Storm Water Management and Soil Erosion and Sedimentation Control

ARTICLE V. STORMWATER MANAGEMENT AND SOIL EROSION AND SEDIMENTATION CONTROL

DIVISION 1. GENERALLY

Sec. 90-341. Incorporation by reference

For the purpose of this article and as required by SC DHEC under the MS4 program, the most recent version of the following documents are incorporated by reference:

1. S.C. DHEC NPDES General Permit for Stormwater Discharges from Large and Small Construction Activities, SCR100000; and

2. S.C. DHEC Regulation 72-305 and 72-307, Standards for stormwater management and sediment reduction, except references to time frames found in 72-305 B(2) and M and the requirement to meet 0.5 ml/l settleable solids found in 72-307 C(5)(b) and (c).

(Ord. No. 28-2007, § 1, 8-28-2007)

Sec. 90-342. Other permits

An applicant shall comply with the requirements set forth in other applicable ordinances with respect to the submission and approval of preliminary and final subdivision plats, improvement plans, building and zoning permits, inspections, appeals and similar, along with those set forth in this article and as may be required by state statutes and the regulations of any department of the State of South Carolina.

(Ord. No. 28-2007, § 1, 8-28-2007)

Sec. 90-343. Interpretation

In the interpretation and application of this article, the provisions expressed herein shall be held to be the minimum requirements.

(Ord. No. 28-2007, § 1, 8-28-2007)

Sec. 90-344. Severability

The provisions and sections of this article shall be deemed separable and the invalidity of any portion of this article shall not affect the validity of the remainder.

(Ord. No. 28-2007, § 1, 8-28-2007)

Sec. 90-345. Variances

(a) Standards. Variations from these standards, provisions, and specifications may be granted when it is demonstrated to the satisfaction of the construction board of appeals that, owing to special conditions, a strict adherence to the provisions of this article will result in unnecessary hardship and that the spirit and intent of the ordinance will be observed.

(b) Procedure. A request for variation shall be filed by the owner, seeking to develop or change the use of his property, or his agent with the city engineer who shall refer it, together with his recommendation to the construction board of appeals for decision. The request for variation shall be written and state specifically what variation is sought and the public’s interest in granting the variation.

(Ord. No. 28-2007, § 1, 8-28-2007)

Sec. 90-346. Penalties; applicability

New development, redevelopment and existing stormwater management structures and water quality devices.

Any person, firm or corporation who violates or fails to comply with any of the provisions of this article shall be guilty of a misdemeanor, and upon conviction, shall
be subject to a fine of not more than $500.00 and/or imprisonment for not more than 30 days or both. A separate offense shall be deemed committed upon each day during or on which each violation occurs or continues.

In order to secure maintenance of permanent stormwater structures or water quality devices, the City of Greer shall have full authority to place liens on property of any person, firm, corporation or association that fails to properly maintain said structures or devices.

(Ord. No. 28-2007, § 1, 8-28-2007)

Sec. 90-347. Additional legal measures; applicability

New development, redevelopment and existing stormwater management structures and water quality devices.

Where the City of Greer is fined and/or placed under a compliance schedule by the state or federal government for a violation(s) of its NPDES permit, and the city can identify the person(s) who caused such violation(s) to occur, the city may pass through the penalty and cost of compliance to that person(s).

The city attorney may institute injunctive, mandamus or other appropriate action or proceedings at law or equity, including criminal conviction, for the enforcement of this article or to correct violations of this article, and any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus or other appropriate forms of remedy or relief.

(Ord. No. 28-2007, § 1, 8-28-2007)

Sec. 90-348. Definitions

For the purposes of this article, the following definitions found in this section are adopted:

Adverse impact means a significant negative impact to land, water and/or associated resources resulting from a land disturbing activity. The negative impact includes increased risk of flooding; degradation of water quality; increased sedimentation; reduced groundwater recharge; negative impacts on aquatic organisms; negative impacts on wildlife and other resources; and threatened public health.

Applicant means a person, firm, or governmental agency who executes the necessary forms to obtain approval or a permit for a land disturbing activity.

Appropriate plan approval agency means the commission, local government, or conservation district that is responsible in a jurisdiction for review and approval of stormwater management and sediment control plans.

As-built plans or record documents means a set of engineering or site drawings that delineate the specific permitted stormwater management facility as actually constructed.

Best management practices means a wide range of management procedures, schedules of activities, prohibitions on practices and other management practices which have been demonstrated to effectively control the quality and/or quantity of stormwater runoff and which are compatible with the planned land use.

Certified construction inspector means a person with the responsibility for conducting inspections during construction and maintenance inspections after the land disturbing activity is completed as certified by the commission.

Certified plan reviewer means a person with the responsibility for reviewing stormwater management and sediment control plans for an appropriate plan approval agency as certified by the commission.

Commission means the South Carolina Land Resources Conservation Commission.

Delegation means the acceptance of responsibility by a local government or conservation district for the implementation of one or more elements of the statewide stormwater management and sediment control program.

Designated watershed means a watershed designated by a local government and approved by the commission, Department of Health and Environmental Control and the South Carolina Water Resources Commission and identified as having an existing or potential stormwater, sediment control, or nonpoint source pollution problem.

Detention structure means a permanent stormwater management structure whose primary purpose is to temporarily store stormwater runoff and release the stored runoff at controlled rates.

Develop land means to change the runoff characteristics of a parcel of land in conjunction with residential, recreational, commercial, industrial, or institutional construction or alteration.
Developer means a person undertaking, or for whose benefit, activities covered by these regulations are commenced and/or carried out.

District means any soil and water conservation district created pursuant to Chapter 9, Title 48, S.C. Code of Laws.

Drainage area means that area contributing runoff to a single point.

Drainage facility means any component of the drainage system.

Easement means a grant or reservation by the owner of land for the use of such land by others for a specific purpose or purposes, and which must be included in the conveyance of land affected by such easement.

Erosion means the wearing away of land surface by the action of wind, water, gravity, ice, or any combination of those forces.

Erosion and sediment control means the control of solid material, both mineral and organic, during a land disturbing activity to prevent its transport out of the disturbed area by means of air, water, gravity, or ice.

Excess stormwater runoff means that portion of stormwater which exceeds the safe storm drainage capacity of storm sewer or natural drainage channel serving a specific watershed.

Exemption means those land disturbing activities that are not subject to the sediment and stormwater requirements contained in these regulations.

Grading means excavating, filling (including hydraulic fill) or stockpiling of earth material, or any combination thereof, including the land in its excavated or filled condition.

Implementing agency means the commission, local government, or conservation district with the responsibility for receiving stormwater management and sediment control plans for review and approval, reviewing plans, issuing permits for land disturbing activities, or conducting inspections and enforcement actions in a specified jurisdiction.

Infiltration means the passage or movement of water through the soil profile.

Land disturbing activity means any use of the land by any person that results in a change in the natural cover or topography that may cause erosion and contribute to sediment and alter the quality or quantity of stormwater runoff.

Natural waterways means waterways that are part of the natural topography. They usually maintain a continuous or seasonal flow during the year and are characterized as being irregular in cross section with a meandering course, unless they have been subjected to prior alteration. Construction channels such as drainage ditches shall not be considered natural waterways.

Nonerodible means a material, e.g., natural rock, riprap, concrete, plastic, etc., that will not experience surface wear due to natural forces of wind, water, ice, gravity or a combination of those forces.

Local government means any county, municipality, or any combination of counties or municipalities, acting through a joint program pursuant to the provisions of this article.

Nonpoint source pollution means pollution contained in stormwater runoff from ill-defined, diffuse sources.

One hundred-year frequency storm means a storm that is capable of producing rainfall expected to be equaled or exceeded on the average of once in 100 years. It also may be expressed as an exceedance probability with a one percent chance of being equaled or exceeded in any given year.

Person means any state or federal agency, individual, partnership, firm, association, joint venture, public or private corporation, trust, estate, commission, board, public or private institution, utility, cooperative, municipality or other political subdivision of this state, any interstate body or any other legal entity.

Person responsible for the land disturbing activity means:

(1) The person who has or represents having financial or operational control over the land disturbing activity; and/or

(2) The landowner or person in possession or control of the land who directly or indirectly allowed the land disturbing activity or has benefited from it or who is responsible, or who has failed to comply with any provision of the act, these regulations, or any order or local ordinance adopted pursuant to this act as imposes a duty upon him.

Post-development means the conditions which exist following the completion of the land disturbing activity in terms of topography, vegetation, land use and rate, volume or direction stormwater runoff.

Predevelopment means the conditions which existed prior to the initiation of the land
disturbing activity in terms of topography, vegetation, land use and rate, volume or direction of stormwater runoff.

Protected channel means a channel which receives stormwater discharge and which is paved, rip-rapped or otherwise improved by addition of deliberately placed materials so as to reduce the potential for erosion.

Redevelopment means a land disturbance activity that alters the current use of the land but does not necessarily alter the predisturbance runoff characteristics.

Responsible personnel means any foreman, superintendent, or similar individual who is the on-site person in charge of land disturbing activities.

Retention structure means a permanent structure whose primary purpose is to permanently store a given volume of stormwater runoff. Release of the given volume is by infiltration and/or evaporation.

Sediment means solid particulate matter, both mineral and organic, that has been or is being transported by water, air, ice, or gravity from its site of origin.

Single-family residence separately built means a noncommercial dwelling that is occupied exclusively by one family and not part of a residential subdivision development.

Stabilization means the installation of vegetative or structural measures to establish a soil cover to reduce soil erosion by stormwater runoff, wind, ice and gravity.

Stop work order means an order directing the person responsible for the land disturbing activity to cease and desist all or any portion of the work which violates the provisions of this act.

Storm water channel means a natural or manmade open watercourse with definite bed and banks which periodically or continuously contains moving water, or which forms a connecting link between two bodies of water.

Storm water management means for:

1. Quantitative control, a system of vegetative or structural measures, or both, that control the increased volume and rate of stormwater runoff caused by manmade changes to the land;

2. Qualitative control, a system of vegetative, structural, or other measures that reduce or eliminate pollutants that might otherwise be carried by stormwater runoff.

Stormwater management and sediment control plan means a set of drawings, other documents, and supporting calculations submitted by a person as a prerequisite to obtaining a permit to undertake a land disturbing activity, which contains all of the information and specifications required by an implementing agency. See division 5.

Stormwater management system means all facilities associated with the collection, conveyance, storage, treatment and discharge of stormwater runoff including but not limited to the: stormwater pond, underground detention system, sediment dam, riser, trash rack, inlet structures, outlet structures, emergency spillway, swales and piped conveyances, curbs, gutters, flumes, catch basins and inlets, anti-seep collars, storm sewer, vegetative cover, pond bottom, pond embankments, pond dam, riprap, geotextile fabric, and any other associated structures.

Stormwater runoff means direct response of a watershed to precipitation and includes the surface and subsurface runoff that enters a ditch, stream, storm sewer or other concentrated flow during and following the precipitation.

It also means stormwater that results from precipitation which is not absorbed by the soil or vegetation or evaporated and which flows over the ground surface or is collected in channels or conduits.

Stormwater runoff release rate means the rate at which stormwater is released from upstream to downstream land.

Stormwater utility means an administrative organization that has been created for the purposes of planning, designing, constructing, and maintaining stormwater management, sediment control and flood control programs and projects.

Subdivision, unless otherwise defined in an ordinance adopted by a local government pursuant to S.C. Code, § 6-7-1010, means all divisions of a tract or parcel of land into two or more lots, building sites, or other divisions, or parcels less than five acres, for the purpose, whether immediate or future, of sale, legacy, or building development, or includes all division of land involving a new street or a change in existing streets, and includes resubdivision and, where appropriate, in the context, shall relate to the process of subdividing or to the land or area subdivided.

Swale means a structural measure with a lining of grass, riprap or other materials which can function as a detention structure and convey stormwater runoff without causing erosion.

Ten-year frequency storm means a storm that is capable of producing rainfall expected to be equaled or exceeded on the average of once in ten years. It may also...
be expressed as an exceedance probability with a ten percent chance of being equaled or exceeded in any given year.

Twenty-five-year frequency storm means a storm that is capable of producing rainfall expected to be equaled or exceeded on the average of once in 25 years. It also may be expressed as an exceedance probability with a four percent chance of being equaled or exceeded in any given year.

Two-year frequency storm means a storm that is capable of producing rainfall expected to be equaled or exceeded on the average of once in two years. It may also be expressed as an exceedance probability with a 50 percent chance of being equaled or exceeded in any given year.

Variance means the modification of the minimum sediment and stormwater management requirements for specific circumstances where strict adherence of the requirements would result in unnecessary hardship and not fulfill the intent of these regulations.

Waiver means the relinquishment from sediment and stormwater management requirements by the appropriate plan approval authority for a specific land disturbing activity on a case-by-case review basis.

Water quality means those characteristics of stormwater runoff from a land disturbing activity that relate to the physical, chemical, biological, or radiological integrity of water.

Water quantity means those characteristics of stormwater runoff that relate to the rate and volume of the stormwater runoff to downstream areas resulting from land disturbing activities.

Watershed means the drainage area contributing stormwater runoff to a single point.

Watershed master plan means a plan for a designated watershed that analyzes the impact of existing and future land uses and land disturbing activities in the entire watershed and includes strategies to reduce nonpoint source pollution, to manage stormwater runoff and control flooding. The plan must be developed for the entire watershed, regardless of political boundaries, and must include appropriate physical, institutional, economic and administrative data needed to justify the plan.

(Ord. No. 28-2007, § 1, 8-28-2007)

Sec. 90-349. Stormwater management and sediment/erosion control plan; Plan submission requirements

(a) All computations, plans and specifications related to the implementation of this article must be prepared, signed and sealed by a professional engineer, Tier B land surveyor or landscape architect registered in the State of South Carolina.

(b) A topographic survey map of the project site and adjacent areas, of suitable scale and contour interval, which shall define the location of all streams, the extent of flood plains and calculated high water elevations, the shoreline of lakes, ponds, wetlands and detention/retention basins including their inflow structures, if any.

(c) The location and flow line elevation of all existing storm sewers that are affected by this property.

(d) Detailed determination of runoff anticipated for the entire project site following development indicating design volumes and rates of proposed runoff for each portion of the watershed tributary to the storm drainage system, the calculations used to determine said runoff volumes and rates and restatement of the criteria which have been used by the professional engineer, Tier B surveyor or landscape architect.

(e) A layout of the proposed stormwater management system including the location and size of all drainage structures, storm sewers, channels and channel sections, detention basins, details and analysis regarding the effect said improvements will have upon the receiving channel and its high water elevation.

(f) The slope, type and size of all existing and proposed stormwater sewers, (including a storm sewer structure schedule) and other waterways that affect the property.

(g) For all detention basins, a plot or tabulation of storage volumes with corresponding water surface elevations and of the basin outflow rates for those water surface elevations.

(h) For all detention basins, design hydrographs of inflow and outflow for the two-, ten-, 25- and 100-year, 24-hour design runoff events for the site under developed conditions and the calculated two-, ten-, 25- and 100-year, 24-hour peak flows from the site under predeveloped conditions.

(i) Elevations and one or more cross sections of all existing and proposed channels or other open drainage facilities, showing existing conditions and the proposed changes thereto, together with the high water elevations expected from stormwater runoff under the controlled conditions called for by these regulations and the relationship of structures, streets, and other utilities to such channels.
Sec. 90-350. Allowable nonstormwater discharges

[The following] must comply with requirements for nonstormwater discharge management:

1. Discharges from firefighting activities;
2. Fire hydrant flushings;
3. Waters used to wash vehicles where detergents are not used;
4. Water used to control dust in accordance with subpart 3.4.J (sic);
5. Potable water including uncontaminated water line flushings;
6. Routine external building wash down that does not use detergents;
7. Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used;
8. Uncontaminated air conditioning or compressor condensate;
9. Uncontaminated ground water or spring water;
10. Foundation or footing drains where flows are not contaminated with process materials such as solvents;
11. Uncontaminated excavation dewatering;
12. Landscape irrigation.

(Ord. No. 28-2007, § 1, 8-28-2007)
DIVISION 2. REQUIREMENTS FOR NEW DEVELOPMENT AND REDEVELOPMENT

Sec. 90-361. Applicability

Stormwater management and sediment/erosion control plans shall be required for any new residential development or subdivision, and for any new commercial, industrial, institutional or utility development. No subdivision plat or site plan shall be approved by the planning commission and no building permits shall be issued until and unless the stormwater management and sediment/erosion control plans have been reviewed and approved by the city engineer and applicable permits issued. A plan review fee, calculated using the formula found in the engineering review fee schedule, shall be charged for each plan reviewed. Although multiple reviews may be required for each plan prior to plan approval, the maximum time period between each review shall be no longer than 30 business days.

Plans are not required for single-family homes where a subdivision plat is not required provided:

1. Disturbed lots are protected with gravel entrances and properly installed and functioning silt fencing.

2. Stormwater runoff does not damage downstream structures, or offsite areas.

3. Land disturbance is less than one acre.

Plan review and approvals for sites that disturb less than one acre and that are not part of a larger common plan will proceed under the City of Greer Grading Permit and Plan review process. Based on the complexity of the site the city engineer will determine whether or not a complete stormwater management and sediment/erosion control plan, (plan) is required or if a simplified plan will suffice. Upon satisfactory completion of the plan review process a City of Greer grading permit may be granted.

For site plans that disturb one acre of land or greater and those that disturb less than one acre that are part of a larger common plan, all of the requirements of a stormwater management and sediment/erosion control plan apply. Upon satisfactory completion of the plan review process, the city engineer will authorize the issuance of an approval letter. The approval letter and the original notice of intent (NOI), will be sent to S.C. DHEC's stormwater permitting section with the recommendation of the issuance of coverage under the ”NPDES General Permit for Stormwater Discharges from Large and Small Construction Activities” (construction general permit, CGP) for the described land disturbing activity. Once the coverage under the construction general permit is obtained from DHEC and performance surety is posted a City of Greer grading permit may be granted.

The required stormwater management and sediment/erosion control plan shall identify means for controlling the stormwater runoff release rate from the development, providing storage or infiltration for the excess stormwater runoff where required, reducing velocity, controlling sediment/erosion and providing water quality treatment. All computations, plans, and specifications related to the implementation of this article must be prepared, signed and sealed by a professional engineer, Tier B land surveyor or landscape architect registered in the State of South Carolina.

The stormwater management and sediment/erosion control plan shall contain but not be limited to the information listed in section 90-349, unless specifically excluded by the city engineer.

(Ord. No. 28-2007, § 1, 8-28-2007)

Sec. 90-362. Management of nonstormwater discharges allowed under part 1.3.b of the S.C. DHEC construction general permit

A stormwater pollution prevention plan, (SWPPP) must identify all allowable sources of nonstormwater discharges listed in division 5, except for flows from fire fighting activities that are combined with stormwater discharges associated with construction activity at the site. Nonstormwater discharges shall be eliminated or reduced to the extent feasible. The SWPPP must identify and ensure the implementation of appropriate pollution prevention measures for the nonstormwater component(s) of the discharge allowed under section 90-350.

(Ord. No. 28-2007, § 1, 8-28-2007)

Sec. 90-363. Performance bonds

(a) A person is required to obtain a surety or cash bond, irrevocable letter of credit, or other means of security acceptable to the City of Greer, made payable to the City of Greer, prior to the issuance of any building and/or grading permit for construction of a development requiring a stormwater management facility. The amount of the security shall be based on a cost estimate prepared and sealed by the engineer of record plus 20 percent. Said bond shall be enough to:
(1) Complete the stormwater management facilities;

(2) Maintain sediment and erosion controls according to the approved plans; and

(3) Maintain and operate stormwater management facilities for residential subdivisions until the facilities are turned over to the homeowner's association.

(b) The bond so required in this section shall include provisions relative to forfeiture for failure to complete work specified in the approved plan, compliance with all the provisions of this article and other applicable laws and regulations, and any time limitations. The bond shall not be fully released without submission of asbuilt certification documents as submitted by the design professional and inspection and certification by the city engineer that work has been completed in compliance with the provisions of this article. Twenty percent of the bond amount shall be retained one year past project completion or final build out. A provision may be made for partial release of the amount of the bond pro rata upon completion and acceptance of the various stages of development as specifically delineated, described, and scheduled on the required plans and specifications. The developer shall notify the city engineer upon completion of each stage that is ready for inspection.

(Ord. No. 28-2007, § 1, 8-28-2007)

Sec. 90-364. Requirements; construction

Sediment and erosion control shall be established on applicable land disturbing sites by both nonstructural and structural controls or best management practices (BMPs). Structural controls include but are not limited to, silt fencing, check dams, slope drains, construction entrances, sediment traps, sediment basins, inlet protection, and stabilization. Nonstructural controls include but are not limited to, plan development, plan modification, phasing and sequencing.

(1) Plan submission: A plan that adequately addresses sediment and erosion control, dust control, and management of additional wastes or spills must be submitted to the City of Greer. Plan requirements are as outlined in section 90-349 and may be amended from time to time.

(2) For sites that disturb ten acres or more and whose stormwater runoff drains to a single outlet, sediment and erosion shall be controlled by a sediment basin. The sediment basin shall be designed and constructed to accommodate the anticipated soil loading from the land disturbing activity and meet a removal efficiency of 80 percent suspended solids. The outfall device or system design shall take into account the total drainage area flowing through the disturbed area to be served by the basin. The 80 percent suspended solids removal efficiency shall be calculated using the applicable ten-year 24-hour storm event.

(3) For sites whose stormwater runoff is from land disturbing activities less than ten acres, other methods of sediment removal may be acceptable provided 80 percent removal of suspended solids is achieved. The 80 percent suspended solids removal efficiency must be calculated using the applicable ten-year 24-hour storm event.

(4) Waste disposal and spills: All plans and construction sites shall have provisions for proper control of concrete waste, discarded building materials, demolition debris, construction litter and trash, portable toilet location and chemical/fuel wastes and spills.

(5) A construction entrance shall be designed, constructed and maintained to minimize offsite tracking of sediment. Dust shall be controlled to the extent that it does not leave the site or enter into roadways.

(6) Individual lots within a subdivision must provide lot sediment and erosion control for disturbed portions of the lot. Typically this consists of properly installed silt fencing on downward slopes and gravel entrances.

(7) Any area of land from which the natural vegetative cover has been either partially or wholly cleared by development activities shall be revegetated according to a schedule approved by the city engineer.

(Ord. No. 28-2007, § 1, 8-28-2007)

Sec. 90-365. Construction/post-construction: Water quality

(a) Water quality treatment of stormwater runoff is required for all sites whose land disturbing activity is greater than five acres. The City of Greer reserves the right to require water quality treatment of stormwater runoff for sites whose land disturbing activity is less than five acres, if a concern for impact to water quality exists. This requirement exists whether or not the stormwater discharges to impaired water.

(b) Impaired waters: For sites whose stormwater runoff discharges to a receiving water that is listed as impaired in South Carolina's 303(d) list of impaired waters, the following requirements apply:
(1) If a total maximum daily load (TMDL) that is applicable to stormwater construction discharges has been established and is in effect then the applicant must follow the TMDL requirements found in Part 1.3C4 of the construction general permit.

(2) If a TMDL for the impaired receiving water either has not been established or is not in effect the applicant must ensure that stormwater discharges from this project will not contribute to violations of the water quality standard. If the stormwater discharges do not contain the pollutant of concern no additional requirement is necessary. Where the stormwater discharge contains the pollutant(s) of concern the applicant must ensure that stormwater discharges will not contribute or cause a violation of water quality standards. A BMP directed at the pollutant of concern must also be included in the plan. For projects that disturb 25 acres of land or more the plan must contain a written quantitative and qualitative assessment that the BMPs selected will control stormwater discharges sufficiently so that they will not cause or contribute to violations of water quality standards.

c. TMDL information requested on the notice of intent (NOI) must be completed by the design professional.

Sec. 90-366. Post-construction: Stormwater quantity and direction of flow

Water quantity control is an integral part of overall stormwater management. The increased stormwater runoff resulting from the proposed development may be accommodated by the provision of appropriate detention facilities including wet or dry bottom reservoirs, flat roofs, constructed wetlands, or underground storage. Additional methods may be approved provided adequate detention is achieved and supporting calculations and documentation are provided. The following rules shall govern the design of improvements with respect to managing stormwater runoff:

1. Release rate.
   a. Post development peak discharge rates shall not exceed predevelopment discharge rates for the applicable two-, ten-, and 25-year frequency, 24-hour duration storm event.
   b. In the event the natural downstream channel or storm sewer system is inadequate to accommodate the release rate provided above, then the allowable release rate shall be reduced to that rate permitted by the capacity of the downstream channel or storm sewer system. If in the opinion of the applicant, professional engineer, Tier B surveyor or landscape architect, damage downstream of the development might occur as the result of the development, then the applicant must make downstream improvements that are necessary to mitigate damages or increase on-site detention. Information related to the problems of concern may be obtained from the natural resources conservation service, FEMA, a flood analysis prepared by a flood mapping service, etc. Ultimately, it is the design professional's responsibility to identify and mitigate such areas of concern.
   c. Watersheds that have documented water quantity problems may have more stringent design criteria as determined by the city engineer.

2. Storage volume. The minimum volume of storage potential provided in detention facilities shall be sufficient to control the excess stormwater runoff, as determined to be the difference between the stormwater quantity from the site in its developed state for a 10-year, 24-hour frequency rainfall as published by the U.S. Weather Bureau less the ten-year runoff quantity from the site prior to development. This volume may be increased as necessary to meet the requirements of the release rate criteria found in the paragraph above.
(3) **Discharge velocity.** Stormwater runoff shall be controlled to a nonerosive velocity both during and after construction. Velocity dissipation measures shall be used to provide a nonerosive velocity flow to maintain existing hydrology conditions of watercourses. Storm sewer outfalls shall be designed to provide adequate protection against downstream erosion and scouring as the result of the discharge from the development/redevelopment.

(4) **Discharge direction.** Post-construction discharge shall be in the same direction and ratio as that before construction.

(5) **Spillway.** Emergency spillways shall be provided and located in a manner as to permit the safe passage of runoff from a 100-year, 24-hour storm.

(6) **Freeboard.** Detention facilities shall have adequate capacity to contain the storage volume of stormwater runoff with at least one-half foot of freeboard above the water surface of flow in the emergency spillway in a 100-year storm.

(7) **Fencing.** Ground reservoir detention facilities with a depth greater than 24 inches shall be enclosed within a permanent four-foot high fence; provided, that this requirement may be waived on a case-by-case basis when the detention facility is within an area that is totally enclosed by a fence. All detention facilities shall be landscaped on the outside of the fence or reservoir by a screen of the owner's choosing, including berms, trees, shrubbery, etc.

Fencing shall not be required when the detention pond is a wet pond utilized as an amenity.

(8) **Design for access and maintenance.** Design of stormwater ponds and location of stormwater management and quality structures shall be sufficient to provide safe access by manpower and equipment for routine and nonroutine maintenance of the pond bottom, slopes and stormwater management/quality structures. Maintenance access routes to stormwater ponds and structures shall lie within dedicated storm sewer easements.

(9) **Natural drainageways.** Natural drainageways shall be utilized to the maximum extent practicable in carrying stormwater runoff provided its use remains consistent with the purpose of this article.

(Ord. No. 28-2007, § 1, 8-28-2007)

**Sec. 90-367. Individual lot grading plans**

Individual lot grading plans shall be required prior to issuance of a building permit where residential homes are constructed:

(1) In or along natural drainageways;

(2) When the elevation of any existing or proposed entrance to a structure, including windows, is lower than or significantly higher than the elevation of the street serving the home;

(3) When a structure is located in close proximity of an emergency spillway; or

(4) When requested by the city engineer.

(Ord. No. 28-2007, § 1, 8-28-2007)

**Sec. 90-368. Additional design criteria**

(a) **Rainfall data.** Rainfall data used in the design of sediment and erosion controls, water quality devices and stormwater management structures shall be obtained from the South Carolina Rainfall Data table found in the most recent edition of the SC DHEC Stormwater Management BMP Handbook.

(b) **Stormwater drainage system design criteria.** Storm drains, catch basins, inlets, culverts, etc. shall be designed in accordance with design criteria and standard drawings for public works improvements for the City of Greer, South Carolina. Design shall be based on the storm event according to the following table:

<table>
<thead>
<tr>
<th>Structure/System</th>
<th>Storm Event</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inlets, catch basins</td>
<td>10 to 25 year</td>
<td></td>
</tr>
<tr>
<td>Storm drain pipe and culverts</td>
<td>10 to 25 year</td>
<td>Applies to drainage structures that do not convey runoff under public roadways</td>
</tr>
<tr>
<td><strong>Roadway culverts</strong></td>
<td>25 to 100 year</td>
<td>Applies to drainage structures that transport stormwater under public roadways.</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------</td>
<td>---------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Open channels</strong></td>
<td>25 year</td>
<td>All channels, swales, etc.</td>
</tr>
<tr>
<td><strong>Energy Dissipaters</strong></td>
<td>25 year</td>
<td>Includes all outlet protection structures.</td>
</tr>
</tbody>
</table>

(c) **Easements.** Stormwater management and water quality structures located outside of existing or proposed rights-of-way shall be located within and accessible by easements as follows:

1. **Individual lot swales.** Swales designed to carry stormwater between individual residential lots shall be placed on a ten-foot drainage easement, (five feet on each side of the lot line).

2. **Access easements.** Where stormwater management structures and water quality devices are not adjacent to proposed or existing public rights-of-way or are not accessible due to physical constraints, (as determined by the city engineer), a 25 feet-wide passable easement that specifies right of entry shall be provided. Access easements shall provide for vehicle ingress and egress on grades of less than ten percent.

3. **Maintenance easements.** A maintenance easement shall be provided that encompasses stormwater ponds, infiltration systems, and water quality devices.

4. **Where possible, easements shall lie parallel and adjacent to subdivision property lines.**

5. **Easements shall stipulate that no trees, shrubs, structures, excavation or fill be placed within the easement without the written approval of the city engineer.**

6. **All easements shall be depicted in the site plans and recorded on the final plat.**

(d) **Lot lines.** Whenever the plans call for the passage and/or storage of stormwater runoff along lot lines, the grading of all such lots shall be prescribed and established for the passage of waters, and no structure or vegetation which would obstruct the flow of stormwater shall be allowed, nor shall any change be made to prescribed grades and contours of the specified stormwater channels.

(e) **Manholes.** All utility sewer manholes constructed in an area designed for the storage or passage of stormwater shall be provided with either a watertight manhole cover or be constructed with a rim elevation of a minimum of one foot above the high-water elevation of the design storm.

(Ord. No. 28-2007, § 1, 8-28-2007)

### Sec. 90-369. Maintenance

(a) **Construction maintenance--Sediment and erosion controls.**

1. All erosion and sediment control measures and other protective measures identified in the plan must be maintained in effective operating condition. If site inspections identify BMPs that are not operating effectively, maintenance must be performed as soon as practical or as reasonably possible and before the next storm event whenever practicable to maintain the continued effectiveness of stormwater controls.

2. If existing BMPs need to be modified or if additional BMPs are necessary to comply with the requirements of this permit and/or South Carolina’s Water Quality Standards, implementation must be completed before the next storm event whenever practicable. If implementation before the next storm event is impracticable, the situation must be documented in the plan and alternative BMPs must be implemented as soon as reasonably possible.

3. Sediment from sediment traps or sedimentation ponds must be removed as indicated in the plan or when the design capacity has been reduced by 50 percent, whichever occurs first.

All permittees are expected and required to properly maintain all of their sediment and erosion controls in a safe and proper functioning manner. Failure to properly maintain sediment and erosion controls can result in but is not limited to stop work orders, fines, penalties, permit revocation, and legal action by the City of Greer. In an effort to protect its citizens and streams within the city, the City of Greer also reserves the right to withhold certificates of occupancy and street acceptance in developments that fail to properly maintain sediment and erosion controls.

(b) **Post-construction maintenance and ownership.** A perpetual maintenance
agreement, approved by the city engineer assuring perpetual maintenance of stormwater and water quality management improvements shall be executed by the city and the applicant. All owners of stormwater management facilities and water quality devices are required to maintain these facilities in a manner acceptable to the City of Greer and by constructing and operating these facilities and devices in the City of Greer agree to properly maintain them in a manner acceptable to the City of Greer. Failure to properly maintain stormwater management facilities or water quality devices may result in but is not limited to fines, penalties and legal action by the City of Greer. The City of Greer shall be given two weeks' notice prior to ownership change. The City of Greer must be notified in writing of a transfer of ownership and maintenance responsibility. The notification shall include a date for the transfer of the responsibility and a notarized letter of acceptance from the new owner. Ownership shall not change without the execution of a new maintenance agreement.

(Ord. No. 28-2007, § 1, 8-28-2007)

Sec. 90-370. Waivers

Detention waivers may be obtained on a case-by-case basis for:

(1) Direct stormwater discharges to Lakes Robinson and Cunningham and portions of the South Tyger River provided:
   a. The waiver is approved by the city engineer; and
   b. The design engineer provides an assessment with adequate supporting documentation and calculations, and sealed certification of "No Adverse Downstream Effects" as found in SC DHEC Reg 72-300.

(2) Instances where change in runoff rate is not more than one cubic foot per second, provided:
   a. The waiver is approved by the city engineer; and
   b. The design engineer provides an assessment with adequate supporting documentation and calculations, and sealed certification of "No Adverse Downstream Effects" as found in SC DHEC Reg 72-300.

(Ord. No. 28-2007, § 1, 8-28-2007)

Sec. 90-371. Plan certification

The design professional shall provide a signed and sealed certification statement included with the plan submission. The certification statement shall depict and certify in tabular form the predevelopment and post-development discharge rates, discharge volumes, discharge velocities, trapping efficiencies and water quality removal efficiencies and pollutants treated for the plan as submitted.

(Ord. No. 28-2007, § 1, 8-28-2007)

Sec. 90-372. Plan approval required prior to construction

No building permit shall be issued or site plan approved until the stormwater management and sediment/erosion control plan have been approved by the city engineer.

(Ord. No. 28-2007, § 1, 8-28-2007)

Sec. 90-373. Inspection

(a) The city engineer shall be responsible for determining whether the stormwater management and sediment/erosion control plan are in conformance with requirements specified in this article and whether development are proceeding in accordance with the approved plans. Periodic inspection of the development site shall be made by the city engineer and other duly authorized employees to ensure that the plans are properly implemented.

(b) The city engineer and other duly authorized employees bearing proper credentials and identification shall be permitted to enter upon all properties for the purpose of inspection, observation and measurement in accordance with the provisions of this article.

(c) Inspection fees of $100.00 per hour, shall be charged on the second reinspection. Except that, reinspection fees for individual lot control in residential subdivisions shall be assessed at the fee of $100.00 per lot.

(d) Inspection fees shall not be charged for the initial inspection, the first reinspection, or subsequent random inspections initiated by the City of Greer.
Sec. 90-374. Certificate of occupancy and street acceptance

The developer will be required to construct the project in accordance with the approved stormwater management and sediment/erosion control plan. No occupancy permit will be issued nor streets accepted until the city engineer has certified that all facilities have been constructed in compliance with the approved plans.

Sec. 90-375. As-built certification

Prior to City of Greer approval covered in the above paragraph, the qualified design professional shall:

1. Certify in writing to the city engineer that the stormwater management and sediment/erosion control facilities have been constructed in accordance with the approved plans and specifications. The design professional shall also provide certification by placement of his or her seal on the as-built certification forms. These forms will be provided by the City of Greer and will require information deemed necessary for performance certification of permanent stormwater structures and water quality devices.

2. Provide a set of approved stormwater management plan drawings showing all approved revisions, and elevations and invert to all manholes, inlets, pipes and stormwater management and water quality structures.

Sec. 90-376. Enforcement

(a) Work suspension. In the event that work performed does not conform to the provisions of the approved stormwater management and sediment/erosion control plan and specifications, a written notice to comply shall be served upon the developer. Such notice shall set forth the nature of the correction required and the time within which corrections shall be made. Failure to comply with such notice shall result in the issuance of a stop work order applicable to all construction activity except that necessary for correction of the violation. In the event that conditions are such that water quality impact or public safety is at risk if deficiencies are not immediately corrected a stop work order may be issued without previous written notice. Such notice shall remain in effect until deficiencies are corrected.

(b) Permit revocation. If deemed necessary the City of Greer may revoke the site grading permit.


DIVISION 3. EXISTING STORMWATER MANAGEMENT SYSTEMS AND WATER QUALITY DEVICES

Sec. 90-391. Applicability

Applies to all existing stormwater management systems and water quality devices located within the City of Greer.

Sec. 90-392. Responsibility

The owner accepts responsibility for ownership, liability, proper maintenance and operation of the permanent stormwater management system, water quality devices and their associated structures on the site per the approved site plans and design. The owner agrees to continue to own, maintain and operate the stormwater management systems and/or water quality devices until the City of Greer is notified in writing of a transfer in ownership and operation/maintenance responsibility including submission of a new stormwater management system agreement and/or water quality device agreement. The City of Greer shall be given two weeks' notice prior to ownership change. The notification shall include a date for the transfer of the responsibility and
a notarized letter of acceptance from the new owner. Ownership shall not change without the execution of a new maintenance agreement.

(Ord. No. 28-2007, § 1, 8-28-2007)

Sec. 90-393. Maintenance of stormwater management systems

The owner accepts responsibility the following maintenance responsibility for stormwater management systems:

1. **Functionality.** Maintaining the stormwater system and associated structures in such a manner that it functions at its approved design rate. Crests of dams shall be graded to direct all surface drainage into the impoundment. Also the pond bottom shall be re-graded to provide proper drainage towards the outlet structure. The outlet structure shall also be maintained so that it functions at its engineered design.


3. **Mowing.** The embankment, upstream and downstream areas must be mowed to control the establishment of woody growth and maintain vegetative cover. Mowing shall be completed at least three times per year. Under no circumstances will tree growth be allowed in the pond, on the dam and pond embankments or around inlet and outlet structures.

4. **Access.** Providing adequate equipment access so that the pond and its structures can be properly maintained.

5. **Trash and debris.** Trash rack units shall be checked quarterly and additionally after heavy rainfall events. Accumulated debris shall be removed in a timely manner and maintenance performed as necessary.

6. **Inspections.** Annually, the pond and its associated structures shall be inspected and certified by a professional engineer. The annual inspection report shall be submitted to the City of Greer Stormwater Inspector at 106 South Main St., Greer, SC 29650-2019. In addition to inspecting the areas listed in items 1 through 6, the engineer shall inspect:
   a. Outlet structures for sediment discharge, cracking, spalling, displacement, or movement and deterioration by cracking, slab or wall movement.
   b. Conduits improper alignment (sagging), elongation and displacement of joints, cracks, leaks, surface wear, loss of protective coatings, corrosion and blockage.
   c. The dam for seepage. Seepage must be controlled in quantity and velocity to minimize damage to the dam. Regular monitoring to detect wet areas, “spring flow”, “piping” and “boils” on the downstream embankment shall be done. Excessive seepage pressure can threaten the downstream slope stability. Seepage flow which is muddied by soil is evidence of “piping” and “boils”. When this occurs complete failure may happen within hours and professional advice shall be obtained immediately.
   d. Pictures depicting the current condition should be included in each inspection report.

7. **Deficiencies.** Any observed or noted deficiencies shall be noted on the inspection report and corrected in a timely manner.

(Ord. No. 28-2007, § 1, 8-28-2007)

Sec. 90-394. Maintenance of water quality devices

The owner accepts the following maintenance responsibility for water quality devices:

The owner will operate and maintain the water quality device according to an approved operating and maintenance plan (O&M plan) and maintenance schedule.

1. **Design efficiency.** The owner agrees to maintain the water quality device in such a manner that the designed pollutant removal efficiency is not compromised.

2. **Access.** The owner agrees to provide adequate access to the water quality device so that the device and its structures can be properly maintained.

3. **Inspections.** The device will be inspected on a regular basis as outlined in the operating and maintenance plan. Annually the water quality device and its associated structures shall be inspected and certified by a professional engineer. The annual inspection report shall be submitted to the City of Greer Stormwater Inspector at 106 South Main St. Greer, SC 29650-2019.

4. **Deficiencies.** Any observed or noted deficiencies shall be noted on the
inspection report and corrected in a timely manner.

Operation. The owner agrees to maintain and operate stormwater management systems and water quality devices and their associated structures in accordance with this article.

Access by City of Greer. The owner grants permission for the city engineer and other duly authorized employees to enter upon the property and inspect the stormwater management system, water quality devices and their associated structures.

Notice. In the event the owner fails to maintain in good working order or repair the stormwater management system, water quality devices and their associated structures in a timely manner, the City of Greer will notify the owner in writing and allot ten days for the owner to make the necessary corrections. If after ten days the owner still has not made the necessary corrections, the City of Greer or its authorized agents may enter the property, make the necessary corrections and charge the costs of repairs and maintenance to the owner. The owner agrees to repay the City of Greer within 30 days for all costs incurred plus a 15 percent penalty. It is understood that the City of Greer is under no obligation to maintain or repair the stormwater management system and its associated structures.

Hold harmless. The requirements of this section impose no liability of any kind on the City of Greer and the owner agrees to hold the City of Greer harmless from any liability in the event the stormwater management system, water quality devices and their associated structures fail to operate properly.

Secs. 90-395–90-400. Reserved.

DIVISION 4. OPERATION OF STORMWATER MANAGEMENT SYSTEMS AND WATER QUALITY DEVICES FOR NEW DEVELOPMENT AND REDEVELOPMENT

Sec. 90-401. Applicability

This section applies to new development and redevelopment owners of stormwater management facilities including water quality devices.

Sec. 90-402. Operation

All owners of stormwater management systems and water quality devices agree to operate and maintain these structures in accordance with the applicable approved plans, maintenance agreements, and operating/maintenance plans, and according to the purpose for which it was designed and constructed. Furthermore, the owner agrees to own, maintain and operate said structures until a change of ownership transaction is completed as described in the previous sections above. An operating certificate shall be issued for the operation of the stormwater management facilities and water quality devices at the same time the certificate of occupancy is issued or at the time streets are accepted whichever is applicable. Owners that fail to comply with this section shall be subject to the penalties and legal measures sections previously described.

Secs. 90-403–90-420. Reserved.

DIVISION 5. STORMWATER POLLUTION PREVENTION PLAN CONTENTS

Sec. 90-421. Stormwater pollution prevention plan: required contents

(a) Required SWPPP contents (As found in SCR100000, the NPDES Permit for Stormwater Discharges from Large and Small Construction Activities):

(1) The SWPPP must identify all operators for the project site and the areas of the site over which each operator has control.

(2) The intended sequence and timing of major soil disturbing activities.

(3) Total disturbed area (that disturbed by excavation, grading, or other construction activities including off-site borrow and fill areas).

(4) A general location map such as a USGS quadrangle map with enough detail to identify the location of the construction site and surface waters of the state within one mile of the site.

(5) The SWPPP must contain a legible site map showing the entire site and identifying:
a. Directions of stormwater flow and approximate slopes anticipated after major grading activities;

b. Areas of soil disturbance and areas that will not be disturbed;

c. Locations of structural and nonstructural BMPs identified in the SWPPP;

d. Locations of where stabilization practices are expected to occur;

e. Locations of off-site material, waste, borrow, or construction equipment storage areas;

f. Locations of all surface waters of the state (including wetlands);

g. Locations where stormwater discharges to a surface water; and

h. Areas where final stabilization has been accomplished and no further construction-phase permit requirements apply.

(6) The SWPPP must describe and identify the location and description of any stormwater discharges associated with industrial activity other than construction at the site. This includes stormwater discharges from dedicated asphalt plants and dedicated concrete plants that are covered by this permit.

(7) The SWPPP must include a description of all pollution control measures (i.e., BMPs) that will be implemented as part of the construction activity to control pollutants in stormwater discharges. For each major activity identified in the project description, the SWPPP must clearly describe control measures necessary to comply with this permit and applicable laws and regulations, the general sequence during the construction process in which the measures will be implemented, and which operator is responsible for the control measure's implementation.

(8) The SWPPP must include a description of interim and permanent stabilization practices for the site, including a schedule of when the practices will be implemented. Site plans should ensure that existing vegetation is preserved where possible and that disturbed portions of the site are stabilized. Use of impervious surfaces for stabilization should be avoided.

(b) The following records must be maintained as part of the SWPPP:

(1) Dates when major grading activities as identified in Part 3.3.B occur;

(2) Dates when construction activities temporarily or permanently cease on a portion of the site. Notes: Temporarily ceasing construction means ceasing construction on a portion of the site for more than 14 days. A portion of the site, means but is not limited to, portions of the site with dedicated controls (see also subpart 3.13.D of this permit); and

(3) Dates when stabilization measures are initiated.

Electronic storage of the above-mentioned information is acceptable provided that it is referenced in the SWPPP and it is readily available.

(c) The SWPPP must include a description of structural practices to divert flows from exposed soils; to retain/detain flows; or to otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Placement of structural practices in floodplains must be in accordance with applicable regulations.

(d) The SWPPP must include a description of all post-construction stormwater management measures that will be installed during the construction process to control pollutants in stormwater discharges after construction operations have been completed.

(e) Structural measures should be placed on upland soils to the degree practicable. Such measures must be designed and installed in compliance with applicable federal, local, state or tribal requirements.

(1) Permanent structural controls can only be placed in surface waters of the state (including wetlands and ephemeral and intermittent streams) if the US Army Corps of Engineers issues a permit for the activity under Section 404 of the CWA. When state navigable waters may be affected, the SWPPP must include appropriate requirements applicable to state navigable waters under S.C. Regulation 19-450.

(2) Temporary structural controls can only be placed in perennial surface waters of the state if the U.S. Army Corps of Engineers issues a permit for the activity under Section 404 of the CWA. When state navigable waters may be affected, the SWPPP must include appropriate requirements applicable to state navigable waters under S.C. Regulation 19-450. All temporary structural controls placed in perennial streams must be removed after final stabilization has been accomplished.

(3) Temporary structural controls may only be placed in ephemeral and intermittent streams when there is no other feasible alternative. All temporary structural controls placed in ephemeral and intermittent streams must be removed after final stabilization has been accomplished. After removal of the temporary structural controls, the ephemeral or intermittent stream must be restored to its original condition.
(f) The SWPPP must describe measures to prevent the discharge of building or other similar materials to surface waters of the state, except as authorized by a permit issued under Section 404 of the CWA.

(g) The SWPPP must describe measures to minimize, to the extent practicable, off-site vehicle tracking of sediments onto paved surfaces and the generation of dust.

(h) The SWPPP must include a description of construction and waste materials expected to be stored on-site with updates as appropriate. The SWPPP must also include a description of controls, including storage practices such as roll-off containers, to minimize exposure of the materials to stormwater, and spill prevention and response practices.

(i) For projects that construct their own temporary batch plants on or adjacent to the project site, the SWPPP must include a description of pollutant sources from areas other than construction (including stormwater discharges from dedicated asphalt plants and dedicated concrete plants), and a description of controls and measures that will be implemented at those sites to minimize pollutant discharges. If these areas are located off the construction area on property not owned by the owner of the project, they can be either included in the SWPPP for the construction site with the owner of the dedicated facility being a co-permittee under the construction general permit or the owner of the dedicated facility can obtain:

1. His own construction general permit coverage to build the dedicated facility; and

2. His own coverage under the Stormwater General Permit for Industrial Activity, Permit # SCR000000 or other appropriate permit. The method(s) selected to deal with dedicated facility areas must be addressed in the SWPPP.

(Ord. No. 28-2007, § 1, 8-28-2007)

Secs. 90-422–90-440. Reserved.