

Appendix B: Statement of Basis for Modifications to the
Phase I and Western Washington Phase II
Municipal Stormwater Permits
& the
Stormwater Management Manual for Western Washington

**STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
OLYMPIA, WASHINGTON 98504-7600**

August 6, 2014

2014 Municipal Stormwater Permit Modifications

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Introduction

The Washington Department of Ecology (Ecology) issues this Statement of Basis as Appendix B to the November 9, 2011 Fact Sheet that accompanied the October 20, 2011 formal drafts of the Phase I Municipal Stormwater Permit (Phase I permit) and the Western Washington Phase II Municipal Stormwater Permit (Western Washington Phase II permit), both effective August 1, 2013. This Statement of Basis accompanies the proposed permit modifications for these two permits.

In addition, this Appendix provides the basis for the proposed modifications to the *Stormwater Management Manual for Western Washington* (Manual).

The Statement of Basis documents the legal, technical, and administrative decisions Ecology has made while modifying the Permits and the Manual. Ecology is issuing these modifications to address the resolution of appeals under the settlement agreements and as remanded by the Pollution Control Hearings Board (PCHB) in accordance with WAC 173-220-190(1), and to incorporate errata identified after the Permits were issued. Copies of the appeals, settlements and PCHB rulings are available at

<http://www.ecy.wa.gov/programs/wq/stormwater/municipal/2012appeals.html>

Public Involvement

Public Comment Period

Ecology invites public comment on the proposed modifications from August 6, 2014 until 12 midnight on October 6, 2014. Ecology welcomes all comments that address the modifications in these draft documents. In order to allow Ecology to adequately address comments, include the following information with each comment:

- The Permit or Manual subject to your comment.
- The specific language used in the modification subject to your comment. Include the page number(s) and, where indicated, MS4 Permit section reference (e.g., S8.D.2.b) or Manual page reference (e.g., Volume 2, Chapter 3, page 3-12).
- A brief, concise comment including the basis for the comment, and in particular the legal, technical, administrative, or other basis for the concern.
- Suggested language or a conceptual alternative to address your concern.

Ecology will issue the final modifications after it considers all public comments and makes final changes to the draft Permit and Manual modifications. Ecology will publish a *Response to Comments* as Appendix C to the Fact Sheet with the final modifications addressing comments submitted during the public comment period.

The following [MS Excel template](#) is provided for organizing your comments. This template is **not** required in order to submit comments, and is provided for your convenience only.

Written comments should be sent to Ecology as follows:

Send comments by e-mail to: SWPermitComments@ecy.wa.gov

Send comments in hard copy by mail to:

Municipal Permit Comments
WA Department of Ecology
Water Quality Program
PO Box 47696
Olympia, WA 98504-7696

People can provide oral comments by attending and testifying at the public hearings:

Public Workshops and Hearings

September 24, 2014 1:00p.m – Water Resource Education Center,
4600 SE Columbia Way, Vancouver, WA

October 1, 2014 1:00p.m – Edmonds Conference Center,
201 Fourth Avenue North, Edmonds, WA

Workshop Only*

September 26, 2014, 10a.m – Department of Ecology,
300 Desmond Drive, Lacey, WA

*Ecology is planning on hosting a webinar of the workshop; details will be posted to the website:
www.ecy.wa.gov/programs/wq/stormwater/municipal/permitMod2014.html

Workshops and public hearings on the modifications are scheduled to be held in Edmonds and Vancouver, Washington. A workshop only (with webinar) will be held in Lacey, Washington. At each workshop Ecology will explain the permit and manual modifications and answer questions. A hearing will immediately follow the Edmonds and Vancouver workshops. The hearings will provide the opportunity for people to give formal oral testimony and comments on the proposed modified permits.

Ecology will issue the final Permit and Manual modifications after receiving and considering all public comments. If public comments cause a substantial change in the Permit conditions from the final draft permit modifications, another public notice of draft modification(s) and comment period may ensue. Ecology expects to issue the final modifications in December 2014 and they will become effective 30 days after issuance. Ecology will send a copy of the Notice of Issuance to all persons who submitted written comment or gave oral testimony at the public hearings.

People submitting comments will receive a notice on how to obtain copies of the final permit and Ecology's response to comments. The *Response to Comments* will include a summary of the public comments on the draft permit modifications and the resulting changes to the final modified MS4 Permits or Manual.

You may download copies of the proposed permit modification documents and submit comments online (through the email address provided) at:

www.ecy.wa.gov/programs/wq/stormwater/municipal/permitMod2014.html

You may direct questions about the **workshops and hearings** and requests for printed copies of the draft modifications to Abbey Stockwell (360) 407-7221 or abbey.stockwell@ecy.wa.gov. The Manual may be downloaded from the web page, or you may request a printed copy or a copy on compact disc (for a nominal fee) through the [Department of Printing](#).

You should direct questions about the **Public Notice** or the **Draft Permit Modifications** to the appropriate Ecology contact listed below:

Phase I

Nat Kale
Phase I Municipal Stormwater Specialist
Water Quality Program
PO Box 47600
Olympia, WA 98504-7600
Phone: 360-407-6470
E-mail address: nathaniel.kale@ecy.wa.gov

Phase II

Abbey Stockwell
Phase II Municipal Stormwater Specialist
Water Quality Program
PO Box 47600
Olympia, WA 98504-7600
Phone: 360-407-7221
E-mail address: abbey.stockwell@ecy.wa.gov

You should direct questions about the Stormwater Management Manual for Western Washington to:

Amanda Heye, PE
Stormwater Engineer
Water Quality Program
PO Box 47600
Olympia, WA 98504-7600
Phone: 360-407-7221
E-mail address: amanda.hey@ecy.wa.gov

Municipal Stormwater General Permit Appeals

On August 1, 2012, Ecology issued the Phase I & Phase II Western Washington Municipal Stormwater Permits. The Permits became effective on August 1, 2013. Following the 2012 issuance of the MS4 Permits, the Phase I and Phase II Western Washington Permits were appealed to the Pollution Control Hearing Board (PCHB) for a variety of issues. The appeal process resulted in two settlement agreements, summary judgments and a *Findings of Fact, Conclusions of Law, and Order* (Order) from the PCHB (Phase I settlement was included in the PCHB final Order). The proposed modifications implement the outcomes of the appeals and create consistency between the Permits.

In addition to the proposed Permit modifications, the PCHB ordered modifications to the Stormwater Management Manual for Western Washington (SWMMWW) and ordered Ecology to make available for public comment several guidance documents that support the Permits and SWMMWW. The following resources that support the Permits are also available for comment:

- Western Washington Hydrologic Model (WWHM), including the WWHM User's Manual available at: <http://www.ecy.wa.gov/programs/wq/stormwater/wwhmtraining/index.html>
- *Integrating LID into Local Codes: A Guidebook for Local Governments*. Puget Sound Partnership, 2012, prepared by AHBL for the Puget Sound Partnership, July 2012. Publication Number: PSP 12-01. Available at: http://www.psp.wa.gov/LID_GLG.php
- *Low Impact Development Technical Guidance Manual for Puget Sound*. Hinman, C. Puget Sound Partnership and WSU Extension, December 2012. Publication Number: PSP 2012-3. Available at: http://www.psp.wa.gov/LID_manual.php
- *Rain Garden Handbook for Western Washington, A Guide for Design, Installation, and Maintenance*. Hinman, C. WSU Extension, June 2013. Available at: <https://fortress.wa.gov/ecy/publications/SummaryPages/1310027.html>

Notices of appeal, PCHB documents, and settlement agreements are available on Ecology's website at: <http://www.ecy.wa.gov/programs/wq/stormwater/municipal/2012appeals.html>

Permit Modifications

The proposed modifications are presented below and grouped by the general reason for making the modifications (e.g. settlements, PCHB order, errata).

Settlement

An outcome of the appeal process was a settlement on a Phase I Permit issue to include a definition for “conveyance system.” Another settlement was reached regarding definitions in the Western WA Phase II Permit in which Ecology agreed to revise the definitions for “outfall” and “receiving water body or receiving waters”, and include a definition for a new term “discharge points.” In addition, Ecology agreed to release guidance regarding the revised definitions. To provide consistency between the municipal stormwater permits, Ecology proposes to include the agreed upon definitions in both Permits. The revised definitions provide a common vocabulary and greater clarity to where a municipal separate storm sewer systems (MS4) discharges, and will allow for more accuracy in mapping the system to meet the Illicit Discharge Detection and Elimination (IDDE) and Operations and Maintenance program requirements. The following definitions clarify when a discharge occurs through an outfall (when a discharge enters receiving water) and when a discharge simply leaves a permittee’s MS4 to something else (considered a discharge point). The receiving water definition was also revised for clarity and is more specific than the definition of waters of the state.

New Definitions:

Outfall means a point source as defined by 40 CFR 122.2 at the point where a discharge leaves the permittee’s MS4 and enters a receiving waterbody or receiving waters. Outfall also includes the permittee’s MS4 facilities/BMPs designed to infiltrate stormwater.

Several phrases or words used in this definition have been selected with the following intentions:

- Reference to 40 CFR 122.2 limits outfalls as “discernible, confined and discrete conveyances.”
- “at the point where” further clarifies this is a point; excludes conveyances that have no outlet (such as dispersion BMPs).
- “leaves the permittee’s MS4 and enters a receiving water body” is intentionally possessive to a single MS4 permittee. The phrase:
 - does not reference a group of MS4 permittees
 - excludes private and unregulated public stormwater systems for the purposes of its use in this permit

It is likely that municipalities will want to identify private or unregulated public outfalls in order to have a comprehensive understanding of drainage within their jurisdiction.

- The “discharge” is not limited to stormwater but also includes illicit discharges.
- “facilities/BMPs” is a broad use of the term “facilities/BMPs” to accommodate a wide range of infiltration facilities including any pre-existing facilities and retrofit facilities and is not limited to “stormwater treatment and flow control BMPs/facilities” as defined in the Permits.
- “designed to infiltrate stormwater” excludes facilities that inadvertently infiltrate (such as ditches).

- For the purposes of this permit, UIC facilities are categorically excluded; however, municipalities may want to identify UIC facilities in order to have a comprehensive understanding of drainage within their jurisdiction.
- Outfall does not include the points where pipes, tunnels, or other constructed conveyances which connect segments of the same receiving waters and are primarily used to convey receiving waters¹. For example, outfall does not include in-stream culverts that convey the stream under roadways, nor does it include the outlets of streams that have been piped under development areas.

FORMER DEFINITION: “Outfall” means point source as defined by 40 CFR 122.2 at the point where a discharge leaves the MS4 and discharges to waters of the State. Outfall does not include pipes, tunnels, or other conveyances which connect segments of the same stream or other surface waters and are used to convey primarily surface waters (i.e. culverts).

Receiving waterbody or receiving waters means naturally and/or reconstructed naturally occurring surface water bodies, such as creeks, streams, rivers, lakes, wetlands, estuaries, and marine waters, to which a discharge occurs via an outfall or via sheet/dispersed flow. Receiving waters also include groundwater to which a discharge occurs via facilities/BMPs designed to infiltrate stormwater.

Several phrases or words used in this definition have been selected with the following intentions:

- A receiving water body is not defined by the type of discharge it receives. In other words, the definition need not refer to who or what discharged (such as an MS4).
- The discharge does not have to be stormwater, as an illicit discharge of non-stormwater to receiving waters can occur.
- Groundwater is a receiving water body where a facility/BMP is designed to infiltrate.

FORMER DEFINITION: “Receiving waters” means bodies of water or surface water systems to which surface runoff is discharged via a point source of stormwater or via sheet flow. Receiving waters may also be ground water to which surface runoff is directed by infiltration.

New Terms and Definitions:

Discharge Point means the location where a discharge leaves the permittee’s MS4 to another permittee’s MS4 or a private or public stormwater conveyance. “Discharge point” also includes the location where a discharge leaves the permittee’s MS4 and discharges to ground, except where such discharge occurs via an outfall.

¹ Readers note: this sentence is from the Code of Federal Regulations (CFR) and was included in the former definition, however, it was removed from the proposed definition and included as guidance for clarity.

Several phrases or words used in this definition have been selected with the following intentions:

- “the location” = avoids circular use of “point” in the term and the definition; avoids confusion with 40 CFR 122.2 point source
- “where a discharge” = applies not only to stormwater but also to illicit discharges
- The use of “discharge point” in the permit refers to a permittee’s discharge *from* their MS4 *to* something else.
- Stormwater conveyance is broadly used to indicate stormwater infrastructure.
- For discharge points to ground:
 - Includes facilities/BMPs that inadvertently infiltrate such as *ditches and swales**
 - Includes stormwater conveyances that have no outlet, such as dispersion BMPs.

***Please Note:** The settlement language that resulted from the appeal process (provided above) includes “inadvertent infiltration through ditches or swales” as a type of discharge point. This language assumes that any unlined ditch or swale used for conveyance may have incidental infiltration, and creates an inherent conflict as swales are commonly designed to infiltrate and may need to be mapped as an outfall.

Within the context of the Permit, the settlement language would require all ditches and swales to be mapped as discharge points. Many, if not all, permittees have established mapping programs. It is not Ecology’s intent to require permittees to map inadvertent infiltration, such as ditches, as a discharge point or to review previously mapped features and require these to be re-labeled as discharge points according to the new definition (although this may be helpful for permittees and their programs to do so).

The following table provides a list of the proposed modifications that follow the settlement agreements. The following modifications include adding the new term “discharge points” in the appropriate permit section. The definitions now make outfalls and discharge points distinct features of an MS4, this is why “discharge points” is used in association with “outfalls”, where appropriate. The reason for making these modifications is to follow the agreements accepted during the appeal process, to use consistent terminology, and add clarity to the Permits.

Table 1: List of proposed modifications to the Municipal Stormwater Permits as a result of the Phase II settlement agreement

Illicit Discharge Detection and Elimination

Phase I	WWA Phase II	Modifications
S5.C.2.a.i	S5.C.3.a.i	Added “discharge points”; “and discharge points” adjacent to the term “outfalls” within the mapping requirements
S5.C.2.a.v	S5.C.3.a.iv	Added “and discharge points” to the phrase “Tributary conveyances to all known outfalls...”
S6.D.3.c-d	S6.D.3.c-d	Added “and discharge point” to mapping and runoff delineation, and inspections requirements for outfalls.
S6.E.3.c.i & S6.E.c.ii	NA	Added “and discharge points” to mapping requirements for outfalls.

Municipal Operations and Maintenance

Phase I	WWA Phase II	Modifications
S5.C.9.d.i(2)	S5.C.5.d.(ii)	Added “or discharge point” to the phrase “Include an inspection of the catch basin immediately upstream of any system outfall...”

Definitions

Definition language is provided above.

The definition for “Discharge points” was added to both permits. This is a new term separate from “Outfall”, which is used for discharges between conveyance systems and certain other non-outfall discharges.

The definition for “Outfall” was revised; this definition was clarified to distinguish outfalls from “Discharge points.” Outfalls discharge to receiving waterbodies, including groundwater via BMPs designed to infiltrate.

The definition for “Receiving Waterbody” or “Receiving Waters” was revised. The revised definition clarifies the relationship between outfalls and receiving waters, and includes a list of possible receiving waters.

Appendix 1

Phase I	WWA Phase II	Modifications
Sec. 2	Sec. 2	The definitions outfall, receiving waters or receiving waterbody, and discharge points were made consistent with the Permit.
Sec. 4.2 #10	Sec. 4.2 #10	Control De-watering requirement: replaced the term “outfall” with “discharge point”. This language is from the Phase II Settlement agreement. This modification is included in both permits to be consistent and clarifies the intent of requirement.

PCHB Decision

Apart from the issues resolved in the settlement above, several other issues were also argued before the Pollution Control Hearing Board (PCHB) which resulted in an Order (March 21, 2014; Case Number: PCHB12-093c, 12-097c) to Ecology that directs specific modifications to the Phase I Permit and Stormwater Management Manual for Western Washington. The PCHB decision has been appealed; however, this appeal is narrowly-defined and therefore does not prevent Ecology from moving forward with these proposed modifications to the Permits which are unaffected by the pending appeal.

The modifications ordered by PCHB are also proposed to be included in the Phase II permits where appropriate, again to ensure consistency between permits.

Significant changes to the permit include updating external document references (such as the Rain Garden Handbook), clarifying the definition of a “conveyance system”, and clarifying the intent of Ecology in certain conditions such as interagency agreements and mapping conveyance systems. The following lists the PCHB-directed modifications.

Legal Authority

Phase I only: S5.C.1.b.iv

Added “among co-applicants” to the phrase “Control through interagency agreements.”

This language is from the PCHB order, and specifies that permittees are not obligated to execute agreements with entities that are not bound by a State of Washington Municipal Stormwater permit.

Controlling Runoff from New Development, Redevelopment, and Construction Sites

Phase I

S5.C.5.a.ii-vii

WWA Phase II

S5.C.4.a & Footnote # 19

The PCHB Order remanded Condition S5.C.5.a.iii of the Phase I Permit to Ecology for modification to be made consistent with Ecology's intent of this provision: to modify/replace the term "projects approved" to "applications submitted" (in the second clause of the second sentence of that condition). This change is proposed for the Phase II permit for clarity and consistency.

WATERSHED PLANNING

The PCHB Order directed Ecology and the MS4 Permittees to "work cooperatively" on modifying the MS4 Permits to (emphasis added):

*...address cross-jurisdictional coordination and insure that the scope of work for the designated watershed plan includes the **full participation** of both Phase I and Phase II permittees.*

While acknowledging real issues with coordinating the work across jurisdictional boundaries, the PCHB also concluded "that the answer is not to limit the watershed planning requirements of the permit," but to obligate permittees:

... to participate in the watershed-scale stormwater planning process, provide the data necessary for that planning process, and develop and evaluate stormwater management strategies to meet water quality standards in the portion of the watershed that is within their respective jurisdictions.

In order to follow PCHB's direction to work cooperatively with permittees, Ecology invited all affected permittees to discuss potential permit language changes. Representatives from Pierce and Clark counties declined to meet with Ecology as they were satisfied with their process within their chosen watersheds and do not need to coordinate with Phase II cities. Two meetings were held with the Snohomish and King counties, and the cities of Bothell, Woodinville, and Redmond, and Washington Department of Transportation (WSDOT) with the goal of developing language that meets the PCHB Order and is agreeable to all entities. Separate permit language proposals were submitted to Ecology, one from the cities and one from the counties. Ecology also created draft permit language and invited comment from the participating permittees.

Ecology's understanding of the PCHB Order is that the phrase "full participation", and the requirement to strengthen cross-jurisdictional cooperation, requires three things:

- Watershed-scale planning must be based on the watershed-scale, and not based on political jurisdictional boundaries.

- Both Phase I and Phase II permittees must contribute toward all aspects of the creation of the watershed-scale plan, including cross-jurisdictional coordination, data collection, modeling, and stormwater management alternatives analysis.
- While Phase I communities are required to “convene and lead” the process, which entails obligations above and beyond the requirements to which other permittees are subject, all participants in a watershed-scale planning process must have a voice in how all aspects of the planning process are conducted.

The following language changes are proposed:

Phase I only: S5.C.5.c.i

New footnote (number 3) added after the phrase “Each County Permittee”:

Ecology approved a selected watershed for all four County Permittees. Clark County chose the Whipple Creek watershed which was one of the options listed in the permit. King County and Pierce County chose to do planning on subsets of watersheds listed in the permit that meet the four criteria identified for alternative watersheds. King County chose a portion of the Bear Creek watershed (excluding the Cottage Lake sub-watershed, Evans Creek, and the area downstream of the confluence with Evans Creek), and Pierce County chose the Spanaway Creek/Lake sub-watershed of the Clover Creek watershed. Snohomish County proposed an alternative watershed, Little Bear Creek, which meets the four qualifying criteria.

This footnote clarifies that the watershed selection process has already occurred, and specifically identifies which watersheds each Phase I county permittee is required to address in their planning efforts. It also records Ecology’s approval of the four watersheds.

Phase I only: S5.C.5.c.ii

First paragraph of S5.C.5.c.ii replaced with the following language:

ii. Each County Permittee shall convene and lead a **documented** watershed-scale stormwater planning process involving other Permittees subject to a **Washington State** municipal stormwater permit with areas of their jurisdiction within the selected watershed (**participating entities**). **County Permittee requirements include:**

- ***Lead the creation of a watershed-scale hydrologic and water quality model. All participating entities must be included in scoping the work, identifying data needs, executing consultant contracts (if necessary), identifying watershed characteristics, constructing and calibrating the model(s).***
- ***Coordinate the evaluation of implementation scenarios for all the participating entities and coordinate the development of an integrated watershed-wide implementation plan.***

- ***Provide adequate opportunities for participating entities to provide input and feedback on all steps in the process that involve them. Address any input received from the participating entities on the scope of work, modeling exercise and planning strategies, either by documenting the infeasibility of the proposed change, or by explaining the change made to address the input.***
- ***Develop and coordinate a timeline for the planning effort.***

Failure to convene and lead this process in a manner that is inclusive of the participating entities is a permit violation. However, it is not a permit violation if other entities, whose actions the Permittee has no or limited control over, refuse to participate. County Permittees shall invite participation from ~~other~~ cities, counties, and other governmental entities ***which are not subject to a Washington State municipal stormwater permit and which have*** with areas of their jurisdiction in the selected watershed. ~~Failure to effectively involve other cities and counties is not a permit violation provided other entities, whose actions the Permittee has no or limited control over, decline to participate.~~

This language was added to further define and clarify the role of the Phase I permittees and includes activities that are specific to the county that convenes and leads the watershed-scale planning process.

- The revised language to *convene and lead* a process recognizes the PCHB’s requirement of full participation, and the Phase I county’s obligation to help facilitate that participation, while ensuring that refusal to participate on the part of another permittee is not construed as a permit violation by a county that genuinely attempts to lead a process.
- The phrase “integrated watershed-wide implementation plan” is intended to help guide permittees in understanding what is expected as a final deliverable. It refers to a coordinated plan that evaluates and incorporates a variety of actions by all jurisdictions across the entire watershed, and would not unduly burden a single jurisdiction with the responsibility to meet B-IBI or water quality targets.

Phase I only: S5.C.5.c.iv

The final watershed-scale planning deadline submittal revised to “no later than ***September 1, 2017.***”

This change was included as various permittees requested an extension to the October 1, 2016 deadline. The PCHB Order left modification of the deadline to the discretion of Ecology. The proposed revision to allow an extension of the deadline to ***September 1, 2017*** should give permittees sufficient time to complete the planning process, while allowing Ecology to incorporate lessons learned into the following permit cycle. Permittees are free to complete the planning process sooner than required by the permit.

Phase I only: S5.C.5.c.v

The following paragraph was added:

- v. Each Permittee that has all or part of its coverage area under this Permit in a watershed selected by a Phase I county for watershed-scale stormwater planning under conditions S5.C.5.c.i-iv of this Permit shall participate in the watershed-scale stormwater planning process led by the Phase I county. The permittee shall:***

Phase I: S5.C.5.c.v; **WWA Phase II:** S5.C.4.g

In the Phase I permit the following language was added to the permit (and is numbered 1-11); in the WWA Phase II permit the following language replaces S5.C.4.g.i-iii (and is numbered i-xi):

- 1. Collect*** (See footnote at end of section) ***and provide adequate water quality data from one or more field stations (depending on the Permittee's location in the watershed) to establish existing base flow and storm conditions. Data quality and quantity must be compatible with the rest of the project data.***
- 2. Collect and provide adequate flow data from one or more field stations (depending on the Permittee's location in the watershed) to calibrate a continuous runoff watershed model. Data quality and quantity must be compatible with the rest of the project data.***
- 3. Collect and provide adequate benthic macroinvertebrate data from one or more field stations (depending on the Permittee's location in the watershed) to establish existing conditions and establish correlation with flow data. Data quality and quantity must be compatible with the rest of the project data.***
- 4. Supply existing data/information related to the status of the aquatic community (within the permittee's coverage area within the watershed).***
- 5. Supply existing data of pertinent watershed characteristics for the permittee's coverage area within the watershed, including but not limited to soil types, existing and future land covers, and MS4 mapping to allow construction of a watershed model.***
- 6. Provide funding for a pro rata share of time spent on creating drainage sub-basins within the model and inputting the pertinent characteristics for those sub-basins (land covers, slopes, drainage system) into the model.***
- 7. Provide funding for a pro rata share of time spent to calibrate a watershed model for flows and the pollutants identified in S5.C.5.c of the Phase I Permit.***

8. ***Provide funding for a pro rata share of time spent to estimate hydrologic changes in flows from historic conditions and to predict future flow and water quality conditions at full build-out under existing or proposed comprehensive land use management plans for the watershed.***
9. ***Select stormwater management strategies and conduct an evaluation of the effectiveness of those strategies for the permittee's portion of the watershed using the calibrated watershed model. Strategies requiring model evaluation for the permittee must include, at a minimum: 1) changes to development-related codes, rules, standards, and plans; and 2) potential future structural stormwater control projects consistent with S5.C.6.a of the Phase I Permit. Modeling must identify strategies for which the model predicts hydrologic and water quality conditions that fully support "existing uses" and "designated uses" throughout the stream system. This could require multiple model runs.***
10. ***Develop an implementation plan and schedule for the potential strategies identified for the permittee's coverage area within the watershed. The strategies and schedules for each permittee must be part of an integrated watershed-wide implementation plan.***
11. ***Provide a pro rata share of a public review and comment process on the draft watershed-scale stormwater plan.***

(Footnote) For (1) through (3), ***Permittees are not required to collect additional data if existing data are sufficient for model calibration, evaluation of existing conditions, and establishment of correlation between flows and benthic invertebrate data.***

The list of watershed-scale planning activities, above, to which Phase II permittees (and Phase I permittees, where they are participating in but not leading a process) must contribute is intended both to obligate full participation by all entities, and to prevent Phase I counties from requiring participation in planning activities that are not required by the permit.

The meaning of the phrase "integrated watershed-wide implementation plan" is explained in the discussion of Phase I section S5.C.5.c.ii, above.

Phase I only: S5.C.5.c.vi-vii

The following language was added as S5.C.5.c.vi and S5.C.5.c.vii:

- vi. ***For any of the requirements (1) – (11) above, a Permittee may provide funds to the lead Phase I county to cover the cost of any of the Permittee's activities listed above, rather than provide the data or perform the work, if preferred and agreed to by both parties.***

vii. When a participating entity in the planning process is obligated to fund a portion of the work described above, or elects to fund a task rather than performing the task itself, their financial obligations will be apportioned in accordance to the percentage land area over which the permittee has jurisdiction within the planning area. Permittees within a watershed may agree in writing to an alternate scheme of distributing financial obligations.

WWA Phase II only: S5.C.4.h-i

The following language was added as S5.C.4.h and S5.C.4.i:

h. For any of the requirements above, a Permittee may provide funds to the lead Phase I county to cover the cost of any of the Permittee’s activities listed above, rather than provide the data or perform the work, if preferred and agreed to by both parties.

i. When the Permittee is obligated to fund a portion of the work described above, or elects to fund a task rather than performing the task itself, their financial obligations will be apportioned in accordance to the percentage land area over which the permittee has jurisdiction within the planning area. Permittees within a watershed may agree in writing to an alternate scheme of distributing financial obligations.

Payment for joint activities is by default split according to land area (though another mechanism for splitting costs may be agreed to by both entities) because this permit requirement is a planning obligation, rather than an implementation obligation. While the “polluter pays” principle is appropriate for implementing pollution-reduction activities, community planning is undertaken for the better management of the land in the entire area being studied.

Illicit Connections and Illicit Discharge Detection and Elimination

Phase I only: S5.C.8.c.i(1)

Revised to read “Each Permittee shall implement an ongoing field screening program of, on average, 12% of the Permittee’s ***known*** conveyance systems each calendar year.”

This change clarifies that permittees are not obligated by the permit to field screen unknown elements of their conveyance system.

Definitions

Added the definition for “Conveyance System” to both permits. Conveyance Systems means that portion of the municipal separate storm sewer system designed or used for conveying stormwater. This term is used several times in the permit, and the meaning is distinct from the meaning of MS4; the definition clarifies that. This definition is added to the Phase II permit for consistency.

Appendix 1

Phase I

Sec. 2 (Definitions Page 5)

WWA Phase II

Sec. 2 (Definitions Page 5)

The reference to the *Rain Garden Handbook for Western Washington* was modified to include the year it was published (2013) to clarify which version of this document should be used. The citation for the Rain Garden Handbook is now included as a footnote. The language regarding the use of the Rain Garden Handbook was also revised.

Errata

After issuing the municipal stormwater permits in August 2012, a number of issues were compiled as errata². The proposed permit modifications for the permits correct several typographic and formatting errors that do not change the permit requirements.

These errata are incorporated into the modified permit, as explained below.

Permit Coverage Area and Permittees

WWA Phase II only: S1.D.3.b

Delete the second word “joint” that refers to the NOI. This change clarifies the sentence.

Public Education and Outreach

WWA Phase II only:

- S5.C.1.c, footnote 4: corrected spelling of “measurement”.

Controlling Runoff from New Development, Redevelopment, and Construction Sites

Phase I only:

- S5.C.5.b.i

Within the first paragraph of the above-referenced section, the deadlines differ for the stormwater code update (June 30, 2015) and development codes revision (July 1, 2015). The correct deadline for both is “**no later than June 30, 2015**”. This change makes these related permit deadlines to local code/program adoption to be consistent.

² See Phase I Errata:

<http://www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseIpermit/5YR/phaseI2013errata.pdf>; WWA Phase II Errata:

<http://www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseIIww/ErrataWWAphaseII5YRPermit01142013-2.pdf>.

Within the second paragraph of the above-referenced section, the reference to the *Integrating LID into Local Codes...* document is corrected to refer to the Puget Sound Partnerships' **2012** publication.

This change corrects the inaccurate publication date (2011) with the actual publication date of 2012.

WWA Phase II only:

- S5.C.4.a

In each of the first three paragraphs, the reference “S5.C.5.a(i) through (iii)” is incorrect. In all three, the reference is as follows: “The local program adopted to meet the requirements of S5.C.4.a.(i) through (iii), below shall apply to all applications submitted.....”

This change corrects inaccurate section references.

- S5.C.4.g

Revised local program reference to read “S5.C.5.c”.

This change corrects an inaccurate section reference to Phase 1 permit.

- Footnote #28 (Page 32)

Revise sentence to read: “New permittees shall begin annual inspections of municipally owned ~~and~~ or operated....”

This change clarifies the intent of the sentence.

Illicit Discharge Detection and Elimination

Phase I

S5.C.8.b.i(3)

WWA Phase II

S5.C.3.b.i

The reference to the Code of Federal Regulations is corrected to read “40 CFR 35.2005(b)(20)”.

This change corrects the inaccurate reference to federal code.

Monitoring and Assessment

Phase I	WWA Phase II
S8.B.1.b.i	S8.B.2.a

The deadline to begin stream monitoring is corrected to refer to **October 31, 2014** rather than July 31, 2014 as stated in the permit.

This change corrects an inaccurate date in the original permit; October is the beginning of the water year in Washington which is the appropriate time to conduct this type of monitoring.

WWA Phase II Only: S8.A

In the second paragraph, line 2 corrects the reference to the Regional Stormwater **Monitoring Management** Program for “RSMP”. This change reflects the proper terminology.

Definitions

Phase I and WWA Phase II:

The LID BMP definition is revised by the removal the “/” between bioretention and rain gardens and added “,” instead

This change is proposed as “/” can seem to imply that the two terms are interchangeable, when the two types of BMPs are different. This change is intended to add clarity.

WWA Phase II only

- Corrected the definition of ‘Co-Permittee’, which was missing a word in third sentence: “A Co-Permittee is only responsible **for** permit conditions relating to discharges from the MS4 the Co-Permittee owns or operates.”

This change clarifies this sentence.

- The acronym SWMMWW now refers to the Stormwater Management Manual for Western Washington **as amended in 2014** (rather than the 2005 manual).

This change is necessary as it corrects the reference to the previous version of the SWMMWW (2005) and updates this reference to reflect the updated SWMMWW as required by the PCHB Order.

Appendix 1

Phase I Only:

On Page 9, the missing caption for Figure 3.2 is now included.

This change is included as the caption/label for the figure was missing.

Phase I and WWA Phase II:

References to the *Stormwater Management Manual for Western Washington (SWMMWW)* were spelled out in several of the definitions for consistency. The publication date of 2012 was removed as all references to SWMMWW now refer to the 2014 amended version. This amended date is included in the definition for SWMMWW in the permit and a footnote in Appendix 1 also makes references to the SWMMWW as amended in 2014.

Annual Reporting

The annual reporting requirement will now be submitted electronically through the PARIS system developed by Ecology, rather than through paper submissions, or submittals in an electronic file format. A number of non-substantive formatting revisions are proposed in order to simplify the year-end reporting. This revision reflects the electronic reporting form, which divides the Annual Report questions into separate questions. Where a question asks for additional comments or additional information to be supplied, these additional information requests are separated into sub-questions (e.g. Question #9 now has “**9b**” associated with the ‘comments’ question). This rationale is pertinent to revisions made to Appendices 3, 4, 8, and 12 (below).

Appendix 3

Phase I Only:

- Split the number of facilities inspected requirement into a separate question 26b; split the number of actions taken requirement into a separate question 26c.
- Question 30: Split the number of sites covered question into separate question 30b; split the number of sites inspected question into separate question 30c.

Phase I and WWA Phase II :

Phase I: Question 13 - Split the summary of illicit discharges requirement into a separate question **13b**. Ph II: Add question **13b**="Cite methodology in Comments field" to split question 13 into two separate questions.

WWA Phase II only:

- Questions 7, 9, 12, 13, 17, 23, 44, and 67: each listed question has been divided to have a “b”
- Delete question 58b and renumber 58c to be 58b.

The following edits correct the permit references:

- Revise the permit reference in question 56 to “S8.**A**”.
- Revise the permit reference in question 57 to “S8.**B**.1”.
- Revise the permit reference in question 57b to “S8.**B**.2”.
- Revise the permit reference in question 58 to “S8.**C**.1”.
- Revise the permit reference in question 58b to “S8.**C**.2”.
- Revise the permit reference in question 59 to “S8.**D**.1”.

Appendix 4

Phase I and WWA Phase II:

- Question 10: Split the requirement to make the features map available into separate question 10b.
- Question 13: Split the requirement to make the features map available into separate question 13b.

Appendix 8

WWA Phase II only:

- Questions 7, 9, 12, 14, 16, 18, 24, 40, 46, and 66: Each listed question has been divided to have a “b”, except #16 which was divided to include a “c.”

This change is proposed to accommodate the new electronic submittal form for annual reporting.

- Question 58: Revise the permit reference in question 58 to “S8.**A**”.

This change corrects the permit reference.

Appendix 9

Phase I and WWA Phase II:

Throughout the document:

- Updated Standard Operating Procedures links to new location.

This change ensures that permittees can continue to use the Appendix to find the most up-to-date Standard Operation Procedures endorsed by Ecology.

On Page 4:

- First sub-bullet under Organics: Correct the spelling of “dibenzo(a,h)” to “dibenzo(a,h)**anthracene**”.
- Second sub-bullet under Organics: Correct the spelling of “dichlobenyl” to “dichloben**il**”.
- Second bullet under “Grab Samples,” delete the sentence: “The lube oil fraction, not the diesel fraction, is targeted for NWTPH-Dx.”

On Page 5:

- First sub-bullet under Organics: Correct the spelling of “2,6-dimethylnaphthalene” to “2,6-dimethylnap**h**thalene”
- “2-ethylnaphthalene” to “2-**m**ethylnap**h**thalene”.

These changes correct misspelled references of the parameter(s) of concern.

On Page 9:

- Table A9-1: first row of second column under “Petroleum Hydrocarbons”: delete “or EPA SW-846 method 8015B; lube oil fraction”.

This change specifies which methodology is appropriate.

- The last sentence of the footnote a should read: “For **non-detect** values below the reporting limit, report results at the method detection limit from the lab and the qualifier of “U” for undetected at that concentration.”

This change clarifies the intent of the sentence.

- At the end of Appendix 9, add the laboratory method for Wet Sieving and Mass Measurement for Laser Diffraction Analysis (from Appendix 9, of the Phase I Municipal Stormwater Permit effective September 1, 2012 pages 4-7). Available online here: www.ecy.wa.gov/programs/wq/stormwater/municipal/MUNIdocs/Appendix9errata.pdf

This change clarifies the source and methodology to meet monitoring requirements.

Appendix 12

Phase I Only: The following lists non-substantive formatting changes to follow the electronic submittal form. In addition, inaccuracy with permit deadlines are also included in this list.

- Question 29: Revised effective date of LID code changes to be “no later than June 30, 2015”.
- Question 31: Split the requirement to name the selected watershed into separate question 31b.
- Question 34: Split the requirement to attach a list of planned projects into separate question 34b.
- Question 39: Split the requirement to list IDDE code reference into separate question 39b.

- Question 40: Split the requirement to cite field screening methodology into separate question 40b.
- Question 51: Split the requirement to update (as opposed to implement) maintenance standards into separate question 51b.
- Question 52: Split the requirement to list facilities covered by alternative maintenance standards into separate question 52b.
- Question 69: Split the requirement to describe adaptive management of education program into separate question 69b.
- Question 75: Changed deadline to begin stream monitoring from July to October 31, 2014. This change corrects an inaccurate date in the original permit; October is the beginning of the water year in Washington.
- Question 92: Split the requirement to G20 non-compliance conditions into separate question 92b.

Internal / By Request

In addition to the appeal- and errata-driven modifications, several changes to the Municipal Stormwater Permits are proposed either by Ecology or by permittees. These changes are either not substantive (updating styles or references), or they are designed to improve permit outcomes (such as changing TMDL deadlines to improve coordination with other efforts).

Title

At the top of the document the “Modification Date” is added.

This change follows Ecology publication guidelines.

All Sections

The following non-substantive changes were made throughout the permit:

- The section number has been added to the header of all pages (e.g., “S5.C.3”). The first section on the page is listed on the left-side of the header, the last section of the page is listed on the right-side of the header. This change is proposed to make it easier to follow section references within the Permits, particularly in longer sections.
- The periods at the ends of many section references (e.g., S5.C.5.) were removed to improve formatting and consistency.
- The spelling of the word “exceedence” was changed to “exceedance”.

Permit Coverage and Permittees

Phase I Only: S1.C.3

Added “Washington State Department of Corrections, Larch Corrections Center and Washington Corrections Center for Women” to the list of secondary permittees that submitted NOIs before August 19, 2011.

Monitoring and Assessment

WWA Phase II only: S8.B.2.a.iii

A third paragraph is added to this section which reads: “If fewer than the total required number (8 or 12) of monitoring locations located in the permittee’s coverage area meet the criteria for sampling defined in the RSMP QAPP, then the permittee shall conduct this monitoring at all of the monitoring locations within the permittee’s jurisdiction on the RSMP list that meet the criteria.”

This change provides reasonable assurance to Phase II permittees that opt-out of the RSMP and are having legitimate difficulty finding enough qualifying sites to fulfill their permit requirement.

Secondary Permittees

Phase I:

- S6.E.6.b.ii: Replaced “exceedence” with “exceedance”.

This change is consistent with other spelling throughout the permit and in other Ecology permits.

Reporting Requirements

Phase I and WWA Phase II:

- S9.A: Revised the second and third paragraphs with updated electronic reporting information and web links.

Ecology has replaced the WQWebDMR with the Water Quality Permitting Portal (WQWebPortal), and changed URLs as well. The updated language reflects these changes.

Appendix 1

Phase I and WWA Phase II:

- Page 1, Under the heading of “Pavement Maintenance” within the second paragraph, the sentence that states: “They are considered redevelopment” is deleted.

This change is included as this statement is inaccurate and inconsistent when used in this context. The list which follows includes work that may be considered new or re-development. This sentence is also deleted in order to be consistent with the SWMMWW.

- In Section 4.5, Minimum Requirement #2, Element 6: Protect Slopes. The following revision was made: Temporary pipe slope drains must handle the peak ~~10-minute velocity of flow~~ **volumetric flow rate calculated using a 10-minute time step** from a Type 1A, 10-year, 24-hour frequency storm for the developed condition.
- In Section 4.5, Minimum Requirement #2, Element 8: Stabilize Channels and Outlets. The following revision was made: Channels must handle the peak ~~10-minute velocity of~~

~~flow~~ **volumetric flow rate calculated using a 10-minute time step** from a Type 1A, 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year, 1-hour flow

The above changes were made to correct inaccurate language, the hydrologic modeling tools provide volumetric flow rates, not velocity and volumetric flow rate is the critical design criterion.

- In Section 4.5, Minimum Requirement #5 - On-site Stormwater Management: Under “Roofs” & “Other Hard Surfaces”: The reference to the Rain Garden Handbook is deleted and instead cites BMP T5-14.

This change is included to reference BMP T5-14 to correct a discrepancy between Appendix 1 and the Stormwater Management Manual for Western Washington. This proposed change matches the permit language with the Manual’s language and provides better consistency between the two documents.

Appendix 2

Phase I and WWA Phase II:

- Page 11: Changed deadline for IDDE field screening to February 2, 2017.

This change to the Bear-Evans TMDL timeline was requested by the permittee to facilitate their timelines; it is contingent upon the Issaquah TMDL timeline change.

- Page 13: Changed deadline for IDDE field screening to August 1, 2018.

This change to the Issaquah TMDL timeline was requested by the permittee to facilitate their timelines; it is contingent upon the Bear-Evans TMDL timeline change.

Appendix 9

Phase I and WWA Phase II: The following list of changes were identified by staff and are non-substantive revisions that are included to correct website addresses, or correct errors in formatting or references.

- Page 1: Reference to the quality assurance page is updated.

The referenced link is not active; the list of SOPs now resides within the Environmental Assessment Program (EAP) page on Ecology’s website.

- Page 2: The title to Table A9-1 is added.

This change provides clarity and follows better formatting practice.

- Page 3 and 4: Updates references to guidance documents.

The referenced links are not active; the list of SOPs now resides within the EAP page on Ecology’s website.

- Page 4: 1st paragraph - corrects the reference to table A9-2. The first bullet: pH, and grain size are added to the conventional parameters list.

The changes correct errors; pH and grain size are conventional parameters, and the tables are re-numbered with the addition of A9-1.

- Page 4: Grab Samples: corrects reference to table A9-2. Within the second bullet point the spelling of ethyl-benzene is corrected.

The change corrects a minor spelling error and updates a table reference.

- Page 5: Recordkeeping and reporting: updates the link to guidance doc

The referenced link is not active; the list of SOPs now resides within the EAP page on Ecology's website.

- Page 6: Update references to table: A9-2 and A9-3

This change updates table reference.

Appendix 10

Phase I:

- Part 1 E.1, footnote 2: Revised footnote to reflect outcome of court case.

The footnote refers to a legal process that has been completed. Clark County is now obligated to use historic land cover as the predeveloped condition to meet minimum requirement 7.

- Part 1 E.7.b: Added a second alternative for Clark County to adopt an alternative model.

Clark County has had difficulty in completing the steps in E.7.a to present an approvable alternative model to Ecology. The proposed language explicitly allows Clark County to adopt the WWHM provided by Ecology to meet permit requirements.

Stormwater Management Manual for Western Washington Modifications

Summary of modifications made to the Stormwater Management Manual for Western Washington (as amended in 2014) (SWMMWW).

Ecology modified the 2012 SWMMWW to address the resolution of appeals under the settlement agreement and as remanded by the Pollution Control Hearings Board (PCHB). Specifically, The PCHB directed Ecology to:

- Limit the application of permeable pavement to those roadways that receive very low-traffic volumes and areas of very low truck traffic.
- Delete the second sentence of the infeasibility criterion addressing road sanding for snow and ice in the 2012 Manual, Vol. V at 5-19 (or amend the Permits to achieve the same).
- Clarify the process a local jurisdiction is to follow to designate a geographic area as infeasible for permeable pavement and identify the data required to support such a determination.
- Clearly specify the version or edition of the Rain Garden Handbook referenced in and made a part of the Phase I permit.
- Reference and incorporate appropriate maintenance requirements for bioretention facilities and permeable pavement.

The Board also directed Ecology to specify the version or edition of the Low Impact Development Technical Guidance Manual (LID Manual) referenced in and made a part of the Phase I permit. Ecology is not making the LID Manual a part of the Phase I or Phase II permits. All references to the LID Manual in the SWMMWW have been changed to indicate that the reference is made only to direct the reader to additional information. Ecology does not intend to use the LID manual for a regulatory purpose.

This 2014 update to the manual also incorporates errata identified after the 2012 manual was published. Most of the errata were previously identified in the October 14, 2013 Errata Sheet for 2012 Stormwater Management Manual for Western Washington. That document has been available on-line since October 2013 and is linked for reference here:

<https://fortress.wa.gov/ecy/publications/publications/1210030part1.pdf>

Finally, Ecology is also proposing a number of other clarifications, corrections, and additional guidance. These are identified in the Table following this section. The most significant proposals are:

Volume I:

Amended and deleted definitions concerning compost and compost materials.

Added definitions for “discharge point” and “outfall,” and amended the definition for “receiving water,” all in accordance with a settlement agreement under PCHB 12-093 and -097.

Volume II:

Amended BMPs C151 and C154 to clarify that concrete washout cannot be discharged to ground.

Volume III:

Added statements that the default values for 3 parameters (LSUR, SLSUR, and NSUR) within the default PERLNDs and IMPLNDs may be adjusted for site-specific conditions.

Added various statements regarding the modeling capabilities of WWHM 2012.

Volume IV:

Updated BMP S403 for Commercial Composting facilities to make it consistent with updated solid waste rules (Washington Administrative Code) and guidance.

Added a value for Total Copper to Table G.4 in Appendix IV-G: Recommendations for Management of Street Waste.

Volume V:

Changed to the Bioretention soil mix to reflect changes in the use of terms within the state solid waste regulations for composting facilities – WAC 173-350-220.

Added statements in regard to the use of underdrains below bioretention facilities.

Added the restriction of not using biosolids or manures as feedstocks for compost that is used in rain gardens, compost-amended vegetated filter strips, grass strips used as pretreatment before media filter drains, and biofiltration swales.

Added a recommendation for a minimum size for treatment facilities.

Added a modeling credit for roofs served by dispersion trenches with a vegetated flow path of 25 – 50 feet.

Added a recommendation for increasing the size of rain gardens and bioretention facilities that are serving pervious areas in addition to roofs or other impervious surfaces.

Table 2: Summary of revisions and rationale for the modifications to the Stormwater Management Manual for Western Washington

Volume I - Minimum Technical Requirements and Site Planning

Volume	Section or Page	Revision Description	Notes
I	i	Updated date	Update.
I	vi	Added new figure 2.5.1, G.1 and removed Figure 2.3.1. Added Appendix G: Glossary and Notations	Updated Table of Contents.
I	2.2	Deleted sentence: "They are considered redevelopment." Restored formatting for second bullet re extending the pavement edge.	These practices are not restricted to redevelopment projects. The bullets that follow this sentence properly indicate that how the surfaces are considered within new or redevelopment projects.
I	2.3	Deleted definitions, added statement to look in glossary for definitions.	Definitions moved to Glossary in Appendix G.
I	2.4	Restructured for clarity	Clarified language.
I	2.4	Updated figure number in flow chart per 10/14/2013 Errata	Errata: within the figure, replaced "Figure 3.3" in the upper right-hand box with "Figure 2.4.2".
I	2.5.2 Ele. 6	Revised "10 minute velocity of flow" to "volumetric flow rate calculated using a 10-minute time step"	Edited to state the correct design criterion.
I	2.5.2 Ele. 8	Revised "10 minute velocity of flow" to "volumetric flow rate calculated using a 10-minute time step"	Edited to state the correct design criterion.
I	2.5.2 Ele. 10	Revised "outfall" to "discharge point"	Per settlement agreement PCHB No. 12-097c
I	2.5.5	typo in List 1: "of of"	Typo
I	2.5.5	Added Figure 2.5.1: MR5 Flow Chart to Suppl Guideline	Flow chart for determining MR 5 requirements
I	3.1.1.	Under Projects required to meet MR 1-9: 2.c., revised cited clearances	Revised to be consistent throughout manual.
I	3.1.2	Added text referring to LID manual for additional information	Clarification

Volume	Section or Page	Revision Description	Notes
I	Appendix G	Deleted reference to Rain Garden Handbook in Rain Garden definition.	Use Ecology BMP T5.14A.
I	Appendix G-6	Changed "Certified Erosion and Sediment Control Lead" to "Certified Erosion and Sediment Control Lead (CESCL)" for consistency with permit	Clarification
I	G-8 & 9	Amended definition for compost. Deleted composted mulch and composting. Added Composted Material definition.	Updated to correct WAC reference.
I	G-12	Added definition for "discharge point"	Added for consistency with proposed permit modification as part of a settlement under PCHB No. 12-093c and - 097c
I	G-15	Altered def. of "Erodible or leachable materials" for grammar and consistency with permit. From "wastes, or chemicals, or other substances..." to "wastes, chemicals, or other substances..."	Clarification
I	G-19	Updated freeboard definition for clarity	Clarification
I	G-27	LID BMP definition - changed "bioretention/rain gardens" to "bioretention, rain gardens" to clarify that they are not the same BMP.	Clarification
I	G-32	Added definition for "outfall"	Added for consistency with proposed permit modification as part of a settlement under PCHB No. 12-093c and - 097c
I	G-36	Deleted reference to Rain Garden handbook.	Use Ecology BMP T5.14A.
I	G-36	Updated "receiving waters" definition	Revised for consistency with proosed permit modification as part of a settlement under PCHB No. 12-093c and - 097c

Volume	Section or Page	Revision Description	Notes
I	G-39	Reformatted sloughing and soil entries per Errata	See 10/14/2013 Errata
I	G-44	Added Figure G.1 - Threshold Discharge Areas. Figure was taken from Section 2.3. (Old Figure 2.3.1)	Clarification
Volume II – Construction Stormwater Pollution Prevention			
II	3.3.3 Ele. 6	Revised “10 minute velocity of flow” to “volumetric flow rate calculated using a 10-minute time step”	Edited to more accurate measurement.
II	3.3.3 Ele. 8	Revised “10 minute velocity of flow” to “volumetric flow rate calculated using a 10-minute time step”	Edited to more accurate measurement.
II	3.3.3 Ele. 12	Two number typos removed	Correction
II	3.3.3 Ele. 13	Revised wording to clarify that LID manual is additional info only	Clarification
II	3.3.3 Ele. 13	4th bullet: typo, changed “text” to “test”	Correction
II	4.1	Table 4.1.1 updated to match Errata, and reformatted as a word table for ease in future revisions	See 10/14/2013 Errata
II	BMP C106	Typo in Design and installation Specifications	Correction
II	BMP C121	Added a specification for coarse compost for use when the option of Composted Material is selected	Clarification
II	BMP C121	Replaced the terms, composted mulch and compost with composted material consistent with Ch 173-350	Clarifications in Table 4.1.8
II	BMP C125	Updated for consistency with BMP T5.13	Clarification
II	BMP C151	Updated sentences to clarify that concrete washout cannot be discharged to ground	Clarification
II	BMP C154	Updated sentences to clarify that concrete washout cannot be discharged to ground	Correction
II	BMP C154	Removed wording telling volume of wash water typically used	Clarification

Volume	Section or Page	Revision Description	Notes
II	4.2	Table 4.2.1 updated to match Errata, and reformatted as a word table for ease in future revisions	Clarification
II	BMP C200	Revised “peak flow” to “peak volumetric flow rate calculated using a 10-minute time step”	Edited to more accurate measurement.
II	BMP C201	Revised “peak runoff” to “peak volumetric flow rate calculated using a 10-minute time step”	Edited to more accurate measurement.
II	BMP C204	Revised “peak flow” to “peak volumetric flow rate calculated using a 10-minute time step”	Edited to more accurate measurement.
Volume III – Hydrologic Analysis and Flow Control BMPs			
III	2.2	Clarified that low impact development modeling capabilities have been added to WWHM2012	Clarification
III	2.2.1	Clarified that routing limitations in the earlier versions of WWHM (WWHM1 and WWHM2) have changed considerably. WWHM3 and WWHM2012 have much greater routing capability that allow them to model multiple facilities and wetlands	Clarification
III	2.2.2	Clarified that WWHM2012 now uses over 50 years of precipitation time series from more than 17 stations. Precipitation time series are in 15-minute time steps.	Clarification
III	2.2.2	Clarified that WWHM2012 now uses 15-minute precipitation time series in its computations to generate hydrographs and to calculate water quality design flows	Clarification
III	2.2.2	Clarified that the advanced user may change coefficient Precipitation multiplication factor where justified and approved by reviewing jurisdiction	Clarification

Volume	Section or Page	Revision Description	Notes
III	2.2.2	Clarified that the advanced user may change coefficient Pan evaporation coefficient justified and approved by reviewing jurisdiction	Clarification
III	2.2.2	Clarified MR 8 specifications. Noted the capability to model flows to wetlands and analyze the daily and monthly flow deviations per MR 8 in WWHM2012	Clarification
III	2.3.2	Added footnote to Table 2.3.1 re modeling soils with a measured infiltration of less than 0.3 in/hr as Class C	Clarification
III	3.1	Updated wording that directs user to BMP location for design guidance instead of the Rain Garden handbook	Clarification
III	3.1.2	Added modeling guidance where a dispersion trench is used with a vegetated flowpath of 25 to 50 feet.	Clarification
III	3.1.3	Updated section title per Errata to add BMP T5.10c	See 10/14/2013 Errata
III	3.2.1	Added text to Emergency Overflow Spillway section to ensure a min 1 foot of freeboard in detention pond design	Clarification
III	3.2.1	Updated Landscaping section to refer to updated Chapter 173-350 and BMP T5.13.	Clarification
III	3.2.1	Revised Emergency Overflow Spillway Capacity "peak 10 minute flow computed" to "peak volumetric flow rate calculated using a 10-minute time step"	Clarification
III	3.3.2	Revised "groundwater" to "ground water" for consistency with permits and other sections of ECY	Clarification
III	3.3.3	Revised "groundwater" to "ground water" for consistency with permits and other sections of ECY	Clarification

Volume	Section or Page	Revision Description	Notes
III	3.3.4	Revised "groundwater" to "ground water" for consistency with permits and other sections of ECY	Clarification
III	3.3.5	R3.3.5 revised "groundwater" to "ground water" for consistency with permits and other sections of ECY	Clarification
III	3.3.7	Updated SSC-2 Ground Water Protection Areas per Errata	See 10/14/2013 Errata
III	3.3.7	Corrected reference in SSC-6 Soil Physical and Chemical Suitability for Treatment section	Correction
III	3.4.2	Revised wording to state design criteria "per BMP T5.14A" instead of the Rain Garden Handbook; deleted wording referring to LID manual (added that wording to Vol I chpt 3)	Clarification
III	3.4.2	Revised wording from "Please refer to Chapter 7 of Volume V for infeasibility criteria for rain gardens. Refer to the "Rain Garden Handbook for Western Washington Homeowners" for design and construction guidance." to "Please refer to BMP T5.14A in Chapter 5 of Volume V for further design guidance for rain gardens."	Clarification
III	3.4.2	Typo, updated per Errata: Modeling, 3rd Paragraph, 4th line: Replaced "becombined" with "be combined."	See 10/14/2013 Errata - typo
III	R-1	Added Massman reference, per Errata	See 10/14/2013 Errata
III	R-1	Added Buckman reference	Clarification
III	R-1	Corrected Dinicola spelling	typo
III	B-2	Clarified WWHM2012 uses 15-minutes precipitation time series	Clarification

Volume	Section or Page	Revision Description	Notes
III	B-3	Clarified WWHM2012 uses 15-minutes precipitation time series	Clarification
III	B-4	Added statement that soils tested at less than 0.3 in/hr may be modeled as Class C soil.	Clarification
III	B-4	Clarified that type D soil is generally modeled as till and saturated soil category in WWHM is to be used for wetlands	Clarification
III	B-6	Updated text that conflicted with information elsewhere in the manual	Clarification
III	B-6	Updated text that the Appendix C guidance was developed before WWHM2012 became available. WWHM2012 can model permeable pavements directly.	Clarification
III	B-7	Updated text that the Appendix C guidance was developed before WWHM2012 became available. WWHM2012 can model permeable pavements directly.	Clarification
III	B-8	Updated text that the Appendix C guidance was developed before WWHM2012 became available. WWHM2012 can model permeable pavements directly.	Clarification
III	B-11	Added statements concerning adjustment of LSUR, SLSUR, and NSUR by the model user	Clarification
III	B-11	Added a paragraph explaining WWHM2012 and WWHM3 provides 2 additional land slopes, flat and steep, to the existing moderate land slope for modeling purposes	Clarification
III	B-12	Corrected "a single event" to "daily" and deleted "a" before "monthly"	Correction

Volume	Section or Page	Revision Description	Notes
III	C-1	Added a "Note" that the guidance in Appendix C was developed for use with WWHM3 before WWHM2012 became available.	Clarification
III	C-1	Updated per Errata: "Because WWHM 2012 and the updated LID modeling guidance won't be released until later this year, municipal stormwater permittees are not obligated to require its use during the 2013 – 2018 permit term."	Clarification - See 10/14/2013 Errata
III	C-3	Corrected formatting error	Correction
III	C - 3	Clarified guidance for consistency with text re modeling of partial dispersion options.	Clarification
III	C-6 & 7	Added guidance re modeling bioretention that has underdraining.	Clarification
III	C-6	Corrected units in sentence under Table C.2	Correction
III	C-8 & 9	Added guidance re modeling permeable pavement that has underdrains at the bottom of base course	Clarification
III	C - 11	Inserted guidance for downspout dispersion modeling	Clarification
Volume IV – Source Control BMPs			
IV	2.2	Changed S403 BMPs for Commercial Composting to reflect updated regulations and guidance	Clarification
IV	2.2	Changed "under-ground" to "underground" in S409 BMP	Typo
IV	2.2	Revised S411 BMP bullet point to clarify use of pesticides in Landscaping	Clarification

Volume	Section or Page	Revision Description	Notes
IV	2.2	In BMP S4.30 deleted reference to Vol. V, Ch. 12 which no longer has information on sweepers	Clarification
IV	2.2	Revised S431 BMP to reference updated guidance	Clarification
IV	G-7	Total Copper added to Table G.4	Copper overlooked in previous editions
IV	G-8	Added note that the Interim Compost Guidelines are no longer effective. Retained for background info.	Clarification
Volume V – Runoff Treatment BMPs			
V	2.1	Step 5: revised “urban growth management area” to “urban growth area”	Typo
V	3.3	Updated per Errata: Deleted the phrase “and on an average annual basis.”	Clarification - See 10/14/2013 Errata
V	3.4	Revised “urban growth management area” to “urban growth area”	Clarification
V	3.4	Performance Goal updated per Errata	Clarification - See 10/14/2013 Errata
V	3.4	Bioretention: removed text directing reader to LID Manual for bioretention guidance. Text now directs reader to Chapter 7 only. (Text within Chapter 7 refers to the LID manual for additional guidance)	Clarification
V	3.5	Deleted: “The goal also applies on an average annual basis to the entire annual discharge volume (treated plus bypassed).”	Clarification - See 10/14/2013 Errata
V	3.5	Bioretention: removed text directing reader to LID Manual for bioretention guidance. Text now directs reader to Chapter 7 only. (Text within Chapter 7 refers to the LID manual for additional guidance)	Clarification

Volume	Section or Page	Revision Description	Notes
V	3.5	Added restrictions to CAVFS & Bioretention in Basic Treatment Menu regarding uderdrains referenced in BMP T7.30	Clarification made in Chapter 7 reference.
V	4- 2	(last sentence of section) Deleted reference to an average annual performance goal	Indefinite determination.
V	4.1.4	New section re minimum treatment facility size	Additional guidance provided on the minimum treatment facility size.
V	4.6	Updated Tables 21&22 with information from LID O&M Guidance document, with note that inspection and routine maintenance frequencies are recommended only.	Guidance added per PCHB No. 12-093c and - 097c
V	5.1	Revised LID manual name to match convention used elsewhere in the document	Clarification
V	5.1	Added text clarifying that LID manual is for additional guidance only.	Clarification
V	5.3.1	BMP T5.11: Added computer modeling guidance for use of dispersion trench with flowpath of 25-50 feet	Additional guidance for runoff modeling
V	5.3.1	BMP T5.12: Added computer modeling guidance for use of dispersion trench with flowpath of 25-50 feet.	Additional guidance for runoff modeling
V	5.3.1	BMP T5.13: Updated the compost specification requirement to be consistent with the Bioretention compost specification but allowing use of biosolids	Corrected WAC reference, made clarifications
V	5.3.1	BMP T5.14A: Revised Rain Garden Handbook reference to specify 2013 version	Clarification per PCHB No. 12-093c and - 097c
v	5.3.1	BMP T5.14A: Added a design guideline concerning use of composts	Additional Guidance for rain gardens

Volume	Section or Page	Revision Description	Notes
V	5.3.1	BMP T5.14A: Provided guidance for sizing rain gardens serving lawn/landscape areas in addition to impervious surfaces	Additional Guidance for rain gardens
V	5.3.1	BMP T5.14B: Provided guidance for sizing bioretention facilities serving lawn/landscape areas in addition to impervious surfaces	Additional Guidance for bioretention facilities
V	5.3.1	BMP T5.14A: Revised Rain Garden Handbook reference to specify 2013 version	Clarification
V	5.3.1	BMP T5.14B: Revised “under-drain” to “underdrain”	Clarification made throughout Volume V
V	5.3.1	BMP T5.15 revised guideline re amount of impervious area draining to a pervious area	Clarification
V	5.3.1	BMP T5.15: Revised infeasibility criterion for permeable pavement and roads re PCHB decision	Revised to implement PCHB No. 12-093c and -097c
V	5.3.1	BMP T5.15: Deleted the second sentence of the infeasibility criterion addressing road sanding for snow and ice, Per PCHB ruling	Deleted per PCHB No. 12-093c and - 097c
V	5.3.1	BMP T5.15: New text in regard to municipalities designating areas as infeasible and the data required	Clarification and additional guidance as directed by PCHB No. 12-093c and - 097c
V	5.3.1	BMP T5.15: Revised 1st paragraph of “Design Guidelines” section to clarify that LID Manual is for additional guidance only, and that alternatives adopted by municipalities must not conflict with Ecology design criteria.	Clarification
V	5.3.1	BMP T5.15: Removed reference to the LID manual in the “Base Material” section. The LID manual is already referenced as additional guidance in the opening paragraph.	Clarification

Volume	Section or Page	Revision Description	Notes
V	5.3.1	BMP T5.15: "Wearing layer": updated infiltration rate in first sentence from 10 in/hr to 20 in/hr. The 10 in/hr rate was a typo and conflicted with information given later in this section.	Clarification
V	5.3.1	BMP T5.15: Removed reference to the LID manual in the "Wearing Layer", "Pervious Concrete", and "Permeable Interlocking Concrete Pavement and Aggregate Pavers" sections. The LID manual is already referenced as additional guidance in the opening paragraph.	Clarification
V	5.3.1	BMP T5.15: "Underdrains": Added a section re underdrains affecting the status of permeable pavements as LID BMPs	Additional Guidance for bioretention facilities
V	5.3.1	typo - "l f" to "lf"	Typo fix
V	5.3.1	BMP T5.17: Added text clarifying that LID manual is for additional guidance only.	Clarification
V	5.3.1	BMP T5.30: Corrected section sub header name	Clarification
V	5.3.1	BMP T5.30: Typo: corrected spelling of "dispersed"	Typo
V	5.3.1	BMP T5.30: Corrected design requirements for residential projects text for clarity	Correction
V	5.3.1	BMP T5.30: Min Design Requirements for Public Road Projects: Updated per Errata: Added "Up to" 20 feet of impervious...	Clarification - See 10/14/2013 Errata
V	5.3.1	BMP T5.30: Revised "urban growth management area" to "urban growth area"	Clarification
V	5.3.1	BMP T5.30: Min Design Requirements for Public Road Projects: Updated per Errata: Added "Up to" 20 feet of impervious...	Clarification - See 10/14/2013 Errata

Volume	Section or Page	Revision Description	Notes
V	7.3	Corrected bullet indent formatting error	Typo
V	7.4	BMP T7.30: Applications and Limitations: added “and not underdrained”	Clarification
V	7.4	BMP T7.30: New text in regard to municipalities designating areas as infeasible and the data required	Additional guidance to be consistent with directive of PCHB No. 12-093c and - 097c for permeable pavement
V	7.4	Spelling change	Typo
V	7.4	BMP T7.30: Determining Bioretention soil mix infiltration rate: Updated Ksat Safety Factor language for consistency with WWHM.	Clarification
V	7.4	BMP T7.30: Design criteria for bioretention - updated text to clarify that LID manual is additional guidance only; under “curb cuts for roadside, driveway, and parking lot areas” - removed reference to LID manual because it is already referenced in the design criteria opening paragraph.	Clarification
V	7.4	BMP T7.30: Added text to “ponding area” section describing surface areas when designing for MR5	For consistency w/Min. Requirement #5 and recommendation for size increase if draining pervious area
V	7.4	BMP T7.30: Default Bioretention Soil Media: Multiple changes to the compost specification; and to incorporate a specification for fine compost	Changes needed to be consistent with updated WAC 173-350-220; Incorporated fine compost spec. to delete reference to LID Manual
V	7.4	BMP T7.30: Soil Depth: Removed guidance for 24” BSM depth	Additional Guidance for bioretention facilities. Local monitoring indicates phosphorus loss from media.
V	7.4	BMP T7.30: Underdrain (optional): Added statement clarifying that bioretention with underdrain may not be used to satisfy MR5	Clarification

Volume	Section or Page	Revision Description	Notes
V	7.4	BMP T7.30: Underdrain (optional): Added guidance for modeling bioretention with underdrains	Additional Guidance
V	7.4	BMP T7.30: Underdrain Optional: updated text to clarify that LID manual is additional guidance only.	Clarification
V	7.4	BMP T7.30: Check dams and weirs: Updated text to clarify that LID manual is additional guidance only.	Clarification
V	7.4	BMP T7.30: Plant materials: Updated text to clarify that LID manual is additional guidance only.	Clarification
V	7.4	BMP T7.30: Temporary Erosion and Sediment Control (TESC): Updated text to clarify that LID manual is additional guidance only.	Clarification
V	7.4	BMP T7.40: Soil Design Criteria: Emphasized exclusion of biosolids and manure from compost used for CAVFS	Clarification
V	7.4	BMP T7.40: Maintenance: deleted bullets per Errata	Clarification - See 10/14/2013 Errata
V	8.5	BMP T8.30: Additional Design Criteria for Linear Sand Filters: corrected text	Correction
V	8.5	BMP T8.40: Functional Description: changed "compost" to "composted material"	Clarification
V	8.5	BMP T8.40: Grass Strip: restricted compost to that used for Bioretention soil media	Clarification
V	9.4	BMP T9.10: Design Calculations for Biofiltration Swale: Design Steps D-6: revised "peak 10 minute flow predicted" to "peak volumetric flow rate calculated using a 10-minute time step"	Clarification
V	9.4	BMP T9.10: Soil Criteria: SC-15: Restricted compost to that used for Bioretention soil media	Clarification
V	9.4	BMP T9.40: Corrected error in figure 9.4.9	Correction

Volume	Section or Page	Revision Description	Notes
V	11.6	Corrected Schueler citation from 1990 to 1992	Correction
V	11.7	BMP T11.10: Design Criteria: Corrected typo in Stokes Law Equation	Correction
V	11.7	BMP T11.10:For Stormwater Inflow from Drainages under 2 Acres: Updated per Errata	Clarification - See 10/14/2013 Errata
V	C-2	Corrected typo in table C.2 and C.3 names	Correction
V	C-2	Updated Table C-3 per Errata	Clarification - See 10/14/2013 Errata
V	vi	Corrected typo in table C.2 and C.3 names	Typo