

BELOW GROUND SAND FILTER SCM DESIGN CHECKLIST

**Stormwater Management Division
c/o Development Services Department**

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Raleigh, NC 27601
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I. PROJECT INFORMATION

Project Name: _____ Phase: _____
 Project Address: _____ Disturbed Area (sf): _____
 PIN: _____ Case #: _____ Submittal Date: _____
 Previous Permit numbers (if applicable): _____
 Zoning District: _____
 Legal Name of Owner: _____
 Owner Contact: _____ Phone: _____
 Owner Address: _____
 Design Contact Person: _____ Phone: _____
 Design Contact Email: _____
 The regulatory drainage basin in which the site is located: _____
 The water supply watershed in which the site is located: _____

Function of Facility [check all that apply]:	
<input type="checkbox"/>	Nutrient (Total Nitrogen) Reduction
<input type="checkbox"/>	Green Stormwater Infrastructure
<input type="checkbox"/>	TSS Reduction
<input type="checkbox"/>	Peak Flow Rate Attenuation
<input type="checkbox"/>	<input type="checkbox"/> 1-Year event
<input type="checkbox"/>	<input type="checkbox"/> 10-Year event
<input type="checkbox"/>	<input type="checkbox"/> 100-Year event
<input type="checkbox"/>	<input type="checkbox"/> Other [_____]
<input type="checkbox"/>	<input type="checkbox"/> Other [_____]

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- II. **SUBMITTAL REQUIREMENTS** - See COR Stormwater Management Design Manual Chapter 5 for additional guidance. This completed checklist shall be submitted to the City of Raleigh with any proposed Below Ground Sand Filter. All files shall also be submitted electronically via CD or flash drive.

Routed flows and water surface elevations (WSE) at SCM (as applicable):			
Storm Event	Inflow	Outflow	WSE
1-Year			
10-Year			
100-Year			
____-Year			
Peak flow rates at immediate point of analysis to which the SCM drains:			
Condition	1-year	10-year	____-year
Pre-development			
Post-development			

General Design Criteria	
<input type="checkbox"/>	Sizing: The design volume of the SCM accounts for the runoff at full build-out from all surfaces draining to it (calculations provided in Stormwater Development Analysis).
<input type="checkbox"/>	Design Storm Volume: _____ cf
<input type="checkbox"/>	Dewatering: SCM has a method to draw down any standing water to facilitate maintenance and inspection.
<input type="checkbox"/>	Clean Out After Construction: SCM impacted by sedimentation and erosion control during the construction phase shall be cleaned out and converted to its approved design state.
<input type="checkbox"/>	Maintenance Access: SCM has been provided with adequate access per City standards.
<input type="checkbox"/>	Easements (except for SCMs located on single family residential lots): Includes maintenance access, entire SCM footprint, and an additional 10 ft or more around the SCM.
<input type="checkbox"/>	Single Family Residential Lots: Plats for residential lots that contain an SCM shall include the location of SCM, typical detail of SCM, and note that the SCM on the property is required to meet stormwater regulations and that the property owner may be subject to enforcement actions if the SCM is removed, relocated, or altered without prior approval.
<input type="checkbox"/>	Operation and Maintenance (O&M) Agreement.
<input type="checkbox"/>	Operation and Maintenance (O&M) Plan.

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<input type="checkbox"/>	<i>Operation and Maintenance (O&M) Manual Submittal Checklist.</i>
<input type="checkbox"/>	Principal Spillway: Riser and principal spillway pipe is reinforced concrete.
<input type="checkbox"/>	Appropriate seepage control elements have been provided.
<input type="checkbox"/>	Erosion Protection: The SCM inlets and outlet have been designed to protect areas downstream of the discharge points from erosion resulting from peak flows for the 10-year storm event.

Specific Below Ground Sand Filter Design Criteria	
<input type="checkbox"/>	Seasonal High Water Table: The lowest point of the sand filter shall be a minimum of 1 foot above the Seasonal High Water Table (SHWT) for closed bottom designs.
<input type="checkbox"/>	Separation from SHWT: _____ ft
<input type="checkbox"/>	Sediment and Sand Chambers: The sand filter includes a sediment chamber and sand chamber with equivalent storage. The total storage volume is equal to 0.75 times the treatment volume.
<input type="checkbox"/>	Ponding Depth of Storage Volume: _____ ft
<input type="checkbox"/>	The sand filter has been designed such that 50% of the treatment volume is stored in the sand chamber. If necessary, additional surface area needed for peak flow attenuation has been provided in the sedimentation chamber.
<input type="checkbox"/>	Maximum Ponding depth: The maximum ponding depth from the top of the sand to the bypass device is 6 feet.
<input type="checkbox"/>	Ponding Depth: _____ ft
<input type="checkbox"/>	Sand Media Specifications
<input type="checkbox"/>	Sand media meets ASTM C33 or equivalent.
<input type="checkbox"/>	The filter bed has a minimum depth of 18 inches.
<input type="checkbox"/>	There is a minimum of 12 inches of sand above the underdrain pipe.
<input type="checkbox"/>	The media will maintain a drawdown rate of at least 2 inches per hour.
<input type="checkbox"/>	Clean-out Pipes: At least one capped clean-out pipe has been provided at the low point of each underdrain line.
<input type="checkbox"/>	Drainage Area: The drainage area to the sand filter is limited to 5 acres or less.
<input type="checkbox"/>	Incoming stormwater will be evenly distributed over the surface of the sand filter.
<input type="checkbox"/>	Pervious areas have been graded to drain away from sand filters.
<input type="checkbox"/>	All sediment and erosion control practices will be in-place and functional and the slopes draining to the sand filter fully stabilized prior to the installation of the gravel layer and underdrain pipe system.

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<input type="checkbox"/>	Underground Access: Access to underground sand filter has been provided in accordance with OSHA standards and requirements.
<input type="checkbox"/>	Housing Structure: The housing and control structure has been specified to be constructed of reinforced concrete, an appropriate foundation drainage system has been provided, and the housing structure has been designed for water tightness.

The SCM Plan Submittal shall also include the following elements:	
<input type="checkbox"/>	A plan view of the SCM, with grading and appropriate critical spot shots, has been provided.
<input type="checkbox"/>	A profile (showing all relevant component elevations and WSEs) through the riser, dam, and outlet structure/outfall has been provided.
<input type="checkbox"/>	Details of other required SCM elements have been provided.
<input type="checkbox"/>	All supporting design calculations (including all applicable site design calculations and drainage area exhibits) have been provided.

III. PROFESSIONAL CERTIFICATION

Name: _____

Contact Email: _____

Contact Phone Number: _____

Professional Seal:

