

**Letter of Intent to  
Submit an NPDES Effectiveness Study Proposal**

*All fields must be completed*

1. Proposed Study Title: Analysis of Bioretention Media Blends to Improve Stormwater Runoff
2. Short Description of Proposed Study:

The project goal is to develop recommendations for new statewide guidelines for high-performance bioretention soil media (BSM) that meets the following objectives: reduce contaminant flushing; meet Washington State Department of Ecology's (Ecology) treatment objectives for total suspended solids, dissolved copper and zinc, and phosphorus; support plants; is affordable and available; and minimizes toxicity to aquatic organisms. This proposal will complete a two-part study. Phase I will assess bioretention soil media (BSM) components and initial blends and the second phase (proposed here) will complete the study by more thoroughly evaluating media blends selected based on Phase I results. The first phase of this study is in progress and funded by Department of Ecology through the 2016-17 Grants of Regional and Statewide Significance (awarded to Kitsap County).

2. What specific Stormwater Management Program condition(s) or other permit condition(s) in the NPDES W. WA. Phase I and/or Phase II Municipal Stormwater Permit does your study address?

Phase I Permit: NPDES W WA Minimum Requirements #5, #6 and #7

Phase II Permit: NPDES W WA Minimum Requirements #5, #6 and #7

3. How will this study inform, assess effectiveness and/or support implementation of the specified NPDES permit conditions (e.g., project goal) and future permit conditions?

The current NPDES Permit requires low impact development (LID) as the first option where feasible to manage stormwater. Bioretention is the most versatile and applied LID practice and is an effective tool for flow control and for reduction of some pollutants (e.g. zinc, hydrocarbons and likely bacteria). However, research (regional and national) indicates that the current bioretention media specification containing compost exports high concentrations of phosphorus, nitrogen and copper. This study will complete on-going research to develop high-performance BSM that significantly reduces nitrogen, phosphorus, and copper export, meets specified pollutant capture objectives and protects aquatic organisms. As a result, bioretention can be applied more broadly and effectively to meet stormwater management objectives for municipal and industrial permittees and special conditions such as phosphorus-sensitive basins (e.g. Lake Whatcom).

4. What are the anticipated measurable outcomes or deliverables of this proposed study?  
Primarily, the outcomes and deliverables will be recommendations for new Washington State specifications for high-performance bioretention media. These specifications will describe bioretention media that reduce pollutant flushing, provide specified pollutant capture performance and protect aquatic organisms. Additionally, this project will provide comprehensive testing of BSM components and blends. As a result, new metrics that more accurately describe BSM will be developed and available statewide.

5. How does this study advance regional understanding for stormwater management?

Bioretention continues to be widely applied across Washington State; however, significant questions remain concerning the development of high-performance BSM necessary to protect sensitive receiving waters and how to reliably specify these media. Collectively, Phase 1 and 2 of this project will increase the regional understanding of how different BSM blends perform with respect to contaminant leaching, contaminant removal, preventing aquatic toxicity, and supporting plant growth. In addition, physical and chemical characteristics of media components and blends will be described to provide the basis for media specifications and to more reliably predict performance of stormwater facilities using BSM.

6. Applicant(s) Contact Information:

Name: Jenée Colton

Organization: King County Department of Natural Resources and Parks

Phone: 206-477-4075

Email: [jenee.colton@kingcounty.gov](mailto:jenee.colton@kingcounty.gov)

7. Permittees you are coordinating with (Provide contact information):

City of Redmond (Andy Rheume, [ajrheume@redmond.gov](mailto:ajrheume@redmond.gov), 425-556-2741)  
Kitsap County (Chris May, [cmay@co.kitsap.wa.us](mailto:cmay@co.kitsap.wa.us), (360) 337-7295)  
City of Tacoma (Dana de Leon, [ddeleon@cityoftacoma.org](mailto:ddeleon@cityoftacoma.org), (253) 502-2109)  
City of Seattle (Shanti Colwell, [Shanti.Colwell@Seattle.Gov](mailto:Shanti.Colwell@Seattle.Gov), (206) 386-1501)  
Thurston County (Mark Maurer, [maurerm@co.thurston.wa.us](mailto:maurerm@co.thurston.wa.us), (360) 754-2968)  
Department of Ecology (Douglas Howie, [doho461@ecy.wa.gov](mailto:doho461@ecy.wa.gov), (360) 407-6444)

8. Select Stormwater Work Group study category (select all that apply):

- |   |                                    |   |
|---|------------------------------------|---|
| <input type="checkbox"/> Source Control | <input type="checkbox"/> Retrofits | <input type="checkbox"/> Education & Outreach |
| <input checked="" type="checkbox"/> LID | <input type="checkbox"/> O&M       | <input type="checkbox"/> Other:               |

Submit LOI to Brandi Lubliner (WA Department of Ecology) via email at [Brandi.Lubliner@ecy.wa.gov](mailto:Brandi.Lubliner@ecy.wa.gov)