Calculation for Green Wet Basin Storage Capacity

Project Name:_____

Date Submitted:_____

Property Address:_____

Development/Property Name:_____

GMP Number:_____

Design Firm:_____

Design Engineer:_____Telephone:_____Email:_____

KY PE No.:_____

| MSD Reviewer:_____ |
| WM No._____ |

Step A. Site Planning Recommendation

Define goals and primary function of green wet basins based on the Green Wet Basin Step by Step Design Procedures beginning on page 18.5.4-6 and Table 18.5.4-A. Refer to this section as needed throughout the remainder of this calculation sheet.

Step B. Determine the Required Water Quality Volume Rain Event, RE_{WQV} in inches (Refer to Chapter 18.3; A minimum depth of 0.6 inches must be used):

_____ inches

Step C. Calculate the Required Water Quality Volume (WQV Required) of water to be removed by the Wet Basin

1. A = Contributing drainage area to wet basin: _____ ft^2
2. RE_{WQV} = Required WQ_V Rain Event in inches: _____ inches
3. I = Impervious cover of the contribution drainage area in percent: _____ %
   a. $R_V = 0.05 + 0.009 (I) =$ _____
4. WQ_V Required $= (A/12)(RE_{WQV})(R_V) =$ _____ ft^3

Step D. Calculate the Provided Water Quality Volume (WQ$_V$ Provided), or storage capacity of Bioswale

1. PD=Volume of Pretreatment Device (See Green Wet Basin Step by Step Design Procedures or Table 18.5.4-A) _____ ft^3
2. A = Area of green wet basin: _____ ft^2
3. φ = porosity of media (% void): 40 %
4. M = depth of media _____ ft
5. P = ponding depth of water _____ ft
6. WQ_V Provided $= (A)[\varphi(M) + P]+PD$ _____ ft^3

Step E. Determine the Managed Water Quality Volume (MWQ$_V$)

1. Determine the management capacity of the wet basin in percent (Refer to Table 18.3-C for percent). Please attach model printout or other documentation to verify retention times as required by Table 18.3-C. _____ %
2. $MWQ_V = (1/100)(GMP$ Management Capacity in percent$)(WQ_V$ Provided$) =$ _____ ft^3
3. Is all of the WQ_V Required managed or treated (i.e. is MWQ_V greater than or equal to WQ_V Required)?

_____

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If Yes, proceed to step H.

If No, alter existing GMPs or add new ones to provide adequate storage.

Step F. Calculate the Required Remaining Water Quality Volume (RWQ$_V$)

1. Required RWQ$_V$ = 2(WQ$_V$ Required - MWQ$_V$) =   _____ ft^3

Step G. Select Alternate GMPs to Treat RWQ$_V$. Examples may include:

Check all that apply. Include additional calculation sheets as necessary.

□ Green Wet Basin

□ Green Dry Basin

□ Catch Basin Inserts

□ Proprietary Water Quality Units

□ Other

1. How much additional WQ$_V$ is removed by the Alternate GMPs?   _____ ft^3

2. Does the Alternate GMP remove all the Required RWQV?   _____

3. If Yes, proceed to step H.

If No, alter existing GMPs or add new ones to provide adequate storage.

Step H. Complete O&M documentation.

Additional Calcuations and Explanation (Required if design deviates from calculation sheet):

_____

_____

_____

_____