

**CHAPTER 8
EROSION AND SEDIMENT CONTROL PLAN
REQUIREMENTS**

8.1 INTRODUCTION

To minimize the detrimental effects of erosion and sedimentation, Henrico County requires that those individuals responsible for land disturbing activities take the proper steps to control erosion and sedimentation. This locally implemented program is required by the Erosion and Sediment Control Law (§ 62.1-44.15:51 et seq. of the Code of Virginia) and must comply with requirements and minimum standards of the Erosion and Stormwater Management (ESM) Regulations (9VAC25-875).

In general, a land disturbing activity is defined as “any clearing, grading, excavating, transporting or filling of land.” Clearing is also defined and means “any activity which removes vegetation, including cutting and/or removal of trees, root mat, or topsoil.” As specified by state law, some activities are exempt from the ESC program and include activities such as home gardens, individual home landscaping, and bona fide agricultural and forestry operations. The Henricopolis Soil and Water Conservation District office and/or the Department of Forestry will be consulted on activities claiming exemption as agricultural or forestry operations.

8.2 APPLICABILITY

In accordance with Sec. 10-34 of the Henrico County Code, the requirements of this chapter apply to land-disturbing activities greater than 2500 square feet when they occur within Chesapeake Bay Preservation Areas and/or when they are associated with a common plan of development that disturbs over one acre of land; or greater than 10,000 square feet when they occur outside of Chesapeake Bay Preservation Areas. For help determining the land disturbance activity type, please refer to Chapter 3 of this Manual.

The requirements of this chapter for construction on single-family residential lots may be addressed by submittal of an Agreement in Lieu of a plan (see Appendix I).

8.3 REQUIREMENTS

The following is a list of common comments concerning erosion and sediment control issues and concerns that, when applicable, must be addressed in an approved ECP. A brief explanation of each comment is also provided. Examples of the current review checklists can be found in Appendix A of this manual. Where details and standards are necessary to address these issues and concerns, refer to the Virginia Stormwater Management Handbook (most current edition).

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- ❑ ***The current version of the two standard Erosion and Sediment Control sheets entitled “Standard Notes” and Standard Details/Calcs.”, must be included the plans.***

The standard sheets include notes, details, and calculations that are applicable to most ECP plans. The sheets must be included in all approved plans and are available in both paper and digital form from the Engineering and Environmental Services Division of the Department of Public Works.

- ❑ ***The preliminary limits of disturbance necessary for installation of the initial ESC measures must be clearly indicated on the plans. This area of disturbance must be the minimum necessary to allow installation of the initial ESC measures and should include all areas necessary for installing the initial ESC measures, including stockpiles, borrow areas, staging areas, etc.***

Prior to complete clearing of the site, all perimeter ESC controls must be installed and functional. The preliminary limits of disturbance define the minimum work area necessary to install these ESC measures. These limits must also include any needed borrow areas and stockpiles for excavated materials and construction of sediment basins and traps and diversions.

- ❑ ***The ESC sequence of construction must clearly indicate that land disturbance outside the preliminary limits of disturbance may not occur until the installation of the initial ESC measures has been approved by the Environmental Inspector.***

Restricting land disturbance to the preliminary limits of disturbance ensures that all perimeter ESC measures are in place and functioning prior to disturbing the remainder of the site. Once the perimeter ESC measures have been constructed/installed to the satisfaction of the Environmental Inspector, he/she will release the contractor to begin clearing/grading the remainder of the site.

- ❑ ***The ultimate limits of disturbance must be clearly indicated on the plans.***

This information is necessary to ensure adequate ESC measures are provided for the entire disturbed area.

- ❑ ***Silt fence is required and must be shown on the plans.***

This request will be made if silt fence must be added to the plans to accommodate the proposed area of land disturbance.

- ❑ ***Temporary sediment trap(s) is (are) required and must be shown on the plans.***

This request will be made if sediment traps must be added to the plans to accommodate

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the proposed area of land disturbance. Please note that it is County policy to provide a sediment trap or sediment basin (depending on drainage area) at the outfall of all storm sewers or outfall channels. Inlet protection is not acceptable in lieu of a trap or basin.

- ***Temporary sediment basin(s) is (are) required and must be shown on the plans.***

This request will be made if sediment basins must be added to the plans to accommodate the proposed area of land disturbance. Please note that it is County policy to provide a sediment trap or sediment basin (depending on drainage area) at the outfall of all storm sewers or outfall channels. Inlet protection is not acceptable in lieu of a trap or basin.

- ***The sediment basin/trap design details information table on the standard ESC sheets must be completed.***

This table provides a summary of the basic design and construction details needed to ensure that the basins and traps are sized appropriately.

- ***The ESC sequence of construction must clearly indicate that all diversions, sediment basins/traps, and stockpiles must be seeded and mulched immediately upon construction.***

In accordance with Minimum Standard #5 of the Virginia ESM Regulations, stabilization measures must be applied to earthen structures such as dams, dikes, and diversions immediately after installation.

- ***Stockpiles and appropriate ESC measures must be shown on the plans or the sequence of construction must state that no stockpiles will be located on the site.***

This comment is a result of previous stockpile location and removal complaints and problems. If stockpiles are not shown on the approved plan, approval must be obtained prior to creating a stockpile on the site. Since stockpiles can result in a significant quantity of soil and this soil is included in the ESC bond amount, approval of a stockpile may result in a revised bond amount.

- ***An ESC sequence of construction must be included on the plans and must appropriately sequence the installation and maintenance of ESC measures throughout construction.***

The sequence of construction is intended to be a step-by-step approach to conducting the proposed land disturbing activity – from preliminary clearing to rough grading to final grading to final stabilization. As such, all significant phases of the process must be

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considered to ensure adequate ESC measures are provided and functioning to accommodate the land disturbance associated with each phase of construction.

- ***All concentrated flow down fill slopes must be contained within an adequate temporary or permanent channel, flume, or slope drain structure.***

In accordance with Minimum Standard #8 of the Virginia ESM Regulations, concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel, flume, or slope drain structure. This request will be made when there are significant fill slopes present. Often, there is a lag between the time a fill slope has been completely constructed and the time it takes to have it stabilized and have any permanent drainage structures installed. To minimize the potential for erosion it may be necessary to concentrate the flow through a non-erodible channel down the slope during construction.

- ***The ESC sequence of construction must state that a pre-construction meeting with the Environmental Inspector must occur prior to any land disturbance taking place.***

In accordance with Chapter 17, a pre-construction meeting must take place prior to any land disturbance. During this meeting, the Environmental Inspector will review the project details with the Responsible Land Disturber. A plan is not considered valid until it is signed by both the Environmental Inspector and the Responsible Land Disturber (RLD).

- ***The ESC sequence of construction must include a statement that no erosion and sediment control measures can be removed without approval of the Environmental Inspector for the project.***

ESC measures must remain in place and functional until contributing drainage areas are stabilized. Therefore, ESC measures cannot be removed until the Environmental Inspector determines that these areas are permanently stabilized in accordance with the ECP.

- ***The ESC plan and sequence of construction must clearly show how runoff will be diverted into sediment basin(s) or trap(s) during all phases of construction (storm sewer, diversions, channels, etc.).***

This comment will be made if the plan fails to provide adequate ESC measures and treatment for all stages of construction. For example, runoff that is adequately diverted to a sediment basin during preliminary clearing and rough grading may bypass the basin once the storm sewer is installed. Therefore, a temporary diversion pipe may be needed or installation of certain sections of storm sewer may need to be delayed. Conversely, diversion dikes or ditches may be necessary during the preliminary clearing and grading prior to installation of the storm sewer system although a basin is provided

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at the outfall of the storm sewer. Please note that it is County policy to provide a sediment trap or sediment basin (depending on drainage area) at the outfall of all storm sewers or outfall channels.

- ❑ ***Lots adjacent to or containing a sediment basin or trap that will not be converted to a BMP must be identified on the plan sheet and with notes stating that building permits will not be issued for these lots until the basins or traps are removed.***

These lots must be identified on the cover sheet of the ECP in accordance with Chapter 5. This requirement is an effort to reduce complaints from homeowners associated with temporary basins and traps. In the past, these complaints often resulted in premature removal of sediment basins and/or traps. This requirement can be waived if the proposed dwelling is under contract and an acceptable letter from the contract purchaser acknowledging the sediment basin/trap presence is submitted to the Department of Public Works. A copy of the letter must also be attached to the building permit application. An example of such a letter with acceptable content and format can be found in the Appendix of this Manual.

- ❑ ***ESC measures must be shown for all lots adjacent to or containing wetlands and/or RPA/SPA. Add a note to the plans stating that these measures will be installed prior to dwelling construction.***

These measures are required to provide additional protection to the wetlands and RPA/SPA downslope of the disturbance associated with the dwelling construction.

- ❑ ***The ESC sequence of construction must include details on how the sediment basin will be converted into the BMP.***

Often, the construction details of the sediment basin/trap differ from those of the BMP. For example, the side slopes of the sediment basin may be steeper than those allowed for the BMP. Another common difference is the elevation of the bottom of the basin. In addition to grading aspects, the riser structures are often different as well. In the past, some of these differences have not been clearly explained in the plans and are discovered during inspections for release of the ESC bond, long after the construction is completed. By including these conversion details in the narrative, the contractors are made aware of these issues and can address them as construction is completed.

- ❑ ***The ESC sequence of construction must include topsoil application for all BMP areas that will be stabilized with vegetation.***

One of the most common problems associated with final acceptance of BMP construction is the lack of vegetation. Often, this denuded state is a result of the lack of topsoil in the areas where vegetation is required. In an effort to provide a sufficient stand of vegetation, the application of topsoil is required.

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- ***The ESC sequence of construction must appropriately sequence “rough grading” and “final conformance” SWM facility inspections.***

In the past, major inconsistencies between approved construction plans and the as-built BMPs were commonly identified during bond release inspections, long after construction completion. These problems then became very difficult to correct. To identify construction problems earlier in the construction process, County staff will conduct these inspections when requested.

- ***The ESC sequence of construction must clarify that a construction record drawing must be filed for all SWM facilities prior to the ESC bond being released.***

In accordance with Sec. 10-47 of the Henrico County Code, a construction record drawing for each permanent stormwater management facility must be developed and submitted to the Administrator for review and approval prior to release of the Environmental Compliance Bond.

- ***A vehicle wash rack(s) is required to be installed where construction traffic will leave the site.***

On large sites where significant construction traffic is expected (extensive timbering, soil removal, etc.) and sites in areas prone to mud tracking complaints, wash racks (in accordance with Minimum Design Standard 8.1 found at the end of this chapter) will be required in locations where the construction traffic leaves the site.

- ***The method used to cross a stream must be shown on the plan.***

In accordance with Minimum Standard #13 of the Virginia ESM Regulations, a temporary stream crossing constructed of non-erodible material must be shown on the plans. All stream crossings must be done in a manner that minimizes encroachment, controls sediment transport, and stabilizes the work area to the greatest extent possible. A plan revision is required for any changes to the approved design.

- ***A cross section detail that shows the re-stabilization of the stream disturbed by the stream crossing must be shown on the plan.***

The banks of streams that are disturbed must be stabilized immediately after work is completed. The method for this stabilization must be shown on the plans.

8.4 EFFLUENT LIMIT GUIDELINES

The ELGs listed below have been identified by the DEQ and are applicable for

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construction activities. In accordance with the GCP, a properly implemented approved ESC plan, "Agreement in Lieu of a Plan", or ESC plan prepared in accordance with Department approved annual standards and specifications adequately:

1. Controls the volume and velocity of stormwater runoff within the site to minimize soil erosion;
2. Controls stormwater discharges, including peak flow rates and total stormwater volume, to minimize erosion at outlets and to minimize downstream channel and stream bank erosion;
3. Minimizes the amount of soil exposed during the construction activity;
4. Minimizes the disturbance of steep slopes;
5. Minimizes sediment discharges from the site in a manner that addresses (i) the amount, frequency, intensity, and duration of precipitation, (ii) the nature of resulting stormwater runoff, and (iii) soil characteristics, including the range of soil particle sizes present on the site;
6. Provides and maintains natural buffers around surface waters, directs stormwater to vegetated areas to increase sediment removal, and maximized infiltration, unless infeasible;
7. Minimizes soil compaction and, unless infeasible, preserves topsoil;
8. Ensures that stabilization of disturbed areas will be initiated immediately whenever any clearing, grading, or excavating, or other land-disturbing activities have permanently ceased on any portion of the site, or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 days;
9. Utilizes outlet structures that withdraw stormwater from the surface (i.e., above the permanent pool or wet storage water surface elevation), unless infeasible, when discharging from sediment basins or sediment traps.

8.5 ECP APPROVAL

All land-disturbing activities must be conducted in accordance with an approved ECP as discussed in Chapter 5. Therefore, prior to starting a land-disturbing activity, an ECP that includes measures for Erosion and Sediment Control (ESC) must be submitted in accordance with Chapter 19 of this manual and approved by the Administrator. Once the ECP has been approved by the Administrator, a pre-construction meeting in accordance with Chapter 17 must be conducted prior to commencement of the land disturbing activity.

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8.6 COMPLIANCE INSPECTIONS

In accordance with Sec. 10-54 of the Henrico County Code, the Administrator will conduct inspections to monitor compliance with the ESC requirements of an ECP. The inspections will be conducted once every two weeks in accordance with the County's approved Alternate Inspection Program. The inspection results, including noncompliance items and the actions necessary to correct these deficiencies, will be documented and delivered to the RLD/Operator.

Various levels of enforcement actions, as outlined in Chapter 21, are available to the County for noncompliance with the ESC portion of the ECP. These actions include, but are not limited to, Notices to Comply and Stop Work Orders.

8.7 RESPONSIBLE LAND DISTURBER CERTIFICATION PROGRAM

All proposed development projects must identify the name of an individual holding a certificate of competence that satisfies the Responsible Land Disturber (RLD) requirements, who will be responsible for carrying out the land disturbing activity. Plan cover sheets contain a signature block, which must be signed by the responsible individual, at the pre-construction meeting. Failure to provide a certified individual will prevent plans from being approved and distributed.

If the RLD for a project changes, the new RLD must sign the ECP cover sheet on both the approved construction plan set maintained on the site and the Environmental Inspector's set of construction plans.

Information regarding the RLD certification requirements and examination can be found on the Virginia Department of Environmental Quality website.

8.8 VARIANCES

All requests for variances must be made in writing to the Administrator and submitted to the Public Works review staff. The request must identify the requirement from which relief is being requested and the reason for the request.

The request may be granted provided that the variance is the minimum necessary to afford relief and reasonable and appropriate conditions are imposed as needed to preserve the purpose and intent of the requirements.

Variances to the requirements of the ESC plan can be issued by the Administrator when the requirements are deemed inappropriate or too restrictive.

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The final plan must document all allowed variances.

Variances can also be issued during construction when requested in writing by the person responsible for implementing the approved plan. The Administrator will respond in writing either approving or disapproving the variance. If the Administrator does not approve the variance within ten calendar days of the receipt, the request is denied. Following disapproval, the applicant or person responsible for implementing the approved plan may resubmit a variance request with additional documentation.

At all times, the Director of Public Works and his staff will consider variance requests judiciously, keeping in mind both the need of the applicant or operator to maximize cost effectiveness and the need to protect off-site properties and resources from damage.

8.9 OTHER CONTACTS

Henricopolis Soil and Water Conservation District
8600 Dixon Powers Drive
Post Office Box 27032
Richmond, Virginia 23273
(804) 501-4206
Web Address: <https://www.hswcd.org>

Virginia Department of Environmental Quality
629 East Main Street
P.O. Box 1105
Richmond, VA 23218
Phone: 804/698-4000
Web Address: <https://www.deq.virginia.gov>

Virginia Department of Forestry
Home Office
Fontaine Research Park
900 Natural Resources Drive, Suite 800
Charlottesville, VA, 22903-0758
Phone: 804/977-6555
Web Address:
<https://dof.virginia.gov>

Henrico County – Richmond
Office
VA Department of Forestry
P. O. Box 635
Sandston, VA. 23150
Phone: 804/328-3031

MINIMUM DESIGN STANDARD 8.01 WASH RACK

Definition

A wash rack is a device installed near the construction entrance of a land disturbing activity that is used to minimize the amount of soil and debris carried from the site on the tires of the construction traffic.

Site Selection

The initial need for a wash rack will be determined during project review depending on the scope of the project and its location. Wash racks may also be required once construction begins and mud tracking becomes a recurring problem.

Design Criteria

Wash racks must be constructed according to the following design criteria:

- ❑ The wash area of the wash rack must be large enough to accommodate the expected construction traffic.
- ❑ In addition to the wash area, the wash rack must have an exit ramp such that wash water dripping from construction traffic will be collected.
- ❑ A source of wash water must be provided (either a hydrant or a water truck).
- ❑ The wash rack must be designed to collect the wash water and discharge it to a properly designed sediment trap, sediment basin or a dewatering device