From: Kathy Gwilym
To: ECY RE WW SW Manual Comments
Subject: Comments to Ecology on Draft SWMM for Western Washington
Date: Friday, February 03, 2012 9:55:33 AM

Dear Ecology,

The following are some comments on Ecology's November 2011 Draft Stormwater Manual for Western Washington. These all pertain to Volume V.

1. Recommend changing title for Chapter 7 to "..Infiltration-**Bioretention** Treatment Facilities.." In order to avoid confusion with Chapter 9 on biofiltration. BMPs in chapter 7 relate to bioretention.
2. Chapter 7, page 7-12. It notes that at a curb cut to a bioretention swale there should be a minimum drop of 2-3 inches from the gutter. We assume this is a 3" drop off the gutter. We would recommend this be clarified further given that there are various ways to meet the design intent which is to provide positive slope from the gutter elevation to the bottom of the bioretention swale. If it's a pedestrian area (such as cars parked adjacent to the curb) we would not recommend a 3-inch vertical drop at the gutter.
3. Chapter 7, page 7-12. It notes that bioretention cells/swales shall have a maximum 3:1 side slopes (i.e. not steeper than 3:1). Second paragraph notes that it can be steeper by using rockeries etc. We recommend that the maximum side slope not be listed as 3:1. We have bioretention swale systems that were installed at 2:1, 2.5:1 with side slopes planted and they are functioning fine (High Point bioretention cells has 3:1, 2.5:1 and 2:1). In urban conditions and within urban public right-of-way it is a challenge to design to 3:1. Bioretention cells are typically shallow systems with depths up to 30"+/- . Prevention of erosion of side slopes on slopes up to 2:1 can be provided by utilizing plants and ground covers on the sides. In addition, stormwater should be prevented from flowing into the bioretention until the plants are established; otherwise re-work will be needed to stabilize the sides. In addition, several agencies have adopted standard details showing 2.5:1 for bioretention facilities (e.g. See city of Seattle Standard details for natural drainage systems showing 2.5:1) without using structural measures (rockeries, walls etc).
4. Chapter 7, page 7-13. Minimum bottom width for bioretention swale is listed as 2'. It is noted that this is to prevent "channelization" from occurring in the swale cell. We recommend that the minimum be set to 1' since bioretention swales typically are not designed to convey large tributary areas such as conveyance channels and so channelization is not as a significant issue. In urban retrofits, it would be a challenge to design to minimum 1' for bioretention swale cells. We recommend that further clarification be provided as to what flow rate 2' is based on since typically bioretention swales have small tributary areas and low flow rates. Allowing stormwater to enter a bioretention swale before the plants are established and side slopes stabilized has been more of a factor in developing channelization in a swale. (Also, City of Seattle Standard detail for bioretention lists 1-foot minimum)
5. Chapter 7, page 7-13. Ponding is noted as a maximum of 24 hours. We recommend listing 24 to 72 hours to allow for flexibility for the designers for varying site conditions and rain events. 72 hours is less than the incubation period for mosquitoes.

Thank you for giving us the opportunity to comment. If you have any questions regarding the above, please give me a call/email 206-223-0326. If you would like further built examples demonstrating some of the recommendations, please let me know.

Thank you,

-Kathy

Kathryn Gwilym, PE LEED AP | senior civil engineer
SvR Design Company 1205 Second Avenue, Suite 200 Seattle, WA 98101
t. 206.223.0326 ext. 1009 f. 206.223.0125
www.svrdesign.com tw. @svrdesign fb. www.facebook.com/svrdesign

~ Kathy is in the office Monday, Tuesday, Thursday and Friday. If you need immediate assistance please call the office. ~

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