



October 6, 2014

Mr. Bill Moore  
Water Quality Program Development Services  
Municipal Permit Comments  
Washington State Department of Ecology  
PO Box 47600  
Olympia, WA 98504-7600

**Subject: Bellevue's Comments on Ecology's Modified NPDES Permit Documents**

Dear Mr. Moore,

Bellevue appreciates this opportunity to comment on the proposed modifications to the 2013-2018 Western Washington Phase II Municipal Stormwater Permit, the 2012 Stormwater Management Manual for Western Washington (SWMMWW), the draft August 14, 2014 revised permit definitions guidance document and supporting documents. The supporting documents are the August 2014 Updated Western Washington Hydrology Model 2012; July 2012 Integrating LID into Local Codes; December 2012 Low Impact Development Technical Guidance Manual for Puget Sound; and the June 2013 Rain Garden Handbook for Western Washington.

This letter contains our comments on the draft revised permit definitions guidance and a few key Low Impact Development technical and permit compliance issues. We have enclosed additional comments in a spreadsheet. Bellevue staff has been discussing some of these comments and possible alternatives with Ecology staff during the formal public comment period. We would welcome the opportunity to continue these discussions as Ecology develops proposed responses to comments.

Draft Revised Permit Definitions Guidance Document Comments

Our first comment (#1) addresses the draft guidance for revised Permit definitions issued as the result of a settlement agreement, in accordance with the Pollution Control Hearings Board's Stipulation and Agreed Order of Dismissal of Phase II Non-Consolidated Legal Issues No. 1, 4, 6, 7, 8, 10, 11, 12, 13, 14, and 15 in No. 12-097c (Stipulation and Agreed Order). The draft guidance is titled "Municipal Stormwater Permits – Revised definitions explained" and dated August 14, 2014 (draft guidance).

1. The settlement resulted in revisions to two permit terms (“outfall” and “receiving waterbody or receiving waters”) and the addition of a new permit term and definition (“discharge point”) and is documented in the Stipulation and Agreed Order. The draft guidance is not consistent with the settlement. It includes a “Background” section which was not part of the Stipulation and Agreed Order. The “Background” section includes changes and expansion of permit definitions for “waters of the state” and “stormwater” which were not part of the Stipulation and Agreed Order. These permit terms were already defined in the Permit and were not part of the appeal or settlement.

Bellevue requests Ecology delete the “Background” section from the draft guidance and begin the draft guidance with the “Recent Permit Appeal” section. Also the guidance language for each definition that is contained in the Stipulation and Agreed Order (I.A.2.) has been modified in the draft guidance and we request that it be replaced with the language in the Stipulation and Agreed Order. An edited version of the draft guidance highlighting changes to make the document consistent with the Stipulation and Agreed Order along with other suggested edits is enclosed (Attachment A).

#### Bioretention Soil Mix Export of Pollutants and Permit Compliance Comments

Comment #2 addresses BMP T7.30 Bioretention Cells, Swales, and Planter Boxes in Volume V, starting on page 7-1 of the SWMMWW and compliance with WW Phase II Permit conditions listed in the comment. For Bioretention BMP T7.30, the comment addresses Bioretention Applications and Limitations, Infeasibility Requirements and Other Site Suitability Factors on pages 7-6 through 7-10 and the Bioretention Soil Media on pages 7-16 through 7-19.

2. Bioretention soil mixes, while removing some pollutants, add other pollutants to stormwater as it passes through the bioretention facility and is discharged to the municipal separate storm sewer system (MS4) and receiving waters. The three pollutants added are dissolved copper, phosphorus, and nitrates. Ecology informed permittees of this issue in March 2013 and shared their plan to do a more thorough review of the monitoring data and issue revised guidance on applications and limitations of bioretention systems in Volume V, Chapter 7 of the SWMMWW. The Pollution Control Hearings Board relied on this information and efforts underway by Ecology and others to refine the soil mix in their ruling and said Ecology has time to gather more sampling data and, if necessary, refine the prescribed soil mix before its usage is required by the Permits. Attachment B has additional background information on this issue.

The modified WW Phase II Permit and SWMMWW do not address this issue. Bellevue requests Ecology to:

- Address the bioretention (and rain garden) soil mix pollutant export issue by providing a soil mix that eliminates the increased discharge of pollutants; and

- Clarify municipalities ability to be compliant with the Permit’s Low Impact Development requirements and, at the same time, be compliant with other permit requirements, including:
  - Sections S4.A., S4.B., and S4.F. (pages 14-16 of the Phase II Permit) – Compliance with Standards, the state surface water and ground water standards;
  - Sections S5.C.3.b., S5.C.3.c., and S5.C.3.d. (pages 19-25 of the Phase II Permit) – Illicit Discharge Detection and Elimination program requirements, to prohibit, detect, identify and eliminate non- stormwater, illicit discharges into the Permittee’s MS4;
  - Section S5.C.4.g.(pages 32-33 of the Phase II Permit) – Watershed-Scale Stormwater Planning requirements – to develop a plan that achieves compliance with dissolved copper water quality standards; see also Phase I Permit conditions S5.C.5.c. water quality requirements for the Watershed-Scale Stormwater Planning requirements regarding dissolved copper water quality requirements (pages 19-25); and
  - Section S7. Compliance with Total Maximum Daily Load Requirements (page 47 and Appendix 2 of the Phase II Permit) – water quality clean-up plans for current and future 303(d) waterbodies listed for total phosphorus, dissolved copper or nitrates.

#### Modified Underdrain Language and Minimum Infiltration Rate Comments

Comments #3 and #4 address the proposed modified language for underdrains and minimum infiltration rate infeasibility criteria in Volume V of the SWMMWW. In particular, the use of underdrains in rain gardens, permeable pavement and bioretention facilities on pages 5-13, 5-25, 7-19 and 7-20 and the minimum native soil infiltration rate infeasibility criteria on pages 5-13 and 7-9 (rain gardens and bioretention) and page 5-21 (permeable pavement).

3. This comment refers to Ecology’s proposed modification that rain gardens and bioretention facilities’ would not be considered a LID best management practice (BMP) if underdrains are used (e.g., would not meet onsite stormwater management and receive only partial credit for flow control, respectively).

Bellevue recommends that rain gardens and bioretention facilities with “elevated” underdrains be considered LID best management practices that satisfy requirements for onsite stormwater management and flow control. Our rationale is that an “elevated” underdrain would allow for infiltration to the extent supported by the native soils infiltration rate while providing an “overflow/bypass” facility function in the event the soils are unable to infiltrate at a rate sufficient for the facility to perform as intended. Use of an “elevated” underdrain would mean the rain garden or bioretention facility is designed to and functions as an LID BMP to the extent supported by the site conditions. In addition, this recommendation is consistent with Ecology’s proposal to consider permeable pavement applications using elevated underdrains to be an LID BMP.

In discussions, Ecology staff indicated they were willing to consider this recommendation and would need some additional information to implement an “elevated” underdrain approach such as a standard drawing and modeling information. It is our understanding that Seattle’s draft equivalent Phase I Manual requires use of an underdrain for certain native soil infiltration rates and discusses the benefits of an elevated underdrain. It is likely Seattle staff can work with Ecology to put together the needed information to support the “elevated” underdrain design, if they have not done so already.

4. The minimum native soil infiltration rate is 0.3 inch per hour for low impact development BMPs in the SWMMWW and, according to Ecology staff, this minimum rate is based on the testing being done in the appropriate season (between December 1 and April 1). The infeasibility criteria for rain gardens, bioretention facilities and permeable pavements does not link the minimum native soil infiltration rate and testing being conducted between December 1 and April 1.

This will especially be problematic for smaller projects, such as individual single family lot permits, because smaller projects generally don’t employ (and the SWMMWW doesn’t require) a professional geotechnical engineer who could assess this and other criteria in determining BMP feasibility.

There are possible options to address this criterion that could be explored besides or in addition to linking the minimum infiltration rate to the appropriate testing time period. For example, one could specify a higher minimum infiltration rate for projects, such as 0.6 inch per hour, and continue to recommend but not link the rate with the appropriate testing time period. Or underdrains could be required for a certain range of infiltration rates to minimize the risk of failure and improve the likelihood of successful BMP performance and long-term maintenance. It is our understanding that Seattle is proposing (in their draft equivalent Phase I Manual) to require an underdrain for infiltration LID best management practices in which the site’s measured native soil infiltration rate is between 0.3 and 0.6 inch per hour. Bellevue thinks their proposal is based on lessons learned from the many LID pilot projects Seattle has implemented and an assessment that subgrade soils with this infiltration rate range cannot meet the maximum pool drawdown time. It is a reasonable implementation approach that would be expected to minimize the risk of failure and support successful LID projects.

Bellevue would welcome the opportunity to discuss possible options with Ecology.

## Designating Geographic Areas for Infiltration BMPs

Comment #5 addresses the modified permit language in Volume V of the SWMMWW for designating geographic areas as infeasible for permeable pavement on page 5-22 and bioretention facilities and rain gardens on page 7-9.

5. The proposed modified permit language for permeable pavement and bioretention and rain gardens identifies only two infeasibility criteria (groundwater conditions and infiltration rates) for designating geographic boundaries. We recommend the guidance include all of the infeasibility criteria such as steep slopes, landslide hazards and landfills. Mapping all of the infeasibility criteria will inform permittees and development requirements and submittals, utilize existing information and studies, and result in more efficient and successful implementation of the new low impact development requirements. In addition, the two statements could be combined into a single guidance generally applied to all SWMMWW infiltration BMPs that addresses the infeasibility criteria applicable to the BMP. Bellevue also recommends that additional data sources be considered for designating the geographic boundaries. An edited version of the draft guidance showing recommended edits is enclosed (Attachment C).

Additional comments in a spreadsheet are enclosed (Attachment D). Questions about Bellevue's comments may be directed to Phyllis Varner, NPDES Municipal Stormwater Permit Manager, at 425-452-7683 or [pvarner@bellevuewa.gov](mailto:pvarner@bellevuewa.gov).

As previously noted, we would welcome the opportunity to continue discussions with Ecology staff and others on key issues as Ecology prepares proposed responses to comments.

Sincerely,



Paul A. Bucich, P.E.  
Assistant Director of Engineering  
Bellevue Utilities

Attachments enclosed

# Municipal Stormwater Permits-*Revised definitions explained*

**Ecology is accepting written comments on this draft guidance until Oct.6, 2014.**

Please submit written comments to: [SWPermitComments@ecy.wa.gov](mailto:SWPermitComments@ecy.wa.gov) or mail hard copy comments to:

Municipal Permit Comments

Washington State Department of Ecology

PO Box 47600 Olympia, WA 98504-7600

## Background

In Washington State, the Department of Ecology has been delegated authority to administer the National Pollutant Discharge Elimination System (NPDES) permitting program for most dischargers, including most municipal stormwater dischargers. The NPDES program is a mechanism of the federal Clean Water Act (CWA) to achieve the water quality goals for *waters of the United States*.

In addition to requirements in federal law, the Washington State Water Pollution Control Act (WPCA, Chapter 90.48 RCW) provides requirements for the control of pollution and requires a permit (RCW 90.48.162) to regulate discharge of pollutants or waste materials to the *waters of the state*. The Washington State Municipal Stormwater Permits (eastern and western Phase II, Phase I and WSDOT) apply to public entities and municipalities (of a certain population) that own or operate separate storm sewer systems (MS4s), and requires the implementation of stormwater management programs to control non-stormwater discharges to *waters of the state*. These permits meet the requirements of both the CWA and WPCA.

Generally, *waters of the United States* are surface waters, such as streams and wetlands. Under State law, *waters of the state* is a broader term, and includes: “...lakes, rivers, ponds, streams, inland waters, underground waters, salt waters and all other surface waters and watercourses within the jurisdiction of the state of Washington” (RCW 90.48.020). There are two important aspects of the definition of *waters of the state* that affect the terms and conditions in the Washington State Municipal Stormwater Permits:

- 1.—Waters of the state include groundwater.
- 2.—Waters of the state include stormwater, such as that found within municipal stormwater systems.

**Comment [PV1]:** Delete “Background” section because it is not consistent with the settlement’s Stipulation and Agreed Order. See Bellevue Comment Letter – Comment #1.

The Washington State municipal stormwater permits must be written to protect both *waters of the United States* as well as *waters of the state*, and authorize discharges to both. Furthermore, the permits' adaptive management approach to address site-specific water quality violations (Permit Special Condition S4.F) clarifies that a violation of water quality standards is measured or observed in the *receiving water*, not in a *water of the state*, which would include the stormwater itself. The municipal stormwater permits rely on the following special conditions and vocabulary to address and explain these requirements:

- Permit Special Condition S2 explicitly authorizes discharges of stormwater to surface waters and ground *waters of the state*, except where the discharge would occur through an Underground Injection Control (UIC) well because these facilities are separately regulated through the UIC Rule (Chapter 173-218 WAC). Note that the authorization to discharge to groundwater is associated with state, not federal, law.

Special Condition S2.A.1 states (pertinent part only):

○ ~~**S2. AUTHORIZED DISCHARGES**~~

~~A. This permit authorizes the discharge of stormwater to surface waters and to ground waters of the state from MS4s owned or operated by each Permittee covered under this permit, in the geographic area covered pursuant to S1.A. These discharges are subject to the following limitations:~~

~~1. Discharges to ground waters of the state through facilities regulated under the Underground Injection Control (UIC) program, Chapter 173-218 WAC, are not authorized under this permit.~~

- The definition of *Municipal Separate Storm Sewer System (MS4)* used in the permits is based on the definition in the federal rule, except where federal rule refers to *waters of the US*, the Washington State permits refer to *waters of the state*. This makes sure that permit requirements will be applied to areas that discharge to surface waters as well as in areas that discharge to groundwater.
- The definition of outfall used in the permits cannot be based entirely on the federal definition of outfall, which relies heavily on use of *waters of the US*. If an outfall were defined solely by its discharge to *waters of the state*, any point in a municipal stormwater conveyance could be considered an outfall because stormwater in one pipe is being discharged to stormwater in another pipe (and stormwater is considered a *water of the state*).
- The definition of receiving water, or receiving water body, must appropriately include *waters of the US* and some, but not all, *waters of the state*. Because stormwater itself is a *water of the state*, the permits' definition of receiving water is intended to exclude stormwater within system conveyances, facilities and BMPs.

## Recent Permit Appeal

On August 1, 2012, Ecology issued updated Phase I & Phase II Municipal Stormwater Permits for eastern and western Washington (Permits). The Permits became effective on August 1, 2013/2014 for western and eastern WA, respectively. Following the issuance of the Permits, the Western Washington Phase I and Phase II permits were appealed for a variety of issues; the eastern WA permit was not appealed.

An outcome of the appeal process was a settlement (March 27, 2014) in which Ecology agreed to modify the western WA Phase II Permit by revising the definitions for “outfall” and “receiving water body or receiving waters”, and including a new term and definition for “discharge points.” In addition, Ecology agreed to release guidance regarding the revised definitions. Several other issues were also argued before the Pollution Control Hearing Board (PCHB) which resulted in an Order (March 21, 2014) to Ecology that directs specific modifications to the Phase I Permit and Stormwater Management Manual for Western Washington, including the addition of another new definition for “conveyance systems.” The PCHB decision has been appealed; however this appeal is narrowly focused on an issue unrelated to definitions, and does not prevent Ecology from moving forward with updating these definitions and making other modifications to the Permits which are unaffected by the current appeal.

## Permit Modification

To provide consistency between the western WA Permits, Ecology proposes to include the definitions from the Phase II settlement agreement and the PCHB Order in the Phase I and Western Washington Phase II Municipal Stormwater Permits at this time. The following revised and new definitions are intended to clarify where a discharge from an MS4 could cause or contribute to a known or likely violation of water quality standards as well as make further improve distinctions between key different components of the permittee’s MS4 that support stormwater management program implementation across jurisdictional boundaries, such as better nomenclature consistency/accuracy in mapping stormwater infrastructure features and connections. Each of the following four modified definitions will be discussed, below:

**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.

**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.

**Conveyance system** means that portion of the municipal separate storm sewer system designed or used for conveying stormwater.

**Comment [PV2]:** Start Guidance with “Recent Permit Appeal” section. See Bellevue comment letter – Comment #1.

**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.

#### Revised 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.

Guidance to clarify the intentions of the revisions to the Several phrases or words used in this definition of outfall was part of -the settlement agreement and is listed below have been selected with the following intentions:

- "a point source as defined by Reference to 40 CFR 122.2" = limits outfalls as "discernible, confined and discrete conveyances"
- "at the point where" = further modifies/clarifies this is a point "discernible, confined and discrete conveyances" to a discernible, confined and discrete point; and excludes conveyances that have no outlet, (such as dispersion BMPs).
- "a discharge" = applies not only to stormwater but also to illicit discharges
- "leaves the permittee's MS4" = and enters a receiving water body" is intentionally possessive to a single MS4 permittee, not a group of MS4 permittees; it 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.
- "and enters a receiving waterbody or receiving waters." = see definition of receiving waterbody and receiving waters (e.g., surface water and groundwater)
- "Outfall also includes the permittee's MS4" = intentionally possessive to a single MS4 permittee, not 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, as an illicit discharge could also be released to a receiving water via an outfall.

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- “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 Permit.

- “designed to infiltrate stormwater.” = limits applicable infiltration facilities/BMPs to those that are designed to infiltrate; excludes facilities/BMPs that inadvertently infiltrate, (such as ditches and swales).

- ~~F~~Note that for the purposes of this permit, UIC facilities are categorically excluded (refer to Permit Special Condition S2). However it is likely that some municipalities will choose to identify UIC facilities as a form of an outfall in order to have a comprehensive understanding of drainage within their jurisdiction.

- ~~It is important to note that~~ 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 waters (for example: stream culverts). ~~It excludes - For example, outfall does not include~~ in-stream culverts that convey ~~the~~ stream under ~~a~~ roadway; excludes - nor does it include the outlets of streams that have been piped under development areas.

- Note – the above outfall guidance statement was included in the settlement agreement because the federal definition of “outfall” and the former permit definition of outfall included language excluding pipes, tunnels conveying stream and other surface waters. The language was removed from the revised outfall definition to simplify the definition and added to the definition guidance for the term. This clarification is based on the federal definition of outfall. This statement had been in the former definition, but is now removed from the proposed definition to simplify the definition. It is included here as guidance for clarity.

*FORMER PERMIT 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.

Guidance to clarify the intentions of the revisions to the Several phrases or words used in this definition of **receiving waterbody or receiving waters** was part of the settlement agreement and is listed below have been selected with the following intentions:

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- A receiving water body is not defined by the type of discharge it receives. For example, an illicit discharge of non-stormwater can occur to receiving water. Thus the definition does not specify what is discharged. In other words, the definition need not refer to who (such as an MS4) or what (such as stormwater or surface runoff) discharged.
- It is acceptable to retain the last use of “stormwater” because it is referring to what the facilities/BMPs were designed to do.
- This definition does not refer to MS4 either, because a receiving waterbody is not defined by who discharges to it.
- The definition does not indicate that the discharge must be intentional (i.e., to which a discharge is directed) because a receiving waterbody is not defined by an intention to discharge.
- ~~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:

**Conveyance system** means that portion of the municipal separate storm sewer system designed or used for conveying stormwater.

**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.

Guidance to clarify the intentions of the new permit definition **discharge point** was part of the settlement agreement and is listed below. Several phrases or words used in this definition have been selected with the following intentions:

- “the location” = Use of “the location” avoids circular use of “point” in the term and the definition; and avoids confusion with 40 CFR 122.2 point source
- “where a discharge” = applies not only to stormwater but also to illicit discharges
- “leaves” = ~~the~~ use of “discharge point” in the permit is always referring s to a permittee’s discharge from their MS4 to something else.
- “the permittee’s MS4” = intentionally possessive to a single MS4 permittee, not a group MS4 of permittees ~~Stormwater conveyance is broadly used to indicate private or public stormwater infrastructure.~~

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- “to” = the use of discharge point in the permit is always referring to a permittee’s discharge from their MS4 to something else.
- “another permittee’s MS4 = applies to permitted regulated MS4s
- “or a private” = applies to private stormwater infrastructure
- “or public” = applies to non-permitted and/or non-regulated publicly owned or operated stormwater infrastructure
- “stormwater conveyance” = broadly used to indicated stormwater infrastructure
- “and discharges to ground,” = the discharge need not reach groundwater to be considered a discharge to ground
- “except where such discharge occurs via an outfall.” = ties back to revised outfall definition to prevent a situation where something is both an outfall and a discharge point; does not limit discharge points to ground to infiltration facilities/BMPs that are designed to infiltrate; includes facilities/BMPs that inadvertently infiltrate, such as ditches and swales; includes stormwater conveyances that have no outlet, such as dispersion BMPs.
- ~~The permit does not need to define “connection point” as it uses the word “connections” in a basic dictionary use.~~
- 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.~~

**Comment [PV3]:** Although this guidance was included in the settlement because the original permit term for "discharge point" said "discharge point or connection point" but "connection point" was not included in the final "discharge point" permit term of the settlement agreement so it can be deleted.

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### Issues to keep in mind:

**MS4 MAPPING-** According to the language developed through the settlement of the western Washington Phase II Permit appeal, all known discharge points must be mapped according to the requirements of the Permits. The definition for outfall contained in the permits issued August 1, 2012 and effective August 1, 2013 captured all points where discharges occur from one MS4 to surface water, ground waters, other MS4s, and private or unregulated stormwater infrastructure. As such, the requirement to map outfalls is modified to reference outfalls and discharge points under the proposed new definitions. Strict application of the agreed upon settlement language results in a requirement to map locations of inadvertent infiltration (such as ditches) as discharge points. It is not Ecology’s intent to require permittees to map features or areas that provide inadvertent infiltration as discharge points. Mapping discharge points involves mapping the point where a permittee’s MS4 discharges or connects to another’s (different) stormwater drainage system (e.g., another MS4 permittee, a private or a public stormwater drainage system). It also includes the point where a permittee’s MS4 (by pipe or ditch) discharges onto the top of the ground and ends; it doesn’t connect to another’s drainage system and it wasn’t a facility/BMP designed to infiltrate so it’s not an outfall. It is not ~~Not~~ Ecology’s intent that Permittees must re-label previously mapped outfalls as discharge points according to the new definition, although this may be helpful for

**Comment [PV4]:** No, the intent was not to map ditches as discharge points. The intent was to map the point where discharge from a permittee’s MS4 (pipe/ditch, etc.) leaves its MS4 "entirely" and discharges onto the ground; it doesn't discharge to a receiving water or to more of the permittee's drainage system or to another permittee's drainage system or to a private or public system. It just "ends" by discharging onto the ground. I've attached the original December 5, 2013 discussion draft of the definitions and sketched examples to clarify this point provided by permittees for the settlement discussion that helps to illustrate/clarify this point.

permittees' programs. Ecology welcomes comments on these implementation issues during the public comment period for the permit modification.

Underground Injection Control (UIC) Program - The revision of the term "outfall" and the addition of the term "discharge point" **does not** change how UIC wells are regulated or managed. The Municipal Stormwater Permits categorically exclude discharges to ground water through UIC wells (Special Condition S2.A.1; language provided above). Wells regulated through the UIC program are not required to be mapped under the Municipal Stormwater Permit, as the UIC program rules apply.

UIC wells are manmade structures used to discharge fluids into the subsurface. Examples are drywells, infiltration trenches with perforated pipe, and any structure deeper than the widest surface dimension. The majority of UIC wells in Washington are used to manage stormwater (i.e., drywells) and sanitary waste (large on-site systems), return water to the ground, and help clean up contaminated sites. UIC wells are regulated under the UIC Program (Ch. 173-218 WAC).

*UIC Requirements for municipalities with national pollutant discharge elimination system (NPDES) permits<sup>1</sup>*

The Municipalities that are under a NPDES stormwater permit may also have stormwater discharges to UIC wells. The Stormwater Management Program required by the NPDES stormwater permit includes best management practices that also may be applied to stormwater discharges to UIC wells. To avoid duplication, municipalities that are under an NPDES stormwater permit may choose to meet UIC program requirements by applying their Stormwater Management Program to areas served by UIC wells. See Chapter 173-218-090(1) WAC.

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<sup>1</sup> Excerpt from: Guidance for UIC wells that manage stormwater – available at:  
<https://fortress.wa.gov/ecy/publications/SummaryPages/0510067.html>

## Examples

The following scenarios are provided to illustrate each of the new definitions (above) in the context of a typical MS4 system.

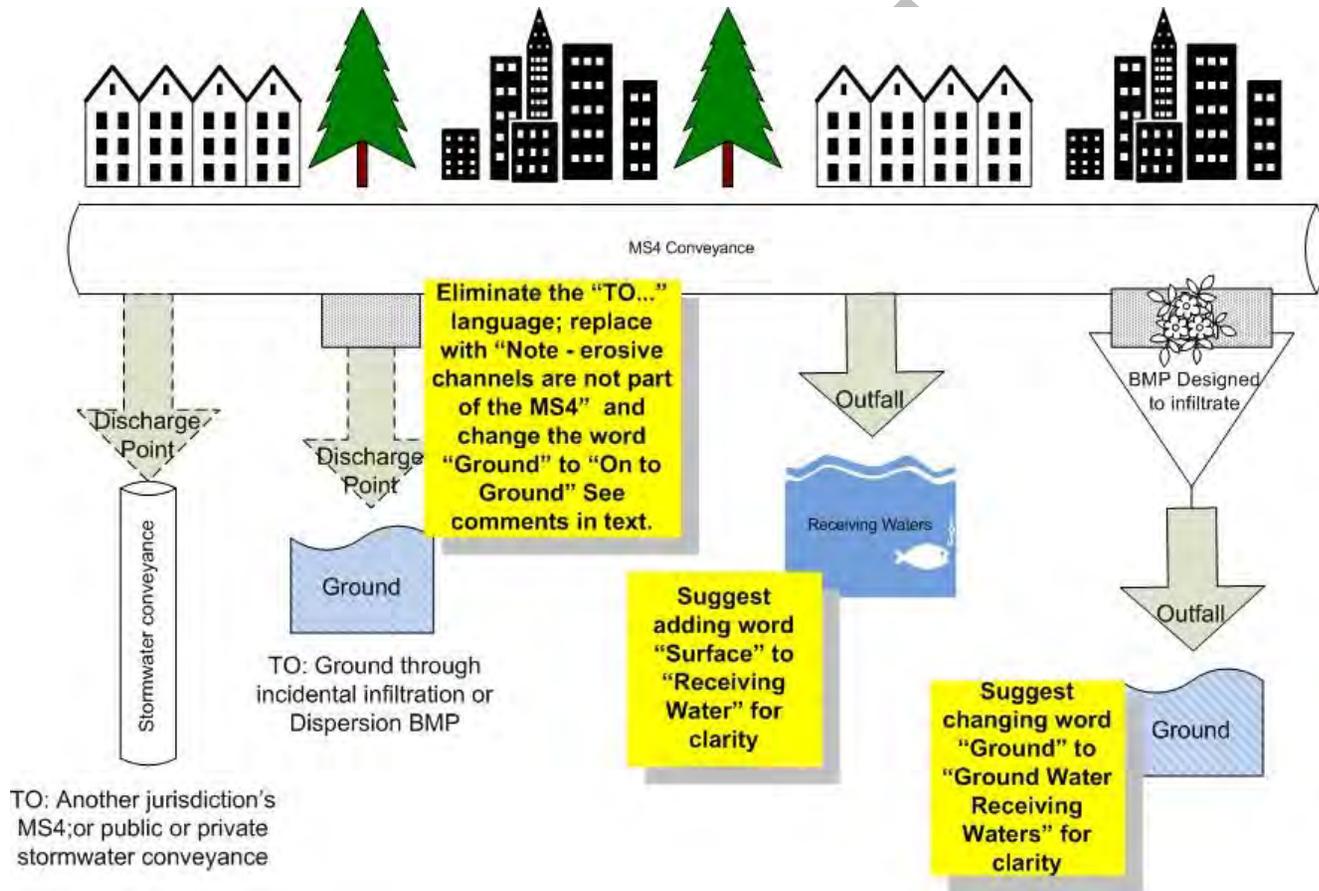


Figure 1: Simplified overview of the selected terms used to describe the Municipal Storm Sewer System (MS4) (e.g. outfall, discharge points)

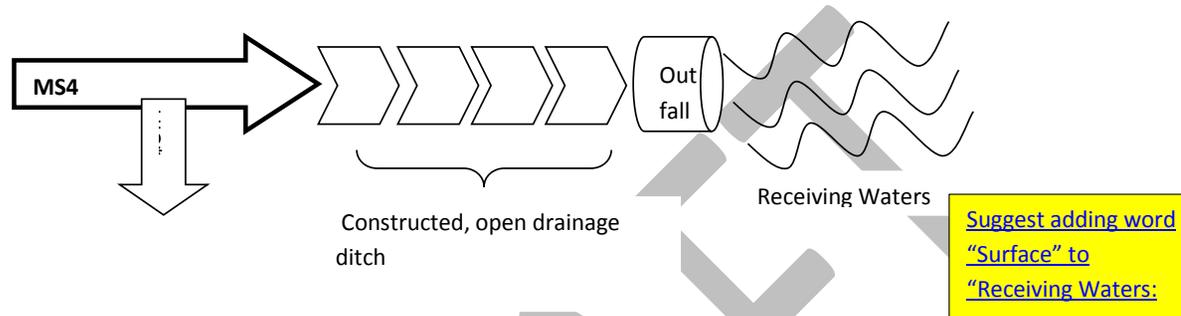


Figure 2: Single jurisdiction's MS4 discharge to receiving waters, including a UIC facility

\*Regulated through the Underground Injection Control (UIC) Program. UIC facility is excluded from Municipal Permit. (See S2.A.1.).

However, consider mapping [UIC feature](#) for comprehensive understanding of municipal drainage.

UIC Program additional info:

<http://www.ecy.wa.gov/programs/wq/grndwtr/uic/index.html>

In Figure 2, ~~the permittee would not need to map the open drainage ditch as a Discharge Point.~~ The point where the runoff leaves the MS4 ditch and discharges to the [surface](#) receiving water is mapped as an outfall. The UIC well is regulated through its own program.

**Comment [PV5]:** See comments clarifying the permit term discharge point and its application.

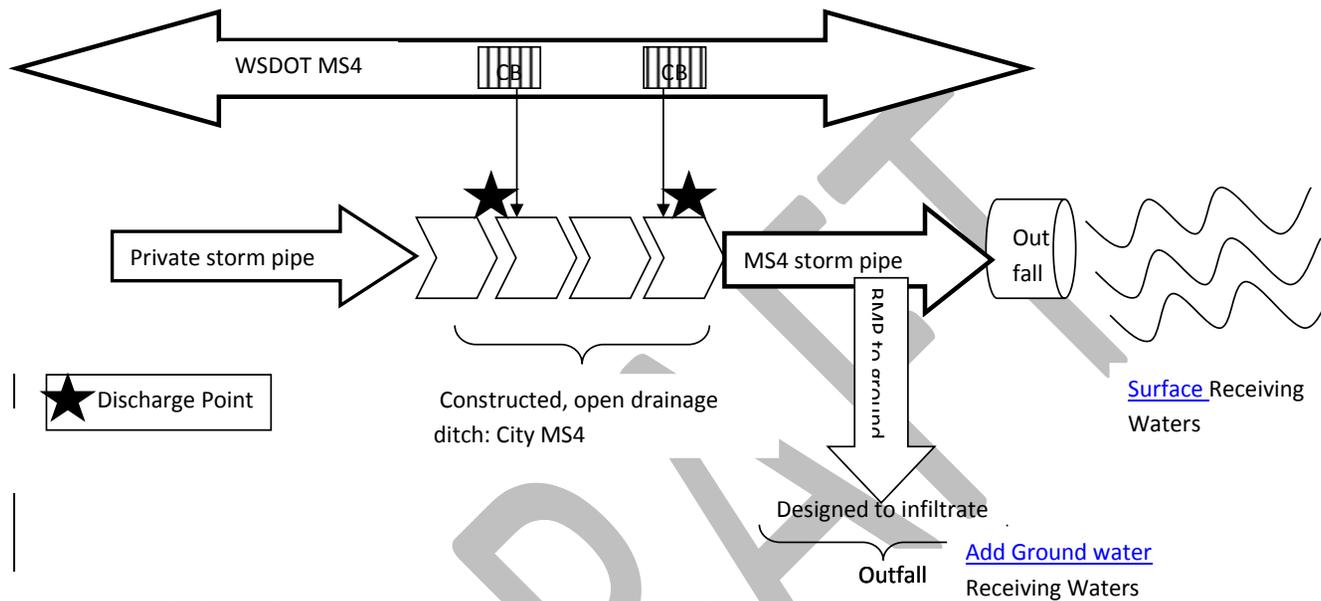


Figure 3: Example of Dept. of Transportation (WSDOT) MS4 discharging to a City's MS4

In Figure 3, WA Dept of Transportation would map two Discharge Points where their catch basins direct runoff to a city's MS4 (i.e., star). The city would map the BMP that was designed to infiltrate and the overflow pipe/and or pipe discharging to the receiving water as outfalls. In addition, the BMP would be mapped as (and as) a stormwater treatment and flow control BMP/facility if used to meet Appendix 1 Minimum Requirements #6 (treatment), #7 (flow control), or both. The point where the private stormwater pipe discharges to enters the city's MS4 is not required to be mapped as a Discharge Point.

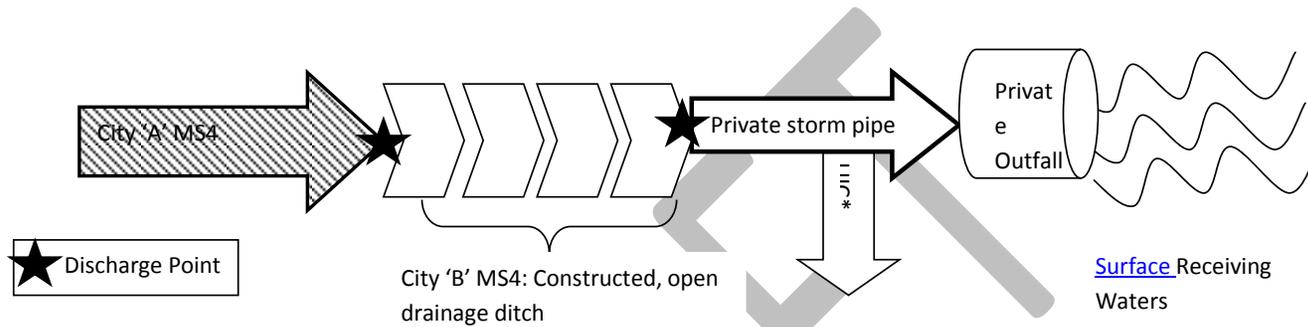
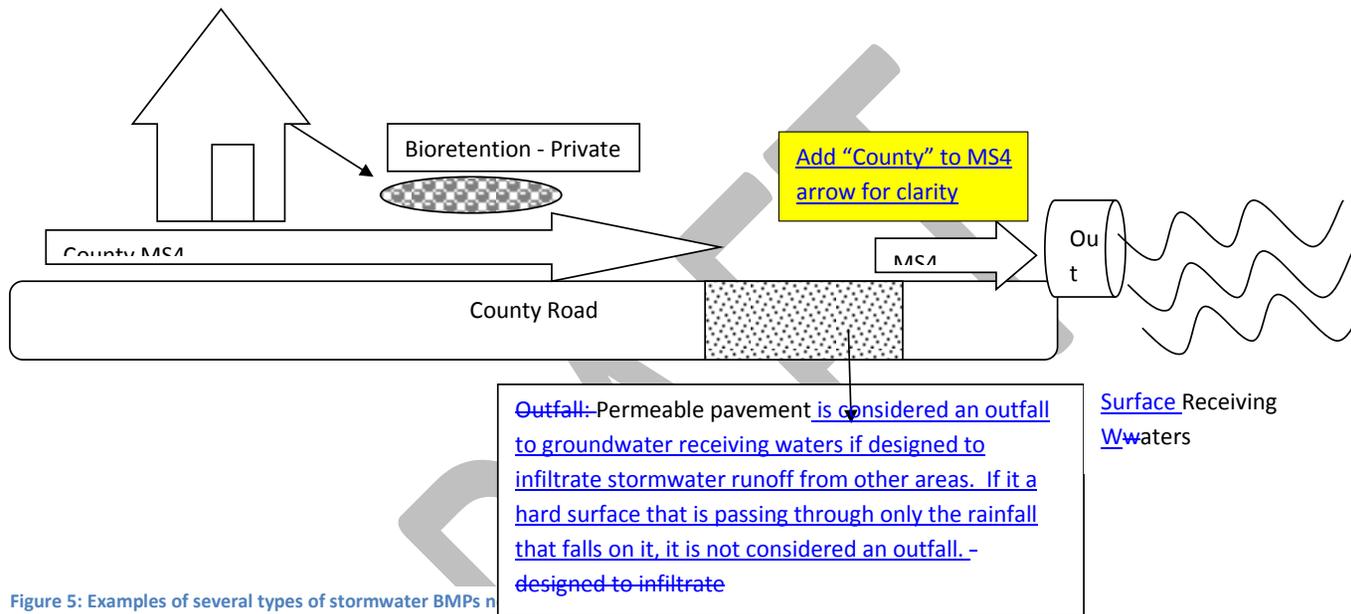


Figure 4: Example of Two MS4s discharging to private storm system. NO MS4 outfall.

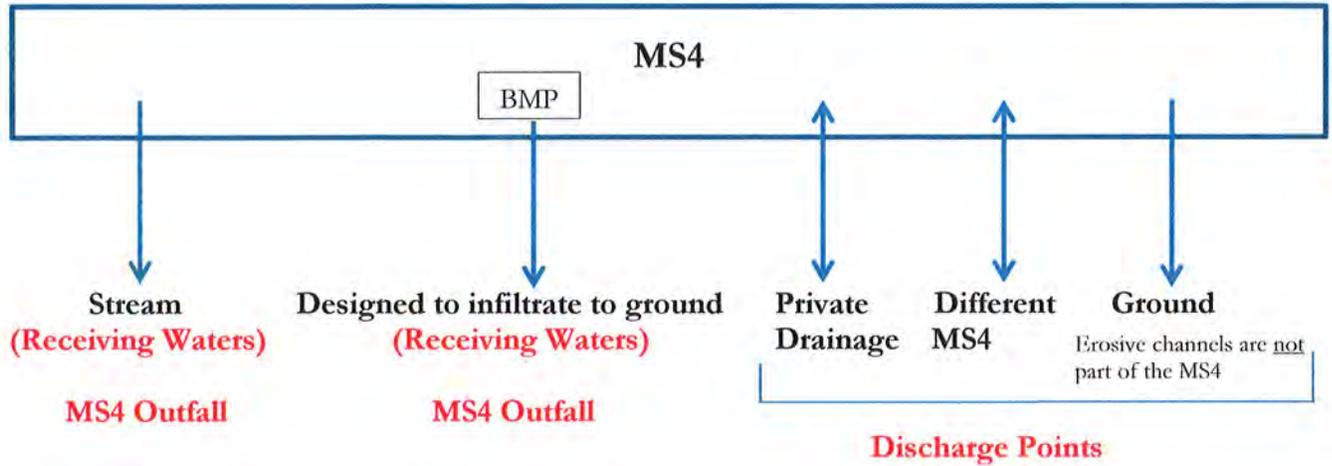
In Figure 4, City 'A' would map the [Discharge Point](#) where its MS4 discharges to City 'B's open drainage ditch. City B would not need to map the drainage ditch as a Discharge Point, but would map the location where the drainage ditch (part of the MS4) discharges to the private storm system as a Discharge Point. The private infrastructure would not be required to be mapped per the Permit, although this may be helpful for a permittee's program. The UIC well must follow UIC Program rules and is not required to be mapped per the Municipal Stormwater Permit.



In Figure 5, the permeable pavement is treated as a hard surface when it is passing through rainfall that falls on it only and is not classified as an outfall to groundwater receiving waters. Permeable pavement which is taking water from somewhere else (roofs, walkways) and has been designed to take and infiltrate stormwater runoff from these areas would be mapped as a outfall to groundwater receiving waters, which has been designed to infiltrate stormwater runoff, would be mapped as an outfall. The bioretention facility located on private property would not be mapped as a Discharge Point nor an outfall because it is not part of the permittee’s MS4. If either the bioretention facility or the permeable pavement were constructed to help meet Appendix 1 Minimum Requirements #6, #7, or both, then these facilities would be considered stormwater treatment/flow control BMPs/facilities. The point where there is a discharge from the MS4 to surface receiving waters would be mapped as an outfall.

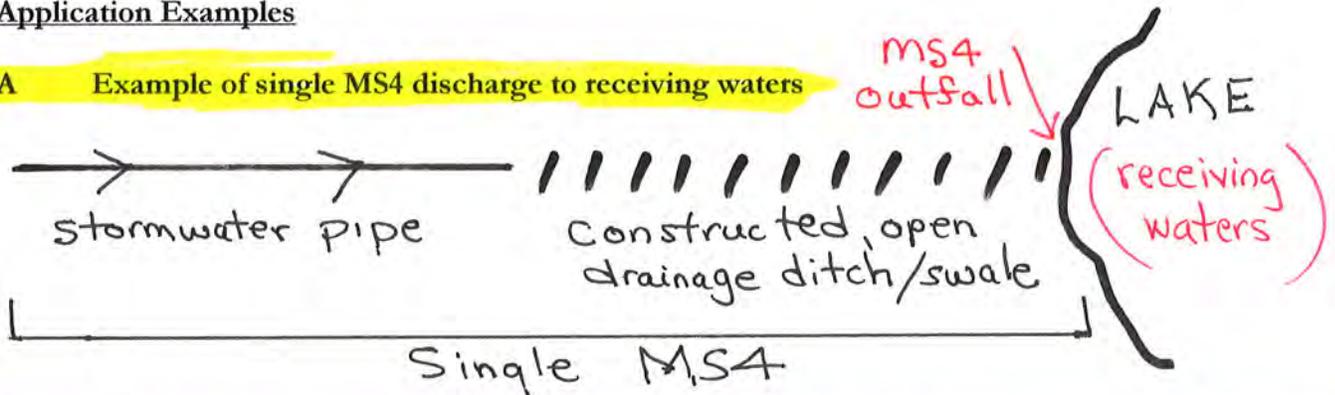
## Examples of Proposed Permit Definitions and Their Application Proposed "Outfall," "Receiving Waters," and "Discharge Point" Permit Terms

### Generalized Overview of Permit Terms

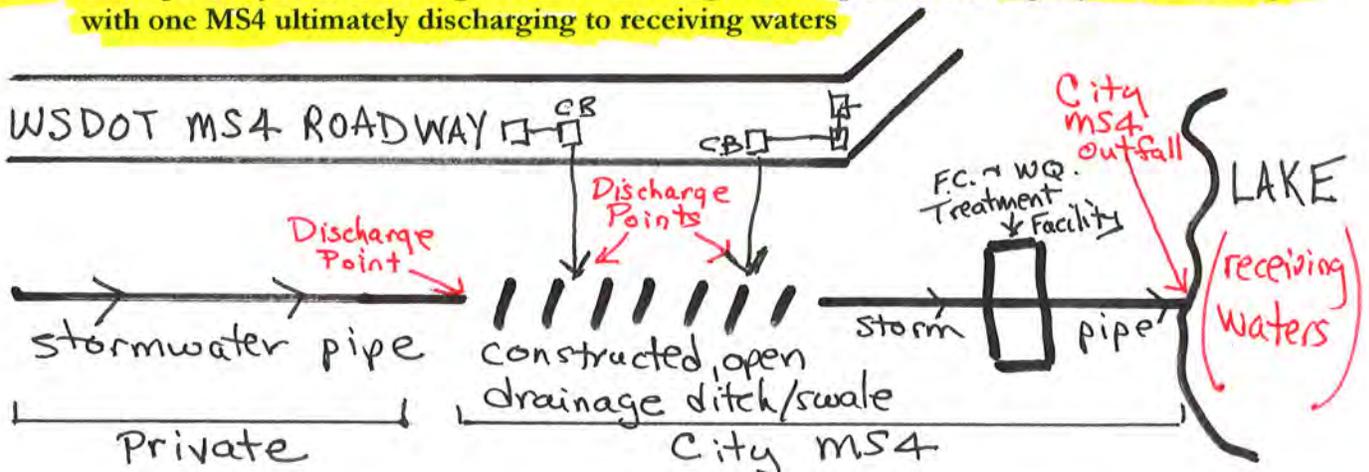


### Application Examples

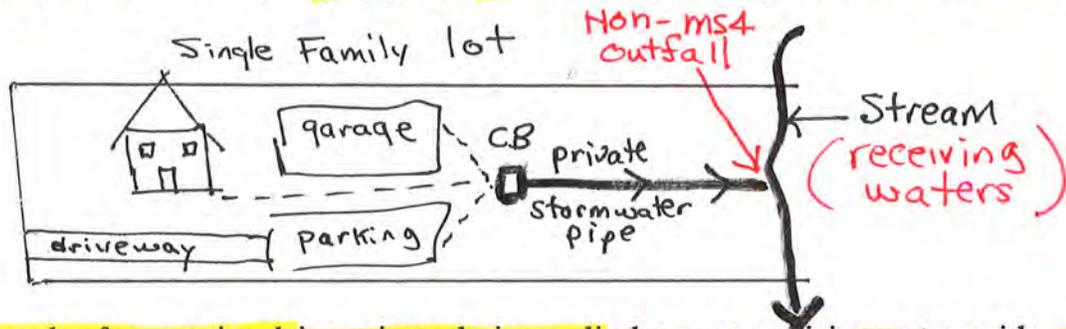
#### A Example of single MS4 discharge to receiving waters



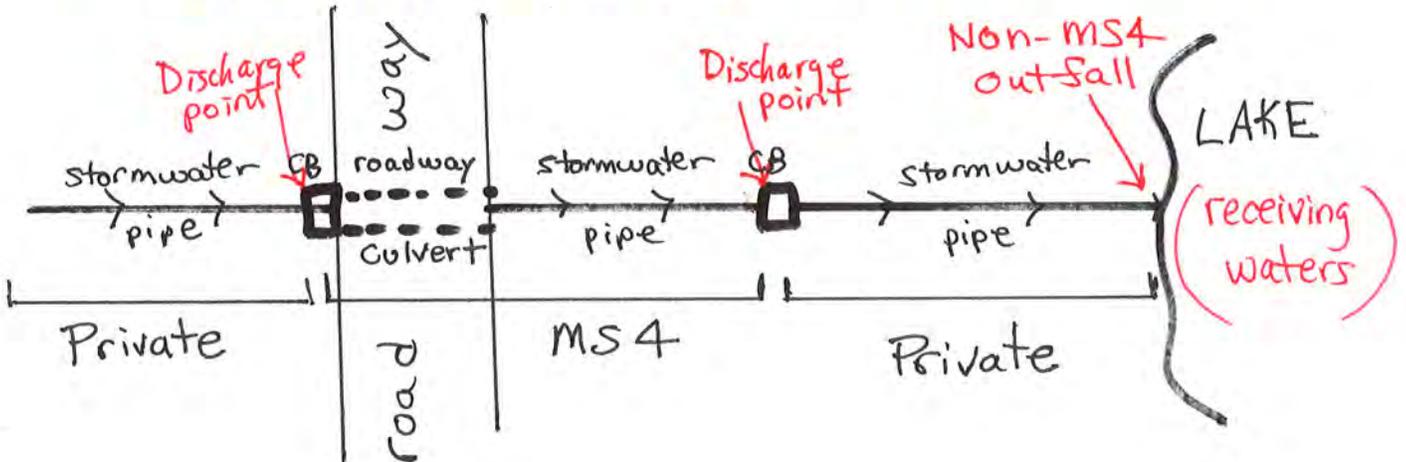
#### B Example of system involving two MS4 discharges and a private drainage system discharge with one MS4 ultimately discharging to receiving waters



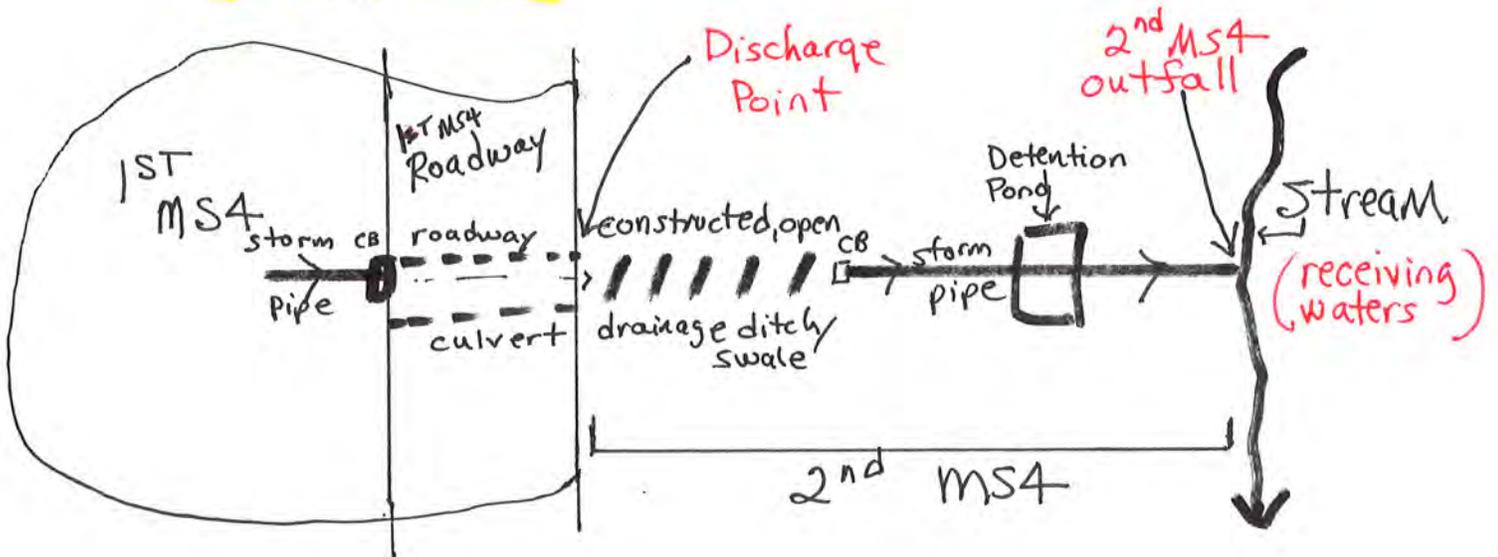
**C Example of system involving single private drainage discharge to receiving waters**



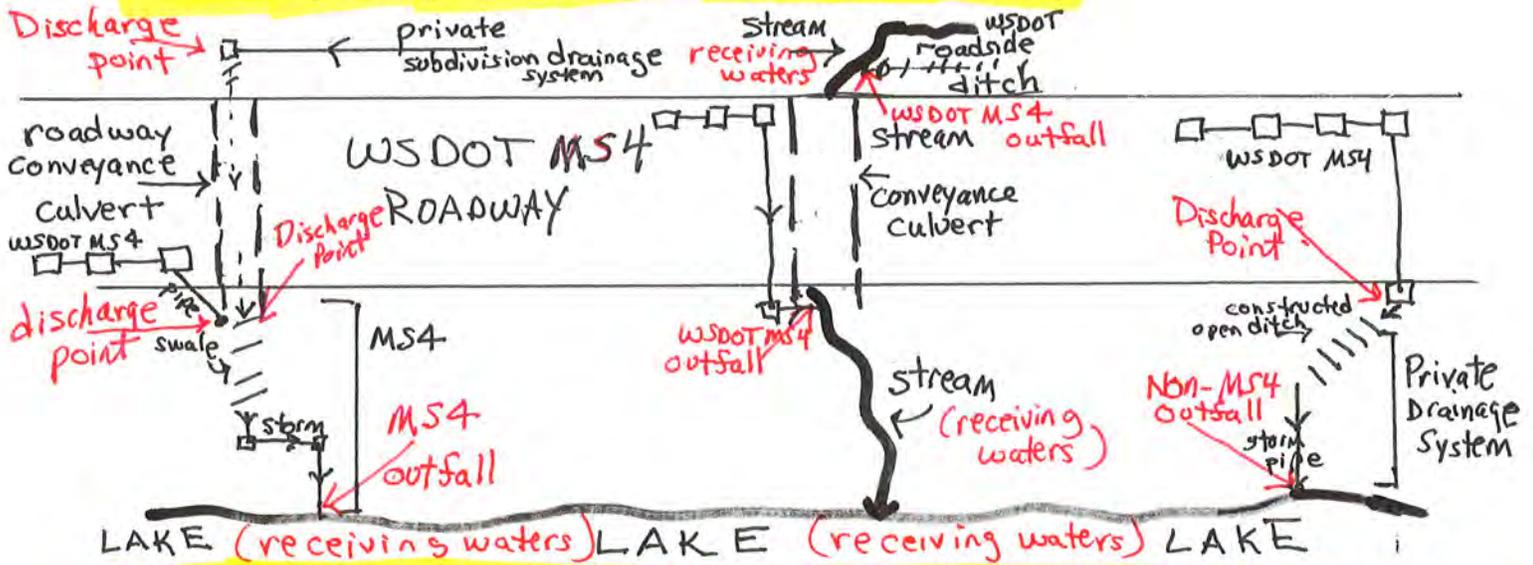
**D Example of system involving private drainage discharge to receiving waters with contribution from upstream MS4 discharge**



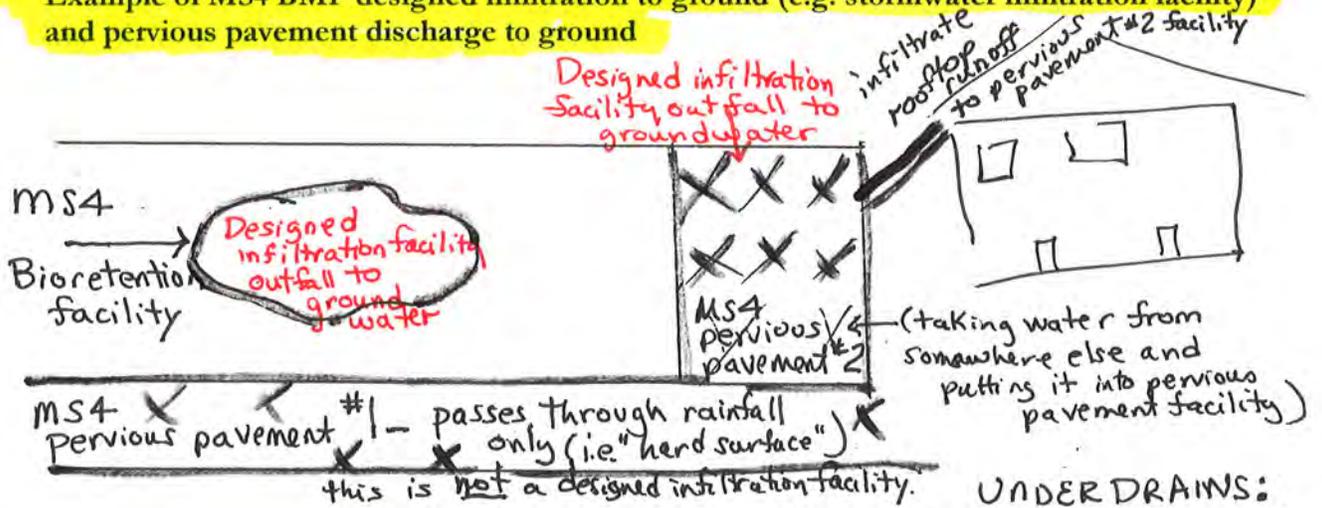
**E Example of system involving MS4 outfall to receiving waters with contribution from a different, upstream MS4**



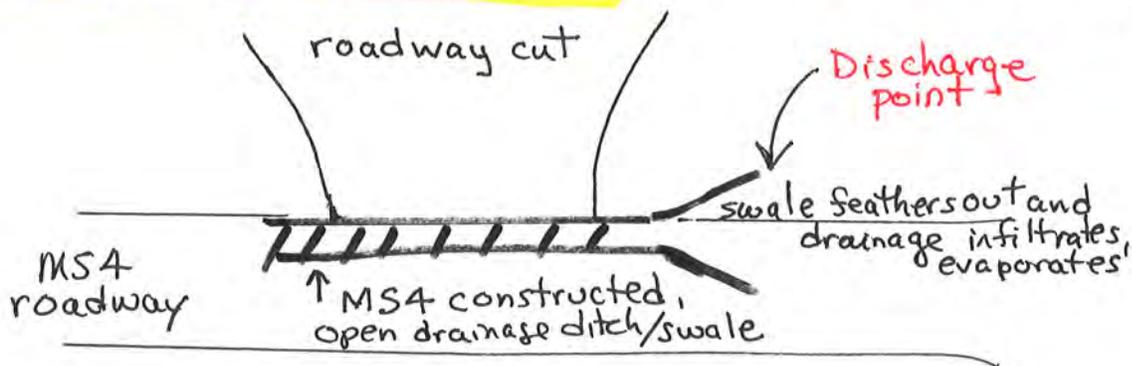
**F Examples of types of discharge from WSDOT rights-of-ways**

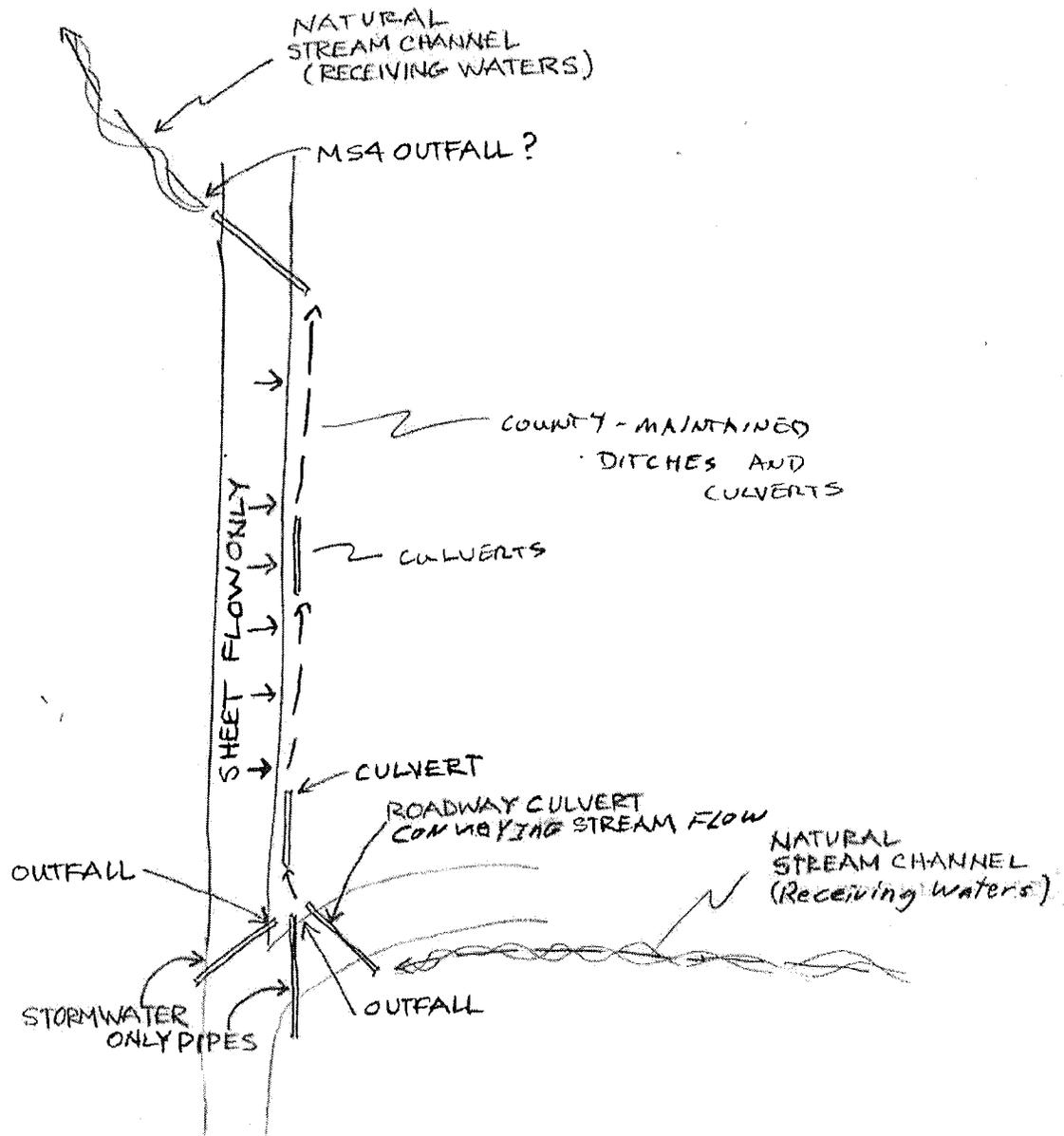


**G Example of MS4 BMP designed infiltration to ground (e.g. stormwater infiltration facility) and pervious pavement discharge to ground**

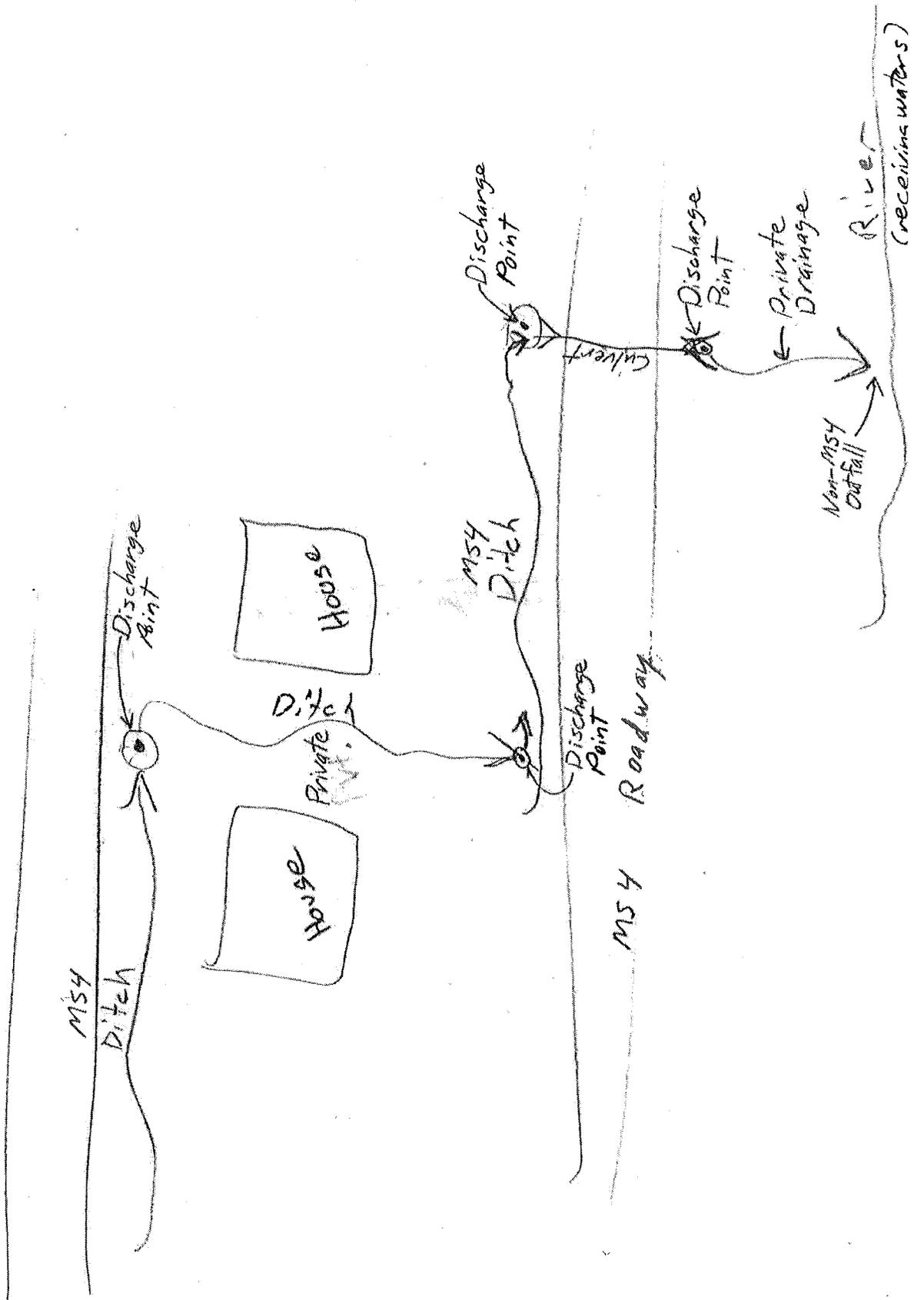


**H Example of MS4 discharge to ground**

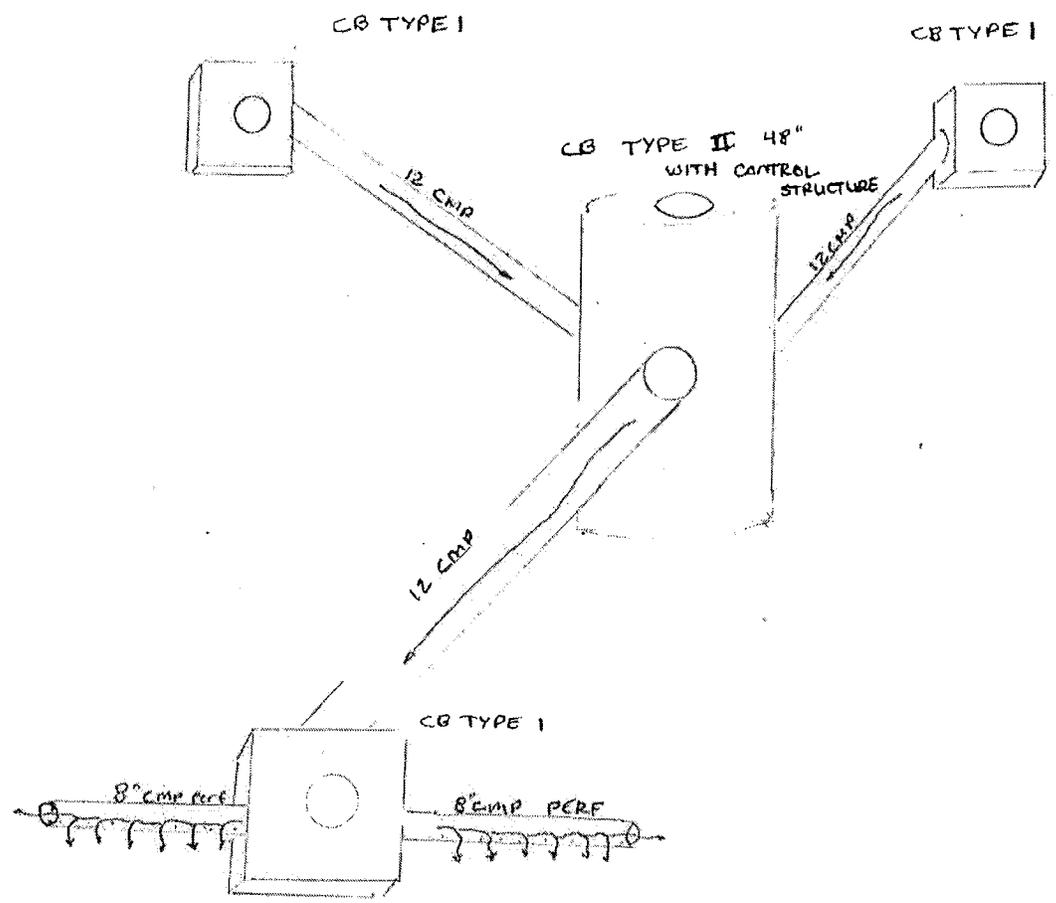




WHAT PORTION OF THIS SYSTEM IS MS4? IF ONLY SEGMENTS OF THIS SYSTEM ARE MS4, WHERE ARE OUTFALL LOCATIONS? (BOTH STREAMFLOW AND ROAD RUNOFF CONVEYANCE IN DITCH. DITCH IS MAINTAINED BY KC.



Y



Is this a discharge point or a UIC  
or an outfall?

It depends, for example:

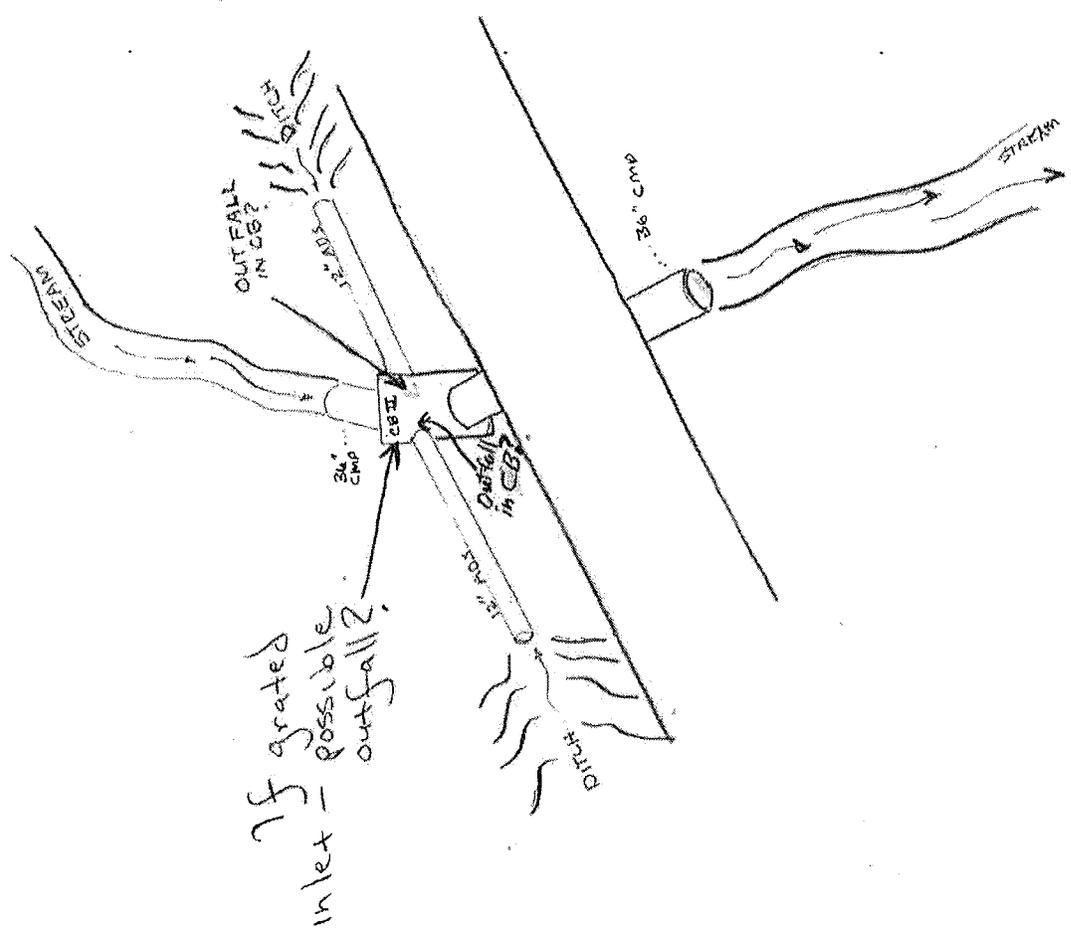
- If it's stormwater dispersion, then it would be a discharge point.
- If it's in an infiltration trench, then it would be a UIC.
- If it doesn't meet UIC criteria and is designed to infiltrate stormwater, then it would likely be an outfall.

where is the outfall?

Where is the MS4?

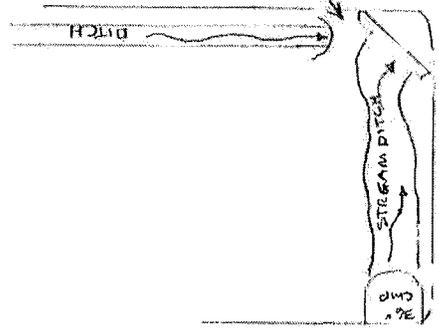
Where King County MS4 Structures interact with facilitate streamflow, where specifically along the MS4 structure does the structure technically end?

-Where is the outfall in the structure?

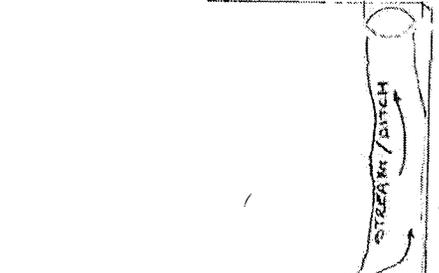


MS4 outfall

500 AVE SE



DRIVE WAY

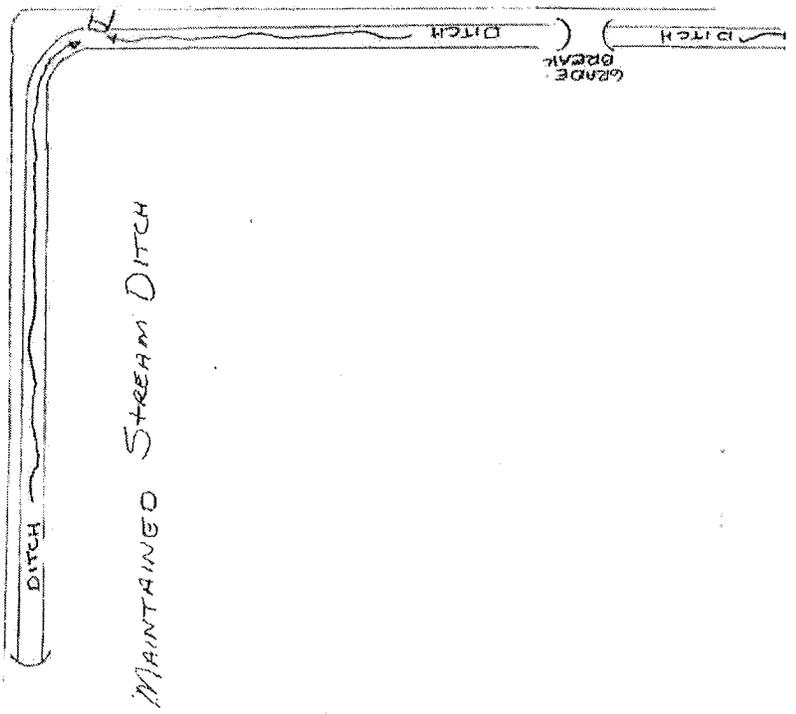


WETLAND

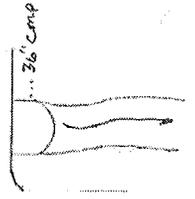
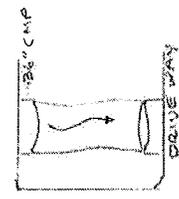
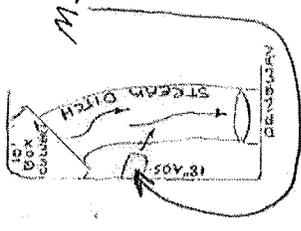
MS4

MS4 outfall

SE SOMEWHERE ST



MS4 Outfall



Subdivision MSH  
stormwater pipe

Discharge  
point or  
MSH  
outfall  
based on  
research  
of channel

only flows in response to storms

To determine if ephemeral stream  
will require research

ravine

18" ADS

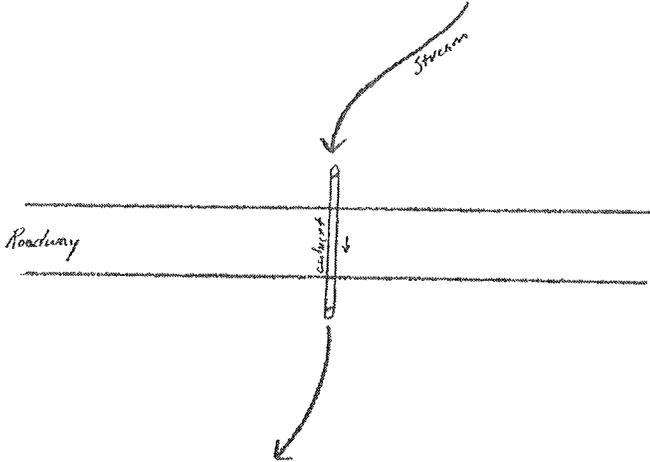
MSH  
DITCH

research points of MSH  
based on research of  
outfall channel

STREAM OR NOT

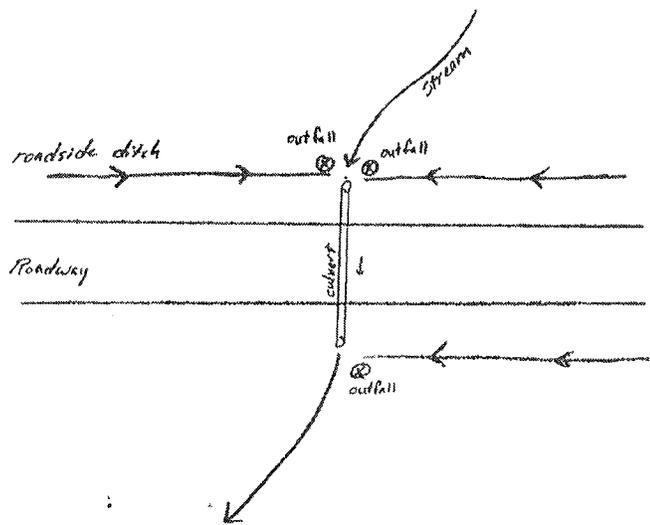
To determine if  
ephemeral stream  
will require research

In cases where  
streams are not yet  
designated or not  
known to be streams  
(dry or intermittent),  
where MSH interacts  
with these streams,  
where does the MSH  
begin at end in  
this system?  
- where are the  
outfalls in these  
cases?



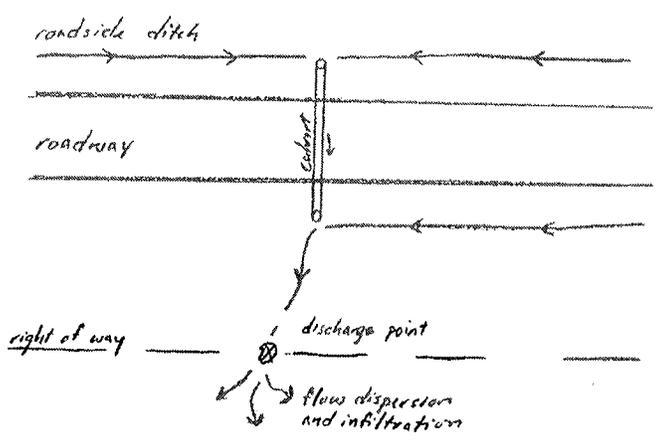
Through-going stream  
 through-going stream with no concentrated stormwater discharge from roadway systems.

- no outfall
- no discharge point
- no MS4



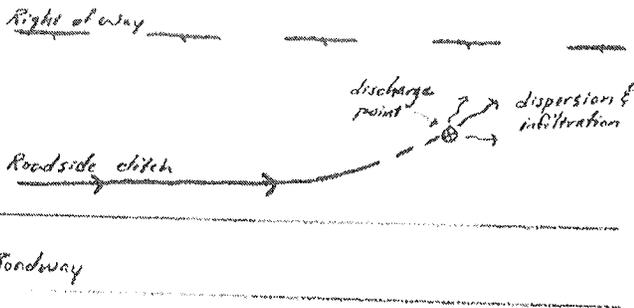
Through-going stream with MS4 outfalls  
 through-going stream with concentrated stormwater discharges from roadside ditches at cross culvert inlet and outlet

- 3 outfalls
- MS4 = roadside ditches



MS4 with land surface discharge  
 roadway drainage system flows to surface of the land outside of right-of-way where stormwater disperses and infiltrates.

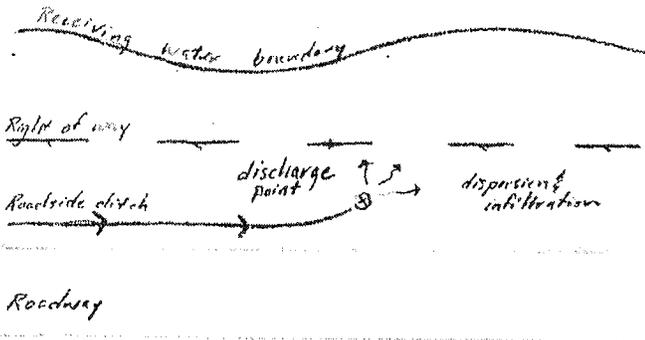
- no outfall
- one discharge point
- MS4 = roadside ditches and cross culvert pipe



Incidental discharge to ground

A roadside ditch of unspecified scale or bottom material type terminates within right of way where stormwater disperses and infiltrates to ground.

- no outfall
- one discharge point

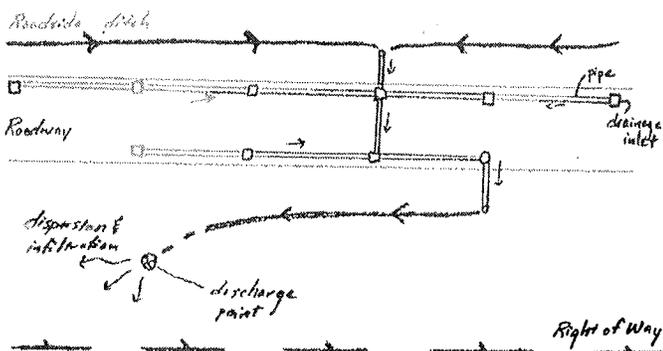


Incidental discharge to ground

A roadside ditch of unspecified scale or bottom material type terminates within right of way where stormwater disperses and infiltrates to ground.

This system discharges in the vicinity of, but with no physical connection to, a receiving water body.

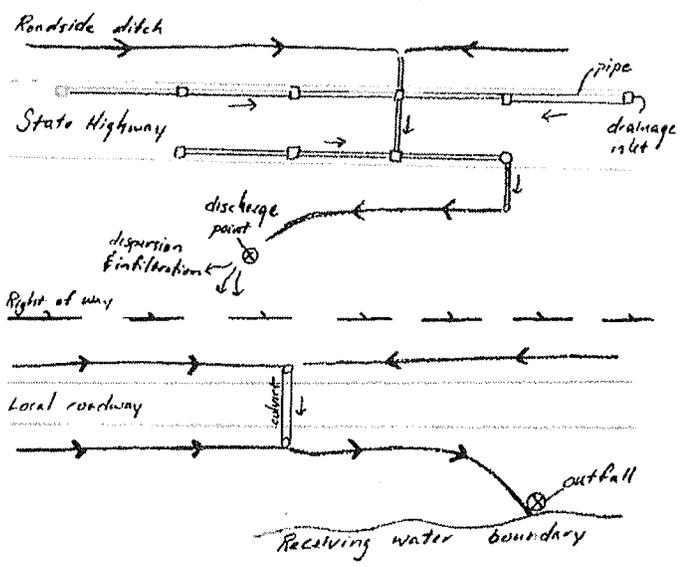
- one discharge point



Incidental discharge to ground

A roadway drainage system of various components and unspecified scale or material types terminates within the right of way where stormwater disperses and infiltrates to ground.

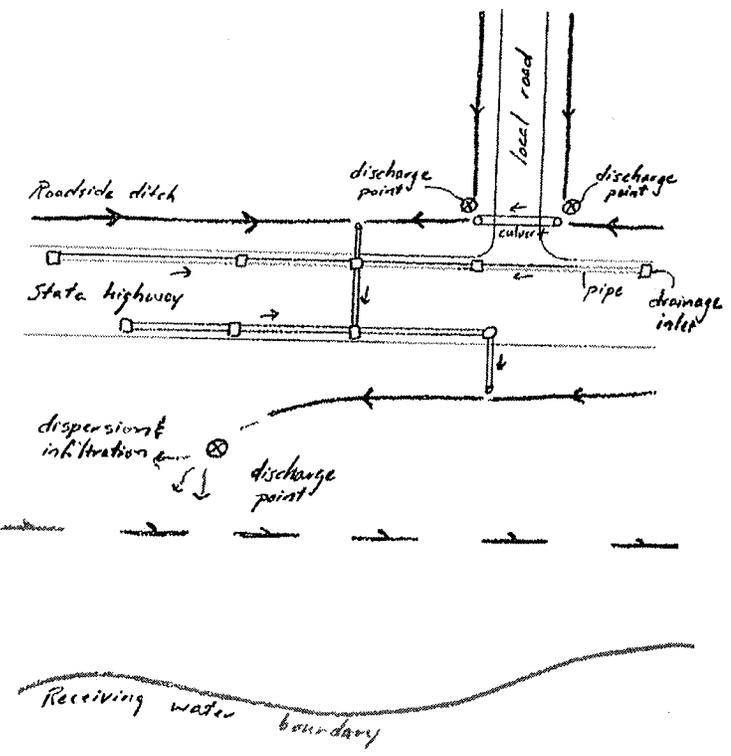
- no outfall
- one discharge point



Incidental discharge to ground in the vicinity of 3rd party MS4

A state highway drainage system of various components and unspecified scale or material types terminates within right of way, where storm water disperses and infiltrates to ground. This system discharges in the vicinity of, but with no physical connection to, a 3rd party MS4 with a system outfall to receiving water.

- WSDOT = discharge point
- 3rd party = outfall



Incidental discharge to ground in the vicinity of a receiving water

A state highway drainage system of various components and unspecified scale or material types terminates within the right of way where stormwater disperses and infiltrates to ground. This system receives discharges from a local road MS4. This system discharges in the vicinity of, but with no physical connection to, a receiving water body

- WSDOT = discharge point
- 3rd party = discharge point

## Attachment B

### Background Information for Bellevue's Comments Regarding Bioretention Soil Mix Export of Pollutants and Permit Compliance

In March 2013, Ecology reported that three local bioretention monitoring studies showed that the soil mix used in bioretention facilities removed some pollutants but added other pollutants to the stormwater that passed through the soil mix before being discharged to groundwater or to receiving waters (either directly or via the municipal storm drainage system).<sup>1 2</sup> The three pollutants discharged from the bioretention facilities are dissolved copper, nitrate, and phosphorus. Ecology then noted that the 2012 SWMMWW included a few limitations on the use of bioretention facilities to minimize water quality impacts and that it was doing a more thorough review of the data and “will issue an addendum to the bioretention Applications and Limitation guidance in Chapter 7, Volume V of the SWMMWW” within a couple months. In its publication, Ecology said that:

- Short term - it is considering revised guidance for additional restrictions such as not installing bioretention systems with underdrains that will discharge to surface waters; and
- Long term - if apparent increases in phosphorus and dissolved copper are not resolved, additional restrictions to prevent cumulative impacts to groundwater where bioretention system effluents could eventually comprise a significant source of groundwater recharge.

Based on testimony in the subsequent Phase I and II permit appeals, the Pollution Control Hearings Board deferred to Ecology's judgment on the soil mix pollutant export appeal issue<sup>3</sup> and concluded that:

- Bioretention constitutes AKART and MEP for stormwater management;
- Ecology is appropriately addressing Appellants concerns regarding the prescribed soil mixture's export of pollutant through its recommendation regarding discharging to phosphorus-limited waterbodies and continued efforts to refine the soil mix to improve its performance; and that;
- Based on Phase I and II's deadlines for implementing LID requirements (July 1, 2015 and December 31, 2016, respectively), Ecology has sufficient time to gather more sampling data and, if necessary, refine the prescribed soil mix before its usage is required under the Permits. And that, the efforts outlined by Ecology, in particular the reliance on a wide array of experts in the field to evaluate the soil mix issue, are an appropriate means to evaluate this issue and recommend any necessary changes. (emphasis added)

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<sup>1</sup> Ecology Water Quality Program Publication Number 13-10-017; Focus on Bioretention Monitoring: Ecology Begins Review of Bioretention Monitoring Data, March 2013; <https://fortress.wa.gov/ecy/publications/SummaryPages/1310017.html>

<sup>2</sup> This soil mix is also used in other best management practices, including rain gardens.

<sup>3</sup> See pages 59-62 for PCHB's ruling in the consolidated Phase I and II appeal on this issue. It is available at <http://www.ecy.wa.gov/programs/wq/stormwater/municipal/pchb12-093c12-097FindFactConLaw&Ordr.pdf>

## Attachment C – Bellevue Suggestions for Designating Geographic Boundaries

Bellevue's clarifications and suggestions to the proposed SWMMWW modifications to allow municipalities to designate geographic boundaries are noted below in track changes. These comments apply to the both permeable Pavement (Volume V, page 5-22) and bioretention facilities (Volume V, page 7-9) as the proposed modification is the same for both BMPs.

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A local government may designate geographic boundaries within which infiltration best management practices (BMPs) such as bioretention and permeable pavement, or certain infiltration BMP ~~bioretention/permeable pavement~~ applications, may be designated as infeasible due to limitations and infeasibility criteria listed in WWSWMM including year-round, seasonal or periodic high groundwater conditions, or ~~due to~~ inadequate infiltration rates. Designations due to groundwater conditions or infiltration rates must be based upon a pre-ponderance of field data, collected within the area of concern, that indicate a high likelihood of failure to achieve the minimum groundwater clearance or infiltration rates identified in the ~~above~~ infeasibility criteria.

The local government must develop a technical report and make it available upon request to the Department of Ecology. The report must be authored by (a) professional(s) with appropriate expertise (e.g., registered engineer, geologist, hydrogeologist, or certified soil scientist), and document the location and pertinent values/observations of data that were used to recommend the designation and boundaries for the geographic areas. The types of pertinent data include, but are not limited to:

- Standing water heights or evidence of recent saturated conditions in observation wells, test pits, test holes, and well logs.
- Observations of areal extent and time of surface ponding, including local government or professional observations of high water tables, frequent or long durations of standing water, springs, wetlands, and/or frequent flooding.
- Results of infiltration tests.
- Evaluation of infiltration-related factors by a professional with the appropriate expertise; factors such as surficial geology, permeability, surface slope gradient, landslide hazard areas, potential for shallow groundwater mounding, proximity to subgrade structures or critical infrastructure, depth to permeable unsaturated zone, thickness of permeable unsaturated zone.
- Historical and existing records and reports documenting sensitive and critical areas (wetlands, steep slopes, geologic hazards such as landslides and landslide prone areas, wellhead protection areas, floodplains, and abandoned underground coal mines), critical infrastructure locations such as the Olympic pipeline, contaminated sites or abandoned landfills, etc.

## Attachment D: Bellevue - Phase I & WWA Phase II Modification Comments

Permit	Section(s)	Page(s)	Comment
Both			Draft guidance for revised Permit definitions document - Bellevue's comments on the draft guidance are in Bellevue's October 6, 2014 comment letter (see comment #1 and Attachment A).
WWA Phase II	S4.A.; S4.B; S4.F.	14-16	Bellevue's comments on bioretention soil mix export of pollutants and permit compliance are in Bellevue's October 6, 2014 comment letter (see comment #2 and Attachment B)
	S5.C.3.b.; S5.C.3.c.; S5.C.3.d	19-25	
	S5.C.4.g	32-33	
	S7.	47, App. 2	
WWA Phase II	Appendix 1	6	In Volume 1 Appendix G of the SWMMWW, the definition for Rain Gardens is different than the definition given in Appendix 1 of the Permit. Recommend that the Volume 1 Appendix G definition be used in the Manual and the Permit.
WWA Phase II	Volume II, Sec. 3.3.3	3-24	Under "Additional Guidance for Site Inspections", 7th bullet. This implies that documenting BMP implementation and maintenance applies only to sites larger than 1 acre, but it does not specifically state that it is not necessary to do so for sites of 1 acre or less.
WWA Phase II	Volume II, Sec. 4.1	4-2	Table 4.1.1: The Element #6 column, "Protect Slopes" should be checked for BMP C123, Plastic Covering, and BMP C124, Sodding

## Bellevue WWA Stormwater Manual Modification Comments

Volume	Section	Page	Comment
V	BMP T7.30	7-1; 7-6 through 7-10; 7-16 through 7-19	Bellevue's comments on bioretention soil mix export of pollutants and permit compliance are in Bellevue's October 6, 2014 comment letter (see comment #2 and Attachment B)
V	Underdrains	5-13; 5-25; 7-19; and 7-20	Bellevue's comments on modified underdrain SWMMWW language is in Bellevue's October 6, 2014 comment letter (see comment #3).
V	Minimum Infiltration Rate Infeasibility Criteria	5-21	Bellevue's comments on the minimum native soil infiltration rate infeasibility criteria is in Bellevue's October 6, 2014 comment letter (see comment #4).
V	Designating Geographic Boundaries	5-22 and 7-9	Bellevue's comments on designating geographic areas for infiltration BMPs is in Bellevue's October 6, 2014 comment letter (see comment #5).
I	2.5.5 MR #5	2-35	In Volume 1, new Figure 2.5.1: In the box at the lower left and right side of the figure, it states "Required: Meet the LID performance standard through the use of <u>any</u> BMP(s) in the 2012 SWMMWW or the LID Technical Guidance Manual for Puget Sound except for Rain Gardens (the use of Bioretention is acceptable)." This should be revised to "Required: Meet the LID performance standard through the use of any BMP(s) in the SWMMWW except for Rain Gardens (the use of bioretention is acceptable)."
I	2.5.5 MR #5	2-35	In Volume 1, new Figure 2.5.1: Remove all references to the LID Technical Guidance Manual for Puget Sound because Ecology is not using it as a regulatory document. Also replace all 2012 date references to the SWMMWW to the year the SWMMWW is finalized.
I	Appendix G	G-36	In Volume 1 Appendix G of the SWMMWW, the definition for Rain Gardens is different than the definition given in Appendix 1 of the Permit. Recommend that the Volume 1 Appendix G definition be used in the Manual and the Permit.

