



DINWIDDIE COUNTY

PLANNING, ZONING, CODE COMPLIANCE AND ENVIRONMENTAL

RAINWATER HARVESTING

Site Design Checklist

Plan Name: _____ Date Submitted: _____

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

Mark the appropriate configuration that is being reviewed:

_____ **Configuration 1:** Year-round indoor use with optional seasonal outdoor use.

_____ **Configuration 2:** Seasonal outdoor use and approved year-round secondary runoff reduction practice:

- | | |
|--|--|
| _____ Rooftop Disconnection | _____ Micro-bioretenion |
| _____ Vegetated Filter Strip | _____ Urban Bioretention |
| _____ Grass Channel | _____ Dry Swale |
| _____ Infiltration or Micro-infiltration | _____ Underground infiltration soak-away pit |

_____ **Configuration 3:** Year-round indoor use, seasonal outdoor irrigation, and non-seasonal treatment in a secondary runoff reduction practices:

- | | |
|--|--|
| _____ Rooftop Disconnection | _____ Micro-bioretenion |
| _____ Vegetated Filter Strip | _____ Urban Bioretention |
| _____ Grass Channel | _____ Dry Swale |
| _____ Infiltration or Micro-infiltration | _____ Underground infiltration soak-away pit |

MINIMUM DESIGN CRITERIA:

Credit is only available for dedicated year-round drawdown/demand for the water through (1) internal use, or (2) irrigation and/or treatment in a secondary practice.	
The rainwater harvesting system must be designed with six primary components: roof surface, collection and conveyance system, pre-screening, storage tank, distribution system, and overflow mechanism.	

PLAN REQUIREMENTS:

Provide a narrative describing all assumptions made in the design as well as the purpose for which the harvested rainwater will be used consistent with the appropriate design configuration and documenting water demand.	
Provide a plan view identifying and providing sufficient details to construct the following six primary components of the rainwater harvesting system:	
Roof surface, specifying material	
Collection and conveyance system, specifying slopes, sizes, and materials, as supported by the appropriate hydraulic calculations to ensure conveyance of the design storms	
Pre-screening and first flush diverters: <ul style="list-style-type: none"> - Pre-filtration devices such as leaf screens and gutter guards must be specified; - The first 0.02 – 0.06 inches of rooftop runoff must be diverted from the storage tank for larger tank systems. 	
Storage tank: <ul style="list-style-type: none"> - Provide tank volume with allowances for dead storage and air gap at the top; - Tank shape or configuration and dimensions; - Tank material; - Appropriate tank base or foundation design; - Municipal water supply connection details, if applicable. 	
Distribution system: <ul style="list-style-type: none"> - The distribution system must be labeled as non-potable. - Provide backflow prevention for any cross-connections to a municipal water supply - Tank material; - A drain plug or cleanout sump draining to a pervious area must be designed to allow the system to be completely emptied. 	
Overflow mechanism <ul style="list-style-type: none"> - An overflow mechanism must be included in the system design with outfall to an adequate receiving system or secondary runoff reduction practice. 	
Identify underground utilities and potential conflicts, as well as, any other obstructions.	
Provide profiles, section views, and details dimensioning the system and, as appropriate, the system components.	

COMPUTATIONS:

Provide storage tank volume calculations based on the water demand and stormwater treatment volume credit objectives.	
Provide the Cistern Design Spreadsheet (CDS) found at http://www.vwrrc.vt.edu/swc/NonProprietaryBMPs.html .	
For underground tanks, provide appropriate load calculations (e.g., in-situ soil loads, vehicles, pedestrians, etc.)	
For underground tanks, provide appropriate buoyancy calculations, or document the tank is situated above the water table	
Provide the required hydraulic head based on the ultimate use of the harvested water	
State all assumptions and coefficients used	
Provide routing computations	

MAINTENANCE:

Provide a summary of the long term maintenance requirements for the SWM facility on the SWM plan.	
Inspections required by the Maintenance Agreement must be conducted by 1) a person who is licensed as a professional engineer, architect, landscape architect, or land surveyor pursuant to Sec. 54.1-400 et seq. of the Code of Virginia; 2) a person who works under the direction and oversight of a licensed professional engineer, architect, landscape architect, or land surveyor; or 3) a person who holds a Stormwater Inspector or Stormwater Combined Administrator certificate of competence from the State Water Control Board.	

ACCESS AND LOCATION:

Underground systems must be designed with a standard size manhole or equipment opening and can be locked to prevent unwanted access.	
The underground tanks must be set at least 10 feet from any building.	
The cistern overflow devices must be designed to avoid causing ponding or soil saturation within 10 feet of building foundations.	

CONSTRUCTION:

Provide construction notes that specify the following requirements, at a minimum:	
<ul style="list-style-type: none">- The tank will be installed according to the manufacturer's specifications;- All downspouts or roof drains are routed to pre-screening devices and first flush diverters;- Mosquito screens will be installed on all openings;- The overflow device will be installed and directed as shown on the plans;- The catchment area and overflow area will be stabilized;- The secondary runoff reduction practice(s) will be installed.	
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 Environmental Compliance Bond (ECB) release.	

Engineer Signature: _____ Date: _____