April 10, 2007

Mr. John H. Robertus
Executive Officer
San Diego Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123

RE: Draft Orange County Municipal Stormwater Permit

Dear Mr. Robertus,
Please accept these comments pertaining primarily to the requirements for post construction stormwater treatment contained in the draft Orange County Municipal Stormwater Permit. For your ease of reference, comments on specific permit issues and language are preceded by a bold heading indicating the relevant section and page number.

GENERAL COMMENTS
We support the emphasis on Low Impact Development (LID) as a management approach that is preferable in most situations. However, site design BMPs, which are the building blocks of conventional LID designs, are not adequately regulated in this permit. There are no requirements regarding pretreatment, performance, inspection, or maintenance for site design BMPs. This omission is inconsistent with the fact that these BMPs, particularly distributed small scale pervious areas receiving runoff from impervious areas, are be intended to perform significant pollutant removal and hydrologic control functions.

It is also important that treatment system engineers be given the flexibility to pursue innovative designs that meet the pollutant and runoff reduction goals of LID but may not necessarily follow the site design requirements currently contained in this permit. For example, a sensible alternative to the conventional site design based approach is to design systems with the goal of providing maximum pollutant recovery at the lowest cost. Following this approach, BMPs are selected for ease of maintenance and for their ability to remove and contain pollutants away from the natural environment so that they are prevented from cycling through the food chain and migrating through the water cycle.

This pollutant recovery approach recognizes that pollutants are inherently dangerous and should be managed similarly in the urban environment to the way they would be managed in an industrial setting. That means closing the loop by first eliminating pollutant sources wherever possible, then tracing the pathways of distribution, transformation and storage, and designing in steps along those pathways to collect and remove them. Ideally the same pollutants that we now dispose of in landfills like heavy metals, nutrients and hydrocarbons would be harvested and reused. That final step may be many years away, but the key is to avoid the slow buildup of toxins in our natural BMPs without a plan to deal with their eventual recovery.

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A pollutant recovery model might take an opposite view of multiuse and directly connected impervious areas from conventional LID design. Similarly to cluster development strategy, polluting land uses, especially those associated with vehicles, could be connected so that they are effectively flushed to a manufactured underground treatment systems which would also serve as a discrete reservoirs. Gardens, landscaping and natural areas would remain relatively unfouled by urban pollution, thereby protecting their value for multiple uses. This approach is recognizes that uses like recreation, habitat and aesthetic improvements may be incompatible with pollutant storage.

Ultimately, stormwater in Southern California must be managed as a resource that can be captured and reused to offset demand for potable water. One approach is to encourage infiltration on a regional scale so that groundwater supplies are replenished using conventional site design based development as described in this permit. Another approach is to connect impervious areas and to treat runoff from them using structural controls. Treated runoff is then captured in cisterns and reused on site for irrigation and other purposes where potable water is not required. This may be the ultimate Low Impact Development approach since it eliminates runoff, restores evapotranspiration rates and concentrates pollutants in a benign location where they are easily recoverable.

This permit should encourage such progressive approaches to runoff management by setting clear minimum performance standards for sites and watersheds and providing copermittees with the flexibility to meet those standards in the way that they deem most feasible.

SPECIFIC COMMENTS

Findings #11, Page 6

A pretreatment requirement should be added for infiltrating BMPs on sites with moderate to high pollutant loading. This is especially important on sites with high average daily traffic counts where automobile fluid leakage, tire and brake pad wear and pavement abrasion may clog infiltrating surfaces and contaminate soil and groundwater with pollutants like oil and grease, heavy metals and fine particulate matter. Areas with a high potential for spills of hazardous materials should also be designed with pretreatment so that spilled materials, especially oil, antifreeze, gasoline and other pollutants related to automobiles can be contained and recovered without impacting the natural environment.

Section D.2.f, Page 10

Please remove the phrase “to avoid standing water” from the second sentence which currently reads:

“However, proper BMP design to eliminate standing water can prevent the creation of vector habitat.”

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There are other ways of managing vector issues like eliminating access to standing water, using insecticide sprays and designing BMPs like wet ponds with reduced mosquito habitat and ample habitat for mosquito predators. Design of BMPs to eliminate standing water seems to leave only two types of BMPs as viable options: those that store pollutants on top of a filtering or infiltrating surface such as bed filters or bioretention cells; and those that include a drainage orifice at the bottom of the structure such as a dry detention basin.

On all but the cleanest sites, the first option is problematic. Infiltrating or filtering surfaces will become plugged with sediment if it is allowed to accumulate on the surface. Pretreatment should be provided so that the majority of pollutants can be removed prior to filtration or infiltration. Many of the pretreatment technologies that provide trash, sediment and oil and grease removal prior to infiltration include sedimentation sumps and underflow baffles to remove floating materials. These are useful tools that would be prohibited by this requirement.

BMPs with orifices at or near the bottom may not effectively treat low and nuisance flows and will not remove floating pollutants. This makes them poor choices where spills or heavy oil and grease loads are expected. Trash and sediment accumulation may also plug the outlet orifice causing standing water. These devices also benefit from pretreatment.

Section D.1.c.2, Page 21

The requirement to "direct runoff from impervious areas into landscaping" may be problematic and should be removed or qualified. Routing flow from impervious areas through pervious features before discharge can endanger the functionality and safety of those features as pollutants like trash, sediment and oil and grease accumulate. Such an approach may also lead to erosion of natural surfaces at high flow rates.

The potential for scouring is compounded by the fact that small scale vegetated practices are typically distributed throughout sites, and may collect runoff from catchments with very short times of concentration. Rainfall records available for runoff models are most commonly collected at hourly intervals. This relatively long interval effectively depresses the peak recorded intensity for rainfall bursts that may create very high, but short duration runoff surges in small catchments.

Section D.1.c.6, Page 22

This section discussing infiltration and groundwater protection concludes with the disclaimer, "The restrictions are not intended to be applied to small infiltration systems dispersed throughout a development project."

Size of practice is an arbitrary criteria for requiring pretreatment and measures to protect groundwater quality. A more reasonable approach would be to base requirements on the magnitude and nature of the pollutant load expected from the surfaces draining to the infiltration systems. Such an assessment could be based on land use and ratio of impervious drainage area

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to infiltration surface area. For example, a relatively small infiltration BMP treating a large volume of runoff annually from a parking lot would be expected to accumulate pollutants more quickly and at a higher concentration than a larger centralized infiltrating BMP treating a pedestrian courtyard.

Section D.1.c.6.b, Page 22
This section states, "All dry weather flows containing significant pollutant loads must be diverted from infiltration devices." This section should be revised to make it clear that these flows may be infiltrated if they are treated to remove or reduce loads of pollutants that either are of particular danger to groundwater supplies, or impair the functionality of infiltrating BMPs. Distinction between the types of pollutants present would be helpful. For example nuisance flows are known to contain high concentrations of pollutants like bacteria, nitrates, orthophosphate and oil and grease. Of these pollutants, oil and grease is probably the most problematic for infiltrating BMPs since it can clog the filtering surface and inhibit healthy vegetative growth. The other pollutants are most feasibly managed by infiltration

Section D.1.d.4. Page 26-7
Sub-sections a, c.vi and c.viii contain requirements to disconnect impervious surfaces by routing runoff through pervious site features. As noted previously in comments on Section D.1.c.2 this guidance may be problematic and unnecessary. Assuming that the intent is to increase the time of concentration on a site and to decrease the total runoff volume, it would seem to make more sense to rely on clear hydromodification requirements to guide proper site design. For example, an engineer may recognize that impervious areas generate deleterious pollutants and may wish to avoid contaminating vegetated site areas with those pollutants. This is an especially important consideration where those vegetated areas are used for non-stormwater purposed like recreation, aesthetic benefits or wildlife habitat.

In such cases, it may make more sense from a health and safety and aesthetic perspective to directly connect impervious areas, and to direct runoff to a subsurface treatment device that will contain pollutants out of sight and out of contact with the natural environment. If this underground system is designed to incorporate sufficient infiltration or detention features such that the hydromodification performance targets are met, it should be considered to be at least equally suitable.

Section D.1.d.6, Page 27 footnote
The footnote reads, "Low impact Development (LID) and other site design BMPs that are correctly designed to effectively infiltrate, filter, or treat runoff can be considered treatment control BMPs.

First, the word "practices" or "site design BMPs" should be added after (LID) since LID is a design approach and can not accurately be considered to be a treatment control.

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Second, it is not clear how one would distinguish between an LID practice that is a treatment control BMP and one that is not. For example does "correctly designed to effectively infiltrate, filter or treat" mean that the site design practice must meet the numeric sizing criteria and have medium to high effectiveness for the most significant pollutants of concern in order to be considered a treatment control? This is important because treatment controls and site design BMPs are treated very differently in this permit.

For example, there is no requirement in this permit that site design BMPs be inventoried, inspected or maintained. In fact, if the "LID Site Design BMP Substitution Program" as described in section D.1.d.8 is implemented, entire sites may have no treatment controls whatsoever, and therefore no requirement that ongoing efficacy is preserved through inspection and maintenance.

Site design BMPs also do not have to be sized according to the numeric sizing criteria. They do not have to have medium or high effectiveness for pollutants of concern and there is no discussion of alternate performance criteria applicable to them. Therefore, it would seem to be difficult to establish design standards for them as is required, since design standards are typically developed to ensure that some specific level of performance is met.

As noted in comments on Section D.1.c.6 distributed infiltration practices do not require the same pretreatment and groundwater protection safeguards that centralized infiltration BMPs require.

The definition of "treatment control BMP" (Attachment C-9) includes "any engineered system designed to remove pollutants…" By this definition, all site design BMPs that remove pollutants, regardless of which ones or how much, could be considered to be part of the treatment control BMP system and would be subject to the tracking, inspection and maintenance provisions in this section. Is this the intent?

The lack of inspection, maintenance and performance criteria for site design BMPs seems to be an oversight, considering that they are intended to provide pollutant removal and hydrologic control functions, albeit at a level not necessarily satisfying the criteria in Section D.1.d.6.

Section D.1.d.6, Page 27

This section requires that BMPs be designed to "mitigate (infiltrate, filter or treat) the required flow rate or volume. This language seems to hold infiltration, filtration or treatment as equivalent mitigation strategies. This is inaccurate. Infiltration is superior to treatment by filtration or any other conventional method in that it eliminates runoff and pollutants from overland flow. The term "treat" is confusing when appearing with "filter", since filtration is one

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method of treatment. The current language implies that "treating" runoff is different than "filtering" runoff, yet there is no definition of what it means to "treat" runoff. It would be clearer to simply require that the 85th percentile design storm be treated with BMPs having a medium or high effectiveness for expected pollutants of concern.

Section D.1.d.7, Page 29
This section provides for the creation of a mitigation fund to be used in lieu of on-site treatment where on-site treatment BMPs are infeasible. This is an important tool that may be used to fund regional improvement projects that may be necessary for TMDL compliance.

Its utility would be improved by allowing off site mitigation to be pursued if that mitigation produces a greater environmental benefit than on-site treatment controls. For example, a copermittee may wish to design a regional treatment facility to address bacteria, dissolved metals, nitrates or other pollutants that require advanced treatment. Or, infiltration may not be feasible on site but may be feasible elsewhere within the watershed. Depending on the priority pollutants and the area, regional controls may prove to be more feasible. As long as waters of the United States or the State are not used to convey pollutants to a regional treatment system, this should be allowed.

Section D.1.d.8, Page 30
This section contains no performance requirements for site design BMPs other than to say that the program must "clearly exhibit that it will achieve equal or better runoff quality…" More specific performance criteria would be helpful to guide the development of site design BMP design criteria.

Section D.1.f.1.c, Page 32
Inspection of treatment controls by parties other than the copermittees should be allowed provide that the copermittees receive inspection and maintenance reports that are adequate to gauge compliance with this order.

Section D.1.h.5.a.iii, Page 36
Literally matching pre and post development hydrographs is very difficult if not impossible. It would be clearer and more reasonable to require that the peak flow rate and runoff volume not be exceeded for a range of return periods from the 1 year to the 10 year.

Section D.3, Page 46
In this section, copermittees are instructed to identify and inventory potential pollutant sources from existing developments and to designate minimum and enhanced BMPs for these areas. These BMPs are intended to meet the same goals set for BMPs for new development, namely the reduction of pollutant discharges to the MEP, and the attainment of water quality standards. Copermittees are further required to implement, or require the implementation of these BMPs.

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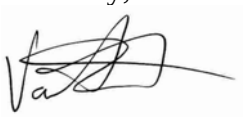
Although no time line is given for implementation, it would seem that this section creates a requirement that all existing development be retrofitted to include whatever BMPs are necessary to result in the attainment of water quality objectives, including treatment controls and site design BMPs. Is this the intent? Are there timelines that apply other than TMDL implementation targets? Is it intended that these BMPs will include structural practices?

Thank you for the opportunity to raise these questions and issues. I look forward to changes in the next draft of the permit.

Sincerely,



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