Regulation 72-405 through 72-445

Standards for Stormwater Management and Sediment Reduction

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S.C. Department of Health and Environmental Control

2600 Bull Street | Columbia, SC 29201

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72-405. Scope.

A.All land disturbing activities under the jurisdiction of the Department of Highways and Public Transportation must be performed in a manner that erosion is controlled and sediment is retained on the site concerned to the maximum extent feasible and stormwater is managed in a manner such that neither any significant on-site nor off-site damage and/or problem is caused or increased.

B.All construction or maintenance plans prepared by or for the Department of Highways and Public Transportation must include designs to manage stormwater runoff and control erosion and sedimentation using state-of-the-art practices.

72-410. Definitions.

As used in these regulations, the following terms shall have the meanings as indicated below:

1. "Commission" means the South Carolina Department of Land Resources Conservation Commission.

2. "Department of Highways and Public Transportation" means the South Carolina Department of Transportation.

3. "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.

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

5. "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.

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

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

8. "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 and quantity of stormwater runoff.

9. "Nonerodible" means a material, e.g., riprap, concrete, plastic, etc., that will not experience surface wear due to natural forces.

10. "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.

11. "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.

12. "Stabilization" means the prevention of soil erosion by surface runoff or wind through the establishment of a soil cover through the implementation of vegetative or structural measures.

13. "Stormwater Management" means, for:

(A) 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;

(B) qualitative control, a system of vegetative, structural, or other measures that reduce or eliminate pollutants that might otherwise be carried by stormwater runoff.

14. "Stormwater Management and Sediment Control Plan" means a set of drawings, other documents, and supporting calculations prepared to apply to land disturbing activity, which contains all of the information and specifications to support the design.

15. "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.

16. "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.

17. "Waiver" means the relinquishment from sediment and stormwater management requirements by the appropriate plan approval authority for a specific highway construction project on a case-by-case review basis.

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

19. "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.

20. "Watershed" means the total or partial drainage area contributing stormwater runoff to a single point.

72-415. Exemptions.

A. Any highway maintenance activity which disturbs less than five acres.

B. Any land disturbing activity conducted pursuant to a construction activity which disturbs less than five acres.

72-420. Activities Requiring Site Specific Plans.

A. Land disturbing activity associated with any highway construction or maintenance project not specifically exempted in these Regulations.

B. Land disturbing activity conducted for any reason under an encroachment permit, by easement or on right of way on lands under the jurisdiction of the Department of Highways and Public Transportation.

72-425. Specific Design Criteria, Minimum Standards and Specifications.

A.General submission requirements for all projects requiring site specific stormwater management and sediment control plans will include the following information as applicable:

(1) A standard application form,

(2) A vicinity map indicating north arrow, scale, and other information necessary to locate the project,

(3) A plan at an appropriate scale accompanied by a design report and indicating at least:

(a) The existing and proposed topography.

(b) The proposed grading and earth disturbance including:

1. Surface area involved; and

2. Limits of grading including limitation of mass clearing and grading whenever possible.

(c) Erosion and sediment control provisions, including:

1. Provisions to preserve top soil and limit disturbance;

2. Details of site grading; and

3. Design details for structural controls which include diversions and swales.

(d) The plans must be sealed by a qualified design professional and certified that the plans have been designed in accordance with the requirements of these regulations.

B.Requirements that shall be part of the completed plan but retained in the permanent Department of Highways and Public Transportation files for review by the Commission upon request include the following:

(1) Stormwater management and stormwater drainage computations, used in the design of pipe culverts, channels, inlets, ditches and other components of the stormwater management and erosion and sediment control systems.

(2) Location of project on Federal Emergency Management Agency flood maps and federal and State wetland maps, where appropriate.

(3) Design reports sealed by a qualified design professional and certified that the reports have been prepared in accordance with these regulations, standards, and specs.

(4) Additional information necessary for a complete project review may be required by the Commission as deemed appropriate. This additional information may include items such as public sewers, water lines, septic fields, wells, etc.

(5) A description of the predominant soil types on the site, as described by the appropriate soil survey information available through the Commission or the local Conservation District.

C. Specific requirements for the erosion and sediment control portion of the stormwater management and sediment control plan approval process include, but are not limited to, the following items. the Commission may modify the following items for a specific project or type of project.

(1) All plans shall include details and descriptions of temporary and permanent erosion and sediment control measures and other protective measures shown on the stormwater and sediment management plan.

(2) Specifications for a sequence of construction operations shall be contained on all plans describing the relationship between the implementation and maintenance of sediment controls, including permanent and temporary stabilization and the various stages or phases of earth disturbance and construction. The specifications for the sequence of construction shall, at a minimum, include the requirements of Standard Specifications for Highway Construction, Edition of 1986, and standard drawings prepared by the Department of Highways and Public Transportation.

Changes to the sequence of construction operations may be modified by the Department of Highways and Public Transportation and do not constitute a violation unless measures to control stormwater runoff and sediment are not utilized.

(3) When work in a live waterway is performed, precautions shall be taken to minimize encroachment, control sediment transport and stabilize the work area to the greatest extent possible during construction.

(4) Vehicle tracking of sediments from land disturbing activities onto paved public roads carrying significant amounts of traffic (ADT of 25 vehicles/day or greater) shall be minimized.

(5) The Department of Highways and Public Transportation shall initiate appropriate vegetative practices on all disturbed areas within seven (7) calendar days after the last activity at that area. In terms of phased construction, this requirement may require the Department of Highways and Public Transportation to utilize temporary seeding or other appropriate measures to protect exposed soils.

D. Specific requirements for the permanent stormwater management portion of the stormwater management and sediment control plan approval process include, but are not limited to, the following items. The Commission may modify the following items for a specific project or type or project.

(1) It is the overall goal of the Commission to address stormwater management on a watershed basis to provide a cost effective water quantity and water quality solution to the specific watershed problems. These regulations will provide general design requirements that must be adhered to in the absence of Designated Watershed specific criteria.

(2) All hydrologic computations shall be accomplished using methods recommended by the American Association of State Highway Transportation Officials (AASHTO). The method used shall be based on the size of the drainage area, the land use, site conditions, and topography. Hydrologic computations are not required when run-off flows in sheet flow down grass covered slopes or when roadway run-off is collected in grass lined ditches constructed on non erodible slopes.

(3) If a highway project crosses several watersheds, the stormwater management requirements for the specific project shall be based on the impacts on each individual watershed. If the project is phased, the initial submittal shall control that area proposed in the initial phase and establish a procedure and obligation for total site control.

(4) Water quantity control is an integral component of overall stormwater management. The following design criteria for flow control is established for water quantity control purposes, unless a waiver is granted based on a case-by-case basis:

(a) The impact of the proposed highway project on the outfall channel should be evaluated by:

(1) Evaluate the capacity of the outfall for the 2-and 10-year peak discharges based on prior and post construction conditions. The evaluation should take into account the condition and capacity of existing structures downstream from the outfall point.

(2) Compare the time of concentration of the outfall channel with the time of concentration of the proposed development.

(3) If the outfall channel has insufficient capacity to carry the system design discharge, channel improvements will be implemented. The design discharge will be the 10-, 25-, or 50-year peak discharge depending on the road classification and the system or structure type.

(4) If the 10-year peak discharge on the outfall is increased by the project and if there is development along the outfall that would be impacted by the increased discharge, stormwater management methods shall be used to reduce the 10-year peak discharge to predeveloped levels.

(b) The velocity for the design peak discharge at the outlet of hydraulic structures will be reduced to nonerosive velocity. Ditches and channels will be protected from erosion from the design discharge by the appropriate channel lining.

(5) Water quality control is also an integral component of stormwater management. The following design criteria is established for water quality protection unless a waiver or variance is granted on a case-by-case basis.

(a) When ponds are used for water quality protection, the ponds shall be designed as both quantity and quality control structures. Sediment storage volume shall be calculated considering the clean out and maintenance schedules specified by the Department of Highways and Public Transportation during the land disturbing activity. Sediment storage volumes may be predicted by the Universal Soil Loss Equation or methods acceptable to the Commission.

(b) Stormwater runoff that drains to a single outlet from land disturbing activities which disturb ten acres or more shall be controlled during the land disturbing activity by a sediment basin where sufficient space and other factors allow these controls to be used until the final inspection. The sediment basin shall be designed and constructed to accommodate the anticipated sediment loading from the land- disturbing activity and meet a removal efficiency of 80 percent suspended solids or 0.5 ML/L peak settable solids concentration, or 3600 cubic feet of sediment storage volume per disturbed acre that drains to a single point excluding off site flows, whichever is less. 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.

(c) Other practices may be acceptable to the Commission if they achieve an equivalent removal efficiency of 80 percent for suspended solids or 0.5 ML/L peak settable solids concentration, or 3600 cubic feet of sediment storage volume per disturbed acre that drains to a single point excluding off site flows, whichever is less. The efficiency shall be calculated for disturbed conditions for the 10-year 24-hour design event.

(d) Permanent water quality ponds having a permanent pool shall be designed to store and release the first ½ inch of runoff from the site over a 24-hour period. The storage volume shall be designed to accommodate, at least, ½ inch of runoff from the entire site.

(e) Permanent water quality ponds, not having a permanent pool, shall be designed to release the first inch of runoff from the site over a 24-hour period.

(f) Permanent infiltration practices, when used, shall be designed to accept, at a minimum, the first inch of runoff from all impervious areas.

(g) For activities in the eight coastal counties of Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Jasper and Horry, additional water quality requirements may be imposed to comply with the South Carolina Coastal Council's Stormwater Management Guidelines. If conflicting requirements exist for activities in the eight coastal counties, the South Carolina Coastal Council guidelines will apply.

(6) Where ponds are the proposed method of control, the Department of Highways and Public Transportation shall submit to the approving agency, when required in writing, an analysis of the impacts of stormwater flows downstream in the watershed for the 10-and 100-year storm events. The analysis shall include hydrologic and hydraulic calculations necessary to determine the impact of hydrograph timing modifications of the proposed land disturbing activity, with and without the pond. The results of the analysis will determine the need to modify the pond design or to eliminate the pond requirement. Lacking a clearly defined downstream point of constriction, the downstream impacts shall be established, with the concurrence of the Commission.

(7) Where existing wetlands are intended as a component of an overall stormwater management system, the approved stormwater management and sediment control plan shall not be implemented until all necessary federal and state permits have been obtained.

(8) Designs shall be in accordance with standards developed or approved by the Commission.

(9) Ease of maintenance must be considered as a site design component. Access to the stormwater management structure must be provided.

(10) A maintenance schedule shall be included in the plans and design report.

(11) Infiltration practices have certain limitations on their use on certain sites. These limitations include the following items:

(a) Areas draining to these practices must be stabilized and vegetative filters established prior to runoff entering the system. Infiltration practices shall not be used if a suspended solids filter system does not accompany the practice. If vegetation is the intended filter, there shall be, at least a 20 foot length of vegetative filter prior to stormwater runoff entering the infiltration practice;

(b) The bottom of the infiltration practice shall be at least 0.5 feet above the seasonal high water table, whether perched or regional, determined by direct piezometer measurements which can be demonstrated to be representative of the maximum height of the water table on an annual basis during years of normal precipitation, or by the depth in the soil at which mottling first occurs;

(c) The infiltration practice shall be designed to completely drain of water within 72 hours;

(d) Soils must have adequate permeability to allow water to infiltrate. Infiltration practices are limited to soils having an infiltration rate of least 0.30 inches per hour. Initial consideration will be based on a review of the appropriate soil survey, and the survey may serve as a basis for rejection. On-site soil borings must be used to verify the actual site and seasonal high water table conditions when infiltration is to be utilized;

(e) Infiltration practices greater than three feet deep shall be located at least 10 feet from basement walls;

(f) Infiltration practices designed to handle runoff from impervious parking areas shall be a minimum of 150 feet from any public or private water supply well;

(g) The design of an infiltration practice shall provide an overflow system with measures to provide a non-erosive velocity of flow along its length and at the outfall;

(h) The slope of the bottom of the infiltration practice shall not exceed five percent. Also, the practice shall not be installed in fill material as piping along the fill/natural ground interface may cause slope failure;

(i) An infiltration practice shall not be installed on or atop a slope whose natural angle of incline exceeds 20 percent.

(j) Clean outs will be provided at a minimum, every 100 feet along the infiltration practice to allow for access and maintenance.

E. All stormwater management and sediment control practices shall be designed, constructed and maintained with consideration for the proper control of mosquitoes and other vectors. Practices may include, but are not limited to:

(1) The bottom of retention and detention ponds should be graded and have a slope not less than 0.5 percent.

(2) There should be no depressions in a normally dry detention facility where water might pocket when the water level is receding.

(3) Normally dry detention systems and swales should be designed to drain within three (3) days.

(4) An aquatic weed control program should be utilized in permanently wet structures to prevent an overgrowth of vegetation in the pond. Manual harvesting is preferred.

(5) Fish may be stocked in permanently wet retention and detention ponds.

(6) Any rutting of normally dry swales and detention ponds caused by maintenance activities shall be immediately filled and smoothed out.

F. An economic analysis may be used to justify a design storm event other than prescribed or to show that rate and volume control is detrimental to the hydrologic response of the basin and therefore, should not be required for a particular site.

72-430. Department of Highways and Public Transportation Responsibilities.

A. The Department of Highways and Public Transportation shall file with the Commission, a copy of the sediment reduction and stormwater management plan, in accordance with R.72-420A, for each construction and maintenance activity as required by these regulations.

B. The Department of Highways and Public Transportation shall inspect all stormwater management and erosion and sediment control practices at least once every seven (7) calendar days and after any storm event of greater than 0.5 inches of precipitation during any twenty-four hour period.

C. The Department of Highways and Public Transportation shall require that additional practices be implemented in the event that the practices included in the stormwater management and sediment control plan are not sufficient to adequately control erosion, sedimentation and stormwater runoff.

D. After a project has been completed and accepted in its entirety, the Department of Highways and Public Transportation's Maintenance Forces must maintain the areas with top priority being to take the necessary steps to insure the continuance of proper erosion and sediment control and stormwater management measures as may be needed to prevent on-site and off-site damages or contamination of watercourses or impoundments.

E. Each Resident Maintenance Engineer must prepare an inventory of existing erosion, sedimentation and stormwater problem areas. This list must be kept current and updated as conditions change. The Resident Maintenance Engineer, in conjunction with the District Office Personnel, must set priorities on the inventory and make the necessary corrections as time and funds permit.

72-435. Commission Responsibilities.

A. The Commission shall retain the plan six months after completion of the project.

B. The Commission has the responsibility to investigate any complaint of violation against the Department of Highways and Public Transportation for violating the plans submitted.

C. The Commission shall contact the Department of Highways and Public Transportation to resolve any complaint. If the Commission and the Department of Highways and Public Transportation cannot resolve the problem, the complainant may follow the procedure listed in R.72-440.

D. The Commission shall provide assistance with plan development, inspection, and enforcement as requested by the Department of Highways and Public Transportation.

72-440. Hearing and Complaint Procedure.

A. An administrative hearing is available, following a timely request, to determine the propriety of:

(1) A citizen complaint concerning program operation.

(2) A contractor complaint concerning program operation.

B. A hearing may be initiated by any applicant/citizen, provided that a written request is received within thirty (30) days after notice is given to the applicant/citizen of the adverse action.

C. All hearings shall be initiated via correspondence approved by the Commission which shall give notice to all parties of the hearing.

(1) All parties must receive notice of the hearing of not less than thirty (30) days;

(2) The notice shall be sent by the designated hearing officer(s);

(3) The notice shall include:

(a) A statement of the time, place, and nature of the hearing;

(b) A statement of the legal authority and jurisdiction under which the hearing is to be held;

(c) A reference to the particular sections of the statutes and rules involved;

(d) A short and plain statement of the matters asserted. If the hearing officer(s) is/are unable to state the matters in detail at the time the notice is served, the initial notice may be limited to a statement of the issues involved. Thereafter, upon application, a more definite and detailed statement shall be furnished.

D. All hearings shall be conducted by a hearing officer(s) appointed by the Commission.

E. All hearings shall be conducted in accordance with Section 1-23-10 et. seq. of the 1976 South Carolina Code of Laws.

F. The hearing officer(s) shall issue a proposal for decision which shall be mailed to the parties.

G. Within twenty (20) days after mailing of the proposal for decision, any party may file exceptions to the hearing officer's proposal for decision.

(1) Such exceptions shall be in written form, addressed to the Chairman of the Commission, and served upon all adverse parties;

(2) The exceptions shall list all the grounds upon which the exceptions are based.

H. If no exceptions are received by the Commission within the twenty (20) day period following the mailing of the proposal for decision, the Commission shall issue a final decision.

I. If timely exceptions are received, the Commission shall send notice to the parties that the appealing party(s) has thirty (30) days to submit a brief. Following the service of the appealing party's brief, or upon the expiration of the thirty (30) day period, whichever shall occur first, the other party shall have thirty (30) days to submit a brief. All briefs must be served on the opposing parties and filed with the Commission.

J. Following receipt of all briefs, the Commission shall schedule an oral argument if requested to do so by either party.

K. The request for an oral argument must be in writing, addressed to the Chairman of the Commission, and submitted with that party's brief.

L. The oral argument shall be scheduled for the next regular the Commission Board meeting following the filing of the last brief.

M. The oral argument shall be heard by the members of the Commission present at the Commission meeting and shall be held in accordance with the following format:

(1) The appealing party shall be given twenty minutes to present his case;

(2) The opposing party shall be given twenty minutes to present his case;

(3) The appealing party shall be given a rebuttal period of five minutes.

N.The parties by written stipulation may agree that the hearing officer's decision shall be final and binding upon the parties.

O.The final order shall be issued by the Commission, and the decision of the Commission shall represent the view of a majority of the Commission Board members voting on the appeal.

P. The final order shall be written and shall comply with the provisions of Section 1-23-10 et. seq. of the 1976 South Carolina Code of Laws.

72-445. Inspection and Enforcement.

A.The Commission may periodically inspect land disturbing activities performed pursuant to the plan required by this regulation. In the event the Commission finds that the measures in the plan are not adequate to control erosion, retain sediment on the site and manage stormwater in a manner that neither any on-site nor off-site damage or problem is caused or increased, it shall require that necessary additional measures be implemented.

B.Upon completion, the Department of Highways and Public Transportation shall notify the Commission of the completion and acceptance of the project.

C.In the event the Commission finds that a land disturbing activity is not being performed in accordance with the submitted stormwater management and sediment control plan, the Commission may issue a written order either directing conformance with the plan, suspending additional work until conformance is achieved, or directing other measures that it deems necessary to control erosion, retain sediment on the site and manage stormwater in a manner that neither any on-site nor off-site damage or problem is caused or increased.

D.Complaints from any party shall be investigated by the Commission.