

Office of Regulatory Management  
Economic Review Form

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| <b>Agency name</b>   | Department of Environmental Quality (“Department”)  |
| <b>Virginia Administrative Code (VAC) Chapter citation(s)</b>      | 9VAC 25-875   |
| <b>VAC Chapter title(s)</b>  | Virginia Erosion and Stormwater Management Regulation   |
| <b>Action title</b>  | Amend and update the Virginia Erosion and Stormwater Management Regulation to remove out of date requirements |
| <b>Date this document prepared</b>                                 | May 8, 2024   |
| <b>Regulatory Stage (including Issuance of Guidance Documents)</b> | Fast-Track Regulation   |

**Cost Benefit Analysis**

Complete Tables 1a and 1b for all regulatory actions. You do not need to complete Table 1c if the regulatory action is required by state statute or federal statute or regulation and leaves no discretion in its implementation.

Table 1a should provide analysis for the regulatory approach you are taking. Table 1b should provide analysis for the approach of leaving the current regulations intact (i.e., no further change is implemented). Table 1c should provide analysis for at least one alternative approach. You should not limit yourself to one alternative, however, and can add additional charts as needed.

Report both direct and indirect costs and benefits that can be monetized in Boxes 1 and 2. Report direct and indirect costs and benefits that cannot be monetized in Box 4. See the ORM Regulatory Economic Analysis Manual for additional guidance.

**Table 1a: Costs and Benefits of the Proposed Changes (Primary Option)**

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| (1) Direct & Indirect Costs & Benefits (Monetized) | <p><b><u>Background</u></b></p> <p>Chapters 68 and 758 of the 2016 Acts of Assembly (the “Consolidation Bill”), as amended by Chapters 656 and 666 of the 2023 Acts of Assembly, combined requirements in the Stormwater Management Act and Erosion and Sediment Control Law to create the Virginia Erosion and Stormwater Management Act (effective July 1, 2024). The Consolidation Bill directed the State Water Control Board (Board) to adopt regulations – to permit, regulate, and control both erosion and</p> |
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stormwater runoff – for the legislation to become effective. At its June 22, 2023 meeting, the Board approved final regulations that consolidated 9VAC25-840 (Erosion and Sediment Control Regulations), 9VAC25-850 (Erosion and Sediment Control and Stormwater Certification Regulations), and 9VAC25-870 (Virginia Stormwater Management Program Regulations) into a single regulatory chapter, the Virginia Erosion and Stormwater Management Regulation (9VAC25-875). The Virginia Erosion and Stormwater Management (VESM) Regulation becomes effective July 1, 2024, concurrent with the effective date of the Consolidation Bill, as amended.

Consistent with the Notice of Intended Regulatory Action for Chapter 870 that was posted in the Virginia Register of Regulations on February 4, 2019, no substantive changes to existing erosion and sediment control minimum standards or to the post-construction stormwater management technical criteria were part of the regulatory action that resulted in the Board’s adoption of Chapter 875. The intent of this regulatory action is to amend Chapter 875 by updating sections and requirements that are out of date and burdensome to the regulated community because they do not reflect current practices, technology, or data about land use and nutrient loading.

**Direct & Indirect Costs:**

The Virginia Erosion and Stormwater Management (VESM) Regulation revisions include updates to: (i) the Virginia Runoff Reduction Method (VRRM) so that it is based on current water quality models and nutrient loading data; (ii) the total phosphorus load of new development projects; and (iii) best management practices for water quality compliance. This action does not change the substantive requirements for owners and operators to submit plans, obtain permits, and maintain compliance with requirements to control erosion and stormwater runoff from land-disturbing activities. In addition, it does not change the technical requirements such as erosion and sediment control minimum standards and post-construction stormwater management criteria that protect public health and the environment. Therefore, there are no significant new direct or indirect costs associated with the proposed changes.

**Direct Benefits:**

The updates to the VRRM, total phosphorus load of new development projects, and best management practices for water quality compliance are expected to result in direct benefits to stakeholders and the Commonwealth. These benefits have been addressed in the ORM Economic Review Forms for the Handbook and VRRM and include the following when used in conjunction with amendments to the VESM Regulation:

- Allows stakeholders to use new post-development best management practices (BMPs) set out in the new Virginia Stormwater Management Handbook (Handbook), for meeting water quality criteria requirements;
- Allows stakeholders to use expanded and updated BMP specifications that are in the Handbook;
- Provides stakeholders the option of using a fourth land-cover criteria, mixed open, which offers a lower-cost alternative to achieve restoration of ground cover (as compared to re-establishing forest conditions);
- Reduces the total phosphorus load for new development so that it more accurately reflects (1) the projected mix of land to be developed in Virginia’s Chesapeake Bay watershed and accounts for reduced phosphorus loading that has resulted from the 2011 ban on phosphorus in lawn fertilizer (2011 Acts of Assembly Chapter 341); and (2) less phosphate runoff leaving construction sites and entering state waters, particularly the Chesapeake Bay and its watershed;
- The Handbook provides up-to-date specifications for BMPs which will allow more efficient review of plans and permit applications since users and regulators will both have the same information and expectations; and
- Significant time savings for planners, applicants, and reviewers.

The revisions to the VRRM (VRRM 4.1) are a result of an evaluation performed by the Department in response to Initiative 48 in the Commonwealth of Virginia Chesapeake Bay Total Maximum Daily Load (TMDL) Phase III Watershed Implementation Plan (WIP) which requires the Department to “initiate a review of the post-development water quality design criteria requirements established under the Stormwater Management Program (VSMP) Regulation.” Initiative 48 further specifies that “the Commonwealth’s review will determine if the criteria continue to satisfy the offset requirement of the TMDL.” This evaluation resulted in an updated VRRM guidance document and a corresponding total phosphorus load for new development projects.

The existing VRRM referenced in the documents incorporated by reference to the regulations (VRRM 1.0) and the updated version (VRRM 3.0) are both based on older, more limited selection of BMPs and a phosphorus (P) load of 0.41 pounds/acre/year (lbs/ac/yr). While this level is higher than the P load in the updated VRRM (0.26 lbs/ac/yr), modeling by the Department and the agency’s contractor (Virginia Tech) showed that the total phosphorus reduction for projects with moderate or higher levels of impervious cover is actually lower at the loading rate in VRRM 4.1, thus reducing the cost of typical multifamily and affordable housing projects. In addition, VRRM 4.1 provides additional lower cost

options for complying with the water quality technical criteria outlined in the VESM Regulation; thereby, lowering costs for site plan preparation, construction, and maintenance. The Department is unable to precisely quantify these benefits because the benefits are site specific since they depend on the soil type, land-use plan, and type of vegetative cover. However, modeling by Virginia Tech indicates requirements for onsite best management practices can be reduced by approximately five percent and the amount of offsite nutrient credits required may fall by as much as 50% or about 1000 pounds of total phosphorus per year. As noted in the ORM Economic Review Form for the VRRM, the current average market cost for a one-pound total phosphorus credit is \$15,000, resulting in an estimated cost savings of \$15 million per year.

The new BMP specifications are now included in the Virginia Stormwater Management Handbook (Handbook). The new Handbook will reduce confusion and uncertainty for stakeholders, Department staff, and local erosion and stormwater management program authorities about the specifications for multiple types of best management practices (i.e., their design, use, and maintenance), thereby lowering costs for site plans, plan review, and implementation. This will also allow faster plan development and review. The Department estimates this could result in at least a 30-day time savings, decreasing the current average permit review and approval process, which includes time for the applicant to make revisions and resubmit plans, from 155 days to 125 days.

**Indirect Benefits:**  
 Updating the VRRM allows users and communities to benefit from and acknowledge reduced and more accurate levels of phosphorus runoff. The Department is unable to quantify these benefits because the benefits are site specific since they depend on the soil type, land-use plan, and type of vegetative cover. However, because the new VRRM indirectly encourages meadows or re-forestation instead of managed turf, maintenance costs may be reduced at a project site and environmental benefits (cleaner air and water) result from increased meadow and forest cover. In addition, moving to a single Handbook for implementation of the new laws (Consolidation Bill) and VESM Regulation will allow projects to go to construction sooner and take advantage of a wider selection of BMPs.

|                              |                         |                            |
|------------------------------|-------------------------|----------------------------|
| (2) Present Monetized Values | Direct & Indirect Costs | Direct & Indirect Benefits |
|------------------------------|-------------------------|----------------------------|

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|  | (a) No monetized direct or indirect costs associated with these regulatory changes.  | (b) The updated VRRM allows stakeholders to use new post-development best management practices (BMPs), as well as provides stakeholders with the option of using a fourth land-cover criteria that will help with linear infrastructure projects such as electrical power transmission lines. With this, the updated VRRM provides the regulated community with a lower-cost alternative to achieve restoration of ground cover and additional, less expensive BMP options for compliance; thereby, saving on design and construction costs. In addition, due to the update to the BMP specifications and the Handbook, local authorities and the Department will benefit from the amount of staff time saved working with consultants on issues that have been addressed in the expanded and updated BMP specifications in the Handbook. The Department is unable to quantify these benefits because the benefits are site specific since they depend on the soil type, land-use plan, and type of vegetative cover. |
| (3) Net Monetized Benefit                  | Incorporation of the updated BMP specifications in a new Handbook will also allow faster plan development and review, which the Department estimates will result in at least a 30-day time savings. Monetized – there is approximately \$28 billion/year in construction activity in Virginia. With an estimated 10% cost of debt and equity, this results in a savings of \$233 million/year. |   |
| (4) Other Costs & Benefits (Non-Monetized) | Unknown (see discussion above).  |   |
| (5) Information Sources                    | Department permit records; communications with Department staff that worked for consulting firms that prepare and work with stormwater plans.  |   |

**Table 1b: Costs and Benefits under the Status Quo (No change to the regulation)**

|   |   |
|---|---|
| <p>(1) Direct &amp; Indirect Costs &amp; Benefits (Monetized)</p> | <p><b>Direct Costs:</b><br/> The “status quo” option would be to continue to use existing specifications and manuals that were developed for the Virginia Erosion and Stormwater Management Regulations, 9VAC25-840, and Virginia Stormwater Management Program Regulation, 9VAC25-870, both of which are being repealed effective July 1, 2024, the date the VESM Regulation, 9VAC25-875, becomes effective. In addition, continuing to use the existing regulatory total phosphorus load of new development projects of 0.41 lbs/ac/yr will result in higher direct costs for stakeholders, relative to the lower proposed total phosphorus load of 0.26 lbs/ac/yr, for projects with moderate or higher levels of impervious cover. Projects with low amounts of impervious cover and high amounts of maintained lawn instead of forest or mixed open space will have slightly lower direct costs. No direct costs will be occurred by the Department.</p> <p><b>Indirect Costs:</b><br/> Maintaining the current regulatory total phosphorus load of new development projects of 0.41 lbs/ac/yr would have no indirect economic cost to regulated entities. In addition, continuing to use the existing specifications would lead to confusion among stakeholders and Department staff or local erosion and stormwater management program authorities that review and approve plans and permit applications for land-disturbing activities. The primary indirect costs with the “status quo” are the additional operator, consultant, Department, and local authority staff time to resolve plan review issues due to the inconsistencies between the VESM Regulation and the existing specifications and outdated manuals. The Department is unable to quantify these costs.</p> <p><b>Direct Benefits:</b><br/> Maintaining the current regulatory total phosphorus load of new development projects of 0.41 lbs/ac/yr would have negative direct economic benefits to regulated entities that develop projects with moderate or higher levels of impervious cover, and slightly positive benefits for projects with low amounts of impervious cover and high amounts of maintained lawn instead of forest or mixed open space. In addition, the primary direct benefit of not updating the BMP specifications referenced in the regulations is the continued construction and implementation of BMPs which are familiar to the design community, developers, contractors, plan reviewers, and inspectors. The Department is unable to quantify these benefits.</p> <p><b>Indirect Benefits:</b><br/> Maintaining the current regulatory total phosphorus load of new development projects of 0.41 lbs/ac/yr would have no indirect benefits to</p> |
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|  | regulated entities. In addition, the use of the existing specifications and VRRM would save design consultants, operators, local authorities, and Department staff time and personnel costs associated with learning the updated VRRM and BMP specifications contained in the Handbook. With the “status quo” option, staff would continue to use, implement, review, and inspect the BMPs they have been using for the past 20-30 years. The Department is unable to quantify these benefits. |  |
| (2) Present Monetized Values               | Direct & Indirect Costs  | Direct & Indirect Benefits                           |
|  | (a) Unable to monetize indirect costs associated with the status quo.  | (b) Unable to monetize direct and indirect benefits. |
| (3) Net Monetized Benefit                  | N/A  |  |
| (4) Other Costs & Benefits (Non-Monetized) | N/A  |  |
| (5) Information Sources                    | N/A  |  |

**Table 1c: Costs and Benefits under Alternative Approach(es)**

|  |   |                            |
|--|---|----------------------------|
| (1) Direct & Indirect Costs & Benefits (Monetized) | The Department is not aware of any alternatives to this regulatory change other than (1) continuing to operate with the existing VRRM and design specifications with no updates or (2) delaying an update to the VRRM and the design specifications. However, the Stormwater Management Act requires the Department to periodically modify minimum design criteria for measures to control nonpoint source pollution so they reflect current engineering methods (§ 62.1-44.15:28 A 2 of the Code of Virginia, recodified at § 62.1-44.15:28 6, effective July 1, 2024) and to review the water quality design criteria standards upon completion of the 2017 Chesapeake Bay Phase III Watershed Implementation Plan (Phase III WIP)(9VAC25-870-63 C). The approval of the lower total phosphorus load of new development projects of 0.26 lbs/ac/yr would satisfy these requirements and is significantly overdue per the requirements in the law and regulations. |                            |
| (2) Present Monetized Values                       | Direct & Indirect Costs   | Direct & Indirect Benefits |
|  | N/A   | N/A                        |

|  |     |
|--|-----|
| (3) Net Monetized Benefit                  | N/A |
| (4) Other Costs & Benefits (Non-Monetized) | N/A |
| (5) Information Sources                    | N/A |

**Impact on Local Partners**

Use this chart to describe impacts on local partners. See Part 8 of the ORM Cost Impact Analysis Guidance for additional guidance.

**Table 2: Impact on Local Partners**

|   |  |   |
|---|--|---|
| <p>(1) Direct &amp; Indirect Costs &amp; Benefits (Monetized)</p> | <p><b>Direct Costs:</b><br/>There are no direct costs to local partners because this action does not change the existing responsibilities of local governments to implement erosion and sediment control and stormwater management programs consistent with requirements in the Stormwater Management Act and Erosion and Sediment Control Law (Chapters 2.3 and 2.4 of the State Water Control Law, Article 3.1 of Title 62.1 of the Code of Virginia).</p> <p><b>Indirect Costs:</b><br/>The indirect costs associated with the proposed change are additional staff time necessary for local staff to attend training associated with the updated VRRM, BMP Design Specifications, and Handbook. The Department is unable to quantify these costs.</p> <p><b>Direct Benefits:</b><br/>The direct benefit to local partners is up-to date specifications with additional BMPs, which will result in less staff time in reviewing, inspecting, and working through issues before and during construction.</p> <p><b>Indirect Benefits:</b><br/>The indirect benefits associated with this change is that construction projects will be completed faster and with fewer delays caused by uncertainty, thus supporting economic growth within the locality.</p> |   |
| <p>(2) Present Monetized Values</p>                               | <p>Direct &amp; Indirect Costs</p> <p>(a) Unable to monetize direct and indirect costs.</p>  | <p>Direct &amp; Indirect Benefits</p> <p>(b) Unable to monetize direct and indirect benefits.</p> |



|  |     |
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| (3) Other Costs & Benefits (Non-Monetized) | N/A |
| (4) Assistance                             | N/A |
| (5) Information Sources                    | N/A |

**Impacts on Families**

Use this chart to describe impacts on families. See Part 8 of the ORM Cost Impact Analysis Guidance for additional guidance.

**Table 3: Impact on Families**

|  |   |                            |
|--|---|----------------------------|
| (1) Direct & Indirect Costs & Benefits (Monetized) | <p><b>Direct Costs:</b><br/>There are no direct costs that impact families associated with the proposed changes.</p> <p><b>Indirect Costs:</b><br/>There are no indirect costs that impact families associated with the proposed changes.</p> <p><b>Direct Benefits:</b><br/>There are no direct benefits that impact families associated with the proposed changes.</p> <p><b>Indirect Benefits:</b><br/>There are no indirect benefits that impact families associated with the proposed changes.</p> |                            |
| (2) Present Monetized Values                       | Direct & Indirect Costs   | Direct & Indirect Benefits |
|  | (a) N/A   | (b) N/A                    |
| (3) Other Costs & Benefits (Non-Monetized)         | N/A   |                            |
| (4) Information Sources                            | N/A   |                            |

**Impacts on Small Businesses**

Use this chart to describe impacts on small businesses. See Part 8 of the ORM Cost Impact Analysis Guidance for additional guidance.

**Table 4: Impact on Small Businesses**

|  |   |  |
|--|---|--|
| (1) Direct & Indirect Costs & Benefits (Monetized) | Small businesses would have the same impact as described in 1a above. The department is unable to identify the number of small businesses that would benefit from this regulatory change. |  |
| (2) Present Monetized Values                       | Direct & Indirect Costs   | Direct & Indirect Benefits                           |
|  | (a) No monetized direct or indirect costs associated with the regulatory changes.   | (b) Unable to monetize direct and indirect benefits. |
| (3) Other Costs & Benefits (Non-Monetized)         | N/A   |  |
| (4) Alternatives                                   | N/A   |  |
| (5) Information Sources                            | N/A   |  |

## Changes to Number of Regulatory Requirements

**Table 5: Regulatory Reduction**

For each individual action, please fill out the appropriate chart to reflect any change in regulatory requirements, costs, regulatory stringency, or the overall length of any guidance documents.

### *Change in Regulatory Requirements*

| VAC Section(s) Involved*            | Authority of Change | Initial Count | Additions | Subtractions                                   | Total Net Change in Requirements |
|-------------------------------------|---------------------|---------------|-----------|--|----------------------------------|
| 9VAC25-875-580                      | (M/A):              | 0             | 0         | 0  | 0                                |
|                                     | (D/A):              | 0             | 0         | 0  | 0                                |
|                                     | (M/R):              | 7             | 0         | 0  | 0                                |
|                                     | (D/R):              | 0             | 0         | 0  | 0                                |
| 9VAC25-875-590                      | (M/A):              | 0             | 0         | 0  | 0                                |
|                                     | (D/A):              | 0             | 0         | 0  | 0                                |
|                                     | (M/R):              | 2             | 0         | 0  | 0                                |
|                                     | (D/R):              | 0             | 0         | 0  | 0                                |
| Documents Incorporated by Reference | (M/A):              | 0             | 0         | 0  | 0                                |
|                                     | (D/A):              | 0             | 0         | 0  | 0                                |
|                                     | (M/R):              | 0             | 0         | 0  | 0                                |
|                                     | (D/R):              | 0             | 0         | 0  | 0                                |
|                                     |                     |               |           | <b>Grand Total of Changes in Requirements:</b> | <b>(M/A):0</b>                   |
|                                     |                     |               |           |  | <b>(D/A):0</b>                   |
|                                     |                     |               |           |  | <b>(M/R):0</b>                   |
|                                     |                     |               |           |  | <b>(D/R): 0</b>                  |

### **Key:**

*Please use the following coding if change is mandatory or discretionary and whether it affects externally regulated parties or only the agency itself:*

**(M/A):** Mandatory requirements mandated by federal and/or state statute affecting the agency itself

**(D/A):** Discretionary requirements affecting agency itself

**(M/R):** Mandatory requirements mandated by federal and/or state statute affecting external parties, including other agencies

**(D/R):** Discretionary requirements affecting external parties, including other agencies

### *Cost Reductions or Increases (if applicable)*

| VAC Section(s) Involved* | Description of Regulatory Requirement | Initial Cost | New Cost | Overall Cost Savings/Increases |
|--------------------------|---------------------------------------|--------------|----------|--------------------------------|
|--------------------------|---------------------------------------|--------------|----------|--------------------------------|

|   |  |                        |   |   |
|---|--|------------------------|---|---|
| <p>9VAC25-875-580 and Documents Incorporated by Reference</p> | <p>Water quality design criteria and compliance requirements are demonstrated through the use of the VRRM and post-construction best management practices. For VRRM 4.1, the Virginia Stormwater Management Handbook contains design specifications for the best management practices.</p> | <p>\$30 million/yr</p> | <p>\$15 million/yr*</p> <p>* This cost reduction has been quantified in the ORM Economic Review Form for VRRM 4.1. (Dated January 26, 2024)</p> | <p>Modeling by Virginia Tech indicates requirements for onsite best management practices can be reduced by approximately 5% and the amount of offsite nutrient credits required may fall by as much as 50% or about 1000 pounds of total phosphorus per year. The current average market cost for a one-pound phosphorus credit is \$15,000, resulting in an estimated cost savings of \$15 million per year.</p> |
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*Other Decreases or Increases in Regulatory Stringency (if applicable)*

| <b>VAC Section(s) Involved*</b> | <b>Description of Regulatory Change</b>  | <b>Overview of How It Reduces or Increases Regulatory Burden</b>   |
|---------------------------------|--|--|
| <p>9VAC25-875-590</p>           | <p>The incorporation of the Virginia Stormwater Management Handbook and removal of 15 outdated specifications for best management practices will streamline the process to develop plans for compliance with the VESM Regulation. It also reduces the overall amount of time required for state and local approving authorities to review and approve submissions.</p> | <p>Incorporation of the updated BMP specifications in a new Handbook will also allow faster plan development and review, which the Department estimates will result in at least a 30-day time savings. Monetized – there is approximately \$28 billion/year in construction activity in Virginia. With an estimated 10% cost of debt and equity, this results in a savings of \$233 million/year.*</p> |

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|  |  | <p>The average time to obtain approval will decrease from 155 days to 125 days, which represents a 19% reduction.*</p> <p>* The reductions in the regulatory burden have explained and quantified in the ORM Economic Review Form for the Handbook (Dated January 26, 2024)</p> |
|  |  |   |

*Length of Guidance Documents (only applicable if guidance document is being revised)*

| <b>Title of Guidance Document</b> | <b>Original Length</b> | <b>New Length</b> | <b>Net Change in Length</b> |
|-----------------------------------|------------------------|-------------------|-----------------------------|
| NA                                |                        |                   |                             |
|                                   |                        |                   |                             |