City of Redmond's Comments to Proposed Modifications to the 2014 Western Washington Phase II Municipal Stormwater Permit (NPDES Permit)

Phase II NPDES Permit Comment 1, S5.C.3.a.i and S5.C.3.a.v: Mapping Discharge Points

This modification will result in jurisdictions mapping where conveyance systems cross jurisdictional boundaries. There is no benefit of mapping these discharge points given that the conveyance and other stormwater facilities are really required to be mapped. The added work associated with this modification to the mapping requirement will move focus and resources away from other activities that have a greater potential to protect surface waters.

Suggested modification: Remove the requirement to map discharge points.

Phase II NPDES Permit Comment 2, Appendix 1, page 3 and page 5: Clarification of Definitions of Discharge Point and Outfall

If stormwater runoff from an MS4 flows to a treatment facility and then to an UIC, is the treatment facility a discharge point, an outfall, or neither?

Suggested modification: Please clarify and explain.

Phase II NPDES Permit Comment 3, S5.C.4.g: Scope and Cost of the Watershed-scale Stormwater Planning Requirements

Modifications to the Phase II Permit require full participation, including financial participation in Phase I permit-required watershed planning. This expense has come to the attention of Phase II municipalities as a surprise, and arrived later then possible to budget for the expense. To allow watershed planning to be a success, the Phase II cost to fully participate needs to be funded by Washington Department of Ecology or all Phase II jurisdictions, rather than those Phase II jurisdictions identified by the Phase I jurisdictions during the watershed scale planning process.

Suggested modification: Remove the requirement that Phase II jurisdictions participate financially and look for other ways of funding this requirement such as State funding.

Phase II NPDES Permit Comment 4, S8.B.1-2: Schedule for the Status and Trends Monitoring

Ecology changed the date for beginning Option #2 Status and Trends Monitoring. This modification requires municipalities using Option #2 to begin monitoring by October 31, 2014. This date should be modified to coincide with monitoring by the Regional Stormwater Monitoring Program (RSMP).

Suggested modification: Change date to January 2015 to coincide with Option #1 for Status and Trends monitoring in order to support the RSMP.

City of Redmond's Comments to Proposed Modifications to the 2014 Western Washington Phase I Municipal Stormwater Permit (the NPDES Permit)

Phase I NPDES Permit Comment 1, S5.C.5: Scope and Cost of the Watershed-scale Stormwater Planning Requirements

1) The estimated cost of the four Phase I permittee watershed planning projects is estimated over $7,000,000. Over 80% of this cost is for new data collection and modeling.

   Suggested modification: Edit the watershed planning requirements/scope in the Phase I permit to follow the *USEPA Handbook for Developing Watershed Plans to Restore and Protect Our Waters* (2009).

2) The required dates for deliverables in the Phase I permit do not allow adequate time for collaboration with affected Phase II municipalities.

   Suggested modification: Adjusted deliverable dates in the Phase I permit for King and Snohomish County to allow the maximum time possible for collaboration with affected Phase II cities.

3) The scope of work detailed in the modifications does not present a comprehensive, multidisciplinary watershed planning approach. Effective watershed planning requires a comprehensive planning effort that includes the knowledge and insights from numerous professional disciplines. A plan that relies too heavily on engineered solutions will not be effective at implementing land-use changes.

   Suggested modification: Reduce the costly requirement to collect data to run models that will result in costly engineered solutions, and consider options for non-engineered solutions to future impacts, in order to increase the likelihood of implementation.

City of Redmond's Comments to Proposed Modifications to the 2014 Stormwater Management Manual for Western Washington (SWMMWW)

Volume I

Volume I, SWMMWW Comment 1, Section 1.6.4: References to the 2008 Puget Sound Partnerships (PSP) Action Agenda

The current language references an older version of the Puget Sound Partnership's Action Agenda.

Suggested modification: Replace language that references the 2008 PSP Action Agenda, with new language referencing 2014-2015 PSP Action Agenda.

Volume III

Volume III, SWMMWW Comment 1, Chapter 3: Location of BMP T5.11 and BMP T5.12 in the Manual

BMP T5.11 and BMP T5.12 in Volume V should be added to BMPs that provide flow control in Chapter 3. Downspout dispersion, porous pavement, and bioretention are identified in Chapter 3 Volume III; full and partial dispersion should be included as well. Dispersion is cost effective and low maintenance.

Suggested modification: Add BMP T5.11 and BMP T5.12 in Volume V to BMPs listed as providing flow control in Chapter 3, Volume III.

Volume III, SWMMWW Comment 2, Appendix III-C: Clarify Modeling Requirements

Suggested modification: Guidance needs to clearly state that when using WWHM 2012, "Hard surfaces routed to an LID BMP are modeled as hard surfaces."

Volume III, SWMMWW Comment 3, Appendix III-C: Adding Tree Retention, Tree Planting, and Dispersion to Chapter 3, Volume III

Appendix III-C provides modeling information for tree retention, new tree planting, and dispersion, none of which are discussed elsewhere in Volume III. If these are options for reducing hydrologic disruption, they should be highlighted in Chapter 3, Volume III.

Suggested modification: Revise Chapter 3, Volume III to include tree retention, new tree planting, and dispersion as options for reducing hydrologic disruption.

Volume V

Volume V SWMMWW Comment 1, Sections 5.3.1 & 7.4: Critical Aquifer Recharge Area requirements should supersede or reduce the requirement for on-site stormwater management BMPs.

Ecology is proposing modification to the infeasibility criteria related to bioretention and permeable pavement. Redmond and others previously requested that groundwater protection areas be identified as competing needs or possible "infeasibility criteria" for some types of infiltration BMPs. Ecology has stated in its response to comments:

> "Ecology does not consider groundwater/aquifer protection districts as competing needs that automatically make all LID strategies infeasible. Spokane Valley is an example of an area where urban stormwater is infiltrated into the ground over a sole source aquifer. What is required is the establishment of rules for infiltration that minimize the chance of unacceptable groundwater impacts."

The language in Ecology's comment response suggests that rules can be established for infiltration, but we would prefer stronger language *within the permit or manual* that explicitly identifies the local jurisdiction's authority in this matter. Redmond's aquifer (at 6-10 feet below the ground) is far more susceptible to pollution than Spokane's aquifer (at 300 feet below the ground).

The *Federal Safe Drinking Water Act* and Washington State Department of Health (DOH) regulations, *WAC 296-290-135(3)(a)* requires Redmond to implement its Wellhead Protection Program. Wellhead protection programs establish Critical Aquifer Recharge Areas that may limit or prohibit infiltration of stormwater under certain conditions. Along with other modifications and additions that have been made to Sections 5.3.1 & 7.4 in Volume 5 of SWMMWW, Ecology should resolve conflicts between the *Federal Clean Water Act* and the *Federal Safe Drinking Water Act* by acknowledging this competing need.

To resolve these conflicts, the City of Redmond proposes the following additional modifications to Volume V:

Section	**Page**	***Suggested Modifications***
5.3.1	5-2	Please revise "Public health and safety standards" to read "Public health and safety standards, including Critical Aquifer Recharge Area requirements."
5.3.1, BMP T5.15	5-20	Please revise the following: "Within 100 feet of a drinking water well, or a spring used for drinking water supply, if the pavement is a pollution-generating surface." and replace with: "Within 100 feet of a drinking water well, or a spring used for drinking water supply, **or within a Critical Aquifer Recharge Area in which infiltration is prohibited**, if the pavement is a pollution-generating surface."
7.4, BMP T7.30	7-8	Please revise the following: "Within 100 feet of a drinking water well, or a spring used for drinking water supply." and replace with: "Within 100 feet of a drinking water well, or a spring used for drinking water supply, **or within a Critical Aquifer Recharge Area in which infiltration from pollution-generating surfaces is prohibited**."

Volume V SWMMWW Comment 2, Table 4.5.2: Maintenance Standards In Two Locations in the Manual

Table 4.5.2 includes maintenance of flow control facilities, which also have maintenance standards in Volume III.

Suggested modification: Please consolidate maintenance standards in one location in the SWMMWW.

Volume V SWMMWW Comment 3, BMP T5-13: Post Construction Soil Amendment

New language allows for 35% biosolids or manure in the compost.

Suggested modification: Please add language that designers and landscapers must check with local jurisdictions before specifying compost with manure or biosolids.

Volume V SWMMWW Comment 4, Page 7-20: Specification for Underdrain Backfill

Thank you for specifying type 26 backfill for underdrain and slotted under drain pipe in bioretention. We have experience using other commonly available gradations with poor outcomes. We feel this language should be strengthened.

Suggested modification: Please strengthen the language to make it a requirement to use this gradation, rather than a "guideline".

Volume V SWMMWW Comment 5, Figure 7.4.1(note): Compaction Requirement for Bioretention Cells

We are concerned that the current language in the note to Figure 7.4.1, may lead to the over-compaction of soils in bioretention cells.

Suggested modification: Remove the requirement for BSM compaction in Figure 7.4.1 (note 5). Rather than requiring 85% density, instead describe how the soil should be placed to avoid over-compaction.

Volume V SWMMWW Comment 6,* Section 7, page 7-12*: Compaction Requirement for Bioretention Cells

Section 7, pages 7-12: Redmond supports Ecology's revision to the bioretention soil mix (BSM) infiltration rate when using BSM provided in the Ecology Manual. However, the way the edits are currently worded, the long term design rate for Option #1 did not actually change; later in the same section safety factor adjustments are required such that the long term design rates are the overly conservative values provided previously in the manual. Those safety factors are inappropriate to be applied to Option #1. Based on observed performance from BSM mesocosm data and monitoring of full scale planted bioretention facilities, the 6"/hr infiltration rate already includes a safety factor adjustment consistent with Ecology's recommendations for safety factors. See memo submitted by Seattle that supports a long term design infiltration rate of 6"/hr for Option #1 (Ecology's BSM spec).

Suggested modification: To complete the manual edits to reflect the BSM data, Redmond recommends the following changes to Ecology's manual: "If selecting option 1 above, select "none" as the KSat safety factor in WWHM2012. ~~After~~ If selecting option ~~1 or~~ 2 above, determine the appropriate safety factor for the saturated hydraulic conductivity (KSat). If the contributing area of the bioretention cell or swale is equal to or exceeds any of the following limitations…"

Volume V SWMMWW Comment 7,* pages 5-25, 7-6, 7-19: *Underdrains for Bioretention and Permeable Pavement

Section 7, 5-25, 7-5, 7-19: Redmond does not support Ecology's edits that remove the use of underdrains for bioretention or permeable pavement from the practices credited toward MR#5. Systems with elevated underdrains are an important tool in the toolbox due to the stormwater volume reductions and attenuation that can occur from these systems combined with their applicability in urban environments when other approaches are not feasible. Systems with underdrains still have the potential for substantial flow attenuation and volume reduction. As stated by Ecology (Volume 5, p 7-9) "If the underdrain is elevated within a base course of gravel, the bioretention facility will also provide some modest flow reduction benefit". Seattle has monitored two bioretention projects with elevated underdrains, Highpoint and Ballard Roadside Raingardens phase 1, and found significant average annual volume reduction from these systems. Most recent monitoring of cells within the Ballard Phase 1 project that were retrofitted to add an underdrain (after it became apparent that native soils could not infiltrate the volume of stormwater entering the system quickly enough to meet drawdown requirements) estimates 50% average annual volume loss from those cells in 2012-2013 and up to 89% average annual volume loss in 2013-2014. The same flow reduction and attenuation benefits have been documented in Redmond, where lined and underdrained bioretention systems were monitored for flow and treatment per TAP-E. Systems with underdrains are sometimes the best approach for urban environments. When the risk of a system without an underdrain are too high (due to considerations such as horizontal water migration along utility corridors and associated unintended consequences), significant stormwater value can still be achieved by using a system with an elevated underdrain. In order to achieve greater protection of water quality while also addressing geotechnical recommendations for infiltration within Seattle, Seattle's BMP Lists have proposed requiring infiltrating bioretention with an underdrain for soils with measured infiltration rates greater than or equal to 0.3 inches per hour and less than 0.6 inches per hour (unless other feasibility restrictions apply). Ecology's change to not allow underdrained systems as part of MR#5 would eliminate this option, significantly reducing the toolset within urban environments.

Suggested modification: Delete language removing the use of underdrains for bioretention or permeable pavement from the practices credited toward MR#5.