# **Inspector for Stormwater Management**

Participant Guide



Training provided by the Virginia Department of Environmental Quality Office of Training Services

Version 5.1

May 2025



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### **Acronyms**

ac.: Acre

BMP: Best management practice

CATS: Certification Accreditation Tracking System - https://apps.deq.virginia.gov/CATS/

C-BMP: Construction Best Management Practice

CBPA: Chesapeake Bay Preservation Act

CGP or Construction GP: Construction General Permit; General VPDES permit for the discharges

of stormwater from construction activities

CWP: Center for Watershed Protection

DEQ: Virginia Department of Environmental Quality

ESC: Erosion and sediment control

ESD or SD: Environmental Site Design or Stormwater Site Design

ESM: Soil Erosion Control and Stormwater Management (Plan)

HUC: Hydrologic unit code

lbs.: Pounds

LDA: Land-disturbing activity

MS4: Municipal Separate Storm Sewer System

O&M: Operation and maintenance

P2 plan: Pollution prevention plan

P-BMP: Post-Construction Best Management Practice

PCB: Polychlorinated Biphenyl

RLD: Responsible land disturber

SWM: Stormwater management

SWPPP: Stormwater pollution prevention plan

TMDL: Total maximum daily load

VESCP: Virginia Erosion and Sediment Control Program

VESMA: Virginia Erosion and Stormwater Management Act

VESMP: Virginia Erosion and Stormwater Management Program

VPDES: Virginia Pollutant Discharge Elimination System

VRRM: Virginia Runoff Reduction Method

VSMP: Virginia Stormwater Management Program

VSMH: Virginia Stormwater Management Handbook

### **Course Goal**

### VESMP inspectors will be able to:

- Inspect a construction site to determine compliance with the Erosion and Stormwater Management Act and Regulations by identifying common indicators of compliance with the approved ESM plan (which includes both ESC and SWM plans), looking for the development, updating, and implementation of a pollution prevention (P2) plan and any additional control measures to address a TMDL, and communicating inspection findings with the responsible party
- Inspect a stormwater management facility after construction to determine whether
  the facility is being adequately maintained by identifying common indicators of
  properly functioning facilities and communicating findings with the responsible
  party

# **Module 1: Introduction**

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# **Learning Objectives**

At the end of this module, you will be able to:

- Summarize the goals of the erosion and stormwater management program
- Explain the requirements for who must be certified
- Describe the eligibility requirements for taking the certification exam
- List (and follow) the requirements for maintaining certification

### WHAT'S THE PROBLEM?

What happens when it rains? Well, it depends on what surface the rain is falling onto. When rain falls onto a meadow or forest, some of the rain will soak into the ground (infiltration) where it will either be absorbed by plants (transpiration) or it will migrate into groundwater (groundwater recharge). The remaining water will become stormwater runoff and flow to nearby streams.



Figure 1: Rain falling on a forest

Photo credit: www.pexels.com

When it rains on a construction site, the rain that falls on bare soil will erode away the soil, carrying sediment and other pollutants, such as fuel and construction debris, to a stream or stormwater conveyance system that discharges to a stream.



Figure 2: Rain falling on a construction site

Photo credit: www.pexels.com

When it rains on hard (impervious) surfaces, like roads, parking lots or rooftops, rain will not soak into the ground. Instead, it becomes stormwater runoff, and as it flows over hard surfaces, it will pick up speed and energy before leaving the site. The increased quantity of runoff can cause stream channel erosion and flooding. The runoff can also transport pollutants from the hard surfaces, such as sediment, trash, oil, and fertilizers to streams affecting water quality.



Figure 3: Rain falling on a street and sidewalk

Photo credit: DEQ

### WHAT'S THE SOLUTION?

As an inspector, you are part of the solution by inspecting erosion and sediment controls, also known as construction Best Management Practices (C-BMPs), pollution prevention (P2) practices, and stormwater post-construction BMPs (P-BMPs), for compliance during construction, as well as inspecting P-BMPs after construction.



### **Construction BMPs (C-BMPs)**

Structural and non-structural practices are used during construction to keep sediment in place and capture any sediment that is carried by stormwater before it leaves the site.

Photo credit: DEQ

### **Pollution Prevention (P2) Practices**

Good housekeeping practices are used during construction to prevent contamination of stormwater from a wide range of materials and wastes found on construction sites.

Photo credit: DEQ

### **Post-Construction BMPs (P-BMPs)**

Structural and non-structural practices are used for controlling the quality and quantity of post-construction stormwater runoff.

Photo credit: Chesapeake Bay Program

### LAWS AND REGULATIONS

The Virginia Erosion and Stormwater Management Program (VESMP) is authorized by the Virginia Erosion and Stormwater Management Act (VESMA) (§ 62.1-44.15:24 et. al) and administered through the Virginia Erosion and Stormwater Management (VESM) Regulation (9VAC25-875).

### As an inspector...

You are responsible for checking for compliance with your locality's stormwater program. To do so, you must have a strong understanding of the CGP. Make sure to review the full permit included in this participant guide.

The General VPDES Permit for Discharges of Stormwater from Construction Activities (9VAC25-880), also known as the Construction General Permit (CGP), authorizes the discharge of stormwater from construction activities that are  $\geq$  one acre. A violation of this permit also constitutes a violation of VESMA. The permit is discussed in Modules 4 and 5.

Part IV of the VESM Regulation (<u>9VAC25-875</u>) further explains the requirements for achieving and maintaining certifications.

**Remember,** the VESM Regulation does not limit the applicability of other laws and regulations, including, but not limited to the Clean Water Act, Virginia Erosion and Sediment Control Law for Localities <u>Not Administering</u> a VESMP, and the Chesapeake Bay Preservation Act (<u>9VAC25-875-480</u>).

### STATE WATER CONTROL BOARD

(§ 62.1-44.15:25)

VESMA requires the State Water Control Board (Board) to <u>permit, regulate, and control soil</u> <u>erosion and stormwater runoff</u> and act to protect the <u>quality</u> and <u>quantity</u> of state waters from the potential harm of unmanaged stormwater and soil erosion in the Commonwealth. When used outside the context of the promulgation of regulations, "board" means the Department (DEQ).

### **DEQ**

### (§ 62.1-44.15:27, :27.1)



Responsible for providing technical assistance, training, and general assistance to localities in administering their VESMP.



Oversight over all stormwater programs, including locality VESMP authority approval.



Virginia Stormwater Management Program (VSMP) authority for localities that administer a Virginia Erosion and Sediment Control Program (VESCP)

### 1b. Training and Certification

### REGULATORY REQUIREMENTS AND APPLICABILITY

(§ 62.1-44.15:27, :30); (§ 62.1-44.15:52, :53); (9VAC25-875-390)

VESMA requires the staff of VESMP authorities to obtain and maintain certifications in the areas of erosion and sediment control (ESC) and stormwater management (SWM). Anyone who is contracted by a program authority to perform any or all of the functions of that authority must also obtain and maintain their certification. Entities with approved standards and specifications must have certified staff just as if the entity were a program authority. The certification requirements of personnel are outlined in Part IV of the VESM Regulation (9VAC25-875-380 – 460).

### **Law and Regulation References**

The "§" symbol is a section sign referring to the Code of Virginia law. "VAC" means the Virginia Administrative Code, which contains the permanent regulations for the Commonwealth of Virginia.

### **ROLES OF THE PROGRAM STAFF**

(9VAC25-875-400)

There are four potential roles for a locality's program staff. The following items are generally the day-to-day duties of each position.

### Program administrator

- Ensures plan review and approval, inspections, and enforcement actions are conducted in accordance with the ESC law or VESMA, regulation, and local ordinances
- Completes reports to be sent to DEQ
- Coordinates enforcement proceedings
- Keeps records, collects fees, and updates local ordinances as needed

Additionally, the program administrator ensures that other positions, such as inspectors and plan reviewers, are certified.



### Inspector

- Conducts regular inspections of active construction sites and post-construction sites to ensure proper construction, function, and maintenance of C-BMPs and P-BMPs
- Documents inspections
- Initiates enforcement action when needed
- Ensures compliance to correct deficiencies or violations



### Plan reviewer

 Responsible for review of ESC, erosion control and stormwater management (ESM), and/or SWM plans to ensure plans adhere to the laws, regulations, minimum standards, and local ordinances



### **Combined administrator**

 Responsible for performing the combined duties of a program administrator, inspector, and plan reviewer



### **EXAM ELIGIBILITY**

(9VAC25-875-410.A)

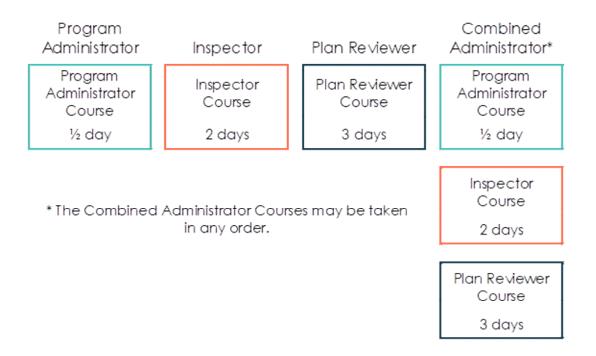
There are two ways to be eligible to take a certification examination:

- 1. Complete DEQ training course(s)
- 2. Complete the DEQ Verification of Work Experience Form, with supervisor signature



### **DEQ** training courses

The following graphic illustrates the training courses needed for each certification through the traditional training and certification curriculum for either ESC or SWM. Those seeking both ESC and SWM certifications should complete the parallel ESC class first. Online prerequisites must be completed before enrolling in either live webinar or classroom certification courses.



For information on DEQ Training and Certification, please visit:

https://www.deq.virginia.gov/our-programs/training-certification

### Work experience

Individuals with at least 800-hours of on-the-job work experience as a program administrator, inspector, plan reviewer, or combined administrator may complete the Verification of Work Experience Form, instead of completing the DEQ training course(s).

The form is located under the Resources section of the DEQ Exam Information page: <a href="https://www.deq.virginia.gov/our-programs/training-certification/exam-information">https://www.deq.virginia.gov/our-programs/training-certification/exam-information</a>

### PROVISIONAL CERTIFICATION

### (9VAC25-875-410.A.2)

From the day you complete your first required training course, you have *one year* to complete all required training courses and obtain a passing score on the certification exam. This provisional certification allows individuals to continue working for an authority while they seek full certification. It is not a substitute for obtaining certification.

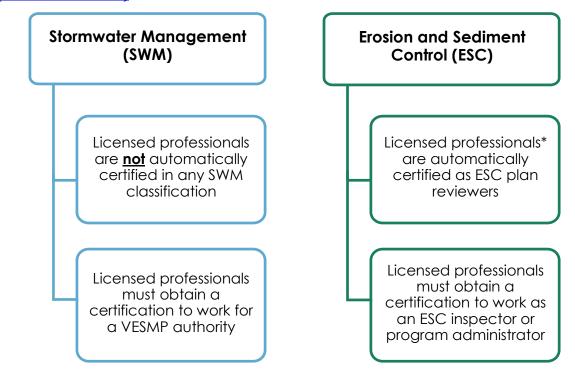
#### NOTE

Individuals can only be provisionally certified once per classification.

If an individual does not obtain a certification within one year, they will not be considered certified until they pass the respective exam, which may include qualifying for the exam through 800-hours of work experience.

### LICENSED PROFESSIONALS

(9VAC25-875-400.D)



\*Professional engineer, architect, landscape architect, or land surveyor pursuant to article 1 (§ 54.1-400 et seq.) of chapter 4 of title 54.1 of the Code of Virginia; or is a professional soil scientist as defined in chapter 22 (§ 54.1-2200 et seq.) of title 54.1 of the Code of Virginia.

For more information, please see DEQ's Licensed Professionals FAQ at: https://www.deq.virginia.gov/our-programs/training-certification/frequently-asked-questions

### **EXAMINATIONS**

### (9VAC25-875-440)

All exams are administered by Pearson VUE. Visit:

https://www.pearsonvue.com/us/en/va/deq.html to register for an exam. The exams are multiple choice with four answer options and delivered on a computer. They are open book and have specific time limits.

# Program Administrator 1.5 hours Program Administrator Administrator Administrator Administrator Administrator Administrator Administrator Administrator Administrator

### **Candidate Information Booklet**

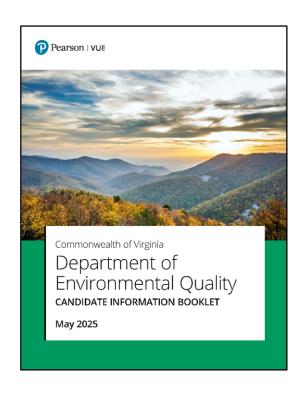
You are strongly encouraged to download and read the Candidate Information Booklet (CIB) before taking the exam. The CIB is available at:

https://www.pearsonvue.com/us/en/va/deq.html.

The CIB includes information about:

- Exam reservations
- Testing center locations
- What to bring into the exam
- What not to bring into the exam
- Candidate identification
- Course completion certificates
- Exam content outlines





### Americans with Disabilities Act

Pearson VUE complies with the provisions of the Americans with Disabilities Act (ADA) as amended. Please refer to the ADA section of the CIB for full details. Pearson VUE provides reasonable and appropriate accommodations to individuals with documented disabilities who demonstrate a need for accommodations.

### English as a Second Language

Candidates for whom English is a second language may request additional time for the examination by sending the English as a Second Language (ESL) Request Form (found at the back of the CIB) to Pearson VUE. Candidates MUST include a letter from his/her English instructor or sponsoring company (on official letterhead, if from a company) stating that English is not the candidate's primary language. Please refer to the ESL section of the CIB for full details.

Please wait to make any exam reservations until after hearing back from Pearson VUE about the accommodations' approval to ensure the appropriate accommodation will be available at the testing center.

### **Examination results**

You will be notified of your examination results at the examination center. You must attain a minimum score of <u>70%</u> to pass. If you receive a passing score on your exam, you will receive an email from DEQ prompting you to log into the DEQ Certification Accreditation Tracking System (CATS) to manage your certification.

It is very important that you activate your CATS profile!
Please keep your information current.
CATS will send recertification reminders via email.

If you do not pass the examination, you can reschedule another examination after 24 hours. You will receive a score report at the testing center that will estimate your performance on each of the content areas of the exam. Use this report and the content outline from the CIB to help you study before you retake the exam again.

### **DUAL CERTIFICATIONS**

### (9VAC25-875-400.A 9-12, E)

Individuals who perform both erosion and stormwater program duties may obtain a dual certification by surrendering both valid certifications to DEQ and paying the required administrative fee. For instance, a person who holds a valid ESC Inspector Certification and obtains a SWM Inspector Certification may surrender both and obtain a Dual Inspector Certification. A person holding a dual certification meets the certification requirement for that role in a consolidated VESMP.

The dual certification will *expire three years* from the latest date of either certification being surrendered.

Erosion and Sediment Control		Stormwater Management		Dual Certification
ESC Program Administrator	+	SWM Program Administrator	=	Dual Program Administrator
ESC Inspector	+	SWM Inspector		Dual Inspector
ESC Plan Reviewer	+	SWM Plan Reviewer	=	Dual Plan Reviewer
ESC Combined Administrator	+	SWM Combined Administrator	=	Dual Combined Administrator

#### Be aware...

According to <u>9VAC25-875-460</u>, DEQ may revoke or suspend any certification, or refuse to grant or renew a certification, if fraudulent or misleading actions have been taken on the part of the certified individual.

### RECERTIFICATION

### (9VAC25-875-410.B-C)

Recertification is tracked in CATS. Certifications are valid for *three years*. In order to maintain your certification, you must recertify *before* your certification expires.

3 Years

### **Recertification Options**

### Complete contact hours\*

 Complete required contact hours by completing DEQ courses or other relevant training before certification expires.

Program admin = 12 hours Inspector = 18 hours Plan reviewer = 21 hours Combined admin = 24 hours

Enter contact hour information into CATS and pay recertification fee.

# Maintain professional license

- 1. Keep professional license valid.\*\*
- Enter license number into CATS and pay recertification fee.

### Re-take exam

Re-take and pass the certification examination with Pearson VUE before certification expires.

\*\*Professional engineers, architects, land surveyors, and landscape architects may use their professional license to recertify for ESC, SWM, and dual certifications. Soil scientists may use their professional license to recertify for ESC roles only.

If your certification expires, you must re-take the certification exam. **It is your responsibility to enter contact hours into CATS and pay the recertification fee.** Contact hours can be entered anytime. *You may re-certify during the last 12 months of your valid certification without losing time. Three years will be added to the expiration of that valid certification. You do not lose time on your valid certification.* 

Please send any questions regarding training and certification to <a href="mailto:certification@deq.virginia.gov">certification@deq.virginia.gov</a>.

<sup>\*</sup>Review the DEQ Contact Hour guidance at: <a href="https://www.deq.virginia.gov/home/showpublisheddocument?id=1809">https://www.deq.virginia.gov/home/showpublisheddocument?id=1809</a>

### **Summary**

This module provides the VESMP inspector with the information and processes needed to:

- Discuss the overall goal of the erosion and stormwater management program to the regulated community and other applicable stakeholders
- Understand and follow the:
  - i) Certification requirements
  - ii) Eligibility options for the certification exam
  - iii) Recertification requirements

# **Module 2: Managing Runoff**

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# **Learning Objectives**

At the end of this module, you will be able to:

- Recall the components of a complete stormwater pollution prevention plan (SWPPP)
- Explain how runoff characteristics can change as landcover conditions change
- Generalize the goal of the Virginia Erosion and Stormwater Management (VESM) regulation water quality technical criteria
- Generalize the goal of the VESM regulation water quantity technical criteria

### 2a. Stormwater Pollution Prevention Plan (SWPPP)

### (9VAC25-875-500) (9VAC25-880-70 PART II)

The stormwater pollution prevention plan (SWPPP) is the cornerstone of the stormwater program. Each SWPPP must be site-specific, address the potential sources of pollution that may be generated during and after construction, and be updated throughout construction.

### A complete SWPPP includes:

### As an inspector...

You will be performing inspections to confirm compliance with the approved soil erosion control and stormwater management (ESM) plan contained in the SWPPP. A site's ESM plan will include both the ESC plan and SWM plan highlighted below.

It is important to know the SWPPP documentation requirements in the Construction General Permit (CGP). See Module 4 for more information.

### Approved erosion and sediment control (ESC) plan

Describes the structural and non-structural practices to be used during construction to keep sediment in place and capture any sediment that is moved by stormwater before it leaves the site. The ESC plan must be approved by a Virginia Erosion and Stormwater Management Program (VESMP) authority before land-disturbance begins, or where DEQ acts as the Virginia Stormwater Management Program (VSMP) authority, the ESC plan approval is done by the Virginia Erosion and Sediment Control Program (VESCP) authority.

### Approved stormwater management (SWM) plan

Describes the methods to be used for controlling post-construction stormwater discharges. The SWM plan must be approved by a VESMP authority, or DEQ as the VSMP authority, before land disturbance. Plan approval and other program requirements by a VESMP, VESCP, or DEQ as a VSMP authority are discussed in Module 3.

### Pollution prevention (P2) plan

Describes good housekeeping practices that are designed to minimize the discharge of pollutants from a wide range of materials and wastes found on construction sites. The P2 plan must be developed before land disturbance and updated throughout construction.

### Additional control measures for impaired, TMDL or exceptional waterways

Sites discharging to surface waters identified as impaired for Benthic Macroinvertebrates in the 2022 § 305(b)/303(d) Water Quality Assessment Integrated Report, with a Total Maximum Daily Load (TMDL) wasteload allocation that was established and approved before July 1, 2024 for (i) sediment or a sediment-related parameter (i.e., total suspended solids or turbidity) or (ii) nutrients (i.e., nitrogen or phosphorus), or exceptional waterways must include the additional controls listed in the CGP.

In addition, construction activity discharges from demolition of any structure with at least 10,000 square feet of floor space built or renovated before January 1, 1980, to surface waters impaired in the 2022 § 305(b)/303(d) Water Quality Assessment Integrated Report with a TMDL wasteload allocation that was established and approved before July 1, 2024 for Polychlorinated Biphenyl (PCB) must include the additional controls listed in the CGP.

See the map on the following page to locate impaired waters and TMDLs.

## 2b. Stormwater Management Plan



Typical changes in landcover (1958 – 1999) for a commercial area

Source: Atlanta Regional Commission

Over the past 40 years, the population in Virginia has grown rapidly. During this same time, forest cover has decreased while the impervious cover associated with residential areas, roads, institutions, and commercial development has increased.

This dramatic increase in population, impervious cover, and corresponding loss of tree cover has resulted in excessive amounts of stormwater runoff. Stormwater runoff harms streams in two ways:

- 1. Stormwater runoff picks up pollutants like sediment, trash, oil, and fertilizer and carries them to streams affecting *water quality*.
- 2. With less infiltration occurring, the volume and velocity of stormwater runoff increases. This increase in *water quantity* can result in channel erosion and flooding as well as pose risks to downstream properties.

To address these concerns, the stormwater regulations lay out the technical criteria that must be met in the SWM plan. The primary objective of these technical criteria is to protect against the impacts that result from development and the associated increases in stormwater runoff.

### WATER QUALITY CRITERIA

The goal of the Virginia Erosion and Stormwater Management (VESM) regulation water quality technical criteria is to reduce the amount of pollutants discharged after construction to streams via stormwater runoff by reducing volumes and/or removing pollutants from runoff.



Algae in a stream

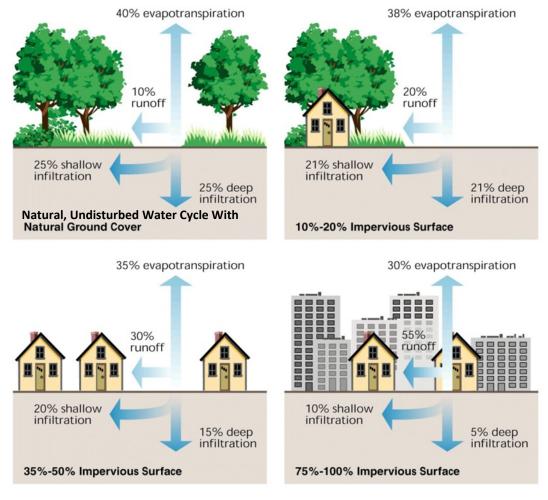
Courtesy of Chesapeake Bay Program

The criteria targets *total phosphorus* because it is a pollutant and marker for other pollutants. Phosphorus attaches to sediment that is easily carried with stormwater runoff. While phosphorus is naturally found in fresh water, small increases can have an adverse effect on water quality and aquatic life. Excess phosphorus fuels abundant growth of algae. The excess algae die off and bacterial decomposition of all this additional organic matter consumes oxygen in the water. This excess oxygen consumption results in sudden declines of the dissolved oxygen content in the water and serious stress and/or death to fish and other aquatic life that need this dissolved oxygen to survive. Excessive algal blooms can also produce a dense mat like surface cover in natural waters that effectively blocks the sun from reaching underwater grasses, hindering their growth. Underwater grasses form a very important part of aquatic

ecosystems by providing food, habitat, and oxygen, and helping to support aquatic life that keeps the water clear and healthy. This type of pollution can have a negative impact on Virginia's economy, affect public drinking water supplies, and degrade recreational opportunities.

### How does impervious cover affect water quality?

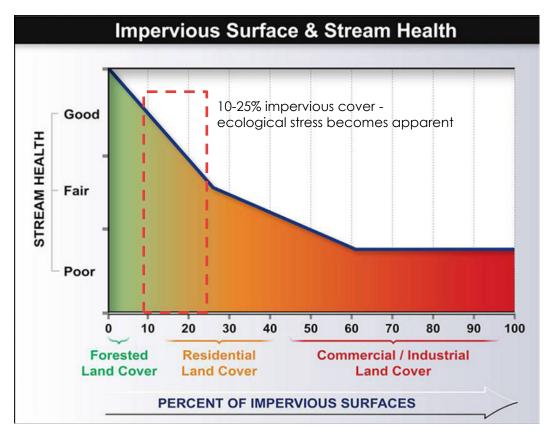
Under natural woodland and meadow conditions, only a small portion of annual rainfall becomes stormwater runoff. As natural vegetation is replaced with roads, buildings, parking areas and other impervious surfaces, the volume and velocity of stormwater runoff increases. The increase in stormwater runoff leads to an increase in pollutants, such as sediment and phosphorus that are carried to waterways, which has a negative effect on water quality. The relationship between impervious cover and runoff is illustrated below.



Relationship between impervious cover and runoff

Federal Interagency SWRG, 1998

Research has shown that when impervious cover in a watershed reaches between 10 and 25 percent, ecological stress becomes apparent (Schueler et al., 2009). Beyond 25 percent impervious cover, stream stability is reduced, habitat is lost, water quality is degraded, and biological diversity is diminished. This relationship is displayed in the graph below. In developed watersheds with significant residential, commercial, and industrial development, overall watershed imperviousness often exceeds the ecological stress thresholds.



The Impervious Cover Model: How Imperviousness Impacts Stream Health

Source: Chesapeake Bay Stormwater Training Partnership

#### How does managed turf affect water quality?

In addition to impervious cover, research also indicates that managed turf affects water quality (Law et al, 2008). During construction, turf areas are graded, which removes the topsoil layer – a good growing medium for vegetation. The remaining subsoil is compacted from heavy construction equipment, which decreases soil permeability, and therefore increases the volume and velocity of runoff (OCSCD et al, 2001; Pitt et al, 2002; Schueler and Holland, 2000). Mowing and applying fertilizers and pesticides are other contributors to elevated nutrient loads in runoff.

# Accounting for pollutant loads based on landcover and soil type (9VAC25-875-580)

The Impervious Cover Model above shows the ideal threshold for development in order to maintain good stream health and highlights how stream health is negatively impacted as impervious surface area increases in a watershed. Remember, phosphorus binds to sediment as well as serves as a marker for other pollutants, which are carried with runoff.

The water quality criteria in the VESM Regulation sets a site-based load limit of <u>0.26</u>

<u>lbs./acre/year of Total Phosphorus for new development</u>. The <u>Virginia Runoff Reduction</u>

<u>Method</u> (VRRM) is a compliance approach used in Virginia to address pollutant loads by incorporating environmentally sensitive design elements, runoff treatment control, and runoff volume control options. Load calculations are based on <u>landcover types</u> and <u>soils</u>. Remember, more impervious cover on a site means more runoff.

#### Other alternate water quality methodologies

The Virginia Stormwater Management Handbook (VSMH) Appendix A details alternate water quality compliance methodologies that, if approved by DEQ, may be used to address a site's water quality compliance strategy.

#### Stormwater site design

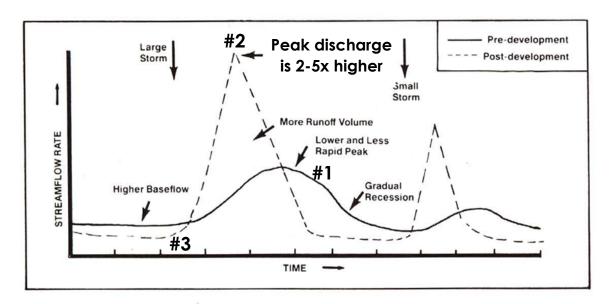
The VSMH Chapter 6 introduces stormwater site design (SD) principles that, when used for the preservation and protection of natural vegetation and protection of good soils, can lead to lower runoff volumes and phosphorus loads. This is one of the recommended approaches for new projects, which facilitates the goal of meeting site compliance for water quality. Low impact development (LID), which is included in SD, is a design approach to manage stormwater runoff by decreasing the volume of stormwater runoff that leaves a site.

#### Post-construction best management practices (P-BMPs)

If a site's design does not initially meet the water quality criteria, then DEQ-approved post-construction best management practices (P-BMPs) must be added to the design to reduce stormwater runoff and/or remove pollutants from stormwater runoff. The P-BMPs are discussed in Module 6.

#### WATER QUANTITY CRITERIA

The VESM regulation water quantity technical criteria addresses <u>channel protection</u> and <u>flood</u> <u>protection</u> because as stormwater runoff increases, there is a direct impact on stream channels and flooding. The hydrograph below shows how differently a stream responds to a storm and stormwater runoff in a pre- and post- development watershed.



Pre- and Post-Development Stormwater Runoff Hydrographs

- 1. Following a storm in a *pre-development* watershed, the peak discharge, or flow that occurs when the maximum flood stage, or depth, in a stream is reached, gradually increases and gradually declines (curve is rounded).
- 2. After a storm in a *post-development* watershed, the peak discharge can be two to five times higher than in a pre-development watershed. This characterization translates into the sharp peak and increased size of the post-development hydrograph.
  - This happens in a post-development watershed because there is more impervious surface and less opportunity for evapotranspiration and infiltration.
- 3. It takes less time for runoff to travel over the impervious surface in a **post-development** watershed, so it takes less time for runoff to reach a stream (time of concentration). The energy of stream flows ranging from low to bankfull flows can most quickly alter a stream channel's physical shape and size.

The combination of greater volumes of runoff occurring more often and at higher flow rates, even in small storm events, can create:

- Altered stream flows that can affect water conditions and habitat for fish
- Channel erosion, widening and downcutting that can degrade stream habitat and produce substantial increases in sediment loads from accelerated erosion
- Increased frequency of flooding and floodplain expansion
- Entrenched streams cut off from the flood plain



**Incised channel** 

Photo credit: Arlington County

#### Channel and flood protection criteria

(9VAC25-875-600)

In order to protect downstream properties and natural resources from channel erosion and flooding, SWM plans must account for the water quantity volume expected to be generated from the increase in impervious surfaces after the final build out of the site. The water quantity criteria calculations use the expected frequency and size of a storm event to plan for the stormwater management facilities that will prevent the added runoff from causing erosion and flooding.

#### As an inspector...

It is important to consult the approved SWM plan for the design requirements of stormwater management facilities (or P-BMPs). Then, compare what's on the plan with what's being installed in the field. If there are deviations, it could have an impact on the volume and velocity of stormwater runoff leaving a site, impacting channel erosion and/or flooding.

The *channel protection* criterion is a regulatory framework to avoid stream erosion by development. It prescribes the compliance requirements for each type of channel that may receive post-development concentrated stormwater runoff. A separate requirement is prescribed for non-concentrated runoff or sheet flow.

The *flood protection* criterion is based on an assessment of the existing and post-developed condition of the downstream stormwater conveyance system in order to avoid, or address, flooding issues that may result from development.

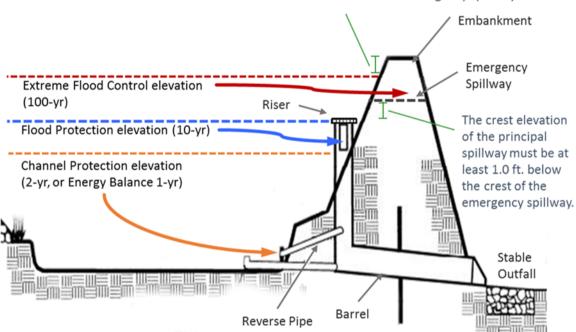
When *sheet flow* is discharged from a site, there are three scenarios:

- 1. Post-development sheet flow runoff is expected to be the same as pre-development
- 2. Any increase in post-development sheet flow runoff is not expected to be harmful
- 3. Potentially harmful increases in post-development sheet flow runoff will be diverted to a stormwater conveyance system

As an inspector, you should be looking for if sheet flow is becoming a problem. Inspect on-site areas of LDAs for evidence that sheet flow may be concentrating and causing erosion or flooding issues. Be sure to also check off-site areas, as well as any discharge points, for these same issues that may be impacting adjacent or downstream properties.

# Stormwater Management Pond Schematic (Profile)

The plan and installed pond must include at least 1 foot of freeboard between the top of the embankment and the 100-yr surface elevation when there is an emergency spillway, and at least 2 feet of freeboard when there is no emergency spillway.



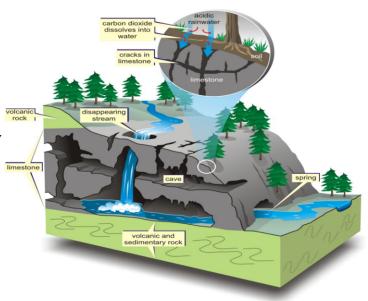
Stormwater ponds are often used to provide channel protection and/or volume protection. Ponds not regulated by the Impounding Structure Regulations (4VAC50-20) must be able to safely convey the 100-year storm through the pond and emergency spillway per (9VAC25-875-650). Final construction specifications for all aspects of stormwater management structures should be included in the approved SWM plans.

Water quantity compliance on the approved SWM plan and associated stormwater pond is achieved via the size of the riser pipe, size of the riser orifice(s), size of outflow pipes, and barrel size. Pipe materials and specifications should be verified in accordance with the approved SWM plan.

#### 2c. Karst Areas



The valleys of western Virginia are underlain largely by soluble, carbonate bedrock (blue areas), which slowly dissolved over the millennia to form karst areas with unique hydrologic systems (fissures, sinkholes, underground streams, and caverns). Poorly consolidated sediments of the coastal plain (green areas) also contribute to karst formations in eastern Virginia. These areas supply drinking water and support base flow of local streams.



#### The effects of poor stormwater management are exacerbated in karst settings:

- Karst terrain soils are not very permeable
- Rainwater is diverted underground through fractured bedrock or other karst features to aquifers and springs without the usual natural attenuation (natural ground filtration) process that accompanies groundwater flow (leads to increased contamination of groundwater and base stream water)
- After development, increased surface runoff is typically routed overland to surface streams or discharged to karst features, which lack sufficient capacity
- Increased stormwater ponding or infiltration form sinkholes (surface sediments collapse due to the intrusion of stormwater runoff)
- More runoff deprives the karst system of recharge (groundwater table and base stream flows diminished)

Some of the P-BMP specifications have modifications to accommodate karst environments. Check the VSMH Chapter 8 specifications and Appendix E for more information.

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  Chesapeake Stormwater Network (CSN) Online Newsletter #9.

  www.chesapeakestormwater.net

### **Summary**

This module provides the VESMP inspector with the information needed to:

- Identify and educate the regulated community on which major components comprise a complete SWPPP
- Understand how the changes in landcover that they observe on sites during and after
  construction affect runoff and lead to negative impacts downstream. A good
  understanding of these aspects will help inspectors more successfully distinguish
  between poor and acceptable site activities and assist in the protection of postconstruction BMPs (P-BMPs) for full post-construction functionality
- Comprehend the overall goals of the VESM regulation water quality and quantity technical criteria that form the basis of the compliance requirements inspectors must check for during inspections on construction sites

# **Knowledge Check Questions**

1.	Which two plans in the SWPPP must be approved as part of an overall ESM plan?
2.	Does the SWM plan address runoff during construction or after?
3.	What impact does impervious cover have on water quality?
4.	What is the target pollutant in the water quality criteria?
5.	What is the lower limit of the range of imperviousness that can result in stream degradation?
6.	The VESM Regulation ensures water quantity is considered in stormwater management planning to protect against which two destructive forces?
7.	Discuss how the rate of runoff changes after development.
	Answers to the Knowledge Check Questions can be found in the APPENDIX

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# **Learning Objectives**

At the end of this module, you will be able to:

- Define a land-disturbing activity (LDA)
- Assess and explain applicability of VESMA and Regulation to regulated LDAs
- List the basic requirements of a Virginia Erosion and Stormwater Management Program (VESMP)
- Summarize the enforcement elements that are minimally required within an erosion and stormwater program and locality's ordinance and those that are optional
- State the maximum civil penalty that can be issued for violations
- Recall examples of violations that can be included in a locality's schedule of civil penalties
- Summarize the standards and specifications' requirements and identify the entities that are or may be regulated under them
- Explain the VESMP permitting process for CGP issuance
- Identify the stormwater management plan components and recall the overall erosion control and stormwater management (ESM) plan review and approval schedule
- Relate the long-term maintenance agreement requirements to the compliance requirements on the site and within the stormwater management plan
- Describe the regulatory record keeping requirements
- Recall the components of a program review

## 3a. Regulated Land-Disturbing Activities

#### LAND-DISTURBING ACTIVITY

#### (§ 62.1-44.15:24), (9VAC25-875-20)

A land-disturbing activity (LDA) is defined as a man-made change to the land surface that may result in soil erosion or has the potential to change its runoff characteristics, including construction activity such as the clearing, grading, excavating, or filling of land.

#### As an inspector...

It's important to know which activities are regulated under the erosion and stormwater program, as those are the sites you should be inspecting.

#### REGULATED LAND-DISTURBING ACTIVITY

#### (§62.1-44.15:34.E), (9VAC25-875-70)

Land-disturbing activities of the following size thresholds must comply with the Virginia Erosion and Stormwater Management Act (VESMA) and Regulation:

- One acre or more
- Activities that are part of a larger common plan of development or sale that is one acre
  or more
- 2,500 square feet or more in all areas of jurisdictions designated as subject to the Chesapeake Bay Preservation Act (CBPA)
- Any activity, including single-family additions and modifications, which disturbs 10,000 square feet or more, and less than 1 acre, are subject to soil erosion requirements and water quantity technical criteria
- A more stringent area as established in local ordinance

#### Common plan of development or sale

#### (9VAC25-875-20)

The regulation describes a *common plan of development* as a contiguous area where separate and distinct construction activities may be taking place at different times on different schedules. Subdivision plans are examples.

#### **EXEMPTIONS**

#### (§ 62.1-44.15:34.F-G), (9VAC25-875-90)

The following activities are exempt from the erosion and stormwater program:



Minor LDAs, including home gardens and individual home landscaping, repairs, and maintenance work.



Installation, maintenance, or repair of any individual service connection.



Installation, maintenance, or repair of any underground utility line when such activity occurs on an existing hard surfaced road, street, sidewalk, provided the LDA is confined to the hard surface area.



Installation, maintenance, or repair of any septic tank line or drainage field unless included in an overall plan for land-disturbing activity relating to construction of the building to be served.



Permitted surface or deep mining operations and projects, and oil and gas operations and projects conducted under the provisions of Title 45.2.



- Clearing of lands specifically for agricultural purposes, and the
- Management, tilling, planting, or harvesting of agricultural, horticultural, or forest crops, and livestock feedlot operations.
   \*However, this exemption only applies when harvested forest crops are reforested or the area is converted to an agriculture use.
- Agricultural engineering operations: construction of terraces, terrace outlets, check dams, desilting basins, dikes, ponds, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage, and land irrigation.



Installation of fence and signposts, telephone and electric poles, or other kinds of posts or poles.



Shoreline erosion control projects on tidal waters when *all* of the land-disturbing activities are within the regulatory authority of and approved by local wetlands boards, the Marine Resources Commission, or the US Army Corps of Engineers.



Repair or rebuilding of the tracks, rights-of-way, bridges, communication facilities, and other related structures and facilities of a railroad company.



Conducting land-disturbing activities in response to a public emergency where the related work requires immediate authorization to avoid imminent endangerment to human health or the environment. In such situations, the VESMP authority shall be advised of the disturbance within <u>seven days</u> of commencing the LDA and a permit application must be submitted within <u>30 days</u> of starting the LDA.



Discharges to a sanitary sewer or a combined sewer system that *are not from* an LDA.

The following activities <u>must comply</u> with the soil erosion control requirements of the erosion and stormwater program but are <u>not required to comply</u> with the water quantity and quality technical criteria (<u>9VAC25-875-590</u>,-600).



Activities under a state or federal reclamation program to return abandoned property to agricultural or open land use.



Routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original construction of the project. The paving of an existing road with a compacted or impervious surface and re-establishment of existing associated ditches and shoulders is considered routine maintenance if performed in accordance with the previous statement.



Discharges from an LDA to a sanitary sewer or a combined sewer system.

# **3b. Locality Programs**

# REQUIREMENT FOR LOCALITIES TO ADOPT AND ADMINISTER AN EROSION AND STORMWATER PROGRAM

(§62.1-44.15:27), (9VAC25-875-100)

Localities that operate a regulated Municipal Separate Storm Sewer System (MS4) must adopt and administer a Virginia Erosion and Stormwater Management Program (VESMP). Non-MS4 localities may choose to administer a VESMP or Virginia Erosion and Sediment Control Program (VESCP), where DEQ serves as the Virginia Stormwater Management Program (VSMP) authority and administers the stormwater management component for any LDA of an acre or more.

#### As an inspector...

It's important to understand the program and ordinance requirements as you will be inspecting for compliance with your locality's program.

A locality VESMP authority may enter into agreements or contracts with DEQ, soil and water conservation districts, adjacent localities, planning district commissions, or other public or private entities to carry out or assist with plan review and inspections but not perform enforcement.

#### **PROGRAM REQUIREMENTS**



(§62.1-44.15:27), (9VAC25-875-100)

Each locality that administers a VESMP must do so in conjunction with a local MS4 program (if applicable), and shall, by ordinance, establish a program that includes the following:

- Ordinances, policies, and technical materials consistent with the VESM and CGP Regulations
- Requirements for land disturbance approvals
- Program requirements for plan review, periodic inspections including the installation of stormwater management (SWM) measures, and enforcement

The General VPDES Permit for Discharges of Stormwater from Construction Activities (CGP) is issued by DEQ to authorize stormwater discharges from construction activities that will disturb one acre or more or are part of a larger common plan of development or sale that will disturb one acre or more.

The CGP authorizes locality VESMP authorities to act on behalf of DEQ (9VAC25-875-40). VESMPs are also responsible for enforcing their local ordinances.

- Provisions charging applicants a reasonable fee to defray the cost of program administration for LDAs that do not require permit coverage
- Provide provisions for the long-term responsibility for and maintenance of SWM control devices and other techniques for the management of the quality and quantity of stormwater runoff
- Coordinate with flood insurance, flood plain management, and other programs requiring compliance before authorizing the start of construction



#### **ENFORCEMENT**

#### Informal and formal administrative enforcement procedures

(9VAC25-875-150)

A locality VESMP authority must include components of the following informal and formal administrative enforcement procedures in its local ordinance:

- Verbal warnings and inspection reports
- Notice of corrective action
- Consent orders including civil charges in accordance with § 62.1-44.15:25.1 and § 62.1-44.15:48
- Notices to comply and stop work orders in accordance with § 62.1-44.15:37

#### Notice to comply

(§62.1-44.15:37)

If it is determined by the locality VESMP authority or DEQ that there is a failure to comply with the permit or land disturbance approval conditions, the authority or DEQ may serve a notice to comply upon the owner, permittee, or person conducting land-disturbing activities by delivery via:

- fax, email, or other technology;
- mailing, with confirmation of delivery, to the address specified in the permit, landdisturbance application, or in locality land records; or
- delivery at the site to a person previously identified to the VESMP authority by the permittee or owner.

#### The notice must:

- Specify the measures needed to comply with the permit or land disturbance approval conditions
- Specify the time within which such measures shall be completed, taking into account the risk of damage and other relevant factors

Upon failure to comply within the time specified, the following actions may be taken:

- Stop work order may be issued by the locality VESMP authority or DEQ
- DEQ or the locality VESMP authority may take enforcement action

#### Stop work order

#### (§62.1-44.15:37), (9VAC25-875-160)

If a permittee fails to comply with a notice within the time specified, the locality VESMP authority or DEQ may issue a stop work order requiring the permittee or person conducting the LDA without a required permit or approved plan(s) to cease all land-disturbing activities. The stop work order is in effect until the violation of the permit has stopped, or an approved plan and required permits are obtained, and specified corrective measures have been completed.

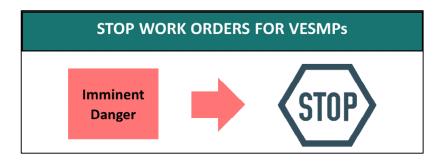
Such orders must be issued in accordance with local procedures if issued by a locality VESMP authority or after a hearing held in accordance with the requirements of the Administrative Process Act if issued by DEQ.

Such orders shall become effective upon service to the owner, permittee, or person conducting land-disturbing activities by delivery via the same methods discussed earlier.

#### **Emergency stop work order**

#### (§62.1-44.15:37)

An emergency stop work order can be issued if the locality VESMP authority or DEQ finds any alleged non-compliance that is causing or presents an *imminent* and *substantial danger* of causing harmful erosion of lands or sediment deposition in state waters or otherwise substantially impacting water quality. The order can be issued without advance notice or procedures, and the activity must stop immediately. DEQ or the locality VESMP authority must provide an opportunity for a hearing and give reasonable notice as to the time and place. The hearing will affirm, modify, amend, or cancel such emergency order.

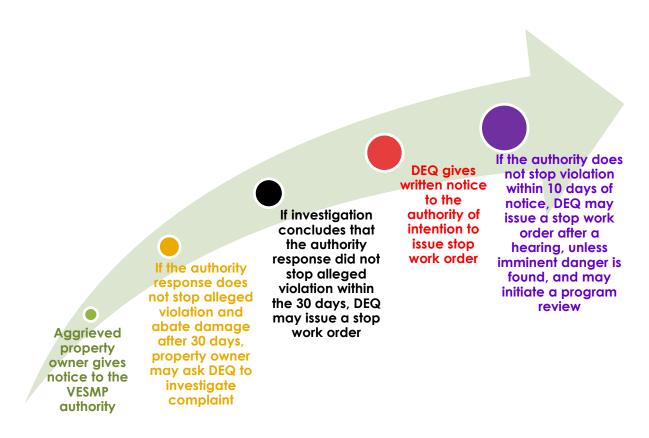


#### Aggrieved property owner appeal process

#### (§ 62.1-44.15:37)

The graphic below outlines the procedure that aggrieved property owners can follow when their property has been damaged from erosion or sediment deposition resulting from a violation, with or without approvals and plans.

#### **Process for Aggrieved Property Owners**



#### Civil and criminal judicial enforcement procedures

(§62.1-44.15:48), (9VAC25-875-150)

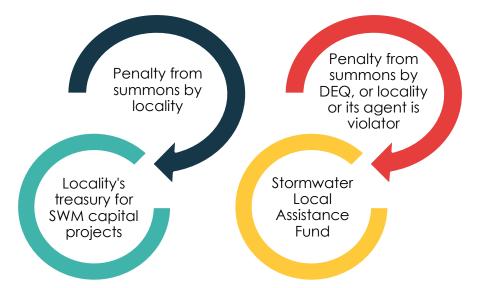
A locality VESMP authority must also include enforcement authority and a schedule of civil penalties for enforcement actions in its local ordinance. Criminal, misdemeanor, felony charges, and injunctions per § 62.1-44.15:48.C are also an option and are laid out in Table 3-1 (page 15) and Table 3-2 (page 16).

Examples of potential violations for which a penalty may be imposed include, but are not limited to:

- 1. No state permit(s) Including but not limited to a CGP.
- 2. No Stormwater Pollution Prevention Plan (SWPPP)
- 3. Incomplete SWPPP
- 4. SWPPP not available for review
- No approved Erosion and Sediment Control (ESC), SWM, Erosion Control and Stormwater Management (ESM) plan(s)
- 6. Failure to install Construction Best Management Practices (C-BMPs) or post-construction BMPs (P-BMPs)
- 7. Failure to properly install or maintain C-BMPs or P-BMPs
- 8. Operational deficiencies
- 9. Failure to conduct required inspections
- 10. Incomplete, improper, or missed inspections
- 11. Discharges not in compliance with the CGP

Any civil penalty assessed by a court as a result of a summons issued by a locality VESMP authority must be paid into the locality's treasury and used solely for SWM capital projects, like new stormwater BMPs; stormwater BMP maintenance, inspection, or retrofitting; stream restoration; low-impact development projects; buffer restoration; pond retrofitting; and wetlands restoration

When the penalties are assessed by the court as a result of a summons by DEQ or where the violator is the locality, or its agent, the court will direct the penalty to be paid into the state treasury and deposited into the Stormwater Local Assistance Fund.



Injunctive relief

(§62.1-44.15:48)

DEQ or a locality VESMP authority may bring a civil action requesting the court to compel compliance.

Civil actions

(§ 62.1-44.15:48)

Any person who violates any part of VESMA, the regulations, local ordinances, or standards and specifications, or who fails, neglects, or refuses to comply with any order of a locality VESMP authority, DEQ, or a court, shall be subject to a civil penalty, within the discretion of the court. LDAs one acre or greater, or 2,500sqft. or greater and within a CBPA locality, are subject to penalties not to exceed \$32,500 for each violation. A civil penalty may also be assessed up to \$5,000 for each violation with a limit of \$50,000 for a LDA 10,000sqft. or more but under one acre outside of CBPA localities. Each day of a violation constitutes a separate offense.

DEQ or a locality VESMP authority may issue a summons for collection of the civil penalty, and the action may be prosecuted in the appropriate court. Actions on behalf of DEQ are brought by the Virginia Attorney General's Office.

**Criminal actions** 

(§ 62.1-44.32)

Violators who act willfully, negligently, or knowingly may also be subject to the criminal penalties noted in the tables on the next two pages. Criminal actions are prosecuted by the Commonwealth's Attorney in the locality where the criminal act occurred. Prosecution must be pursued within three years after discovery of the offense, notwithstanding the limitations provided in any other statute.

**Table 3-1: Misdemeanor Criminal Actions** 

Behavior	Punishment for individuals	Punishment for non- individuals
Willfully or negligently violates any of the following:		
VESMA		
Regulation of the Board		
Condition of land disturbance approval from DEQ  Locality VESMP authority ordinance or order  DEQ order  Locality VESMP authority land disturbance approval  State permit	Jail for up to 12 months and/or a fine between \$2,500 and \$32,500  Each day of violation of each requirement constitutes a separate offense	Fine ≥ \$10,000  Each day of violation of each requirement constitutes a separate offense
Order of a court		

**Table 3-2: Felony Criminal Actions** 

Behavior	Punishment for individuals	Punishment for non- individuals	
Knowingly violates any of the following:  VESMA  Regulation of the Board  Condition of land disturbance approval from DEQ  Locality VESMP authority ordinance or order  DEQ order  Local VESMP authority land disturbance approval State permit Order of a court  Knowingly makes any false statement in any form required by VESMA  Knowingly causes any required monitoring device or method to be inaccurate	Imprisonment for 1-3 years, or in the discretion of the jury or the court, confinement in jail for up to 12 months and a fine between \$5,000 and \$50,000 for each violation  Each day of violation of each requirement constitutes a separate offense	Fine ≥ \$10,000  Each day of violation of each requirement constitutes a separate offense	
Knowingly violates a provision of VESMA and knows at the time that they are placing another person in imminent danger of death or serious bodily harm	Imprisonment for 2-15 years and/or a fine up to \$250,000  Maximum fine and imprisonment doubled for subsequent convictions of same person	Fine up to the greater of \$1 million or 3x the economic benefit realized by the defendant as a result of the offense  Maximum fine and imprisonment doubled for subsequent convictions of same non individual	

#### **Consent orders**

(§62.4-44.15:25, -25.1, -48)

DEQ or a locality VESMP authority may issue a consent order to any person who has violated or failed, neglected, or refused to obey VESMA, an ordinance, a permit condition, a regulation of the Board, condition of a land disturbance approval, or an order of DEQ or a locality VESMP authority. A consent order may include civil charges up to \$32,500 for each violation instead of a civil penalty for LDAs  $\geq$  one acre, or  $\geq$  2,500sqft and within a CBPA locality. A consent order may otherwise include civil charges up to \$5,000 for each violation with a limit of \$50,000 for an LDA not less than 10,000sqft but under one acre outside of CBPA localities.

#### **Hearings**

(§62.1-44.15:37), (9VAC25-875-160)

Any permit applicant, permittee, or person subject to state permit requirements under VESMA aggrieved by any action of DEQ taken without a formal hearing may demand in writing a formal hearing. All hearings held under these regulations must be conducted in a manner consistent with § 62.1-44.26 or as otherwise provided by law.

Locality hearings must follow local hearing procedures and are not held to the provisions of the Administrative Process Act. Appeals of local decisions must follow local appeal procedures and include an opportunity for judicial review in the locality circuit court where the LDA occurs.



#### MORE STRINGENT ORDINANCES

(§62.1-44.15:33)

Localities may adopt more stringent ordinances than the minimum ESC and SWM requirements outlined by the state in VESMA and the associated regulations. As an inspector, it's important to know if your locality has more stringent requirements.



#### PROHIBITING BMPS AND MORE STRINGENT BMP REQUIREMENTS

(§62.1-44.15:33)

A locality VESMP authority may prohibit the use of an approved BMP or require more stringent conditions for a *specific land-disturbing project* based on a review of the plan and project site conditions. Prohibitions can be appealed to DEQ.

A locality VESMP authority may also prohibit the use of an approved BMP or require more stringent conditions across its jurisdiction or in a specific geographical area.

### 3c. Local Ordinances for Chesapeake Bay Preservation Act LDAs



#### CHESAPEAKE BAY PRESERVATION ACT LAND-DISTURBING ACTIVITIES

(§62.1-44.15:24, :27, :34) (9VAC25-875-20, -70, -80, -740)

Chesapeake Bay Preservation Act land-disturbing activities (CBPA LDAs) are defined as LDAs <u>in</u>

<u>Chesapeake Bay Preservation Areas that result</u>

<u>in a land disturbance greater than or equal to</u>

<u>2.500 ft.² and less than one acre.</u> VESCP and

VESMP localities subject to the provisions of the

CBPA (§62.1-44.15:67 et al) must regulate CBPA

LDAs.

Chesapeake Bay Preservation Areas are delineated by a local government within Tidewater Virginia that if improperly developed may result in substantial damage to the water quality of the Chesapeake Bay and its tributaries. A Chesapeake Bay Preservation Area includes a Resource Protection Area and a Resource Management Area (§62.1-44.15:68, 9VAC25-830-40).

However, localities may choose whether or not to require a full plan submittal for single-family residences that are separately built with a land disturbance greater than 2,500 square feet but less than one acre. Most localities will choose to accept an agreement in lieu of a plan in these instances. In addition to compliance with the water quantity criteria (9VAC25-875-600), a locality may also require compliance with the water quality criteria (9VAC25-875-580, 9VAC25-875-590) for single-family residences that will disturb more than 2,500 sq. ft in the CBPA.

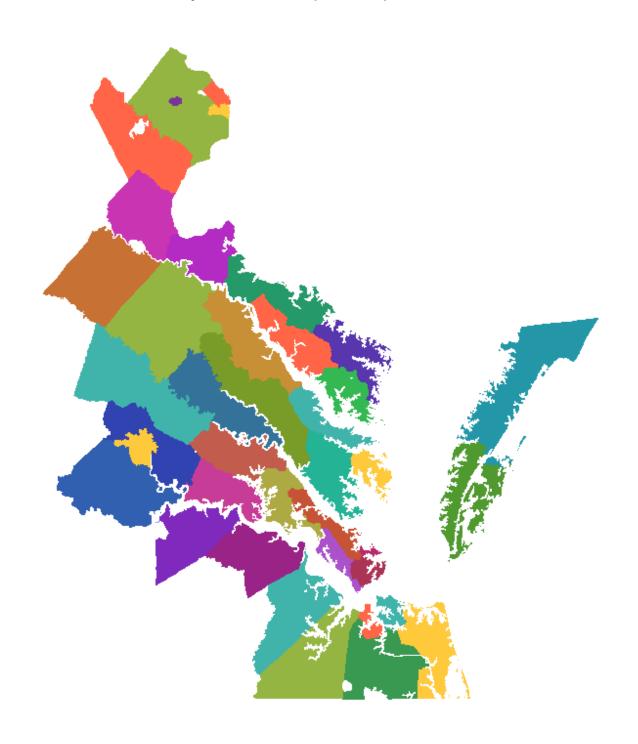
As an inspector, you need to know that CBPA LDAs must have the following:

- Approved ESM plan (including both ESC and SWM plans)
- Local approval to start land disturbance
- Long-term maintenance agreement
- Construction record drawings

CBPA LDAs *do not* require the following:

- CGP coverage
- Pollution prevention plan
- Additional control measures to address a TMDL

# Localities subject to the Chesapeake Bay Preservation Act



#### Localities subject to the Chesapeake Bay Preservation Act

#### Counties

Accomack Isle of Wight Northumberland Arlington James City Prince George Caroline King & Queen Prince William Charles City King George Richmond Chesterfield King William Spotsylvania Essex Lancaster Stafford Fairfax Mathews Surry

Gloucester Middlesex Westmoreland

Hanover New Kent York

Henrico Northampton

#### **Cities**

Alexandria Hampton Portsmouth
Chesapeake Hopewell Richmond
Colonial Heights Newport News Suffolk

Fairfax Norfolk Virginia Beach Falls Church Petersburg Williamsburg

Fredericksburg Poquoson

#### **Towns**

Ashland Haymarket Quantico
Belle Haven Herndon Saxis
Bloxom Irvington Smithfield
Bowling Green Kilmarnock Surry
Cape Charles Melfa Tangier

Cheriton Montross Tappahannock

Claremont Nassawadox Urbanna Clifton Occoquan Vienna Colonial Beach Onancock Warsaw **Dumfries** Onley West Point Eastville White Stone Painter Exmore **Parksley** Windsor

Hallwood Port Royal

# 3d. Standards and Specifications

#### (§62.1-44.15:31), (9VAC25-875-830)

The Virginia Department of Transportation must submit standards and specifications for DEQ approval. Other state agencies or federal entities, linear project companies listed in Table 3-3, locality service authorities (i.e. water or sewer authorities), or person(s) creating multijurisdictional stream or wetland banks may submit a single set of standards and specifications to DEQ for approval that describes how land-disturbing activities will be conducted. Where required, CGP coverage must be obtained before the start of land disturbance. Each land-disturbing project needs a site-specific approved ESC plan, approved SWM plan, and pollution prevention plan. Projects approved under standards and specifications must still comply with any applicable local ordinances.

Table 3-3: Standards and Specifications

What	Who <u>must</u> submit	Who <u>may</u> submit	Coverage under the CGP
Single set of standards and specifications approved by DEQ that describes how LDA must be conducted.  Must be consistent with VESMA, the regulation, and the CGP.	VDOT	Other state agencies  Federal entities  Multijurisdictional stream/wetland banks  Local service authorities  Linear projects: Electric Natural gas Telephone Railroad	Must be obtained before the start of LDA ≥ 1 acre

#### Must Include

Technical criteria laid out in the Virginia Erosion and Stormwater Management Act and Regulation	Stds & Specs program administration; project- specific plan design, plan review, and plan approval; and construction inspection and compliance
Provisions for the long-term responsibility and maintenance of SWM control devices and other techniques to manage the quality and quantity of stormwater runoff	Provisions for personnel and contractors to obtain certifications or qualifications for ESC and SWM comparable to those required for local government
Implementation of project tracking and notification system to DEQ of all LDAs	Requirements for documenting onsite changes as they occur

#### **DEQ Inspections**

DEQ must perform random site inspections or inspections in response to a complaint.

DEQ may take enforcement action.

#### **Administrative Charge**

DEQ must assess an administrative charge to cover the costs of services rendered

## **3e. The Permitting Process**



STEP 1: SUBMITTAL OF AN ESM PLAN

#### (9VAC25-875-110)

The operator must submit an ESM plan for review and approval to the VESMP authority. An ESM plan submitted to the VESMP for review will include aspects of both an ESC plan and a SWM plan.

#### Erosion and sediment control plan

The ESC plan must be approved by the VESMP authority, or a locality with the option to choose to operate a VESCP, where DEQ acts as the VSMP authority. The ESC plan outlines soil erosion controls (or C-BMPs) that help to conserve soil and water resources during the construction phase of a regulated LDA (Detailed further in the ESC certification courses).

#### Stormwater management plan

#### (9VAC25-875-510)

The SWM plan must be approved by the locality VESMP authority, or DEQ as the VSMP authority, *before* the start of land disturbance. The plan outlines how stormwater leaving a site after construction will meet the necessary water quality and quantity technical criteria. Components of a SWM plan are detailed on the next page.

#### Required Contents of a Stormwater Management Plan



\*If required

- 1. Information on the type of and location of stormwater discharges, information on the features to which stormwater is being discharged including:
  - Surface waters or karst features if present
  - o Pre-development and post-development drainage areas
- 2. Contact information including:
  - o Name, address, telephone number, and email address of the owner
  - o Tax reference number and parcel number of the property or properties affected
- 3. Narrative including:
  - Description of current site conditions and final site conditions
  - If allowed by the locality VESMP authority, the information provided and documented during the review process that address the current and final site conditions

- 4. General description of the proposed SWM facilities and the mechanisms through which the facilities will be operated and maintained after construction is complete. <u>This</u> <u>information will also be included in the long-term maintenance agreement, which must be recorded before permit termination (Module 7).</u>
- 5. Information on the proposed SWM facilities including:
  - o Details on conversion from an ESC measure, if applicable
  - Type of facilities
  - o Location, including geographic coordinates
  - Acres treated
  - o Surface waters or karst features into which the facility will discharge
- 6. Hydrologic and hydraulic computations, including runoff characteristics
- 7. Documentation and calculations verifying compliance with the water quality and quantity requirements of the VESM Regulation
- 8. Map(s) of the site that depict the topography of the site and includes:
  - All contributing drainage areas
  - Existing streams, ponds, culverts, ditches, wetlands, other water bodies, and floodplain
  - Soil types, karst features if present, forest cover, and other vegetative areas
  - Current land use including existing structures, roads, and locations of known utilities and easements
  - Sufficient information on adjoining parcels to assess the impacts of stormwater from the site on these parcels
  - o Limits of clearing and grading, and the proposed drainage patterns on the site
  - o Proposed buildings, roads, parking areas, utilities, and SWM facilities

- Proposed land use with tabulation of the percentage of surface area to be adapted to various uses, including but not limited to planned locations of utilities, roads, and easements
- 9. Letter of availability from the off-site provider if using off-site compliance options for nutrient credits as described in <u>9VAC25-875-610</u> is a requirement of the registration statement in <u>9VAC25-880-50</u>
- 10. Fee and registration statement if required

#### STEP 2: ESM PLAN REVIEW AND APPROVAL

(9VAC25-875-110)

The locality VESMP authority has 15 days to determine the completeness of a plan, then the locality authority plan reviewer has 60 days from the date the plan was determined to be complete to perform a full technical review of the plan.

Where inspections have revealed the plan is inadequate to satisfy the regulations or local ordinances, or where circumstances have changed where the plan cannot be effectively carried out, the VESMP authority may require changes to an approved plan.

#### STEP 3: REGISTRATION STATEMENT ENTRY INTO CGP SYSTEM

For projects greater than or equal to one acre, the operator must submit a complete and accurate registration statement and pay any required permit fees to the locality VESMP authority. By signing the registration statement, the operator is certifying they have prepared a SWPPP with the required plan approvals. Once the locality VESMP authority determines an operator is ready for permit coverage, the registration statement information is entered into the CGP System, a database used by locality VESMP authorities and DEQ.

A copy of the registration statement is included at the end of this module and can be downloaded from: <a href="https://www.deq.virginia.gov/permits/water/stormwater-construction">https://www.deq.virginia.gov/permits/water/stormwater-construction</a>.

#### STEP 4: CGP COVERAGE ISSUED BY DEQ

DEQ automatically issues coverage under the CGP by sending a Notice of Coverage Letter and digital link to the CGP to the operator for both to be printed and included in the project's SWPPP.

# STEP 5: LOCALITY VESMP AUTHORITY APPROVAL TO START LAND DISTURBANCE (§62.1-44.15:27)

A locality VESMP authority may only approve the start of land disturbance *after* DEQ has issued CGP coverage (as required).

## 3f. Single-Family Detached Residential Structures

Single-family detached residential structures that disturb equal to or greater than one acre of land require coverage under the CGP. Single-family structures that disturb less than one acre, but 10,000sqft or more (2,500sqft or more in a CBPA), are also regulated LDAs *but do not require CGP coverage*. However, there are some differences that set these land-disturbing activities apart from the rest.

#### REGISTRATION STATEMENT

(§ 62.1-44.15:28), (9VAC25-875-20), (9VAC25-880-50)

Operators of "small construction activities" for single-family dwellings (one to less than five acres of disturbance) are <u>not required to submit a registration statement</u>. Instead, operators need to download a copy of the CGP and place it into their single-family SWPPP after the locality VESMP authority has given approval to start land disturbance.

"Large construction activities" for single-family dwellings (five acres of disturbance or more) must complete and submit a registration statement but do not pay the permit fee.

As an inspector, you should see a copy of the CGP posted at the site (as the coverage letter) and placed in the SWPPP. Additionally, these projects can utilize the DEQ SWPPP template.

#### AGREEMENT IN LIEU OF A PLAN

(§ 62.1-44.15:24), (9VAC25-875-110)

Instead of requiring the owner or permittee of a single-family residence to submit an ESM plan, a VESMP authority or DEQ *may* execute a contract with the owner that specifies methods that must be implemented to comply with the requirements of the VESMP. As an inspector, you may find an agreement in lieu of a plan in the SWPPP documentation.

#### Note:

Agreements in lieu of a plan are also permitted for farm structures on a parcel of land where the total impervious cover, including the structure(s), is less than 5% of the parcel. This was discussed in the Erosion and Sediment Control Certification Courses.

# LONG-TERM MAINTENANCE AGREEMENTS, POST-CONSTRUCTION INSPECTIONS, AND CONSTRUCTION RECORD DRAWINGS

(9VAC25-875-130, -140, -535)

The VESMP authority does not have to require long-term maintenance agreements for SWM facilities designed to treat stormwater runoff primarily from an individual residential lot on which they are located, provided it is demonstrated to the satisfaction of the VESMP authority that future maintenance of such facilities will be addressed through an enforceable mechanism at the discretion of the VESMP authority. Such facilities are <u>not</u> subject to VESMP authority post-construction inspections.

## 3g. Reports and Record Keeping

# <del>2222</del>

#### FISCAL YEAR REPORTING TO DEQ

(9VAC25-875-180)

By October 1 of each year, locality VESMP authorities must submit the following information from the previous fiscal year (July 1 to June 30) to DEQ:

- Information on each permanent SWM facility completed, including:
  - i) Type of facility
  - ii) Geographic coordinates
  - iii) Acres treated
  - iv) Surface waters or karst features into which the facility will discharge
- List of each LDA with a plan approved by the VESMP authority
- Number and type of enforcement actions taken
- Number of exceptions granted



#### **RECORD KEEPING**

(9VAC25-875-180)

A VESMP authority must keep records in accordance with the following:

- Project records, including approved ESM plans and registration statements, shall be kept for **three** years after state permit termination or project completion.
- Post construction SWM facility inspection records shall be documented and retained for at least <u>five</u> years from the date of inspection.
- Construction record drawings of any permanent stormwater BMPs shall be maintained *in perpetuity or until the SWM facility is removed*.

# 3h. Program Reviews

#### **REQUIREMENTS**

(§62.1-44.15(19)), (9VAC25-875-190)

DEQ is required to conduct a program review once every five years, or on a more frequent basis if deemed necessary by DEQ. To avoid redundancy and overlap, the review can be coordinated with the entity's other program reviews such as the Chesapeake Bay Program.

The review will consist of the following:

- Consultation with the VESMP administrator or designee
- Review of the local ordinance(s) and other applicable documents
- Review of a subset of the plans approved by the VESMP authority for consistency of application including exceptions granted and calculations or other documentation that demonstrates that all ESC minimum standards are met and required nutrient reductions are achieved using appropriate onsite and off-site compliance options
- Review of inspections of regulated activities
- Review of enforcement actions and an accounting of amounts recovered through enforcement actions, where applicable

If DEQ finds areas that need corrective actions, it will provide a checklist and develop a corrective action agreement or plan for the VESMP authority to come into compliance.

## **Summary**

This module provides the VESMP inspector with the information needed to:

- Assess whether or not sites are regulated LDAs or exempt land-disturbing activities under the erosion and stormwater management program
- Apply the basic requirements of an erosion and stormwater program to regulated LDAs
- Relate the main components of an erosion and stormwater management program to the regulated community. An inspector sufficiently familiar with these components is able to find and compare approved plan elements to site conditions
- Use knowledge of the enforcement process to direct site operators and/or owners towards compliance
- Identify which sites are subject to standards and specifications. Knowledge of regulatory oversight for different types of projects, especially when not directly under the inspector, is crucial for issue resolution, such as with citizen complaints
- Adhere to record-keeping requirements for each project worked
- Participate in the program review process as required

# **Knowledge Check Questions**

1.	A locality VESMP must be at least as stringent as what state permit?
2.	List three (3) violations for which a penalty may be imposed.
3.	What is the maximum penalty per violation a VESMP locality can impose under the erosion and stormwater management act for a violation on projects one acre or greater?
4.	How long must a locality VESMP authority hold on to a registration statement?
5.	How often must DEQ conduct program reviews?
	Answers to the Knowledge Check Questions can be found in the APPENDIX

# VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY GENERAL VPDES PERMIT FOR DISCHARGES OF STORMWATER FROM CONSTRUCTION ACTIVITIES (VAR10)

PERMIT #:	
PLAN/ID#:	

~ _	REGISTRATION STATEMENT 2024				
Appl	ication type. $\square$ N	EW PERMIT ISSUA	ANCE		
		ODIFICATION WI	ITH ACREAG	GE INCREASE: Permit #	
	$\square$ M	ODIFICATION W	<u>ITHOUT</u> ACE	REAGE INCREASE: Permit #	
				E: Permit #	
	on I. Operator/Permit				
				entity that is applying for permit coverage and will have	
	-		-	pliance with the general permit. A person with signatory	
		or must sign the certifi	cation in Section	n V (per Part III.K of the VAR10 Permit).	
	Operator Name:				
	Contact person: Address:				
City	, State and Zip Code:				
City	Phone Number:				
Prim	ary and CC Email(s):				
	•				
	State Corporation Commission Entity				
Nı	imber (if applicable):				
		danaa To roosiyo on (	mailed severe	ge letter or to pay by credit card, you must choose YES	
	_		-	electronically? YES \(\sigma\) NO \(\sigma\)	
	and include a vand em	an. May we transmit o	correspondence	electromically? TES a 110 a	
Section	on II. Construction Ac	ctivity Information.			
	Section II. Construction Activity Information.  A. Include a legible site map showing the location of the existing or proposed land-disturbing activities for which the				
	operator is seeking permit coverage, the limits of land disturbance, construction entrances, construction support				
	activities, and all waterbodies receiving stormwater discharges from the construction site.				
В.	B. Project site location information.				
	Construc	tion Activity Name:			
		Address:			
	City and/or Co	ounty and Zip Code:			
	Construction Activ	ity Entrance Location			
		ion or street address):			
	Latitude and Longitu	de (6-digit, decimal			
	degrees format, e.g.	` • '			
C		· · · · · ·	ties to be inclu	ded under this permit coverage. Report to the nearest	
	one-hundredth of an a	-	ties to be meta-	ded under this permit coverage. Report to the hearest	
	otal area of the constr		off-site area):		
		be disturbed by the const			
	Estimated area to t	e disturbed by the const	(on-site only):		
	Off	f-site estimated area to			
		ole; please also refer to			
D.	Construction Activity		ĺ	FEDERAL □ STATE □ PUBLIC □ PRIVATE □	
E.	Nature of the Constru	ction Activity Descrip	otion (i.e.		
	commercial, industria		,		
	solar, linear, stream re	estoration, etc.):	-		

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## CONSTRUCTION GENERAL PERMIT (VAR10) REGISTRATION STATEMENT 2024

<b>F.</b> Municipal Separate Storm Sewer System (MS4) name(s) (if the construction activity is discharging to an MS4):					
G.	Estimated Construction Acti	,			
Start Date:					
		Completion Date:			
Н.	Is this construction activity pof development or sale?	part of a larger common Plan	YES □ NO □		
I.	6 <sup>th</sup> Order Hydrologic Unit C	ode (HUC) and Receiving Wa	ter Name(s). Include additio	onal areas on a separate page.	
	HUC	NAME(S) C	F RECEIVING WATER V	VATERBODY	
G _ 4	• III O 65 • 4 • 6 • • • • • • • • • • • • • • • •	**** T 1* T - C 1*			
	t all off site support activities	and excavated material dispos	al areas being utilized for th	is project Include additional	
	as on a separate page.	and excavated material dispos	ar areas being utilized for th	ns project. menude additional	
	F F9	Off-site Activity Name:			
		Address:			
		City or County:			
	Off-site Activity Entrance I	Location (description or street address):			
Latitude and Longitude (6-digit, decimal degrees format,					
	Latitude and Longitude (0-4	e.g., 37.1234, -78.1234):			
]	Is this off-site activity an exca	avated material disposal area?	YES □ NO □		
I	-	vated material disposal area, list ts of the excavated fill material:			
	Will a separate VPDES perm	nit cover this off-site activity?	YES  Permit #	NO 🗆	
Sect	ion IV. Other Information.				
	A. A Stormwater Pollution Prevention Plan (SWPPP) must be prepared in accordance with the requirements of the General VPDES Permit for Discharges of Stormwater from construction activities <u>prior to</u> submitting the registration statement. By signing the registration statement, the operator certifies the SWPPP has been prepared.				
B. Has an Erosion and Sediment Control Plan been submitted to the VESC Authority for review?  YES			YES □ NO□		
Erosion and Sediment Control Plan Approval Date: (for the estimated area to be disturbed; MM/DD/YYYY)					
C.	Has land-disturbance comme	enced?	YES□ NO□		
D.	Standards and Specifications completed S&S Entity Form	s. If this project is utilizing app		fications (S&S), attach the	
E.			ity design criteria requirem	ents (9VAC25-875-580)?	
	E. Will nutrient credits be used to comply with the water quality design criteria requirements (9VAC25-875-580)? <b>YES</b> $\square$ <b>NO</b> $\square$ (If yes, please include a copy of the letter of availability from an appropriate nutrient bank that				
	nonnoint source nutrient credits are available )				

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#### CONSTRUCTION GENERAL PERMIT (VAR10) REGISTRATION STATEMENT 2024

**Section V. Certification.** A person representing the operator as identified in Section I.A and meeting the requirements of Part III.K of 9VAC25-880-70 must physically sign this certification. A typed signature is not acceptable. Please note that operator is defined in 9VAC25-875-20 as follows:

"Operator" means the owner or operator of any facility or activity subject to the VESMA and this chapter. In the context of stormwater associated with a large or small construction activity, "operator" means any person associated with a construction project that meets either of the following two criteria: (i) the person has direct operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications or (ii) the person has day-to-day operational control of those activities at a project that are necessary to ensure compliance with a stormwater pollution prevention plan for the site or other permit or VESMP authority permit conditions (i.e., the person is authorized to direct workers at a site to carry out activities required by the stormwater pollution prevention plan or comply with other permit conditions). In the context of stormwater discharges from an MS4, "operator" means the operator of the regulated MS4 system.

#### 9VAC25-880-70. Part III.K. Signatory requirements. All registration statements shall be signed as follows:

- a. "For a corporation: by a responsible corporate officer. For the purpose of this chapter, a responsible corporate officer means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy-making or decision-making functions for the corporation; or (ii) the manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions that govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
- b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
- c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this chapter, a principal executive officer of a public agency includes (i) the chief executive officer of the agency or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency."

Certification: "I certify under penalty of law that I have read and understand this registration statement and that this document and all attachments were prepared in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations."

Printed Name:	
Signature (signed in ink):	
Date Signed:	
	the VESMP Authority. If the locality is the VESMP Authority, to the locality; do NOT send this form to DEQ. A list of local s.
If DEQ is the VESMP Authority, please send to:	If the locality is the VESMP Authority, please send to:
Department of Environmental Quality Office of Stormwater Management Suite 1400 PO Box 1105 Richmond VA 23218 constructions powder virginia gov	The Local VESMP Authority (insert address below):

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# CONSTRUCTION GENERAL PERMIT (VAR10) REGISTRATION STATEMENT 2024 INSTRUCTIONS

#### PLEASE DO NOT PRINT OR SUBMIT

This registration statement is for coverage under the General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Stormwater from Construction Activities (also referred to as the Construction General Permit). This form covers the following permit actions: new permit issuance, existing permit modification with an increase in acreage, existing permit modifications that result in a plan modification but do not result in an increase in disturbed acreage, and reissuance of an active permit coverage.

Application type. Select NEW PERMIT ISSUANCE to obtain a new permit coverage. Modifications are for modifying an existing, active permit coverage. Select MODIFICATION WITH ACREAGE INCREASE when the previously approved acreage(s) increases (permit modifications are not performed for decreases in acreage unless they result in plan changes—see Modification WITHOUT Acreage Increase). Select MODIFICATION
WITHOUT ACREAGE INCREASE when there is a change to the site design resulting in a change to the approved plans with no increase in acreage(s). Select EXISTING PERMIT REISSUANCE to extend an expiring permit coverage for the next permit cycle and include the existing permit number.

#### Section I. Operator/Permittee/Billing Information.

A. Construction Activity Operator (Permittee). The person or entity that is applying for permit coverage and will have operational control over construction activities to ensure compliance with the general permit. For companies, use the complete, active, legal entity name as registered with a state corporation commission. Entities that are considered operators commonly consist of the property owner, developer of a project (the party with control of project plans and specifications), or general contractor (the party with day-to-day operational control of the activities at the project site that are necessary to ensure compliance with the general permit). If an individual person is listed as the operator, that person (or a legal representative of) must sign the certification in Section V. An operator may be one of the following:

#### 9VAC25-875-20. Definitions.

"Operator" means the owner or operator of any facility or activity subject to the VESMA and this chapter. In the context of stormwater associated with a large or small construction activity, "operator" means any person associated with a construction project that meets either of the following two criteria: (i) the person has direct operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications or (ii) the person has day-to-day operational control of those activities at a project that are necessary to ensure compliance with a stormwater pollution prevention plan for the site or other permit or VESMP authority permit conditions (i.e., the person is authorized to direct workers at a site to carry out activities required by the stormwater pollution prevention plan or comply with other permit conditions). In the context of stormwater discharges from an MS4, "operator" means the operator of the regulated MS4 system.

"Owner" means the same as that term as defined in § 62.1-44.3 of the Code of Virginia. For a regulated land-disturbing activity that does not require a permit, "owner" also means the owner of the freehold of the premises of lesser estate therein, mortgagee or vendee in possession, assignee of rents, receiver, executor, trustee, lessee, or other person, firm or corporation in control of a property.

"Person" means any individual, partnership, firm, association, joint venture, public or state corporation, trust, estate, commission, board, public or private institution, utility, cooperative, county, city, town, or other political subdivision of the Commonwealth, governmental body, including a federal or state entity as applicable, any interstate body or any other legal entity.

B. May we transmit correspondence electronically? If you choose **YES** to this question and provide an email address in Section I. A., all correspondence, forms, invoices and notifications will be transmitted by email to the operator. This will also give the operator the ability to pay by credit card and to receive permit coverage approval letters immediately upon permit approval.

#### Section II. Construction Activity Information.

- A. A legible site map showing the location of the existing or proposed land-disturbing activities for which the operator is seeking permit coverage, the limits of land disturbance, construction entrances, construction support activities, and all water bodies receiving stormwater discharges from the construction site must be included with the submittal of this form. Aerial imagery maps or topographic maps showing the required items are acceptable. Plan sheet sized site maps are not required. Please consult your VESMP authority if you have additional questions regarding site map requirements.
- B. Construction Activity Name and location. Provide a descriptive name of the construction activity to be covered under the general permit (it is helpful to use the same naming convention as listed on the Stormwater Management plans), 911 street address (if available), city/county of the construction activity, and the 6-digit latitude and longitude in decimal degrees format for the centroid, main construction entrance or start and end points for linear projects (i.e., 37.1234, -77.1234).
- C. Acreage totals for all construction site activities, on- and off-site, to be included under this permit. Acreages are to be reported to the nearest one-hundredth acre (two decimal places, i.e., 1.15 acres). Provide the total acreage of the construction site as approved on the Stormwater Management Plans and the estimated on-site acreage to be disturbed by the construction activity as approved under the Erosion and Sediment Control Plans. The off-site estimated area to be disturbed is the sum of the disturbed acreages for all off-site support activities to be covered under this general permit. The total area of the construction site includes the construction support activities located on-site and off-site. Permit fees are calculated based on your disturbed acreage total for all on- and off-site areas being disturbed under this permit coverage (the sum of all on-site and off-site disturbed acreages).

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- D. Construction activity owner status. The status of the construction activity property owner. Any property not owned by a government entity or agency (i.e. federal, state or local governments) is **PRIVATE**.
- E. Nature of the construction activity description. Choose the designation that best describes the post-construction use of this project (you may choose more than one). (i.e. commercial, industrial, residential, agricultural, utility, solar, linear, stream restoration, etc.). Describe the post-construction use of the project (i.e. commercial one new office building and associated parking and utilities; transportation linear roads, sidewalks and utilities; agricultural three poultry houses, etc.).
- F. Municipal Separate Storm Sewer System (MS4) name(s) if discharging to an MS4. If stormwater is discharged through an MS4 (either partially or completely), provide the name of the MS4(s) that will be receiving water from this construction activity. The MS4 name is typically the town, city, county, institute, or federal facility where the construction activity is located.
- G. Estimated construction activity dates. Provide the estimated construction activity start date and completion date in Month/Day/Year or MM/DD/YYYY format (i.e. 07/30/2019).
- H. Is this construction activity is part of a larger common plan of development or sale? Per 9VAC25-875-20, "common plan of development or sale" means a contiguous area where separate and distinct construction activities may be taking place at different times on different schedules (i.e. a subdivision, commercial development, business park, etc.).
- I. Sixth (6<sup>th</sup>) Order Hydrologic Unit Code (HUC) and associated Receiving Water Name(s). Provide all 6<sup>th</sup> order HUCs and receiving waterbody names, for the primary site and any off-site areas included under this permit coverage, that could potentially receive stormwater runoff discharging from this activity. The HUC can be either a 12-digit number (i.e., 0208010101) or 2-letter, 2-number code (i.e., JL52). Include additional HUCs or receiving waters on a separate page. You may utilize DEQ's web-based GIS application to obtain this information.
  - DEQ Environmental Data Mapper (EDM) application link: <u>Environmental Data Mapper</u>
  - Instructions, help and resources for using DEQ's EDM application link: EDM Help & Resources

#### Section III. Off-site Support Activity Location Information.

This general permit also authorizes stormwater discharges from support activities (e.g., concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, borrow areas, etc.) located on-site or off-site provided that (i) the support activity specifically supports the construction activity that is required to have general permit coverage; (ii) the support activity is not a commercial operation, nor does it serve multiple unrelated construction activities by different operators; (iii) the support activity does not operate beyond the completion of the construction activity it supports; (iv) the support activity is identified in the registration statement at the time of general permit coverage; (v) appropriate control measures are identified in a SWPPP and implemented to address the discharges from the support activity areas; and (vi) all applicable state, federal, and local approvals are obtained for the support activity.

Off-site activity name and location information. Provide a descriptive off-site project name, 911 street address (if available), construction entrance location (address or description), city/county and the 6-digit latitude and longitude in decimal degrees (i.e., 37.1234, -77.1234) of all off-site support activities. Indicate whether the off-site support activity will be covered under this general permit or a separate VPDES permit.

If excavated material (i.e., fill) will be transported off-site for disposal, the name and physical location address, when available, of all off-site excavated material disposal areas including city or county; 6-digit latitude and longitude in decimal degrees (i.e., 37.1234, -77.1234) and the contents of the excavated material.

List additional off-site areas to be included under this permit coverage on a separate page. Off-site areas not included on this registration will need to obtain coverage under a separate VPDES permit.

#### Section IV. Other Information.

- A. A stormwater pollution prevention plan (SWPPP) must be prepared prior to submitting the registration statement per 9VAC25-880. See 9VAC25-880-70 Part II Of the General Permit for the SWPPP requirements.
- B. If the Erosion and Sediment Control Plan for the estimated area to be disturbed listed in Section II. C has been submitted to the Virginia Erosion and Sediment Control Program (VESCP) Authority for review and approval, choose **YES**. If you are submitting this application to reissue an existing permit coverage, please provide the date that the VESCP Authority approved the Erosion and Sediment Control Plan for the estimated area to be disturbed. If land disturbance has commenced, choose **YES**. "Land disturbance" or "land-disturbing activity" means a man-made change to the land surface that may result in soil erosion or has the potential to change its runoff characteristics, including construction activity such as the clearing, grading, excavating, or filling of land.
- D. If this project is using approved Standards and Specifications (S&S), attach the completed S&S Entity Form. If the S&S Entity is different from the operator identified in Section I.A., list the S&S Entity Name. The S&S entity is the entity or agency that holds the approved standards & specification. Please indicate if this project is also requesting a plan waiver.
  - S&S Entity Form link: Standards and Specifications Entity Information Form

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E. If nutrient credits will be used to comply with the water quality design criteria requirements (9VAC25-875-590), choose **YES**. In addition, include a copy of the letter of availability from an appropriate nutrient bank that nonpoint source nutrient credits are available. If nutrient credits will not be used, choose **NO**.

#### Section V. Certification.

A properly authorized individual associated with the operator identified in Section I.A. of the registration statement is responsible for certifying and signing the registration statement. A person must physically sign the certification, a typed signature is unacceptable. State statutes provide for severe penalties for submitting false information on the registration statement. State regulations require that the registration statement be signed as follows per 9VAC25-880-70 Part III.K.1:

- "a. For a corporation: by a responsible corporate officer. For the purpose of this part, a responsible corporate officer means:
  - (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy-making or decision-making functions for the corporation; or
  - (ii) the manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions that govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedure;
- b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
- c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this part, a principal executive officer of a public agency includes:
  - (i) the chief executive officer of the agency, or
  - (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

#### Section VI. Submittal Instructions.

Submit this completed signed form to the VESMP/VSMP authority that has jurisdiction for your construction activity. The appropriate authority may be either the local government your locality depending on the location and type of project or DEQ. If your project is under the jurisdiction of a local VESMP authority, please contact the locality for additional submittal instructions. A blank area is provided for the local VESMP authority's mailing address.

#### Who is the authority for my project? DEQ or the locality?

- <u>DEQ</u>: DEQ is the VSMP Authority and administers permit coverage for land-disturbing activities that are:
  - within a locality that is not a VESMP authority;
  - o owned by the State or Federal government; or
  - utilizing approved Standards and Specifications.

#### Email the completed and signed form to: <a href="mailto:constructiongp@deq.virginia.gov">constructiongp@deq.virginia.gov</a>

• The Locality: The local government (locality) is the VESMP authority and administers permit coverage for all other projects not covered by DEQ as listed above. For these projects, please submit permit forms directly to the local VESMP authority. A list of local VESMP authorities is available on DEQ's website here: Local VESMP Authority List.

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# **Module 4: Construction Inspections - Part 1**

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# **Learning Objectives**

At the end of this module, you will be able to:

- For VESMP authority inspections:
  - o Describe the main objectives and requirements, including frequency
  - o Recall the site entry provision
- For the SWPPP:
  - o Identify the main components and documentation required
  - o Recall the availability requirements
  - Describe when and what changes the operator must make to the SWPPP
  - o Define qualified person
  - Recall the critical components of the operator's SWPPP inspection report and verify required inspection frequencies are met
  - o Explain the requirements for corrective actions
- Recall the provision that requires operators to provide any information requested for compliance determinations
- Explain reporting requirements for unauthorized discharges

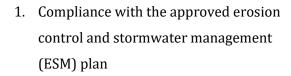
## 4a. Inspections

#### **VESMP AUTHORITY INSPECTIONS**

(§62.1-44.15:37), (9VAC25-875-140.A-B)

The Virginia Erosion and Stormwater

Management Program (VESMP) authority must inspect a regulated land-disturbing activity during construction for *all of the following:* 





#### As an inspector...

Keep in mind that unless your locality has an alternative inspection program, the VESMP and Virginia Erosion and Sediment Control Program (VESCP) authorities' inspection timelines are the same, but VESMP authority inspections are all encompassing.

- a. Approved erosion and sediment control (ESC) plan
- b. Approved stormwater management (SWM) plan
- 2. Development, updating, and implementation of a pollution prevention (P2) plan
- 3. Development and implementation of any additional control measures necessary to address a construction-related TMDL (Total Maximum Daily Load)

The VESMP authority must conduct *periodic* inspections <u>during construction</u> by either:

- 1. Providing an inspection:
  - a. during, or immediately following, initial installation of erosion and sediment controls;
  - b. at least once in every two-week period and within 48 hours following any runoff producing storm event; and
  - c. at the completion of the project, prior to the release of any performance bonds; **OR**
- 2. Establish an alternative inspection program approved by DEQ that ensures compliance.

#### SITE ENTRY

#### (§62.1-44.15:39)

The Virginia Erosion and Stormwater Management Act (VESMA) authorizes DEQ, a locality VESMP authority, or a Municipal Separate Storm Sewer System (MS4) authority to, at reasonable times and under reasonable circumstances, enter establishments or properties for the purpose of obtaining information, conducting surveys, or investigations necessary to enforce VESMA.

In accordance with a performance bond with surety, cash escrow, letter of credit, any combination thereof, or such other legal arrangement, an authority may also enter any establishment or upon any property for the purpose of initiating or maintaining appropriate actions that are required by permit conditions associated with a land-disturbing activity when a permittee, after proper notice, has failed to take acceptable action within the time specified.

#### CONSTRUCTION GENERAL PERMIT REQUIREMENTS

#### (9VAC25-880)

The Construction General Permit (CGP) states the conditions the operator must meet during construction to maintain permit coverage. The permit will be discussed in this module and the next.

#### As an inspector...

It's very important that you understand the permit because each locality's program must be consistent with the CGP. The permit (9VAC25-880-70) is included in this participant guide at the end of Module 5.

#### 9VAC25-880-70. General Permit.

Any operator whose registration statement is accepted by DEQ will receive the following general permit and shall comply with the requirements contained therein and be subject to all requirements of 9VAC25-875.

General Permit No.: VAR10

Effective Date: July 1, 2024

Expiration Date: June 30, 2029

GENERAL VPDES PERMIT FOR DISCHARGES OF STORMWATER FROM CONSTRUCTION ACTIVITIES

AUTHORIZATION TO DISCHARGE UNDER THE VIRGINIA STORMWATER MANAGEMENT PROGRAM AND THE VIRGINIA STORMWATER MANAGEMENT

#### Notice of coverage letter posting

#### (9VAC25-880-70 PART II D)

A copy of the notice of coverage letter (issued by DEQ) must be posted near the main entrance of the construction activity. For linear projects, the operator must post the notice of coverage letter at a publicly accessible location near an active part of the construction project (e.g., where a pipeline crosses a public road). The operator must keep a copy of the notice of coverage letter posted until the CGP is terminated.

Sample DEQ Notice of Coverage Letter provided below:



#### Commonwealth of Virginia

### VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

1111 E. Main Street, Suite 1400, Richmond, Virginia 23219
P.O. Box 1105, Richmond, Virginia 23218
(800) 592-5482
www.deq.virginia.gov

Travis A. Voyles Secretary of Natural and Historic Resources Michael S. Rolband, PE, PWD, PWS Emeritus Director (804) 698-4020

- «TableStart:CoverageLetter» «PermitCoverageApprovedDate»
- «OperatorName» «OperatorFullAddress» «OperatorEmail»

RE: Coverage under the VPDES Construction General Permit (VAR10)
General Permit Number «PermitNumber»
«AuthorityUniqueId»
«ConstructionActivityName»
«NatureOfConstructionActivity»
«ConstructionActivityLocation»

#### Dear Permittee:

The Virginia Department of Environmental Quality (DEQ) has reviewed your Registration Statement received complete on «AppCompleteDate» and determined that the proposed «DisturbedAcres» acre land-disturbing activity is covered under the General VPDES Permit for Discharges of Stormwater from Construction Activities (VAR10). The effective date of your coverage under this general permit is July 1, 2024 or the date of this letter, whichever is later. A copy of the general permit may be obtained at the following link: https://law.lis.virginia.gov/admincode/title9/agency25/chapter880/section70/.

The general permit contains the conditions of coverage and Stormwater Pollution Prevention Plan (SWPPP) requirements. Please print the general permit and read it carefully as you will be responsible for compliance with all permit conditions. Coverage under this construction general permit does not relieve the operator of complying with all other federal, state, or local laws and regulations.

Our records indicate that your site may discharge to waters identified as impaired or exceptional. Please see below for additional requirements:

Does this proposed land-disturbing activity discharge to a surface water identified as impaired
in the 2022 § 305(b)/303(d) Water Quality Assessment Integrated Report for Benthic
Macroinvertebrates Bioassessments or for which a TMDL wasteload allocation has been
established and approved prior to the term of the general permit for (i) sediment or a sediment-

related parameter or (ii) nutrients, including all surface waters within the Chesapeake Bay Watershed? «NutrientSedimentImpairedYesNo». If YES, then the following general permit (Part I B 4 a) and SWPPP requirements (Part II B 5 and Part II B 8) must be implemented for the land-disturbing activity:

- Permanent or temporary soil stabilization shall be applied to denuded areas within seven (7) days after final grade is reached on any portion of the site;
- Nutrients (e.g., fertilizers) shall be applied in accordance with manufacturer's recommendations or an approved nutrient management plan and shall not be applied during rainfall events:
- Inspections shall be conducted at a frequency of (i) at least once every four (4) business days or (ii) at least once every (5) business days and no later than 24 hours following a measurable storm event. In the event that a measurable storm event occurs when there are more than 24 hours between business days, the inspection shall be conducted on the next business day; and
- Representative inspections used by utility line installation, pipeline construction, or other similar linear construction activities shall inspect all outfalls; and
- Implement the requirements for construction dewatering discharges as outlined in Part II B 8.
- 2. Does this proposed land-disturbing activity discharge to a surface water identified as impaired in the 2022 § 305(b)/303(d) Water Quality Assessment Integrated Report or for which a TMDL wasteload allocation has been established and approved prior to the term of the general permit for polychlorinated biphenyl (PCB)? «PcbImpairedYesNo». If YES, then the following general permit (Part I B 4 b) and SWPPP requirements (Part II B 6) must be implemented for the land-disturbing activity if the construction activity involves the demolition of structures (i) equal to or greater than 10,000 square feet and (ii) built or renovated on or before January 1, 1980:
  - Implement an approved erosion and sediment control plan;
  - Dispose of PCB-contaminated materials in compliance with applicable state, federal, and local requirements to minimize the exposure of PCB-containing building materials;
  - Inspections shall be conducted at a frequency of (i) at least once every four (4) business days or (ii) at least once every (5) business days and no later than 24 hours following a measurable storm event. In the event that a measurable storm event occurs when there are more than 24 hours between business days, the inspection shall be conducted on the next business day; and
  - Representative inspections used by utility line installation, pipeline construction, or other similar linear construction activities shall inspect all outfalls.
- 3. Does this proposed land-disturbing activity discharge to an exceptional water identified in 9VAC25-260-30 A 3 c? <u>«ExceptionalWatersYesNo».</u> If <u>YES</u>, then the following general permit (Part I B 5) and SWPPP requirements (Part II B 7 and Part II B 8) must be implemented for the land-disturbing activity:
  - Permanent or temporary soil stabilization shall be applied to denuded areas within seven (7) days after final grade is reached on any portion of the site;

- Nutrients (e.g., fertilizers) shall be applied in accordance with manufacturer's recommendations or an approved nutrient management plan and shall not be applied during rainfall events;
- Inspections shall be conducted at a frequency of (i) at least once every four (4) business days or (ii) at least once every (5) business days and no later than 24 hours following a measurable storm event. In the event that a measurable storm event occurs when there are more than 24 hours between business days, the inspection shall be conducted on the next business day; and
- Representative inspections used by utility line installation, pipeline construction, or other similar linear construction activities shall inspect all outfalls; and
- Implement the requirements for construction dewatering discharges as outlined in Part II B 8.

The general permit requires that you submit a complete Notice of Termination packet no later than 30 days after meeting one or more of the termination conditions set forth in the general permit (Part I F). In accordance with the Virginia Erosion and Stormwater Management Regulation (9VAC25-875-1420), an annual permit maintenance fee may be required until coverage under this general permit has been terminated. If you are required to pay an annual permit maintenance fee, you will receive an invoice from the appropriate Virginia Erosion and Stormwater Management authority or DEQ when acting in the capacity of the Virginia Stormwater Management Program authority.

The general permit will expire on June 30, 2029. The conditions of the general permit require that you submit a new registration statement at least 90 days prior to that date if you wish to continue coverage under the general permit unless permission for a later date has been granted by the Board. Permission cannot be granted to submit the registration statement after the expiration date of the general permit.

If you have any questions about this permit, please contact the DEQ Office of Stormwater Management at ConstructionGP@deq.virginia.gov.

Sincerely,

Rebeccah Rochet, P.E.

Rebeat Wort

Deputy Director

Division of Water Permitting

«TableEnd:CoverageLetter»

#### 4b. Stormwater Pollution Prevention Plan

As discussed in Module 2, the Stormwater Pollution Prevention Plan (SWPPP) is the cornerstone of the consolidated erosion and stormwater program. Each SWPPP must be site-specific and address the potential sources of pollution that may be generated during and after construction. Authority inspectors must review an operator's SWPPP documentation to confirm it has the required elements.

#### SWPPP AVAILABILITY

(9VAC25-880-70 PART II E)



**Construction site personnel**: The SWPPP, including copies of the signed registration statement, notice of coverage letter, and permit, must be available at a central location on-site for use by those identified as having responsibilities under the SWPPP whenever they are on the construction site.



**DEQ, VESMP/VESCP authority, EPA, MS4 operator, local government**: The SWPPP must be available upon request. If an on-site location is unavailable when personnel are not present, notice of the SWPPP's location must be posted near the main entrance of the construction site.



**Public:** The SWPPP must be available for public review in an electronic format or in hard copy. Information for public access must be posted near the main entrance of the construction site. If the SWPPP is not provided electronically, public access to the SWPPP may be arranged upon request at a time and at a publicly accessible location convenient to the operator.

#### **SWPPP DOCUMENTATION**

#### (9VAC25-880-70 PART II A AND B)

Authority inspectors must review an operator's SWPPP to confirm it has the required documentation. The SWPPP requirements may be fulfilled by *incorporating by reference* other plans such as a spill prevention control and countermeasure (SPCC) plan. All plans incorporated by reference into the SWPPP become enforceable under the CGP. If a plan incorporated by reference does not contain all of the required elements of the SWPPP, the operator must develop the missing elements and include them in the SWPPP.

#### **SWPPP Documentation**

1. General information	2. Approved ESC plan	3. Approved SWM plan
4. P2 plan	5. Impaired waters + TMDL requirements	6. PCB impaired waters and TMDL requirements
7. Exceptional waterways	8. Turbidity monitoring requirements	9. Qualified personnel
10. Duly Authorized Representative	11. SWPPP signature	12. SWPPP inspection records

#### 1. General information

- Signed copy of the registration statement (if required)
- Copy of the notice of coverage letter (if required)
- Copy of the CGP
- Narrative description of the nature of the construction activity, including the function of the project (e.g., low density residential, shopping mall, highway, etc.)
- Legible map of the construction site

- 2. Approved erosion and sediment control plan
- 3. Approved stormwater management plan
- 4. Pollution prevention plan
- 5. Additional requirements for discharges to nutrient- and sediment-impaired waters, or surface waters with an applicable TMDL wasteload allocation, including all surface waters within the Chesapeake Bay Watershed
  - Identify the impaired water(s), approved TMDL(s), and pollutant(s) of concern,
  - Provide clear documentation that:
    - Permanent or temporary soil stabilization must be applied to denuded areas within seven days after final grade is reached on any portion of the site
    - Nutrients must be applied in accordance with manufacturer's recommendations or an approved nutrient management plan and must not be applied during rainfall events
    - A modified SWPPP inspection schedule shall be implemented in accordance with Part II G 2 a. of the CGP
- 6. Additional requirements for discharges from demolition of buildings built or renovated before January 1, 1980, which are impaired or have a TMDL wasteload allocation for polychlorinated biphenyls (PCBs):
  - Identify the PCB-impaired water(s), approved PCB TMDL(s), and pollutant(s) of concern,
  - Provide clear documentation that:
    - o An ESC plan will be implemented in accordance with Part II B 2 of the CGP
    - Disposal of waste materials is in compliance with applicable state, federal, and local requirements
    - A modified SWPPP inspection schedule shall be implemented in accordance with Part II G 2 a. of the CGP

# 7. Additional requirements for discharges to surface waters identified in <a href="https://example.com/9VAC25-260-30.A.3.c">9VAC25-260-30.A.3.c</a> as an exceptional waterway

- Identify the exceptional surface waters in the SWPPP,
- Provide clear documentation that:
  - Permanent or temporary soil stabilization must be applied to denuded areas within seven days after final grade is reached on any portion of the site
  - Nutrients must be applied in accordance with manufacturer's recommendations or an approved nutrient management plan and must not be applied during rainfall events
  - A modified SWPPP inspection schedule shall be implemented in accordance with Part II G 2 a. of the CGP

# 8. Turbidity benchmark requirements for construction dewatering discharges to impaired, sediment-related TMDL, or exceptional waterways

- The operator shall undertake one of three turbidity benchmark options outlined in the CGP for controlling and documenting construction discharges to impaired or exceptional receiving waters; or request an alternative benchmark threshold to DEQ
- These options require the operator to implement turbidity monitoring methods and document required information in the SWPPP, including:
  - Construction discharge locations
  - o Control measures that minimize pollutants in dewatering discharges
  - Documentation of turbidity sampling frequency, timing, location, and testing methodology
  - Visual monitoring of all discharges for changes in effluent discharge
  - Corrective action conditions:
    - Benchmark option 1: where the turbidity measurement of a site discharge grab sample exceeds an upstream sample from the receiving stream by 50 turbidity units (NTUs/FTUs)
    - Benchmark option 2: where the turbidity measurement of a site discharge grab sample exceeds 150 turbidity units (NTUs/FTUs)

- Benchmark option 3: where the turbidity measurement of a site discharge grab sample exceeds 50 turbidity units (NTUs/FTUs) based on a weekly average from construction site dewatering discharges
- Or in any case, visual monitoring indicates a change in the characterization of effluent discharge
- Dewatering discharges from single-family homes are exempt, provided discharges are not directly to surface waters
- An operator can request an alternative benchmark threshold from the options above, pending DEQ approval

#### 9. Qualified personnel

The name, telephone number, and qualifications of the qualified personnel conducting inspections must be listed.

#### 10. Duly Authorized Representative

List the individuals or positions duly authorized, in accordance with Part III K of the CGP, to sign inspection reports or modify the SWPPP.

#### 11. SWPPP signature

The SWPPP must be signed and dated by the operator or duly authorized representative of the operator with the following certification (Part III K 4 of the CGP):

"I certify under penalty of law that I have read and understand this document and that this document and all attachments were prepared in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

**Reports, including inspection reports, must also be signed by the operator.** The operator may be the same person that signed the registration statement, or that person may authorize a representative to sign on their behalf. The representative may be an individual or a position having responsibility for the overall operation of the regulated facility or activity.

Reports can be signed by:

- Corporations Responsible corporate officer
- Partnership or sole proprietorship General partner or the proprietor
- Municipality, state, federal, other public agency Principal executive office or ranking elected official
- Or by a duly authorized representative of any of the above individuals

#### 12. SWPPP inspection records

(9VAC25-880-70 PART II G 2-3)

The operator must have a qualified person conducting inspections to ensure compliance with the SWPPP. The operator must add these inspections to the SWPPP within four days of the inspection and update the SWPPP as soon as possible (or within five business days) following any modification of its implementation.

## 4c. SWPPP Inspections by Qualified Personnel

#### **SWPPP INSPECTIONS**

#### (9VAC25-880-70 PART II G)

The operator must have a qualified person conducting inspections to ensure compliance with the SWPPP. A qualified person is defined in the CGP as someone who is knowledgeable in the principles and practices of erosion and sediment and stormwater management controls who possesses the skills to assess conditions at the construction site for the operator that could impact stormwater quality and quantity and to assess the effectiveness of any sediment and erosion control measures or stormwater management facilities selected to control the quality and quantity of stormwater discharges from the construction activity (9VAC25-880-1). In order to obtain the appropriate knowledge in the above content, any persons identified as "qualified personnel" must complete training and obtain one of the following:

- An unexpired certification in both Inspector for Erosion and Sediment Control and Inspector for Stormwater Management (or Dual Inspector Certification) issued by DEQ
- An unexpired CGP Qualified Personnel Certificate, issued by DEQ or VDOT
- An equivalent certification provided by EPA

#### SWPPP INSPECTION SCHEDULE

#### (9VAC25-880-70 PART II G)

The CGP includes two different inspection frequencies depending upon where the site is discharging. If the site is discharging to impaired waters, surface waters with an applicable TMDL or exceptional waters, then the qualified person will have to conduct more frequent inspections. See the tables on the next two pages for a comparison.

#### As an inspector...

It's important to confirm the qualified personnel are following the correct, required inspection frequency schedule throughout construction.

#### **SWPPP Inspection Schedule**

(9VAC25-880-70 PART I B 4-6 AND PART II G 2)

Discharges to impaired waters, surface waters with an applicable TMDL, or exceptional waters	Standard Inspections	
Inspections must be conducted either:	Inspections must be conducted either:	
1. At least once every <b>4 business days</b> ; or	1. At least once every <b>5 business days</b> ; or	
<ol> <li>At least once every <u>5 business days and</u> <u>no later than 24 hours</u> following a measurable storm event</li> </ol>	2. At least once every 10 business days and no later than 24 hours following a measurable storm event	

For all sites: where areas have been **temporarily stabilized** or construction activities will be **suspended due to continuous frozen ground conditions** and **stormwater discharges are unlikely**, the inspection frequency may be reduced to <u>once per month</u>.

If weather conditions (such as above freezing temperatures or rain or snow events) make discharges likely, the operator shall immediately resume the regular inspection frequency.

If adverse weather causes the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. This must be noted in the SWPPP.

Areas that have reached final stabilization do not require further SWPPP inspections provided the SWPPP has been updated (Part II C 4c).

**Applicable TMDL** = Total maximum daily load allocation that has been established and approved prior to July 1, 2024 for (i) sediment or a sediment-related parameter (i.e., total suspended solids or turbidity), (ii) nutrients (i.e., nitrogen or phosphorus) or (iii) PCB when performing demolition, including all surface waters within the Chesapeake Bay Watershed

**Exceptional waters =** Waters identified in <u>9VAC25-260-30 A 3</u>

Impaired waters = Surface waters identified as impaired in the 2022 § 305(b)/303(d) Water Quality Assessment Integrated Report for Benthic Macroinvertebrates Bioassessments

**Measurable storm event =** A rainfall event producing 0.25 inches of rain or greater over 24 hours or snow melt from a snow event producing 3.25 inches or more of snow within a 24-hour period (9VAC25-880-1)

# Utility line installation, pipeline construction, or other similar linear construction activities SWPPP inspection schedule

(9VAC25-880-70 PART I B 4-6 AND PART II G 2)

Discharges to impaired waters, surface waters with an applicable TMDL, or exceptional waters	Standard Inspections
Inspections must be conducted either:  1. At least once every <b>4 business days</b> ; or	Inspections must be conducted either:  1. At least once every <u>5 business days</u> ; or
<ol> <li>At least once every <u>5 business days</u> and no later than <u>24 hours</u> following a measurable storm event</li> </ol>	2. At least once every 10 business days and no later than 24 hours following a measurable storm event
Representative inspections may <u>not</u> be used.	Representative inspections may be utilized for utility line installation, pipeline construction, or other similar linear construction activities.

For all linear projects, representative inspections may be used if all of the following are true:

- 1. Temporary or permanent soil stabilization has been installed and vehicle access may compromise the temporary or permanent soil stabilization and potentially cause additional land disturbance, increasing the potential for erosion
- 2. Inspections occur on the same frequency as other construction activities
- 3. Control measures are inspected along the construction site 0.25 miles above and below each access point (i.e., where a roadway, undisturbed right-of-way, or other similar feature intersects the construction activity and access does not compromise temporary or permanent soil stabilization)
- 4. Inspection locations are provided in the inspection report

For all sites: where areas have been **temporarily stabilized** or land-disturbing activities will be **suspended due to continuous frozen ground conditions and stormwater discharges** are unlikely, the inspection frequency may be reduced to **once per month**.

If weather conditions (such as above freezing temperatures or rain or snow events) make discharges likely, the operator shall immediately resume the regular inspection frequency.

If adverse weather causes the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. This must be noted in the SWPPP.

Areas that have reached final stabilization do not require further SWPPP inspections provided the SWPPP has been updated (Part II C 4c).

#### SWPPP INSPECTION REPORT

#### (9VAC25-880-70 PART II G 4-6)

The qualified personnel's SWPPP inspection report must be included with the SWPPP no later than four business days following the inspection and contain the following:

- a. The date and time of the inspection and when applicable, the date and precipitation amount of the last measurable storm event;
- b. Summarized findings of the inspection;
- c. Locations, visual quality, and characteristics of all occurring stormwater discharges;
- d. Locations, visual quality, and characteristics of all construction dewatering discharges;
- e. The location(s) of prohibited discharges;
- f. The location(s) of control measures that require maintenance;
- g. The location(s) of control measures that failed to operate as designed or proved inadequate or inappropriate for a particular location;
- h. The location(s) of any evidence that the approved ESC plan has not been properly implemented;
- i. The location(s) where any additional control measure is needed that did not exist at the time of inspection;
- j. A list of corrective actions required (including any changes to the SWPPP that are necessary) as a result of the inspection or to maintain permit compliance;
- k. Documentation of any corrective actions required from a previous inspection that have not been implemented;
- l. Any incidents of noncompliance. If none, the report shall contain a certification that the construction activity is in compliance with the SWPPP and CGP;
- m. The required certification in accordance with Part II K 4 of the CGP, signed by a person under Part III K 1 or 2; and
- n. The date and signature of the qualified personnel and the operator or its duly authorized representative in accordance with Part III K 2 of the CGP.

The SWPPP inspection report and any actions taken in accordance with Part II of the CGP must be retained by the operator as part of the SWPPP for at least <u>3 years</u> from the date that general permit coverage expires or is terminated.

#### No incidents of noncompliance

When an inspection report does not identify any incidents of noncompliance, the report shall contain a certification that the construction activity is in compliance with the SWPPP and the CGP. The report must be signed in accordance with Part III K of the permit.

#### **CORRECTIVE ACTIONS**

#### (9VAC25-880-70 PART II H)

The operator must implement the corrective action(s) identified as a result of the qualified personnel's inspection <u>as soon as practicable but no later than five business days</u> after discovery <u>or a longer period as approved by the VESMP authority</u>.

#### As an inspector...

You can require a shorter timeframe if the corrective action warrants it. The permit conditions are for SWPPP inspections, not regulatory inspections.

If approval of a corrective action by a regulatory authority (e.g., locality VESMP authority, VESCP authority, or DEQ) is necessary, *additional control measures must be implemented* to minimize pollutants in stormwater discharges until such approvals can be obtained.

The operator may be required to remove accumulated sediment outside of the construction site as soon as practicable in order to minimize environmental impacts. The operator must notify the locality VESMP authority and DEQ as well as obtain all applicable federal, state, and local authorizations, approvals, and permits *before* removing sediment in surface waters, including wetlands.



Improper installation of silt fence inlet protection

Photo credit: DEQ

### 4d. SWPPP Amendments, Modifications, and Updates

#### SWPPP AMENDMENTS, MODIFICATIONS, AND UPDATES

(9VAC25-880-70 PART II C 1-5)

The CGP tells the operator when the SWPPP has to be amended, modified, and updated. As an inspector, you should look to see if the following requirements are being followed, and, if not, note it on your inspection report.

- 1. The operator must amend the SWPPP whenever there is a change in the design, construction, operation, or maintenance that has a significant effect on the discharge of pollutants to surface waters and that has not been previously addressed in the SWPPP.
- 2. The SWPPP must be amended if, during inspections or investigations by the qualified personnel, or by local, state, or federal officials, it is determined that the existing control measures are ineffective in minimizing pollutants in discharges from the construction activity.
  - a. Revisions to the SWPPP shall include additional or modified control measures designed and implemented to correct problems identified.
  - b. If approval by the locality VESCP authority, locality VESMP authority, or DEQ is necessary for the control measure, <u>revisions to the SWPPP</u> shall be completed <u>no</u> <u>later than five business days</u> following approval.
  - c. Note: Localities must follow the regulatory timeframe for plan review and approval.
- 3. The SWPPP must clearly identify the contractor(s) that will implement and maintain each control measure identified in the SWPPP. The SWPPP shall be amended to identify any new contractor that will implement and maintain a control measure.
- 4. The operator shall update the SWPPP <u>as soon as possible but no later than 5 business</u> <u>days following any modification to its implementation</u>. All modifications or updates to the SWPPP shall be noted and shall include the following items:
  - a. A record of dates when:
    - Major grading activities occur

- Construction activities temporarily or permanently cease on a portion of the construction site
- Stabilization measures are initiated
- b. Documentation of replaced or modified controls where periodic inspections or other information have indicated that the controls have been used inappropriately or incorrectly and were modified as soon as possible
- c. Areas that have reached final stabilization and where no further SWPPP or inspection requirements apply
- d. All properties that are no longer under the legal control of the operator and the dates on which the operator no longer had legal control over each property
- e. The date of any prohibited discharges, the discharge volume released, and what actions were taken to minimize the impact of the release
- f. Measures taken to prevent the recurrence of any prohibited discharge
- g. Measures taken to address any evidence identified as a result of a qualified person's SWPPP inspection
- 5. Amendments, modifications, or updates to the SWPPP shall be signed by the operator or a duly authorized representative of that person in accordance with Part III K of the CGP.

## 4e. Duty to Provide Information and Reporting

#### DUTY TO PROVIDE INFORMATION

#### (9VAC25-880-70 PART III D)

The operator must provide DEQ, EPA, or a locality VESMP authority with any requested information to determine compliance with the CGP. The operator must also provide upon request any information to determine the effect of the site's discharge on the quality of surface water.

#### REPORTS OF UNAUTHORIZED DISCHARGES

#### (9VAC25-880-70 PART III G)

Any operator who discharges or causes or allows a discharge of sewage, industrial waste, other waste, or any noxious or deleterious substance or a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, 40 CFR Part 302, or § 62.1-44.34:19 of the Code of Virginia that occurs during a 24-hour period into or upon surface waters or that may reasonably be expected to enter surface waters must notify DEQ and the VESMP authority immediately upon discovery of the discharge, but in no case later than within 24 hours of discovery. A written report of the unauthorized discharge shall be submitted to DEQ and the VESMP authority within five calendar days of discovery of the discharge. The written report shall contain:

- 1. A description of the nature and location of the discharge;
- 2. The cause of the discharge;
- 3. The date on which the discharge occurred;
- 4. The length of time that the discharge continued;
- 5. The volume of the discharge;
- 6. If the discharge is continuing, how long it is expected to continue;
- 7. If the discharge is continuing, what the expected total volume of the discharge will be;
- 8. Steps to reduce, eliminate, and prevent the recurrence of unauthorized discharges.

## **Summary**

As a VESMP inspector, it's important to be able to:

- Conduct inspections at the right frequency that align with the main objectives and requirements of the stormwater program
- Review the SWPPP in order to:
  - o Ensure or require appropriate SWPPP availability
  - Check for compliance and communicate deficiencies clearly and validly
  - Identify when changes are needed to the SWPPP and explain to the operator what those changes are and how they are to be made
  - Verify that corrective actions have been completed as required
- Make valid request(s) for any and all information from operators so that compliance can effectively be determined for a project
- Ensure and verify that unauthorized discharges are reported as required both onsite and through educating the regulated community

## **Knowledge Check Questions**

1.	How frequently must a VESMP authority inspect a construction site?
2.	What are the two locations where the notice of coverage letter must be posted?
3.	What two options does the operator have for making the SWPPP available to the public?
4.	What must be included in the SWPPP as general information?
5.	What is the qualified personnel's inspection frequency for areas that have been temporarily stabilized and stormwater discharges are unlikely?
6.	If the qualified personnel discover an erosion and sediment control practice that was not properly installed, how long do they have to fix it?
7.	The operator must note all modifications or updates in the SWPPP, including a record of which three dates?
8.	How quickly must an operator report an unauthorized discharge into or upon surface waters or that may reasonably be expected to enter surface waters?
	Answers to the Knowledge Check Questions can be found in the APPENDIX

## **Module 5: Construction Inspections - Part 2**

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## **Learning Objectives**

At the end of this module, you will be able to:

- Describe construction BMPs (C-BMPs) required under the Construction General Permit
   (CGP) and Virginia Erosion and Stormwater Management Program (VESMP)
- For the CGP, describe and identify:
  - o Prohibited non-stormwater discharges
  - o Pollution prevention measures
  - Support activities
- Describe the critical components of an inspection report

## 5a. Overview of Construction BMPs (C-BMPs)

When it is time to walk the site, you will be looking for compliance with the approved erosion control and stormwater management (ESM) plan, which includes the Erosion and Sediment Control (ESC) and Stormwater Management (SWM) plans; the development, updating, and implementation of the pollution prevention (P2) plan; and the development and implementation of any additional control measures necessary to address a Total Maximum Daily Load (TMDL).



#### CONSTRUCTION BEST MANAGEMENT PRACTICES

(9VAC25-880-70 PART II B 2)

Erosion control is often considered a first line of defense – if erosion is controlled then sediment is minimized. Sediment control, the second line of defense, catches the sediment from areas where erosion controls could not be installed or where they failed to work properly.

As the VESMP inspector, you must consult the ESC portion of the approved ESM plan and inspect Construction Best Management Practices (C-BMPs) for:

- Proper installation
- Maintenance needs
- Effectiveness in minimizing sediment discharge
- Improper or incorrect use

For more information on C-BMPs, please review the Virginia Stormwater Management Handbook Chapter 7: https://online.encodeplus.com/regs/deg-va/doc-viewer.aspx#secid-221

## 5b. Prohibition of Nonstormwater Discharges

#### (9VAC25-880-70 PART I D)

As a VESMP inspector, it is very important to know what discharges are prohibited. If you see any of these discharges, you should take pictures and note them on your inspection report.

## **Prohibited Discharges**



Photo credit: DEQ
Wastewater from washout of concrete.



Photo credit: CWP
Wastewater from the washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction material.



Photo credit: CWP

Photo credit: https://www.flickr.com/people/28650594@N03

Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.

Soaps, solvents, or detergents used in equipment and vehicle washing.

Oils, toxic substances, or hazardous substances from spills or other releases.



Photo credit: DEQ

#### 5c. Pollution Prevention Practices and Procedures

#### (9VAC25-880-70-PART II B.4)

The P2 plan must be site-specific and address all the potential pollutant-generating activities that may affect the quality of stormwater being discharged from the site. The P2 plan must identify the person responsible for implementing the pollution prevention practice(s) for each pollutant-generating activity (if other than the person listed as the qualified personnel). Since the P2 plan is not approved by the VESMP authority, it is important for inspectors to ensure the P2 plan is onsite at the first inspection and to review it. The inspector should also compare the site conditions with the plan.

Link to EPA SWPPP template: <a href="https://www.epa.gov/npdes/developing-stormwater-pollution-prevention-plan-swppp">https://www.epa.gov/npdes/developing-stormwater-pollution-prevention-plan-swppp</a>

#### Concrete washout

- Concrete wash water must be directed into a leakproof container or leak-proof settling basin.
- Container or basin cannot overflow.
- Hardened and liquid concrete waste must be removed and properly disposed.



Photo credit: DEQ



# Stormwater Best Management Practice Concrete Washout



#### Minimum Measure

Construction Site Stormwater Runoff Control

#### **Subcategory**

Good Housekeeping/Materials Management

Description of Concrete Washout at Construction Sites

Construction workers should handle wet concrete and washout water with care because it may cause skin irritation and eye damage. If the washwater is dumped on the ground (Fig. 1), it can run off the construction site to adjoining roads and enter roadside storm drains, which discharge to surface waters such as rivers, lakes, or estuaries. The red arrow in Figure 2 points to a ready mixed truck chute that's being washed out into a roll-off bin, which isn't watertight. Leaking washwater, shown in the foreground, will likely follow similar

#### **EPA Concrete Washout Fact Sheet**

https://www3.epa.gov/npdes/pubs/concretewashout.pdf

#### Washout and cleanout of construction materials

Prevent the discharge of soaps, solvents, detergents, and wash waters from construction materials including the clean-up of stucco, paint, form release oils, and curing compounds.

#### Examples:

- Area is covered (e.g., plastic sheeting or temporary roofs) to prevent contact with stormwater.
- Adequate containment is provided for the amount of wash water used.
- Disposal of waste solids and liquids is contracted with a hazardous waste disposal firm.

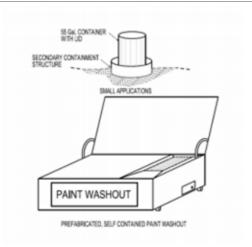


Photo credit: VDOT

### Vehicle fueling and maintenance

Prevent the discharge of spilled and leaked fuels and chemicals from vehicle fueling and maintenance activities.

#### Examples:

- Secondary containment, such as spill berms, decks, spill containment pallets, is provided.
- Cover is provided where appropriate.
- Spill kits are readily available.



Photo credit: DEQ

#### Leak and spill prevention and response plan

Prevent and respond to leaks, spills, and other releases including:

- Procedures for quickly stopping, containing, and cleaning up spills, leaks, and other releases, and
- Procedure for reporting leaks, spills, and other releases in accordance with Part III G.



Photo credit: DEQ

### Vehicle and equipment washing

Minimize the discharge of pollutants from vehicle and equipment washing, wheel wash water, and other types of washing.

#### **Examples**

- Washing activities located away from surface waters and stormwater inlets or conveyance and directing wash waters to sediment basins or traps.
- Use of filtration devices such as filter bags or sand filters, or another similarly effective control.



Photo credit: Fairfax County

#### Construction products, materials, and waste

Minimize the discharge of pollutants from storage, handling, and disposal of construction products. Waste containers are required to be covered or similar actions taken to minimize the exposure of waste materials to precipitation.

#### Examples:

- Litter and debris cleaned up daily.
- Waste collection is located away from streets, gutters, waterways and storm drains.
- Secondary containment is provided.
- Waste collection area is signed.

Photo credit: DEQ

# Fuels, oils, other petroleum products, hazardous or toxic wastes, waste concrete, and sanitary wastes

Prevent the discharge of fuels, oils and other petroleum products, hazardous or toxic wastes, waste concrete, and sanitary wastes.

#### Examples for sanitary facilities:

- Located away from waterways and storm drains.
- Inspected for leaks.
- Maintained and cleaned.



Photo credit: DEQ

Address any other discharge from the potential pollutant-generating activities not addressed above.

Construction Site Practices and Pollutants									
	Pollutants								
	Primary Secondary								
Area of Consideration	Sediment	Nutrients	Heavy metals	pH (acids & bases)	Pesticides & Herbicides	Oil & grease	Bacteria & viruses	Trash, debris, solids	Other toxic chemicals
Clearing, grading, excavating, and unstabilized areas	V							V	
Paving operations	$\square$							V	
Concrete washout and waste			$\overline{\mathbf{Q}}$	$\overline{\mathbf{A}}$				$\overline{\mathbf{A}}$	
Structure construction/painting/cleaning		V						V	$\overline{\checkmark}$
Demolition and debris disposal								V	
Dewatering operations		$\overline{\mathbf{V}}$							
Drilling and blasting operations				$\overline{\mathbf{A}}$				V	
Material delivery and storage		$\overline{\mathbf{V}}$	V	$\overline{\mathbf{A}}$	V	V		V	$\overline{\mathbf{A}}$
Material use during building process		$\overline{\mathbf{A}}$	$\square$	$\square$	V	V		V	$\overline{\mathbf{A}}$
Solid waste (trash and debris)								Ø	V
Hazardous waste			V	$\overline{\mathbf{A}}$	V	V			$\overline{\mathbf{A}}$
Contaminated spills		V	V	V	V	V			$\overline{\mathbf{A}}$
Sanitary/septic waste		V		$\overline{\mathbf{A}}$	V		V		$\overline{\mathbf{A}}$
Vehicle/equipment fueling and maintenance						V			$\overline{\mathbf{A}}$
Vehicle/equipment use and storage						V			$\overline{\checkmark}$
Landscaping operations	$\square$	<b>V</b>						<b>V</b>	

### **5d. Support Activities**

#### (9VAC25-880-70 PART I A 2)

Operators may also have onsite and/or offsite support activities, such as concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, or borrow areas that are covered under the main construction activity's CGP coverage.

#### As an inspector...

You are responsible for inspecting any support activities covered under the CGP.

The support activity must meet all of the following requirements:

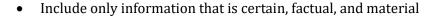
- Directly related to the construction activity with CGP coverage
- Does not serve as not a commercial operation, nor does it serve multiple unrelated construction activities by different operators
- Does not operate beyond the completion of the last construction activity it supports
- Identified in the registration statement at the time of CGP coverage
- Appropriate control measures are identified in a SWPPP and implemented to address the discharges from the support activity areas
- All applicable state, federal, and local approvals are obtained for the support activity

## **5e.** Inspection Report

Inspection documentation is a major component of any inspection program. For sites with compliance issues, inspection reports detail and document the compliance issues and make recommendations to bring the site back into compliance. Any subsequent enforcement requires a well-documented inspection. Reports must be retained by the VESMP authority for **three vears** after permit termination (9VAC25-875-180).

#### **Critical aspects of an inspection report:**

Accurate, relevant, comprehensive, and objective



- Draw conclusions that are directly based on observed facts
- Include site maps or provide a good description of problem area locations that can be followed by any person reviewing the report
- Include observed weather conditions at time of inspection



Cite permit/ordinance for all descriptions of potential violations

Photo documentation

· Quality is key



- Turn on time/date stamp/location Apps for smartphone cameras
- Label pictures (e.g., sediment trap #2 at NW corner needs cleanout) and incorporate into inspection report



Include corrective actions and deadlines

## **Summary**

As a VESMP inspector, it's important to be able to:

- Explain erosion and sediment control practice requirements and verify that appropriate C-BMPs are being utilized onsite
- Check for compliance with the Construction General Permit:
  - Verify compliance with the pollution prevention plan and identify areas of the site where pollutant-generating activities may necessitate amendments to the plan and onsite
  - Detect and identify prohibited nonstormwater discharges and support activities so that appropriate steps can be taken to achieve compliance
- Prepare a VESMP inspection report that adequately describes any potential issues onsite

## **Knowledge Check Questions**

1.	When considering erosion and sediment control, what is the first line of defense?
2.	What are the key components of C-BMPs included on a site's ESC plan when inspecting them for compliance?
3.	What are the three requirements for concrete wash water?
4.	Does the SWPPP have to contain control measures for support activity areas?
5.	How long must a VESMP authority keep inspection reports?
	Answers to the Knowledge Check Questions can be found in the APPENDIX



# Commonwealth of Virginia VIRGINIA DEPARTMENT OF ENVIRONMENTAL OUALITY

www.deq.virginia.gov

General Permit No.: VAR10

Effective Date: July 1, 2024

Expiration Date: June 30, 2029

## GENERAL VPDES PERMIT FOR DISCHARGES OF STORMWATER FROM CONSTRUCTION ACTIVITIES

# AUTHORIZATION TO DISCHARGE UNDER THE VIRGINIA EROSION AND STORMWATER MANAGEMENT PROGRAM AND THE VIRGINIA EROSION AND STORMWATER MANAGEMENT ACT

In compliance with the provisions of the Clean Water Act, as amended, and pursuant to the Virginia Erosion and Stormwater Management Act and regulations adopted pursuant thereto, operators of construction activities are authorized to discharge to surface waters within the boundaries of the Commonwealth of Virginia, except those specifically named in State Water Control Board regulations that prohibit such discharges.

The authorized discharge shall be in accordance with the registration statement filed with the Department of Environmental Quality, this cover page, Part I - Discharge Authorization and Special Conditions, Part II - Stormwater Pollution Prevention Plan, and Part III - Conditions Applicable to All VPDES Permits as set forth in this general permit.

For stormwater discharge associated with a small construction activity of a single-family detached residential structure, within or outside a common plan of development or sale, the authorized discharge shall be in accordance with this cover page, Part I - Discharge Authorization and Special Conditions, Part II - Stormwater Pollution Prevention Plan, and Part III - Conditions Applicable to All VPDES Permits as set forth in this general permit.

#### PART I

#### DISCHARGE AUTHORIZATION AND SPECIAL CONDITIONS

#### A. Coverage under this general permit.

- 1. During the period beginning with the date of coverage under this general permit and lasting until the general permit's expiration date, the operator is authorized to discharge stormwater from construction activities.
- 2. This general permit also authorizes stormwater discharges from construction support activities located on-site or off-site provided that:
  - a. The support activity is directly related to the construction site that is required to have general permit coverage for discharges;
  - b. The support activity is neither a commercial operation nor serves multiple unrelated construction sites;
  - c. The support activity does not operate beyond the completion of the last construction activity it supports;
  - d. The support activity is identified in the registration statement at the time of general permit coverage or reported in a modified registration statement once the need for the support activity is known;
  - e. Appropriate control measures are identified in a stormwater pollution prevention plan and implemented to address the discharges from the support activity; and
  - f. All applicable state, federal, and local approvals are obtained for the support activity.

#### B. Limitations on coverage.

- 1. Post-construction discharges. This general permit does not authorize stormwater discharges that originate from the construction site after construction activities have been completed and the construction site, including any construction support activity covered under the general permit registration, has undergone final stabilization. Post-construction industrial stormwater discharges may need to be covered by a separate VPDES permit.
- 2. Discharges mixed with nonstormwater. This general permit does not authorize discharges that are mixed with sources of nonstormwater, other than those discharges that are identified in Part I E (Authorized nonstormwater discharges) and are in compliance with this general permit.
- 3. Discharges covered by another permit. This general permit does not authorize discharges of stormwater from construction activities that are covered under an individual permit or required to obtain coverage under an alternative general permit.

- 4. Impaired waters and total maximum daily load (TMDL) limitation.
  - a. Nutrient and sediment impaired waters. Discharges of stormwater from construction activities to surface waters identified as impaired in the 2022 § 305(b)/303(d) Water Assessment Integrated Report for Benthic Macroinvertebrates Bioassessments or for which a TMDL wasteload allocation has been established and approved prior to the term of this general permit for (i) sediment or a sediment-related parameter (i.e., total suspended solids or turbidity) or (ii) nutrients (i.e., nitrogen or phosphorus), including all surface waters within the Chesapeake Bay Watershed, are not eligible for coverage under this general permit unless the operator develops, implements, and maintains a stormwater pollution prevention plan (SWPPP) in accordance with Part II B 5 of this permit that minimizes the pollutants of concern and. when applicable, is consistent with the assumptions and requirements of the approved TMDL wasteload allocations and implements an inspection frequency consistent with Part II G 2 a.
  - b. Polychlorinated biphenyl (PCB) impaired waters. Discharges of stormwater from construction activities that include the demolition of any structure with at least 10,000 square feet of floor space built or renovated before January 1, 1980, to surface waters identified as impaired in the 2022 § 305(b)/303(d) Water Quality Assessment Integrated Report or for which a TMDL wasteload allocation has been established and approved prior to the term of this general permit for PCB are not eligible for coverage under this general permit unless the operator develops, implements, and maintains a SWPPP in accordance with Part II B 6 of this permit that minimizes the pollutants of concern and, when applicable, is consistent with the assumptions and requirements of the approved TMDL wasteload allocations and implements an inspection frequency consistent with Part II G 2 a.
- 5. Exceptional waters limitation. Discharges of stormwater from construction activities not previously covered under the general permit effective on July 1, 2019, to exceptional waters identified in 9VAC25-260-30 A 3 c are not eligible for coverage under this general permit unless the operator develops, implements, and maintains a SWPPP in accordance with Part II B 7 of this permit and implements an inspection frequency consistent with Part II G 2 a.
- 6. There shall be no discharge of floating solids or visible foam in other than trace amounts.
- C. Commingled discharges. Discharges authorized by this general permit may be commingled with other sources of stormwater that are not required to be covered under a permit, so long as the commingled discharge is in compliance with this general permit. Discharges authorized by a separate state or VPDES permit may be commingled with discharges authorized by this general permit so long as all such discharges comply with all applicable state and VPDES permit requirements.
- D. Prohibition of nonstormwater discharges. Except as provided in Part I A 2, C, and E, all discharges covered by this general permit shall be composed entirely of stormwater associated with construction activities. All other discharges, including the following, are prohibited:
  - 1. Wastewater from washout of concrete;

- 2. Wastewater from the washout or cleanout of stucco, paint, form release oils, curing compounds, and other construction materials;
- 3. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance;
- 4. Oils, toxic substances, or hazardous substances from spills or other releases; and
- 5. Soaps, solvents, or detergents used in equipment and vehicle washing.
- E. Authorized nonstormwater discharges. The following nonstormwater discharges from construction activities are authorized by this general permit:
  - 1. Discharges from emergency firefighting activities;
  - 2. Fire hydrant flushings, managed to avoid an instream impact;
  - 3. Waters used to wash vehicles or equipment, provided no soaps, solvents, or detergents are used and the wash water is filtered, settled, or similarly treated prior to discharge;
  - 4. Water used to control dust that is filtered, settled, or similarly treated prior to discharge;
  - 5. Potable water, including uncontaminated waterline flushings, managed in a manner to avoid an instream impact;
  - 6. Routine external building wash down provided no soaps, solvents or detergents are used, external building surfaces do not contain hazardous substances, and the wash water is filtered, settled, or similarly treated prior to discharge;
  - 7. Pavement wash waters, provided spills or leaks of toxic or hazardous materials have not occurred, unless all spilled or leaked material has been removed prior to washing; soaps, solvents, or detergents are not used; and where the wash water is filtered, settled, or similarly treated prior to discharge;
  - 8. Uncontaminated air conditioning or compressor condensate;
  - 9. Uncontaminated ground water or spring water;
  - 10. Foundation or footing drains, provided flows are not contaminated with process materials such as solvents or contaminated groundwater;
  - 11. Uncontaminated excavation dewatering, including dewatering of trenches and excavations that are filtered, settled, or similarly treated prior to discharge; and
  - 12. Landscape irrigation.
  - F. Termination of general permit coverage.
    - 1. The operator of the construction activity shall submit a notice of termination in accordance with 9VAC25-880-60, unless a registration statement was not required to be

submitted in accordance with 9VAC25-880-50 A 1 c or A 2 b for single-family detached residential structures, to the Virginia Erosion and Stormwater Management (VESMP) authority after one or more of the following conditions have been met:

- a. Necessary permanent control measures included in the SWPPP for the construction site are in place and functioning effectively and final stabilization has been achieved on all portions of the construction site for which the operator has operational control. When applicable, long-term responsibility and maintenance requirements for permanent control measures shall be recorded in the local land records prior to the submission of a complete and accurate notice of termination and the construction record drawing prepared;
- b. Another operator has assumed control over all areas of the construction site that have not been finally stabilized and obtained coverage for the ongoing discharge;
- c. Coverage under an alternative VPDES permit or other applicable permit has been obtained; or
- d. For individual lots in residential construction only, final stabilization as defined in 9VAC25-880-1 has been completed, including providing written notification to the homeowner and incorporating a copy of the notification and signed certification statement into the SWPPP, and the residence has been transferred to the homeowner.
- 2. The notice of termination shall be submitted no later than 30 days after one of the conditions in subdivision 1 of this subsection is met.
- 3. Termination of authorization to discharge shall be effective upon notification from the department that the provisions of subdivision 1 of this subsection have been met or 90 days after submittal of a complete and accurate notice of termination in accordance with 9VAC25-880-60 C, whichever occurs first, unless otherwise notified by the VESMP or the department.
- 4. The notice of termination shall be signed in accordance with Part III K 1 and include the required certification in accordance with Part III K 4 of this general permit.

#### G. Water quality protection.

- 1. The operator shall select, install, implement, and maintain control measures as identified in the SWPPP at the construction site that minimize pollutants in the discharge as necessary to ensure that the operator's discharge does not cause or contribute to an excursion above any applicable water quality standard.
- 2. If it is determined by the department that the operator's discharges are causing, have reasonable potential to cause, or are contributing to an excursion above any applicable water quality standard, the department, in consultation with the VESMP authority, may take appropriate enforcement action and require the operator to:
  - a. Modify or implement additional control measures in accordance with Part II C to adequately address the identified water quality concerns;

- b. Submit valid and verifiable data and information that are representative of ambient conditions and indicate that the receiving water is attaining water quality standards; or
- c. Submit an individual permit application in accordance with 9VAC25-875-980 B 3.
- H. All written responses required under this general permit shall include a signed certification consistent with Part III K.

#### PART II

#### STORMWATER POLLUTION PREVENTION PLAN

- A. Stormwater pollution prevention plan.
  - 1. A stormwater pollution prevention plan (SWPPP) shall be developed prior to the submission of a registration statement and implemented for the construction activity, including any construction support activity, covered by this general permit. For a small construction activity of a single-family detached residential structure, within or outside a common plan of development or sale, a SWPPP shall be developed and implemented prior to the initiation of the construction activity, including any construction support activity covered by this general permit.
  - 2. SWPPs shall be prepared in accordance with good engineering practices. Construction activities that are part of a larger common plan of development or sale and disturb less than one acre may utilize a SWPPP template provided by the department and need not provide a separate stormwater management plan if one has been prepared and implemented for the larger common plan of development or sale.
  - 3. The SWPPP requirements of this general permit may be fulfilled by incorporating by reference other plans such as a spill prevention control and countermeasure (SPCC) plan developed for the construction site under § 311 of the federal Clean Water Act or best management practices (BMP) programs otherwise required for the construction site provided that the incorporated plan meets or exceeds the SWPPP requirements of Part II B. All plans incorporated by reference into the SWPPP become enforceable under this general permit. If a plan incorporated by reference does not contain all of the required elements of the SWPPP, the operator shall develop the missing elements and include them in the SWPPP.
  - 4. Any operator that was authorized to discharge under the general permit effective July 1, 2019, and that intends to continue coverage under this general permit shall update its stormwater pollution prevention plan to comply with the requirements of this general permit no later than 60 days after the date of coverage under this general permit.
- B. Contents. The SWPPP shall include the following items:
  - 1. General information.
    - a. A signed copy of the registration statement, if required, for coverage under this general permit;

- b. Upon receipt, a copy of the notice of coverage under this general permit (i.e., notice of coverage letter);
- c. Upon receipt, a copy of the general VPDES permit for discharges of stormwater from construction activities;
- d. A narrative description of the nature of the construction activity, including the function of the project (e.g., low density residential, shopping mall, highway);
- e. A legible map of the construction site identifying:
  - (1) Existing and proposed drainage patterns on the construction site and approximate slopes before and after major grading activities;
  - (2) Limits of clearing and grading (i.e., land disturbance), including steep slopes and natural buffers around surface waters that will remain undisturbed;
  - (3) Locations of major structural and nonstructural control measures, including sediment basins and traps, perimeter dikes and diversions, sediment barriers, and other measures intended to filter, settle, or similarly treat sediment that will be installed between disturbed areas and the undisturbed vegetated areas in order to increase sediment removal and maximize stormwater infiltration;
  - (4) Locations of surface waters;
  - (5) Locations where concentrated stormwater is discharged;
  - (6) Locations of any construction support activities, including (i) areas where equipment and vehicle washing, wheel wash water, and other wash water is to occur; (ii) storage areas for chemicals such as acids, fuels, fertilizers, and other lawn care chemicals; (iii) concrete wash out areas; (iv) vehicle fueling and maintenance areas; (v) sanitary waste facilities, including those temporarily placed on the construction site; (vi) construction waste storage; and (vii) areas where polymers, flocculants, or other stormwater treatment chemicals will be used or stored; and
  - (7) When applicable, the location of the on-site rain gauge or the methodology established in consultation with the VESMP authority used to identify measurable storm events for inspection as allowed by Part II G 2 a (1) (ii) or 2 b (2).
- 2. Erosion and sediment control plan for the construction activity authorized by this general permit.
  - a. An erosion and sediment control plan designed and approved in accordance with the Virginia Erosion and Stormwater Management Regulations (9VAC25-875), an "agreement in lieu of a plan" as defined in 9VAC25-875-20, or an erosion and sediment control plan prepared in accordance with department-approved standards and specifications.

- b. All erosion and sediment control plans shall include a statement describing the maintenance responsibilities required for the erosion and sediment controls used.
- c. An approved erosion and sediment control plan, "agreement in lieu of a plan," or erosion and sediment control plan prepared in accordance with department-approved standards and specifications shall be implemented to:
  - (1) Control the volume and velocity of stormwater runoff within the construction site to minimize soil erosion;
  - (2) Control 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) Minimize the amount of soil exposed during the construction activity;
  - (4) Minimize the disturbance of steep slopes;
  - (5) Minimize sediment discharges from the construction 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 construction site;
  - (6) Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas to increase sediment removal, and maximize stormwater infiltration, unless infiltration would be inadvisable due to the underlying geology (e.g., karst topography) and groundwater contamination concerns or infeasible due to site conditions;
  - (7) Minimize soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the construction site dictates that it be compacted;
  - (8) Unless infeasible, preserve topsoil. Preserving topsoil is not required where the intended function of a specific area of the construction site dictates that the topsoil be disturbed or removed;
  - (9) Ensure the initiation of stabilization activities of disturbed areas occurs immediately whenever any clearing, grading, excavating, or other land-disturbing activities have permanently ceased on any portion of the construction site, or temporarily ceased on any portion of the construction site and will not resume for a period exceeding 14 days; and
  - (10) Utilize 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.
- 3. Stormwater management plan for the construction activity authorized by this general permit.

- a. Except for those projects identified in Part II B 3 b, a stormwater management plan approved in accordance with the Virginia Erosion and Stormwater Management Regulation (9VAC25-875) or an "agreement in lieu of a plan" as defined in 9VAC25-875-20 or a stormwater management plan prepared in accordance with department-approved standards and specifications.
- b. For any operator meeting the conditions of 9VAC25-875-480 B of the Virginia Erosion and Stormwater Management Regulation, an approved stormwater management plan is not required. In lieu of an approved stormwater management plan, the SWPPP shall include a description of and all necessary calculations supporting all post-construction stormwater management measures that will be installed prior to the completion of the construction process to control pollutants in stormwater discharges after construction operations have been completed. Structural measures should be placed on upland soils to the degree possible. Such measures must be designed and installed in accordance with applicable VESCP authority, VESMP authority, state, and federal requirements, and any necessary permits must be obtained.
- 4. Pollution prevention plan for the construction activity authorized by this general permit. A pollution prevention plan that addresses potential pollutant-generating activities that may reasonably be expected to affect the quality of stormwater discharges from the construction activity, including any support activity. The pollution prevention plan shall:
  - a. Identify the potential pollutant-generating activities and the pollutant that is expected to be exposed to stormwater;
  - b. Describe the location where the potential pollutant-generating activities will occur, or if identified on the site plan, reference the site plan;
  - c. Identify all nonstormwater discharges, as authorized in Part I E of this general permit, that are or will be commingled with stormwater discharges from the construction activity, including any applicable support activity;
  - d. Identify the person responsible for implementing the pollution prevention practices for each pollutant-generating activity (if other than the person listed as the qualified personnel);
  - e. Describe the pollution prevention practices and procedures that will be implemented to:
    - (1) Prevent and respond to leaks, spills, and other releases, including (i) procedures for expeditiously stopping, containing, and cleaning up spills, leaks, and other releases; and (ii) procedures for reporting leaks, spills, and other releases in accordance with Part III G;
    - (2) Prevent the discharge of spilled and leaked fuels and chemicals from vehicle fueling and maintenance activities (e.g., providing secondary containment such as spill berms, decks, spill containment pallets, providing cover where appropriate, and having spill kits readily available);

- (3) Prevent the discharge of soaps, solvents, detergents, and wash water from construction materials, including the clean-up of stucco, paint, form release oils, and curing compounds (e.g., providing (i) cover (e.g., plastic sheeting or temporary roofs) to prevent contact with stormwater; (ii) collection and proper disposal in a manner to prevent contact with stormwater; and (iii) a similarly effective means designed to prevent discharge of these pollutants);
- (4) Minimize the discharge of pollutants from vehicle and equipment washing, wheel wash water, and other types of washing (e.g., locating activities away from surface waters and storm drain inlets and constructed or natural site drainage features and directing wash waters to sediment basins or traps, using filtration devices such as filter bags or sand filters, or using similarly effective controls);
- (5) Direct concrete wash water into a leak-proof container or leak-proof settling basin designed so that no overflows can occur due to inadequate sizing or precipitation. Hardened concrete wastes shall be removed and disposed of in a manner consistent with the handling of other construction wastes. Liquid concrete wastes shall be removed and disposed of in a manner consistent with the handling of other construction wash waters and shall not be discharged to surface waters, disposed of through infiltration, or otherwise disposed of on the ground;
- (6) Minimize the discharge of pollutants from storage, handling, and disposal of construction products, materials, and wastes, including (i) building products such as asphalt sealants, copper flashing, roofing materials, adhesives, and concrete admixtures; (ii) pesticides, herbicides, insecticides, fertilizers, and landscape materials; and (iii) construction and domestic wastes such as packaging materials, scrap construction materials, masonry products, timber, pipe and electrical cuttings, plastics, Styrofoam, concrete, and other trash or building materials;
- (7) Prevent the discharge of fuels, oils, and other petroleum products, hazardous or toxic wastes, waste concrete, and sanitary wastes;
- (8) Address any other discharge from the potential pollutant-generating activities not addressed in this subdivision 4; and
- (9) Minimize the exposure of waste materials to precipitation by closing or covering waste containers during precipitation events and at the end of the business day or implementing other similarly effective practices. Minimization of exposure is not required in cases where the exposure to precipitation will not result in a discharge of pollutants; and
- f. Describe procedures for providing pollution prevention awareness of all applicable wastes, including any wash water, disposal practices, and applicable disposal locations of such wastes, to personnel in order to comply with the conditions of this general permit. The operator shall implement the procedures described in the SWPPP.
- 5. SWPPP requirements for discharges to nutrient and sediment impaired waters. For discharges to surface waters (i) identified as impaired in the 2022 § 305(b)/303(d) Water Quality Assessment Integrated Report for Benthic Macroinvertebrates Bioassessments or (ii) with an applicable TMDL wasteload allocation established and approved prior to the

term of this general permit for sediment or a sediment-related parameter (i.e., total suspended solids or turbidity) or nutrients (i.e., nitrogen or phosphorus), including all surface waters within the Chesapeake Bay Watershed, the operator shall:

- a. Identify the impaired waters, approved TMDLs, and pollutants of concern in the SWPPP; and
- b. Provide documentation in the SWPPP that:
  - (1) Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the construction site;
  - (2) Nutrients shall be applied in accordance with manufacturer's recommendations or an approved nutrient management plan and shall not be applied during rainfall events; and
  - (3) A modified inspection schedule shall be implemented in accordance with Part II G 2 a.
- 6. SWPPP requirements for discharges to polychlorinated biphenyl (PCB) impaired waters. For discharges from construction activities that include the demolition of any structure with at least 10,000 square feet of floor space built or renovated before January 1, 1980, to surface waters (i) identified as impaired in the 2022 § 305(b)/303(d) Water Quality Assessment Integrated Report or (ii) with an applicable TMDL wasteload allocation established and approved prior to the term of this general permit for PCB, the operator shall:
  - a. Identify the impaired waters, approved TMDLs, and pollutant of concern in the SWPPP;
  - b. Implement the approved erosion and sediment control plan in accordance with Part II B 2:
  - c. Dispose of waste materials in compliance with applicable state, federal, and local requirements; and
  - d. Implement a modified inspection schedule in accordance with Part II G 2 a.
- 7. SWPPP requirements for discharges to exceptional waters. For discharges to surface waters identified in 9VAC25-260-30 A 3 c as an exceptional water, the operator shall:
  - a. Identify the exceptional surface waters in the SWPPP; and
  - b. Provide documentation in the SWPPP that:
    - (1) Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the construction site;

- (2) Nutrients shall be applied in accordance with manufacturer's recommendations or an approved nutrient management plan and shall not be applied during rainfall events; and
- (3) A modified inspection schedule shall be implemented in accordance with Part II G 2 a.
- 8. SWPPP requirements for construction dewatering discharges to sediment impaired waters or exceptional waters. Dewatering discharges of uncontaminated stormwater or groundwater from footers or foundations of a single-family detached residential structure are exempt from the requirements of this subdivision 8, provided that such discharges are not discharged directly to surface waters. For construction dewatering discharges to surface waters (i) identified as impaired in the 2022 § 305(b)/303(d) Water Quality Assessment Integrated Report for Benthic Macroinvertebrates Bioassessments; (ii) with an applicable TMDL wasteload allocation established and approved prior to the term of this general permit for sediment or a sediment-related parameter (i.e., total suspended solids or turbidity), including all surface waters within the Chesapeake Bay Watershed; or (iii) identified in 9VAC25-260-30 A 3 c as an exceptional water, the operator shall undertake one of the following methods for controlling and documenting construction dewatering discharges:
  - a. Turbidity benchmark option 1:
    - (1) Identify the location of all construction dewatering discharges in the SWPPP;
    - (2) Select, install, implement, and maintain control measures at each dewatering location that minimize pollutants, including suspended solids, in construction dewatering discharges prior to discharging into a stormwater conveyance system or surface water; and
    - (3) Provide documentation in the SWPPP that:
      - (a) Sample frequency. At least one grab sample shall be collected from each construction dewatering discharge when the first discharge at that location occurs, daily thereafter until the dewatering discharge stops, and after any installation of new controls or routine maintenance activity of existing controls. An upstream grab sample shall be collected from the receiving stream;
      - (b) Sample timing. Grab samples of the construction dewatering discharge shall be collected during the first 15 minutes of the construction dewatering discharge and daily thereafter until the dewatering discharge stops. Upstream grab samples of the receiving stream shall be collected within 15 minutes of the corresponding construction dewatering discharge sample;
      - (c) Sample location. Grab samples shall be collected after the construction dewatering water has been filtered, settled, or similarly treated and prior to its discharge into a stormwater conveyance system or surface water;
      - (d) Test methods. Grab samples taken as required by this subdivision 8 shall be measured using a turbidity meter that reports results in nephelometric

turbidity units (NTUs) or formazin turbidity units (FTUs), and a turbidity meter calibration verification shall be conducted prior to each day's use, consistent with manufacturer recommendations;

- (e) Visual monitoring. All dewatering discharges shall be visually monitored for changes in the characterization of effluent discharge;
- (f) Corrective action. If (i) any turbidity measurement of the construction dewatering discharge exceeds the upstream grab sample of the receiving stream by more than 50 NTUs/FTUs or (ii) visual monitoring indicates a change in the characterization of effluent discharge, corrective action shall be taken in accordance with Part II H 2 of this general permit; and
- (g) Recordkeeping. Turbidity monitoring information (i.e., location, date, sample collection time, and turbidity measurement) and any necessary corrective actions taken shall be recorded in the SWPPP; or

#### b. Turbidity benchmark option 2:

- (1) Identify the location of all construction dewatering discharges in the SWPPP;
- (2) Select, install, implement, and maintain control measures at each dewatering location that minimize pollutants, including suspended solids, in construction dewatering discharges prior to discharging into a stormwater conveyance system or surface water; and
- (3) Provide documentation in the SWPPP that:
  - (a) Sample frequency. At least one grab sample shall be collected from each construction dewatering discharge when the first discharge at that location occurs, daily thereafter until the dewatering discharge stops, and after any installation of new controls or routine maintenance activity of existing controls. Grab samples shall be tested to confirm a turbidity measurement of equal to or less than 150 NTUs/FTUs from the construction dewatering discharge;
  - (b) Sample timing. Grab samples of the construction dewatering discharge shall be collected during the first 15 minutes of the construction dewatering discharge and daily thereafter until the dewatering discharge stops;
  - (c) Sample location. Grab samples shall be collected after the construction dewatering water has been filtered, settled, or similarly treated and prior to its discharge into a stormwater conveyance system or surface water;
  - (d) Test methods. Grab samples taken as required by this subdivision 8 shall be measured using a turbidity meter that reports results in nephelometric turbidity units (NTUs) or formazin turbidity unit (FTUs), and a turbidity meter calibration verification shall be conducted prior to each day's use, consistent with manufacturer recommendations;

- (e) Visual monitoring. All dewatering discharges shall be visually monitored for changes in the characterization of effluent discharge;
- (f) Corrective action. If (i) any turbidity measurement of the construction dewatering discharge exceeds 150 NTUs/FTUs or (ii) visual monitoring indicates a change in the characterization of effluent discharge, corrective action shall be taken in accordance with Part II H 2 of this general permit; and
- (g) Recordkeeping. Turbidity monitoring information (i.e., location, date, sample collection time, and turbidity measurement) and any necessary corrective actions taken shall be recorded in the SWPPP; or

#### c. Turbidity benchmark option 3:

- (1) Identify the location of all construction dewatering discharges in the SWPPP;
- (2) Select, install, implement, and maintain control measures at each dewatering location that minimize pollutants, including suspended solids, in construction dewatering discharges prior to discharging into a stormwater conveyance system or surface water; and
- (3) Provide documentation in the SWPPP that:
  - (a) Sample frequency. At least one grab sample shall be collected from each construction dewatering discharge when the first discharge at that location occurs, daily thereafter until the dewatering discharge stops, and after any installation of new controls or routine maintenance activity of existing controls. Grab samples shall be tested to confirm a turbidity measurement of equal to or less than 50 NTUs/FTUs, based on a weekly average, from the construction dewatering discharge;
  - (b) Sample timing. Grab samples of the construction dewatering discharge shall be collected during the first 15 minutes of the construction dewatering discharge and daily thereafter until the dewatering discharge stops:
  - (c) Sample location. Grab samples shall be collected after the construction dewatering water has been filtered, settled, or similarly treated and prior to its discharge into a stormwater conveyance system or surface water;
  - (d) Test methods. Grab samples taken as required by this subdivision 8 shall be measured using a turbidity meter that reports results in NTUs or FTUs, and a turbidity meter calibration verification shall be conducted prior to each day's use, consistent with manufacturer recommendations;
  - (e) Visual monitoring. All dewatering discharges shall be visually monitored for changes in the characterization of effluent discharge;
  - (f) Corrective action. If (i) the weekly average of the turbidity measurements of the construction dewatering discharge exceeds 50 NTUs/FTUs or (ii) visual monitoring indicates a change in the characterization of effluent discharge,

corrective action shall be taken in accordance with Part II H 2. The weekly average is the sum of all turbidity samples taken during a monitoring week (starting on Monday and ending on Sunday) divided by the number of samples measures during that week; and

- (g) Recordkeeping. Turbidity monitoring information (i.e., location, date, sample collection time, and turbidity measurement) and any necessary corrective actions taken shall be recorded in the SWPPP.
- d. Request for alternative benchmark threshold:
  - (1) At any time prior to or during coverage under this permit, a request may be submitted to the department to approve a benchmark that is higher than turbidity benchmark options 1, 2, and 3 if information is available demonstrating the higher number is the same as the receiving water's water quality standard for turbidity. To request approval of an alternate benchmark, the operator must submit the following to the department:
    - (a) The current turbidity water quality standard that applies to the receiving water; and
    - (b) Information on the natural or background turbidity level to determine the specific standard for the receiving water, including available data that can be used to establish the natural turbidity levels of the receiving water.
  - (2) The department will notify the operator of its decision on whether to approve the requested alternate benchmark within 30 days. Until the department approves an alternate benchmark, the operator is required to use the option 1, option 2, or option 3 turbidity benchmark and take any required corrective actions if an exceedance occurs.
- 9. Identification of qualified personnel. The name, telephone number, and qualifications of the qualified personnel conducting inspections required by this general permit.
- 10. Duly authorized representatives. The SWPPP shall include the names of individuals or positions duly authorized to sign inspection reports or modify the SWPPP on behalf of the operator. Any authorization shall be signed and dated in accordance with Part III K 2 and shall include the required certification in accordance with Part III K 4.
- 11. SWPPP signature and certification. The SWPPP shall be signed and dated in accordance with Part III K 2 of this general permit and shall include the required certification in accordance with Part III K 4 of this general permit.
- C. SWPPP amendments, modification, and updates.
  - 1. The operator shall amend the SWPPP whenever there is a change in the design, construction, operation, or maintenance that has a significant effect on the discharge of pollutants to surface waters and that has not been previously addressed in the SWPPP.

- 2. The SWPPP shall be amended if during inspections or investigations by the operator's qualified personnel or by local, state, or federal officials, it is determined that the existing control measures are ineffective in minimizing pollutants in discharges from the construction activity. Revisions to the SWPPP shall include additional or modified control measures designed and implemented to correct problems identified. If approval by the VESCP authority, VESMP authority, or department is necessary for the control measure, revisions to the SWPPP shall be completed no later than five business days following approval. Implementation of these additional or modified control measures shall be accomplished as described in Part II H.
- 3. The SWPPP shall clearly identify the contractors that will implement and maintain each control measure identified in the SWPPP. The SWPPP shall be amended to identify any new contractor that will implement and maintain a control measure.
- 4. The operator shall update the SWPPP as soon as possible but no later than five business days following any modification to its implementation. All modifications or updates to the SWPPP shall be noted and shall include the following items:
  - a. A record of dates when:
    - (1) Major grading activities occur;
    - (2) Construction activities temporarily or permanently cease on a portion of the construction site; and
    - (3) Stabilization measures are initiated;
  - b. Documentation of replaced or modified controls where periodic inspections or other information have indicated that the controls have been used inappropriately or incorrectly and were modified;
  - c. Areas that have reached final stabilization and where no further SWPPP or inspection requirements apply;
  - d. All properties that are no longer under the legal control of the operator and the dates on which the operator no longer had legal control over each property;
  - e. The date of any prohibited discharges, the discharge volume released, and what actions were taken to minimize the impact of the release;
  - f. Measures taken to prevent the reoccurrence of any prohibited discharge; and
  - g. Measures taken to address any evidence identified as a result of an inspection required under Part II G.
- 5. Amendments, modifications, or updates to the SWPPP shall be signed in accordance with Part III K 2 and shall include the required certification in accordance with Part III K 4.
- D. Public notification. Upon commencement of construction activities, the operator shall post a copy of the notice of coverage letter at a publicly accessible location near the main entrance of

the construction site. For linear projects, the operator shall post a copy of the notice of coverage letter at a publicly accessible location near an active part of the construction site (e.g., where a pipeline crosses a public road). The copy of the notice of coverage letter shall be visible such that it can be readily viewed from a public right-of-way. The operator shall maintain the posted information until termination of general permit coverage as specified in Part I F.

## E. SWPPP availability.

- 1. Operators with day-to-day operational control over SWPPP implementation shall have a copy of the SWPPP available at a central location on-site for use by those identified as having responsibilities under the SWPPP whenever they are on the construction site.
- 2. The operator shall make the SWPPP and all amendments, modifications, and updates available upon request to the department, the VESMP authority, the EPA, the VESCP authority, local government officials, or the operator of a municipal separate storm sewer system receiving discharges from the construction activity. If an on-site location is unavailable to store the SWPPP when no personnel are present, notice of the SWPPP's location shall be posted near the main entrance of the construction site.
- 3. The operator shall make the SWPPP available for public review in an electronic format or in hard copy. Information for public access to the SWPPP shall be posted and maintained in accordance with Part II D. If not provided electronically, public access to the SWPPP may be arranged upon request at a time and at a publicly accessible location convenient to the operator or the operator's designee but shall be no less than once per month and shall be during normal business hours. Information not required to be contained within the SWPPP by this general permit is not required to be released.
- F. SWPPP implementation. The operator shall implement the SWPPP and subsequent amendments, modifications, and updates from commencement of land disturbance until termination of general permit coverage as specified in Part I F.
  - 1. All control measures shall be properly maintained in effective operating condition in accordance with good engineering practices and, where applicable, manufacturer specifications.
  - 2. If a site inspection required by Part II G identifies a control measure that is not operating effectively or needs routine maintenance, corrective actions or routine maintenance shall be completed as soon as practicable, but no later than five business days after discovery or a longer period as established by the VESMP authority, to maintain the continued effectiveness of the control measures.
  - 3. If the operator must make the same repairs more than two times to the same control at the same location, even if the fix can be completed by the close of the next business day, the operator shall either:
    - a. Complete work to fix any subsequent repeat occurrences of this same problem under the corrective action procedures in Part II H, including keeping any records of the condition and how it was corrected under Part II C; or

- b. Document in the inspection report under Part II G why the specific reoccurrence of this same problem should still be addressed as a routine maintenance fix.
- 4. If site inspections required by Part II G identify an existing control measure that needs to be modified or if an additional or alternative control measure is necessary for any reason, implementation shall be completed prior to the next anticipated measurable storm event. If implementation prior to the next anticipated measurable storm event is impracticable, then additional or alternative control measures shall be implemented as soon as practicable, but no later than five business days after discovery or a longer period as established by the VESMP authority.

## G. SWPPP Inspections.

- 1. Personnel responsible for on-site and off-site inspections. Inspections required by this general permit shall be conducted by the qualified personnel identified by the operator in the SWPPP. The operator is responsible for ensuring that the qualified personnel conduct the inspection. Qualified personnel may be a person on the operator's staff or a third party hired to conduct such inspections.
- 2. Inspection schedule.
  - a. For construction activities that discharge to a surface water identified in Part II B 5 and B 6 as impaired or having an approved TMDL or Part II B 7 as exceptional, the following inspection schedule requirements apply:
    - (1) Inspections shall be conducted at a frequency of (i) at least once every four business days or (ii) at least once every five business days and no later than 24 hours following a measurable storm event. In the event that a measurable storm event occurs when there are more than 24 hours between business days, the inspection shall be conducted on the next business day; and
    - (2) Representative inspections as authorized in Part II G 2 d shall not be allowed.
  - b. Except as specified in Part II G 2 a, inspections shall be conducted at a frequency of:
    - (1) At least once every five business days; or
    - (2) At least once every 10 business days and no later than 24 hours following a measurable storm event. In the event that a measurable storm event occurs when there are more than 24 hours between business days, the inspection shall be conducted on the next business day.
      - (a) A storm event that produces 0.25 inches or more of rain within a 24-hour period on the first day of the storm and continues to produce 0.25 inches or more of rain on subsequent days. The operator is required to conduct an inspection within 24 hours of the first day of the storm and within 24 hours after the last day of the storm that produces 0.25 inches or more of rain.

- (b) A discharge caused by snowmelt from a snow event producing 3.25 inches or more of snow within a 24-hour period. The operator is required to conduct one inspection once the discharge of snowmelt occurs. Additional inspections are only required if, following the discharge from the first snowmelt, there is a discharge from a separate storm event.
- c. Where areas have been temporarily stabilized or construction activities will be suspended due to continuous frozen ground conditions and stormwater discharges are unlikely, the inspection frequency described in Part II G 2 a and 2 b may be reduced to once per month. If weather conditions (such as above freezing temperatures or rain or snow events) make discharges likely, the operator shall immediately resume the regular inspection frequency.
- d. Except as prohibited in Part II G 2 a (2), representative inspections may be utilized for utility line installation, pipeline construction, or other similar linear construction activities provided that:
  - (1) Temporary or permanent soil stabilization has been installed and vehicle access may compromise the temporary or permanent soil stabilization and potentially cause additional land disturbance increasing the potential for erosion;
  - (2) Inspections occur on the same frequency as other construction activities;
  - (3) Control measures are inspected along the construction site 0.25 miles above and below each access point (i.e., where a roadway, undisturbed right-of-way, or other similar feature intersects the construction activity and access does not compromise temporary or permanent soil stabilization); and
  - (4) Inspection locations are provided in the inspection report required by Part II G.
- e. If adverse weather causes the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. Any time inspections are delayed due to adverse weather conditions, evidence of the adverse weather conditions shall be included in the SWPPP with the dates of occurrence.
- 3. Inspection requirements. As part of the inspection, the qualified personnel shall at a minimum:
  - a. Record the date and time of the inspection and, when applicable, the date and rainfall or snowfall amount of the last measurable storm event;
  - b. Record the information and a description of any discharges occurring at the time of the inspection or evidence of discharges occurring prior to the inspection;
  - c. Record any I construction activities that have occurred outside of the approved erosion and sediment control plan;
  - d. Inspect all stormwater discharge locations at the construction site. If a stormwater discharge is occurring during the inspection, observe and document the visual quality

and characteristics of the discharge, including color; odor; floating, settled, or suspended solids; foam; oil sheen; and other indicators of stormwater pollutants;

- e. Inspect all construction dewatering discharge locations at the construction site, if applicable. If a construction dewatering discharge is occurring during the inspection, observe and document the visual quality and the characteristics of the discharge, including color; odor; floating, settled, or suspended solids; foam; oil sheen; and other indicators of pollutants;
- f. Inspect the following for installation in accordance with the approved erosion and sediment control plan, identification of any maintenance needs, and evaluation of effectiveness in minimizing sediment discharge, including whether the control has been inappropriately or incorrectly used:
  - (1) All perimeter erosion and sediment controls, such as silt fence;
  - (2) Soil stockpiles, when applicable, and borrow areas for stabilization or sediment trapping measures;
  - (3) Completed earthen structures, such as dams, dikes, ditches, and diversions for stabilization and effective impoundment or flow control;
  - (4) Cut and fill slopes;
  - (5) Sediment basins and traps, sediment barriers, and other measures installed to control sediment discharge from stormwater;
  - (6) Temporary or permanent channels, flumes, or other slope drain structures installed to convey concentrated runoff down cut and fill slopes;
  - (7) Storm inlets that have been made operational to ensure that sediment laden stormwater does not enter without first being filtered or similarly treated; and
  - (8) Construction vehicle access routes that intersect or access paved or public roads for minimizing sediment tracking;
- g. Inspect areas that have reached final grade or that will remain dormant for more than 14 days to ensure:
  - (1) Initiation of stabilization activities have occurred immediately, as defined in 9VAC25-880-1; and
  - (2) Stabilization activities have been completed within seven days of reaching grade or stopping work;
- h. Inspect for evidence that the approved erosion and sediment control plan, "agreement in lieu of a plan," or erosion and sediment control plan prepared in accordance with department-approved standards and specifications has not been properly implemented. This includes:

- (1) Concentrated flows of stormwater in conveyances such as rills, rivulets, or channels that have not been filtered, settled, or similarly treated prior to discharge, or evidence thereof;
- (2) Sediment laden or turbid flows of stormwater that have not been filtered or settled to remove sediments prior to discharge;
- (3) Sediment deposition in areas that drain to unprotected stormwater inlets or catch basins that discharge to surface waters. Inlets and catch basins with failing sediment controls due to improper installation, lack of maintenance, or inadequate design are considered unprotected;
- (4) Sediment deposition on any property (including public and private streets) outside of the construction activity covered by this general permit;
- (5) Required stabilization has not been initiated or completed or is not effective on portions of the construction site;
- (6) Sediment basins without adequate wet or dry storage volume or sediment basins that allow the discharge of stormwater from below the surface of the wet storage portion of the basin;
- (7) Sediment traps without adequate wet or dry storage or sediment traps that allow the discharge of stormwater from below the surface of the wet storage portion of the trap; and
- (8) Land disturbance or sediment deposition outside of the approved area to be disturbed;
- Inspect pollutant generating activities identified in the pollution prevention plan for the proper implementation, maintenance, and effectiveness of the procedures and practices;
- j. Identify and report any pollutant generating activities not identified in the pollution prevention plan; and
- k. Identify and document the presence of any evidence of the discharge of pollutants prohibited by this general permit.
- 4. Inspection report. Each inspection report shall include the following items:
  - a. The date and time of the inspection and, when applicable, the date and rainfall or snowfall amount of the last measurable storm event:
  - b. Summarized findings of the inspection;
  - c. The locations, visual quality, and characteristics of all stormwater discharges, when occurring;

- d. The locations, visual quality, and characteristics of all construction dewatering discharges, if applicable;
- e. The locations of prohibited discharges;
- f. The locations of control measures that require routine maintenance;
- g. The locations of control measures that failed to operate as designed or proved inadequate or inappropriate for a particular location;
- h. The locations where any evidence identified under Part II G 3 h exists;
- i. The locations where any additional control measure is needed;
- j. A list of corrective actions required (including any changes to the SWPPP that are necessary) as a result of the inspection or to maintain permit compliance;
- k. Documentation of any corrective actions required from a previous inspection that have not been implemented;
- I. Any incidents of noncompliance. If none, the report shall contain a certification that the construction activity is in compliance with the SWPPP and this general permit;
- m. The required certification in accordance with Part III K 4 of this general permit; and
- n. The date and signature of the qualified personnel and the operator or its duly authorized representative in accordance with Part III K 2 of this general permit.
- 5. The inspection report shall be included into the SWPPP no later than four business days after the inspection is complete.
- 6. The inspection report and any actions taken in accordance with Part II shall be retained by the operator as part of the SWPPP for at least three years from the date that general permit coverage expires or is terminated.

## H. Corrective actions.

- 1. Except as required in Part II H 2, the operator shall implement the corrective actions identified as a result of an inspection as soon as practicable but no later than five business days after discovery or a longer period as approved by the VESMP authority. If approval of a corrective action by a regulatory authority (e.g., VESMP authority, VESCP authority, or the department) is necessary, additional control measures shall be implemented to minimize pollutants in stormwater discharges until such approvals can be obtained.
- 2. When any turbidity measurement of the construction dewatering discharge exceeds the selected benchmark option or visual monitoring indicates a change in the characteristics of effluent discharge, as outlined in Part II B 8, the operator shall:

- a. Immediately cease the construction dewatering discharge at the location that exceeds the turbidity benchmark or where visual monitoring indicates a change in the characterization of effluent discharge;
- b. Determine whether the construction dewatering controls are operating effectively or need routine maintenance or if an additional or alternate control measure is necessary; and
- c. Make any necessary adjustments, additions, repairs, or replacements to the construction dewatering controls.

Once these corrective action steps are completed and any necessary adjustments, additions, repairs, or replacements are made, the operator may resume its construction dewatering discharge and shall sample for turbidity within 15 minutes of the construction dewatering discharge commencing. No additional corrective action items are required beyond recording the results in the SWPPP.

- 3. The operator may be required to remove accumulated sediment deposits located outside of the construction site covered by this general permit as soon as practicable in order to minimize environmental impacts.
- 4. The operator shall notify the VESMP authority and the department as well as obtain all applicable federal, state, and local authorizations, approvals, and permits prior to the removal of sediments accumulated in surface waters, including wetlands.

## PART III

## CONDITIONS APPLICABLE TO ALL VPDES PERMITS

Discharge monitoring is not required for this general permit. If the operator chooses to monitor stormwater discharges or control measures, the operator shall comply with the requirements of Part III A, B, and C, as appropriate.

### A. Monitoring.

- 1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitoring activity.
- 2. Monitoring shall be conducted according to procedures approved under 40 CFR Part 136 or alternative methods approved by the U.S. Environmental Protection Agency, unless other procedures have been specified in this general permit. Analyses performed according to test procedures approved under 40 CFR Part 136 shall be performed by an environmental laboratory certified under regulations adopted by the Department of General Services (1VAC30-45 or 1VAC30-46).
- 3. The operator shall periodically calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals that will ensure accuracy of measurements.

## B. Records.

- 1. Monitoring records and reports shall include:
  - a. The date, exact place, and time of sampling or measurements;
  - b. The individuals who performed the sampling or measurements;
  - c. The dates and times analyses were performed;
  - d. The individuals who performed the analyses;
  - e. The analytical techniques or methods used; and
  - f. The results of such analyses.
- 2. The operator shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this general permit, and records of all data used to complete the registration statement for this general permit, for a period of at least three years from the date of the sample, measurement, report, or request for coverage. This period of retention shall be extended automatically during the course of any unresolved litigation regarding the regulated activity or regarding control standards applicable to the operator, or as requested by the department.

## C. Reporting monitoring results.

- 1. The operator shall update the SWPPP to include the results of the monitoring as may be performed in accordance with this general permit, unless another reporting schedule is specified elsewhere in this general permit.
- 2. Monitoring results shall be reported on a discharge monitoring report (DMR); on forms provided, approved, or specified by the department; or in any format provided that the date, location, parameter, method, and result of the monitoring activity are included.
- 3. If the operator monitors any pollutant specifically addressed by this general permit more frequently than required by this general permit using test procedures approved under 40 CFR Part 136 or using other test procedures approved by the U.S. Environmental Protection Agency or using procedures specified in this general permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or reporting form specified by the department.
- 4. Calculations for all limitations that require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this general permit.
- D. Duty to provide information. The operator shall furnish, within a reasonable time, any information that the department may request to determine whether cause exists for terminating this general permit coverage or to determine compliance with this general permit. The department, EPA, or VESMP authority may require the operator to furnish, upon request, such plans, specifications, and other pertinent information as may be necessary to determine the effect of the

wastes from the operator's discharge on the quality of surface waters, or such other information as may be necessary to accomplish the purposes of the Clean Water Act and the Virginia Erosion and Stormwater Management Act. The operator shall also furnish to the department, EPA, or VESMP authority, upon request, copies of records required to be kept by this general permit.

- E. Compliance schedule reports. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this general permit shall be submitted no later than 14 days following each schedule date.
- F. Unauthorized stormwater discharges. Pursuant to § 62.1-44.5 of the Code of Virginia, except in compliance with a permit issued by the department, it shall be unlawful to cause a stormwater discharge from a construction activity.
- G. Reports of unauthorized discharges. Any operator who discharges or causes or allows a discharge of sewage, industrial waste, other wastes, any noxious or deleterious substance, a hazardous substance, or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, 40 CFR Part 302, or § 62.1-44.34:19 of the Code of Virginia that occurs during a 24-hour period into or upon surface waters or that discharges or causes or allows a discharge that may reasonably be expected to enter surface waters shall notify the department and the VESMP authority of the discharge immediately upon discovery of the discharge, but in no case later than within 24 hours after said discovery. A written report of the unauthorized discharge shall be submitted to the department and the VESMP authority within five calendar days of discovery of the discharge. The written report shall contain:
  - 1. A description of the nature and location of the discharge;
  - The cause of the discharge;
  - 3. The date on which the discharge occurred;
  - 4. The length of time that the discharge continued;
  - 5. The volume of the discharge;
  - 6. If the discharge is continuing, how long it is expected to continue;
  - 7. If the discharge is continuing, what the expected total volume of the discharge will be; and
  - 8. Any steps planned or taken to reduce, eliminate, and prevent a recurrence of the present discharge or any future discharges not authorized by this general permit.

Discharges reportable to the department and the VESMP authority under the immediate reporting requirements of other regulations are exempted from this requirement.

H. Reports of unusual or extraordinary discharges. If any unusual or extraordinary discharge, including a "bypass" or "upset," as defined in this general permit, should occur from a construction site and the discharge enters or could be expected to enter surface waters, the operator shall promptly notify, in no case later than within 24 hours, the department and the VESMP authority after the discovery of the discharge. This notification shall provide all available details of the

incident, including any adverse effects on aquatic life and the known number of fish killed. The operator shall reduce the report to writing and shall submit it to the department and the VESMP authority within five calendar days of discovery of the discharge in accordance with Part III I 2. Unusual and extraordinary discharges include any discharge resulting from:

- 1. Unusual spillage of materials resulting directly or indirectly from processing operations;
- 2. Breakdown of processing or accessory equipment;
- 3. Failure or taking out of service of some or all of the facilities; and
- 4. Flooding or other acts of nature.
- I. Reports of noncompliance. The operator shall report any noncompliance that may adversely affect state waters or may endanger public health.
  - 1. A report to the department and the VESMP authority shall be provided within 24 hours from the time the operator becomes aware of the circumstances. The following shall be included as information that shall be reported within 24 hours under this subsection:
    - a. Any unanticipated bypass; and
    - b. Any upset that causes a discharge to surface waters.
  - 2. A written report shall be submitted within five days and shall contain:
    - a. A description of the noncompliance and its cause;
    - b. The period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and
    - c. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

The department may waive the written report on a case-by-case basis for reports of noncompliance under Part III I if the oral report has been received within 24 hours and no adverse impact on surface waters has been reported.

- 3. The operator shall report all instances of noncompliance not reported under Part III I 1 or 2 in writing as part of the SWPPP. The reports shall contain the information listed in Part III I 2.
- 4. The immediate (within 24 hours) reports required in Part III G, H, and I may be made to the department and the VESMP authority. Reports may be made by telephone, email, or online at <a href="https://www.deq.virginia.gov/our-programs/pollution-response">https://www.deq.virginia.gov/our-programs/pollution-response</a>. For reports outside normal working hours, leaving a recorded message shall fulfill the immediate reporting requirement. For emergencies, the Virginia Department of Emergency Management maintains a 24-hour telephone service at 1-800-468-8892.

5. Where the operator becomes aware of a failure to submit any relevant facts, or submittal of incorrect information in any report, including a registration statement, to the department or the VESMP authority, the operator shall promptly submit such facts or correct information.

## J. Notice of planned changes.

- 1. The operator shall give notice to the department and the VESMP authority as soon as possible of any planned physical alterations or additions to the permitted facility or activity. Notice is required only when:
  - a. The operator plans an alteration or addition to any building, structure, facility, or installation that may meet one of the criteria for determining whether a facility is a new source in 9VAC25-875-990; or
  - b. The operator plans an alteration or addition that would significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this general permit.
- 2. The operator shall give advance notice to the department and VESMP authority of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements.
- 3. The operator may continue construction activities based on the information provided in the original registration statement and SWPPP but must wait until the review period has ended before commencing or continuing construction activities on any portion of the construction site that would be affected by any of the planned changes or modifications. Any operator that chooses to proceed with unapproved construction activities while plans are being reviewed is proceeding at its own risk and subject to compliance actions if the plan is determined to be inadequate.

## K. Signatory requirements.

- 1. Registration statement and notice of termination. All registration statements and notices of termination shall be signed as follows:
  - a. For a corporation: by a responsible corporate officer. For the purpose of this chapter, a responsible corporate officer means (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy-making or decision-making functions for the corporation; or (ii) the manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions that govern the operation of the regulated facility, including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

- b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
- c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this chapter, a principal executive officer of a public agency includes (i) the chief executive officer of the agency or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.
- 2. Reports and other information. All reports required by this general permit, including SWPPPs, and other information requested by the department shall be signed by a person described in Part III K 1 or by a duly authorized representative of that person. A person is a duly authorized representative only if:
  - a. The authorization is made in writing by a person described in Part III K 1;
  - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the operator. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
  - c. The signed and dated written authorization is included in the SWPPP. A copy shall be provided to the department and VESMP authority, if requested.
- 3. Changes to authorization. If an authorization under Part III K 2 is no longer accurate because a different individual or position has responsibility for the overall operation of the construction activity, a new authorization satisfying the requirements of Part III K 2 shall be submitted to the VESMP authority as the administering entity for the department prior to or together with any reports or information to be signed by an authorized representative.
- 4. Certification. Any person signing a document under Part III K 1 or 2 shall make the following certification:

"I certify under penalty of law that I have read and understand this document and that this document and all attachments were prepared in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

L. Duty to comply. The operator shall comply with all conditions of this general permit. Any noncompliance with this general permit constitutes a violation of the Virginia Erosion and Stormwater Management Act and the Clean Water Act, except that noncompliance with certain provisions of this general permit may constitute a violation of the Virginia Erosion and Stormwater Management Act but not the Clean Water Act. Permit noncompliance is grounds for enforcement

action; for permit coverage, termination, revocation, and reissuance, or modification of permit coverage; or denial of a permit renewal application.

The operator shall comply with effluent standards or prohibitions established under § 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if this general permit has not yet been modified to incorporate the requirement.

- M. Duty to reapply. If the operator wishes to continue an activity regulated by this general permit after the expiration date of this general permit, the operator shall submit a new registration statement at least 90 days before the expiration date of the existing general permit, unless permission for a later date has been granted by the department. The department shall not grant permission for registration statements to be submitted later than the expiration date of the existing general permit.
- N. Effect of a permit. This general permit neither conveys any property rights in either real or personal property or any exclusive privileges nor authorizes any injury to private property or invasion of personal rights, or any infringement of federal, state, or local law or regulations.
- O. State law. Nothing in this general permit shall be construed to preclude the institution of any legal action under or relieve the operator from any responsibilities, liabilities, or penalties established pursuant to any other state law or regulation or under authority preserved by § 510 of the Clean Water Act. Except as provided in general permit conditions on bypassing under Part III U and upset under Part III V, nothing in this general permit shall be construed to relieve the operator from civil and criminal penalties for noncompliance.
- P. Oil and hazardous substance liability. Nothing in this general permit shall be construed to preclude the institution of any legal action or relieve the operator from any responsibilities, liabilities, or penalties to which the operator is or may be subject under §§ 62.1-44.34:14 through 62.1-44.34:23 of the State Water Control Law or § 311 of the Clean Water Act.
- Q. Proper operation and maintenance. The operator shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances), which are installed or used by the operator to achieve compliance with the conditions of this general permit. Proper operation and maintenance also includes effective plant performance, adequate funding, adequate staffing, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, which are installed by the operator only when the operation is necessary to achieve compliance with the conditions of this general permit.
- R. Disposal of solids or sludges. Solids, sludges, or other pollutants removed in the course of treatment or management of pollutants shall be disposed of in a manner so as to prevent any pollutant from such materials from entering surface waters and in compliance with all applicable state and federal laws and regulations.
- S. Duty to mitigate. The operator shall take all steps to minimize or prevent any discharge in violation of this general permit that has a reasonable likelihood of adversely affecting human health or the environment.

T. Need to halt or reduce activity not a defense. It shall not be a defense for an operator in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this general permit.

## U. Bypass.

1. "Bypass," as defined in 9VAC25-875-850, means the intentional diversion of waste streams from any portion of a treatment facility. The operator may allow any bypass to occur that does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to ensure efficient operation. These bypasses are not subject to the provisions of Part III U 2 and U 3.

### 2. Notice.

- a. Anticipated bypass. If the operator knows in advance of the need for a bypass, the operator shall submit prior notice to the department, if possible at least 10 days before the date of the bypass.
- b. Unanticipated bypass. The operator shall submit notice of an unanticipated bypass as required in Part III I.

## 3. Prohibition of bypass.

- a. Except as provided in Part III U 1, bypass is prohibited, and the department may take enforcement action against an operator for bypass unless:
  - (1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage. Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production;
  - (2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance; and
  - (3) The operator submitted notices as required under Part III U 2.
- b. The department may approve an anticipated bypass, after considering its adverse effects, if the department determines that it will meet the three conditions listed in Part III U 3 a.

## V. Upset.

1. An "upset," as defined in 9VAC25-875-850, means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent

limitations because of factors beyond the reasonable control of the operator. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

- 2. An upset constitutes an affirmative defense to an action brought for noncompliance with technology-based permit effluent limitations if the requirements of Part III V 3 are met. A determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is not a final administrative action subject to judicial review.
- 3. An operator who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that:
  - a. An upset occurred and that the operator can identify the cause of the upset;
  - b. The permitted facility was at the time being properly operated;
  - c. The operator submitted notice of the upset as required in Part III I; and
  - d. The operator complied with any remedial measures required under Part III S.
- 4. In any enforcement proceeding, the operator seeking to establish the occurrence of an upset has the burden of proof.
- W. Inspection and entry. The operator shall allow the department, the VESMP authority, EPA, or an authorized representative of either entity (including an authorized contractor), upon presentation of credentials and other documents as may be required by law, to:
  - 1. Enter upon the operator's premises where a regulated facility or activity is located or conducted or where records shall be kept under the conditions of this general permit;
  - 2. Have access to and copy, at reasonable times, any records that shall be kept under the conditions of this general permit;
  - 3. Inspect and photograph at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this general permit; and
  - 4. Sample or monitor at reasonable times, for the purposes of ensuring permit compliance or as otherwise authorized by the Clean Water Act or the Virginia Erosion and Stormwater Management Act, any substances or parameters at any location.

For purposes of this section, the time for inspection shall be deemed reasonable during regular business hours and whenever the facility is discharging. Nothing contained in this general permit shall make an inspection unreasonable during an emergency.

X. Permit actions. Permit coverage may be modified, revoked and reissued, or terminated for cause. The filing of a request by the operator for a permit modification, revocation and reissuance,

or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

- Y. Transfer of permit coverage.
  - 1. Permits are not transferable to any person except after notice to the department. Except as provided in Part III Y 2, a permit may be transferred by the operator to a new operator only if the permit has been modified or revoked and reissued, or a minor modification made, to identify the new operator and incorporate such other requirements as may be necessary under the Virginia Erosion and Stormwater Management Act and the Clean Water Act.
  - 2. As an alternative to transfers under Part III Y 1, this permit may be automatically transferred to a new operator if:
    - a. The current operator notifies the department at least 30 days in advance of the proposed transfer of the title to the facility or property;
    - b. The notice includes a written agreement between the existing and new operators containing a specific date for transfer of permit responsibility, coverage, and liability between them; and
    - c. The department does not notify the existing operator and the proposed new operator of its intent to modify or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in Part III Y 2 b.
  - 3. For ongoing construction activity involving a change of operator, the new operator shall accept and maintain the existing SWPPP, or prepare and implement a new SWPPP prior to taking over operations at the construction site.
- Z. Severability. The provisions of this general permit are severable, and if any provision of this general permit or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this general permit shall not be affected thereby.

## **Module 6: Post-Construction Best Management Practices**

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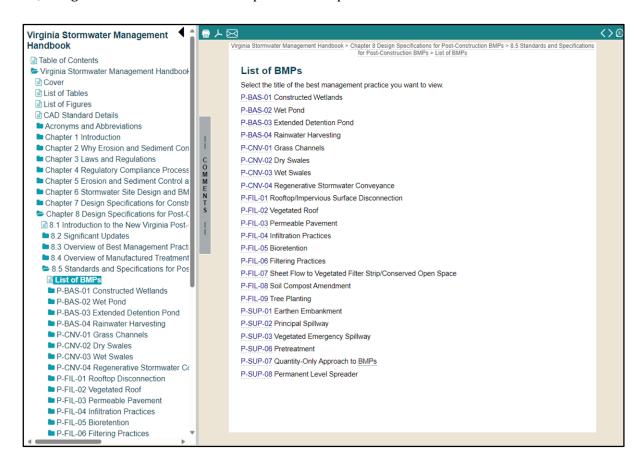
## **Learning Objectives**

At the end of this module, you will be able to:

- Describe common inspection elements across the 17 non-proprietary, post-construction best management practices (P-BMPs)
- Recognize critical features of P-BMPs for inspections
- Relate the critical P-BMP design, installation, and scheduling elements from approved plans to the site

Virginia Stormwater BMP Clearinghouse - <a href="https://www.deq.virginia.gov/our-programs/water/stormwater/stormwater-construction/bmp-clearinghouse">https://www.deq.virginia.gov/our-programs/water/stormwater/stormwater-construction/bmp-clearinghouse</a>

In order to achieve the *water quality* criteria, the Virginia Erosion and Stormwater Management (VESM) Regulation only allows for the use of the non-proprietary post-construction best management practices (P-BMPs) and manufactured treatment devices (MTDs) listed on the Virginia Stormwater BMP Clearinghouse. P-BMPs are practices used to reduce phosphorus loads through treatment and/or runoff reduction, as required in the water quality criteria. In some cases, P-BMPs are also used to address water quantity. Stormwater management facilities that only address *water quantity* are detailed in the Virginia Stormwater Management Handbook (VSMH) specification P-SUP-07. The image below presents an overview of how the 17 P-BMPs and the six supporting components (SUPs) are presented in the VSMH. The arrangement and nomenclature of the P-BMPs will be discussed in greater detail in Module 6b, using the other course materials' packet of Chapter 8 of the VSMH.



## **POLLUTION CONTROL**

Stormwater P-BMPs use three primary mechanisms to control pollution:

- 1. Infiltration
- 2. Settling
- 3. Vegetative uptake or filtering

### Infiltration:

A stormwater P-BMP can collect runoff in a basin. The runoff gradually goes through the basin bottom into the subsoil. This is called infiltration. After all the runoff is infiltrated, sediment and pollutants stay within the basin.

#### P-BMPs:

P-FIL-03 Permeable Pavement, P-FIL-04 Infiltration Practices, P-FIL-05 Bioretention, and P-CNV-04 Dry Swales use infiltration as a pollution control mechanism.



(P-FIL-03) Permeable Pavement
Photo credit: DEQ

## Settling:

The second way stormwater P-BMPs remove pollutants is by collecting runoff in a basin and temporarily holding the water. While the runoff is contained, heavy solids and pollutants settle to the bottom of the basin while the cleaner runoff is discharged through the outlet.

## P-BMPs:

P-BAS-01 Constructed Wetlands, P-CNV-03 Wet Swales, P-BAS-03 Extended Detention Basins, and P-BAS-02 Wet Ponds use settling as a pollution control mechanism.



**(P-BAS-02) Wet Pond**Photo credit: Stormwater Maintenance LLC

## Vegetative uptake or filtering:

The third way to remove pollutants from runoff is by allowing it to flow through a vegetated area. Pollutants are either filtered out by physical contact or taken up by plants through their roots.

## P-BMPs:

P-FIL-07 Vegetative Filter Strips, P-CNV-01 Grass Channels, P-FIL-02 Vegetated Roofs, P-FIL-05 Bioretention, and P-FIL-06 Filtering Practices use vegetative uptake or filtering as a pollution control mechanism.



**(P-CNV-01) Grass Channel**Photo credit: Stormwater Maintenance LLC

## **INFLOW**

Water can enter a P-BMP as sheet flow – overland flow that has not concentrated (flow concentrates after 100 feet) – or as concentrated flow. To protect an inlet from erosion, concentrated flow requires energy dissipation, by using a level spreader or stones, where water enters a P-BMP.

## Level spreader:

A level spreader is used to disperse concentrated flow to achieve and maintain sheet flow (see specification P-SUP-08 in the VSMH for additional information).

### P-BMPs:

P-FIL-07 Sheet Flow to Vegetated Filter Strip or Conserved Open Space, P-CNV-01 Grass Channel, P-FIL-06 Infiltration, P-CNV-02 Dry Swale, P-FIL-06 Filter Practice



(P-SUP-08 & P-FIL-07) Level spreader to vegetated filter strip

Photo credit: Cape Fear Engineering

## **Gravel or stone flow spreader:**

A gravel flow spreader is located at curb cuts, downspouts, or other concentrated inflow points and should have a two-to-four-inch elevation drop from a hard-edged surface into a gravel or stone diaphragm. The gravel should extend the entire width of the opening and create a level stone weir (spillover dam-like device used to control water flow) at the bottom or treatment elevation of the P-BMP.

#### P-BMPs:

P-FIL-07 Sheet Flow to Filter Strip, P-CNV-01 Grass Channel, P-FIL-05 Bioretention, P-CNV-02 Dry Swale



Gravel flow spreader at inlet to (P-CNV-02) dry swale Photo credit: <u>Civil PDX</u>

## **PRETREATMENT**

Along with inflow components, pretreatment reduces maintenance and prolongs the lifespan of P-BMPs by removing trash, debris, organic materials, coarse sediments, and associated pollutants before reaching a P-BMP. Pretreatment options are further detailed in the VSMH Chapter 8, specification P-SUP-06.

Pretreatment relies on two mechanisms of trash and pollutant removal:

- 1. Settling and/or
- 2. Filtering or physical screening

## **Sediment Forebay:**

A sediment forebay is a settling basin or plunge pool. A forebay is typically designed to dissipate (lessen) flow energy and detain runoff to allow coarse sediments to settle before runoff goes through the rest of the P-BMP.

### Mechanism of removal:

Screening and settling

#### P-BMPs:

P-FIL-04 Infiltration Practice, P-FIL-05 Bioretention, P-CNV-02 Dry Swale, P-CNV-03 Wet Swale, P-FIL-06 Filtering Practice, P-BAS-01 Constructed Wetland, P-BAS-02 Wet Pond, P-BAS-03 Extended Detention Pond



[P-FIL-05 (Micro-Bioretention)] Raingarden forebay Photo credit: Melissa Kramer, U.S. EPA



Sediment forebay in (P-BAS-02) wet pond Photo credit: James City County

## **Vegetated Filter Strips:**

Vegetated filter strips are sloped surfaces that rely on shallow, sheet flow through dense vegetation to reduce flow velocity, allow particles to settle, and allow particle interception by the vegetation.

## Mechanism of removal:

Filtering and settling

#### P-BMPs:

P-FIL-07 Sheet Flow to Vegetated Filter Strip and Conserved Open Space, P-CNV-01 Grass Channel, P-FIL-04 Infiltration Practice, P-FIL-05 Bioretention, P-CNV-02 Dry Swale, P-FIL-06 Filtering Practice



Vegetated filter strip adjacent to (P-FIL-06) sand filter Photo credit: Alisha Goldstein, U.S. EPA

## **Trash Capture Devices (TCD):**

TCDs can be a perforated plate or mesh screen that separates and collects sediment, trash, debris, and organic material as runoff passes over or through them.

## Mechanism of removal:

Screening



**Curb inlet with TCD**Photo credit: Riverside Construction

## **Gravel or Stone Diaphragm:**

A diaphragm serves two purposes. First, it acts as a pretreatment device, settling out sediment particles before they reach the practice. Second, it acts as a level spreader, maintaining sheet flow through the vegetated filter strip.

## Mechanism of removal:

Settling

### P-BMPs:

P-FIL-07 Sheet flow to Vegetated Filter Strip and Conserved Open Space, P-CNV-01 Grass Channel, P-FIL-04 Infiltration Practices, P-FIL-05 Bioretention, P-CNV-02 Dry Swales, P-FIL-06 Filtering Practices, P-BAS-01 Constructed Wetlands



Sheet flow from parking lot drops onto gravel diaphragm before flowing through vegetated filter strip (P-FIL-07)

Photo credit: Wiki Sustainable Technologies

#### **Check Dam:**

Check dams break up slopes to reduce scour potential and to increase the time water stays in a channel to enhance settling, filtering, and/or infiltration. Under low-flow conditions, water ponds behind the structure then slowly drains through, infiltrates, or evaporates. Under high-flow conditions, water flows over and/or through the structure.

## Mechanism of removal:

Settling, screening

### P-BMPs:

P-CNV-01 Grass Channels, P-FIL-05 Bioretention Basin, P-CNV-02 Dry Swale, P-CNV-03 Wet Swale



Check dams in grass channel (P-CNV-01)
Photo credit: Montgomery County DEP

## **OUTLET CONTROL STRUCTURE**

The outlet controls the release of water to a channel, storm sewer system, or P-BMP. Small differences in outlet control parameters, such as dimensions and invert elevations, can have drastic effects on P-BMP outflow characteristics for achieving the water quantity criteria. The VSMH further details principal spillway design in Chapter 8, specification P-SUP-02.

## **Principal Spillway with Riser:**

A principal spillway is the primary outlet device for impoundment P-BMPs. It usually consists of either a riser structure with orifices (openings) in combination with an outlet pipe, which extends through the embankment, or a weir control section cut through the embankment.

The principal spillway retains the volume of runoff produced by the drainage area then slowly releases the water. Extended detention ponds will discharge the runoff completely, while wet ponds and constructed wetlands will retain some depth of water.

#### P-BMPs:

P-BAS-03 Extended Detention Basin, P-BAS-02 Wet Pond, and P-BAS-01 Constructed Wetland



Principal spillway multi-stage riser in extended detention pond (P-BAS-03)

Photo credit: DEQ



V-notch weir riser in constructed wetland (P-BAS-01)
Photo credit: Aaron Volkening, Flickr

## Riser box:

Modified concrete box with inlet grates

## Riser pipes:

Vertical pipes topped with a domeshaped grate.

## P-BMPs:

P-FIL-05 Bioretention and P-CNV-02 Dry Swale





Riser box (top) and riser pipe (bottom) in bioretention
(P-FIL-05)

Photo credit: Agron Volkening, Flickr (top)

Photo credit: <u>Aaron Volkening, Flickr</u> (top)
DEQ (bottom)

## Catch basin (inlet):

Catch basins are inlets to the storm sewer system.

#### P-BMPs:

P-CNV-01 Grass Channel, P-FIL-05 Bioretention, P-CNV-02 Dry Swale



Catch basin (inlet) in bioretention (P-FIL-05)
Photo credit: DEQ

### **Underdrain:**

An underdrain is an underground drain with openings through which water may percolate from the soil or ground above. Underdrains move water to the storm sewer system.

## P-BMPs:

P-FIL-03 Permeable Pavement, P-FIL-04 Infiltration, P-FIL-05 Bioretention, P-CNV-02 Dry Swale, P-FIL-06 Filtering Practice



Underdrain for dry swale (P-CNV-02)
Photo credit: NCSU BAE

## **MATERIALS**

P-BMPs will not function properly if the wrong materials are used or if materials are improperly used or prepared. Consult the SWM plan to verify the correct materials are being used and the instructions are followed. While all materials are important, the top three that are commonly misused are:

- 1. Geotextile fabric
- 2. Stones
- 3. Soil media

## **Geotextile fabric:**

Synthetic fabrics are frequently specified for application beneath various components – under riprap in spillways or for low-flow channels. Proper selection of a manufacturer's product along with installation consistent with the plan and/or manufacturer's directives is necessary to assure proper performance. The method of installation should be observed and a tag provided from the product that verifies compliance with the product specification given in the approved plan.

## P-BMPs:

Check dams, level spreader, P-FIL-03 Permeable Pavement, P-FIL-04 Infiltration (sides only), P-FIL-05 Bioretention (sides only), P-FIL-06 Filtering Practices

\*Geotextile vs. filter fabric: A geotextile is a permeable material used to increase soil/structural stability, provide erosion control, or aid in drainage. Filter fabric is used to contain/filter smaller soil particles (e.g., silt fence).



Geotextile on sides of infiltration practice (P-FIL-04)
Photo credit: Center for Watershed Protection

#### Stones:

The size, amount of fines, and shape should match the approved SWM plan.

- The size of aggregate dictates the amount of void space available for infiltration or retention/detention of runoff. The larger the stone, the more void space between each stone.
- 2. The percentage of fines generally is important where washed stone is to be utilized for an underground aggregate reservoir or where the outlet protection of a facility is discharging into a stream or other sensitive area that is susceptible to turbidity. Fines act as additional sediment in facilities, reducing capacity and infiltration ability.
- Rock shape is important for compaction purposes. Angular stones can be well compacted because they fit together. More rounded stones, like river rock, cannot be well compacted and will leave void spaces, which can allow water storage.

## Riprap: 8" - 15" (angular edges)

Used to dissipate the high-energy flow through an outlet control structure (P-BAS-01 Constructed Wetland, P-BAS-02 Wet Pond, P-BAS-03 Extended Detention); to harden the bottom of a sediment forebay; and to construct check dams (P-CNV-01 Grass Channels, P-CNV-02 Dry Swales).

# No. 1 stone: 1.5" – 3.5" (angular edges)

Used to create a storage layer in P-FIL-04 Infiltration Trench.



**Riprap** 



No. 1 stone

## No. 2 stone: 2" average (angular edges)

Used in the reservoir layer of P-FIL-03 Permeable Pavement.

## No. 3 stone: 1.5" average (angular edges)

Used below a level spreader to transition from the level spreader to natural grade; and as a flow spreader at inlets.

## No. 57 stone: 0.5" average (angular edges)

Used to form a stone diaphragm; in the bedding layer of porous asphalt and reservoir layer of porous concrete; to form a stone jacket around the underdrain (P-FIL-04 Infiltration, P-FIL-05 Bioretention, P-FIL-06 Filtering Practices); as a storage layer (P-FIL-05 Bioretention, P-CNV-02 Dry Swale).

# No. 8 stone: 0.28" average (angular edges)

Used in the bedding layer of interlocking pavers; and as a choking layer (choker stone) to form a barrier between the bottom of a reservoir layer and the underlying, native soils or underdrains (P-FIL-03 Permeable Pavement, P-FIL-04 Infiltration).

## Pea gravel: 0.38" – 1" (rounded edges)

Pea gravel is used to form a gravel diaphragm (sheet flow, P-CNV-01 Grass Channel); surface cover (P-FIL-04 Infiltration, P-FIL-05 Bioretention); choker stone to separate the underdrain and soil (P-FIL-05 Bioretention, P-CNV-02 Dry Swale); flow spreader (P-FIL-01 Rooftop Disconnection); and filter layer.



No. 57 stone



No. 8 stone Photo credit (all): DEQ

#### Soil media:

Soil plays an important role in many P-BMPs. The composition must match the approved SWM plan. For more information on soil media, see the VSMH, Appendix F: Bioretention Design.

## Topsoil:

Nutrient-dense upper part of the soil (A & E horizons). Generally, Loamy sand, Sandy loam, or Loam, based on USDA Textural Triangle.

### **Compost amendments:**

Compost is organic matter that is added to soil to improve the amount of water that can infiltrate soil.

#### Bioretention filter media:

The recommended bioretention soil mixture is generally classified as loamy sand with: 80%-90% sand, 10%-20% soil fines, and 3%-5% organic matter.

## Sand component:

The normal sand component of the filter media consists of a medium to coarse aggregate mineral source or quartz substitute.

## Wetland soil:

Wetlands are excavated to deep sub-soils, which lack the nutrients and organic matter needed to support vigorous growth of wetland plants. Sand, compost, topsoil, or wetland mulch are added to all depth zones in the wetland.

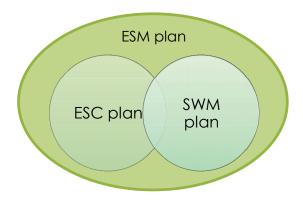


(P-FIL-05) Bioretention media in soil probe Photo credit: DEQ

#### RELATIONSHIP BETWEEN THE ESC PLAN AND THE SWM PLAN

The ESC plan and SWM plan are critical components of a site's erosion control and stormwater management (ESM) plan, which are interconnected and must both be followed for the successful installation and function of P-BMPs. It's important that inspectors consult both the ESC and SWM portions of the ESM plan to identify:

- Co-located practices
- Installation timing
- Materials



#### **Co-located practices**

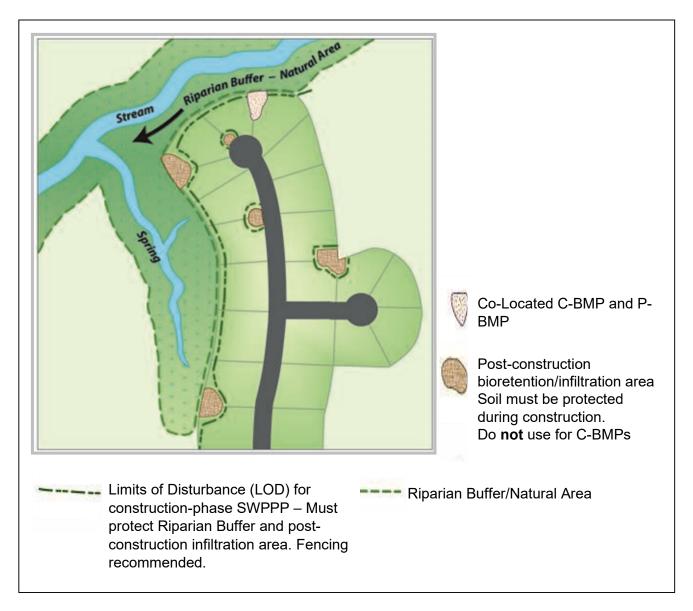
During construction, some P-BMPs will be <u>co-located</u> with construction best management practices (C-BMPs). This means that during construction, a practice will serve as a C-BMP then during the final stages of construction, it will be converted to a P-BMP.





Example of co-located practices: sediment basin conversion to a constructed wetland (P-BAS-01)

Photo credit: Center for Watershed Protection



#### Examples of co-located and non-co-located practices

Typically, P-BMPs that rely on infiltration should not be co-located with C-BMPs because of the compaction that results from the C-BMP holding stormwater and sediment. If a P-BMP is not co-located with a C-BMP, it is important for the future success of the P-BMP that the operator follows any protective measures listed in the project's ESM plan to keep equipment off the area and keep stormwater and sediment out.

#### **Installation timing**

Consult the construction sequence in the SWM or ESM plan to determine when a P-BMP should be installed. As the inspector, ensure the P-BMP has not been installed before the *contributing drainage area has been stabilized* and stormwater is being kept out of the practice until it is fully constructed and ready to receive runoff. The drainage area must be stabilized so that sediment does not clog the P-BMP.

#### **Important inspection points:**

- Has the contributing drainage area been stabilized?
- Are C-BMPs being used to keep stormwater out of the P-BMP?
- Are co-located practices in multi-phase projects (e.g., residential subdivision) converted at the correct time?





The drainage area was not stabilized before these practices were installed. As a result, both practices need to be replaced.



Silt fence is used in this picture to keep sediment out of the P-CNV-02 Dry Swale while the swale stabilizes.



Inlet is temporarily blocked during installation of this P-FIL-05 Bioretention.





Inspectors should consult the SWM plan for the construction sequence to determine when practices in multi-phase projects should be converted. When it's time to convert the practice, appropriate C-BMPs should be in place to keep out upstream sediment.

Photo credit (all): Center for Watershed Protection

#### 6b. 17 Non-Proprietary P-BMPs

The 17-non-proprietary P-BMPs will be discussed individually using the specifications found in the other packet. The P-BMPs are categorized and highlighted below:

#### **Basins - P-BAS**

- P-BAS-01 Constructed Wetland
- P-BAS-02 Wet Pond
- P-BAS-03 Extended Detention
   Pond
- P-BAS-04 Rainwater Harvesting

#### **Conveyances - P-CNV**

- P-CNV-01 Grass Channels
- P-CNV-02 Dry Swales
- P-CNV-03 Wet Swales
- P-CNV-04 Regenerative
   Stormwater Conveyance

#### Filtration and Infiltration - P-FIL

- P-FIL-01 Rooftop/Impervious Surface
   Disconnection
- P-FIL-02 Vegetated Roof
- P-FIL-03 Permeable Pavement
- P-FIL-04 Infiltration Practices
- P-FIL-05 Bioretention
- P-FIL-06 Filtering Practices
- P-FIL-07 Sheet Flow to Vegetated Filter Strip/Conserved Open Space
- P-FIL-08 Soil Compost Amendments
- P-FIL-09 Tree Planting

#### **Support Components - P-SUP**

- P-SUP-01 Earthen Embankment
- P-SUP-02 Principal Spillway
- P-SUP-03 Vegetated Emergency Spillway

- P-SUP-06 Pretreatment
- P-SUP-07 Quantity-only Approach to BMPs
- P-SUP-08 Permanent Level Spreader

## **Summary**

As a VESMP inspector, it's important to be able to:

- Identify common compliance issues that may be occurring with respect to P-BMPs
- Verify that P-BMPs are installed correctly and in accordance with approved plans. This helps to ensure that P-BMPs are protected during construction and that they will function effectively in the post-development condition

# **Module 7: Permit Termination**

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# **Learning Objectives**

At the end of this module, you will be able to:

- Recall the Construction General Permit (CGP) termination process
- Define site stabilization requirements for permit termination
- List the important post-construction best management practice (P-BMP) inspection points for permit termination inspections
- Explain the purpose of a long-term maintenance agreement and recall the regulatory requirements for these agreements
- Identify critical elements on construction record drawings for inspections and recall when they must be submitted to the VESMP authority
- Explain the purpose of a security for performance and the requirements for termination

#### 7a. Permit Termination

#### NOTICE OF TERMINATION (N.O.T.) FORM

(9VAC25-875-100) (9VAC25-880-60)

For any projects where a registration statement was submitted, the operator must submit the DEQ Notice of Termination (N.O.T.) form to the Virginia Erosion and Stormwater Management Program (VESMP) authority within <u>30 days</u> of meeting one or more of the following conditions:

#### As an inspector...

When the operator submits a N.O.T. for conditions one and four, it is important for you to go to the site to verify the termination requirements are met.

- 1. Necessary permanent control measures included in the construction site's Stormwater Pollution Prevention Plan (SWPPP) are in place and functioning effectively and final stabilization has been achieved on all portions of the site for which the operator is responsible. When applicable, long-term responsibility and maintenance requirements for permanent control measures must be recorded in the local land records before the submission of the N.O.T. The construction record drawing(s) for SWM facilities should also be submitted by the operator for review and approval by the VESMP authority.
- 2. Another operator has assumed control over all areas of the construction site that have not been fully stabilized and obtained coverage for the ongoing discharge
- 3. Coverage under an alternative Virginia Pollutant Discharge Elimination System (VPDES) or other applicable permit has been obtained
- 4. For residential construction only, temporary soil stabilization has been completed, and the residence has been transferred to the homeowner.

If *option 4 is used,* the operator must provide the homeowner with written information about the importance of final stabilization and maintain signed documentation that the homeowner has been notified. This documentation is to be kept for **three years**.

When receiving a <u>complete</u> N.O.T., the VESMP authority shall recommend within <u>60 days</u> that DEQ terminate CGP coverage.

Authorization terminates either <u>90 days</u> following receipt of a complete and accurate N.O.T. or upon notification from DEQ, whichever occurs first, unless otherwise notified by the VESMP authority or DEQ.

A copy of the N.O.T. form is included at the end of this module.

#### INSPECTOR'S PERMIT TERMINATION CHECKLIST

	Permit termination checklist
1. 🗆	Final stabilization achieved
2.	Permanent control measures in place and functioning effectively
3.	Permanent control measures accurately documented on N.O.T. form
	Construction record drawing(s) for permanent stormwater nanagement facilities submitted to VESMP authority
5.	Long-term maintenance agreement recorded (when applicable)

#### 1. Final stabilization

(9VAC25-880-1)

Final stabilization is defined in the CGP as meeting one of the following three conditions:



 All soil-disturbing activities at the construction site have been completed and a <u>permanent vegetative cover</u> has been established on denuded areas not otherwise permanently stabilized.

Permanent vegetation shall not be considered **established** until a ground cover is achieved that is uniform (e.g. evenly distributed), provides 75% or *more* vegetative cover with no significant bare areas, is mature enough to survive, and will inhibit erosion.

\*NOTE: The current version of the Virginia Stormwater Management Handbook (VSMH) provides guidance on what can be considered a significant bare area in Chapter 7.4, C-SSM-09, section 7.0, and refers to areas greater than 500 sqft. as needing a reseed application.



- 2. For *individual lots in residential construction*, final stabilization can occur by either:
  - a. The homebuilder completing the stabilization criteria specified in 1 above; or
  - b. The homebuilder establishing temporary soil stabilization, including perimeter controls for an individual lot prior to occupation of the home by the homeowner, and providing written notification to the homeowner of the need for, and benefits of, final stabilization. The homebuilder shall maintain a copy of the written notification and a signed statement certifying that the information was provided to the homeowner in accordance with the SWPPP recordkeeping requirements in Part II G 6 of the CGP (three years).



3. *Lands used for agricultural purposes:* Final stabilization may be accomplished by returning the disturbed land to its preconstruction agricultural use.

Disturbed areas not previously used for agricultural activities (e.g., buffer strips immediately adjacent to surface waters) and areas not being returned to preconstruction agricultural use must achieve the final stabilization criteria specified in 1 or 2 above.

#### 2. Permanent control measures in place and functioning effectively

As stated above, one of the permit termination requirements is for the operator to confirm the necessary permanent control measures from the SWPPP are in place and functioning effectively. The inspector can confirm this by conducting a final inspection of the site's post-construction best management practices (P-BMPs) before permit termination.

The following is a list of common P-BMP inspection points:

- Is water getting into the practice?
- Any signs of erosion in or around the practice?
- Is sediment getting into the practice?

- Is vegetation growing?
- Does the practice drain correctly?

# 3. Permanent control measures accurately documented on N.O.T. form (9VAC25-880-60.C)

When applicable, the operator must include a list of on-site and off-site permanent control measures (both structural and non-structural) on the N.O.T. form. It is important that inspectors work with the operator and program administrator to ensure this information is accurate before it is entered into the CGP System.

#### 4. Construction record drawings

(9VAC25-875-535)

Construction record drawings (as-built drawings) serve as verification that stormwater management (SWM) facilities have been installed according to the approved SWM plan. Record drawings must be sealed and signed by a professional registered in Virginia, certifying proper installation (or any adjustments and revisions made during construction) and submitted to the VESMP authority before permit termination. Remember, the VESMP authority must keep construction record drawings *until the SWM* 

#### As an inspector...

You can help confirm the accuracy of construction record drawings by comparing the drawings to the final P-BMP installation.

#### <u>facility is removed</u>.

Record drawings typically contain information about the dimensions and elevations of structural components (inflow, riser), P-BMP materials (stones, fabrics, soil, vegetation), and geotechnical testing (fill and compaction). Construction record drawings serve as a permanent record of the actual location of all constructed elements and are an important reference for post-construction inspections. They may help answer questions when future maintenance issues are identified.

#### Red-line revisions of plans

Construction record drawings are also known as red-line revisions. The red-line revisions indicate any changes to the approved SWM plan. Items that differ from the originally approved plans and computations should be shown in red on both the plans and computations as follows:

 A red checkmark is made beside design values where they agree with actual constructed values

• For changed values, strike through the design value and enter the actual value in red

• Elevations to the nearest 0.1-foot are sufficient

 A stage-storage summary table, comparing the design values and the as-built values, should be provided for each facility with a storage volume

Red-line drawings will contain additional dimension and elevation information, such as the inverts of the outlet pipes, control orifice or weir invert elevations, emergency spillway elevations, height of dam embankment, elevation of the pond bottom, forebay elevation, and outlet protection dimensions. Additional dimensional information exclusive to the control structure should also be provided. This could include the dimensions of the impoundment area at specific elevations and the top width and side slope of a dam embankment. The purpose of the as-built survey is to confirm that elevations and dimensions are consistent with the approved plan.

#### **Outlet control structure**

An outlet barrel, normally affixed to the control structure, is used to convey flow to an accepted discharge point. Items related to proper pipe installation include the procedure used in sealing joints, the method of attachment to the control structure, and the use of inlet and floor shaping (as applicable) within the control structure.

There is also a need to inspect and document the existence, location, and spacing of anti-seep collars, concrete cradles, or other seepage control measures (at the outlet barrel) as specified in the approved plan. Documentation should include verification of critical dimensions, existence of reinforcement, and indication of concrete mix strength. In the case of filter diaphragms, both earthwork and materials need to be considered in the installation.

Trash racks of varying design and construction are normally affixed to a control structure and, in some cases, inlets which "feed" the P-BMP facility. Visual observation (with inspection log entry) should indicate bar size, spacing grate configuration, and proper attachment to the control structure or inlet and the application of rust-resistant coating where applicable.

#### Conveyance system components

The conveyance system, which is the drainage system for the site, must be shown on the record drawings to illustrate how water is carried into and out of P-BMPs. Critical items, such as conveyance pipe diameter, slope, inlet, and grate length/configuration, are essential to ensure that the required design storm (generated by the contributing drainage area) is adequately conveyed to the SWM facility for control and/or that runoff from other drainage areas is diverted away from SWM facilities.

#### **Material specifications**

P-BMP materials include stones, fabrics, soil, vegetation, pipe materials, and any other items that are applicable to the facility. It is essential to inspect P-BMP materials throughout the construction process to ensure the correct materials are installed, as minimal P-BMP materials are evident on the surface once construction is complete. At the final inspection, it is also vital that the vegetation matches the approved planting plan.

#### **Geotechnical testing**

The acceptable completion of earthwork in the construction of a P-BMP is crucial to assuring that it is structurally sound. Geotechnical testing may include compaction tests, inspections of the removal of unsuitable materials under and adjacent to the embankment foundation, construction of the cut-off trench and other seepage control measures, compaction around the barrel, riser structure footing, and any other element that is hidden in the final condition. All work should be completed under the supervision of a licensed geotechnical engineer. The inspection logs and test results should be included in the final as-built survey.

#### Fill Classification

The geotechnical portion of the approved plan should provide a listing of soil classification types that are suitable for use at the project infill. Specialized criteria may also note the classification of impermeable soil to be used for clay liners in areas of sandy soils or karst. Fill soils containing such materials as excessive or large rock, organic material, or "fatty clay" (CH) classification are not acceptable due to the inability to achieve proper compaction or because of their shrink-swell properties. Verification must also be provided that the materials used in construction of drainage and filter diaphragms comply with the approved plan specifications.

#### Compaction

The application of "lifts" in proper thickness and density is essential in attaining a stable structure. The compaction of dam embankments to a percentage at or above the percent compaction specified in the approved plan and within the optimal range of moisture content assures that there will not be adverse settlement of the embankment. Careful compaction in areas adjacent to the barrel and seepage control measures is critical to eliminate excessive "void space" along the outlet barrel where the potential for embankment failure is high. Sufficient test results should be retained to document uniform compaction of the dam embankment and density/permeability of existing soil formation and/or soils to be used for liners (where applicable), in accordance with the approved plan.

#### **Inspection Logs**

Geotechnical inspection logs should document all aspects of the construction of the facility (with copies of applicable test results) to ensure compliance with the approved plan. Any significant inconsistencies should immediately be reported to the engineer for evaluation and possible modification. These logs can be submitted to the VESMP authority throughout construction or at the end of the project with the record drawings.

#### 5. Long-term maintenance agreements

(9VAC25-875-535), (9VAC25-880-60)

The long-term responsibility for and maintenance of SWM facilities and other techniques specified to manage the quality and quantity of runoff requirements must be set forth in an instrument recorded in the local land records before CGP termination or earlier as required by the locality VESMP authority.

At a minimum, the agreement must:

- Be stated to run with the land (will transfer to a new owner)
- Provide for all necessary access to the property for purposes of maintenance and regulatory inspections
- Provide for inspections and maintenance and the submission of inspection and maintenance reports to the VESCP, VSMP, or VESMP authority

• Be enforceable by all appropriate governmental parties

Remember, SWM facilities on individual residential lots designed to treat runoff primarily from that lot may not be required to have maintenance agreements recorded in the local land records unless the VESMP authority requires it. However, future maintenance must be addressed and demonstrated in some other enforceable mechanism.

#### **SECURITY FOR PERFORMANCE**

(§ 62.1-44.15:34) (9VAC25-875-110)

Within <u>60 days</u> of completing the VESMP authority's conditions, the locality must return or terminate any bonds or securities provided by the operator.

#### **Security for performance**

Before issuing approval to start land disturbance, a locality VESMP authority may require a security for performance to ensure that measures could be taken by the VESMP authority at the applicant's expense should they fail, after proper notice, to initiate or maintain appropriate actions that may be required by the VESMP authority for the land-disturbing activity.

## **Summary**

As a VESMP inspector, it's important to be able to:

- Check for compliance at permit termination by verifying that:
  - i) Site stabilization requirements have been met
  - ii) P-BMPs are functioning as intended and align with submitted construction record drawings
  - iii) Long-term maintenance agreements are adequate for future management and inspection
- Explain the security performance provision to the regulated community and aid VESMP staff in the administration of this provision should it be needed

# **Knowledge Check Questions**

1.	When is permanent vegetation considered established?
2.	What legal agreement provides a VESMP inspector access to a property for conducting post-construction regulatory inspections?
3.	Who must seal and sign a construction record drawing, and when must it be submitted to the VESMP authority?
4.	When must a locality VESMP authority return or terminate any bonds or securities provided by the operator?
	Answers to the Knowledge Check Questions can be found in the APPENDIX

# VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY GENERAL VPDES PERMIT FOR DISCHARGES OF STORMWATER FROM CONSTRUCTION ACTIVITIES (VAR10) NOTICE OF TERMINATION 2024

Per	mit Coverage Number (VAR10####):
ope sigr	tion I. Operator/Permittee Information. The person or entity that has active permit coverage approval and rational control over construction activities to ensure compliance with the general permit. A person with natory authority for this operator must sign the certification in Section VII (per Part III K of the VAR10 mit).
	Construction Activity Operator Name:
	Contact Person:
	Address:
	City, State, Zip Code:
	Phone Number:
	Primary Email:
	Timary Email:
Sec	ction II. Construction Activity Location Information. Project site information.
	Construction Activity Name:
	Address:
	City and/or County and Zip Code:
	Latitude and Longitude (6-digit, decimal degrees format):
act req ass of a	etion III. Requirements for Termination of general permit coverage. The operator of the construction ivity shall submit a complete and accurate notice of termination, unless a registration statement was not quired to be submitted in accordance with 9VAC25-880-50 A 1 c or A 2 b for a stormwater discharge ociated with a small construction activity of a single family detached residential structure, within or outside a common plan of development or sale, to the VESMP authority after one or more of the following conditions we been met:  Necessary permanent control measures included in the SWPPP for the construction site are in place and functioning effectively and final stabilization has been achieved on all portions of the construction site for which the operator has operational control. When applicable, long-term responsibility and maintenance requirements for permanent control measures shall be recorded in the local land records prior to the
	submission of a complete and accurate notice of termination, and the construction record drawing prepared Another operator has assumed control over all areas of the construction site that have not been finally stabilized and obtained coverage for the ongoing discharge.
	Coverage under an alternative VPDES permit or other applicable permit has been obtained.
	For individual lots in residential construction only, final stabilization as defined in 9VAC25-880-1 has been completed, including providing written notification to the homeowner and incorporating a copy of the

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homeowner.

notification and signed certification statement into the SWPPP, and the residence has been transferred to the

**Section IV. Participation in a Regional Stormwater Management Plan.** If your site discharges to a regional stormwater management facility, provide information related to the regional stormwater management plan. Attach a separate list if discharging to multiple regional facilities.

Regional Stormwater Management Facility Type:
Address:
City, State, Zip Code:
Latitude and Longitude (6-digit, decimal degrees format):
Total Site Acres Treated by Regional Facility (report to one-hundredth of an acre):
Impervious Site Acres Treated by Regional Facility (report to one-hundredth of an acre):
Section V. Perpetual Nutrient Credits. If your site is utilizing nutrient credits, provide information related to the perpetual nutrient credits that were acquired in accordance with § 62.1-44.15:35 of the Code of Virginia. Attach a separate list if needed.
Nonpoint Nutrient Credit Generating Entity (Bank Name):
Perpetual Nutrient Credits Acquired (pounds/acres/year):
*An affidavit of sale is required for all nutrient credits acquired.
Section VI. Permanent Control Measures. If applicable, list the permanent stormwater management facilities or best management practices (BMPs) that were constructed and installed as part of this activity to comply with the stormwater management water quality and water quantity technical criteria (structural and nonstructural, on site and off-site). Attach a separate list if needed.
Was a permanent control measure constructed and installed to comply with the stormwater management water quality and water quantity technical criteria? □YES □NO
If you have permanent control measures, the following items are required to be submitted with this form to complete your Notice of Termination submittal:     A. Engineer's Certification Statement  B. As-built plans (construction record drawings) – digital
<ul> <li>□ C. Stormwater Management Plans - digital</li> <li>□ D. <u>BMP Maintenance Agreement</u> (notarized original for projects where DEQ is the VSMP Authority)</li> <li>□ E. BMP Maintenance Agreement Court Receipt</li> </ul>
☐ F. Affidavit of Sale for any nutrient credit purchases

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#### Stormwater Management Facility Types (please choose from the following bmp types):

#### Part V, Article 4 (previously Part IIC) BMPs

Bioretention basin

Bioretention filter

Constructed wetlands

Extended detention (2 x WQ Vol)

Extended detention basin-enhanced

Grassed swale

Infiltration (1 x WQ Vol)

Infiltration (2 x WQ Vol)

Retention basin I (3 x WQ Vol)

Retention basin II (4 x WQ Vol)

Retention basin III (4 x WQ Vol with aquatic bench)

Sand filter

Vegetated filter strip

Other:

- Detention Only BMP
- Forest/Open Space
- Manufactured Treatment Device Filtering
- Manufactured Treatment Device Hydrodynamic
- Etc.

Part V, Article 3 (previously Part IIB) BMPs

Bioretention 1

Bioretention 2

Constructed Wetland 1

Constructed Wetland 2

Dry Swale 1

Dry Swale 2

**Extended Detention Pond** 

Extended Detention Pond 2

Filtering Practice 1

Filtering Practice 2

Grass Channel

Infiltration 1

Infiltration 2

Permeable Pavement 1

Permeable Pavement 2

Rooftop Disconnection

Sheet flow to Vegetated Filter or Conserved Open

Space 1

Sheet flow to Vegetated Filter or Conserved Open

Space 2

Urban Bioretention

Vegetated Roof 1

Vegetated Roof 2

Wet Pond 1

Wet Pond 2

Wet Swale 1

Wet Swale 2

Other:

- Detention Only BMP
- Forest
- Manufactured Treatment Device Biofilter
- Manufactured Treatment Device Filtering
- Manufactured Treatment Device Hydrodynamic
- Regenerative Stormwater Conveyance 1
- Regenerative Stormwater Conveyance 2
- Tree BMP over Impervious
- Tree BMP over Pervious, A/B Soils
- Tree BMP over Pervious, C/D Soils
- Etc.

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Stormwater Management Facility #1 BMP Type:	
Date BMP Became Functional:	
Address (if available):	
City and/or County and Zip Code:	
Latitude and Longitude (6-digit, decimal degrees format):	
Receiving Water(s) (outfall discharge):	
Total Acres Treated (report to one-hundredth of an acre):	
Impervious Acres Treated (report to one-hundredth of an acre):	
Stormwater Management Facility #2 BMP Type:	
Date BMP Became Functional:	
Address (if available):	
City and/or County and Zip Code:	
Latitude and Longitude (6-digit, decimal degrees format):	
Receiving Water(s) (outfall discharge):	
Total Acres Treated (report to one-hundredth of an acre):	
Impervious Acres Treated (report to one-hundredth of an acre):	
Stormwater Management Facility #3 BMP Type:	
Date BMP Became Functional:	
Address (if available):	
City and/or County and Zip Code:	
Latitude and Longitude (6-digit, decimal degrees format):	
Receiving Water(s) (outfall discharge):	
Total Acres Treated (report to one-hundredth of an acre):	
Impervious Acres Treated (report to one-hundredth of an acre):	

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**Section VII.** Certification. This Certification must be signed by a person representing the operator identified in Section I. and meeting the requirements of Part III K of 9VAC25-880-70.

Certification: "I certify under penalty of law that I have read and understand this notice of termination and that this document and all attachments were prepared in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations."

Printed Name:	
Signature (signed in ink):	
Date:	
Section VIII. Submittal Instructions. Please submit the Stormwater Management Program (VESMP) authority of DEQ where DEQ serves as the Virginia Stormwater Matthe VESMP Authority, please submit your form directly of local VESMP Authorities is available here: <u>VESMP</u> If DEQ is the VSMP Authority, please send to:	that has jurisdiction for your construction activity or to an agement Program (VSMP) authority. If the locality is y to the locality; do NOT send this form to DEQ. A list Authorities.
Department of Environmental Quality Office of Stormwater Management Suite 1400 PO Box 1105 Richmond VA 23218 constructiongp@deq.virginia.gov	If the locality is the VESMP Authority, please send to:  Local VESMP Authority (insert address below)

Permit terminations may be delayed if there are outstanding Annual Maintenance Fee balances.

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#### CONSTRUCTION GENERAL PERMIT (VAR10) NOTICE OF TERMINATION 2024 INSTRUCTIONS PLEASE DO NOT PRINT OR SUBMIT

A complete and accurate notice of termination is required for terminating coverage under the General VPDES Permit for Discharges of Stormwater from Construction Activities. Termination shall become effective upon notification from the department that the provisions of termination have been met or 90 days after receipt of a complete and accurate notice of termination, whichever occurs first, unless otherwise notified by the VESMP authority or the department. With terminating coverage, the operator shall submit all permit fees including all outstanding permit maintenance fees in accordance with 9VAC25-875-1290 unless not required.

Permit Coverage Number. Include your existing, active permit coverage number. Example: VAR10####.

Section I. Operator/Permittee Information. The construction activity operator (permittee). The permittee with active permit coverage and that has operational control over the construction activities to ensure compliance with the general permit. For companies, use the complete, active, legal entity name as registered with a state corporation commission. Entities that are considered operators commonly consist of the property owner, developer of a project (the party with direct operational control of construction plans and specifications), or general contractor (the party with day-to-day operational control of the activities at the project site that are necessary to ensure compliance with the general permit). If an individual person is named as the operator, that person (or a representative of) must sign the certification in Section VII.

**Section II. Construction Activity Location Information.** Project site information. Complete this section with the same information as listed on the current registration statement. A list of active permits and location information is available on the DEQ website.

**Section III. Reason for Terminating Coverage under the General Permit.** The operator shall submit the notice of termination in accordance with 9VAC25-880-60, unless a registration statement was not required to be submitted in accordance with 9VAC25-880-50 A 1 c or A 2 b for single-family detached residential structures, to the VESMP authority after one or more of the following conditions being met:

- 1. Necessary permanent control measures included in the SWPPP for the construction site are in place and functioning effectively and final stabilization has been achieved on all portions of the construction site for which the operator has operational control. When applicable, long-term responsibility and maintenance requirements for permanent control measures shall be recorded in the local land records prior to the submission of a complete and accurate notice of termination and the construction record drawing prepared;
- 2. Another operator has assumed control over all areas of the construction site that have not been finally stabilized and obtained coverage for the ongoing discharge;
- 3. Coverage under an alternative VPDES permit or other applicable permit has been obtained; or
- 4. For individual lots in residential construction only, final stabilization as defined in 9VAC25-880-1 has been completed, including providing written notification to the homeowner and incorporating a copy of the notification and signed certification statement into the SWPPP, and the residence has been transferred to the homeowner.

The notice of termination shall be submitted no later than 30 days after one of the above conditions is met. Termination of authorization to discharge shall become effective upon notification of the department of the provisions of this section have been met or 90 days after receipt of a complete and accurate notice of termination, in accordance with 9VAC25-880-60 C, whichever occurs first, unless otherwise notified by the VESMP authority or the department.

Section IV. Participation in a Regional Stormwater Management Plan. Where applicable, include information for each regional stormwater management facility to which this site contributes. If your site is contributing to more than one regional facility, please include the information for each facility in a separate list.

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#### CONSTRUCTION GENERAL PERMIT (VAR10) NOTICE OF TERMINATION 2024 INSTRUCTIONS PLEASE DO NOT PRINT OR SUBMIT

The following information shall be included for each regional stormwater management facility installed:

- The type of regional facility to which the site contributes (see the list of facility types on page 3 of the notice of termination).
- The location of the facility, including city or county, and latitude and longitude in decimal degrees.
- The number of total and impervious site acres treated by the regional facility to the nearest onehundredth of an acre.

**Section V. Perpetual Nutrient Credits.** Where application, the following information related to perpetual nutrient credits that were acquired in accordance with § 62.1-44.15:35 of the Code of Virginia:

- The name of the nonpoint nutrient credit generating entity from which perpetual nutrient credits were acquired, and
- The number of perpetual nutrient credits acquired (pounds per acre per year).

Attach the affidavit(s) of sale for the purchase of all nutrient credits acquired for this activity.

Section VI. Permanent Control Measures. Where applicable, a list of the on-site and off-site permanent control measures (both structural and nonstructural) that were installed to comply with the stormwater management water quality and water quantity technical criteria. Clearly indicate if a permeant control measure was constructed and installed by selecting yes or no. For each permanent measure that was installed, the follow information shall be included. Choose the type from the list provided in the notice of termination form Section VI. If you have multiple BMPs, attach a separate list if needed.

The following information shall be included for each permanent control measure installed:

- the type of permanent control measure installed and the date that it became functional as a permanent control measure;
- the location of the permanent control measure, including city or county, and latitude and longitude in decimal degrees (i.e., 37.1234, -77.1234);
- the receiving water(s) to which the permanent control measure discharges; and
- the number of total and impervious acres treated by the permanent control measures to the nearest one-hundredth of an acre.

# The following items are required to be submitted with the Notice of Termination if you have permanent control measures:

- <u>Engineer's Certification Statement</u>: Signed by a professional registered in the Commonwealth of Virginia, certifying that the stormwater management facilities were constructed in accordance with the approved plan;
- Construction record drawing(s) (as-built plan) in a format as specified by the VESMP authority for long-term stormwater management facilities in accordance with 9VAC25-875-535 appropriately sealed and signed by a professional registered in the Commonwealth of Virginia, certifying that the stormwater management facilities have been constructed in accordance with the approved plan;
- Stormwater management plans (digital); and
- <u>BMP Maintenance Agreement</u>. Where applicable, evidence that the signed Stormwater Maintenance Agreement has been recorded in an instrument within the local land records; *Termination is not final until you submit the local court record of receipt to DEQ showing that the signed Stormwater Management Maintenance Agreement was recorded with the land deed.*

**Section VII.** Certification. This Certification must be signed by a person representing the operator identified in Section I and meeting the requirements of Part III K of 9VAC25-880-70.

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#### CONSTRUCTION GENERAL PERMIT (VAR10) NOTICE OF TERMINATION 2024 INSTRUCTIONS PLEASE DO NOT PRINT OR SUBMIT

**Section VIII. Submittal Instructions.** Submit this form to the VESMP authority that has jurisdiction for your construction activity. Depending on the location and type of project, the appropriate authority may be either your locality or DEQ where DEQ serves as the VSMP authority. If your project is under the jurisdiction of a local VESMP authority, please contact the locality for additional submittal instructions. A blank area is provided for the local VESMP authority to include their mailing address.

#### Who is the appropriate stormwater management authority for my project? DEQ or the locality?

**<u>DEO</u>**: DEQ is the VSMP Authority and administers permit coverage for land-disturbing activities that are:

- ➤ within a locality that is not a VESMP Authority;
- > owned by the State or Federal government; or
- > utilizing approved Standards and Specifications.

Email the completed and signed form to: constructiongp@deq.virginia.gov

<u>The Locality</u>: The local government (locality) is the VESMP Authority and administers permit coverage for all other projects not covered by DEQ as listed above. For these projects, please submit permit forms directly to the Local VESMP Authority. A list of Local VESMP Authorities is available on DEQ's website here: <u>Local VESMP Authority List</u>.

For assistance or questions about the termination process, email constructiongp@deq.virginia.gov.

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# **Module 8: Post-Construction Inspections**

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# **Learning Objectives**

At the end of this module, you will be able to:

- For both the owner and the VESMP authority:
  - i) Explain the post-construction inspection and inspection documentation requirements
  - ii) Describe the inspection frequency requirements
- Describe the documentation that is available for VESMP inspection of post-construction BMPs (P-BMPs)
- Identify common P-BMP maintenance issues

#### 8a. Overview

#### POST-CONSTRUCTION INSPECTION FREQUENCY

(9VAC25-875-140)

Virginia Erosion and Stormwater Management Program (VESMP) authorities must ensure that post-construction best management practices (P-BMPs) are inspected by the VESMP authority or its designee *at least once every five years*. The inspections must be documented by records.

The VESMP authority may utilize the inspection reports of the owner of a stormwater management (SWM) facility as part of its established inspection program if the inspection is conducted by a person who is licensed in Virginia as a professional engineer, architect, landscape architect, or land surveyor; or a person who works under the direction and oversight of the licensed professional; or a person who holds an appropriate certification (SWM Inspector) from DEQ.

Remember, if a recorded long-term maintenance agreement is not required for single-family residences (<u>9VAC25-875-130.C</u>) then, the facility is not subject to the VESMP authority post-construction inspection requirements.

#### POST-CONSTRUCTION INSPECTION FREQUENCY FOR STATE AGENCIES

(9VAC25-875-790)

Responsibility for the operation and maintenance of SWM facilities must remain with the state agency but passes to any successor or owner. If portions of the land are to be sold, legally binding arrangements must be made to pass the basic responsibility to successors in title. These arrangements designate for each state project the property owner, governmental agency, or other legally established entity to be permanently responsible for maintenance.

At a minimum, a SWM facility must be inspected by the responsible state agency on an annual basis and after any storm that causes the capacity of the facility's principal spillway to be exceeded.

#### PROJECT DOCUMENTS

The success of a P-BMP is achieved through continuous maintenance by the owner. The VESMP authority is responsible for conducting post-construction inspections to ensure SWM facilities are being maintained as designed. The VESMP authority can use the P-BMP operation and maintenance plans, owner's inspection report, and construction record drawing to gather information about the SWM facilities.

#### **Project documents**

P-BMP operation and maintenance plans

Owner's self-inspection reports

Construction record drawings

#### Owner's inspection reports

The owner's self-inspection requirements and frequency can be found in the long-term maintenance agreement, and their inspection reports are an important source of information for the VESMP inspector in determining the effectiveness of the owner's inspections and maintenance of P-BMPs. For example, contrary to common assumptions, nonstructural P-BMPs, such as vegetated measures, require routine inspection and maintenance. In fact, proper maintenance of non-structural P-BMPs is essential for continued performance. Structural P-BMPs, restored natural and riparian areas, disconnected impervious surfaces, grass channels, and similar practices can fail if inspections and maintenance are not routinely conducted.

#### 8b. Common P-BMP Maintenance Issues

Many of the stormwater P-BMPs share common components (e.g. vegetation, pre-treatment areas, inlets, outfalls) and/or principal mechanisms of operation (e.g., filtration, settling, infiltration). Consequently, there are several common maintenance activities and issues associated with P-BMPs. For example, sediment build-up and debris at P-BMP inflow points may prevent sheet flow from reaching pervious areas or buffers, or vegetation used to restore natural areas may not have adequate survival rates. Additionally, landowner practices and behaviors, such as dumping yard waste and re-routing roof drains, may compromise the functionality of nonstructural P-BMPs. The following section discusses some of the more common maintenance issues associated with stormwater P-BMPs.



Severe outlet erosion

Photo credit: Stantec

#### **Common Maintenance Issues**

Type of Practice	Issues
P-BAS-01 Constructed Wetlands	<ul><li>See below for ponds</li><li>Invasive species</li></ul>
P-BAS-02/P-BAS-03 Stormwater Ponds	<ul> <li>Sediment build-up</li> <li>Woody vegetation on dam</li> <li>Slumping, animal burrows, and seepage associated with dam</li> <li>Clogging of orifices</li> <li>Unauthorized access to deep water areas, risers, and pipes</li> <li>Overgrown vegetation and trash</li> <li>Standing water and mosquito habitat (mostly associated with dry extended detention ponds)</li> </ul>
P-CNV-01 Grass Channels	<ul> <li>Sediment build-up</li> <li>Erosion</li> <li>Sparse vegetation</li> <li>Standing water</li> </ul>
P-CNV-02 Dry Swales	<ul> <li>Sediment build-up</li> <li>Sparse vegetation</li> <li>Erosion</li> <li>Debris</li> <li>Standing water</li> </ul>
P-FIL-01 Rooftop Disconnection	<ul> <li>Runoff bypasses practice</li> <li>Sediment and debris build-up at points where runoff enters pervious area</li> <li>Adjacent uses: pipe runoff through or around pervious areas</li> <li>Sparse vegetation</li> </ul>
P-FIL-04 Infiltration Practices	<ul><li>Clogging</li><li>Standing water</li></ul>
P-FIL-05 Bioretention	<ul> <li>Sparse vegetative cover</li> <li>Clogging at inflow points (e.g., curb cuts)</li> <li>Clogged underdrains</li> <li>Impact from road salt and snowplows in cold climates</li> </ul>
P-FIL-06 Filtering Practices	<ul> <li>Clogged filter surface</li> <li>Clogged filter media</li> <li>Sediment build-up in sedimentation chamber (e.g., sand filters)</li> </ul>
P-FIL-07 Sheet Flow to Buffer or Open Space	<ul> <li>Concentrated runoff (erosion rills and gullies)</li> <li>Adjacent uses: pipe runoff through open space or buffer</li> </ul>
Natural Area Conservation and Restoration	<ul> <li>Encroachments (yard waste, cutting of trees, clearing, sheds, decks, etc.)</li> <li>Invasive species</li> </ul>

### DEVIATION FROM CONSTRUCTION RECORD DRAWING

Over time, maintenance or lack of maintenance may cause a P-BMP to deviate from the construction record drawing. This can result in:

- Encroachments in the P-BMP
- Incorrect vegetation
- Incorrect sizing
- Grading problems



Photo credit: Center for Watershed Protection

### **DEBRIS AND LITTER**

Debris and litter can lead to the following:

- Increased clogging risk for outlet structures, trash racks, and other facility components
- Increased risk of damage to vegetated areas
- Increased likelihood of stagnant pool formation
- Greater mosquito breeding habitats
- Optimal conditions for excessive surface algae
- Decreased facility aesthetics



Photo credit: Stormwater Maintenance LLC

### **EROSION**

Erosion is quite common in or around the inlets and outlets of P-BMP facilities. Erosion can lead to the following:

- Clogging of the facility with sediment and threatening its integrity
- Roots of woody vegetation (e.g., young trees and shrubs) can cause embankments to be unstable
- Animal burrows diminish the structural integrity of an embankment
- Sinkholes on embankments or basin and channel bottoms



Erosion at inlet
Photo credit:
Center for Watershed Protection

### **SEDIMENT BUILDUP**

Sediment buildup can lead to the following:

- Reduced effectiveness of pretreatment practice
- Blockage at inlet
- Reduced infiltration rates



Sediment buildup in pretreatment area
Photo credit:
Center for Watershed Protection

### **VEGETATION**

Sparse, dying vegetation, bare spots, and rills indicate that a P-BMP is not functioning properly, which can lead to the following:

- Erosion
- Excessive sediment accumulation
- Reduced pollutant removal

Considerations should be made for replacing non-native plantings and/or for controlling invasive species with appropriate native plantings.

Conversely, excessive vegetation can also lead to reduced functionality of P-BMPs, so post-construction inspections should ensure that any installed vegetation should follow the operation and maintenance plan or as-builts for the facility.



Sparse vegetation
Photo credit:
Center for Watershed Protection

### 8c. Post-Construction Inspections of 17 Non-Proprietary P-BMPs

# P-BAS-01 CONSTRUCTED WETLANDS, P-CNV-03 WET SWALES, AND P-CNV-04 REGENERATIVE STORMWATER CONVEYANCE

# Look for the following potential problems: ☐ Practice is not accessible ☐ Practice does not match the construction record drawing ☐ Sediment accumulation in forebays and micropools ☐ Material damage, erosion, or undercutting at inlets ☐ Sloughing, animal burrows, boggy areas, woody growth, or gully erosion on banks ☐ Erosion, undercutting, rip-rap displacement, woody growth at outfall ☐ Spalling (breaking), joint failure, leakage, corrosion of principal spillway or riser ☐ Clogging, leakage, debris accumulation at trash racks, reverse-sloped pipes, flashboard risers



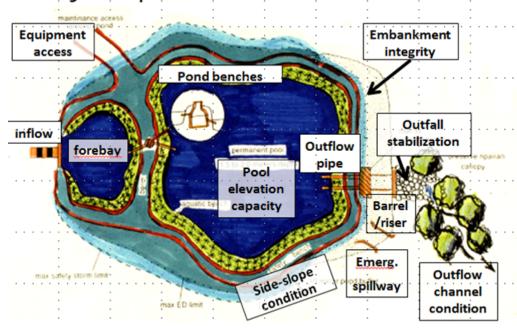
Woody vegetation needs to be controlled
Photo credit:
Stormwater Maintenance LLC



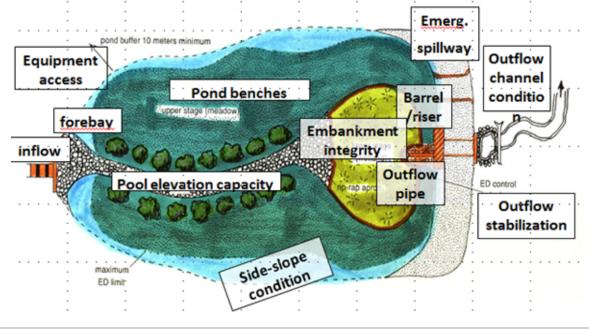
Structural elements are vulnerable to erosion, clogging, sediment accumulation, etc.
Photo credit:
Stormwater Maintenance LLC

# P-BAS-02 WET PONDS AND P-BAS-03 EXTENDED DETENTION

# Key Inspection Zones: Wet Pond



# Key Inspection Zones: ED Pond





### 1. Inflow Pipe(s) - Look for:

- Erosion around pipe
- Metal pipe corrosion
- Concrete pipe structural damage/disconnection at joints
- Blockage from sediment, debris, trash, etc.



### 2. Equipment access – Look for:

- Easement width
- Vegetation growth in easement
- Slope
- Fences
- Locks



### 3. Forebay – Look for:

- Presence/absence
- Need for cleanout
- Trash/debris
- Conveyance to main pond



### 4. Aquatic and safety benches – Look for:

- Presence or absence of the bench
- Vegetative condition
- Trash/debris/floatables
- Erosion



### 5. Pool elevation – Look for:

- High pool indicates:
  - Incorrect design, or
  - Clogged outfall
- Low pool indicates:
  - Potential seepage at outfall or through embankment
  - Sediment accumulation
- Variable pool indicates:
  - Bad ED design
- Damage to weirs, riffles, pools, or other structural components.



### 6. Side-slope condition – Look for:

- Ability to mow
- Vegetative cover
- Rill erosion
- Slumping



### 7. Embankment integrity – Look for:

- Trees on the embankment
- Sloughing
- Burrows
- Seepage through embankment
- Moist areas on toe
- Voids/moisture around barrel



### 8. Pool Outflow pipe/drain – Look for:

"Plumbing" can be accessed and is in operable condition



### 9. Barrel and riser – Look for

- Barrel corrosion or joint deflection
- Seepage around barrel



### 10. Emergency spillway – Look for:

- Erosion or sloughing
- Tree growth
- Blockages
- Capacity



### 11. Outfall stabilization – Look for:

- Erosion above and below pipe
- Rip-rap displacement or missing
- Blockage



### 12. Outfall channel condition – Look for:

- Pipe under-cutting
- Pond slime
- Downstream channel stability

### **Other Common Problems:**

- Graffiti/ Vandalism
- Lock or fence problems
- Illegal dumping
- Geese
- Mosquitoes
- Invasive species

Photo credit: Center for Watershed Protection

### P-BAS-04 RAINWATER HARVESTING

# Look for the following potential problems: Practice is not accessible Practice does not match the construction record drawing Excessive overhanging vegetation/tress Gutters are clogged and water is backed up Mosquito habitat Lids are damaged Erosion at overflow discharge point, along filter path/secondary practices Overflow pipe in poor condition



Rainwater harvesting system
Photo credit: Chesapeake Bay Program

### **P-CNV-01 GRASS CHANNELS**

Look for the following potential problems:
☐ Practice is not accessible
☐ Practice does not match the construction record drawing
☐ Encroachments (e.g., new buildings, sidewalks, driveways, etc.)
☐ Less than 90% vegetative cover
☐ Sand or sediment deposits behind check dams
☐ Evidence of undercutting or erosion at check dams
☐ Trash or blockages at weep holes
☐ Erosion, braiding, excessive ponding, or dead grass in channel bottom
☐ Clogging at inflow points
☐ Rill or gully erosion on side slopes and/or grass filter strip
☐ Bare soil or sediment sources in the contributing drainage area



Erosion, dead grass in channel bottom
Photo credit:
Stormwater Maintenance LLC



Erosion of grass filter strip Photo credit: Stormwater Maintenance LLC

### P-FIL-05 BIORETENTION AND P-CNV-02 DRY SWALE

## Look for the following potential problems: ☐ Practice is not accessible Practice does not match the construction record drawing Less than 75-90% surface cover (mulch plus vegetation) ☐ Sediment buildup at curb cuts, gravel diaphragms, or pavement edges ☐ Winter conditions or road salt application killed vegetation ☐ Sand, sediment, trash in pre-treatment cell or filter beds ☐ Sources of sediment in contributing drainage area Rill or gully erosion on side slopes and/or grass filter strip ☐ Clogging at inflow ☐ Mulch flotation in bed ☐ Excessive ponding, dead plants, or concentrated flows ☐ Clogged or slow-draining soil media, incorrect soil media ☐ Standing water on surface 48-hours after a storm ☐ Clogged underdrains (check observation well) ☐ Erosion at spillway or outlet pipe



☐ Mosquito habitat

Sediment and organic debris buildup at inlet
Photo credit:
Stormwater Maintenance LLC



Uneven ponding
Photo credit:
Stormwater Maintenance LLC



Slope erosion
Photo credit:
Stormwater Maintenance LLC



Clogged underdrain Photo credit: Stormwater Maintenance LLC

Source: Virginia Stormwater Management Handbook

### P-FIL-01 ROOFTOP (IMPERVIOUS SURFACE) DISCONNECTION

Loo	k for the following potential problems:
	Practice is not accessible
	Practice does not match the construction record drawing
	Encroachments (e.g., new buildings, sidewalks, driveways, etc.) that impact the disconnection pathway or receiving pervious area
	Sediment/debris accumulation
	Mosquitoes
	Runoff is not entering the receiving pervious area
	Downspouts are not disconnected
	Downstream treatment is not being maintained
	Ponding at point of disconnection
	Erosion at downstream practice (e.g., bioretention/rain garden, filter path)



Downspouts and impervious areas do not flow to disconnection pathway
Photo credit:
Center for Watershed Protection



Ponding at point of disconnection
Photo credit:
Center for Watershed Protection

### P-FIL-02 VEGETATED ROOF

Loc	k for the following potential problems:
	Practice is not accessible
	Practice does not match the construction record drawing
	Plant cover is less than 75-90%
	Wilting plants
	Leaves and woody debris
	Invasive and nuisance plants
	Drought conditions
	Pest infestation
	Trash and debris
	Waterproof membrane is leaking or cracked
	Root barrier is perforated
	Ponding water
	Mosquito habitat



**Good vegetative cover**Photo credit: Chesapeake Bay Program

### P-FIL-03 PERMEABLE PAVEMENT

### Look for the following potential problems:

- ☐ Practice is not accessible
- ☐ Practice does not match the construction record drawing
- ☐ Standing water in observation well 3 days after storm event in excess of ½ inch
- Evidence of sediment deposition, organic debris, staining, or ponding
- ☐ Signs of surface deterioration (e.g., slumping, cracking, spalling, broken pavers)
- ☐ Sediment buildup in pretreatment cells, inlets
- ☐ Observation well not capped
- ☐ Sources of sediment in contributing drainage area



**Observation well**Photo credit: Stormwater Maintenance LLC



Organic debris on porous concrete Photo credit: DEQ



**Surface deterioration**Photo credit: Stormwater Maintenance LLC



Erosion in contributing drainage area
Photo credit: DEQ

### P-FIL-04 INFILTRATION PRACTICES

### Look for the following potential problems:

- ☐ Practice is not accessible
- ☐ Practice does not match the construction record drawing
- ☐ Standing water in observation well 3 days after storm event in excess of ½ inch
- ☐ Sediment buildup in pre-treatment cells, inlets
- ☐ Structural damage
- ☐ Observation well not capped
- ☐ Vegetative cover less than 90%
- ☐ Sources of sediment in contributing drainage area
- ☐ Sparse vegetative cover, erosion, or slumping



Too much mulch and grass clippings, and overgrowth of grass which over time would lead to thick mat of weeds over gravel

Photo credit:
Center for Watershed Protection



Weeds and other vegetation indicate accumulation of fines and sediment

Photo credit:

Center for Watershed Protection

### P-FIL-06 FILTERING PRACTICES

### Look for the following potential problems:

- ☐ Practice is not (physically) accessible\*
- ☐ Practice does not match the construction record drawing
- ☐ Debris at inlet and/or flow splitters
- ☐ Standing water or ponding more than 48-hours after a storm
- ☐ Sources of sediment in contributing drainage area
- ☐ Turf on filter bed and buffer is more than 12 inches high
- ☐ Damage to observation well and/or cleanout pipes
- Evidence of spalling, joint failure, leakage, corrosion at concrete structures and outlets
- \*Underground filtering practices can only be entered for inspections by individuals with confined space entry training



Sediment on filter bed
Photo credit:
Center for Watershed Protection



**Underground filter cartridges**Photo credit: DEQ

# P-FIL-07 SHEET FLOW TO A VEGETATED FILTER STRIP OR CONSERVED OPEN SPACE

Look	for the following potential problems:
	Practice is not accessible
	Practice does not match the construction record drawing
	Flows through filter strip short-circuiting overflow control section
	Debris and/or sediment build-up at the top of the filter strip
	Compromised gravel diaphragm (e.g., foot or vehicle traffic)
	Scour and erosion within the filter strip
	Sediment in level spreader (P-SUP-08), if utilized, deposited in forebays and flow splitters
	Vegetated cover of less than 90%, or as required by the operation and maintenance plan*
* Ide	eally, inspections are conducted in the non-growing season when it is easier to see the flow



Level spreader showing signs of standing water, short-circuiting, and sediment/debris

Photo credit: Center for Watershed Protection

### P-FIL-08 SOIL COMPOST AMENDMENT

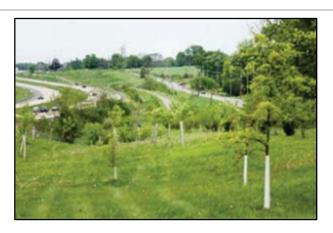
Look	for the following potential problems:
□ P	Practice is not accessible
□ P	Practice does not match the construction record drawing
□ E	incroachments (e.g., new buildings, sidewalks, driveways, etc.)
□т	rash and debris
□в	Bare or eroding areas in contributing drainage area or around soil restoration area
□ E	vidence of excessive use of fertilizer or lawn chemicals
□ R	Runoff is ponding, creating rills, and/or causing erosion
ПЕ	rosion and/or hare or exposed soil



Compost amended area in first spring following fall planting; bare spots around perimeter Photo credit: DEQ

### P-FIL-09 TREE PLANTING

Loc	k for the following potential problems:
	Practice is not accessible
	Practice does not match the construction record drawing
	Regularly inspect tree health and survival
	Invasive and nuisance plants
	Drought conditions
	Pest infestation
	Trash, debris, fallen branches
	Encroachments (e.g., new buildings, sidewalks, driveways, etc.)
	Evidence of excessive use of fertilizer or lawn chemicals
	Erosion and/or bare or exposed soil



"Tree canopy over impervious" to distinguish these trees from higher-functioning areas of forest

Photos: Chesapeake Bay Program

### **Summary**

As a VESMP inspector, it's important to be able to:

- Conduct effective P-BMP inspections whereby
  - i) Common maintenance issues are known and can be checked for at the appropriate frequency
  - ii) Available documentation, such as construction record drawings, long-term maintenance agreements, and owner inspection records, can be accessed and reviewed to verify that P-BMPs are being adequately maintained and still functioning as originally intended

### **References**

Center for Watershed Protection (CWP). July, 2008. *Managing Stormwater in Your Community: A Guide for Building an Effective Post-Construction Program*. Ellicott City, MD.

North Carolina Department of Environment and Natural Resources (NCDENR). September, 2007. *Stormwater BMP Manual*. Raleigh, NC.

Virginia Stormwater Management Handbook: <a href="https://online.encodeplus.com/regs/deq-va/doc-viewer.aspx#secid-5">https://online.encodeplus.com/regs/deq-va/doc-viewer.aspx#secid-5</a>

## Appendix: Knowledge Check Solutions

Module 2: Knowledge Check Answers	2
Module 3: Knowledge Check Answers	3
Module 4: Knowledge Check Answers	4
Module 5: Knowledge Check Answers	6
Module 7: Knowledge Check Answers	7

### **Module 2: Knowledge Check Answers**

- 1. Which two plans in the SWPPP must be approved as part of an overall ESM plan?

  Erosion and sediment control plans and stormwater management plans must be approved.
- Does the SWM plan address runoff during construction or after?
   The stormwater management plan addresses post-construction stormwater runoff.
- 3. What impact does impervious cover have on water quality?

  The volume and velocity of stormwater runoff increases as natural vegetation is replaced with roads, buildings, parking areas, and other impervious surfaces. The increase in stormwater runoff leads to an increase in pollutants, such as sediment and phosphorus that are carried to waterways, which has a negative effect on water quality.
- 4. What is the target pollutant in the water quality criteria? *Phosphorus*
- 5. What is the lower limit of the range of imperviousness that can result in stream degradation? 10%
- 6. The VESM Regulation ensures water quantity is considered in stormwater management planning to protect against which two destructive forces?
  Channel erosion and flooding
- 7. Discuss how the rate of runoff changes after development.
  - The rate of runoff increases after development because of the replacement of vegetation with impervious surfaces. A larger volume of water will travel more quickly through a stream channel, potentially causing erosion and flooding.

### **Module 3: Knowledge Check Answers**

- A locality VESMP must be at least as stringent as what state permit?
   CGP
- 2. List three (3) violations for which a penalty may be imposed.
  - Any of the following: No state permit; no SWPPP; incomplete SWPPP; SWPPP not available for review; no approved ESC, SWM, or ESM plan; failure to install stormwater management BMPs or C-BMPs; stormwater BMPs or C-BMPs improperly installed or maintained; operational deficiencies; failure to conduct required inspections; incomplete, improper, or missed inspections; discharges not in compliance with the CGP.
- 3. What is the maximum penalty per violation a VESMP locality can impose under the erosion and stormwater management act for a violation on projects one acre or greater?
  \$32,500
- 4. How long must a locality VESMP authority hold on to a registration statement?

  All registration statements must be documented and retained for at least three years from the date of project completion or state permit termination
- 5. How often must DEQ conduct program reviews?

  DEQ is required to conduct a program review once every five years

### **Module 4: Knowledge Check Answers**

- How frequently must a VESMP authority inspect a construction site?
   The VESMP authority must <u>periodically</u> inspect a land-disturbing activity for all of the following:
  - Compliance with the approved ESC plan
  - Compliance with the approved SWM plan
  - Development, updating, and implementation of a pollution prevention plan
  - Development and implementation of any additional control measures necessary to address a TMDL
- 2. What are the two locations where the notice of coverage letter must be posted?
  - Near the main entrance of the construction activity.
  - In the general information section of the SWPPP.
- 3. What two options does the operator have for making the SWPPP available to the public?
  - Electronic format or
  - Hard copy public access may be arranged upon request at a time and at a publicly accessible location convenient to the operator.
- 4. What must be included in the SWPPP as general information?
  - Signed copy of the registration statement (if required)
  - Copy of the notice of coverage letter (if required)
  - Copy of the CGP
  - Narrative description of the nature of the construction activity, including the function of the project (e.g., low density residential, shopping mall, highway, etc.)
  - Legible map of the construction site

- 5. What is the qualified personnel's inspection frequency for areas that have been temporarily stabilized and stormwater discharges are unlikely?
  - Once per month.
- 6. If the qualified personnel discover an erosion and sediment control practice that was not properly installed, how long do they have to fix it?
  - As soon as practicable but no later than five business days after discovery or a longer period as approved by the VESMP authority.
- 7. The operator must note all modifications or updates in the SWPPP, including a record of which three dates?

A record of dates when:

- Major grading activities occur
- Construction activities temporarily or permanently cease on a portion of the site
- Stabilization measures are initiated
- 8. How quickly must an operator report an unauthorized discharge into or upon surface waters or that may reasonably be expected to enter surface waters?
  - The operator must notify DEQ and the VESMP authority immediately upon discovery of the discharge, but in no case later than within 24 hours of discovery. A written report of the unauthorized discharge must be submitted to DEQ and the VESMP authority within five calendar days of discovery.

### **Module 5: Knowledge Check Answers**

- When considering erosion and sediment control, what is the first line of defense?
   Erosion Control
- 2. What are the key components of C-BMPs included on a site's ESC plan when inspecting them for compliance?

Proper installation, maintenance needs, minimizing sediment discharges, and incorrect use

- 3. What are the three requirements for concrete wash water?
  - Concrete wash water must be directed into a leak-proof container or leak-proof settling basin
  - Container or basin cannot not overflow
  - Hardened and liquid concrete waste must be removed and properly disposed
- 4. Does the SWPPP have to contain control measures for support activity areas?

  Yes, if the support activity is covered under the CGP, the SWPPP must include control measures for the support activity areas.
- 5. How long must a VESMP authority keep inspection reports?

  Reports must be retained by the VESMP authority for three years after permit termination.

### **Module 7: Knowledge Check Answers**

1. When is permanent vegetation considered established?

Permanent vegetation shall not be considered established until a ground cover is achieved that is uniform (e.g., evenly distributed), provides at least 75% vegetative cover with no significant bare areas, is mature enough to survive, and will inhibit erosion

2. What legal agreement provides a VESMP inspector access to a property for conducting post-construction regulatory inspections?

Long-term maintenance agreement

3. Who must seal and sign a construction record drawing, and when must it be submitted to the VESMP authority?

Construction record drawings must be sealed and signed by a professional registered in Virginia. They must be submitted before permit termination.

4. When must a locality VESMP authority return or terminate any bonds or securities provided by the operator?

Within <u>60 days</u> of completing the requirements of the VESMP authority's conditions, the locality must return or terminate any bonds or securities provided by the operator.

## **Exercises**

SWPPP Activity	. 2
Pollution Prevention Exercise   Module 5	. 4
P-BMP Exercise   Module 6	. 5
Post-Construction BMP Exercise   Module 8	Q

### **SWPPP Activity**

### Materials provided during class:

Static	Living
Registration Statement	Pollution Prevention (P2) Plan
Notice of Coverage Letter	Turbidity Monitoring
Construction General Permit (included in Module 5)	SWPPP Inspection Records by Qualified Personnel
Project narrative	Amendments, Modifications, and Updates (AMUs)
Legible Site Map	
ESC/SWM plans unless modifications required during construction	
Impaired/Exceptional/TMDL/PCB information	
Identification of Qualified Personnel	
Duly Authorized Representatives	
SWPPP signature	

#### Instructions:

We will conduct a facilitated walkthrough of the SWPPP materials provided in class. You will use the checklist on the next page to briefly confirm that each of the required sections of the SWPPP are present and ensure each are filled out. A full SWPPP inspection should take enough time to carefully review each of these sections in depth for all of the required information set forth by the Construction General Permit (CGP).

The SWPPP is divided into "static" and "living" sections for purposes of this exercise (see table above). Other than the copy of the Construction General Permit, all sections are subject to change during the life of the project. However, some sections change much more frequently than others.

- 1. We will review the "static" sections of the SWPPP together as a class or in groups (Instructor will provide directions).
- 2. Inspectors (you guys!) will inspect the three sections that regularly change (the "living" sections of the SWPPP). Unlike the sections we refer to here as "static", the "living" sections of the SWPPP regularly change on a weekly, even daily, basis.
- 3. While reviewing the four "living" sections of the SWPPP, compare the documentation by the Qualified Personnel to the site map plan sheets and assess whether the documentation is providing you (the Inspector) and any interested parties (other governmental agencies, site personnel, or the public) with adequate information that reflects conditions on-site.
  - a. Does the provided information match what is being shown on the plan sheets?
  - b. Is the provided information complete and accurate?
  - c. Use the materials provided in class to answer questions posed in class.
  - d. Take notes in the Comments section in the checklist that follows.

SWPPP Checklist			
SWPPP Section ( <b>bolded</b> are "living" sections):	Check if complete:	Comments/Notes:	
1. General Information			
1a. Registration Statement			
1b. Copy of NOC Letter			
1c. Copy of CGP			
1d. Project Narrative			
1e. Legible Map of Site			
2. Approved ESC Plan			
3. Approved SWM Plan			
4. Pollution Prevention Plan			
5. TMDL Information			
6. PCB Information			
7. Turbidity Monitoring for Dewatering Operations			
8. Qualified Personnel			
9. Duly Authorized Representatives			
10. SWPPP Signature			
11. Inspection Records			
12. Amendments, Modifications, & Updates			

## **Pollution Prevention Exercise | Module 5**

Answer the following three questions for each of the images displayed on the screen.					
a)					
b) c)	Is the goal of the practice or measure being met (look at pages 5-7)? If not, how long would you give an operator to fix the problem?				
1a.	1b. Y	es No	)	1c.	
2a.	2b. Y	es No	)	2c.	
3a.	3b. Y	es No	)	3c.	
	al. v				
4a.	4b. Y	es No	)	4c.	
5a.	5b. Y	es No	)	5c.	

P-BAS-01 Constructed wetlands			
1. What is the length/width ratio or flow path for a level 2 constructed wetland?			
P-BAS-02 Wet pond			
2. What are the steps for converting a sediment basin to a wet pond?			
P-BAS-03 Extended detention basin			
3. Label the parts of the extended detention basin.			
P-BAS-04 Rainwater harvesting			
4. What is the purpose of pre-filtration for rainwater harvesting?			
P-CNV-01 Grass channel			
5. Which materials can be used for check dams?			
P-CNV-02 Dry swale			
6. What is used to separate the stone jacket around the underdrain from the soil media?			
P-CNV-03 Wet swale			
7. A level 1 swale slope must be less than what percent?			

P-CNV-04 Regenerative Stormwater Conveyance			
8. What is the maximum allowable drainage area for an RSC?			
P-FIL-01 Rooftop disconnection			
9. Simple rooftop disconnection is generally not advisable for residential lots that are less than how many square feet?			
10. What type of alternative disconnection is shown here?			
P-FIL-02 Vegetated roof			
11. How long does it generally take to fully establish a vegetated roof?			
12. What are the 8 elements of a vegetated roof system?			
P-FIL-03 Permeable pavement			
13. This is level 1 porous concrete. What must be installed under the surface of this practice?			
14. Which ESC practice can be used to keep sediment off the area where permeable pavement will be installed?			
P-FIL-04 Infiltration			
15. What type of pretreatment can be used for small-scale infiltration?			

P-FIL-05 Bioretention
16. What is the minimum filter media depth for a Level 2 Bioretention?
17. The soil media should be installed in what incremental thickness until the desired depth is achieved?
18. Which of the following shows the proper materials for separating the underdrain layer from the soil media to be installed above the underdrain stone?
19. You show up for an inspection of this bioretention installation. What steps must be taken prior installation of the filter (soil) media?
20. What is right AND wrong about this installation of the filter media?
P-FIL-06 Filtering practices
21. If the site of a filtering practice is being used during construction as a sediment basin, what must the bottom elevation of the filtering practice be in relation to the bottom of the sediment trap?
P-FIL-07 Sheet flow to a vegetated filter strip or conserved open space
22. What is the maximum flow length for sheet flow from turf to conserved open space?
23. What width and depth should the gravel diaphragm trench be? What must be placed between the gravel and the underlying soil trench?
24. During construction, what should be used to protect the perimeter of the Conserved Open Space area? Is this example adequate?
P-FIL-08 Soil compost amendments
25. What is the purpose of the initial soil test during the compost soil amendment process?

26. Erosion and sediment control measures should be used when the soil compost amended area is what size?
P-FIL-09 Tree Planting
27. What is the eligible credit area available for each new tree planted as a stormwater management P-BMP?
P-SUP-01 Earthen embankment
28. Trees must be planted how far beyond the embankment?
P-SUP-02 Principal spillway
29. What part of the barrel is being installed?
P-SUP-03 Vegetated emergency spillway
30. Can vegetated emergency spillways be built into fill?
P-SUP-06 Pretreatment
31. What are the pretreatment options for grass channels?
P-SUP-07 Quantity-only Approach to BMPs
32. What is the recommended offset distance for a detention basin placed near a private water well?
P-SUP-08 Permanent Level Spreader
33. What is the minimum required length of an engineered level spreader (ELS)? The maximum?
34. What materials can be used to construct an engineered level spreader? Would you say that this level spreader appears to be working?

# Post-Construction BMP Exercise | Module 8

P-BAS-02 Wet pond				
1.	What maintenance issues do you see?			
P-E	BAS-03 Extended detention basin			
2.	What maintenance issues do you see?			
P-E	BAS-04 Rainwater harvesting			
3.	What maintenance issues do you see?			
P-(	CNV-01 Grass channel			
4.	What maintenance issues do you see?			
P-0	CNV-02 Dry swale			
5.	What maintenance issues do you see?			
P-(	P-CNV-03 Wet swale			
6.	What maintenance issues do you see?			

P-CNV-04 Regenerative Stormwater Conveyance
7. What maintenance issue do you see?
P-FIL-01 Rooftop disconnection
8. What maintenance issues do you see?
P-FIL-02 Vegetated roof
9. What maintenance issues do you see?
P-FIL-03 Permeable pavement
10. Water should draw down in the observation well how many days after a storm event of ½ inch or more?
P-FIL-04 Infiltration
11. What maintenance issues do you see?
P-FIL-05 Bioretention
12. You are doing a post-construction inspection. Which of the following is NOT an acceptable condition for vegetative cover?
P-FIL-06 Filtering practices
13. What maintenance issues do you see?

P-FIL-07 Sheet flow to a vegetated filter strip or conserved open space
14. Would this be a good time to conduct a post-construction inspection for this Conserved Open Space area?
15. What should be the vegetative cover of this filter strip?
P-FIL-08 Soil Compost Amendments
16. What maintenance issues do you see?
P-FIL-09 Tree Planting
17. What maintenance issues do you see?