SYMBOL TITLE SYMBOL TITLE EROSION-SILTATION CONTROL STORMWATER MANAGEMENT GENERAL NOTES COST ESTIMATE COST ESTIMATE ROCK CHECK DAMS SAFETY FENCE**.** TEMPORARY GRAVEL DESIGN OF DETENTION BASINS SHALL CONFORM TO THE REQUIREMENTS ALL COSTS GIVEN ARE COMPLETE IN PLACE LEVEL SPREADER LL COSTS GIVEN ARE COMPLETE IN PLACE OF THE COUNTY OF ROANOKE DRAINAGE STANDARDS (REF. SECTIONS CONSTRUCTION ENTRANCE 503.02, 503.03, AND 505.02). THE DESIGN OF THE FACILITY AND VEGETATIVE STREAMBANK CONSTRUCTION ROAD QUANTITY UNIT COST TOTAL COST DESCRIPTION UNIT PREPARATION OF AS-BUILT PLANS SHALL BE BY A CERTIFIED - ORIGINAL GROUND 1,0' --- -TOTAL COST UNIT COST DESCRIPTION QUANTITY PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE COMMONWEALTH STABILIZATION OF VIRGINIA TRUCTURAL STREAMBANK CONSTRUCTION EΑ 280.00 280.00 1200.00 3.04 VARIABLE * 600 2.00 STRAW BALE BARRIER ENTRANCE EXCAVATION CY STABILIZATION 67 CU. YD./ACRE ACCESS TO THE FACILITY MUST BE PROVIDED IN ACCORDANCE WITH THE TEMPORARY VEHICULAR 1440.00 3.00 SILT FENCE 480 COUNTY OF ROANOKE DESIGN AND CONSTRUCTION STANDARDS FOR 1200.00 SILT FENCE 600 2.00 **EMBANKMENT** CY STREAM CROSSING DETENTION PONDS, LATEST EDITION. 675.00 75.00 NLET PROTECTION EΑ - COARSE AGGREGATE ** (2000) UTILITY STREAM CROSSING 12.00 4500.00 BRUSH BARRIER 375 FENCING 3. IF THE FACILITY IS OVER FOUR (4) FEET DEEP, TAKES OVER TWO (2) CROSS-SECTION HOURS TO DRAIN. OR THE INTERIOR SLOPE EXCEEDS 3 (H): 1 (V), STORM DRAIN 200.00 400.00 CHECK DAM ĒΑ PERMANENT FENCING MAY BE REQUIRED, ADDITIONALLY, IF THE DEWATERING STRUCTURE INLET PROTECTION FACILITY IS IN A CONGESTED AREA OR WILL IN ANY WAY POSE A * SEE PLATE 3.13-1 HAZARD TO THE GENERAL PUBLIC, FENCING MAY BE REQUIRED. 40.00 3200.00 1000 SF PERMANENT SEEDING FENCING SHALL BE A MINIMUM OF SIX (6) FEET HIGH, A MINIMUM OF TURBIDITY CURTAIN 3.08 CULVERT INLET PROTECTION CLASS | RIP-RAP ' STANDARD NINE GAUGE LINK FENCE, AND MUST HAVE ONE OR MORE LOCKING DOUBLE GATES (MINIMUM TEN FEET WIDE) FOR ACCESS. 1000.00 250.00 OUTLET PROTECTION COARSE AGGREGATE ** --SUBSURFACE DRAIN TEMPORARY DIVERSION DIKE 6 x Drainage Area (ac.) ____ CONSTRUCTION ROAD 4. DETENTION PONDS SHALL BE BONDED IN ACCORDANCE WITH THE ROANOKE -DIVERSION DIKE 7000.00 2.00 3500 SR) TEMPORARY FILL DIVERSION SURFACE ROUGHENING COUNTY BONDING POLICY FOR SUBDIVISION AND SITE DEVELOPMENT. STABILIZATION A SEPARATE BOND FOR THE DETENTION FACILITY WILL BE REQUIRED AND ADMINISTERED APART FROM THE SUBDIVISION DEVELOPMENT BOND. EMPORARY RIGHT-OF-WAY TOPSOILING 10 6900.00 SUB-TOTAL REFERENCE ESTIMATE - THIS SHEET. DIVERSION TEMPORARY SEEDING (TS) 690.00 DIVERSION REFERENCE THE COUNTY OF ROANOKE DESIGN AND CONSTRUCTION 10% CONTINGENCY STANDARDS FOR DETENTION PONDS, LATEST EDITION, FOR ACCEPTANCE AND MAINTENANCE OF THE FACILITY. CERTIFIED AS-BUILTS ARE FILTER CLOTH PS ----3.13 | TEMPORARY SEDIMENT TRAP PERMANENT SEEDING 7590.00 TOTAL PROJECT COST REQUIRED AND MUST INCLUDE: -EXCAVATED AREA -A. DIMENSIONS OF THE FACILITY ** COARSE AGGREGATE SHALL SODDING 50 3.14 TEMPORARY SEDIMENT BASIN BE VDOT #3,#357 OF#5 B. VOLUME @ MAXIMUM DEPTH BERMUDA GRASS AND B OR TEMPORARY SLOPE DRAIN ZOYSIAURASS ESTABLISHMENT C. ELEVATIONS OF STRUCTURES, SPILLWAYS, AND TOP -----(M)-----(ST) SEDIMENT TRAP 13995.00 SUB-TOTAL MATERIALS VERIFICATION INCLUDING RESULTS OF DENSITY TESTS - (MU) ----MULCHING 3.16 PAVED FLUME CONDUCTED BY AN INDEPENDENT SOIL TESTING LABORATORY 100 TO 10 STORMWATER CONVEYANCE SOIL STABILIZATION 1399.50 E. LOCATION AND ELEVATION OF BENCHMARK. TREAT. \ TREAT. 10% CONTINGENCY BLANKETS AND MATTING CHANNEL SEDIMENT BASIN SCHEMATIC TREES, SHRUBS, VINES 15394.50 TOTAL PROJECT COST **→** (VEG) -OUTLET PROTECTION For areas less than 3.0 acres. For areas larger ELEVATIONS 6. ONE FOOT MINIMUM FREEBOARD REQUIRED FOR THE 100 YR WATER AND GROUND COVERS than 3.0 acres, A SEDIMENT BASIN, is required Please see Va' ESC manual for design. TREE PRESERVATION (P) RIPRAP 3.19 VIII TIM AND PROTECTION Enmnoering & DUST CONTROL anodzagani CONSTRUCTION NOTES 2 ACRES OR LESS OF DRAINAGE AREA: 2-10 ACRES OF DRAINAGE AREA: TEMPORARY SEDIMENT TRAP DATA GENERAL EROSION AND SEDIMENT CONTROL NOTES BERM HEIGHT STORAGE (C.Y.) CREST OF EMERGENCY DESIGN HIGH WATER 1. SITE PREPARATION SHALL BE IN ACCORDANCE WITH THE COUNTY OF SPILLWAY REQ'D DESIGN 5-YR. STORM ELEV.) (ACRES) ROANOKE DESIGN AND CONSTRUCTION STANDARDS FOR DETENTION PONDS, FILTER CLOTH I. ALL SOIL EROSION & SEDIMENT CONTROL MEASURES SHALL BE ACCOMPLISHED (OPTIONAL) (DOWNSTREAM VIEW) 67 C.Y. JAC. (OPTIONAL) (DOWNSTREAM VIEW) IN STRICT ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS CONTAINED "DRY" STORAGE . RISER CREST 2. SLOPES STEEPER THAN 3 TO 1 (HORIZONTAL TO VERTICAL) SHALL BE IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION. BENCHED OR STEPPED PRIOR TO PLACING FILL ON THEM. 67 C.Y./AC COARSE AGGREGATE COARSE AGGREGATE THE APPROVING AUTHORITY MAY ADD TO, DELETE, RELOCATE, CHANGE, OR DEWATERING DEVICE OTHERWISE MODIFY CERTAIN EROSION AND SEDIMENT CONTROL MEASURES WHERE ---- 4.5' MIN. -----3. ON-SITE FILL MATERIAL OR BORROW FILL MATERIAL MAY BE UTILIZED. FIELD CONDITIONS ARE ENCOUNTERED THAT WARRANT SUCH MODIFICATIONS. SEDIMENT CLEANOUT POINT . FILL MATERIAL SOILS, IN GENERAL: . ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN ON THE PLAN ("WET" STORAGE REDUCED SHALL BE PLACED IN ADVANCE OF THE WORK BEING PERFORMED, AS FAR AS TO 34 C.Y./ACRE) SHALL BE COMPACTABLE (CD) ROCK CHECK DAM B. SHALL BE WITHIN AN ACCEPTABLE RANGE OF MOISTURE CONTENT TEMPORARY DIVERSION DIKE PRACTICAL WHICH IS READILY CONTROLLED 4. IN NO CASE DURING CONSTRUCTION SHALL WATER RUNOFF BE DIVERTED OR DESIGN ELEVATIONS WITH C. SHALL NOT BE HIGHLY SUSCEPTIBLE TO VOLUME CHANGE ALLOWED TO FLOW TO LOCATIONS WHERE ADEQUATE PROTECTION HAS NOT BEEN EMERGENCY SPILLWAY (SHRINKAGE OR SWELL) OR SETTLEMENT TEMPORARY FILL DIVERSION 5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LEAVE THE SITE ADEQUATELY 4. FILL MATERIALS CONTAINING ROCKS LARGER THAN SIX (6) INCHES PROTECTED AGAINST EROSION, SEDIMENTATION, OR ANY DAMAGE TO ANY ADJACENT (15.2 CM) SHALL NOT BE USED. THE UPPERMOST TWO (2) FEET (61 (RWD) PROPERTY AT THE END OF EACH DAY'S WORK. CM) SHALL NOT HAVE ANY ROCK LARGER THAN TWO (2) INCHES (5.1 TEMPORARY RIGHT-OF-WAY . FOR THE EROSION CONTROL KEY SYMBOLS SHOWN ON THE PLANS, REFER TO THE CM) IN DIAMETER. VIRGINIA UNIFORM CODING SYSTEM FOR EROSION AND SEDIMENT CONTROL PRACTICES DIVERSION CONTAINED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION. THESE SYMBOLS AND KEYS ARE TO BE UTILIZED ON ALL EROSION CONTROL 5. THE APPROVED FILL SHALL BE PLACED IN EIGHT (8) INCH (20 CM) PLANS SUBMITTED TO ROANOKE COUNTY. OOSE LIFTS. FACH LIFT SHALL BE SPREAD IN UNIFORM LAYERS FILL SOIL SHALL BE UTILIZED ONLY WITHIN A MOISTURE RANGE OF DIVERSION +/- 5% OF THE OPTIMUM MOISTURE CONTENT. COMPACTION OF THE FILL SHALL BE PERFORMED WITH APPROVED EQUIPMENT. COMPACTION .WRE MESH DESIGN HIGH WATER OF THE LAYERS SHALL BE CONTINUOUS AND UNIFORM. 25-YR. STORM ELEV.) MIN. 2.0' / _O.5' MIN. 1.0' / 6. EMBANKMENT MATERIAL IN FILL AREAS SHALL BE PLACED IN LIFTS NOT 67 C.Y./AC. ... EXCEEDING EIGHT (8) INCHES AND SHALL BE COMPACTED TO A MINIMUM SPECIFIC APPLICATION "DRY" STORAGE 95% DENSITY IN ACCORDANCE WITH SECTION 303 OF THE VIRGINIA . RISER CREST Filter Fabric DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS. This method of inlet protection is applicable at curb inlets where ponding in front of "WET" STORAGE xtend Fiobric and the structure is not likely to cause inconvenience or damage to adjacent 7. FIELD DENSITY TESTS ARE TO BE CONDUCTED BY AN INDEPENDENT structures and unprotected areas. SEDIMENT CLEANOUT POINT SOILS TESTING LABORATORY UNDER THE DIRECTION OF A QUALIFIED GEOTECHNICAL ENGINEER. THE RESULTS OF THESE TESTS SHALL BE * Gravel shall be VDOT #3, #357 or 5 SUBMITTED TO THE COUNTY OF ROANOKE WITH AS-BUILT PLANS AS A PERMANENT SEEDING MIXTURE CONCRETE GUTTER coarse aggregate. Ditch to Sediment CONDITION OF ACCEPTANCE OF THE FACILITY BY THE COUNTY. FIELD DENSITY TESTS, AS DIRECTED BY THE ENGINEER SHALL BE PERFORMED (IP) GRAVEL CURB INLET SEDIMENT FILTER DESIGN ELEVATIONS WITHOUT PERIODICALLY TO DETERMINE THE DEGREE OF COMPACTION. ANY AREAS CROSS-SECTION FAILING TO MEET THE ABOVE REQUIREMENTS SHALL BE REWORKED EMERGENCY SPILLWAY TYPE B (SLOPES 3:1 OR STEEPER) AND/OR RECOMPACTED UNTIL THE REQUIRED DEGREE OF COMPACTION IS (RISER PASSES 25-YR. EVENT) VDOT #1 Coarse 15 OCTOBER TO 1 FEBRUARY 15 MARCH TO 1 MAY Aggregate K-31 FESCUE @ 5 LB / 1000 SF CROWN VETCH @ 1/2 LB / 1000 SF * 10' IF WIRE IS PERENNIAL RYEGRASS @ 1/2 LB / 1000 SF BORZY WINTER RYE @ 1/2 LB / 1000 SF 8. ANTI-SEEP COLLARS SHALL BE INSTALLED IN ACCORDANCE WITH THE CONSTRUCT A WASHBOARD OR USED. RED TOP @ 1/8 LB / 1000 SF REQUIREMENTS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL 6' IF WIRE IS 1 FEBRUARY TO 1 JUNE WASH RACK IF REQUIRED. Ref. Table 3.02-A of HANDBOOK, LATEST EDITION. K-31 FESCUE @ 5 LB / 1000 SF 15 AUGUST TO 1 OCTOBER NOT USED. Virginia ESC Handbook ANNUAL RYE @ 1/2 LB / 1000 SF CROWN VETCH @ 1/2 LB / 1000 SF for requirements. PERENNIAL RYEGRASS @ 1/2 LB / 1000 SF 1 JUNE TO 1 SEPTEMBER 9. ALL DISTURBED AREAS SHALL BE COVERED WITH FOUR (4) INCHES OF RED TOP @ 1/8 LB / 1000 SF K-31 FESCUE @ 5 LB / 1000 SF TOPSOIL AND SEEDED. GERMAN MILLET @ 1/2 LB / 1000 SF * MUST EXTEND FULL WIDTH OF INGRESS (SF) CONSTRUCTION OF A SILT FENCE 1 SEPTEMBER TO 15 OCTOBER 10. THE MINIMUM SLOPE OF THE BASIN "FLOOR SHALL BE ONE (1) PERCENT & EGRESS OPERATION. GRADED TO DRAIN TO THE PRINCIPAL SPILLWAY. K-31 FESCUE @ 5 LB / 1000 SF ANNUAL RYE @ 1/2 LB / 1000 SF DEPTH BELOW TOP OF INLET: SEDIMENT-LADEN RUNOFF _MIN. 1 -MAX, 2* 140 LB / 1000 SF PULVERIZED AGRICULTURAL LIMESTONE .GRAVEL (12"MIN. DEPTH) FERTILIZER: 5-20-10 @ 25 LB / 1000 SF WITH SEDIMENT 38-0-0 @ 7 LB / 1000 SF IF REQUIRED, SHALL BE USED OVER ALL SEEDED AREAS AND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 1.75 OF THE VIRGINIA EROSION MULCH: SPECIFIC APPLICATION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION. - FILTER CLOTH This method of inlet protection is applicable INCORPORATION OF LIME AND FERTILIZER, SELECTION OF CERTIFIED where heavy flows are expected and where SEED, MULCHING, MAINTENANCE OF NEW SEEDLINGS, AND RESEEDING an overflow capability and ease of maintenance SHALL BE IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN are desirable. THE VIRGINIA SOIL EROSION AND SEDIMENT CONTROL HANDBOOK, Section A-A Reinforced Concrete LATEST EDITION. ADDITIONAL SEEDING TO BE PERFORMED AS REQUIRED Section A-A Pipe Outlet To Flat Area With No Defined Channel BY THE INSPECTOR. <u>Pipe Outlet To</u> Well—Defined Channel SEED APPLICATION: APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, STORM WATER WITH LARGER PARTICLES CULTIPACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRIABLE, SEEDBED. SPECIFIC APPLICATION (OP) OUTLET PROTECTION MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH. This method of inlet protection is applicable where heavy concentrated flows are expected, Drain Space but not where ponding around the structure might cause excessive inconvenience or damage DRAIN INLET 1. Apron lining may be rip-rap, WASH RACK DETAIL (IF REQUIRED) to adjacent structures and unprotected areas. grouted rip-rop, or concrete. 2. La is the length of the rip-TOTAL DISTURBED AREA = 5.80 ACRES = 252,648 SQ. FT. rap apron as calculated using TEMPORARY GRAVEL * Gravel shall be VDOT #3, #357 or #5 coarse aggregate. plates 1.36d and 1.36e. CONSTRUCTION ENTRANCE 3. d = 1.5 times the maximum stone diameter, but not less (IP) GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER EXCAVATED DROP INLET SEDIMENT TRAP ACAD #970218D1 DEPARTMENT WINN DIXIE

ENGINEERING AND INSPECTIONS

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	(G:\CAD\DETAILS\EROS)
DESIGNED BY:	
APPROVED BY: GWS,III	

EROSION & SEDIMENT CONTROL STORMWATER MANAGEMENT DETAILS 5 OF 5