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## Chapter 2. STORMWATER MANAGEMENT REQUIREMENTS AND STANDARDS

### 2.1 Overview

This chapter presents a set of minimum requirements and standards for stormwater management for development within Greenville County, South Carolina. The purpose of the minimum requirements and standards is to reduce the impact of stormwater runoff on receiving waterbodies downstream from land development. The goal of this chapter is to address both water quantity and water quality requirements and standards associated with stormwater runoff from land development.

### 2.2 Minimum Requirements for Development

#### Applicability

Stormwater management minimum requirements and standards apply to all land development within unincorporated, non-SCDOT regulated areas of Greenville County and within the municipalities that chose to participate with Greenville County as co-permittees (Simpsonville, Mauldin, Travelers Rest and Fountain Inn) in its NPDES MS4 stormwater permit, that consists of one or more of the following:

- All development and redevelopment that involves the disturbance of one acre of land or greater (or 10,000 square feet or greater for stormwater quality requirements);
- Any commercial or industrial development that falls under the NPDES Industrial Stormwater Permit;
- Development or redevelopment that creates a peak flow increase of greater than one cubic foot per second (cfs) for the critical storm (defined in the paragraph below);
- Development or redevelopment that requires a storm drain pipe conveyance system (one or more pipes) or alterations to existing storm drain systems; and,
- Development or redevelopment that causes downstream impacts requiring preparation by an engineer or design professional.

The critical storm is defined for most of Greenville County as the 25-year, 24-hour storm. However, within the Gilder Creek watershed, the critical storm is the 50-year storm and within the City of Mauldin, the critical storm is the 100-year storm. The critical storm should be discussed with the County during the pre-design meeting for the specific site in question.

As a general requirement for submittal purposes, all land development activities that fall under these provisions shall require the following:

- Land Disturbance Permit Application: Stormwater Management/ Sediment Control Plan (Non-Simplified Stormwater Application) plus the first three pages of the SCDHEC Notice of Intent (NOI) Application upon project submittal;
- Final Site Development Plan including Erosion Prevention and Sediment Control (EPSC) Plan; and

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## Technical Report.

All development projects 10,000 square feet or greater but less than 1 acre must comply with the Alternative TSS Standard for water quality. This must be demonstrated through submittal of a brief Technical Report along with necessary supporting information (maps, narratives, and supporting design calculations/model), SWPPP, and the first three pages of the SCDHEC NOI. The requirements of the Alternative TSS Standard are described in Section 9.1.4.

For land disturbing activities involving more than 5,000 square feet but less than 10,000 square feet of actual land disturbance which are not part of a common plan of development or sale, the person responsible for the land disturbing activity may consult with LDD for further direction and any necessary applications. This plan does not require approval by the Director and does not require preparation or certification by the designers.






Commercial and industrial sites which disturb more than 5,000 square feet but less than 10,000 square feet of area and are otherwise not part of a larger common development plan may be eligible to submit a Simplified Stormwater Application.

### **Land Disturbance Permit Application: Stormwater Management/ Sediment Control Plan**

The Land Disturbance Permit: Stormwater Management/ Sediment Control Plan Form, hereinafter called the Stormwater Management Permit Application Form or the Non-Simplified Stormwater Application Form (available from County at pre-design meeting) shall be completed and contain certification by the person responsible for the land disturbing activity that the land disturbing activity will be accomplished pursuant to the approved plan and that responsible personnel will be assigned to the project. The person responsible for the land disturbing activity shall provide certification to the Director to conduct on-site inspections when needed. Land Development also requires the first three pages of the SCDHEC NOI application in addition to the Non-Simplified Stormwater Application upon project submittal.

### **Final Site Development Plans**

The Final Site Development Plan shall consist of maps, narratives, and supporting design calculations for the proposed stormwater system and should include the following sections when applicable:

-  Pre-development hydrologic analysis and calculations that determines the existing stormwater runoff volumes, peak flow rates and flow velocities;
-  Post-development hydrologic analysis and calculations that determines the stormwater runoff volumes, peak flow rates and flow velocities;
-  Water quality control calculations for meeting the appropriate requirements listed in Chapter 9;
-  Stormwater management control facility location, design, and supporting calculations; and,
-  Downstream analysis calculations showing the effect of post-development design flows on downstream stormwater conveyance systems and channels. This refers to the 10% rule application as given in the Ordinance. However, a simple time of concentration comparison is insufficient for this analysis. A routing study is required showing flows and water surface elevations at each point downstream.

### **Erosion Prevention and Sediment Control Plans**

The following items are required to be included as part of the EPSC Plans:

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- Location of all erosion and sediment control structures;
  - Provisions to preserve topsoil and limit the amount of total disturbed area;
  - Details of site grading;
  - Design details and computation for all erosion and sediment control structures;
  - List of the trapping efficiency for each sediment control structure;
  - Calculation of required sediment storage volumes;
  - Explanation of any computer models or software used with highlights of the output data; and,
  - Description of required clean-out frequencies and maintenance schedules.

### **Technical Report**

The technical report contains all the engineering details of the proposed development project in an understandable, legible document. Failure of an applicant to provide all the information required in this section may result in the denial of receiving a Stormwater Management Permit from the Greenville County Stormwater Management Director. The items listed as the technical report submission requirements shall be used as a checklist to verify that all required items are properly submitted.

### **Engineer Minimum Plan**

Projects that are small in the scope of work but with design criteria that exceeds the applicant capability to prepare for permit submittal and require the service of a professional designer will submit an “engineer minimum plan”. A design professional would be required if the project scope does not result in more than one cubic feet per second increase in peak runoff rates but involves one or more of the following conditions:

- Development of a lot where quantity is in place as part of a larger common plan but post-construction water quality may or not be in place and a construction erosion control plan is needed.
- Redevelopment of the site requires post construction water quality upgrades and a construction erosion control plan.
- Minor modification or reconstruction of an existing stormwater quantity or quality feature or structure, but only if revised drainage calculations for quantity are not required. If the project requires a new analysis, this project would require a permit.
- A small project draining to water bodies that are on the current 303(d) list or where a TMDL has been developed or have the potential for impact requiring a BMP and site stabilization plan as a means of correcting a site found in violation of grading without a permit.
- The small project may cause downstream impacts that could place the safety of the public at risk, property damage may occur, or negative impacts to the water bodies may occur.
- The small project requires a storm drain pipe conveyance system (one or more pipes) or alternations to an existing storm drain system.

The application and permit process for an engineer minimum plan are the same as the non-simplified permit with exception to the design criteria and the fees. The minimum design criteria will be established on a case by case basis during the Pre-Design Meeting with the Land Development Division representative. The fees will be the same as a simplified permit.

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Engineer minimum plans will require project oversight by the design professional. Depending on the scope of work, CEPSCI inspections and certification by the engineer of record may be required. Based on the disturbed area and whether the project is a part of a larger common development, engineer minimums may be forwarded to SCDHEC for general permit coverage.

## 2.2.1 Exemptions

The following development activities within the unincorporated, non-SCDOT regulated areas of Greenville County and within the cities of Travelers Rest, Mauldin, Simpsonville, and Fountain Inn that have chosen to participate as a co-permittee with Greenville County in its NPDES MS4 stormwater permit shall be exempt from the minimum regulations and standards:

- Development that does not disturb more than 5,000 square feet.
- Development that does not create a peak flow increase of greater than one cfs for the critical design storm and that is less than 10,000 square feet.
- Land disturbing activities on agricultural land for production of plants and animals useful to man, including but not limited to forages and sod crops, grains and feed crops, tobacco, cotton, and peanuts; dairy animals and dairy products; poultry and poultry products ; livestock, including beef cattle, sheep, swine, horses, ponies, mules, or goats, including the breeding and grazing of these animals, bees; fur animals and aquaculture, except that the construction of an agricultural structure resulting in the disturbance of one acre or more are not exempt. The construction of agricultural structures of one or more acres, such as broiler houses, machine sheds, repair shops and other major buildings which require the issuance of a building permit shall require the submittal and approval of a Stormwater Management Plan.
- Certain land disturbing activities undertaken by persons who are exempt from the provisions of the Stormwater Management and Sediment Reduction Act as set forth in Section 48-14-40 of the 1976 Code of Laws of South Carolina as amended.
- Land disturbance activities undertaken on forest land for the production and harvesting of timber and timber products as qualified by the South Carolina Forestry Commission as true to tree farming practices for stewardship.
- Land disturbing activities that are conducted under another State or Federal environmental permitting, licensing, or certification program where the State or Federal environmental permit, license, or certification is conditioned on compliance with the minimum standards and criteria developed under this Design Manual.
- Any land disturbing activities undertaken by any entity that provides gas, electrification, or communication services, subject to the jurisdiction of the South Carolina Public Service Commission.
- Emergency repairs of a temporary nature made on public or private property that are necessary for the preservation of life, health, or property and are made under circumstances where it would be impracticable to obtain a Stormwater Management Permit.

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## 2.2.2 Waivers and Variances

The Greenville County Stormwater Management Director may grant waivers and variances from the stormwater management requirements set forth in this Design Manual and other ordinances, standards, and regulations regarding stormwater. The applicant must provide a written request for a waiver or variance in the Stormwater Management Permit application package. The Greenville County Stormwater Plan Review Agency has the authority to reject a written request for a waiver if the waiver is deemed unacceptable or is associated with a project located in sensitive areas of Greenville County where waivers have been deemed to be unacceptable.

The Greenville County Stormwater Plan Review Agency shall conduct its review of a waiver or variance submitted by the applicant within ten working days of the submittal. Failure of the Review Agency to act on the waiver by the end of ten working days will result in the automatic approval of the waiver.

### Waiver from Permanent Water Quality Control

A project may be eligible for a waiver of stormwater management requirements for water quality control if the applicant can justly verify the following and the applicant requests a variance as given in Section 8-122 of the Stormwater Management Ordinance.

- The proposed land development activity will return the disturbed areas to the pre-development land use and runoff conditions;
- The proposed land development will create land use conditions that have the potential to discharge less pollutants than the pre-development land use conditions; and,
- The pre-development land use conditions are unchanged at the end of the project.

This waiver does not exclude water quality, erosion prevention, sediment control and water quantity controls from being implemented during the active construction phases of a particular project.

### Waiver from Permanent Water Quantity Control

A project may be eligible for a waiver of stormwater management requirements for water quantity control if the applicant can justly verify the following and the applicant requests a variance as given in Section 8-122 of the Stormwater Management Ordinance. A map showing points where detention waivers can be considered is provided in [Figure 2-1](#).

- The proposed project will not create any significant adverse effects on the receiving natural waterway or road crossings downstream of the property. These adverse impacts may include but are not limited to the following:
  - ◆ Increased flow velocity that would enhance channel erosion;
  - ◆ Increased peak flow rates that are higher than the capacity of downstream bridges and culverts; and,
  - ◆ Increased flow depth that would flood outbuildings, air conditioning units, crawl spaces, or finished floor elevations.

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- The installation of stormwater management facilities would have insignificant effects on reducing downstream peak flow rates and flood peaks.
  - Stormwater management facilities are not needed to protect downstream developments and the downstream drainage system has sufficient capacity to receive the increases in runoff from the development.
  - The imposition of peak flow rate control for stormwater management would create, aggravate, or accelerate downstream flooding.

This waiver does not exclude water quality, erosion prevention, sediment control and water quantity controls from being implemented during the active construction phases of a particular project.

### **Variations**

The Greenville County Stormwater Plan Review Agency may grant or approve a written variance from any of the requirements of the regulations set forth in this Design Manual. These variances apply where there are exceptional circumstances applicable to sites such that strict adherence to the regulations could result in unnecessary hardship and not fulfill the intent of the regulations.

A written request for variance shall be provided to the Greenville County Stormwater Plan Review Agency and shall specifically state the variances sought and all data that supports the variance. The Greenville County Stormwater Plan Review Agency shall not grant a variance unless and/or until the applicant provides sufficient specific site data and justification for the variance.

## **2.3 Special Pollution Abatement Permits**

Special pollution abatement may be required when: 1) development or re-development occurs within a watershed that is listed as impaired by SCDHEC or has an established TMDL, 5R, or equivalent implemented for a pollutant(s) of concern, or 2) an existing development is within a watershed that becomes listed as impaired by SCDHEC or subject to a TMDL, 5R, or equivalent. The purpose of special pollution abatement is to ensure that effective best management practices are used and maintained to control water quality for these waterbodies. The specific applications and requirements will be set by the Director. Any development that occurs without required measures or any existing development that continues to operate after being issued notices of violation shall be in violation of this section of the code.

Development in other areas known to have particular adverse water quality pollutant impacts may also be required to comply with this section at the discretion of the Director. Areas that qualify will have been identified by sampling or monitoring results and will be considered priority areas for water quality treatment. Outstanding resource waters may also qualify for compliance under this section for protection of their classification.