

Task # 21
Overall Task Subject: Drainage Design
Purpose of this part of task: Reference the new Charleston County Stormwater Management Ordinance that has superseded Article 9.12.

Text Recognition:
~~deleted text~~ = deleted text
Substituted/added text is bold italics

ARTICLE 9.12 DRAINAGE DESIGN

Refer to the Charleston County Stormwater Management Ordinance # 1518 approved on August 14, 2007 and found in Appendix B of this Ordinance.

~~§9.12.1~~ **DESIGN METHODS AND CRITERIA**

~~The Design Professional may use any of the generally accepted design procedures to determine runoff quantities. The Modified Rational Method or the Modified Soil Conservation Service method shall be used by Charleston County in the review of submitted designs. The Design Professional shall submit data showing the drainage basin, the location of areas of differential imperviousness, the runoff factors for each zone of imperviousness, and the data for rainfall and time factors used in the determination of peak runoff rates. The design should be prepared considering seasonal high water table elevations. The design must take into consideration the channelization of the runoff.~~

~~§9.12.2~~ **COORDINATION WITH OTHER REVIEWING AGENCIES**

~~The design professional of record shall provide a list of all regulatory permits required for the construction. This list shall include the status of each permit status along with corresponding application numbers and dates.~~

~~The design professional of record shall provide a copy of all approved permits, deemed essential by the Planning Director, to the Planning Department prior to final approval of the construction plans.~~

~~§9.12.3~~ **APPROVED OUTFALLS**

~~All drainage from developments shall be discharged into either:~~

- ~~A. A tidal stream of adequate size;~~
- ~~B. A running stream with continuous flow (freshwater creek or river) of adequate size;~~
- ~~C. An existing drainage way (pipe, ditch, or canal) of adequate size for which there is an adequate easement, and which is maintained by Charleston County or another responsible public agency; or~~
- ~~D. A wetland or critical area capable of receiving the discharge without it negatively impacts any property adjacent thereto.~~

~~The outlet or receiving area must be of sufficient size and grade, etc., to receive the anticipated quantity of runoff from each contributing drainage basin along the route of the outlet in addition to the anticipated increase in quantity of runoff from the subject development. Where the proposed outlet ends at or near the South Carolina DHEC OCRM Critical Line, the construction plans shall clearly show~~

~~that there is an outlet of adequate size and slope all the way to the final point of discharge. The entire length of the outlet, excepting any approved portions within the South Carolina DHEC OCRM Critical Area, shall be constructed on dedicated drainage easements with cleared, sufficiently stable maintenance shelves for continued maintenance of the drainage way. The entire development's outlet, from sources of collection of runoff to final point of discharge, shall be evaluated by the Design Professional and upgraded by the developer as considered necessary by the Public Works Director at no cost to the County.~~

~~**§9.12.4 DRAINAGE AND OTHER WORK INVOLVING OTHER PUBLIC AGENCIES**~~

~~When drainage is discharged into a drainage way maintained by or intended to be maintained by a public agency other than Charleston County Public Works, or if work is to be done within the road right-of-way of a public agency other than Charleston County, written approval must be obtained from that public agency. A copy of this approval must be furnished prior to the work commencing.~~

~~**§9.12.5 RAINFALL DETERMINATION**~~

~~The peak runoff rates shall be made based on the storm time/rainfall rate following a pattern Type III Rainfall Hydrograph as defined in the Soil Conservation Service Manual TR-55.~~

~~The design recurrence interval shall be taken to be 10 years for the collector system within the subject development, 25 years for any channelized drainage flowing through the development, and 25 years for any primary outfall drainage way from the development.~~

~~Average Return Frequencies (24 hour) are defined as~~

~~1 year 3.8 inches 2 year 4.6 inches 5 year 5.9 inches
10 year 7.0 inches 25 year 8.0 inches
50 year 8.9 inches 100 year 10.2 inches~~

~~Or as revised by the South Carolina State Climatology Office. (Copied from Appendix A Standard Specifications for the Design and Construction of Roads and Drainage Systems, Section A.4.2D)~~

~~**§9.12.6 DETENTION/RETENTION POND DESIGN CRITERIA**~~

~~The peak release rate of stormwater from all developments where detention is utilized shall not exceed the peak stormwater runoff rate from the area in its pre-developed state for all intensities up to and including the twenty five (25) year frequency storm.~~

~~The Design Professional shall provide the information required to support the pond design shown. Calculations shall be signed and sealed by the Design Professional and shall include stage storage volumes, areas, depths, summary information (to include pond crest information, outfall flow rates, and computer program information), etc. Pond design shall include the proposed static water level and the 2 year, 10 year, and 25 year frequency storm crest elevations. These elevations shall be shown on the drainage plans, as well as the proposed one (1) foot contour lines from the pond bottom to one (1) foot above the 25 year frequency storm crest elevation. Static water elevation in ponds shall be not less than three (3) feet below the finished centerline elevation of the streets in the general area and ponds shall not encroach on the street right of way at any time.~~

~~The Design Professional shall provide an emergency spillway: the location, structure, invert elevations, and outlet of the emergency spillway shall be shown on the construction plans. The Design Professional shall address the 50 year and 100 year frequency storm flow rates through the emergency spillway to an approved outfall (drainage easements will be required for the emergency outfall route). Projected flood limits on downstream properties for these storm flow rates are to be shown on the drainage plan.~~

~~Dry ponds should be designed with 3:1 (horizontal: vertical) side slopes and shall drain dry within seventy-two (72) hours.~~

~~Wet ponds should be designed with 3:1 (horizontal: vertical) side slopes above the static water level and 2:1 (horizontal: vertical) side slopes below the static water level, shall have a minimum depth of six (6) feet, and shall be stocked with mosquito larvae eating fish. Charleston County Mosquito Abatement should be consulted regarding fish stocking information.~~