



Draft Stormwater Manual Issues Going Toward Adoption

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■ Applicability of the Permit MRs to Areas Not Draining to the MS4

Issue

The permit clearly exempts areas not draining to the MS4 from the standards of Appendix 1. How does the county chose to address this policy and legal issue?

Stakeholders

This issue could affect many development projects or home building projects in Clark County. It also influences how development projects are reviewed for compliance with the permit.

Considerations

Supporting arguments for consistent standards could include requirements of other environmental mandates and the level of protection each mandate requires. Including the cited mandates in the ordinance recitals could highlight relationships.

- State rule authorization under Chapter 173-218 WAC requires the county to apply its stormwater management program to areas draining to its dry wells systems. The program includes adoption of the Permit's stormwater manual requirements.
- Clark County currently applies the same standards to all projects in the UGA. Thresholds are slightly different in rural areas for projects not draining to the MS4.
- The 2013 phase NPDES permit requires counties to develop (for future implementation) watershed scale stormwater plans. Clark County is creating a plan for Whipple Creek that will be submitted to Ecology in 2016. The permit states the plan objective as identifying stormwater strategies that will result stream conditions that support designated uses. This translates into preserving or creating forested watershed stream hydrology during development. Allowing projects in developing urban areas to be built to a lower standard for flow controls will create a flow control deficit that will need to be addressed in the watershed scale plans and future stormwater retrofit programs.
- SEPA – Requires the applicant to mitigate impacts from the project. This is a dynamic standard as science improves but is related to the project impacts, not a mandate to restore designated uses under state water quality law (i.e. forested hydrology).
- GMA standards – The Growth Management Act requires the use of Best Available Science to protect critical areas. Critical areas include surface water and groundwater. Arguably, the Ecology manual is best available science applied to mitigating the influence of development projects' stormwater discharges to wetlands and streams.
- ESA Salmon Recovery Plan adopted by Clark County – **Measure S.M12**. "Protect and Restore Runoff Processes" discusses the importance of using on-site infiltration and stormwater retention measures included in the SWMMWW without specifically mentioning the SWMMWW. Once again, it can be argued that Ecology's stormwater manual is best available science for stormwater controls that protect fish habitat at the project site scale. It's likely though that encouraging and allowing LID through voluntary measures at the site scale would support salmon recovery goals.

Salmon Recovery Plan Measure S.M12 States: “Runoff preservation and restoration on developed lands includes storm water retention/infiltration measures, urban storm water BMPs (e.g. pervious pavement, on-sight runoff control, living roofs, etc.), reductions in watershed imperviousness (e.g. fewer hard surfaces, more natural vegetation, less compacted soils), and changes to uniform building codes and development regulations (UBCs and the Fire Marshall often require excessive paving, wide roads and cul-de-sacs, and place restrictions on alternative low-impact building methods).”

- WRIA Plan adopted by Clark County in 2006. **Policy SFP-10 states:** “Clark County, Cowlitz County, and the Cities of Vancouver, Camas, Washougal, and Battle Ground should continue to carry out their legally mandated responsibilities with regard to stormwater management.”

The plan also calls for stormwater practices that result in stormwater infiltration that improves summer base flows.

Having multiple standards does not provide equitable treatment under the county code with no legal reason other than some are draining to the MS4.

Applying existing site land cover for flow control design in the rural area will result in “predeveloped” land cover as pasture or forest in almost all cases where greenfields are developed. This is close to the flow control standard of the manual and arguably will retain stable stream channels, if not restoring forested hydrology.

Options

- 1) Apply a separate standard (e.g. flow control to existing conditions and voluntary LID) to areas where stormwater does not drain to the county MS4. As a simple approach, the manual could have a separate set of minimum requirements for projects that do not drain to the MS4. This requires each project to provide documentation that the site does not drain to the county MS4, which would be in the form of a stamped engineering report or letter.
- 2) Apply the same standards to all sites regardless of whether they are regulated by the county NPDES permit.

Recommendation

Considering equity issues, ease of implementation and county responsibilities under state rules and adopted plans, and future permit requirements to develop and implement watershed scale stormwater plans, Clark County should strongly consider applying the same standard (all MRs in the permit) for all areas.

■ Public or Private Residential Subdivision Facility Ownership

Issue

Developers of residential subdivisions currently have the option of dedicating stormwater control facilities to the county or placing them in the ownership of an HOA and making them subject to county inspection and maintenance standards.

Stakeholders

The groups most affected by the cost for long-term facility maintenance will be subdivision homeowners and Clark County.

Considerations

- The cost to maintain stormwater control facilities is significant, for example about \$2,000 per year on average. The cost to inspect and regulate them is a fraction of that (Approximately \$300 per year per facility).
- It is clearly less costly to the county to require facilities be privately maintained.
- Policy makers have come down on both sides of this issue, seeing benefits and problems with private residential facilities, balancing county cost savings against the fact that many small HOAs are poorly equipped to manage one or more stormwater facility.
- Allowing private ownership of residential facilities provides more flexible design standards for integration into natural landscape (county facilities must be on a separate tract and fenced).
- Private ownership has an increased risk of NPDES permit non-compliance due to missed maintenance deadlines. Ensuring maintenance compliant stormwater facilities (and hence NPDES permit compliance) is easier when the county owns a facility and has ready access to the facility.
- Under current standards for private facilities, HOAs are sometimes not formed, dissolve after formation, or are poorly equipped to manage stormwater facilities. This is included as a separate issue to be addressed as the manual is finalized for adoption.

Options

- 1) Continue current policy of developer choice for residential subdivisions, perhaps with an associated connection fee for facilities dedicated to the county to operate.
- 2) Require all residential subdivision facilities to be dedicated to the county, again perhaps with a connection fee.
- 3) Require all treatment and flow control facilities not located in the public ROW to be privately owned, consistent with the current policy for commercial and multifamily projects.

Recommendation

- Retain the option to make residential stormwater facilities private.
- Improve the program by requiring HOA formation at plat
- Update the stormwater code to require formation of an HOA and recording a user-friendly maintenance manual as part of plat recording. Make the owner of the largest number of lots responsible for ensuring compliance during the home building phase.
- Consider development of a connection fee for all facilities, with a smaller fee for private facilities.

■ Financial Criteria for Infeasibility for LID-Mandated Lists

Issue

The state manual does not allow LID BMPs to be infeasible due to excessive cost.

Stakeholders

The primary stakeholders for creating financial criteria for LID infeasibility are people who propose projects for sites where LID is technically feasible but for some reason, it is nearly impossible to fit into the project design. For example, a project where there is nearly 100 percent building coverage. These could be urban retrofit projects without parking.

Current Status

Staff has developed draft language to add to the manual to state that a fraction of the total project cost, such as 30%, for LID BMPs as an economic infeasibility criteria. Risk of Ecology rejecting the provision without significant supporting documentation is high.

■ Bioretention Facility Setback Waivers

Issue

The county goal is to have bioretention facilities and other stormwater facilities in the public ROW to the extent possible. Building setback requirements from the ROW may result in a situation where widening the ROW to include a bioretention facility may create problems meeting standard building setbacks and maximizing the number of building lots in a subdivision.

Recently, projects have proposed placing a part of a bioretention facility on a private easement and the remainder on ROW to conform to lot setbacks. Setbacks are specified for each zoning type in Title 40 and setback exemptions are in Chapter 40.200.070.

A partial exemption from the standard ROW setback for bioretention facilities would be an incentive to use them.

Stakeholders

Stakeholders include project developers, design engineers, ultimate home owners, Public Works who operate ROW, and the Clean Water Program who will own the bioretention facilities.

Considerations

- The SWMMWW and the draft county manual do not specify building setbacks for bioretention facilities, leaving this to the designer.
- Bioretention facilities are generally part of a landscaped area, making it reasonable to give them an exemption from building setbacks.
- Using ROW for bioretention with standard setbacks will influence lot size calculations possibly decreasing the number of lots because the area dedicated to ROW will be larger.

Options

- Do nothing, leaving the current setback.
- Determine a reasonable ROW setback reduction for bioretention facilities and add it to the Chapter 40.200 and reference that chapter in Chapter 3 of Book 1.

Recommendation

Discuss this issue with stakeholders and planning staff to identify the appropriate setback exemption. Initial discussion with planning staff suggests that a setback reduction is a reasonable approach to provide incentives for bioretention.

■ Lot Plans and Facility Construction for Non-Residential Subdivisions and Site Plans

Issue

Under 40.385, non-residential subdivisions may have stormwater facilities built in several ways:

- Stormwater facilities completely control for lot or building pad build out as part of the subdivision development project
- Stormwater facilities partially control for lot build or building pad build out as part of the subdivision project and building projects are required to add controls for deficit
- Stormwater facilities control for none of the lot or building pad build out project impacts

There is a concern about the status of projects where lots or building pads are created as part of a stormwater plan that expects development projects on each lot or building to build stormwater controls at some level. The possibility that a lot or pad could remain unbuilt for a number of years, raises concern about whether a vested stormwater design will be compliant under future NPDES permit standards.

Stakeholders

Clark County, developers of commercial subdivisions where stormwater controls are not fully provided for each lot, and subsequent owners of lots may have approved designs that no longer meet standards.

Considerations

- With LID mandatory and integral to the development of each individual lot and its landscaping, it is likely that some commercial developments will leave the LID BMPs to the individual lot development, giving rise to projects where lots are created with partial stormwater controls built as part of the subdivision project.
- Strictly reading the permit (Appendix 1 definitions) suggests that any new development project is subject to the current permit and that construction or installation of a building is a new development project.

Possible Actions

Require that all projects record the stormwater engineering plans along with a statement that the site plans are intended to meet the stormwater requirements of the County's NPDES permit in place at the time of project vesting and that later construction or development may have additional requirements if an application is under a later NPDES permit.

■ Level of Submittals for LID at Preliminary Plan

Issue

There was discussion at Technical Advisory Committee meetings regarding the level of information needed to demonstrate a project using LID is feasible at preliminary approval. Since BMP feasibility depends on geotechnical investigation and other site conditions, these investigations need to be completed to provide a high degree of certainty that the proposed LID BMPs are feasible or the LID performance standard can be met. Depending on site conditions, the applicant may need a fairly detailed site plan that requires geotechnical evaluation of each LID facility location.

Stakeholders

Stakeholders include project developers, design engineers, and engineering review staff.

Status

The manual is designed to provide adequate information for a preliminary plan but some sites may need more detailed geotechnical investigation to avoid unpleasant surprises at final engineering plan. A full geotech investigation and more detailed plans will be needed at preliminary design for sites where site conditions may make some BMPs infeasible or for projects attempting to meet the LID performance standard on marginal sites.

Recommendation

Review this issue with the TAC to assess whether additional requirements are needed for the preliminary plan or whether to allow the design engineer to decide what, if any additional studies are needed to meet the manual LID design needs.

■ Allowing BMPs from other Approved Manuals

Issue

This is another issue raised by TAC members. Should the county consider accepting public domain BMPs on a case-by-case basis but not allow proprietary BMPs outside of the criteria in Book 1, Chapter 6 of the county's stormwater manual? King County has an alternative to the standard LID lists of MR #5, but maybe not BMPs. Seattle has no BMPs that are not in the county manual.

Stakeholders

Stakeholders include project developers, design engineers, private facility owners, Public Works who operate ROW, and the Clean Water Program who will own facilities.

Recommendation

- Have TAC identify specific BMPs from approved manuals that they believe should be included in the county manual.
- Have OTAK review Ecology-approved manuals for BMPs to consider in the county manual.
- Avoid manual language that generically allows BMPs from other approved manuals because it requires the use of multiple manuals.

■ Adequate Construction Inspection for LID Features

Issue

County projects such as roads and parks where the county is the client are subject to a high level of county inspection, including testing and certification of performance and materials. Private projects that build public right of way or private are not inspected by the county during construction to verify items such as proper compaction for permeable pavement. The lack of county construction inspection raises concern at Public Works about the lack of construction documentation.

Stakeholders

Stakeholders include project developers, project construction companies, construction management engineers, ultimate site owners who maintain permeable pavement, Public Works who operate ROW, and the Clean Water Program who must ensure stormwater facilities operate as designed.

Options

There are two general options to provide higher levels of verification of construction quality control. One is to require documentation be provided by the applicant to demonstrate and certify that the BMP is properly built. The other option is to treat BMPs in ROW as county projects and require sufficient fees to cover county engineering inspection. An administrative approach could allow either method with the applicant deciding on the preferred alternative.

Recommendation

- This is another issue where the TAC and DEAB can provide useful input. Public Works should also be involved in decision making on this issue.
- This issue requires further review to: 1) describe the level of inspection needed to verify proper construction of LID BMPs and 2) make a determination of the preferred administrative approach to attain the needed level of inspection.
- To document the level of inspection needed to verify proper construction, Public Works design engineers and construction inspection staff should be consulted on their current practice for BMPs used on public projects. The state LID manual should be reviewed for any construction inspection standards.
- Several tasks and considerations would need to be addressed:

- If the county performs construction inspections, there will need to be a project to research and establish the inspection fees. Managing the shift of liability for failure from the developer to the county is another consideration here.
- If the developer performs construction inspections, a certification system will need be established. In this case, the certifying engineer would likely accept liability with conditions for items out of their control.
- Under either scenario failures may be difficult to manage, leading to a possible need for a robust performance bonding system.

■ Plat Recording Standards to Ensure Compliant Private Facility Maintenance, including Maintenance Manual Recording

Issue

There is a problem with private residential stormwater facility maintenance compliance due to the lack of an organized entity that collects revenue and performs maintenance. The primary source of this problem is subdivisions that lack of an active home owners association (HOA) that collects revenue to maintain facilities and performs the maintenance.

Stakeholders

Stakeholders include project developers who record plats, contractors who develop residential lots, ultimate subdivision residents who own stormwater infrastructure, and the Clean Water Program who must ensure stormwater facilities operate as designed.

Recommendation

- Structure the plat to identify each lot owner as jointly owning the facility and responsible for maintenance. Create the HOA at the time the plat is recorded, making the lot owners the members of the HOA and the owner of the largest number of lots responsible for collecting revenue and completing maintenance.
- Add covenant or plat language describing the county's legal responsibility to ensure maintenance under its NPDES permit and prescribing the county's legal authority to perform inspections, maintenance on non-compliant facilities and collect payment for maintenance. The language should include steps to collect payments for maintenance work completed by the county.
- Plat should include language that clearly state, in a manner buyers can understand, that buying a lot includes owning a stormwater facility and being financially responsible for its maintenance.
- The plat recording should include a plain-language stormwater facility maintenance manual that is not a copy of the Book 4 inspection standards. The final TIR includes the requirement for a maintenance manual but only references the maintenance standards in Book 4.

Status

Code and manual language needs to be changed.

■ Level of Off-Site Analysis

Issue

The NPDES permit is silent on any requirement to perform off-site analysis as a minimum requirement; however, the SWMMWW includes optional guidance in Volume I, Chapter 2, which is largely included in the county's manual as Chapter 7 of Book 1. The county's draft manual requires some level of off site analysis review for all projects triggering MR #1-#9.

Considerations

In the earliest state stormwater manual (1992 Puget Sound Manual), offsite analysis was a significant environmental requirement as an attempt to address obvious water quality problems in receiving waters.

Presumably, applying the 2014 SWMMWW is AKART and will protect receiving waters, leaving extending off-site analysis to receiving waters as unneeded.

In practice, off-site analysis of streams is infeasible due to limited access. Another significant consideration is inability tie stream impairments to mitigation on a proposed project that may connect to the MS4 a point far removed from the storm system outfall.

Status

The draft manual still includes requirements for assessing both drainage conveyance and in-stream problems related to hydrologic and water quality impairments.

Recommendation

Because the stormwater manual minimum standards are intended to fully control post construction stormwater impacts through the use of LID, treatment and flow control, off-site analysis for receiving water problems may not be needed. The simplest alternative is to focus on verifying conveyance capacity and managing erosion problems at outfalls. This would be a revision to the current draft to remove a focus on receiving waters.

■ Use of Right of Way for Buried Infiltration Systems (RESOLVED - Drywells and Infiltration Trenches)

Issue

In the past, it was common practice to place drywells and infiltration trenches in county right-of-way. This policy was discontinued in the early 2000's. The current code (40.385) allows "closed systems" in the ROW but does not define what they are, leading to confusion.

Resolution

The manual clarifies the use of Class V systems in the ROW, allowing UIC regulated facilities in the ROW (Section 1.9.2. County ownership of stormwater facilities).

■ Application of MR #7 to Wetland Discharges (RESOLVED)

Issue

The question of “why does the county apply MR #7 Flow Control to projects discharging to wetlands when wetland discharges are covered under MR #8?” was raised at stormwater manual update TAC meetings.

Status

The permit, under MR #7 states that discharges to wetlands that outflow to a stream trigger both MR #7 and MR #8. The discharge from the wetland must comply with MR #7 at the point of discharge to a stream.

■ Require Stormwater Site Plans for Individual Residential Subdivision Lots at Final Engineering (RESOLVED - in Book 1, Section 1.8.2)

Issue

Under the current approach to managing drainage controls on individual residential lots in subdivisions, engineers make a general specification for the type and sizing of infiltration trenches or drainage connections to the ROW. Builders on individual lots are left to create the stormwater site plan design required by county code and the NPDES permit.

Under the new manual, features such as rain gardens, infiltration trenches and permeable pavement will be mandatory for each residential lot where site conditions make them feasible. This increasingly complex stormwater site design requires skills generally beyond those of a typical building contractor. Also, site plans must contain sufficient detail to be useful for construction by the builder and inspection by county Building Inspectors.

Considerations

Having residential lot stormwater site plans with final engineering:

- Costs development project applicants more for engineering design
- Costs the home builder less for building construction site plans
- Creates additional plan materials for development engineering staff to review
- Reduces building permit plan review
- Improves customer service at permit center
- Provides builder/contractor customers a site plan they can use
- Provides building inspectors with clear, engineered site plans
- Engineered plans for residential lots will need some design flexibility to accommodate site conditions without redrawing stamped lot plans.

Status

The Permit in Appendix 1 section 3.1. (thresholds) specifically states that:

“The plat or short plat approval shall identify all stormwater BMPs that are required for each lot.”

The county’s draft stormwater manual Book 1 at Section 1.8.2 Final Stormwater Plan includes this requirement:

“For a subdivision, short plat, or commercial development on which individual sites or pads will be sold or built under different responsibility, an individual stormwater lot plan for each lot or pad showing the details of all stormwater plan requirements pertaining to and for each specific lot. The plan shall be to a scale that is readable as determined by the Responsible Official. [Note: subsequent construction on the lot(s) will require conformance to the submitted stormwater lot plan.]”

Remaining issues

- The language regarding site plans for each lot should also be placed in MR #1 Site Plans.
- Consider striking the word “commercial” from the manual to broaden the language to include any development project.
- A plan to implement this change will have to be part of any code and manual implementation plan.

■ Addressing Ecology Permit and Manual Revisions for PCHB Ruling, etc. (RESOLVED - in the 2014 Stormwater Management Manual for Western Washington)

Issue

Ecology will update the permit and the SWMMWW manual pursuant to an order from the Pollution Control Hearings Board following appeals of various permit conditions. Ecology published a draft permit for comment by October 6th and expects to have the permit reissued by the end of 2014, shifting the ability to draft final manual language to early 2015.

Changes to the permit and SWMMWW are largely driven by Ecology response to the PCHB decision, while some changes are made to clarify requirements or correct errors. Changes to the permit do not have an influence on the code and manual updates; however the changes to the SWMMWW materially change how the minimum requirements are applied.

The principle manual change is making permeable pavement only feasible for roads that have very low traffic volumes and areas of very low truck traffic. Other changes include specific language on designating areas where a LID BMP is infeasible (for example mapping septic system percolation testing to characterize areas where rain gardens are infeasible) and adding lengthy permeable pavement and bioretention maintenance requirements from the 2013 LID O and M manual (Herrera and Washington Stormwater Center).

Status

Ecology lists the manual changes in a 13 page table in Attachment B Statement of Basis for Modification to the permits. This table is used to track preliminary county responses to the proposed manual revisions.

On November 4, 2014, phase I permittees met with Ecology to discuss the approach to incorporating the 2014 manual changes. The decision was to have equivalence to the 2014 manual and extend code and manual equivalence negotiations into the first quarter of 2015.

■ Continued Development of a Local WWHM Model with Clay Soils Option (RESOLVED – Clear Creek Solutions contract work)

Issue

The Clark County calibration perlands mapped by soil unit, rainfall distribution and evapotranspiration rates are not currently approved by Ecology. The Ecology WWHM does not include clayey soils similar to those in parts of Clark County generally categorized as hydrologic soil group D.

Ecology requires further model calibration to verify the earlier calibration with a larger data set before the local model can be approved.

Status

Clark County has an Ecology-approved scope of work and to complete the validation and incorporate the results into the WWHM2012. Clear Creek Solutions, the contractor who developed the WWHM will complete the model validation required by Ecology and make updates to the WWHM to include the locally calibrated model parameters.

■ Allowing Bioretention Underdrains for Flow Control in Tight Soils

The Ecology manual does not allow any flow control credit for bioretention facilities with under drains. Bioretention is mandatory where soil infiltration rates are 0.3 inches per hour or greater. However, where infiltration rates are near the infeasibility limit, the risk of failure is a significant concern for designers and future bioretention facility owners.

Bioretention facility designers should be allowed to use elevated underdrains where soils approach the 0.3 inch/hr. infeasibility criteria and still meet MR #5. Recently published EPA guidance (841-R-14-004A • September 2014 in project resource docs file) suggests that nearly full retention can be attained for a particular design storm such as 1 inch in 48 hours through the use of storage in porous media in the bioretention facility and an outlet elbow.

Stakeholders

Stakeholders include project developers, design engineers, Public Works who operate ROW, and the Clean Water Program who will own the bioretention facilities and must ensure stormwater facilities operate as designed.

Status

The 2014 SWMMWW includes provisions for meeting MR #5 using underdrains.

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