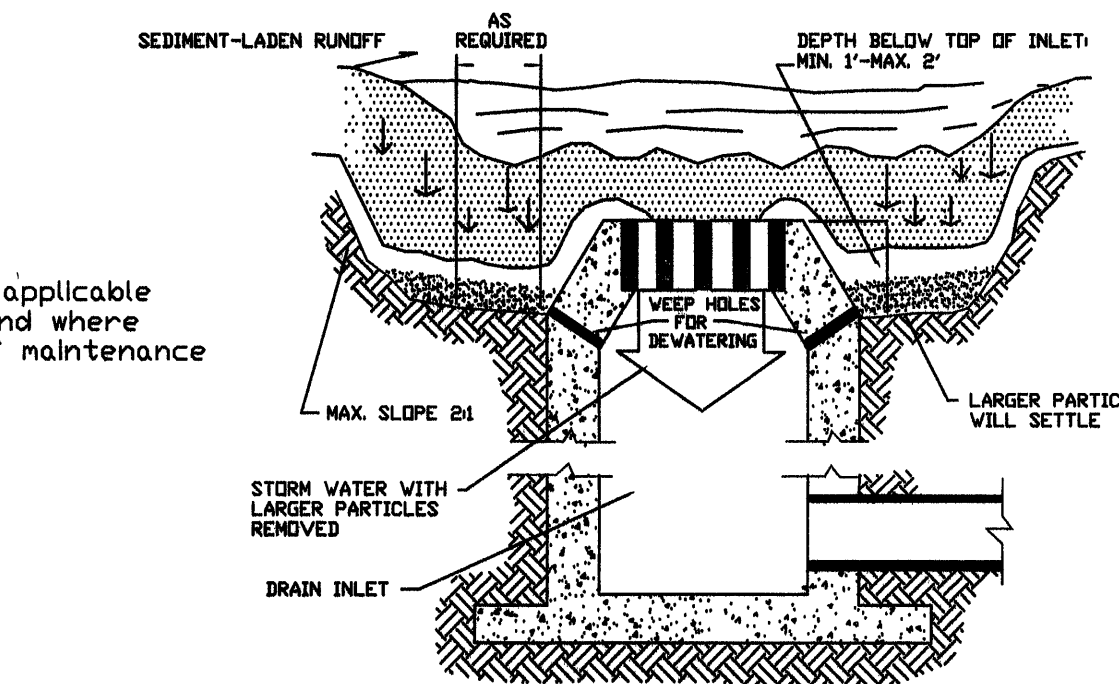
This method of inlet protection is applicable where heavy concentrated flows are expected, but not where ponding around the structure might cause excessive inconvenience or damage to adjacent structures and unprotected areas.

\* Gravel shall be VDOT #3, #357 or #5 coarse aggregate.

1. DESIGN OF DETENTION BASINS SHALL CONFORM TO THE REQUIREMENTS OF THE COUNTY OF ROCKSDE 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 ROCKSDE 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, OR THE INTERIOR SLOPE EXCEEDS 3 (H) 1 (V), PERMANENT FENCING MAY BE REQUIRED, ADDITIONALLY, IF THE FACILITY IS IN A CONGESTED AREA OR WILL IN ANY WAY POSE A HAZARD TO THE GENERAL PUBLIC, FENCING MAY BE REQUIRED. FENCING SHALL BE A MINIMUM OF SIX (6) FEET HIGH, A MINIMUM OF STANDARD NINE GAUGE LINK FENCE, AND MUST HAVE ONE OR MORE LANDING DOUBLE GATES (MINIMUM TEN FEET WIDE) FOR ACCESS.
4. DETENTION POND SHALL BE BONDED IN ACCORDANCE WITH THE ROCKSDE COUNTY BONDING POLICY FOR SUBDIVISION AND SITE DEVELOPMENT. A SEPARATE BOND FOR THE DETENTION FACILITY WILL BE REQUIRED FOR THE FACILITY IN PART OF THE SUBDIVISION DEVELOPMENT BOND. REFERENCE ESTIMATE "THIS SHEET."
5. REFERENCE THE COUNTY OF ROCKSDE 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 TOP
  - D. MATERIALS VERIFICATION INCLUDING RESULTS OF DENSITY TESTS CONDUCTED BY AN INDEPENDENT SOIL TESTING LABORATORY
  - E. LOCATION AND ELEVATION OF BENCHMARK.

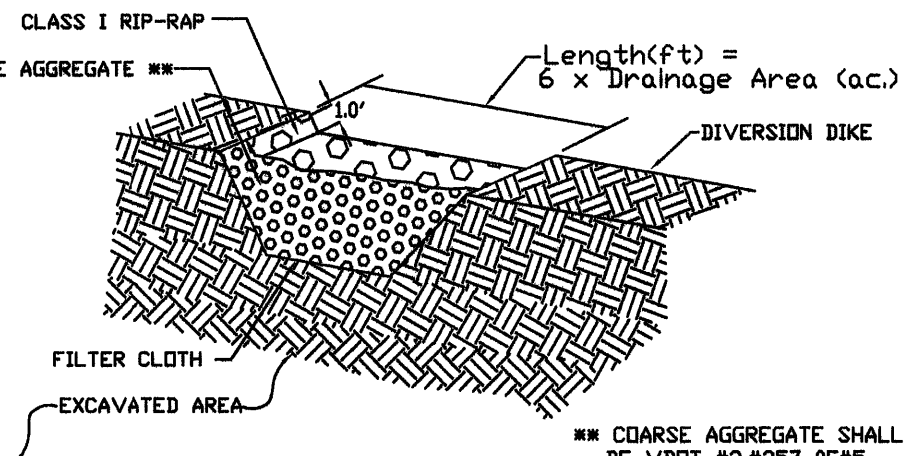
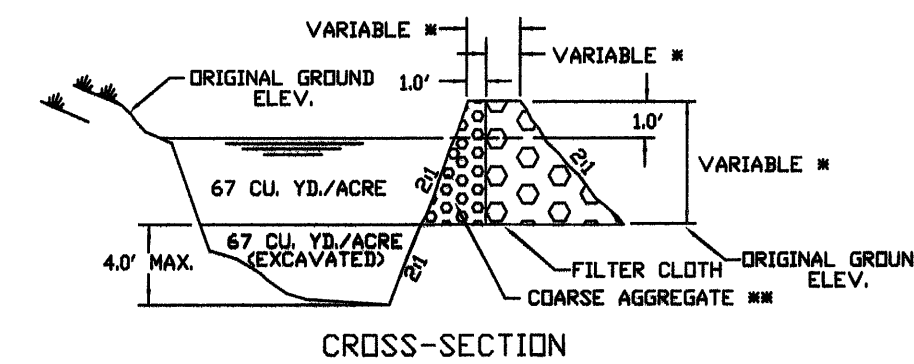
1. SITE PREPARATION SHALL BE IN ACCORDANCE WITH THE COUNTY OF ROANKE DESIGN AND CONSTRUCTION STANDARDS FOR DETENTION POUNDS, LATEST EDITION.
2. SLOPES STEEPER THAN 3 TO 1 (HORIZONTAL TO VERTICAL) SHALL BE BENCHED OR STEPPED PRIOR TO PLACING FILL ON THEM.
3. ON-SITE FILL MATERIAL OR BORROW FILL MATERIAL MAY BE UTILIZED. FILL MATERIAL SOILS, IN GENERAL:
  - A. SHALL BE COMPACTABLE
  - B. SHALL BE WITHIN AN ACCEPTABLE RANGE OF MOISTURE CONTENT
  - C. SHALL BE READILY CONTROLLABLE
  - D. SHALL NOT BE HIGHLY SUSCEPTIBLE TO VOLUME CHANGE (SHRINKAGE OR SWELL) OR SETTLEMENT
4. FILL MATERIALS CONTAINING ROCKS LARGER THAN SIX (6) INCHES (15.2 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) LOOSE 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 SOIL TESTING LABORATORY UNDER THE DIRECTION OF A QUALIFIED GEOTECHNICAL ENGINEER. THE RESULTS OF THESE TESTS SHALL BE SUBMITTED TO THE COUNTY OF ROANKE WITH AS-BUILT PLANS AS A CONDITION OF ACCEPTANCE OF THE FACILITY BY 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 COMPACTED 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 SEEDED.
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.



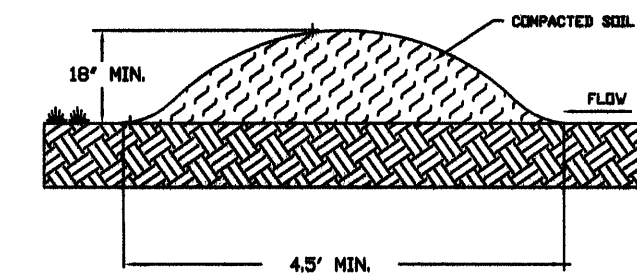
IP EXCAVATED DROP INLET SEDIMENT TRAP


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	(JSC)	
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	(RWI)		3.30	TOPSOILING	(TO)	
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 ZOYSIA GRASS ESTABLISHMENT	(B/M)	
3.16	PAVED FLUME	(PF)		3.35	MULCHING	(MU)	
3.17	STORMWATER CONVEYANCE CHANNEL	(SCC)		3.36	SOIL STABILIZATION BLANKETS AND MATTING	(S/S)	
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)	





(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.

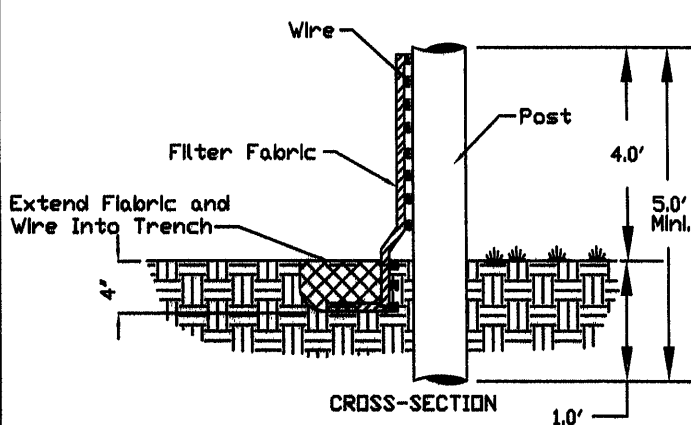
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**DD**  
 TEMPORARY DIVERSION DIKE

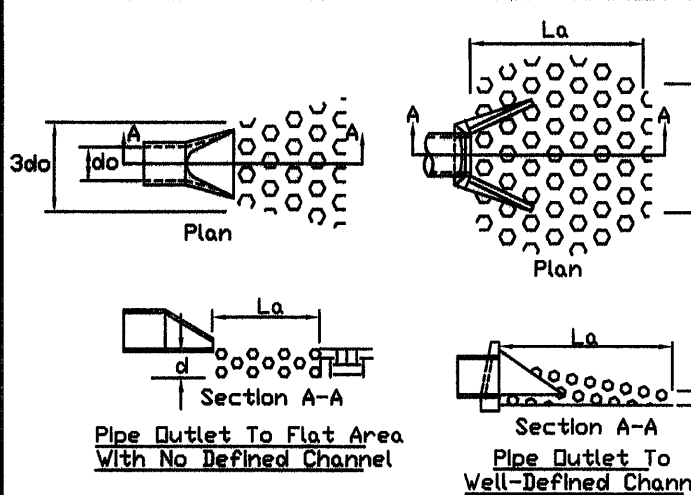

**FD**  
 TEMPORARY FILL DIVERSION


**RWD**  
 TEMPORARY RIGHT-OF-WAY  
 DIVERSION


**DV**  
 DIVERSION



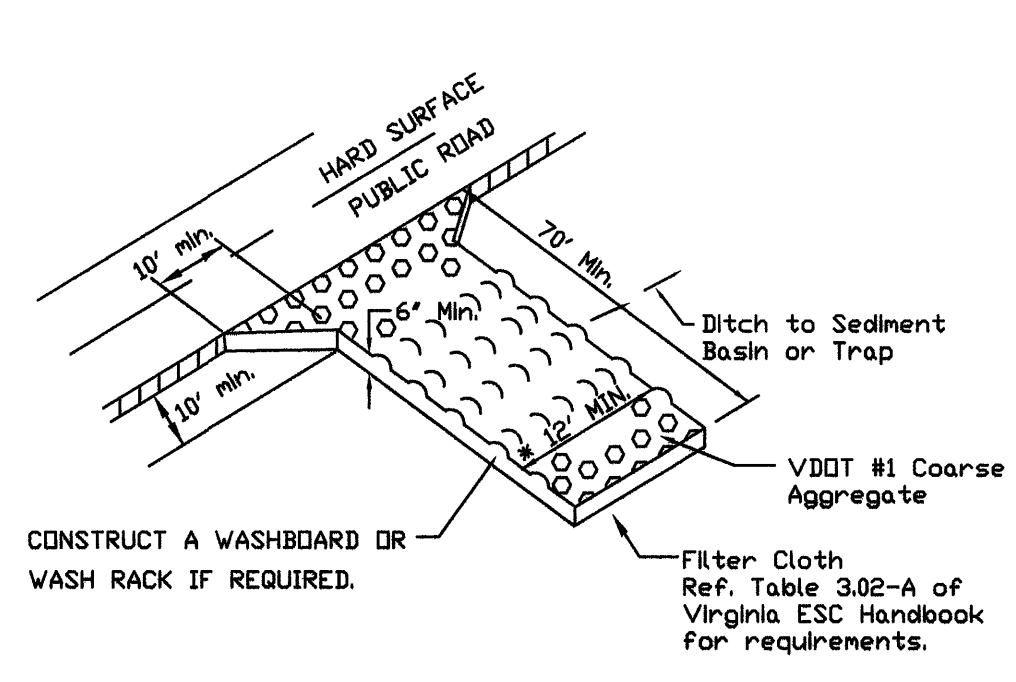
(SF) CONSTRUCTION OF A SILT FENCE



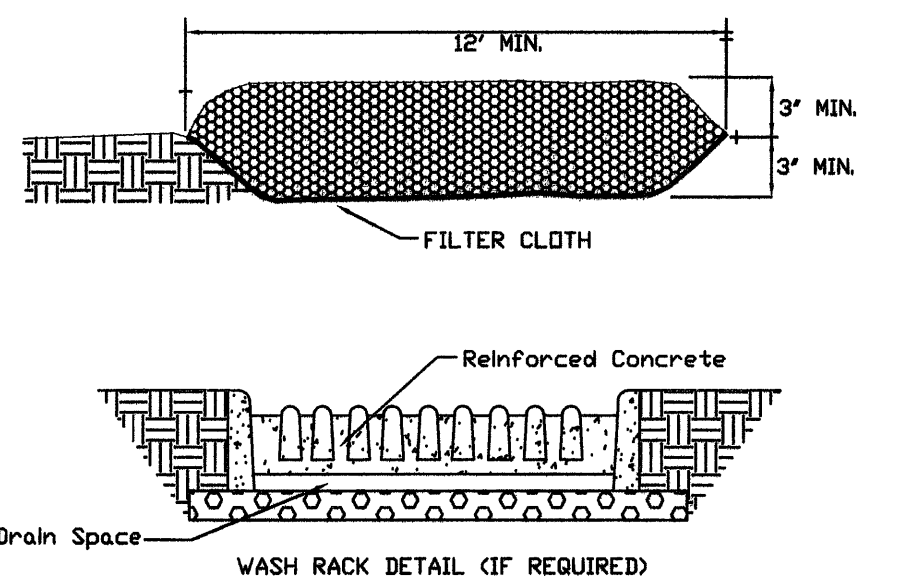
**(OP) OUTLET PROTECTION**

**NOTES**

1. Apron lining may be rip-rap, grouted rip-rap, or concrete.
2.  $L_a$  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'.



\* 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	\$800.00	\$800.00
SILT FENCE	LF	500	\$3.00	\$1,500.00
INLET PROTECTION	EA	11	\$100.00	\$1,100.00
CULVERT INLET PROTECTION	EA	1	\$100.00	\$100.00
TEMPORARY DIVERSION DIKE	LF	1,250	\$2.00	\$2,500.00
SEDIMENT TRAP	EA	1	\$700.00	\$700.00
CHECK DAM	EA			
PERMANENT SEEDING	ACRE	2.7	\$1,500.00	\$4,050.00
OUTLET PROTECTION	EA			
SEDIMENT BASIN	EA			
SUB-TOTAL				\$10,750.00
10% CONTINGENCY				\$1,075.00
TOTAL PROJECT COST				\$11,825.00

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 SHALL BE UTILIZED IN ALL EROSION CONTROL PLANS SUBMITTED TO ROANOKÉ COUNTY.

<u>TYPE A</u>	<u>TYPE B (SLOPES 31 OR STEEPER)</u>
15 OCTOBER 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	
K-31 FESCUE @ 5 LB / 1000 SF	15 AUGUST TO 1 OCTOBER
ANNUAL RYE @ 1/2 LB / 1000 SF	CROWN VETCH @ 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 4.05 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 SEEDLINGS, 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,  
 CULTIPACK SEEDER, OR HYDROSEEDER ON A FIRM, FRIABLE, SEEDBED.  
 MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH.

TOTAL DISTURBED AREA = 3.1 AC

WVWA ID# 6VKH27