



University of Mississippi School of Law
254-E Kinard Hall
Oxford, MS 38677

Review of City of Orange Beach, Alabama Stormwater Management Regulations March 26, 2019

Kristina Alexander, Research Counsel II
Mississippi-Alabama Sea Grant Legal Program

In 2018, the City of Orange Beach formed a Community Resilience Working Group to enhance education and outreach efforts and improve the City's Community Rating System (CRS) score under the National Flood Insurance Program. The CRS lists 19 credited activities communities can take to improve scores and reduce insurance rates. Many of these activities address improving floodplain management, which can be addressed, at least in part, by stormwater regulations. Accordingly, as part of its effort to improve its CRS score, the City requested a review of its stormwater regulations. Examples of activities managed by stormwater regulations to improve a CRS score include protecting natural floodplain functions (Activities 420, 510), regulating development in the floodplain and watershed (Activities 430, 310, 450), and improving draining system maintenance efforts (Activity 540). In addition to this review to its stormwater regulations, the City has adopted (or will adopt) the State of Alabama's Model Flood Damage Prevention Ordinance, and this review takes into account of the provisions found within that rule.

The Stormwater Management Regulations of the City of Orange Beach are found at Chapter 42, Article IV, §§ 42-221- 42-339, of the Ordinance No. 2003-741 of Orange Beach. The regulations are accessible online at: library.municode.com/al/orange_beach/codes/code_of_ordinances. They were adopted in April 2003, with the exception of the definitions, some of which were revised in December 2004.

In response to the request to review the stormwater regulations, an attorney at the Mississippi-Alabama Sea Grant Legal Program (MASGLP) reviewed ordinances from similarly-situated coastal communities with better CRS scores, analyzed ordinances from communities with recently updated stormwater regulations, reviewed the City's flood ordinances, and interviewed relevant city officials to identify areas where the stormwater regulations could be adapted. This information was compared to the existing regulations to propose revisions.

MASGLP identified four main areas to change within the Stormwater Management Regulations (SMR) as a result of its analyses. These suggestions are not legal advice, but rather ideas to assist Orange Beach with its CRS goals. First, MASGLP suggests that the City harmonize its stormwater regulations with the Flood Damage Prevention Ordinance (FloodOrd) where possible. Second, MASGLP suggests that the SMR be made applicable to any type of

development that will change the flow of water. Third, MASGLP suggests re-defining the base storm on which the regulatory standards are based to meet standards for multiple forms of storms, as different storms cause different impacts on stormwater management systems. Fourth, MASGLP suggests incorporating elements of green infrastructure into the regulations, as green infrastructure can offer visually appealing, ecologically sound, and cost effective stormwater management. Examples of how the City could implement these suggestions are presented throughout this document. As this report suggests amending the existing SMR, the suggestions are made in the order the sections appear in that regulation. A red-line version of the current regulations is attached.

Objectives or Intent (Sec. 42-223)

- Suggestion: Add Green Infrastructure and related goals to existing statements.

Proposed revision:

- (3) Encouraging the use of stormwater management systems that approximate natural systems, commonly referred to as Green Infrastructure.
- (8) Promoting the development of stormwater retention and detention facilities that are aesthetically desirable and employ native species to the extent practicable.
- (10) Encouraging the use of nonstructural stormwater management that provides for or enhances stormwater control, such as riparian buffers, open and green spaces, overland flow filtration areas, natural depressions, and vegetated channels.

Interpretation (Sec. 42-224)

- Suggestion: Specifically reference the FloodOrd, and clarify the existing language. Change heading to Interpretation and Compatibility with Other Regulations.

Proposed revision: Interpretation and Compatibility with Other Regulations.

- (1) The requirements of this article are to be liberally construed in favor of the objectives or intent of the City. It shall not be interpreted to limit or repeal any lawful authority of the City.
- (2) The interpretation and application of this regulation shall be read as consistent with the Flood Damage Prevention Regulations of the City to the extent possible. In the event of a conflict with any other ordinance, rule, regulation, or other provision of law, the provision that is more protective of the environment and human health shall control.

Definitions (Sec. 42-225)

- Suggestion: Revise definition of *Conceptual stormwater management plan* to clarify that the “conceptual SMP” is a draft version of the final stormwater management plan. Add that it will be prepared by a licensed professional engineer and approved by the Planning Commission. Give it a distinct acronym from the approved Stormwater Management Plan.

Proposed revision: *Draft Stormwater Management Plan (DSMP)* means the document describing how existing runoff characteristics will be affected by a land development project and containing

measures for complying with the provisions of this article and other local, state, and federal rules. It shall be prepared by a licensed professional engineer on behalf of the applicant/developer. It is a written narrative that also contains engineering drawings depicting how and where stormwater management facilities will be installed on the site, modeling and runoff calculation results, and an Operation, Inspection, and Maintenance Plan. A DSMP is reviewed by the City of Orange Beach Planning Commission.

- Suggestion: Change the definition of *Development* so it is consistent with the FloodOrd.

Proposed revision: *Development* means any man-made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation, drilling operations, or storage of equipment or materials. This shall include construction, reconstruction, and demolition, where demolition leaves in place more than 500 square feet of impervious cover on the site.

- Suggestion: Add a definition of Green Infrastructure.

Proposed revision: *Green Infrastructure* means construction that employs natural systems to reduce, slow, and filter stormwater and other runoff.

- Suggestion: Add a definition of Operation, Inspection, and Maintenance Plan.

Proposed revision: *Operation, Inspection, and Maintenance Plan* means a written agreement providing for the lifetime inspection and maintenance of stormwater management facilities and practices on a site or with respect to a land development project that when properly recorded in the deed records of Baldwin County, constitutes a restriction on the title to a site or other land involved in a development project. The Operation, Inspection, and Maintenance Agreement shall become part of the covenants or other official documents to allow enforcement by interested parties.

- Suggestion: Fix typographical style of definitions after *Soil Conservation Plan* to eliminate numbering and make consistent with the rest of the document.
- Suggestion: Amend definition of *Stormwater management system* to address rate of runoff to encompass a broader range of rainfall events.

Proposed revision: Stormwater management system shall include all natural and man-made elements used to convey stormwater from the first point of impact to a suitable outlet location. The stormwater management system includes all pipes, channels, streams, ditches, wetlands, sinkholes, detention/retention basins, exfiltration systems, ponds, and other stormwater conveyance and treatment facilities. The system shall be designed so that, except in unusual circumstances, the rate of runoff will not exceed the rate in its undeveloped or natural condition as generated by the 2-, 10-, 25-, and 100-year storm events.

- Suggestion: Add definition of *Structure*, adopting it from FloodOrd, which follows 44 C.F.R. § 60.8 and 44 C.F.R. 59.1.

Proposed revision: *Structure* means a walled or roofed building, including a liquid or gas storage tank, that is principally above ground, to include a manufactured home or building.

Applicability (Sec. 42-246)

- Suggestion: The existing provision depends on the term “structure,” which is not described in the current regulations. This allows construction that adds impervious cover, such as expanding a parking lot, escape compliance. MASGC recommends making the definition stricter to apply to anything that adds impervious cover. An alternative version would impose reduction of impervious cover on redevelopment.

Proposed revision: The standards within this regulation shall apply to any new development that involves the creation of any impervious cover and to any redevelopment that adds or creates 500 square feet or more of impervious cover. No such development or redevelopment shall occur without first complying with the requirements of this stormwater ordinance, as well as obtaining an applicable building permit from the City. The building permit process involves an applicant receiving a recommendation and approval by the city planning commission of a draft stormwater management plan (DSMP). The applicant must then submit a final SMP with the construction plans to the building department for issuance of a building permit.

Alternative: [in addition to the above, but not included in red-line version] Proposed redevelopment project designs shall include at least a 20 percent reduction in existing site impervious area, management of at least 20 percent of the water volume, or some combination of both.

Exemptions (Sec. 42-247)

- Suggestion: Eliminate the exemption for single-family homes except where development is part of a larger subdivision with an approved SMP. Also, the phrase “may or may not be part of a larger subdivision” is confusing, giving it no effect. A more moderate alternative to eliminating the exemption would be to exempt sites smaller than 5,000 square feet that do not add impervious cover of 1,000 square feet or more.

Proposed revision:

- (1) The City Engineer may exempt any minor project that in the engineer’s professional judgment would be in the best interest of the City.
- (2) Single-family residences, which includes duplexes, on lots that are within a subdivision or larger development with an approved SMP, are not required to submit a DSMR.

Alternative: [to include exemption 1 from above; not included in red-line]

- (2) Sites smaller than 5,000 square feet that do not add impervious cover of 1,000 square feet or more are exempted from the requirements of this chapter.

Minimum Requirements (Sec. 42-271)

- Suggestion: Make clear that construction, reconstruction, or demolition will not exacerbate the existing flow of stormwater from the site. Add provision to require buildings to dissipate or divert flows from their roofs, and clarify that any obstruction to the natural flow of water requires a permit. Remove less specific language, from “In addition” ... to “be approved.”

Proposed revision:

- (1) All development shall be conducted in a manner to ensure that stormwater exiting individual parcels or lots under post-developed conditions approximates the same discharge points as the pre-developed condition, does not adversely impact the adjacent parcels or lots as a result of concentrated flows, flooding, erosion, or deposits of silt or sediment;
- (2) Discharge from any downspout exiting the lots and buildings must be dissipated, infiltrated, or diverted such that flows will not be concentrated; and
- (3) No person shall erect, construct, or otherwise permit any obstruction that prevents the natural or contained the flow of water to any component of a stormwater system unless such obstruction is allowed as part of a permit approved under this article.

Methods of Discharge Disposal (Sec. 42-272):

- Suggestion: The 25-year 24-hour rainfall may be seen as a limited view of rainfall events, and is not used by the more current stormwater ordinances MASGC has reviewed. In addition, the document does not define that rainfall amount, nor is the method disclosed by which rainfall distribution is measured. Many older ordinances rely on rainfall data that may be from a commonly-used treatise from 1961, and no longer accurate. It is recommended to require development to address a greater scope of rainfall events, and to add a new section to address stormwater runoff calculation. The quantities will have to be inserted based on Orange Beach’s data. The Soil Conservation Service method is referenced (which is now known as the Natural Resources Conservation Service), but EPA also has a free modeling tool that could be used to calculate Orange Beach’s rainfall amounts.

Proposed revision:

Stormwater management facilities of any type (to include man-made and Green Infrastructure systems designed to mimic natural systems) shall be designed with sufficient capacity to accommodate all runoff caused by the development more than that runoff which would occur from the site if left in its natural, undeveloped condition. This storage shall accommodate excess runoff for the 2, 10, 25, and 100-year storms of 24-hour duration.

Stormwater Runoff Calculations (New Sec. 42-273):

- (1) The stormwater management facility will be designed so that, except in unusual circumstances, the rate of runoff of surface water from the site, in the condition in which it is proposed to be developed, will not exceed the rate of runoff from the site in its undeveloped or natural condition as generated by the 2-, 10-, 25-, and 100-year storm events. Runoff rates and

volumes shall be calculated using the Soil Conservation Service (SCS) Method. The Rational Method is not acceptable for storage volume calculations. The Rational Method may only be used for pipe conveyance calculations.

(2) For the SCS Method, a Type II rainfall distribution and a shape factor of ____ (____) will be used. The 24-hour duration precipitation frequency values to be used with the SCS Method are ____ inches for the 2-year storm, ____ inches for the 10-year storm, ____ inches for the 25-year storm, and ____ inches for the 100-year storm.

(3) Time of concentration (Tc) shall be estimated using the methods given in the U.S. Department of Agriculture, National Resources Conservation Service, Part 630 National Engineering Handbook, Chapter 15, Time of Concentration, 630.1502 Methods for Estimating Time of Concentration. The watershed lag method may not be used to estimate time of concentration for post-developed site conditions. A minimum time of concentration of five (5) minutes will be used for storage volume calculations.

(4) In addition to the requirement listed above, it shall be the responsibility of the developer to ensure that the runoff of the 2, 10, 25, and 100-year storm events do not create flooding within 500 feet of any runoff exit point from the property which did not pre-exist the development. The developer and his engineer shall also ensure that any pre-existing flooding is not worsened by the runoff leaving the site.

Operation, Inspection, and Maintenance Plans (New Section 42-274)

- Suggestion: Require that before a permit may be issued an Operation, Inspection, and Maintenance Plan for the stormwater facility be filed with the Deed Office. This will ensure perpetual ownership of the maintenance facilities as well as having a responsible party identifiable by the City (after construction, some developments have separated detention ponds from subdivisions, leaving nobody in charge of maintaining the ponds and leaving the municipality responsible for maintenance).

Proposed revision:

(1) Before the issuance of any permit for a land development activity requiring a stormwater management facility or practice hereunder for which the City of Orange Beach requires ongoing maintenance, the owner, applicant, or responsible party shall execute an Operation, Inspection, and Maintenance Plan. Such plan shall be binding on the executing signatory(s) and all appropriate successors in title of the site. The Operation, Inspection, and Maintenance Plans may terminate or be amended if superseded by subsequent development only as approved by the City of Orange Beach. Any applicant for development will be required to obtain an Operation, Inspection, and Maintenance plan for all proposed and existing stormwater management facilities on the property. The plan will include the following:

(a) A narrative describing how the stormwater management facility is designed to function, including capture, runoff control, water quality treatment, channel protection, and flood protection;

- (b) A narrative describing the post-development operation, inspection, and maintenance procedures for all stormwater management facilities in the plan,
- (c) An inspection and maintenance schedule, describing tasks and identifying responsible parties, including a description of the funding source, and access and safety issues.
- (2) The Operation, Inspection, and Maintenance Plan must be approved by the City of Orange Beach; and upon approval, properly recorded in the deed records of Baldwin County before issuance of the permit.
- (3) Responsibility for the Operation, Inspection, and Maintenance of the stormwater management facility or practice shall remain with the property owner and shall pass to any successor in title. If portions of the site are sold or otherwise transferred, the inspection and maintenance responsibility shall pass to the appropriate successor in title.
- (4) The absence of an Operation, Inspection, and Maintenance Plan shall not relieve the owner or responsible party from performing proper maintenance of the stormwater facility. If the owner or responsible party fails to meet the requirements of this article, the City may correct the violation as provided by Section 42-334 herein.

Submittal of Draft Stormwater Management Plan (Sec. 42-291)

- Suggestion: Clarify that Section 42-291 is for submitting a draft SMP, versus Section 42-311, which is for submitting an SMP. Add requirement that plans identify the applicant, responsible party, and professional engineer, as well as contact information. Require the address and a legal site description of the property. Additionally, revise to eliminate reference to a “conceptual” SMP, making it a “draft SMP.”

Proposed revision:

- (7) Identification of Applicant and Responsible Party, if that is different from the Applicant, and name of Professional Engineer that prepared the draft SMP. The identification(s) will include multiple methods of contact.
- (8) Common address and legal description of the site or property.

Submittals of Stormwater Management Plan (Sec. 42-311)

- Suggestion: Separate the requirements for submitting information to get a building permit from the requirements for an adequate Stormwater Management Plan. Also, change “inspection and maintenance plan” to “Operation, Inspection, and Maintenance Plan” to match the language in the rest of the regulation.

Proposed revision:

- (a) A building permit shall be submitted to the building department using appropriate forms as provided by the city. A building permit application shall contain sufficient information to allow the director to determine whether the project complies with the requirements of this and other applicable regulations and codes.

(b) A Stormwater Management Plan must contain the following specific items to meet the minimum submittal requirements under the stormwater management regulations of the building permit application:

(4) Operation, Inspection, and Maintenance Plan, prepared and sealed by an engineer, describing the activities and schedule required to operate and maintain the permitted facilities, and both construction and post-construction BMPs.

Performance Criteria (Sec. 42-312)

- Suggestion: Add criteria regarding channel protection as a way to protect runoff. In urban areas, channel bank erosion rates and sediment loads are higher than for rural streams. Additionally, urban channel erosion rates are 3 – 6 percent higher than in rural areas. By requiring detention rates for 24 hours, the runoff will be released gradually, weakening erosion.

Proposed revision: (3) *Channel Stability*: Stream channels shall be designed to retain water for 24-hours for a 1-year storm event. Stormwater runoff from the proposed development shall not increase channel instability downstream.

Maintenance Responsibility (Sec. 42-331)

- Suggestion: Clarify and repeat that the party responsibility for maintenance is identified in the Operation, Inspection, and Maintenance Plan, per Section 42-274(3).

Proposed revision: add to the end of the existing section: "...as identified in the Operation, Inspection, and Maintenance Plan, pursuant to the terms of Section 42-274(3), herein.

Inspections (Sec. 42-333)

- Suggestion: Add that City may access the site at reasonable times for reasonable purposes.

Proposed revision:

(c) *Access*: The staff of the City may enter the property at reasonable times and in a reasonable manner for inspection.

Corrective Action (Sec. 42-334)

- Suggestion: Clarify that any action taken on behalf of the City shall be at the expense of the responsible party.

Proposed revision: [add to the end of existing section] In cases where the City takes necessary corrective action as described above, the responsible party will reimburse the City for all relevant costs.

References for Best Management Practices (Sec. 42-335)

- Suggestion: Remove the older sources and add newer sources. MASGC recommends having a City engineer review these sources.

Proposed revision:

Remove

Basin Pipeline Corporation. *Best Management Practices Plan - Magnolia Pipeline*. Birmingham, AL.

Regional Planning Commission ... August 1980

Add

[updated source for ADEM document] ... (version 010614),

<http://adem.alabama.gov/programs/water/nps/files/ALNPSMgmtProgramFramework.pdf>

City of Birmingham, Maintenance, Operation, and Construction Best Management Practices Plan (2015), https://www.birminghamal.gov/wp-content/uploads/2017/10/Appendix-H-BMP-Manual_2015.pdf.

National Stormwater Database (NSQD) version 4.02 (last updated January 2015), <http://www.bmpdatabase.org/nsqd.html>.

Attachment: Redline Version of Stormwater Management Regulations

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