APPENDIX A

ESC Plan Checklist

Erosion and Sediment Control Practice Details
The following construction details are taken from the Virginia Erosion and Sediment Control Handbook (VESCH), Third Edition, 1992, as amended. Specific details and guidelines are covered more completely in Chapter 3 of the VESCH.

The Contractor must go to the VESCH to reference practices that are covered in the specification but not listed below.

<table>
<thead>
<tr>
<th>Practice</th>
<th>Title</th>
<th>Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.01</td>
<td>Safety Fence</td>
<td>SAF</td>
</tr>
<tr>
<td>3.02</td>
<td>Temporary Stone Construction Entrance</td>
<td>CE</td>
</tr>
<tr>
<td>3.04</td>
<td>Straw Bale Barrier</td>
<td>STB</td>
</tr>
<tr>
<td>3.05</td>
<td>Silt Fence</td>
<td>SF</td>
</tr>
<tr>
<td>3.07</td>
<td>Storm Drain Inlet Protection</td>
<td>IP</td>
</tr>
<tr>
<td>3.08</td>
<td>Culvert Inlet Protection</td>
<td>CIP</td>
</tr>
<tr>
<td>3.09</td>
<td>Temporary Diversion Dike</td>
<td>DD</td>
</tr>
<tr>
<td>3.10</td>
<td>Temporary Fill Diversion</td>
<td>FD</td>
</tr>
<tr>
<td>3.11</td>
<td>Temporary Right-Of-Way Diversion</td>
<td>RWD</td>
</tr>
<tr>
<td>3.12</td>
<td>Diversion</td>
<td>DV</td>
</tr>
<tr>
<td>3.18</td>
<td>Outlet Protection</td>
<td>OP</td>
</tr>
<tr>
<td>3.19</td>
<td>RipRap</td>
<td>RR</td>
</tr>
<tr>
<td>3.20</td>
<td>Rock Check Dams</td>
<td>CD</td>
</tr>
<tr>
<td>3.24</td>
<td>Temporary Vehicular Stream Crossing</td>
<td>SC</td>
</tr>
<tr>
<td>3.25</td>
<td>Utility Stream Crossing</td>
<td>USC</td>
</tr>
<tr>
<td>3.26</td>
<td>Dewatering Structure</td>
<td>DS</td>
</tr>
<tr>
<td>3.36</td>
<td>Soil Stabilization Blankets &amp; Matting</td>
<td>B/M</td>
</tr>
</tbody>
</table>

The following items are specific to the practices within this document and are not found in the VESCH manual. Details for these items are located at the end of this appendix following the items listed above.

Timber Mat Stabilization  TM
Geotextile Bag/Dewatering Bag  GB
Bleeder Drain and Outlet  BD
Trench Plug Drain  TP
STONE CONSTRUCTION ENTRANCE - 3.02

**PLAN VIEW**

- **EXISTING GROUND**
- **FILTER CLOTH**
- **MOUNTABLE BERM**

**ELEVATION**

- **12' MIN.**
- **3' MIN.**

**SECTION A - A**

- **FILTER CLOTH**
- **REINFORCED CONCRETE**
- **DRAIN SPACE**

**SECTION B - B**

- **70' MIN.**
- **10' MIN.**

**Notes:**
- **WASHRACK IF REQUIRED**
- **Positive Drainage to Sediment Trapping Device**
- **Must extend full width of ingress and egress operation**
STRAW BALE BARRIER - 3.04

PROPERLY INSTALLED STRAW BALE CROSS SECTION

1. EXCAVATE THE TRENCH

2. PLACE AND STAKE STRAW BALES

3. WEDGE LOOSE STRAW BETWEEN BALES

4. BACKFILL AND COMPACT THE EXCAVATED SOIL

CONSTRUCTION OF STRAW BALE BARRIER
CONSTRUCTION OF A SILT FENCE
(WITHOUT WIRE SUPPORT)

1. SET THE STAKES.

2. EXCAVATE A 4" X 4" TRENCH UPSLOPE ALONG THE LINE OF STAKES.

3. STAPLE FILTER MATERIAL TO STAKES AND EXTEND IT INTO THE TRENCH.

4. BACKFILL AND COMPACT THE EXCAVATED SOIL.

SHEET FLOW INSTALLATION
(PERSPECTIVE VIEW)

POINTS A SHOULD BE HIGHER THAN POINT B.

DRAINAGEWAY INSTALLATION
(FRONT ELEVATION)
SPECIAL APPLICATION

THIS METHOD OF INLET PROTECTION IS APPlicable AT CURB INLETS WHERE AN OVERFLOW CAPABILITY IS NECESSARY TO PREVENT EXCESSIVE PONDING IN FRONT OF THE STRUCTURE.

* GRAVEL SHALL BE VDOT #3, #357 OR #5 COARSE AGGREGATE
SILT FENCE DROP INLET PROTECTION - 3.07-1

PERSPECTIVE VIEWS

ELEVATION OF STAKE AND FABRIC ORIENTATION

DETAIL A

SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPE NO GREATER THAN 5%) WHERE THE INLET SHEET OR OVERLAND FLOWS (NOT EXCEEDING 1 C.F.S.) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET OR HIGHWAY MEDIANS.
SILT FENCE CULVERT INLET PROTECTION

*DISTANCE IS 6' MINIMUM IF FLOW IS TOWARD EMBANKMENT

OPTIONAL STONE COMBINATION

**VDOT #3, #357 OR #5 COARSE AGGREGATE TO REPLACE SILT FENCE IN "HORSESHOE" WHEN HIGH VELOCITY OF FLOW IS EXPECTED
TEMPORARY FILL DIVERSION - 3.10

FILL SLOPE

EARTHEN RIDGE

9"

2'

TEMPORARY DIVERSION DIKE - 3.09

Compacted Soil

18" min.

4.5' min.

Flow
TEMPORARY RIGHT-OF-WAY DIVERSIONS

VDOT #1 COARSE AGGREGATE

18" MIN.

6' MINIMUM

TYPICAL GRAVEL STRUCTURE

COMPACTED SOIL

18" MIN.

6' MINIMUM

TYPICAL EARTHEN STRUCTURE
**PIECE OUTLET CONDITIONS**

**PLAN VIEW**

PIPE OUTLET TO FLAT AREA WITH NO DEFINED CHANNEL

**SECTION A-A**

FILTER CLOTH  KEY IN 6'-9'; RECOMMENDED FOR ENTIRE PERIMETER

**PLAN VIEW**

PIPE OUTLET TO WELL DEFINED CHANNEL

**SECTION A-A**

FILTER CLOTH  KEY IN 6'-9'; RECOMMENDED FOR ENTIRE PERIMETER

**NOTES:**
1. APRON LINING MAY BE RIPRAPP, GROUTED RIPRAPP, GABION BASKET, OR CONCRETE.
3. $d = 1.5$ TIMES THE MAXIMUM STONE DIAMETER, BUT NOT LESS THAN 6 INCHES.
TOE REQUIREMENTS FOR BANK STABILIZATION - 3.19

FILTER CLOTH UNDERLINER
(PREFERRED)

KEY IN FILTER CLOTH 6"-9"

FILTER CLOTH

GRANULAR FILTER

COARSE AGGREGATE
MIN. THICKNESS = 6"
ROCK CHECK DAM - 3.20

2 ACRES OR LESS OF DRAINAGE AREA:

2-10 ACRES OF DRAINAGE AREA:
TEMPORARY CULVERT CROSSING - 3.24

1/2 DIAMETER OF PIPE OR 12", WHICHEVER IS GREATER

EARTH FILL COVERED BY LARGE ANGULAR ROCK

FILTER CLOTH

ELEVATION

PLAN VIEW

STREAM CHANNEL

DIVERSION AND OR SWALE

50' MINIMUM TOP OF BANK

LARGE ANGULAR ROCK OVER EARTH FILL

FLOW

CAPACITY OF PIPE CULVERTS TOGETHER = FLOW

VDOT #1 COARSE AGGREGATE 6" DEEP

VDOT #1 COARSE AGGREGATE

50' MINIMUM TOP OF BANK

DIVERSION AND OR SWALE
COFFERDAM CROSSING - 3.25

- Existing stream width (W)
- 1/2 W (MIN.)
- Riprap or other non-erodible material
- Trenchline
- Aggregate or sand
- Filter cloth
- Disturbed area
- Dewatering device see std. & spec. 3.26

Section A-A

*(D) Minimum distance to be 25% of total width (W) of the stream.*
STRAW BALE/SILT FENCE PIT

PLAN VIEW

CROSS-SECTION A-A

CROSS-SECTION B-B
TYPICAL ORIENTATION OF TREATMENT – 1
(SOIL STABILIZATION BLANKET)

ON SHALLOW SLOPES, STRIPS OF NETTING PROTECTIVE COVERINGS MAY BE APPLIED ACROSS THE SLOPE.

WHERE THERE IS A BERM AT THE TOP OF THE SLOPE, BRING THE MATERIAL OVER THE BERM AND ANCHOR IT BEHIND THE BERM.

ON STEEP SLOPES, APPLY PROTECTIVE COVERING PARALLEL TO THE DIRECTION OF FLOW AND ANCHOR SECURELY.

BRING MATERIAL DOWN TO A LEVEL AREA BEFORE TERMINATING THE INSTALLATION; TURN THE END UNDER 4" AND STAPLE AT 12" INTERVALS.

IN DITCHES, APPLY PROTECTIVE COVERING PARALLEL TO THE DIRECTION OF FLOW. USE CHECK SLOTS AS REQUIRED. AVOID JOINING MATERIAL IN THE CENTER OF THE DITCH IF AT ALL POSSIBLE.
TIMBER MAT STABILIZATION

12" x 12" TIMBER CONNECTIONS

12" MAX.

EXTEND ACROSS ENTIRE CONSTRUCTION ROUTE
AND APPLICABLE LIMITS OF THE CONSTRUCTION
ENTRANCE LIMITS (PER PLAN)

DETAIL: CONSTRUCTION ROAD
STABILIZATION - TIMBER MATS

NTS
GEOTEXTILE/DEWATERING BAG

The dewatering bag shall be made of non-woven geotextile with a min. surface area of 225 square feet per side. All structural seams shall be sewn with a double stitch using a double needle machine with high strength thread. The seam strength shall withstand 100 lb/in using ASTM D-4894 test method. The dewatering bag shall have a nozzle large enough to accommodate a four inch discharge hose. The nozzle shall be sealed tightly around the discharge hose with a strap or similar device to prevent untreated water from escaping. The geotextile fabric shall be a non-woven fabric with the following properties:

<table>
<thead>
<tr>
<th>Properties</th>
<th>Test Method</th>
<th>Units</th>
<th>Dewatering Bag 12 oz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>ASTM D-3778</td>
<td>oz/yd</td>
<td>12</td>
</tr>
<tr>
<td>Grab Tensile</td>
<td>ASTM D-4632</td>
<td>lbs</td>
<td>300</td>
</tr>
<tr>
<td>Puncture</td>
<td>ASTM D-4833</td>
<td>lbs</td>
<td>175</td>
</tr>
<tr>
<td>Flow Rate</td>
<td>ASTM D-4491</td>
<td>gal/min-ft²</td>
<td>70</td>
</tr>
<tr>
<td>Permeability</td>
<td>ASTM D-4491</td>
<td>1.3 sec-1</td>
<td>1</td>
</tr>
<tr>
<td>Mullens Burst</td>
<td>ASTM D-3786</td>
<td>lbs/in²</td>
<td>580</td>
</tr>
<tr>
<td>UV Resistant</td>
<td>ASTM D-4355</td>
<td>%</td>
<td>70</td>
</tr>
<tr>
<td>AOS % Retained</td>
<td>ASTM D-4751</td>
<td>0.40-0.80 mm</td>
<td>100</td>
</tr>
</tbody>
</table>

NOTE: All properties are minimum average roll value except the weight of the fabric which is given for information only.

CONSTRUCTION: The dewatering bag shall be installed over a 3 inch gravel base to promote infiltration and de-watering of the bag.

DETAIL: GEOTEXTILE BAG (DEWATERING BAG)
Where trenching activities are proposed in high slip potential soils and in areas where existing ground slopes are greater than 3:1, bleeder drains shall be installed to passively drain water from the trench area. The following illustration shows a drain placed at every second trench plug.
Two (2) types of trench plug drains are illustrated below. Geocomposite Drainage Strips or Perforated Schedule 40 PVC placed behind the trench plug and below the pipeline are effective ways to passively drain water. Both methods show Schedule 40 PVC discharge pipe at a minimum of a 2% grade.