

**From:** [Dave Tucker](#)  
**To:** [ECY RE WW SW Manual Comments](#)  
**Subject:** SWMMWW Comments  
**Date:** Monday, November 21, 2011 12:21:39 PM  
**Attachments:** [65 percent vs 35 percent dispersion flows.xlsx](#)  
[Minton Memo.pdf](#)

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Ed O'Brien and Company,

Thank you for the opportunity to provide some feedback on the latest edition of the Ecology Stormwater Manual for Western Washington.

**Volume III Section 3.3.9 on Page 3-103:** All prior sections regarding sizing infiltration for flow control mentions 100%, 91% for water quality, Min measure #7 flow control or Min measure #5 (LID). This section does not mention minimum measure 5 (LID). Recommend you make the language consistent with prior sections of this chapter. (3.3.4 step 6 is a good example of the desired language)

**Full Dispersion:** The manual allows several mixes of forested area vs. effective impervious and landscaped area. The primary standard is 65-10-25, the furthest end of the spectrum is 35-5.5-59.5. I ran some modeling runs in WWHM3 to determine amount of flow generated under these two scenarios for that area that is not covered by forest. (See Attached Spreadsheet). The flow volumes for storms in the range of minimum measure 7 (2-50 yr) for the 5.5% eff imp and 59.5 % landscape ranges from 17% to 48% more than that coming from the 10%-25% configuration. This increased flow is supposed to be dissipated in a forested area that is 47% as big as the 65-10-25 forested area. More flow – less area to infiltrate. If Ecology has verified that this ratio works in the field, then I guess the range of dispersion scenarios is okay. If not, I recommend Ecology take another look at the original literature that recommended the 65-10 ratio to determine if the other ratios are appropriate or not.

**Volume V: Figures 9.6a and b** rely on a methodology of predicting flow that Ecology has stated is inaccurate since the 1992 Puget Sound Stormwater Manual. Why are we still relating flows back to SBUH. Flows sizing should be related to BMP function not a prior flow predicting method? Recommend deleting these correction factors and sizing the BMP based on the flow derived from the WWHM model or equivalent and the appropriate physics equations or empirically derived relationships.

**Additional Research Information:** See attached report dated March 24, 2009 by Dr Gary Minton, PE regarding suggested changes to the 2005 WW manual. In particular:

- 1) Page 17 recommends allowing manufactured vaults as forebays for wet ponds and wetlands. Such a design would limit the BMP footprint. The smaller footprint may make these BMPs more attractive to property owners and potentially easier and less expensive to maintain.
- 2) Page 20 of the report suggests some inlet and outlet configurations for wet

- ponds/wetlands that should provide greater treatment by limiting short circuit flow paths.
- 3) Page 26 figure 16 and the surrounding text suggests that biofiltration swales as designed do not meet the Ecology Basic Treatment standard. If this data is correctly interpreted, Ecology should consider removing the grass lined swale from the manual as a water quality BMP.

***Dave***

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