



DINWIDDIE COUNTY

PLANNING, ZONING, CODE COMPLIANCE AND ENVIRONMENTAL

GRASS CHANNELS

Site Design Checklist

Plan Name: _____ Date Submitted: _____

The following checklist only identifies the information and details that must be included in the SWM plan

MINIMUM DESIGN CRITERIA:

Bottom width must be between 4 and 8 feet.	
Channel side slopes must be 3:1 or flatter	
Maximum contributing drainage area to any individual Grass Channel is 5 acres.	
Longitudinal slope of the channel must be at least 1% and not greater than 4%	
Maximum flow velocity in the channel must be less than 1 ft/s during 1-inch storm event	
V10 must be non-erosive.	
Channel conveyance must contain the 10-year storm with at least 6 inches of freeboard.	

PLAN REQUIREMENTS:

Provide the following information regarding Grass Channels:	
<ul style="list-style-type: none"> - Contributing drainage area boundaries, acreage, and land cover; - Topography of site including the Grass Channel; - Locations of all conveyance system outfalls into the Grass Channel must be shown; - A 16' wide drainage easement must be provided from all inlets to the outlet(s) if the SWM facility contains public water. 	

PLAN REQUIREMENTS:

Provide a plan view showing:	
- Overall Grass Channel Grading; - Layout and dimensions of the Grass Channel, including check dams.	
Provide profiles, section views, and details that show the following:	
- Cross-section; - Side slopes; - Channel bottom width; - Longitudinal slope; - Check dam details; - 10-year storm elevation.	
The sequence of construction must address the SWM facility installation and appropriate inspections, including: initial site preparation, excavation/grading, and installation of the embankment, principal outlet structure, and emergency spillway. We recommend the County staff be involved in these inspections.	
The sequence of construction must clearly state that a construction record drawing and certification that the stormwater management facility has been constructed in accordance with the approved plan must be submitted to the County and approved prior to Erosion Control Bond (ECB) release.	

COMPUTATIONS:

Hydrologic analysis must be based on a 24-hour storm event using site specific rainfall precipitation frequency data recommended by the U.S. National Oceanic and Atmospheric Administration (NOAA) Atlas 14.	
The U.S. Department of Agriculture’s Natural Resources Conservation Service (NRCS) synthetic 24-hour rainfall distribution and models, including but not limited to TR-55 and TR-20; hydrologic and hydraulic methods developed by the U.S. Army Corps of Engineers; or other standard hydrologic and hydraulic methods must be to conduct the analyses necessary to demonstrate compliance with the stormwater quality and quantity requirements of Virginia Stormwater Act.	
The Rational Method may only be used for evaluating peak discharges such as pipe sizing.	
The Modified Rational Method may only be used for evaluating volumetric flows to stormwater conveyances and may not be used to perform basin routings.	
Provide pre- and post-development hydrologic, hydraulic, and routing information for the 1- year, 2- year, 10- year, and 100-year, 24-hour storms, as needed.	

CHECK DAMS:

Must be composed of permanent, non-erodible material.	
Must be firmly anchored into the side slopes and channel bottom.	
The maximum check dam height is 18 inches.	
Armoring must be provided at the downstream toe of the check dam.	
Check dams must be designed with a center weir that is sized to pass the post-development 10-year 24 hour storm event.	
The average ponding depth throughout the channel must be between 12 inches and 18 inches.	
The ponded water at a downstream check dam cannot touch the toe of the upstream check dam.	
Each check dam must have dewatering orifices to minimize standing water.	

LANDSCAPING:

The construction sequence must specify that a 6" layer of topsoil is required for all areas of the Grass Channel that will be stabilized with a permanent stand of vegetation. The topsoil layer must be clearly shown on all basin related details to ensure that all post-construction elevations reflect the topsoil application.	
Landscaping of the basin slopes that requires mulching, spraying, etc. must be limited to areas above the elevation of the top of the principal outlet structure elevation and must be done in a manner that does not inhibit maintenance access.	
Must be firmly anchored into the side slopes and channel bottom.	
SWM facilities that are visible from the right-of-way must be effectively screened from the public right-of-way or less intense uses of adjacent properties. Examples of acceptable screening include fencing, landscaping, or a combination of these features.	

ACCESS:

An access area at least 20 feet in width must be provided to the SWM facility from a public road.	
An access area 20 feet in width must be provided around the SWM facility that encompasses the highest continuous contour within the SWM facility, embankment, principal spillway outlet, emergency spillway and exit channel.	
The access areas cannot contain any obstacles, or vegetation that would prevent access of maintenance equipment.	
The access areas must either be in common area or located completely on an individual lot.	
The access areas shall not exceed a grade or cross-slope of 12:1.	
The access area to the SWM facility must be constructed of load bearing materials.	
The access area must provide sufficient turn-around area.	
The access areas identified above must be in an easement that provides access to the County and DEQ for inspections and also allows access to the owner's contractor for maintenance of the facility.	

Engineer Signature: _____ Date: _____