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DEPARTMENT OF RESOURCE STEWARDSHIP
WATER RESOURCES DIVISION

Creating Solutions for Our Future

Cliff Moore
Director

February 3, 2012

Harriet Beale
Washington Department of Ecology
Water Quality Program
P.O. Box 47696
Olympia, WA 98504-7696

Subject: Thurston County Comments on Draft Phase II Municipal Stormwater General Permit for Western Washington

Dear Ms. Beale:

Thurston County appreciates the opportunity to comment on the next municipal National Pollution Discharge Elimination System (NPDES) Phase II permit. In providing comments, staff focused on ease of implementation and feasibility. Specifically, staff asked themselves how practical the new requirements would be in reducing stormwater pollution in a cost-effective manner. Thurston County, like other municipalities, must operate with limited resources yet meet increasing regulatory demands. Our comments and suggestions have strived to balance these competing demands and increase our effectiveness at improving water quality.

In addition to specific commentary on the details of the draft NPDES permit, Thurston County would like to share the following overarching comments and suggestions with the hope of strengthening our collective efforts at improving water quality. These recommendations were generated during a briefing by staff on the draft NPDES permit with the Board of Thurston County Commissioners.

There is a clear recognition that the quality of our marine and freshwater ecosystems continues to decline despite decades of effort to control sources of pollution, including stormwater. Thurston County would like to focus on actions that will produce tangible results; and the County believes that the NPDES permit provides an important mechanism for improving both marine and freshwater ecosystems. We want to use our human and capital resources to make a demonstrable difference.

Thurston County has a demonstrated commitment to improving water quality, with special attention to safeguarding human health and the recovery of Puget Sound. These efforts must be continued and indeed expanded if, for example, we are to see steelhead and salmon runs return to their former levels. The County is a strong advocate for encouraging sustainable development

practices and restoring aquatic and upland ecosystems. As scientific studies have shown, controlling stormwater flows and reducing its pollutant load is a critical component of meeting these challenges. We will continue to work collaboratively and in partnership with our neighboring municipalities and Tribes to make the best use of resources. Thurston County welcomes and encourages Ecology to be an active partner in this effort, not just a regulator, by continuing to provide capacity grant funding, staff support and coordination.

We would like to suggest that Ecology seek additional outside technical support to provide cost/benefit analyses of specific permit requirements. This outside analysis should strengthen the agency's decision-making process, as well as increase public acceptance of the permit. Our recommendation would be to utilize ecosystem services valuation tools and methodologies to clearly evaluate the sustainable benefits to various strategies for controlling stormwater. We recommend contacting David Batker of Earth Economics (www.eartheconomics.org) as the premier, local organization for conducting a science-based, ecologically sound economic analysis of the municipal NPDES stormwater permit.

General Comments

Thurston County is actively engaged in watershed planning. We have completed numerous basin plans and are nearly complete in characterizing all watersheds draining into Puget Sound under an EPA funded grant. These plans and watershed characterization analyses have informed our stormwater, water quality and other water resource projects. The draft permit language does not acknowledge these prior planning efforts and the benefits acknowledged by Ecology itself in planning for stormwater management on a watershed basis. Thurston County sees great utility to controlling stormwater according to watershed, not political, boundaries. However, the draft language does not support that type of collaboration of true watershed planning. We encourage Ecology to substantially revise the existing language and instead propose an optional, pilot effort for interested Phase II permittees to develop stormwater planning on a watershed basis.

The LID requirements have elicited substantial comment and concern. Thurston County supports the many benefits of LID and has already integrated LID best management practices (BMP) into its Drainage Manual. Our experience with implementing LID and observation of the successes and failures of neighboring jurisdictions with LID has taught us that these BMPs are not feasible on all projects. Yet, the draft language effectively directs permittees to use LID in every project, including certain mandatory BMPs, such as pervious pavement, irrespective of cost, maintenance requirements or feasibility. We strongly recommend Ecology revise its list of mandatory BMPs and allow for a broader range of BMPs for use in meeting design flows to make it clear that all tools are available to manage stormwater, not just LID. The additional LID BMPs should include, at a minimum, natural and engineered dispersion, compost amended vegetated filter strip, bioinfiltration pond, bioinfiltration swale, infiltration pond, infiltration trench and media filter drain, which also enhances onsite preservation of the natural hydrology.

The mandatory requirement for the use of pervious pavement elicited the most comment from County staff. The overwhelming conclusion is there has been insufficient time to adequately assess life cycle costs, performance, and maintenance/repair characteristics of pervious pavement within the public right-of-way. The technology of pervious pavement is improving but the costs of installation and maintenance remain more expensive than traditional paved surfaces. Ecology

will need to fully consider how well pervious pavement performs under heavier traffic, spill containment, underground utility impacts and life-cycle costs. Until these questions can be answered, the use or pervious pavement in the permit for all roadways should be encouraged but not be required.

We are encouraged that Ecology has incorporated many of the recommendations from the stormwater monitoring group in the proposed regional stormwater monitoring program (RSMP). The RSMP is a substantial additional permit requirement with a unique and complicated pay-in option from the permittee to the regulator. We are in support of retaining the "opt-out" alternative to paying into the RSMP. However, the requirements are so onerous for permittees considering it that Ecology is truly making an offer we "can't refuse." The opt-out option should be modified so that it is a feasible, but not preferable, choice for permittees.

Thurston County has conducted a well-established cooperative water quality monitoring program with the cities of Olympia, Lacey and Tumwater for more than a decade. We appreciate the potential benefits and efficiencies of a regional monitoring program as long as the results are applicable at the local level. However, due to the complexity of the proposed regional program, we strongly recommend Ecology scale back the scope and funding of the RSMP by deleting the status and trends monitoring requirement and begin the pay-in option in Year 4 of the permit. A longer roll-out of RSMP will provide time to integrate existing local monitoring programs and establish the operational procedures and responsibilities necessary to successfully operate a multi-million dollar regional monitoring program.

Finally, the several proposed changes in Appendix 1 are problematic. The expansion of the definition of "receiving waters" to include saturated soils under infiltration BMPs would unnecessarily increase permittee obligations for inspections and compliance without a corresponding benefit of improved stormwater management. We strongly recommend deleting any reference to groundwater from this definition and thereby ensure consistency with the Clean Water Act.

Thurston County looks forward to continuing dialogue with Ecology's staff to improve the permit language and requirements. We are pleased to share the goals and responsibilities of improving water quality through improved stormwater management with the Department of Ecology. Our partnership is most likely to succeed if we can focus regulations on what actions produce the best improvements in a predictable, cost-efficient manner. Thank you again for the opportunity to comment. Please feel free to contact me at (360) 754-4275 with any questions.

Sincerely,

James P. Bachmeier

Jim Bachmeier
Water Resources Program Manager

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Section	Page / Line	COMMENT / CONCERN	RECOMMENDATION
DRAFT 2012-2013 PERMIT			
numerous	numerous	The draft 2012-2013 Permit continues the existing Phase II municipal stormwater permit unchanged. Unfortunately, implementation of the unchanged permit means that the numerous requirements such as inspection, cleaning, and other deadlines which were given the full five years of the permit to be completed, will now have to be accomplished in one year. Requiring permittees to meet permit deadlines in one year that the existing permit provided for in five year is clearly not attainable.	Revise all deadlines and timeframes in 2012-2013 permit to ensure final permit language is an extension of the current permit and the only deadline in effect is the requirement for an annual report.
DRAFT 2013-2018 PERMIT			
S2.A.1	12	Provision states that discharges to ground waters through facilities regulated under the UIC program… are "not authorized' under this permit. It is not clear what this means. Can be interpreted to prohibit use of new or existing infiltration facilities that are designed to meet the UIC program requirements. I believe the intent is to state that discharges to groundwater have to also meet the requirements of the UIC program.	Reword provision to indicate that discharges to groundwater authorized by this permit must also meet the provisions of the UIC program.
S5.C.1.c	20/15	Adds "new" targeted audience and "new" subject area. Increase in cost and effort not justified.	Delete "new" to defer to permittees' ability to manage their education and outreach programs.
S.5.C.3	21/13-14	Adds "prevent" to illicit connections. Impossible standard to achieve in IDDE	Delete "prevent"
S.5.C.c.i	26/3-6	Permittees shall prioritize conveyances and outfalls and complete field screening for at least 40% of the MS4 within the Permittee's coverage area no later than February 2, 2016 and 20% each year after. Outfall screening is documented as an ineffective tool for identifying illegal discharges due to the sporadic or intermittent nature of such discharges. This applies to conveyances as well. The additional requirement will divert scarce resources away from more effective efforts at controlling IDDE.	Delete this language from the permit.
S.5.C.d.iv	27/36	Existing language exposes permittee to unnecessary liability. Currently reads: All illicit connections to the MS4 shall be eliminated.	Add "known" between All & illicit.

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S5.C.4.a	Q	Provision adds a required vesting element to make new stormwater ordinances applicable to all applications "submitted" after January 1, 2016 and apply to all projects "approved" prior to January 1, 2016 which have not started construction by January 1, 2021. The addition of a vesting provision related to stormwater ordinances is premature. While based on the PCHB's recent decision, that case has not made its way through the appeals process and should not yet be the basis for adding vesting requirements in the NPDES permit. Vesting law is complex and combines case law and RCW's to create a fairly complex body of rules and applicability. It is not clear how an "application" is defined in this provision. Current vesting laws address a multitude of types of applications some of which vest an application and some do not. e.g. Building permit application vests, site plan review may not. The use of the "start of construction" rule proposed by Ecology is not currently used in Washington and thus no legal precedent will be available to decide those marginal cases that are likely to arise. Finally, the wording related to "applications" should be "completed applications" as defined by the jurisdiction and in accordance with applicable state law. Finally the proposed provision does not address those applications made prior to January 1, 2016 but approved after January 1, 2016, will those projects be given 5 years to start construction from the time of approval?	Delete vesting requirement in NPDES permit until resolved by court system through appeals process or legislature revises current vesting laws. If requirement is retained, definitions, applicability, and rules need to be more clearly defined consistent with issues described to left. Clarify Ecology's ability to impose an implementation date, January 1, 2021, which is beyond the effective permit period.
S5.C.4.a.iii	30	Provision states that the ordinance must provide the legal authority, through the approval process for new development and redevelopment to inspect and enforce maintenance standards for "all" private stormwater facilities that discharge to the MS4. With removal of the 1-acre threshold, this appears to require implementation of a maintenance and inspection agreement with all development, regardless of size that has a "private stormwater facility." It is unclear if this provision allows limiting those agreements to projects with "stormwater flow control and treatment BMPs/Facilities" as described and defined within other provisions of the permit.	Clarify this provision to indicate that legal authority is required for "stormwater flow control and treatment BMPs / facilities" not "all private stormwater facilities" to be consistent with language of S5.C.4.c.

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S5.C.4.c.ii	32/19-21	Provision requires 6-month inspections of stormwater facilities within plats until 90% of lots are constructed. This provision will be very difficult in practice to track and may result in unanticipated complications. For example, some short plats and subdivisions are divided and not built out to greater than 90% for years (or even decades). This provision would require adding a layer of complexity to an already complicated inspection tracking system and may result in substantial increased staff effort/cost for little perceived benefit.	Delete this provision. If not deleted, consider modifying it to previous permit language of "every 6 months during the period of heaviest house construction (i.e. 1 to 2 years following subdivision approval)…"
S5.C.4.g.i	34/21-32	Review and revise local development codes, standards and other documents to incorporate and require LID principles and BMP's by December 31, 2016. This timeline is too soon given the scale of the changes and the scope of the documents. While TC supports LID, unless there are additional state resources made available, the deadline will need to be delayed in order to allow adequate public process and implementation.	Revise deadline to December 31, 2017 at the earliest and strongly recommend the next permit period unless funding is made available.
S5.C.4.g.ii	34/33-34	Required report in fourth year of code review. Additional requirement unnecessary.	Delete report requirement and instead list action, not report, as a check box in annual report.
S5.C.5.d	37/1-2	Given the thousands of catch basins, increasing the inspection frequency will be too expensive and time consuming without a corresponding improvement in stormwater water quality.	Replace two years with existing five years.
S5.C.5.d	37/17-23	Inspection schedule of two years is too frequent and does not recognize the fact that sediment accumulation is not constant throughout a MS4. Operators know where in the system requires more frequent cleaning.	Maintain a five year minimum inspection frequency and add "if applicable" after "outfall" to enhance operational flexibility.

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S.8.C.	51/3-55/16	Monitoring the status and trends of waters of the State and sediment is clearly the statutory responsibility and role of State agencies, not local governments. Stormwater from municipally operated systems is only one of many sources of stormwater pollutants into these waters and sediments. The proposed status and trends monitoring will not distinguish the contribution from municipal MS4's. With limited resources, extra monitoring requirements (i.e., not required by EPA) should be limited to only those studies which will provide data that will directly improve permitees' stormwater management.	Delete subsection C, entire Status and Trends monitoring requirement, both options.
DEFINITIONS AND ACRONYMS	75	Definition of Illicit Discharge is expanded to include discharges "from" MS4's and infiltration/exfiltration on non-stormwater is pipe bedding. This change greatly expands the range of potential illicit dischargers to include owners of septic systems and permittees themselves.	Delete all the revisions to the definition of Illicit discharge or provide clarification that infiltration is an assumed effective treatment.
DEFINITIONS AND ACRONYMS	78	Definition of Pollution Generating Impervious Surfaces (PGIS) is deleted. This term is still used in places, for example within the feasibility criteria for bioretention.	Retain this definition.
DEFINITIONS AND ACRONYMS	78	Definition of Replaced Impervious surfaces is deleted. Need to retain this definition and modify it to accommodate the use of the term "hard surfaces" and/or add a definition of the term "replaced hard surfaces."	Retain definition of Replaced Impervious Surface and modify it to accommodate the use of "hard surfaces" and/or add a definition of "replaced hard surface".
DEFINITIONS AND ACRONYMS	79	Definition of "Sediment/Erosion-Sensitive Feature" references Appendix 6, should be Appendix 7.	Change reference to Appendix 6 to Appendix 7.
DEFINITIONS AND ACRONYMS	80	The term "Stormwater Facilities" is used within the Permit but not defined (e.g. S5.C.4.a.iii). If intent is that the term "stormwater facilities" is analogous to "Stormwater Treatment and Flow Control BMPs/Facilities" then include it in definition of that term, if not, need to define "stormwater facilities" separately.	Add definition of "Stormwater Facilities" or incorporate into "Stormwater Treatment and Flow control BMPs/Facilities" definition.

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Appendix 1: Section 1. Exemptions: Road Maintenance	1,2	All three bullets under this exemption retain use of the terms “impervious surface” and “new impervious surfaces.” Should revise to reflect use of new term “hard surfaces” where appropriate.	Search entire permit for use of term impervious surface and determine if use is still consistent with use of new term “hard surface.”
Appendix 1: Section 2. Definitions Related to Minimum Requirements : Converted Pervious Surface	2	Application of the definition converted pervious surface has been difficult in practice. Many development projects occur on lands that have already been modified to some extent. If a development converts existing pasture land, a tree farm, an old cleared area that has grown up with a mix of indigenous and invasive species (scotch broom, blackberries) to lawn and/or landscape, should this be considered converted pervious surface. Other revisions to Appendix 1 have removed the reference to native vegetation, but this definition still retains it.	Suggest that definition of converted pervious surface should be any conversion of native vegetation, pasture, scrub/shrub or unmaintained non-native vegetation (e.g. scotch broom, Himalayan blackberry) to lawn/landscape and any conversion of native vegetation to pasture.

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Appendix 1: Section 2. Definitions Related to Minimum Requirements : Effective Impervious surface	3	Definition of Effective Impervious Surface needs additional clarification. If an impervious surface sheet flows through 100-ft of native vegetation or meets the requirements of applicable dispersion BMPs to allow being treated as lawn/landscape for modeling purposes they should not be considered "effective impervious surface". Why does dispersion through 100-ft of vegetation have to be per BMP T5.30. If dispersion of impervious surface through 100-ft of native vegetation makes it non-effective, then it should be non-effective impervious surface whether the land area limits/conditions of BMP T5.30 are met or not. Careful consideration of this definition is necessary for application of Flow Control requirements (MR #7). Under the current definition, a site could disperse all impervious surface to 100-ft or greater of native vegetation (although not meeting BMP T5.30 land use limits), use hydrologic modeling to demonstrate <0.1 cfs increase in 100-yr flow and because the dispersed surfaces do not meet the strict definition of Effective Impervious Surface provided in this section a flow control facility would be required because "effective impervious surface" is still greater than 10,000 square feet. It is recognized that within the application of BMP T5.30, effective impervious surface will need to be defined separately since that BMP limits effective impervious surface specifically.	Revise definition of effective impervious surface to include, in addition to the existing definition, those impervious surfaces dispersed in accordance with appropriate BMPs which allow the impervious surface to be modeled as lawn/landscape in the SWMMWW or dispersion through 100-ft of native vegetation whether BMP T5.30 land area limits are met or not.
Appendix 1: Section 2. Definitions Related to Minimum Requirements	3	A definition of "Effective Hard Surfaces" needs to be provided. This term is used in other areas of the permit and is not defined. For example, is a vegetated roof or porous pavement that does not infiltrate 100% of incident precipitation considered "effective hard surface?" Green roofs can come in a multitude of different forms including intensive and extensive with differing properties. There should be a distinction, or a minimum standard to make green roofs non-impervious, or non-effective hard surfaces.	Define "Effective Hard Surfaces" Establish criteria for when a green roof can be considered "effective hard surface" or "impervious surface."

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Appendix 1: Definitions	5/31-33	Addition of groundwater to definition of receiving waters. Adding groundwater conflicts with the intent and purpose of LID, and greatly increases complexity and cost in the design and operation of stormwater infrastructure. How would structures that infiltrate turbid stormwater or road runoff meet water quality standards under this definition? How would permittees be able to practically and consistently define the point where "interflow" becomes groundwater or groundwater becomes "interflow?"	Delete the addition of ground water and maintain original language, or clearly answer questions in comment section.
Appendix 2: Action Required – Thurston County	22/14-15	Install and maintain pet waste bag dispenser units,…". This action does not appear as an implementation action in the approved Nisqually River Basin, Water Quality Implementation Plan.	Limit Action element to those within Water Quality Implementation Plan.
Appendix 2: Action Required – Thurston County	23/table	The creek referenced should be **Woodland** not Woodard. And the creek reach referenced (river mile 0.2 to 1.6) is largely outside of the NPDES regulated areas.	Correct to Woodland Creek and specify reach within NPDES regulated area.
Appendix 2: Action Required – Thurston County	24/10	Reference is made to "city's" when section refers to County.	Replace the word" city's" with "county's".
Appendix 2: Action Required – Thurston County	24/15-16	Reference is made to a table with "prevalent sources" from TMDL technical study but we were unable to locate this table.	Please provide a reference to the table in the study.
Appendix 2: Action Required – Thurston County	24	Requires Thurston County to conduct annual mailings and other actions to a septic O&M program that is already being successfully implemented in the Henderson Inlet watershed by the County. The County mails notices to septic owners every 3 years when their systems are due for inspection, NOT annually. We complied with the TMDL recommendation and implemented a very effective program.	Work is already underway in the Henderson O&M program. Delete annual mailing requirement.

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Appendix 1: Section 2. Definitions Related to Minimum Requirements : New development	4	This definition includes: "subdivision, short subdivision and binding site plans" – However, in practice it is difficult to know how to regulate these types of development under the NPDES rules. For example; how do the impervious surface, land conversion, and clearing thresholds apply to a 2 lot large lot (>5 acre lots) subdivision that requires no construction of roads, etc. but simply intends to divide the property for future purchase and construction by another party as some indefinite future date? Should these be regulated as development? Thurston County has seen many of these types of large lot and short plat developments and have received intense civil engineer/developer opposition to our requiring drainage plans for a project where no construction occurs (but will only occur at some indefinite time in the future).	Clarify how development thresholds apply to simple divisions of land without any infrastructure construction at the time of land division. Consider not including subdivisions of land into 5-acre or larger parcels for residential use within the definition of "common plan of development." For these types of large lot plats, project thresholds would apply to any necessary infrastructure construction (roads, common areas, etc.) but thresholds would not be applied to the individual lots created until their actual development. Thurston County has developed a policy to do this for large lot plats in the rural areas (outside of UGA's & NPDES permit boundary) of the county. This is available for your consideration on the Thurston County stormwater web-site.

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Appendix 1: Section 2. Definitions Related to Minimum Requirements : Pollution Generating Pervious Surface	5	Since under the new definition of impervious surface, a green roof is not considered "impervious" but roof vegetation will likely be subject to fertilizer, etc. – will green roof areas be considered pollution generating pervious surface for purposes of water quality regulation.	Clarify whether green roofs and pasture should be considered pollution generating pervious surface.
Appendix 1: Section 2. Definitions Related to Minimum Requirements	6	Need to add definition of "Replaced Hard Surface" since this term is used in thresholds. For example, is standard pavement replaced with porous pavement considered replaced or new hard surface? Is a roof area replaced with porous pavement considered a replaced or a new hard surface? A careful consideration of the definition could help to increase the desirability of redevelopment. For example, if replacing an existing pavement with a porous pavement were considered neither replaced nor new impervious/hard surface this would encourage redevelopment, while still providing for water quality benefit. The current threshold approach incentivizes retaining as much existing impervious surface as possible on a redevelopment to avoid having to provide stormwater controls to those surfaces.	Add definition for "Replaced Hard Surface" Consider in elements of definition an approach to better support redevelopment over new green field development.
Appendix 1: Section 2: Definitions: Replaced Impervious Surface	6	Given new definitions for hard surface and impervious surface, how will porous pavement or vegetated roof areas that are installed over existing impervious surface be treated? Since a green roof is not considered "impervious" would it be considered replaced impervious surface?	Clarify how pervious pavement and green roofs will be treated for purposes of "replaced impervious surface"

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Appendix 1: Figure 3.2	9	No definition is provided for replaced "hard" surface only replaced impervious surface. If a "hard surface" that is not considered impervious (porous pavement) replaces an impervious surface how is that treated?	Add definition of "replaced hard surface" to definitions section. Clarify how replacement of existing impervious surface by non-impervious hard surface is to be treated.
Appendix 1: Figure 3.3: Flow Chart for Determining Requirements for Redevelopment	10	Same comment as above for Figure 3.2. Additionally, for determining whether all minimum requirements apply, suggest leaving the 5,000 square foot and 50% added criteria still be applied to impervious surfaces and not hard surface. One goal of stormwater rules should be to encourage redevelopment. By leaving impervious surface changes (vice hard surfaces) as the threshold for applying all minimum requirements to a redevelopment project this reduces one barrier to redevelopment projects.	Suggest leaving changes in impervious surface as the threshold for when all minimum requirements apply for redevelopment projects.
Appendix 1: 3.2 New Development	11	Same comments as above for Figure 3.2 – need to define replaced hard surfaces and better define land conversions.	See recommendation above for figure 3.2.
Appendix 1: 3.3 Redevelopment	11	Same comment as above for Figure 3.3 – need to define replaced hard surfaces and consider allowing continued use of impervious surface for whether all minimum requirements must be met.	See recommendation above for Figure 3.3.
Appendix 1: 4.1 MR #1	13	States: "Stormwater Site Plans shall use site-appropriate development principles to retain native vegetation and minimize impervious surfaces to the extent feasible." Why state this if it is not defined in an enforceable way. How is feasible defined, how does one know whether this has been complied with or not?	Delete proposed new insertion to this section or provide specific rule or guidance on how this is met.
Appendix 1: 4.2: MR #2: 12.d	21	Paragraph uses the term "site" instead of "project site." Site is defined as the legal boundaries, project site is the disturbed area. A strict interpretation of the current wording would require a CESCL for a project less than 1-acre on a site (ie. Parcel) greater than 1-acre.	Change term "site" to "project" or "project site" consistent with definitions.

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Appendix 1: 4.5 MR #5: Mandatory Lists	25,26	Item 1 of all mandatory lists for roofs and other hard surfaces is Full Dispersion in accordance with BMP T5.30. Since the lists are intended to be mandatory unless not feasible – where feasibility is generally considered technical feasibility, many would argue that full dispersion is virtually always feasible. After attending Ecology workshops on the permit, Ed O'Brian stated that it was not intended to mandate Full Dispersion; however the way the mandatory lists are presented. A better approach would be to include a preface to all the mandatory lists that if Full Dispersion in Accordance with BMP T5.30 is used on a project site or within a threshold discharge area of a project site then MR#5 is met for that area.	Remove Full Dispersion BMP T5.30 from the mandatory list but add a section that if Full Dispersion is used on a project or a threshold discharge area that MR#5 is met for that area.
Appendix 1: 4.6: MR#6:Runoff Treatment – *Project Thresholds*	26	1st sentence of this section references Table 4.1, which has been deleted.	Remove reference to Table 4.1.
Appendix 1: 4.6: MR#6:Runoff Treatment – *Project Thresholds*	27	2nd bullet – Will green roofs – which may be subject to pesticides, fertilizers, etc. be considered PGPS? – If so, could these be exempted from the ¾ acre threshold?	Address how green roofs will be treated (PGPS or Not).
Appendix 1: 4.6: MR #6: Runoff Treatment – Water Quality Design Flow Rate – 2. Downstream of Detention Facilities	30	3rd paragraph of this section still refers to PGIS instead of PGHS.	Change PGIS to PGHS.

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Appendix 1: 4.7: MR#7: Flow Control: *Thresholds*	32	3rd bullet – refers to "effective hard surfaces" and "effective pervious surfaces" Neither of these terms are defined.	Reword bullet or provide definitive definitions of "effective hard surface" and "effective pervious surface"
Appendix 1: 4.7: MR#7: Flow Control: *Standard Flow Control Requirement*	33	Last sentence of this section refers to "converted pervious surfaces" instead of "effective pervious surfaces" which was a term used previously in this section.	Evaluate use of terms "effective pervious" and "converted pervious" and standardize use and/or include applicable definitions.
Appendix 1: Section 8: Feasibility Criteria for LID BMPS: I. Site/Engineering Constraints B. Permeable Pavements	39	Re: Slope criteria. It isn't clear if this provision directs that pervious pavers would be required for slopes up to 10% if other feasibility criteria are met. Since pavers are the most expensive pervious pavement option and greater than a 5% slope requires special subgrade conditions and design, we suggest that a single standard for infeasibility be 5% for all pervious pavements.	Establish an infeasibility standard of 5% for all pervious pavement. Pervious pavement construction allowed on steeper slopes, but not required.

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Appendix 6	2/31	Description of street waste solids infers material is always contaminated which is inaccurate.	Rewrite to encourage the recycling and reuse of maintenance solids from stormwater facilities and facilities may be reclaimed, recycled or reused when in alignment with local codes and ordinances. Soils that are identified as contaminated, per WAC 173-304, shall be disposed at a qualified solid waste disposal facility.
Appendix 7 Determining Construction Site Sediment Damage Potential	1/37	Typo “200 feed” Is intent to increase buffer width?	Correct to feet. Clarify relation to buffer or feature.

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Additional specific comments to APPENDIX 1 – Minimum Technical Requirements for New Development and Redevelopment

Section	Page & line number	Comment
Section 2	Page 2 Line 19	HRM- (similar to TCDDECM) A road or street intended to move high volumes of traffic over long distances at high speed, with partial control of access, having some intersections at grade. A minor arterial connects major arterials to collectors. A collector connects an arterial to a neighborhood (a collector is not an arterial). A local access road connects individual residences to a collector.
Section 2	Page 2 Line 24	The governing body of each municipal corporation shall classify and designate city streets as follows: Major arterials, which are defined as transportation arteries which connect the focal points of traffic interest within a city; arteries which provide communications with other communities and the outlying areas; or arteries which have relatively high traffic volume compared with other streets within the city; Secondary arterials, which are defined as routes which serve lesser points of traffic interest within a city; provide communication with outlying districts in the same degree or serve to collect and distribute traffic from the major arterials to the local streets; Access streets, which are defined as land service streets and are generally limited to providing access to abutting property. They are tributary to the major and secondary thoroughfares and generally discourage through traffic.
Section 2	Page 2 Line 24	**Functional classification of highways.** (1) The department shall conduct periodic analyses of the entire state highway system and report to the office of financial management and the chairs of the transportation committees of the senate and house of representatives, any subsequent recommendations to subdivide, classify, and subclassify all designated state highways into the following three functional classes:(a) The "principal arterial system" shall consist of a connected network of rural arterial routes with appropriate extensions into and through urban areas, including all routes designated as part of the interstate system, which serve corridor movements having travel characteristics indicative of substantial statewide and interstate travel;(b) The "minor arterial system" shall, in conjunction with the principal arterial system, form a rural network of arterial routes linking cities and other activity centers which generate long distance travel, and, with appropriate

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Section	Page & line number	Comment
		extensions into and through urban areas, form an integrated network providing interstate and interregional service; and(c) The "collector system" shall consist of routes which primarily serve the more important intercounty, intracounty, and intraurban travel corridors, collect traffic from the system of local access roads and convey it to the arterial system, and on which, regardless of traffic volume, the predominant travel distances are shorter than on arterial routes.
Section 2	Page 2 Line 39	Land cover changed from native vegetation to lawn, landscape, or pasture areas.
Section 2	Page 3 Line 7	Downspout Infiltration systems are trench or drywell designs intended only for use in infiltrating runoff from roof downspout drains. They are not designed to directly infiltrate runoff from pollutant-generating impervious surfaces.
Section 2	Page 3 Line 9	again - please define measurably
Section 2	Page 3 Line 10	What does this mean "chemical characteristics"
Section 2	Page 3 Line 12	Western WA 2005 Manual - Those substances that, when exposed to rainfall, measurably alter the physical or chemical characteristics of the rainfall runoff. Examples include erodible soils, uncovered process wastes, manure, fertilizers, oil substances, ashes, kiln dust, and garbage dumpsters
Section 2	Page 3 Line 12	What about Brine?
Section 2	Page 3	This does not meet federal def. for green roof. LID definition is different - Hard surfaces can be impervious or permeable. Permeable pavements are pervious surfaces,

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Section	Page & line number	Comment
	Line 13	but also hard surfaces.
Section 2	Page 3 Line 13	Is a gravel road a hard surface?
Section 2	Page 3 Line 15	Contradicts what Hard Surface def. is (green roof)
Section 2	Page 3 Line 32	Thereby exempt
Section 2	Page 3 Line 36	Puget Sound Partnership def - LID is a stormwater management and land development strategy applied at the parcel and subdivision scale that emphasizes conservation and use of on-site natural features integrated with engineered, small-scale hydrologic controls to more closely mimic pre-development hydrologic functions
Section 2	Page 3 Line 36	HRM- An evolving approach to land development and stormwater management that uses a site's natural features and specially designed BMPs to mange stormwater; it involves assessing and understanding the site, protecting native vegetation and soils and minimizing and managing stormwater at the source. LID development practices are appropriate for a variety of development types.
Section 2	Page 3 Line 36	Low-Impact development methods will not be feasible in all project settings could be a huge cost for projects and purchasing RW.
Section 2	Page 4 Line 5	Stormwater Planters or tree pits
Section 2	Page 4	pervious asphalt

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Section	Page & line number	Comment
	Line 30	
Section 2	Page 4 Line 33	HRM- A permeable surface that readily transmits fluids into the underlying base material. The pavement may be permeable concrete, permeable asphalt, or manufactured systems such as interlocking brick or a combination of sand and brick lattice
Section 2	Page 5 Line 1	Those impervious surfaces considered to be a significant source of pollutants in stormwater runoff. Such surfaces include those which are subject to: vehicular use;industrial activities (as further defined in this glossary); or storage of erodible or leachable materials, wastes, or chemicals, and which receive direct rainfall or the run-on or blow-in of rainfall. Erodible or leachable materials, wastes or chemicals are those substances which, when exposed to rainfall, measurably alter the physical or chemical characteristics of the rainfall runoff. Examples include erodible soils that are stockpiled, uncovered process wastes, manure, fertilizers, oily substances, ashes, kiln dust, and garbage dumpster leakage. Metal roofs are also considered to be PGIS unless they are coated with an inert, non-leachable material - continued
Section 2	Page 5 Line 1	This entire PGIS was taken completely out of the definitions in the permit (page 78)
Section 2	Page 5 Line 18	TCDDECM- Any non-impervious surface subject to use of pesticides and fertilizers or loss of soil. Typical PGPS include lawns, landscaped areas, golf courses, parks, cemeteries, and sports fields. HRM- Any non-impervious surface subject to use of pesticides and fertilizers or loss of soil. Typical PGPS include lawns, landscaped areas, golf courses, parks, cemeteries, and sports fields. Grass highway shoulders and medians are not subject to such intensive landscape maintenance practices and are considered pollution-generating pervious surfaces. It is WSDOT policy to create self-sustaining, native plant communities that require no fertilizer and little to no weed control after they are established. During the plant establishment period, usually the first three years after planting, WSDOT revegetation and mitigation projects are intensely managed to aid

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Section	Page & line number	Comment
		plant establishment. However, throughout the life of the project, WSDOT practices integrated vegetation management (IVM), which recognizes herbicides as tools in maintaining planting are as (one of many tools available). Questions regarding whether a specific area may be considered a pollution-generating pervious surface should be directed to the local maintenance area superintendent or the region landscape architect.
Section 2	Page 5 Line 25	or engineered
Section 2	Page 5 Line 31	Remove groundwater - will ecology extend this to S4.F permit compliance language.
Section 2	Page 6 Line 1	RIS was taken out of the definitions in the permit - page 78
Section 3	Page 8 Line 6	Forest Practices should be included
Section 3	Page 9 Line 11	Remove “plus replaced”
Section 3	Page 11 Line 2	This will require an additional work load that staff cannot keep up with.
Section 3	Page 11 Line 12	LID talks about 10,000 new plus replaced hard surfaces or converted 3/4 acres

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Section	Page & line number	Comment
Section 4	Page 14 Line 13	Keep original language
Section 4	Page 15 Line 37	This does not comply with local codes for Street sweeping waste .
Section 4	Page 16 Line 18	while maintaining min. water quality standards and flow control
Section 4	Page 16 Line 26	Good revision
Section 4	Page 16 Line 34	Contradicts what WDFW states
Section 4	Page 17 Line 12	Standard plans state if modifications ore needed in the TESC plan contractor shall allow at least 5 working days for the engineer to review them.
Section 4	Page 17 Line 13	This should be revised to specify working
Section 4	Page 19 Line 32	approved beforehand- should be in SWPPP's see j.
Section 4	Page 20 Line 1	This should be combined with h.

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Section	Page & line number	Comment
Section 4	Page 21 Line 1	Standard Spec - mentions shown in plans or as designated by the Engineer.
Section 4	Page 24 Line 16	This is confusing; Rain Gardens are a Bioretention option in the 2012 Manual. I recall the Manual actually deletes the rain garden reference with a replaced bioretention reference (Appendix III-C Vol 111 section 7.9 page c-18 of Nov. draft
Section 4	Page 24 Line 22	The following comment refers to all BMP T5.13 references. The amended soil mixing is not particle on steep slopes such as 3:1 or steeper. I believe a compost blanket with seed fertilizer and much is a more practical approach.
Section 4	Page 24 Line22	In rural roadway reconstruction or widening projects even though the vast majority of lots are greater than 5 acres there are typically some exceptions of smaller lots.
Section 4	Page 25 Line 12	I am not too sure what consider means? I disagree with the order of consideration. I would put rain gardens (bioretention) before permeable pavement. The Manual requires permeable pavement to be modeled as lawns, which means to me that you need swales/ bioretention anyway. If the native material is good for infiltration the minimum (or close to) 2' wide swale (Rain Garden) may be enough for treatment and flow control (example Duterrow) without the added expense of porous pavement plus the overall maintenance is less.
Section 4	Page 25 Line 34	Main concern is need property particularly in C & D soils. typically rain gardens of Compost amended filter strips (CAFS) require less impact than dispersion.
Section 4	Page 26 Line 16	Chapter 7 volume V -Infiltration and Bio-infiltration Treatment Facilities has many examples versus the 5% of the total area conditions stated here? Do we use Chapter 7 Vol V? My understanding is the same facility may be designed for flow control in addition to treatment.

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Section	Page & line number	Comment
Section 4	Page 26 Line 33	Same comment as for Roofs 3.
Section 6	Page 35 Line 9	Public Works capital roadway projects almost always upgrade/widen existing pavements by the reuse of the pavement and its imported gravel bases. To switch to porous pavement would be a significant cost and public construction impact
Section 6	Page 35 Line 9	From a maintenance standpoint we have concerns of porous pavement creating increased maintenance costs. How to accommodate patching differently from regular pavement. How to manage our resurfacing program requiring different materials thereby impacting benefits of bidding for larger quantities. How pavement inspections/management will be made to compare the different pavement types.
Section 6	Page 35 Line 37	Road Maintenance should have significant exemptions
Section 8	Page 37 Line 3	Pollution Control Hearing Board directed DOE to require the use of LID tech. where feasible. There are instances where an LID BMP is either technically infeasible or not advisable for public health and safety reasons.
Section 8	Page 38 Line 19	Is cost a feasibility factor?
Section 8	Page 40 Line 9	at or near intersections
Section 8	Page 40 Line 16	In the LID Draft - noted that for residential construction the benefits are limited.