

ALL COSTS GIVEN ARE COMPLETE IN PLACE				
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
CLEARING & GRUBBING	LS		\$	\$
EXCAVATION	CY	450	3	1350.00
EMBANKMENT	CY	50	3	150.00
FENCING	LF	320	5	1600.00
STRUCTURES	EA	1	2250	2250.00
ACCESS ROAD				
AS—BUILTS	EA	1	1500	1500.00
SUB—TOTAL				\$ 6850.00
10% CONTINGENCY				\$ 685.00
TOTAL PROJECT COST				\$ 7535.00

Diagram illustrating the Riser Crest with Emergency Spillway. The diagram shows a cross-section of the structure with various elevations and storage areas.

**Key Elevations and Dimensions:**

- RISER = 48" RCP
- BARREL = 54.75 1F-24" RCP @ 1.833
- 1 2'x2' COLLAR REQUIRED
- TRASH RACK = 72" HEIGHT = 16"
- Design High Water (25-YR. STORM ELEV.) = EL=114.05
- Riser Crest = EL=113.95
- DEMATERING DEVICE = EL=112.2
- SEDIMENT CLEANTUP POINT (WET STORAGE REDUCED TO 34 C.Y./ACRES) = EL=111.25
- SEE DETAIL SHEET 3 OF 6

**Storage Areas:**

- 67 C.Y./AC. "DRY" STORAGE
- 67 C.Y./AC. "WET" STORAGE

**Dimensions:**

- MIN. 1.0'
- MIN. 1.0'
- MIN. 3.0'
- 0.5'

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

1. SITE PREPARATION SHALL BE IN ACCORDANCE WITH THE COUNTY OF ROCKGEE DESIGN AND CONSTRUCTION STANDARDS FOR DETENTION POND, 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, 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 (15.2 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  $\pm 7\%$  -  $5\%$  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 ROCKGEE WITH AS-BUILT PLANS AS CONDITION OF ACCEPTANCE OF THE FACILITY BY THE COUNTY. FIELD DENSITY TESTS, AS DIRECTED BY THE ENGINEER SHALL BE PERFORMED PERIODICALLY TO DETERMINE THE COMPACTION EQUIPMENT. ANY AREAS FAILING TO MEET THE ABOVE REQUIREMENTS SHALL BE REWORKED AND/OR RECOMPACTED UNTIL THE REQUIRED DEGREE OF COMPACTION IS ACHIEVED.
8. ANTI-SLEEP 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.
11. ALL WORK DONE IN OR AROUND THE EXISTING HOLE IS TO BE COORDINATED WITH THE VIRGINIA DEPARTMENT OF TRANSPORTATION AND IS TO BE IN ACCORDANCE WITH THEIR STANDARDS.

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

**ACRES OR LESS OF DRAINAGE AREA:**

Diagram showing a cross-section of a rock check dam for 1 acre or less of drainage area. The structure is a trapezoidal pile of rocks with a filter cloth (optional) on top. The downstream view shows a 6' wide top and a 3' high structure. The upstream view shows a 6' wide top and a 3' high structure with a 2' wide base. The filter cloth is labeled "FILTER CLOTH (OPTIONAL)". The structure is labeled "VOOT #1 COARSE AGGREGATE". The flow direction is indicated by an arrow labeled "FLOW".

**2-10 ACRES OF DRAINAGE AREA:**

Diagram showing a cross-section of a rock check dam for 2-10 acres of drainage area. The structure is a trapezoidal pile of rocks with a filter cloth (optional) on top. The downstream view shows a 6' wide top and a 3' high structure. The upstream view shows a 6' wide top and a 3' high structure with a 2' wide base. The filter cloth is labeled "FILTER CLOTH (OPTIONAL)". The structure is labeled "VOOT #1 COARSE AGGREGATE". The flow direction is indicated by an arrow labeled "FLOW". The structure is also labeled "CLASS 1 RIPRAP".

**(CD) ROCK CHECK DAM**

**SPECIFIC APPLICATION**

This method of inlet protection is applicable at curb inlets where ponding in front of the structure is not likely to cause inconvenience or damage to adjacent structures and unprotected areas.

\* Gravel shall be VDOT #3, #57 or 5 coarse aggregate.

**(IP) GRAVEL CURB INLET SEDIMENT FILTER**

Diagram showing a cross-section of a gravel curb inlet sediment filter. The structure consists of a concrete gutter, a gravel filter, a wire mesh, and a curb inlet. The gravel filter is 12" high. The wire mesh is 12" high. The curb inlet is 12" high. The structure is labeled "GRAVEL FILTER", "RUNOFF WATER", "WIRE MESH", "FILTERED WATER", "SEDIMENT", "CONCRETE GUTTER", and "CURB INLET". The flow direction is indicated by an arrow labeled "FLOW".

**(IP) EXCAVATED DROP INLET SEDIMENT TRAP**

Diagram showing a cross-section of an excavated drop inlet sediment trap. The structure consists of a storm water inlet, a sediment trap, and a drain inlet. The sediment trap is 12" high. The storm water inlet is 12" high. The drain inlet is 12" high. The structure is labeled "SEDIMENT-LADEN RUNOFF", "AS REQUIRED", "DEPTH BELOW TOP OF INLET: MIN. 1'-MAX. 2'", "MAX. SLOPE 2:1", "WEEP HOLES FOR DEWATERING", "LARGER PARTICLES WILL SETTLE", "STORM WATER WITH LARGER PARTICLES REMOVED", and "DRAIN INLET". The flow direction is indicated by an arrow labeled "FLOW".

[illegible]

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 ROANOKE COUNTY.

<u>TYPE A</u>	<u>TYPE B (SLOPES 3:1 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	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	
<p>LIME: 140 LB / 1000 SF FULVERIZED AGRICULTURAL LIMESTONE</p> <p>FERTILIZER: 5-20-10 • 25 LB / 1000 SF 38-0-0 • 7 LB / 1000 SF</p> <p>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.</p> <p>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.</p> <p>SEED APPLICATION: APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CUMMACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRAGILE, SEEDBED. MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH.</p>	
<p>TOTAL DISTURBED AREA = 3.5AC. = 152,460 SQ. FT.</p>	