

REVISED SUPPLEMENTAL STORMWATER DESIGN STANDARDS

August 15, 2024
Approved September 19, 2024

1. INTRODUCTION

As a coastal community, the Town of James Island is acutely cognizant of and sensitive to the effects of stormwater management. Within recent years, the Town has experienced an increase in both widespread flooding due to storm surge, tidal events, and historical rainfall as well as reported nuisance flooding during smaller common storm events. Stormwater management has never been more important to communities like the Town of James Island than it is now. The effects of future climate change ensure that the sea level will rise, and the frequency and intensity of rain events will increase. The future vitality of the Town’s growth, development, and economy depends on its ability to effectively manage stormwater today for the future.

Within James Island there are three governing authorities, the Town of James Island, Charleston County, and the City of Charleston. The Town of James Island has adopted the Charleston County Permitting Standards and Procedures Manual dated May 2017. The City of Charleston has its own Stormwater Design Manual. The latest edition is dated January 2020. The Town of James Island, in an effort to ensure the best stormwater management practices are being implemented in a timeframe commensurate with its needs, has developed supplemental stormwater design standards. As an incorporated town, the Town has ordinances governing stormwater management within its jurisdiction and employs staff to implement, review, and enforce its Stormwater Management Program. While, the Town will continue to follow the Charleston County Permitting Standards and Procedures Manual, the supplemental stormwater design standards in the following sections are to be incorporated in all construction projects within the Town’s jurisdiction and applied to all construction activities applying for a permit starting on its effective date. Where there is conflict between the County design manual and these supplemental standards, the Town’s stormwater design standards will supersede.

The Town of James Island Supplemental Stormwater Design Standards provide design requirements directly affecting stormwater quantity control. The standards are to be implemented for both single family residence and non-single-family residence sites. These standards have been coordinated between the County and City to ensure stormwater management on James Island is well-coordinated and effective between the three governing entities.

2. TOWN OF JAMES ISLAND PRELIMINARY PLANNING MEETING

All development within the Town of James Island shall have a preliminary planning meeting with the Town’s Public Works Director to ensure the proposed site improvements are coordinated with the Town’s stormwater master plan.

3. STORMWATER QUANTITY CONTROL DESIGN STANDARDS

3.1. Rainfall and Design Storms

The 24-hour precipitation depths/intensities corresponding to various probabilities for exceedance in any given year are shown in Table 1 and are to be used for projects within the Town. These values contain a 10 percent safety factor to account for uncertainties in the design process and the increasing intensity of future storms.

Table 1 24-hour design storm precipitation data for Town of James Island, South Carolina

	100%	50%	20%	10%	4%	2%	1%
Return Frequency (Year)	1-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Precipitation (Inches)	3.8	4.6	6.1	7.2	8.7	9.9	11.3

3.2. Single Family Residence (SFR) Design Standards

Single Family Residence for the purpose of these design standards means a single lot zoned for construction of a detached single family residence.

3.2.1. Impervious Area for SFR Lots

An impervious surface is a monolithic surface made of non-porous material that prevents water from infiltrating. Examples of impervious surfaces include

structures, concrete or asphalt slab, driveway, sidewalk, patio, pools, rooftop, street, curbing, and elevated decks constructed to prevent water from passing through to underlying soil.

Impervious area for individual residential lots, including those within a larger planned community, shall not exceed 40% of the total property area.

3.2.2. Fill

Fill or filling means placement of natural sands, dirt, soil or rock above the natural grade to raise the elevation of the ground, and may also include concrete, cement, soil cement, brick or similar material as approved on a case-by-case basis. Large quantities of fill can alter drainage, may lessen rainfall infiltration, accelerate runoff and/or displace water onto neighboring properties and downstream communities.

Projects that will alter drainage patterns and/or increase stormwater runoff shall provide a topographic grading and drainage plan prepared by a licensed design professional which demonstrates compliance with these standards. The grading and drainage plan shall be accompanied with a statement or letter signed by the design professional which states that the proposed project and associated activity will not adversely impact offsite properties or rights-of-way. Upon completion of the project the property owner shall produce a letter signed by the design professional that states that the project has been completed in accordance with the approved plan and that it does not adversely impact offsite properties.

Property owners shall not impede the natural flow of runoff from their neighbors, and they shall not dispel their runoff in a manner that will negatively impact their neighbors. Fill placed within the footprint of the foundation shall not exceed that amount required to prevent accumulation of water beneath the structure.

Fill material within the 10 ft set back abutting adjacent properties shall not be sloped greater than 1 ft vertical to 6 ft horizontal. The slope of fill material outside the foundation perimeter shall not be greater than 1 ft vertical to 6 feet horizontal.

Drainage swales must be created to provide positive drainage to the existing drainage system in accordance with an approved grading and drainage plan.

3.2.3. Foundation Types

Slab-on-grade foundations are difficult to elevate, and water can flood buildings through cracked or settled slab-on-grade foundations. Sea levels are expected to rise, which will increase flood risk in the special flood hazard areas (SFHA) and expand the extent of the SFHA. In order to address increasing flood levels, flood hazards, and the associated damage caused by the importation of fill, the following shall apply within the SFHA of the town limits.

Beginning January 1, 2025 (the "effective date"), the permitting of certain foundation types shall be prohibited for all new single-family dwellings.

The most current version of Appendix B to the Federal Emergency Management Agency's National Flood Insurance Program (NFIP) Flood Insurance Manual (the "appendix") is hereby incorporated by reference and shall govern acceptable foundation types, as may be supplemented and amended by the town's Supplemental Stormwater Design Standards.

The foundations depicted in Diagrams 1A, 1B, 2A, 2B, and 3 of the appendix are prohibited for detached single-family dwellings. In addition, the use of structural fill for support of the foundation is prohibited to include raised slab foundations.

The floodplain manager or his/her duly authorized agent shall review elevation certificates to ensure the proper type of foundation has been used pursuant to this section.

3.3. Redevelopment Design Standards for Non SFR Development

Redevelopment shall be defined as a change to previously existing, improved property, where the impervious surface exceeds 20% of the total site and proposed improvements to the property exceed 50% of the total site value.

Redevelopment design will apply to non-SFR site improvements. Improvements may include, but are not limited to, the demolition or construction of structures, filling, grading, paving, excavating, exterior improvements, interior remodeling, and resurfacing of paved areas. Improvement activities excluded from redevelopment include ordinary maintenance activities that do not materially increase or concentrate stormwater runoff or cause additional nonpoint source pollution.

To improve stormwater management on existing developed sites, redevelopment activities for non-single-family residence sites shall implement at least one of the following performance standards:

- a. Reduce the impervious cover on the site by at least 20 percent, based on a comparison of existing impervious cover at the time of submittal of a Construction Activity Application.
- b. Reduce Runoff Volume: Achieve a 10% reduction in the total volume of runoff generated from the site by a 50% annual exceedance probability (AEP) storm event (2-year storm). Runoff calculations shall be based on a comparison of existing site conditions at the time of submittal of a Construction Activity Application to the post-development site conditions. Confirm the post development peak discharge rate does not exceed the pre-development peak discharge rate for the 50% AEP storm event.
- c. Reduce Peak Discharge Rates: Achieve a 20% reduction of the existing peak discharge rates at the time of submittal of a CAA for the 10% and 4% AEP storm events (10-year and 25-year storms) based on a comparison of existing ground cover at the time of submittal of a CAA to post-development site conditions. Confirm the post-development volume does not exceed the predevelopment volume for the 10% and 4% AEP storm events.
- d. Combination of Measures: A combination of (a), (b), or (c) above that is acceptable to the Town.

3.4. Soil Infiltration

Non-structural fill is that which is incorporated into the site with the purpose of increasing infiltration and reducing the rate and volume of stormwater runoff. Any non-structural fill brought on-site shall have adequate permeability to allow water to infiltrate. Soils must have an infiltration rate of a minimum of 0.3 inches per hour as determined by a soil scientist or geotechnical engineer. The permeability test results must be submitted and approved prior to scheduling a certificate of occupancy or certificate of construction completion inspection. Soil infiltration best management practices (BMPs) shall be incorporated into the site design. Infiltration BMPs must be consistent with the most current version of the Low Impact Development in Coastal South Carolina: Planning and Design Guide.

Compaction of non-structural fill shall be minimized during construction. Soils in landscaping areas should be protected and amended as needed. Disturbed soils in areas of fill or heavy equipment operation that will be vegetated in the final site stabilization shall be scarified or treated as directed by the designer to improve infiltration and water retention prior to final establishment of vegetation.

3.5. Floodplain Storage

Non-SFR construction activities that reduce storage within the floodplain, shall be prevented. The floodplain will be the 1% AEP floodplain as established by Federal Emergency Management Agency (FEMA). The 100-year floodplain is defined by Special Hazard Area Zones A, AE, AH, AO, A99, V, and VE. In cases where floodplain storage impacts are proposed, impacts shall be mitigated with a minimum 1:1 replacement based upon total storage volume to prevent deterioration of basin stormwater storage capacity over time. Mitigation shall be within the same basin effecting the same water surface elevations and hydraulics as the proposed impact.