



PLAN REQUIREMENTS

Erosion & Sediment Control

Department of Public Utilities/Public Works

801 Crawford Street
Portsmouth, Virginia 23704-0490
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EROSION AND SEDIMENT CONTROL PLAN REQUIREMENTS

General:

Erosion and Sediment Control Plans are required on all projects that disturb 2500 square feet or more of land area.

Erosion Control Plans must be approved by the City's Engineering Department prior to the issuance of any Land Disturbing Permit and prior to the commencement of any land disturbing activity.

Per Minimum Standard 19 in the Virginia Erosion & Sediment Control Regulations (4VAC50-30), pipes and storm sewer systems must be analyzed using the 10-year storm to verify that the stormwater will be contained within the pipe or system. Any designs using less than the 10-year storm shall require a written request for a variance submitted by the applicant to the City at the time of erosion control plan submittal. Such written request shall explain the reasons for needing the variance.

Review Checklist:

The attached Checklist may be used to insure that all items required for an Erosion Control Plan have been addressed.

A more detailed description of each Checklist item is also provided herewith for reference.

Plan Requirements:

The written Narrative and the General Erosion Control Notes, ES-1 through ES-12, shall be included on the plan.

All applicable Minimum Standards must be addressed on the plan.

All erosion and sediment control measures shall conform to the standards and specifications in the **Virginia Erosion & Sediment Control Handbook**, latest edition. Construction details for all controls to be used on the project shall be included on the plan.

SPECIAL NOTES:

- *For a complete, step-by-step guide to prepare an erosion and sediment control plan, refer to Chapter 6 of the **Virginia Erosion & Sediment Control Handbook**, latest edition.*
- *For a complete description of the required Minimum Standards, refer to the **Virginia Erosion & Sediment Control Regulations**, 4VAC50-30.*

CHECKLIST

EROSION AND SEDIMENT CONTROL PLANS

PROJECT _____ DATE _____

PROJECT # _____

NARRATIVE

- _____ Project description - Briefly describes the nature and purpose of the land-disturbing activity, and the area (acres) to be disturbed.

- _____ Existing site conditions - A description of the existing topography, vegetation and drainage.

- _____ Adjacent areas - A description of neighboring areas such as streams, lakes, residential areas, roads, etc., which might be affected by the land disturbance.

- _____ Off-site areas - Describe any off-site land-disturbing activities that will occur (including borrow sites, waste or surplus areas, etc.). Will any other areas be disturbed?

- _____ Soils - A brief description of the soils on the site giving such information as soil name, mapping unit, erodibility, permeability, depth, texture and soil structure.

- _____ Critical areas - A description of areas on the site which have potentially serious erosion problems (e.g., steep slopes, channels, wet weather/ underground springs, etc.).

- _____ Erosion and sediment control measures - A description of the methods which will be used to control erosion and sedimentation on the site. (Controls should satisfy applicable minimum standards and specifications in Chapter 3.)

- _____ Permanent stabilization - A brief description, including specifications, of how the site will be stabilized after construction is completed.

- _____ Stormwater runoff considerations - Will the development site cause an increase in peak runoff rates? Will the increase in runoff cause flooding or channel degradation downstream? Describe the strategy to control stormwater runoff.

- _____ Calculations - Detailed calculations for the design of temporary sediment basins, permanent stormwater detention basins, diversions, channels, etc. Include calculations for pre- and post-development runoff.

- _____ Maintenance - A schedule of regular inspections and repair of erosion and sediment control structures should be set forth.

SITE REQUIREMENTS:

- _____ Vicinity map - A small map locating the site in relation to the surrounding area. Include any landmarks which might assist in locating the site.
- _____ Indicate north - The direction of north in relation to the site.
- _____ Limits of clearing and grading - Areas which are to be cleared and graded.
- _____ Existing contours - The existing contours of the site.
- _____ Final contours - Changes to the existing contours, including final drainage patterns.
- _____ Existing vegetation - The existing tree lines, grassed areas, or unique vegetation.
- _____ Soils - The boundaries of different soil types.
- _____ Existing drainage patterns - The dividing lines and the direction of flow for the different drainage areas. Include the size (acreage) of each drainage area.
- _____ Critical erosion areas - Areas with potentially serious erosion problems. (See Chapter 6 for criteria.)
- _____ Site Development - Show all improvements such as buildings, parking lots, access roads, utility construction, etc.
- _____ Location of practices - The locations of erosion and sediment control and stormwater management practices used on the site. Use the standard symbols and abbreviations in Chapter 3 of the E & SC Handbook.
- _____ Off-site areas - Identify any off-site land-disturbing activities (e.g., borrow sites, waste areas, etc.). Show location of erosion controls. (Is there sufficient information to assure adequate protection and stabilization?)
- _____ Detail drawings - Any structural practices used that are not referenced to the E&SC Handbook or local handbooks should be explained and illustrated with detail drawings.

Have MINIMUM STANDARDS Been Addressed?

Yes No N/A

- | | | | | |
|--------------------------|--------------------------|--------------------------|-------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-1 | Have measures providing requiring temporary stabilization of denuded areas been provided? Seeding? yes/no Mulching? yes/no Graveling? yes/no |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-2 | Have measures providing stabilization with seeding and/or sediment trapping measures for both on and off-site soil stockpiles, borrow pits and disposal areas been provided? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-3 | Do permanent vegetation specifications provide for adequate stabilization? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-4 | Have sediment trapping facilities been designed for as a first step in LDA? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-5 | Do the plans require the immediate stabilization of earthen structures? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-6 | Have sediment traps or basins been designed based upon the total drainage area to be served? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-7 | Have cut & fill slopes been designed in a manner which will minimize erosion? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-8 | Is concentrated runoff within an adequate structure when flowing down a slope? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-9 | Are slopes adequately protected from water seeps? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-10 | Do all operational storm sewer inlets have adequate inlet protection? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-11 | Does the plan require stormwater conveyance channels to be adequately stabilized with channel lining and/or outlet protection? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-12 | Is in-stream construction conducted using measures to minimize channel damage? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-13 | Are temporary stream crossings of non-erodible material installed where applicable? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-14 | Are all applicable regulations pertaining to working in or crossing live watercourses being met? Have copies of any required permits been submitted? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-15 | Do the plans provide for the immediate re-stabilization of bed and banks once in-stream construction is complete? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-16 | Do the plans require that utility trenches be properly stabilized? Is effluent from de-watering operations required to be filtered though an approved device? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-17 | Do the plans require that soil and mud kept off public roadways at intersections with site access roads? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-18 | Do the plans require that all temporary control structures that are no longer needed be removed? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-19 | Do the plans adequately protect properties and waterways downstream from development from erosion and sediment deposition due to increases in peak stormwater runoff? Have receiving channels been verified to be adequate? Has permission been obtained by downstream owners to install improvements? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | Are provisions included for E&S control measure repairs and sediment removal? |

GENERAL EROSION AND SEDIMENT CONTROL NOTES

ES-1: Unless otherwise indicated, all vegetative and structural erosion and sediment control practices will be constructed and maintained according to minimum standards and specifications of the Virginia Erosion and Sediment Control Handbook and the *Virginia Erosion and Sediment Control Regulations* (4VAC50-30).

ES-2: All erosion and sediment control measures are to be placed prior to or as the first step in clearing.

ES-3: A copy of the approved erosion and sediment plan shall be maintained on the site at all times.

ES-4: Prior to commencing land disturbing activities in areas other than indicated on these plans (including, but not limited to, off-site borrow or waste areas), the contractor shall submit a supplementary erosion control plan to the owner for review and approval by the City of Portsmouth.

ES-5: The contractor is responsible for installation of any additional erosion control measures necessary to prevent erosion and sedimentation as determined by the City of Portsmouth's erosion control inspector.

ES-6: All disturbed areas are to drain to approved sediment control measures at all times during land disturbing activities and during site development until final stabilization is achieved, after which, upon approval of the City of Portsmouth's erosion control inspector, the controls shall be removed. Trapped sediment and the disturbed soil areas resulting from the removal of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

ES-7: During dewatering operations, water shall be pumped into an approved filtering device.

ES-8: The contractor shall inspect all erosion control measures at least every 2 weeks and immediately after each runoff-producing rainfall event. Any necessary repairs or cleanup to maintain the effectiveness of the erosion control devices shall be made immediately.

ES-9: The contractor is responsible for the daily removal of sediment that has been transported onto a paved or public road surface.

ES-10: Seeding operations shall be initiated within 7 days after reaching final grade or upon suspension of grading operations for anticipated duration of greater than 30 days or upon completion of grading operations for a specific area.

ES-11: Permanent vegetation shall not be considered adequately stabilized until the vegetation is uniform in height, thick enough to prevent erosion and mature enough to survive.

ES-12: The contractor shall be responsible for preventing surface and air movement of dust from exposed soils which may present health hazards, traffic safety problems, or harm animal or plant life.

Detailed Plan Review Checklist

FOR EROSION AND SEDIMENT CONTROL PLANS

- _____ Minimum Standards – All applicable Minimum Standards must be addressed
- All minimum Standards must be adhered to during the entire project regardless of phasing
 - Request for any Variances should be addressed

NARRATIVE

- _____ Project description – Briefly describes the nature and purpose of the land-disturbing activity, and the area (in acres) to be disturbed.
- What time of year will the project start and finish? (Construction sequence)
 - How long will it take to complete the project?
 - How many acres will be disturbed for completion of this project.
 - How much impervious area will the project have in post-developed conditions?
 - What will be the ultimate developed conditions of the site?
- _____ Existing site conditions – A description of the existing topography, vegetation and drainage.
- Should list percentages of slope on the site.
 - Types of existing vegetation that can be used as erosion control, or areas to be left undisturbed.
 - Discuss marking of areas where existing vegetation is to be preserved.
 - Discuss size of drainage areas in pre-development and post-development conditions.
 - Discuss any existing drainage or erosion problems and how they are to be corrected.
 - Discuss orientation of slopes (north or south facing).
 - Discuss how existing site conditions can be used to reduce the potential for erosion and how proposed E&S controls will be designed to “fit” the site.
 - Photographs?
- _____ Adjacent areas – A description of neighboring areas such as streams, lakes, residential areas, roads, etc., which might be affected by the land disturbance.
- The potential for off-site damages must be considered and discussed.
 - ANY environmentally sensitive areas should be mentioned.
 - Other private or public lands adjacent to the site should be described and considered for possible problems during and after construction (traffic problems, dust control, increases in runoff, etc...).
 - Discuss perimeter controls to be used.
- _____ Off-site areas – Describe any off-site land-disturbing activities that will occur (including borrow sites, waste or surplus areas, etc.). Will any other areas be disturbed?
- Any off-site borrow or spoil areas should have an approved plan to supplement the overall project plan.
 - If off-site areas are under other permits, proof of permits should be provided.
 - List specific locations of all off-site areas.
 - Discuss who will be responsible for final stabilization and maintenance of off-site areas.
- _____ Soils – A brief description of the soils on the site giving such information as soil name, mapping unit, erodibility, permeability, depth, texture and soil structure.
- Indicate references for soil information
 - Provide a copy of soil survey map.

- Indicate what sheets of site plan soils are delineated.
- Check for soils with a high K factor, or poor drainage, low pH, etc....

_____ Critical areas – A description of areas on the site, which have potentially serious erosion problems (e.g., steep slopes, channels, wet areas, streams, underground springs, etc.).

- Discuss any area of the project, which may become critical during the project. Some areas of the site may have long or steep slopes during a certain phase of the grading.
- Indicate areas to be left alone until they can be graded and stabilized in favorable conditions.
- Discuss precautions to communicate limits of these areas to contractors and equipment operators.

_____ Erosion and sediment control measures – A description of the methods which will be used to control erosion and sedimentation on the site. (Controls should meet the specifications in Chapter 3).

- List all controls used, list specification numbers (3.02) location of practice.
- Discuss why it was selected.
- Sequence of installation, maintenance and removal for each control.
- Discuss temporary seeding as a means of erosion control; list the types to be used.

_____ Permanent stabilization – A brief description, including specifications, of how the site will be stabilized after construction is completed.

- Final stabilization needs careful review.
- Is the timing of seeding correct with the construction sequence?
- List soil-testing requirements.
- Provide seeding specifications (pure live seed minimums), fertilizer and liming specifications. Seeding tables and rates.
- Is the type of permanent vegetation appropriate for the site?
- Discuss all other areas to be stabilized other than vegetation (gravel, paved, etc.).

_____ Stormwater runoff considerations – Will the developed site cause an increase in peak runoff rates? Will the increase in runoff cause flooding or channel degradation downstream? Describe the strategy to control stormwater runoff.

- Discuss how downstream properties and waterways will be protected (basins, channel improvements, easements).
- Discuss how increased runoff will be managed during construction.
- List or discuss all other references for design of permanent facilities.

_____ Calculations – Detailed calculations for the design of temporary sediment basins, permanent stormwater detention basins, diversions, channels, etc. Include calculations for pre- and post-development runoff.

- All calculations showing pre-development and post-development runoff should be provided. Worksheets, assumptions and engineering decisions should be clearly presented to assist the plan reviewer in his or her duties.
- Calculation methods should be clearly presented and organized.
- Have the calculations shown that adequate protection of down-stream properties and waterways are protected?

_____ Maintenance – A schedule of maintenance for permanent stormwater control measure should be provided.

- Should list who is responsible during construction and who will be responsible once the project is complete.
- Should provide a schedule of inspections to be conducted.

- List maintenance items to check and perform as well as precautions for large storm events.

SITE REQUIREMENTS

- _____ Vicinity map – A small map locating the site in relation to the surrounding area. Include any landmarks which might assist in locating the site.
 - Provide a reproduction of a topographic map, road map, etc...
- _____ Indicate north – The direction of north in relation to the site.
 - Useful tool for determining slope orientation.
 - Useful for communicating written inspection reports and plan review comments.
 - Useful in predicting areas off-site that might be effected by dust.
- _____ Limits of clearing and grading – Areas which are to be cleared and graded.
 - Show all areas to be disturbed on the site map.
 - Provide notes on how areas will be marked.
 - Provide notes and illustrations to clearly indicate areas NOT to be disturbed.
- _____ Existing contours – The existing contours of the site.
 - Should be shown as dashed light lines in intervals from 1 to 5 feet.
 - Represent pre-developed drainage areas (check these areas for accuracy).
 - Show potential critical areas (slopes).
 - Helps to determine cut or fill areas, low spots.
 - Helps to determine if E&S controls have been designed properly
- _____ Final contours – Changes to the existing contours, including final drainage patterns.
 - Should be shown as heavy solid lines.
 - Determines final drainage areas.
 - Check to see if pre-developed drainage areas have increased.
 - Check final grade of slopes to see if they will become critical (may need diversions or flumes).
 - Check vegetative specifications for final grade of slopes (low or high maintenance). Are erosion control blankets needed?
- _____ Existing vegetation – The existing tree lines, grassed areas, or unique vegetation.
 - Clearly indicate existing tree lines, vegetation areas to remain.
 - Provide notes on the plan for areas to be undisturbed.
- _____ Soils – The boundaries of different soil types.
 - Indicate soil boundaries of all soil types on the site. List K factor and soil survey classifications.
 - Provide notes of soil properties (texture, etc...).
- _____ Existing drainage patterns – The dividing lines and the direction of flow for the different drainage areas. Include the size (acreage) of each drainage area.
 - Should be indicated by acres and show the direction of flow for all existing drainage areas.
 - Indicates the need for basins, traps or other structural measures.
 - Helps to determine if controls are designed correctly.
 - Helps to determine if off-site drainage needs to be diverted.
 - Useful in planning to break up drainage areas into smaller more manageable areas during construction.

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- Critical erosion areas – Areas with potentially serious erosion problems.
- All critical, environmentally sensitive or prohibited areas should be denoted on the plan and notes provided to state reasons for critical nature.
 - Stream considerations; temporary crossings, other permits, location of stockpiles, trash & debris removal, fuel storage, etc...
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- Site development – Show all improvements such as buildings, parking lots, access roads, utility construction, etc.
- All improvements such as buildings, roads, temporary access roads, right-of-ways and temporary easements should be shown on the plan.
 - Utility improvements on and off-site should be shown.
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- Location of practices – The locations of erosion and sediment controls and stormwater management practices used on the site. Use the standard symbols and abbreviations in Chapter 3 of the VESC handbook.
- The exact location of all practices including vegetation should be clearly shown on the plan.
 - A legend denoting symbols, line uses and other special characters should be provided.
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- Off-site areas – Identify any off-site land-disturbing activities (e.g., borrow sites waste areas, etc.). Show location of erosion controls. (Is there sufficient information to assure adequate protection and stabilization?)
- Are separate plans required for off-site borrow or disposal areas?
 - How will off-site areas be stabilized?
 - Are there any temporary easements to be disturbed during construction?
 - Who has final responsibility for off-site areas?
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- Detail drawings – Any structural practices used that are not referenced to the E&S handbook or local handbooks should be explained and illustrated with detail drawings.
- Details should be provided which are clearly dimensioned and reflected the ability to be ‘built’ in the field according to the proper design criteria.
 - Alternative E&S measures must have proper drawings to indicate how and where they are to be constructed.
 - All plan drawings, elevations, and cross section drawings should show scales used to prepare the drawings.
 - Outlet protection schedules should be provided.
 - Sizes and materials should be shown for all pipes, flumes and slope drains.
 - All details should list the specification number from the VESCH.
 - If more than one type of specification is being used (inlet protection) details of all practices shall be provided.
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- Maintenance – A schedule of regular inspections and repair of erosion and sediment control structures should be set forth.
- Indicate who is responsible for maintenance and repair of all E&S measures on the project (RLD).
 - Indicate who is the primary contact for emergencies, for notification of problems (owner), etc....
 - Provide clean out and maintenance specifications for all major structures such as basins, traps, silt fence, etc....
 - Require monitoring reports from the RLD if needed.

TO: City of Portsmouth, Department of Engineering

FROM:

**RE: Project Name:
City File Number:
Request for Variance from Minimum Standard 19, Virginia Erosion & Sediment Control Regulations (4VAC50-30)**

Per Minimum Standard 19 in the Virginia Erosion & Sediment Control Regulations (4VAC50-30), pipes and storm sewer systems must be analyzed using the 10-year storm to verify that the stormwater will be contained within the pipe or system. Note that this includes the existing **receiving** drainage system.

Since the City of Portsmouth's existing storm drainage pipe network has been designed for the 5-year storm citywide, this is to request a waiver to use this system and consider it to be an adequate channel.

Despite the aforementioned constraint of the receiving system, **onsite** stormwater controls have been designed to insure that post-developed flows for the 10-year storm do not exceed pre-developed flows for the 10-year storm.

APPROVED: _____

Stormwater Administrator
City of Portsmouth

DATE: _____