# PART IV -- EROSION AND SEDIMENT CONTROL

## 11.0 Erosion and Sediment Control

### 11.1 Overview

Uncontrolled erosion and sediment from land development activities can result in costly damage to aquatic areas and to both private and public lands. Excessive sediment blocks stormwater conveyance systems, plug culverts, fills navigable channels, impairs fish spawning, clogs the gills of fish and invertebrates, and suppresses aquatic life.

A plan for minimizing erosion and controlling sediment through the implementation of best management practices (BMPs) must be included with the application for a permit. In addition to the “erosion and sediment control plan” required by **section 11.2**, all projects that disturb one or more acres of land or disturb less than one acre but are part of a larger common plan of development or sale and ~~that~~ discharge to waters of the state or to ~~through~~ a permitted Municipal Separate Stormwater Sewer System (MS4) also will need to develop and implement a Stormwater Pollution Prevention Plan (SWPPP) to obtain coverage under Florida’s National Pollution Discharge Elimination System (NPDES) Stormwater Construction Generic Permit. ~~Therefore, applicants are advised to comply with the erosion and sediment control requirements in~~ **~~section 11.3.1~~**~~,~~ **~~below~~**~~.~~

An effective sediment and erosion control plan is essential for controlling stormwater pollution during construction. An erosion and sediment control plan is a site-specific plan that specifies the location, installation, and maintenance of best management practices to prevent and control erosion and sediment loss at a construction site. The plan is submitted as part of the permit application and must be clearly shown on the construction plans for the development. Erosion and sediment control plans range from very simple for small, single-phase developments to complex for large, multiple phased projects. ~~If, because of~~Due to unforeseen circumstances such as extreme rainfall events or construction delays, the proposed erosion and sedimentation controls no longer provide reasonable assurance that water quality standards will not be violated, additional erosion and sediment control measures shall be required that must be ~~designed and~~ implemented to prevent violations of water quality standards.

### 11.2 Development of an Erosion and Sediment Control Plan

An Erosion and Sediment Control (E&SC) Plan must be submitted as part of the application as a way of providing reasonable assurance that water quality standards will not be violated during the construction phase of a project. The plan must identify the location, relative timing, and specifications for all erosion and sediment control and stabilization measures that will be implemented as part of the project’s construction. The plan must provide for compliance with the terms and schedule of implementing the proposed project, beginning with the initiation of construction activities. The plan may be submitted as a separate document or may be contained as part of the plans and specifications of the construction documents.

BMPs for erosion and sediment control are intended to prevent unauthorized off-site and on-site discharges of sediments and turbid waters. The BMPs for erosion and sediment control described in this permit are minimum requirements and may require revision, upgrading, moving, strengthening, or other modifications to serve their intended function while responding quickly to unanticipated changes in conditions onsite. Therefore, a permit modification is not required in order to modify the BMPs for erosion and sediment control used during construction and development, which serve to increase protection against unauthorized discharges, replace or repair components, or respond to emergency conditions.

#### **~~11.1.1 Erosion and Sediment Control Requirements~~**

~~Erosion and sediment control BMPs shall be used as necessary during construction to~~ **~~retain sediment on-site and assure that any discharges from the site do not cause or contribute to a violation of state water quality standards~~**~~. These management practices must be designed according to specific site conditions and shall be shown or clearly referenced on the construction plans for the development. At a minimum, the erosion and sediment control requirements described in this section~~~~shall be followed during construction of the project. Additional measures are required if necessary to protect wetlands or prevent off-site flooding. All appropriate contractors must be furnished with the information pertaining to the implementation, operation, and maintenance of the erosion and sediment control plan. In addition, sediment accumulation in the stormwater system from construction activities must be removed prior to final certification of the system to ensure that the designed and permitted storage volume is available.~~

#### **~~11.1.2~~11.2.1 Erosion and Sediment Control Principles**

Factors that influence erosion potential include soil characteristics, vegetative cover, topography, climatic conditions, timing of construction, and the areal extent of land clearing activities. The following principles must be considered in planning and undertaking construction and alteration of systems:

(a) Plan the development to fit topography, soils, drainage patterns, and vegetation;

(b) Minimize both the extent of area exposed at one time and the duration of exposure;

(c) Schedule activities during the dry season or during dry periods whenever possible to reduce the erosion potential;

(d) Apply erosion control practices to minimize erosion from disturbed areas;

(e) Apply perimeter controls to protect disturbed areas from off-site runoff and to trap eroded material on-site to prevent sedimentation in downstream areas;

(f) Keep runoff velocities low and retain runoff on-site;

(g) Stabilize disturbed areas immediately after final grade has been attained or during interim periods of inactivity resulting from construction delays; and

(h) Implement a thorough maintenance and follow-up program.

These principles are usually integrated into a system of vegetative and structural measures, along with other management techniques, that are included in an erosion and sediment control plan to minimize erosion and control movement of sediment. In most cases, a combination of limited clearing and grading, limited time of exposure, and a judicious selection of erosion control practices and sediment trapping systems will prove to be the most practical method of controlling erosion and the associated production and transport of sediment. Permit applicants, system designers, and contractors can refer to the *State of Florida Erosion and Sediment Control Designer and Reviewer Manual (July 2013)~~(June 2007~~),* and the *Florida Stormwater, Erosion, and Sedimentation Control Inspector’s Manual (FDEP July 2008)* the *Florida Stormwater Erosion and Sedimentation Control Inspector’s Manual Tier I* (Florida Department of Environmental Protection, Division of Environmental Assessment and Restoration, Tallahassee, Florida, October 2018), and the *Florida Stormwater Erosion and Sedimentation Control Inspector’s Manual Tier II* (Florida Department of Environmental Protection, Division of Environmental Assessment and Restoration, Tallahassee, Florida, October 2018), for further information on erosion and sediment control. These manuals provide guidance for the planning, design, construction, and maintenance of erosion and sediment control practices. ~~Both of these manuals are incorporated by reference in subparagraph 62-330.050(9)(b)(5)., F.A.C.~~

#### **11.2.2 Erosion and Sediment Control Requirements**

BMPs for erosion and sediment control shall be used during construction to **retain sediment on-site and ensure that any discharges from the site do not cause or contribute to a violation of state water quality standards**. These management practices must be designed according to specific site conditions and shall be shown or clearly referenced on the construction plans for the development. At a minimum, the erosion and sediment control requirements described in this sectionshall be followed during construction of the project. When necessary, measures are required to protect wetlands or prevent off-site flooding. All appropriate contractors must be furnished with the information pertaining to the implementation, operation, and maintenance of the erosion and sediment control plan. In addition, sediment accumulation in the stormwater system from construction activities must be removed prior to final certification of the system to ensure that the designed and permitted storage volume is available.

### ~~11.2 Development of an Erosion and Sediment Control Plan~~

~~An erosion and sediment control plan must be submitted as part of the application as a way of providing reasonable assurance that water quality standards will not be violated during the construction phase of a project. The plan must identify the location, relative timing, and specifications for all erosion and sediment control and stabilization measures that will be implemented as part of the project’s construction. The plan must provide for compliance with the terms and schedule of implementing the proposed project, beginning with the initiation of construction activities. The plan may be submitted as a separate document, or may be contained as part of the plans and specifications of the construction documents..~~

### 11.3 Development of a Stormwater Pollution Prevention Plan (SWPPP) for NPDES ~~Requirements~~

~~Although t~~The requirement to develop and submit an SWPPP under a ~~National Pollution Discharge Elimination System (~~NPDES~~)~~ permit is not a requirement for a permit under Chapter 62-330, F.A.C., however applicants are advised that preparation and adherence to a SWPPP is required where the permitted activity also requires an NPDES construction permit pursuant to subsection 62-621.300(4), F.A.C. Both the SWPPP and E&SC plans must retain sediment on-site and ensure that any discharges from the site do not cause or contribute to a violation of state water quality standards. Changes to erosion and sedimentation controls can be documented as part of a permittee’s requirements under the NPDES Construction CGP SWPPP should one be required.

~~Namely,~~ **~~those c~~Construction activities resulting in greater than one acre of soil disturbance or disturb less than one acre but are part of a larger common plan of development or sale and** **discharging to waters of the state or a permitted MS4 must also apply for and receive coverage from DEP under Florida’s NPDES Generic Permit for Stormwater Discharge from Large and Small Construction Activities (CGP) before disturbing the soil.** The applicant must adhere to the regulations and requirements of the CGP.~~This section of the Handbook is provided to help the design community develop a comprehensive erosion and sediment control plan that satisfies all state requirements and avoid having to revise the plan for the CGP and its associated SWPPP. For purposes~~ **~~sections 11.3.1 through 11.4, below,~~** ~~references to the term “applicant” shall mean an applicant for the NPDES permit.~~

#### **~~11.3.1~~****~~Additional Requirements of the Construction Generic Permit~~**

~~(a) The following non-stormwater discharges are prohibited:~~

1. ~~Wastewater from washout of concrete;~~
2. ~~Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials;~~
3. ~~Fuels, oils, or other pollutants associated with vehicle and equipment operation and maintenance; and~~
4. ~~Soaps or solvents used in vehicle or equipment washing or cleaning.~~

~~(b) Pollution Prevention Controls. The applicant must provide for the design, installation, implementation, and maintenance of effective pollution prevention measures to accomplish all of the following:~~

1. ~~Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Treat wash waters using a treatment system so that they do not cause or contribute to violations of water quality standards;~~
2. ~~Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials present on the site to precipitation and to stormwater;~~
3. ~~Minimize the discharge of pollutants from spills and leaks; and implement chemical spill and leak prevention and response procedures;~~
4. ~~Control wastes, such as discarded building materials, chemicals, litter, and sanitary waste, in accordance with all applicable state, local, and federal regulations;~~
5. ~~Follow all applicable State and local waste disposal, sanitary sewer, and septic system regulations;~~
6. ~~Use proper application rates and methods for fertilizers, herbicides, and pesticides. Set forth how these procedures will be implemented and enforced. Apply nutrients only at rates necessary to establish and maintain vegetation and consistent with all labeling requirements; and~~
7. ~~Limit the application, generation, and migration of toxic substances; and properly store and dispose of toxic materials.~~

~~(c) Erosion and Sediment Controls. The applicant must provide for the design, installation, implementation, and maintenance of appropriate erosion and sediment controls to accomplish all of the following:~~

1. ~~Control stormwater volume and velocity within the site to minimize soil erosion;~~
2. ~~Control stormwater peak discharge rates and volume to minimize erosion at discharge outfalls and to minimize downstream channel and streambank 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 site. The design, installation, and maintenance of erosion and sediment controls shall address factors such as the amount, frequency, intensity, and duration of precipitation; the nature of the resulting stormwater; and soil characteristics, including the range of soil particle sizes expected to be present on the site;~~
6. ~~Minimize off-site vehicle tracking of sediments onto paved surfaces and the generation of dust. If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize off-site impacts;~~
7. ~~Where feasible, direct stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration and to provide and maintain natural buffers adjacent to surface waters of the state; and~~
8. ~~Minimize soil compaction and preserve topsoil.~~

~~(d) Sediment Basins~~

1. ~~For drainage basins with 10 or more disturbed acres at one time, a temporary (or permanent) sediment or wet detention basin providing 3,600 cubic feet of storage per acre drained, or equivalent control measures, shall be provided where attainable until final stabilization of the site. The 3,600 cubic feet of storage area per acre drained does not apply to flows from offsite areas and flows from onsite areas that are either undisturbed or have undergone final stabilization where such flows are diverted around both the disturbed area and the sediment basin. For drainage basins with 10 or more disturbed acres at one time and where a temporary sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent controls is not attainable, a combination of smaller sediment basins, sediment traps, wet detention systems, and/or other BMPs shall be used. At a minimum, silt fences or equivalent sediment controls are required for all side slope and downslope boundaries of the construction area.~~
2. ~~For drainage basins of less than 10 acres, sediment basins and/or sediment traps are recommended but not required. At a minimum, silt fences or equivalent sediment controls are required for all sideslope and downslope boundaries of the construction area.~~
3. ~~Areas that will be used for permanent stormwater infiltration treatment (e.g., stormwater retention basins) shall not be used for temporary sediment basins unless appropriate measures are taken to assure removal of accumulated fine sediments, to avoid excessive compaction of soils by construction machinery or equipment, and to ensure that the design and permitted infiltration rate is achieved.~~

##### ~~(e) Maintenance Requirements~~

~~The plan shall include a description of procedures that will be followed to ensure the timely maintenance of vegetation, erosion and sediment controls, stormwater management practices, and other protective measures and BMPs so they will remain in good and effective operating condition.~~

~~(f) Inspections~~

~~An inspector qualified in accordance with Part II.12. of with DEP Document No. 62-621.300(4)(a), effective February 17, 201509, incorporated by reference in paragraph 62-621.300(4)(a), F.A.C., (provided by the owner or operator) shall perform all required site inspections. Site inspections must include all points of discharge into surface waters or an MS4; disturbed areas of the construction site that have not been finally stabilized; areas used for storage of materials that are exposed to precipitation; structural controls; and locations where vehicles enter or exit the site. Site inspections shall be conducted at least once every seven calendar days and within 24 hours of the end of a storm that is 0.50 inches or greater. Inspections shall include:~~

1. ~~Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the stormwater system. The stormwater management system and erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly. Discharge locations or points shall be inspected to ascertain whether erosion and sediment control and stormwater treatment measures are effective in preventing or minimizing the discharge of pollutants, including retaining sediment onsite pursuant to Rule 62-40.432, F.A.C. Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking.~~
2. ~~Based on the results of the inspection, all maintenance operations needed to assure proper operation of all controls, BMPs, practices, or measures identified in the stormwater pollution prevention plan shall be done in a timely manner, but in no case later than 7 calendar days following the inspection. If needed, pollution prevention controls, BMPs, and measures identified in the plan shall be revised as necessary to assure proper operation of all controls, BMPs, practices, or measures identified in the stormwater pollution prevention plan. Such revisions shall provide for timely implementation of any changes to the plan within 7 calendar days following the inspection.~~
3. ~~A report summarizing the scope of the inspection; name(s) and qualifications of personnel making the inspection; the date(s) of the inspection; rainfall data; major observations relating to the implementation of the stormwater pollution prevention plan; and actions taken in accordance with the requirements of this permit, shall be made and retained as part of the stormwater pollution prevention plan. Such reports shall identify any incidents of non-compliance. Where a report does not identify any incidents of non-compliance, the report shall contain a certification that the facility is in compliance with the stormwater pollution prevention plan and the Generic Permit for Stormwater Discharge from Large and Small Construction Activities.~~

### 11.4 Sediment Sump Design Example

Example calculations for designing a sediment sump are provided in Section 3 of the “References and Design Aids” for Volume I, available at https://floridadep.gov/water/water/content/water-resource-management-rules#erp.