



Date: September 17, 2008

To: Management Committee

From: Tom Dalziel, Assistant Program Manager
Dan Cloak, Program Consultant
Contra Costa Clean Water Program

Subject: Action Item A – ACCEPT the C.3 Implementation Work Group's Recommendation to Approve the Stormwater C.3 Guidebook, 4th Edition

Recommendation:

Accept the C.3 Implementation Work Group's recommendation to approve the Stormwater C.3 Guidebook, 4th Edition.

Background:

Stormwater C.3 Guidebook, 1st Edition

The Stormwater C.3 Guidebook, 1st Edition, was adopted by the Management Committee in January 2005. This original edition, along with a revised "Model Stormwater Ordinance," established a coordinated countywide approach for complying with the Provision C.3 rules, which the San Francisco Bay Regional Water Quality Control Board adopted in February 2003 as an amendment to the Contra Costa Joint Municipal NPDES Permit. The Management Committee's direction to develop, and decision to adopt, a countywide Guidebook emphasizing Low Impact Development was a significant achievement, which has now become a statewide model. The following key decisions made by municipal representatives participating on the various C.3 Work Groups in development of the 1st Edition Guidebook continue to guide C.3 implementation in Contra Costa County:

- Incorporate C.3 compliance review into municipalities' existing design review processes to the extent possible.
- Strive for countywide consistency in development application submittal and review procedures, as well as in technical requirements.

- Require applicants for planning and zoning approval to demonstrate their project will comply with C.3. In particular, site and landscaping plans must show how imperviousness will be minimized and must also show locations of all required treatment and hydrograph modification BMPs.
- Specify the format and organization of a “Stormwater Control Plan,” to be prepared and submitted by the applicant, which must contain all the information planning staff will need to confirm the project meets all C.3 requirements.
- Provide detailed, step-by-step guidance to applicants that will help them navigate the review and permitting process.

With the adoption of the 1st Edition Stormwater C.3 Guidebook, it was recognized and anticipated this guidance would necessarily need to be revised, modified and improved as new information, rules and circumstances dictate. To ensure each update has the necessary legal authorities for implementation, the “Model Stormwater Ordinance” defines the “Guidebook” as the most recent version of the Contra Costa Clean Water Program’s Stormwater C.3 Guidebook.

Stormwater C.3 Guidebook, 2nd Edition

In March 2005, the Management Committee approved the 2nd Edition Stormwater C.3 Guidebook. This edition incorporated, among other things:

- Appendix C: Infiltration Feasibility Guidance
- Appendix F: Guidance for Preparing BMP Operation and Maintenance Plans
- Appendix H: Contra Costa Hydrology Data and Nomographs
- Appendix I: Treatment BMP Sizing Spreadsheet
- Minor comments made by Management Committee members at the January 16, 2005 meeting.
- Municipal URLs providing a reader of the Guidebook online with a hyperlink to each agency’s web page(s) containing Appendix A and/or K.

Stormwater C.3 Guidebook, 3rd Edition

The Management Committee adopted the 3rd Edition Stormwater C.3 Guidebook in October 2006. The principal changes were to implement the Hydrograph Modification Management Standard. It also incorporated and referenced policies developed by the C.3 Implementation Work Group and adopted by the Program since the 2nd Edition (e.g., *Policy on the Use of Hydrodynamic Separators* (November 2005) and *Policy on C.3 Compliance for Subdivisions* (February 2006)).

With the Management Committee’s adoption of the 3rd Edition Guidebook, the C.3 Implementation Work Group reported additional revisions and improvements to the Guidebook were anticipated in the future such as:

- Potential refinements to IMP designs for practicality and space-efficiency.
- Design of the IMP underdrain outflow orifice, refinements to illustrations of IMP plumbing, and further refinements to IMP designs and design drawings in Appendix C.
- Designs and sizing factors for additional IMP configurations.

Proposed Final Draft Stormwater C.3 Guidebook, 4th Edition

The attached Final Draft Stormwater C.3 Guidebook, 4th Edition, incorporates and responds to input and recommendations provided by municipal planners and engineers, engineering consultants, landscape architects, and developers over the last two years. These updates and improvements have been reviewed and approved by the C.3 Implementation Work Group. Work Group members are recommending the Management Committee approve the 4th Edition Stormwater C.3 Guidebook at the September 17, 2008 meeting. **Note:** Action Item “B” proposes an outreach and training workshop for this 4th Edition on November 6, 2008 (see Action Item “B” for further details).

As indicated above, the C.3 Implementation Work Group has been tracking and discussing a variety of needed revisions and improvements since adoption of the 3rd Edition Stormwater C.3 Guidebook in October 2006. For example, in January 2007, the C.3 Implementation Work Group directed the Program’s consultant (i.e., Dan Cloak) to prepare a memorandum outlining “IMP Design Challenges” raised by municipal staff and development professionals. This memorandum provided the framework for the design charrette conducted by the Program in March 2007. The design charrette included municipal planners and engineers, consulting engineers, landscape architects, and developers. The focus of the charrette was to develop recommendations for improving the constructability, flexibility, and efficiency of the standard design Integrated Management Practices (e.g., planter box, in-ground planter, bioretention area, etc.).

With the recommendations and input from the charrette, the Program’s consultants (i.e., Phillip Williams & Associates (PWA), Brown & Caldwell Consultants (BCC), and Dan Cloak Environmental Consulting(DCC)) began an ambitious effort to develop, among other things, a new and more flexible approach to design of the Low Impact Development (LID) Integrated Management Practices (IMPs). This work was more rigorous and time-consuming than was anticipated; however, the Program’s consultants working under the direction of the C.3 Implementation Work Group were successful in developing a new design methodology that, in short, provides engineers more options in design of the IMPs and thus greater flexibility.

Further details on development and the features and benefits of the 4th Edition Stormwater C.3 Guidebook are provided in the following excerpts taken from a memorandum dated May 28, 2008 prepared by Dan Cloak to the C.3 Implementation Work Group:

Excerpt #1

“Some of the significant contributions and milestones leading to this point are:

- *A 4 January 2007 memorandum, “IMP Design Challenges,” identified key design issues which had arisen as land developers implemented earlier versions of the Guidebook.*
- *At a 7 March 2007 Operation and Maintenance roundtable, municipal co-permittee managers, attorneys, and engineers discussed ways to implement operation and maintenance verification, particularly for small residential subdivisions.*
- *Jorgen Blomberg of PWA led a group of municipal co-permittee planners and engineers, together with private sector engineers and landscape architects in a 29 March 2007 design charrette.*
- *In a 4 April 2007 memorandum, “Integrated Management Practices Charrette Follow Up,” I proposed the design issues identified at the charrette be grouped into (1) IMP configurations, (2) IMP details, and (3) IMP applications.*
- *During May and June 2007, I worked with PWA, BC, and the C.3 Implementation Work Group to develop and test new concepts for sizing IMPs based on surface and subsurface volume as well as surface area.*
- *The preparation of presentations on design and construction of LID facilities— at construction workshops in January and September 2007—created opportunities to identify and describe common design and construction errors.*
- *From May through November 2007, the C.3 Legal Work Group developed an updated model operation and maintenance agreement, model language for subdivision maps and model language for CC&Rs, and also developed guidance for municipalities for implementing O&M requirements during development review.*
- *From July through November 2007 BC and PWA worked to optimize the IMP concepts and designs and to develop appropriate sizing factors.*
- *A working draft of Chapter 4, “LID Design Guide,” was distributed to the C.3 Implementation Work Group for discussion and comment in December 2007.*
- *From January through earlier this month, I worked with Jorgen Blomberg of PWA to develop and refine additional illustrations for the LID Design Guide.”*

Excerpt #2

“Here are some of the most significant changes since the 3^d Edition:

- *Overall length has been shortened from about 200 pages to 154, including appendices.*
- *The discussion of the difference between construction-phase controls and post-construction controls has been consolidated into a sidebar on page 2.*
- *Discussion of policies related to the applicability of C.3., procedures for implementing, and special circumstances have been consolidated into Chapter 1.*
- *The table showing applicability of the C.3 requirements is now prominent on the opening page of Chapter 1 (p. 3).*
- *The entire process leading to C.3 compliance has been summarized in 9 general steps (pp. 4-5).*
- *The discussion of Alternative Compliance, formerly in Chapter 7, has been consolidated into a section of Chapter 1.*
- *Presentation of technical criteria (formerly in Chapter 5) has been consolidated with the technical background in the updated Chapter 2, “Concepts and Criteria.”*
- *In Chapter 3, ten “steps” have been consolidated into six, consequent with the expanded prescriptive detail in the LID Design Guide.*
- *Guidance related to coordination with site and landscaping design has been consolidated into the discussion of completing the Stormwater Control Plan (p. 29).*
- *Chapter 4 on CEQA has been eliminated. A sidebar on p. 5 directs the reader to the CCCWP C.3 web pages for guidance (e.g. “Guidance on Implementation of Provision C.3.m-Water Quality Review (CEQA)”).*
- *The design guidance has been completely revamped by consolidating portions of former Chapters 3 and 5, the “fact sheets” in former Appendix C, and the calculation procedure in former Appendix I all into the new Chapter 4.*
- *The new Chapter 4 provides coordinated guidance for analyzing a site for LID, sketching a preliminary LID design, and then analyzing the design and demonstrating compliance with a manual calculation procedure.*
- *Updated and much-expanded “design sheets” (renamed from “fact sheets” to be more descriptive) incorporate the results of the design charrette by providing detailed direction—accompanied by illustrations—for criteria (configuration of facilities), design details, and applications. The design sheets are now closely coordinated with the instructions and calculation procedure in Chapter 4.*
- *The new “design sheets” consolidate the former 7 IMPs into 4 IMPs, while creating additional flexibility in IMP configuration. For example, the guidance*

for dry wells, infiltration trenches, and infiltration basins has been consolidated into the "dry well" sheet, and the guidance for swales, bioretention areas, and in-ground planters has been consolidated into the "bioretention facility" sheet.

- *Discussion of operation and maintenance requirements from the former Chapter 3, Step 9, has been consolidated with the former Chapter 6 and former Appendix F into a new Chapter 5, "Operation and Maintenance of Stormwater Facilities," which also includes the guidance developed by the C.3 Legal Work Group during 2007."*

Ongoing C.3 Implementation Projects, and Future Guidebook Updates

The C.3 Implementation Work Group just initiated two new projects designed to further develop Contra Costa's LID approach: (1) the creation of drawings, sizing factors, and design criteria for two additional IMP configurations; and, (2) recommendations for selection of engineered soils, plantings, and irrigation design for bioretention facilities. The C.3 Implementation Work Group held a "kick off" meeting for these two projects on September 11, 2008. Completion of these projects is anticipated in early 2009. The products of these projects will be incorporated as addenda to the Guidebook, published on the website, and/or incorporated into a later edition.

The C.3 Implementation Work Group strongly recommends the Management Committee adopt the 4th Edition Stormwater C.3 Guidebook now, rather than wait for completion of these two projects. This decision was reviewed and affirmed by the Administrative Committee on September 2, 2008. The primary reason for release of the 4th Edition now is based on input from municipal engineers that private design engineers are eager to apply the new more flexible design methodology on current projects.

Fiscal Impact:

None.

Attachment(s):

1. Final Draft Stormwater C.3 Guidebook, 4th Edition

TD:DPF:kh
G:\NPDES\Management Committee\Packet\08 09\Sept 08\Act Item A Sept 08.doc