

## **Erosion and Sediment Control**

### **Frequently Asked Questions (FAQ)**

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**Version 1.5**

#### **Background**

The regulatory requirements for an Erosion and Sediment Control (E&S) Plan are identified in 25 Pa. Code Chapter 102. To assist the regulated community with recommended best management practices (BMPs) for E&S, the Department of Environmental Protection (DEP) developed the [Erosion and Sediment Pollution Control Program Manual](#) (E&S Manual) (also see [corrections list](#) for the E&S Manual). The purpose of this FAQ document is to provide additional/updated information since the last revision to the E&S Manual related to the regulatory requirements for E&S, the development of an E&S Plan, and the implementation of E&S BMPs. This FAQ document will be updated with additional questions and answers over time.

Nothing in this document affects regulatory requirements. The interpretations herein are not an adjudication or a regulation. There is no intent on the part of DEP to give the interpretations in this document that weight or deference. This document provides a framework within which DEP and delegated county conservation districts (CCDs) will exercise administrative discretion in the future. DEP reserves the discretion to deviate from the interpretations in this document if circumstances warrant.

#### **General Information**

##### **FAQ #1: What is soil erosion?**

As defined at 25 Pa. Code § 102.1, erosion is a natural process by which the surface of the land is worn away by water, wind, or chemical action, and accelerated erosion is the removal of the surface of the land through the combined action of human activities and natural processes, at a rate greater than would occur because of the natural process alone. Sedimentation, which is defined as the action or process of forming or depositing sediment in waters of this Commonwealth, may occur from either erosion or accelerated erosion. DEP does not regulate erosion but does regulate accelerated erosion.

## **FAQ #2: Is sediment really a pollutant?**

As noted in FAQ #1, a certain amount of erosion and sedimentation occurs naturally, and surface waters are generally able to assimilate naturally occurring sedimentation without adverse effects. Adverse effects from sedimentation occur more frequently due to accelerated erosion from human induced earth disturbance activities such as surface mining, agricultural plowing and tilling, construction, and timber harvesting operations.

## **FAQ #3: Is sediment pollution harmful?**

Yes, sediment pollution can be harmful to various human and ecological receptors:

- Fish have gills, which extract oxygen from the water. These gills can become clogged when the water transports excessive amounts of sediment.
- Sediment can cover fish eggs and the gravel nests they rest in.
- Sediment can destroy the food supply for many species of fish by covering aquatic insect habitat on the stream bottom.
- Sediment clouds the water and deprives aquatic plants of light needed for photosynthesis.
- Sediment can behave like a sponge and may carry with it other pollutants such as heavy metals, pesticides, and excess nutrients that are spread by moving water and cause problems not only at the source, but also at distant locations downstream.
- Pollutants that are absorbed by sediments can make their way into the food chain, accumulating in wildlife and eventually humans through consumption.
- Sediment loads in our waterways often result in sediment bars, further erosion and unstable stream geometry.
- Sediment increases public drinking water treatment costs or may render unfiltered drinking water supplies harmful for consumption.
- Excess sediment deposits in streams and rivers may necessitate the dredging of a reservoir or other body of water which can cause temporary cessation of services for water supply or recreation, and incur costs on users.

## **FAQ #4: How is erosion and sediment control regulated?**

The Environmental Quality Board (EQB) approved statewide regulations for Erosion and Sediment Control, 25 Pa. Code Chapter 102 in September 1972 and amended the regulations on November 19, 2010. These regulations are authorized under Pennsylvania's Clean Streams Law, 35 P.S. §§ 691.1 *et seq.*, which prohibits the discharge of pollutants to waters of the Commonwealth without a permit. Under the Chapter 102 regulations, anyone conducting earth disturbance activities must use best management practices BMPs to minimize the potential for accelerated erosion and sedimentation and obtain a permit when specific criteria are met.

DEP is responsible for the administration and enforcement of Chapter 102 regulations and the Clean Streams Law. CCDs with trained staff are delegated the responsibility to review E&S Plans, process permit applications, conduct training, perform site inspections, and in certain

circumstances, conduct enforcement actions. Every county in Pennsylvania except Philadelphia County has a CCD office (although the Philadelphia Water Department performs many of these functions and collaborates closely with DEP).

### **FAQ #5: What is required under Chapter 102?**

E&S BMPs must be implemented and maintained for any earth disturbance activity. In addition, a written E&S Plan meeting the requirements of Chapter 102 must be developed and implemented, and must be available on-site anytime 1) the area of an earth disturbance will be at least 5,000 square feet, 2) an E&S Plan is required under DEP regulations, or 3) when DEP determines that an earth disturbance activity has the potential to discharge to a water classified as a High Quality (HQ) or Exceptional Value (EV) water under Chapter 93.

The E&S Plan must show how land and water resources are to be protected against accelerated erosion and sedimentation through the use of BMPs. Examples of BMPs include, but are not limited to: minimizing earth disturbance, silt fence, mulch, channels, sediment traps, sediment basins, and the establishment of permanent stabilization. The E&S Plan must show the full extent of the site, location of BMPs, the timing and sequence of BMP installation, and other information required by the regulations. CCDs can provide guidance for E&S Plan development.

With some exceptions, if your project will involve at least one acre of earth disturbance you must submit the E&S Plan along with other necessary components of a Chapter 102 permit application to DEP/CCD (see below). If your project will involve less than one acre of disturbance, you may still be required to submit your plan to the CCD due to municipal ordinances. You should contact your local CCD if you are unsure if your plan needs to be submitted and reviewed. The CCD may charge a fee to review the E&S Plan. Guidance for preparing an E&S Plans is available in the E&S Manual.

Permitting requirements depend on the type of activity and are summarized below. Note that this document is intended to be informational only (i.e., it is not comprehensive and should not be relied upon exclusively when determining if a permit is required).

- Construction projects (other than agricultural plowing and tilling, animal heavy use areas, timber harvesting, road maintenance activities, and oil and gas activities) that will disturb at least **one acre** of land must obtain a National Pollutant Discharge Elimination System (NPDES) Permit for Stormwater Discharges Associated with Construction Activities before commencing any earth disturbance. For more information regarding Chapter 102 NPDES permits, please refer DEP's [FAQ for PAG-02 General Permit and Individual NPDES Permit](#).
- Timber harvesting activities that disturb **25 acres** or more of land for haul roads, skid trails, and landing areas or road maintenance activities disturbing **25 acres** or more of land, must obtain an Erosion and Sediment Control (E&S) Permit.

- Oil and gas activities that involve **five acres** or more of earth disturbance over the life of the project shall obtain an E&S Permit (an Erosion and Sediment Control General Permit (ESCGP) is often used for permit coverage of oil and gas activities).
- Agricultural plowing or tilling activities and animal heavy use areas (AHUAs), as defined in Chapter 102, do not require permit coverage, but they still require the development of an agricultural E&S Plan (Ag E&S Plan) or conservation plan meeting the requirements of an Ag E&S Plan, which specifies the implementation and maintenance of BMPs. Construction activities on agricultural lands that will disturb at least one acre must obtain NPDES permit coverage. Agricultural construction activities include, but are not limited to, barn or home construction or expansion; new animal housing; compost facilities; and manure storage facilities. A summary of permit and stormwater management requirements for agricultural activities is provided in the table below.

<b>Activity</b>	<b>Subject to NPDES Permitting? <sup>1</sup></b>	<b>Subject to Post-Construction Stormwater Management?</b>	<b>Subject to Riparian Buffer Requirements in HQ/EV watersheds?</b>
Building a house	Yes	Yes	Yes
Building a barn	Yes	Yes	Yes
Building poultry or swine houses	Yes	Yes	Yes
Building a manure storage facility or digester	Yes	Yes	Yes
Building bunk silos	Yes	Yes	Yes
Installing swales, diversions, waterways, filter strips, or terraces as part of agricultural plowing and tilling activities or AHUAs	No	No	No
Installing a paved AHUA	No	No <sup>2</sup>	No
Installing a paved animal walkway (a linear AHUA)	No	No <sup>2</sup>	No
Building a roofed AHUA	No	No <sup>2</sup>	No
Converting land to agricultural land	No	No	No
Establishing wildlife food plots	No	No	No

**1** If construction would result in at least one acre of earth disturbance.

**2** The Ag E&S Plan must include the implementation of BMPs to control stormwater runoff from impervious areas. For example, if AHUA protection such as a concrete barnyard is implemented, the Ag E&S Plan should describe the AHUA and include BMPs to control stormwater from the impervious area associated with the AHUA protection. Such controls could include diverting stormwater from the AHUA to a concrete storage structure for temporary storage followed by field application when conditions are appropriate at rates identified in the operation's Nutrient Management Plan or Manure Management Plan that allow for infiltration (typically not exceeding 9,000 gallons/acre).

CCD and DEP staff conduct periodic inspections of earth disturbance activities to ensure that E&S Plans and BMPs are adequate and are properly implemented and maintained. In addition, permittees, or anyone who conducts earth disturbance activities, must conduct routine site inspections and maintenance to ensure that BMPs are operational and effective and minimize the potential for pollution.

#### **FAQ #6: What can a person do to minimize accelerated erosion and sedimentation?**

Proper planning and implementation of BMPs is the key to a successful project and the protection of the Commonwealth's water resources. Before beginning the project, the applicant or project site owner should (1) become familiar with Chapter 102 E&S requirements, (2) inform the contractor or equipment operator of the need for E&S Plans or permits as part of the project, and (3) seek assistance or additional information, as needed, from the appropriate CCD or DEP regional office.

If a person notices accelerated erosion or sediment pollution occurring on another property, or if there is evidence that sediment pollution has occurred due to an on-going earth disturbance activity, the person should contact the local CCD where the project is located. [Click here](#) to search for your local CCD. You should be prepared to provide the location, type of activity, name of the project (if known), and whether pollution is occurring. Photo documentation is also helpful, when available.

### **E&S Plans**

#### **FAQ #7: What should be in an E&S Plan?**

E&S Plan requirements are can be found in [25 Pa. Code § 102.4](#). Subsection (a) is dedicated to agricultural plowing or tilling activities and animal heavy use areas. Subsection (b) is for all other earth disturbance activities. Both subsections (a) and (b) require the implementation and maintenance of E&S BMPs to minimize the potential for accelerated erosion and sedimentation from earth disturbance activities. The basic concept of providing effective, efficient and practical erosion and sediment control should be based on the site characteristics at the project site (e.g., drainage patterns, seeps and springs, steepness and stability of slopes, sinkholes, wetlands, streams, etc.). In other words, the E&S Plan should be specific to the site and based on the site characteristics. Specific information that is required to be in an E&S Plan is identified in 25 Pa. Code § 102.4(a)(4) or (b)(5), depending on the type of earth disturbance activity. The E&S Manual is a resource for appropriate BMPs that can be utilized in an E&S Plan.

#### **FAQ #8: Who can write an E&S Plan?**

For those projects that fall under § 102.4(b), the regulations require that the E&S Plan must be prepared by a person trained and experienced in E&S control methods and techniques applicable to the size and scope of the project being designed (25 Pa. Code § 102.4(b)(3)). For example, the construction of a single-family home on one lot has significantly different considerations than a

large commercial development. When a project triggers permitting requirements (see [25 Pa. Code § 102.5](#)), additional requirements will apply and there will also be Post-Construction Stormwater Management (PCSM) requirements per [§ 102.8](#) in addition to E&S. If structurally engineered BMPs are used (either for E&S or PCSM), they should be designed by a licensed professional.

#### **FAQ #9: What is a licensed professional?**

Chapter 102 regulations define a licensed professional as professional engineers, landscape architects, geologists, and land surveyors, licensed to practice in Pennsylvania. These professionals may design structurally engineered BMPs as allowed by their licensing boards and commissions. For projects that require an NPDES or E&S permit, a licensed professional also has obligations for oversight of critical stages per [§ 102.8\(k\)](#).

#### **FAQ #10: Must I use the design standards in the E&S Manual for BMPs?**

No. DEP allows for alternative BMP design standards. The E&S Manual lists various BMPs and design standards which are acceptable in Pennsylvania. BMPs, when designed, implemented and maintained in accordance with the E&S Manual, are expected to achieve regulatory requirements. BMPs and design standards other than those listed in the E&S Manual may be used for E&S Plans when a person conducting or proposing an earth disturbance activity demonstrates to DEP that the alternative BMP or design standard minimizes erosion and sedimentation and manages stormwater during earth disturbance activities, and meets all regulatory requirements. Alternative BMPs and design standards may also be pursued for PCSM.

Applicants for permits under Chapter 102 are advised that E&S Plans proposing alternative BMPs may take longer to review since the demonstration must be made that the alternative BMPs are as protective as the BMPs and design standards contained in the E&S Manual. DEP's Bureau of Clean Water maintains a list of [Alternative E&S and PCSM BMPs](#) that have been reviewed by DEP, which contains both approved and disapproved alternative BMPs. When identified in this list as an approved alternative BMP, the BMP may be utilized on any project site throughout Pennsylvania.

#### **FAQ #11: May I use soil binders and flocculants containing polyacrylamide during construction?**

The use of soil binders and flocculants containing polyacrylamide is addressed in DEP's list of [Alternative E&S and PCSM BMPs](#). The list describes the circumstances under which soil binders and flocculants containing polyacrylamide may be approved without DEP review, are subject to DEP review, and are prohibited.

## **Temporary and Permanent Vegetation**

### **FAQ #12: How do I properly stabilize my project site?**

The regulations at 25 Pa. Code § 102.22 address both temporary and permanent stabilization. For temporary stabilization, see FAQ #14. For permanent stabilization, upon final completion of an earth disturbance activity or any stage or phase of an activity, the permittee must immediately have topsoil restored, replaced, or amended, seeded, mulched or otherwise permanently stabilized and protected from accelerated erosion and sedimentation. To be considered permanently stabilized the disturbed area that will remain in a pervious condition must be covered by either 1) a minimum uniform 70% perennial vegetative cover, with a density capable of resisting accelerated erosion, or 2) an acceptable BMP which permanently minimizes erosion and sedimentation. After permanent stabilization has been established, temporary E&S BMPs such as silt fence are to be removed.

### **FAQ #13: What does a permittee or co-permittee do if the earth disturbance is completed outside of the normal growing season for vegetative cover?**

If a permitted earth disturbance activity is completed during a time of the year that is outside of the normal growing season for vegetative stabilization, the permittee and co-permittee should not submit their Notice of Termination (NOT) form to terminate the permit until sufficient vegetative cover has been established. Appropriate BMPs must be implemented to reduce accelerated erosion until vegetative cover can be established. If the permit coverage will expire prior to permanent stabilization, the permittee/co-permittee should contact DEP/CCD to provide notification that additional time is needed to stabilize the site. DEP/CCD may administratively extend the existing permit until sufficient vegetative cover is established and the NOT form is submitted and approved to terminate the permit. No other activities except for stabilization may take place at the project site during the administratively extended permit coverage period. If additional earth disturbance activities will occur or the site is not stabilized properly the permittee/co-permittee will need to renew their permit.

### **FAQ #14: What happens if I must stop work temporarily?**

The Chapter 102 regulations require temporary stabilization whenever an earth disturbance activity, or any stage or phase of an activity, will cease for more than 4 days. The site should be seeded, mulched, or otherwise protected from accelerated erosion and sedimentation, pending future earth disturbance activity.

### **FAQ #15: Does DEP recommend a particular seed mixture?**

It is advantageous to select seed mixes that accomplish stabilization quickly and uniformly. However, there are additional factors to consider such as the long-term utilization of the land, ecological benefits, and the importance of using native and non-invasive species. Where the use

of native non-invasive seed mixes is selected, the applicant should use weed-free forage (straw mulch) for both temporary and permanent stabilization in an effort to help prevent the spread of invasive species. The [North American Invasive Species Management Association](#) (NAISMA) may be a helpful resource in selecting an appropriate forage product.

Used effectively, native seeds and plants play important roles in our landscapes. Over the years our understanding of the importance of native seed mixes and plants has improved. Nationwide, projects are being designed, built, and installed with native plants and seed mixes as an integral part of those projects. The landscape and erosion control industry has developed several categories of plantings such as "native plant establishment", "habitat establishment", and "restoration and/or revegetation services" to support the trend toward native plant establishment.

There are multiple benefits of using native plant seed over more "traditional" seed, including:

- **Promotion of Biodiversity:** Native seed mixes contribute to the ecological balance of flora and fauna that have evolved in the geographic area. Natives perpetuate the relationships that exist between our native plants, the soils, and the many organisms that depend upon them for survival.
- **Time, Money, and Energy Savings:** When used wisely, native plants generally require less maintenance. Native plants are less expensive in the end and save energy because they do not have to be mowed or manicured as frequently as "conventional" lawn and plantings.
- **Natural Resources Conservation:** Since they are adapted to local soils, temperatures and rainfall patterns, native plants typically require less irrigation and fertilization than traditional plantings. This does not mean that native plants and seedlings don't require any water for establishment, but over time native flora will not have the demands of non-native plantings.
- **Wildlife:** Native plants are the best choice for attracting and nourishing native wildlife. Birds, mammals, butterflies and other wildlife enjoy the many characteristics that native plants provide. The National Wildlife Federation, The Audubon Society, and other wildlife conservation organizations are strong advocates for the use of native plants.
- **Education/Awareness:** The community as a whole learns that native plants, if used and managed correctly, can provide beauty and variety, as well as practical and functional landscapes. An appreciation is gained for the plants and animals that people see while hiking, camping, and traveling through an open natural area.

In recognition of these benefits, there has been efforts set forth by agencies such as the Pennsylvania Department of Transportation (PennDOT) and the Pennsylvania Department of Conservation and Natural Resources (DCNR) to update specifications and lists to reflect a more native approach to vegetation management. The current edition of the E&S Manual includes recommended seed mixtures in Table 11.4 (Page 268). In the future DEP expects to revise this table to be consistent with initiatives by PennDOT and DCNR to recognize more native and non-invasive species and provide guidance on matching seed mixes with project objectives (e.g., uplands vs. wetlands). The reader is referred to PennDOT publications [408](#) (see Section 804 –



Seeding and Soil Supplements) and [13M](#) (see Chapter 13) and [DCNR's Planting and Seeding Guidelines](#) for additional information.

**FAQ #16: How do I determine what seed mixture is appropriate throughout my project?**

Each location at a site might need a different type of seed mix, and each seed mix should be evaluated individually. The first step is to determine the purpose and objective of the seeding. The type of seeding or planting should match the overall objectives. Stabilization of an aquatic resource, like a wetland, should be planted differently than an upland area. The type of seeding also depends on whether the area will be utilized as a PCSM BMP such as a detention basin, rain garden, or revegetation and soil restoration BMP. Seeding may also vary based on the degree of steepness on a slope.

As PennDOT updates their seeding specifications, DEP expects to take a similar action and update Table 11.5 (Page 269) of the E&S Manual.

**FAQ #17: Crown-vetch is identified on the Department of Conservation and Natural Resources Invasive Plant List. Is it appropriate to plant crown-vetch?**

Crown-vetch (*securigera varia*) is a useful species for stabilization of certain areas such as steep slopes. DCNR identifies crown-vetch as a significant threat invasive species on their [Invasive Plant List](#). Currently, crown-vetch is identified under two (2) recommended seed mixtures in the E&S Manual. Those seed mixtures are recommended for areas that are not to be mowed and for gullies and other eroded areas. The E&S Manual also recommends that crown-vetch should not be used in areas adjacent to wetlands or stream channels, due to its invasive nature. These recommendations may change when DEP updates the E&S Manual.

**FAQ #18: Is it appropriate to use non-native species and other invasive species in seed mixtures or plantings?**

DEP recommends utilizing native and non-invasive species that are acclimated to Pennsylvania's climate and selecting species appropriate for the intended use (wetland plantings, riparian area plantings, temporary stabilization, BMP plantings, etc.).

DEP highly recommends avoiding the use of any species listed as a Severe Threat on DCNR's [Invasive Plant List](#), and extreme care should be used when selecting a species listed as a Significant or Lesser Threat.

**FAQ #19: What can be done for sites with poor sources of topsoil to establish vegetation and ensure long-term growth?**

The [USDA NRCS](#) website as well as Appendix E in the E&S Manual provide a list of soils that have limitations for sources of topsoil. Some sites may not be shown with this soil limitation but could be deficient of quality topsoil due to previous land uses. Designers should provide specifications for topsoil that will be used, which may involve importing topsoil to a site. Designers can contact the local Penn State Extension office for recommendations on topsoil for the type of vegetation selected and can also refer to Penn Dot Specifications, [Publication 408](#), Section 802 – Topsoil Furnished and Placed.

## **E&S BMPs**

### **FAQ# 20: Is a forebay considered part of the volume of a sediment basin?**

When a designer chooses to utilize a forebay in-lieu of the recommended minimum surface area of the settling volume (Elevation 3 Standard E&S Worksheet #13) or the recommended flow length to width ratio, the volume of the proposed forebay should be subtracted from the required volume of the sediment basin. For example, if the total required storage volume of the basin is calculated to be 100,000 cubic feet (cf) and a forebay is proposed and sized to be 15% of the total basin volume, the new total required storage volume of the basin would be 85,000 cf and the volume of the forebay would be 15,000 cf. NOTE: Forebays should be 10% to 15% of the total required storage volume of the sediment basin. Refer to Chapter 6.6.2: Wet Pond/Retention Basin, page 167 of 257 of the [Pennsylvania Stormwater Best Management Practices Manual](#) (BMP Manual).

### **FAQ #21: Does the use of a forebay or turbidity barrier “stack”?**

Yes. When a designer chooses to utilize a forebay or turbidity barrier in lieu of providing the recommended minimum surface area at the top of the settling volume (i.e., Elevation 3 on Standard E&S Worksheet #13 of the E&S Manual), that forebay or turbidity barrier can also be used in lieu of providing the minimum required flow length to width ratio without any additional design.

### **FAQ #22: Many times, the dewatering volume provided for a sediment basin is greater than the required dewatering volume due to minimum vertical requirements for the dewatering zone. What dewatering volume should be used when calculating the dewatering time for a sediment basin?**

The designer should use the dewatering volume provided for calculating the dewatering time for a sediment basin. This volume is measured from the top of the sediment storage zone to the top of the dewatering zone and should dewater in 2 to 7 days (4 to 7 days in special protection watersheds).

### **FAQ #23: How should the orifice of a skimmer dewatering device be sized for a sediment trap?**

Similar to sediment basins, sediment traps should completely dewater the dewatering zone in a period ranging from 2 to 7 days. When using a skimmer dewatering device for a sediment trap, the applicant should use Figure 7.2, Skimmer Orifice Design Chart (Page 173) of the E&S Manual to size the orifice. To avoid potential clogging, the minimum orifice diameter should not be less than 3/4". It is acceptable to drain the dewatering zone in a sediment trap in less than 2 days if the designer is using the minimum orifice diameter. Dewatering calculations are not required to be submitted for sediment traps.

**FAQ #24: Sediment basin design criteria #12 states, “basin spillways should be able to discharge at least 2 cfs/acre from the entire contributing watershed or route the anticipated peak flow from the 25-year, 24-hour storm event, assuming all dewatering perforations are clogged and standing water not encroaching upon the required freeboard. Discharge capacity may be provided by the principal spillway, or a combination of the principal and emergency spillway. At a minimum, the principal spillway should be designed to convey the calculated peak flow from a 10-year, 24-hour storm event”. What if the applicant is using the 2 cfs/acre discharge and the calculated 10-year/24-hour flow rate is greater than the 2 cfs/acre flow?**

If the applicant is using the 2 cfs/acre discharge for the required discharge capacity, they do not have to pass the 10-year/24-hour storm through the principal spillway. This is only required when the applicant is using the 25-year/24-hour storm event for the required discharge capacity. The applicant should enter “NA” on Standard E&S Worksheet #12 for “PEAK FLOW FROM 10 YR/24 HR STORM FOR DRAINAGE AREA (A)” when using the 2 cfs/acre discharge.

**FAQ #25: Can the applicant add the flow through a skimmer device when determining the 2 cfc/acre or 25-year/24-hour flow elevation, aka Elevation 5 on Standard E&S Worksheet #13?**

No, the 2 cfc/acre or 25-year/24-hour flow elevation, aka Elevation 5 on Standard E&S Worksheet #13 should be determined based on all dewatering perforations being clogged and standing water not encroaching upon the required freeboard. Flow through a skimmer device and flow through perforations on a riser pipe are not counted.

**FAQ #26: Can a designer take reductions to reduce the dewatering zone volume in a sediment basin in a non-special protection drainage area if the discharge is to a surface water identified in DEP’s latest published Integrated Water Quality Monitoring and Assessment Report (Integrated Report) as being impaired for siltation, suspended solids, turbidity, water/flow variability, flow modification/alterations, or nutrients (whether or not the surface water is subject to a TMDL)?**

No, the designer should not take reductions to reduce the dewatering zone volume in this situation as these reductions could make the sediment basin less efficient. Size, including both surface area and volume, is very important to overall trapping efficiency. Sediment trapping efficiency is

primarily a function of sediment particle size and the ratio of basin surface area to inflow rate. Basins with a large surface area-to-volume ratio are most effective in trapping sediment.

**FAQ #27: Sediment traps and sediment basins should be constructed so the bottom elevation is above the seasonal high-water table (SHWT). What should the applicant provide to demonstrate this?**

Test pit log(s) should be provided with E&S Module 1 of permit applications to assure the bottom of the trap or basin is above any SHWT. Test pits allow visual observation of the soil horizons and overall soil conditions both horizontally and vertically in that portion of the site. The use of soil borings as a substitute for test pits is strongly discouraged, as visual observation is narrowly limited in a soil boring and the soil horizons cannot be observed in-situ, but must be observed from the extracted borings. Information on conducting test pits and the number of test pits required can be found in Appendix C of the BMP Manual. Information regarding SHWTs provided in the USDA-NRCS Soil Survey is not site-specific enough for final design.

**FAQ #28: Are calculations required for a compost sediment trap?**

Calculations are required for all sediment traps, including compost sediment traps. At a minimum, Standard Worksheet #14 or equivalent and the information listed in the design data section of Standard Worksheet #19 should be provided. Note: The Length/Width Ratio does not have to be completed since the compost sock sediment trap also functions as a sediment filter through the entire length of the berm. An emergency spillway is not required for compost sock sediment traps but a minimum of one (1) foot of freeboard is required above the maximum design water elevation.

**FAQ #29: Only silt fence and straw bale barrier details provided in Chapter 4 of the E&S Manual require an 8' setback distance from the toe of slope. Should all perimeter controls provide an 8' setback distance from the toe of slope?**

Yes, an 8-foot setback distance from the toe of slope to the perimeter control should be provided for ALL perimeter controls. Perimeter controls require a ponding area in order to provide storage for both runoff and sediment and also for storage for stormwater management during construction. Placing the perimeter control at the toe of slope would severely reduce this ponding area and the BMP could fail by overtopping. Maximum permissible slope lengths provided in the manual are based on having an adequate ponding area above the perimeter control. In some instances, perimeter controls are placed at or near the property line and the setback area may also be needed for access for routine maintenance.

**FAQ #30: Can filter socks be installed across channels and other areas of concentrated flows and can they also be used as inlet protection encircling storm inlets?**

As with all types of sediment barriers (except for weighted sediment tubes), filter socks should be located where runoff is anticipated to be in sheet flow and should not be installed across channels or in other areas of concentrated flow. Concentrated or channelized flows should be directed to sediment basins or traps, not sediment barriers.

Filter socks are not approved for inlet protection. Typically, filter socks used as inlet protection fail, allowing unfiltered water to enter the inlet. In those rare instances where the filter sock does not fail, runoff usually either bypasses the inlet, causing erosion and/or capacity problems downgradient, or backs up to the point of creating flooding. This can create traffic hazards for inlets located along active roadways.

**FAQ #31: What filter material is permissible for use in weighted sediment filter tubes?**

Weighted sediment filter tubes are tube-shaped devices filled with non-biodegradable filter materials for longevity and reuse. The non-biodegradable filter material is made from shredded recycled tire rubber. At the end of a use cycle, rubber material can be cleaned and reused in new weighted sediment filter tubes.

**FAQ #32: Can Rock Filter Outlets be used to repair other perimeter controls besides silt fence and straw bale barriers as Standard Construction Detail 4-6 of the E&S Manual suggests?**

Yes, rock filter outlets may be used to address problems of concentrated flows to ALL sediment barriers. Wherever a sediment barrier has failed due to an unanticipated concentrated flow, a rock filter outlet may be installed unless that concentrated flow can be otherwise directed away from the barrier. In special protection watersheds or where additional water filtering is desired, a 6-inch layer of compost should be added and anchored on top of the upslope side of the AASHTO #57 stone. A 6-inch deep sump may be installed immediately upslope of the rock filter outlet to provide additional sediment removal capacity.

**FAQ #33: What design storm event should be used for the design of riprap aprons?**

Riprap aprons should be designed for the same storm event as the pipe or channel discharging to the apron. Designers can design the apron for a higher storm events if desired.

**FAQ #34: Can Figures 9.3 and 9.4 in the E&S Manual be used to determine the riprap size for riprap aprons?**

Figures 9.3 and 9.4 can be used to estimate the riprap size but should not be used for final design of the riprap size. Table 6.6 (Page 135) should be used to determine the riprap size for final design. If the anticipated velocity exceeds the maximum permissible velocity for riprap listed on Table

6.6, a suitable method of reducing the velocity such as a drop structure or energy dissipater should be incorporated into the design.

**FAQ #35: What should the designer do when designing an E&S Plan located in an EV Watershed if there are no “HIGH” rated BMPs currently listed in the E&S Manual?**

In EV watersheds, the designer should use the best available combination of BMPs to accomplish an EV efficiency rating when an EV efficiency rating cannot be accomplished by a single BMP. It is the responsibility of the applicant to demonstrate that the proposed combination of BMPs will not result in the degradation of the receiving surface water. For example, using a combination of an inlet filter bag (MODERATE rating) and using erosion control blankets (NOT rated) within 100 feet of the proposed inlet having the filter bag would accomplish an EV efficiency rating. Another example would be using a combination of 18” high silt fence (LOW) with a vegetative filter strip (MODERATE). This combination would also accomplish an EV efficiency rating.

**FAQ #36: What does Temporary or Permanent refer to on Standard E&S Worksheet #11?**

Temporary or permanent refers to the type of channel being proposed. It does not refer to the type of liner being proposed. If the channel will remain after construction is complete, the designer should indicate “Permanent”. If the channel will be removed prior to the completion of the project, the designer should indicate “Temporary”. For example, a channel that will be used to collect runoff from disturbed areas and discharge to a sediment basin but will be removed once the permanent stormwater pipes/inlets are installed would be considered temporary.

**Other**

**FAQ #37: Is the area under wetland crossing mats or access mats considered earth disturbance?**

Wetland crossing mats and other access mats (e.g., timber mats) are widely used in construction for access. Mats are used to distribute equipment and vehicular loads across the ground surface, reducing impacts. The use of mats can nevertheless result in earth disturbance because of soil compaction and the need for revegetation. The longer mats are used the greater the likelihood of earth disturbance. As a rule of thumb, DEP considers the short-term use of mats (2 weeks or less) to not constitute earth disturbance unless there is project-specific information available that would suggest short-term use will cause earth disturbance.

The placement of mats in a wetland for any period of time is a regulated activity under Chapter 105. The temporary impact to a wetland by a wetland crossing mat, approved under a Chapter 105 authorization or waiver, is not considered earth disturbance unless restoration / revegetation is needed. See DEP’s [Wetland and Floodway Restoration After Construction](#) fact sheet for additional information.

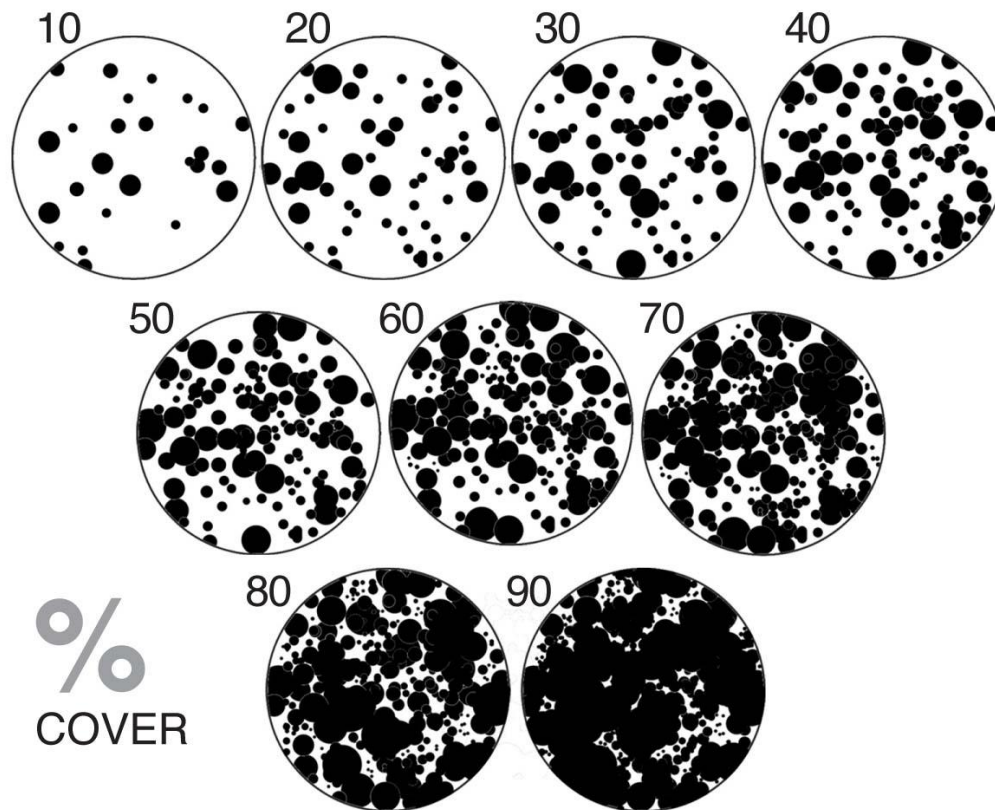
Matting is not a substitute for a rock construction entrance unless the equipment stays on the matting the entire time on-site. If used as a rock construction entrance, matting would be considered earth disturbance.

**FAQ #38: How do I know when I've achieved uniform 70% perennial vegetative coverage?**

Seventy percent (70%) uniform perennial vegetative cover is the minimum level needed to achieve permanent stabilization for most projects. It is noted that a 90% vegetative cover is a voluntary standard for solar projects (see DEP's [Chapter 102 Permitting for Solar Panel Farms FAQ document](#)).

When determining the 70% visual coverage ensure you are looking down on the vegetation. If you look across the ground it gives a false view which looks like a heavier coverage than when looking down. For example, fast growing species like annual rye grass will grow tall and lay over, giving the appearance of near 100% cover but in reality, when looking down, you can see the stems barely account for 20% over the ground surface. Also, be aware that winter stabilization seed mixes often include high proportions of annual species. DEP recommends learning how to identify a few of these common plants, such as annual rye grass.

There are various visual aids that can help you with the 70% determination. Below are two examples.





Graphic courtesy of [johnmuirlaws.com/wp-content/uploads/2019/03/Untitled-1.jpg](http://johnmuirlaws.com/wp-content/uploads/2019/03/Untitled-1.jpg)



Graphic courtesy of [www.researchgate.net/figure/Visual-aid-chart-for-estimating-cover\\_fig32\\_305688112](http://www.researchgate.net/figure/Visual-aid-chart-for-estimating-cover_fig32_305688112)

**FAQ #39: Are newly exposed rock slopes considered stabilized, or do you need to add soil and achieve uniform 70% perennial vegetative coverage?**

Slopes comprised of newly exposed bedrock should be evaluated for stability on a case-by-case basis. If there is any question regarding the stability, it should be evaluated by a geologist or geotechnical engineer. If the exposed bedrock is determined to be stable in its current condition, the addition of soil could cause unnecessary erosion issues. Note that measures to prevent rock falls may still need to be implemented.

**FAQ #40: Can invasive species be used for permanent stabilization, if eradication is not possible?**

Under no circumstances should invasive species be part of a seeding plan for a site. In fact, efforts should be made to eradicate invasive species before earth disturbance activities take place. Utility rights-of-way (ROWS) can be problematic with the removal of invasive species plants when there are large areas of uncontrolled invasive plants on either side of the ROW (areas not under the control of the permittee). Eradication and control may be done through biological, chemical, mechanical or manual means. The [Penn State Extension website](#) has many articles and webinars on controlling invasive species. Eradication methods for invasive species are typically unique to each species.

When project-specific circumstances do not allow for full eradication of invasive species, particularly within utility ROWs, they may be considered as an acceptable BMP which permanently minimizes accelerated erosion and sedimentation (§ 102.22(a)(2)(ii)). The use of invasive species for permanent stabilization may be authorized as a last resort, if it is not physically and economically feasible to eradicate or control the invasive species by the permittee, at the discretion of DEP/CCD. DEP/CCD will consider the technical basis of the vegetative cover's ability to resist accelerated erosion in making its decision and may request that the permittee



complete calculations or studies to support its decision. This guidance does not supersede federal, state or local regulations concerning the control of invasive species.

## **Version History**

<b>Date</b>	<b>Version</b>	<b>Revision Reason</b>
3/20/2024	1.5	Updated FAQ #5 to include additional detail on agricultural activities.
3/4/2024	1.4	Added FAQ #40 related to invasive species and permanent stabilization.
12/5/2023	1.3	Revised FAQ #21.
2/2/2022	1.2	Added new FAQs #37 (relating to earth disturbance associated with mats), #38 (relating to 70% uniform vegetative cover), and #39 (relating to exposed rock).
6/15/2021	1.1	Added new FAQs #19 (relating to topsoil), and #22 – #36 (relating to E&S BMPs). Revised existing FAQ #15 and renumbered #19 to #20, replacing #20.
10/16/2020	1.0	Original