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February 13, 2015

Adam Fischer  
Orange County MS4 Permit Liaison  
Santa Ana Regional Water Quality Control Board  
3737 Main Street, Suite 500  
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**RE: Comments on draft order R8-2015-0001**

Dear Mr. Fischer,

Thank you for the opportunity to comment on the second draft of the Orange County MS4 Permit. This permit clearly establishes a post construction BMP selection hierarchy that appropriately prioritizes runoff reduction approaches but also allows the flexibility to use biotreatment BMPs where retention is infeasible. Where neither full retention nor biotreatment of the water quality flow rate or volume is feasible, treatment controls are allowed in combination with off-site LID based controls. This approach is not new, however the current draft gives some much needed clarity regarding the selection and design specific BMPs.

**Structural Treatment Control Performance**

Section X.II.D.15 requires that Structural Treatment Controls either be designed to conform to accepted design standards, or have their performance demonstrated in field testing following a recognized protocol. This addition should prevent specification of undersized public domain BMPs which in the past have been constructed using questionable materials or shoehorned into site designs in ways that don't allow typical hydraulic loading rates or flow patterns and can lead to poor performance.

Biotreatment design in particular is an emerging science. For example, recent research has shown that bioretention media blends using compost amendments can have an extended washout period of where nutrients and dissolved metals leach from the media and produce a net increase in effluent loads. Maintaining hydraulic capacity through the media and mulch layer over time can also be a challenge as mulch degrades and sediment accumulates on the media bed surface. Construction stage issues like inferior material sourcing, excessive compaction and failure to protect systems from construction stage runoff can also cause rapid failure. These are not insurmountable problems, but as guidance documents are updated, they do need to be considered and structural treatment controls constructed to comply with this permit must follow that new guidance.

Section X. II.D.15 should also prevent the specification of innovative and/or proprietary BMPs that have not been tested following a robust testing protocol like the "Technology Assessment Protocol – Ecology" (TAPE) which is part of the Washington State Department of Ecology's emerging technology evaluation program and can be applied to both public domain and proprietary BMPs. During the current permit term performance documentation requirements for proprietary biotreatment systems have varied widely at the plan check level. Some cities accept promotional brochures with exceptional performance claims and extreme hydraulic loading rates at face value, while others require performance verification through the TAPE program. Establishing a requirement for robust testing of BMPs prior to widespread

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installation is critical in ensuring that performance is as claimed and that operation and maintenance burdens are reasonable.

The draft permit also encourages innovation by providing a pathway for acceptance of nonconforming BMPs in Section X.II.E, which allows installation of up to 3 innovative BMPs for the purpose of evaluation.

#### **Baseline performance standards for pretreatment BMPs**

There is no baseline performance standard for pretreatment controls upstream of infiltration in the current draft. Setting one would be a helpful since these BMPs do not need to have high or medium effectiveness for pollutants of concern on site. Their role is primarily to protect downstream BMPs from failure due to occlusion with fine sediment and trash, and to intercept spills prior to infiltration. The Washington State Department of Ecology (Ecology) has awarded Pretreatment General Use Level Designations to several treatment systems that are designed for this purpose<sup>1</sup>. Ecology also has a Basic Treatment Standard that requires removal of finer particles. The New Jersey Department of Environmental Protection has developed laboratory testing protocols for hydrodynamic separators and media filters that are designed to establish sediment removal rates<sup>2</sup>. Requiring that proprietary pretreatment BMPs be sized consistent with their approved flow rates from these programs would ensure that pretreatment BMPs are adequately protective. This change should be made in section X.II.J.

#### **Baseline performance standards for treatment prior to discharge to a regional BMP**

In the current draft there is no baseline performance standard for treatment of runoff that is discharged to an off-site BMP. Section X.II.H.5 appears to waive the requirement that non-LID treatment controls be designed to remove pollutants of concern prior to discharge to an off-site BMP. This last sentence of this section should be amended to require treatment of runoff with BMPs that have medium or high effectiveness for pollutants of concern prior to discharge from a site to a regional facility. Similarly, it should be clarified in section X.II.K (Off-Site Structural Treatment Control BMPs: Regional and Sub-Regional Facilities) that runoff discharged to a regional BMP must be treated on-site with BMPs with medium or high effectiveness for pollutants of concern on site.

#### **Rainwater Harvesting Demand**

The draft permit gives new emphasis to rainwater harvesting. However, feasibility requirements in section X.II.K (Specific Requirements for Harvest and Use LID BMPs) are unnecessarily stringent and should be changed. Irrigation with harvested water in excess of the agronomic demand should be encouraged, provided that it does not create runoff. This can dramatically increase the drawdown rate for rainwater harvesting systems since very little landscape water is required for plant vitality within 48 hours of a storm. Application of harvested water at half the combined ET and infiltration rate of the irrigated landscape should be considered in demand calculations performed in the feasibility screening process.

#### **Summary**

Overall, this draft makes some important steps forward in requiring more robust and consistent post-construction BMP selection and design routines. A pathway for innovative BMP testing and approval is

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<sup>1</sup> <http://www.ecy.wa.gov/programs/wq/stormwater/newtech/technologies.html>

<sup>2</sup> <http://www.njstormwater.org/treatment.html>

also given. These changes will help to ensure that BMP performance is consistent with expectations. Adding baseline performance requirements for pretreatment upstream of infiltration and for treatment of runoff prior to discharge to regional facilities will ensure that all Structural Treatment Controls are effective. Finally, a simple change to allow application of harvested water to landscapes at a rate that can be evaporated or infiltrated without runoff will boost rainwater harvest in the region. I hope that you will make these changes to the next draft of the permit.

Sincerely,



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