

June 20, 2014

Adam Fischer, MESM
Santa Ana Regional Water Quality Control Board
3737 Main Street, Suite 500,
Riverside, CA 92501

RE: ORDER NO. R4-2012-0175

Dear Mr. Fischer,

Thank you for the opportunity to review and comment on the draft Orange County stormwater permit. My comments are focused on Section XII which contains New Development requirements. Attached to this letter is a list of specific changes requested to make this permit more clear and effective. In addition, some of the main comments are elaborated on below.

Infiltration System Pretreatment

Pretreatment requirements for infiltration systems need to be strengthened to prevent spills from contaminating native soils and groundwater and to ensure that the infiltrative capacity of native soils is sustained for the life of the project. Unfortunately in many cases, we see that pretreatment to remove oil and grease, sediment and gross pollutants is given only token consideration and may even be eliminated in a short-term effort to reduce infrastructure costs. However, the cost of restoring systems that fail due to native soil occlusion by fine sediment and the risk to groundwater from not providing adequate spill protection in high risk areas is a long-term problem. This permit presents an opportunity to set a minimum pretreatment performance standard for high risk infiltration systems. Specifically, a reference to the Washington State Department of Ecology Pretreatment¹ criteria is suggested to ensure that a basic level of protection is provided.

Biotreatment BMP Design

Under the current permit, a wide variety of biotreatment system configurations have been specified for use where retention BMPs are infeasible. Conventional slow rate systems utilizing a combination of sand and organic media are common in the region and throughout the Western United States. Although precise gradation and composition specifications have been established for biomedial, recent research suggests that export of key pollutants including phosphorus, nitrogen and dissolved copper is common during establishment of the system meeting those specifications and may continue for a year or more². These performance questions, combined with construction sequencing and quality control challenges, and the relatively large area required for slow rate systems has led to innovation in compact biofiltration systems. These systems use engineered media that has been optimized and standardized to provide high infiltration rates, comparable pollutant removal to slow rate systems and to support robust vegetative growth. These systems are often designed at up to the equivalent of a 100 inch-per-hour infiltration rate and are commonly used in ultra-urban applications.

¹ Washington Department of Ecology. Program information available at:

<http://www.ecy.wa.gov/programs/wq/stormwater/newtech/index.html>

² Herrera Environmental Consultants, Inc. March 6th, 2014. "185th Avenue NE Bioretention Stormwater Treatment System Performance Monitoring". Prepared for City of Redmond, WA

These optimized systems should be allowed for use in Orange County only if their performance is similar or better than their slow-rate conventional counterparts. To ensure that only highly effective biotreatment systems are allowed, this permit should reference the Washington State Department of Ecology (Ecology) program for the evaluation of emerging technologies, "Technology Acceptance Protocol - Ecology" (TAPE)³. This program requires robust field- testing following a peer reviewed testing protocol during which performance on par with conventional biotreatment systems must be demonstrated. Where adequate sediment removal is demonstrated, a General Use Level Designation for Basic Treatment is awarded. Additional use level designations are available for phosphorus removal and dissolved zinc and copper removal. Requiring that high-rate biotreatment systems used in Orange County be sized per their Ecology use level designations would ensure that only the highest performing systems are allowed.

Rainwater Harvesting Feasibility

California is in a drought. While we are hopeful that this is a temporary condition, it is likely that pressure on our water supply will be increasing in the long term as the global climate slowly warms. Rainwater harvesting and infiltration to a usable aquifer are stormwater strategies that also have water supply benefits and are justifiably prioritized. A simple change that could make rainwater harvesting feasible on more sites in Orange County would be to allow a cistern to drain to a landscaped area at the maximum rate that would not produce runoff. Depending on the soil type, this may be far in excess of the agronomic demand as it would be dictated by the infiltration rate of the native soils. Essentially the landscape area would be operating at its full retention capacity during and within 48 hours of a storm event.

Thank you for considering these suggestions as well as the attached comments as you update the draft permit. Please let me know if you have any questions.

Sincerely,



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Director - Stormwater Regulatory Management

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³ Washington Department of Ecology. Program information available at:
<http://www.ecy.wa.gov/programs/wq/stormwater/newtech/index.html>

Suggested Changes
Draft NPDES NO. CAS 618030
Orange County MS4 Permit

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| Section | Proposed Change or Comment | Justification |
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| XII.D.3 | Please clarify that rainwater harvesting systems may retain water for longer than 48 hours as long as adequate volume is recovered in the cistern to retain the DCV within 48 hours. Alternatively, real time controls may be designed to release cistern water to permeable landscaping in excess of irrigation demand based on precipitation forecasting and in proportion to the expected runoff volume. | Integration of smart controls that are linked to weather forecasting can minimize potable water demand by holding and judiciously using treated runoff during dry periods. When rain is forecast, cistern volume can be recovered by discharging stored water to permeable landscape areas without generating runoff. |
| XII.D.14 | Please provide clarity on the requirement that BMPs "must be designed and constructed in substantial conformance with published and generally accepted engineering design criteria" for manufactured treatment devices. | The Washington State Department of Ecology program for the evaluation of emerging technologies, ("Technology Acceptance Protocol - Ecology" (TAPE)) and the New Jersey Department of Environmental Protection certification program for manufactured treatment devices are the two leading evaluation programs. Each program requires testing in the laboratory and/or field following a peer reviewed protocol. Performance results are also peer reviewed and based on these results specific design conditions are established for each BMP to ensure reliable performance. Adhering to these design and sizing conditions would be a more protective alternative to the standard guidance to "refer to manufacturers recommendations". At this time there is no comparable reference in California that provides the technology specific information needed by project proponents. |

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| XII.H.1.b | Please clarify that the rating of "high", "medium" and "low" levels of removal should be relative to approved LID BMP performance. | Several current and past Phase I stormwater permits in California require selection of BMPs with at least medium effectiveness for pollutants of concern. Since LID BMPs are approved as providing adequate treatment in sections F and G, alternative non-LID BMPs should provide similar water quality benefit. Any rating of BMPs should reflect the fact that some pollutants are more easily removed than others. For example, trash and debris removal targets should be much more stringent than targets for bacteria and nitrates. Also, BMP ratings and selection criteria must recognize the fact that optimum removal of all pollutants may not be possible simultaneously within a single BMP. For example, increasing organic content of filter media can improve removal of heavy metals and reduce toxicity but may reduce nitrogen and phosphorus removal. |
| XII.H.1.c | Please require General Use Level Designation for Basic Treatment by the Washington State Department of Ecology as a minimum qualification for manufactured BMP use. Furthermore, sizing should be consistent with Ecology use level designation such that the approved hydraulic loading rate is not exceeded during the design storm. | The Washington State Department of Ecology administers the Technology Acceptance Protocol - Ecology (TAPE) program in order to assess the performance capabilities and operation and maintenance demands of emerging technologies. A General Use Level Designation for Basic Treatment is only awarded for those technologies that achieve at least 80% TSS removal or less than 20 mg/L effluent TSS concentration in peer reviewed field studies. Additional use level designations may be granted for phosphorus removal or dissolved copper and zinc removal. Referencing Basic Treatment at a minimum would ensure that BMPs are reasonably sized and have demonstrated operational feasibility at the approved hydraulic loading rate. Simply requiring field data without specifying that it must be collected following a recognized protocol opens the door for the use of unreliable or incomplete field studies. Data collected under other peer reviewed field monitoring protocols for example the TARP Tier II protocol, Caltrans field monitoring protocol or the Sacramento stormwater quality partnership protocol would also produce reliable data. |
| XII.H.5 | At a minimum, BMPs selected for pretreatment prior to discharge to a regional or sub-regional BMP should have a General Use Level Designation for "Pre-Treatment" from the Washington State Department of Ecology. | Where no LID BMPs are proposed on site, a minimum level of treatment must be provided on-site to prevent exposure to pollutants as runoff travels to the regional facility. For example, trash and debris can be noxious as it decomposes and can be transported by wind and wildlife as it comes to rest in a conveyance system. |

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| XII.I | Please add a requirement that pretreatment BMPs be required upstream of infiltration BMPs to protect groundwater quality. For example, BMPs with spill capture capability should be required at sites at risk for spills including sites with average daily traffic counts greater than 25,000, gas stations, light industrial facilities, restaurants etc. | As currently written this section only requires pretreatment as necessary to maintain the performance of the facility. The performance of the facility could be reasonably interpreted as its ability to efficiently convey stormwater to subsurface soils. This requirement needs to be strengthened to protect groundwater from mobile pollutants. This can include nutrients, pesticides and other pollutants associated with conventional landscaping practices. |
| XII.J.1 | Please make it clear in this section that cistern volume in excess of the design capture volume does not need to be drawn down within 48 hours. | The intent of the draw down requirement is to provide adequate cistern volume to store the design capture within 48 hours of a storm. Additional volume may be stored for longer term potable water demand offset. |
| XII.K.2.c.ii | Reference to Section XII.J.1.b may be incorrect. | |