



## Local Exceptions & Requirements

The City of Vallejo consulted with Contra Costa Clean Water Program Staff and adopted the CCCWP Stormwater C.3 Guidebook and associated guidance for use within Vallejo. [Contra Costa Clean Water Program C.3 web page](#). An addendum to the Guidebook for use in the City of Vallejo is included in this Appendix.

### **EXCEPTIONS SPECIFIC TO THE CITY OF VALLEJO INCLUDE:**

#### **Vallejo Hydro Modification Management Plan**

- [Vallejo HMP Applicability Map](#)
- [Vallejo Final HMP](#)

#### **Vallejo “In Lieu” Treatment Approach**

Sometimes onsite treatment of runoff from the disturbed surfaces in your project is not feasible due to various site conditions. Some examples are:

- Existing drainage pattern
- Unsuitable location for IMP
- Frontage slope towards roadway (when driveway or sidewalk at project entrance is modified)

If this is the case in your project, you may choose an "in-lieu" treatment option, which in essence swaps the untreated onsite flow for an adjacent offsite flow. This prevents accumulation of untreated drainage downstream from the project location.

This is accomplished by these steps:

1. Calculate the disturbed area (in sq ft) that is not feasible to be treated onsite
2. Find an offsite area greater than or equal (in sq ft) to this untreated onsite area
3. Direct the runoff from this offsite area to enter the project site
4. Treat this offsite flow in a C.3 compliant facility

Be sure to include in the Stormwater Control Plan Narrative your explanation of the factors that have led to "in-lieu" treatment and how your design was performed.

**ADDENDUM TO  
CONTRA COSTA CLEAN WATER PROGRAM STORMWATER C.3  
GUIDEBOOK  
FOR USE IN THE CITY OF VALLEJO**



---

Purpose and Objective:

The Contra Costa Clean Water Program (CCCWP) has authorized the City of Vallejo to utilize the CCCWP's Stormwater C.3 Guidebook (C.3 Guidebook; <http://www.cccleanwater.org/stormwater-c-3-guidebook/>) to ensure compliance with Provision C.3 of the National Pollutant Discharge Elimination System permit (NPDES Permit No. CAS612008), also known as the Municipal Regional Permit (MRP). This addendum addresses differences in application and use of the C.3 Guidebook within the City of Vallejo. These differences pertain primarily to: (1) effective dates, (2) hydrograph modification.

With regard to hydrograph modification (flow control), the MRP requires a different hydromodification management (HM) standard for the City of Vallejo (and most other permittees) than for Contra Costa County permittees. The HM standard for the City of Vallejo is to ensure that post-project stormwater discharge rates and durations match pre-project discharges rates and durations from 10% of the pre-project 2-year peak flow from the project site up to the pre-project 10-year peak flow. For Contra Costa County permittees, the HM standard is 20% of the pre-project 2-year peak flow from the project site up to the pre-project 10-year peak flow<sup>1</sup>. This standard results in different sizing of IMPs in the City of Vallejo than in the C.3 Guidebook for projects that must provide treatment and flow control (sizing criteria for treatment-only projects is identical to the C.3 Guidebook). In addition, the MRP required Vallejo permittees to prepare a map of the City of Vallejo delineating areas where the HM standard applies based on specified criteria. This map and modifications to the IMP sizing for flow control are documented in the City of Vallejo's HMP.

Organization:

This memorandum will address the differences in use of the C.3 Guidebook by chapter for ease of use by applicants and their engineers and architects.

C.3 Guidebook Modifications Required for Use in the City of Vallejo:

**Table of Contents**

Appendix C. Refer instead to the City of Vallejo Final Hydromodification Management Plan (HMP) dated April 2013.

**Stormwater Glossary**

Note the following modified definitions.

C.3 – Note that unlike Contra Costa County permittees and other Bay Area municipalities, the City of Vallejo did not have C.3 Provision in its previous NPDES permit. Thus, Provision C.3 in the MRP is not an update to an earlier version but rather the first version of this provision for the City of Vallejo.

---

<sup>1</sup> Provisions C.3.g.i-iv include the general HM criteria for Alameda, Contra Costa, Fairfield-Suisun, San Mateo, and Santa Clara permittees. Provision C.3.g.v includes specific HM requirements for Vallejo permittees.

**ADDENDUM TO  
CONTRA COSTA CLEAN WATER PROGRAM STORMWATER C.3  
GUIDEBOOK  
FOR USE IN THE CITY OF VALLEJO**



HMP – Hydromodification Management Plan. The Final HMP for the City of Vallejo dated April 2013 and prepared by Geosyntec is available on the City website at <http://www.ci.vallejo.ca.us/common/pages/DisplayFile.aspx?itemId=41068>.

**Chapter 1**

Page 4: Refer to revised Table 1-1 below. Changes pertain to effective dates and in requirements for projects an acre and larger.

TABLE 1-1. THRESHOLDS, EFFECTIVE DATES, AND REQUIREMENTS (in order of increasing threshold).<sup>1</sup>

<i>Impervious Area Threshold</i>	<i>Effective Date</i>	<i>Requirement</i>
All projects requiring municipal approvals or permits (includes single-family residences)	December 1, 2010	As encouraged or directed by local staff, preserve or restore open space, riparian areas, and wetlands as project amenities, minimize land disturbance and impervious surfaces (especially parking lots) cluster structures and pavements, include micro-detention in landscaped and other areas, and direct runoff to vegetated areas. Use Bay-friendly landscaping features and techniques. Include Source Controls specified in Appendix D.
Projects between 2,500 and 10,000 square feet requiring approvals or permits (includes single-family residences)	December 1, 2012	Install one or more of the following: Direct roof runoff into cisterns or rain barrels for reuse; direct roof runoff onto vegetated areas; direct runoff from sidewalks, walkways, and/or patios on to vegetated areas; direct runoff from driveways and/or uncovered parking lots on to vegetated areas; construct sidewalks, walkways, and/or patios with permeable surfaces; construct bike lanes, driveways, and uncovered parking lots with permeable surfaces.
Auto service facilities, gas stations, restaurants, and uncovered parking lots over 5,000 square feet	December 1, 2011	Prepare and submit a Stormwater Control Plan as described in Chapter 3, including features and facilities to ensure runoff is treated before leaving the site. Evaluate feasibility of storage for later use. Use the LID Design Guide in Chapter 4, including sizing factors and criteria for “treatment only.”
All projects between 10,000 square feet and one acre <sup>2</sup>	December 1, 2010	
Projects an acre and larger <sup>2</sup>	July 1, 2013	Select one of three flow-control compliance options from City of Vallejo Hydromodification Plan (HMP). Where required, design project features and facilities for hydrograph modification management (flow-control) as well as stormwater treatment. Evaluate feasibility of storage for later use. Prepare and submit a Stormwater Control Plan as described in Chapter 3 and use the LID Design Guide in Chapter 4, but modify the sizing factors and criteria for “treatment and flow control” per the City of Vallejo HMP.

<sup>1</sup>Summary only. Requirements for any particular project are determined by City of Vallejo staff.

<sup>2</sup>Detached single-family homes that are not part of a larger plan of development are specifically excluded. For road widening projects, count only the impervious area associated with new traffic lanes.

**ADDENDUM TO  
CONTRA COSTA CLEAN WATER PROGRAM STORMWATER C.3  
GUIDEBOOK  
FOR USE IN THE CITY OF VALLEJO**



Page 8 – Compliance with Flow-Control Requirements. Changes pertain to all options except Option 1. Refer to revised Table 1-2.

TABLE 1-2. Options for compliance with flow-control requirements <sup>1</sup>

<i>What must be demonstrated</i>	<i>How applicants can comply</i>	<i>Stormwater Control Plan submittal requirements</i>
<b>Option 1:</b> No increase in impervious area	Compare the project design to the pre-project condition and show the project will not increase impervious area and also will not increase efficiency of drainage collection and conveyance.	Inventory and accounting of existing and proposed impervious areas, measures used to reduce imperviousness, and a qualitative comparison of pre- and post-project drainage efficiency.
<b>Option 2:</b> Integrated Management Practices	Use the design procedure and design criteria in this <i>Guidebook</i> , and the Program’s sizing tool, to select and size IMPs for flow control (also meets treatment requirements). Adjust IMP sizing results from a low flow discharge (0.1Q <sub>2</sub> instead of 0.2Q <sub>2</sub> ) using Table 4-1 from the City of Vallejo HMP and by dividing orifice diameter by 1.414.	Stormwater Control Plan and IMP Sizing Calculator output (Chapter 3) modified for 0.1Q <sub>2</sub> flow discharge.
<b>Option 3:</b> Post-project runoff does not exceed pre-project rates and durations	Use a continuous-simulation model and 30 years or more of hourly rainfall data to simulate pre-project and post-project runoff, including the effect of proposed control facilities.	Model parameters and modeling techniques are specified in Appendix C of the City of Vallejo HMP or by using the Bay Area Hydrology Model [BAHM] if Vallejo is added to the model. <sup>2</sup>
<b>Option 4a:</b> All downstream reaches are at “low risk” of erosion	Demonstrate that (1) the project is located in an area where the HM standard does not apply (purple, red, light blue, or dark blue areas) according to the HMP Applicability Map in the City of Vallejo HMP, or (2) all downstream channels between the project site and the Bay are enclosed pipes, are engineered hardened channels, are subject to tidal action, or are aggrading.	(1) Submit HMP Applicability Map with project location noted or (2) submit a report or letter report by an engineer or qualified environmental professional documenting drainage between the project site and the Bay or Delta.
<b>Options 4b and 4c:</b> Erosion risks are mitigated by in-stream restoration projects	Propose and implement appropriate in-stream restoration projects to fully mitigate potential risk.	Requires additional regulatory approvals. See Appendices C and D of City of Vallejo HMP.

<sup>1</sup> Summary only. Applicability to and requirements for any particular project are determined by City of Vallejo staff.

<sup>2</sup> Applicants conducting their own modeling (Option 3) should use the corrected rainfall data for Martinez (see Note B to Table 1 of Attachment 2 to the CCCWP HMP at [http://www.cccleanwater.org/Publications/HMP/CCCWP\\_HMP\\_Final\\_051505-rev041906.pdf](http://www.cccleanwater.org/Publications/HMP/CCCWP_HMP_Final_051505-rev041906.pdf)).

**ADDENDUM TO  
CONTRA COSTA CLEAN WATER PROGRAM STORMWATER C.3  
GUIDEBOOK  
FOR USE IN THE CITY OF VALLEJO**



**Chapter 3: Stormwater Control Plan**

Page 24. Stormwater Control Plan Checklist. Under Contents of Report:

- First bullet. In addition, state if the project is located in an area where the HM standard does not apply (purple, red, light blue, or dark blue areas) according to the HMP Applicability Map in the City of Vallejo HMP; include HMP Applicability Map with project location noted.
- Fifth bullet. Revise last sentence to state: Output from the IMP Sizing Calculator may be used (modified for  $0.1Q_2$  flow discharge by adjusting IMP sizing results from a low flow discharge of  $0.2Q_2$  to  $0.1Q_2$  by using Table 4-1 from the City of Vallejo HMP and by dividing orifice diameter by 1.414). Table 4-1 from the City of Vallejo HMP is repeated below for ease of use:

Table 4-1: Multiplication Factors to Adjust IMP Sizing Results from a Low Flow Discharge of  $0.2Q_2$  to  $0.1 Q_2$ .

Soil Type	Infiltrating BMP	Non-Infiltrating BMP
C	1.21	1.72
D	1.38	1.76

Page 27: Note that IMP sizing for flow control must be modified per Table 4-1 of City of Vallejo HMP.

**Chapter 4: LID Design Guide**

Page 41. Table 4-3 (Minimum Demand). For the City of Vallejo, use the Martinez rain gauge; it has a similar mean annual precipitation (20.2 inches) as that for Vallejo (20 to 26 inches) as shown by the isohyetal map of Vallejo (Solano County Water Agency, 1999) provided as Figure C-2 in City of Vallejo HMP.

Page 42. For paragraph beginning “If flow-control requirements also apply...”, adjust IMP sizing results from per Table 4-1 above.

Page 44. Mean annual precipitation for City of Vallejo can be found in Figure C-2 of the City of Vallejo HMP.

Page 52. Equation 4-3. Modify equation to include adjustment factor from Table 4-1 of City of Vallejo HMP.

**ADDENDUM TO  
CONTRA COSTA CLEAN WATER PROGRAM STORMWATER C.3  
GUIDEBOOK  
FOR USE IN THE CITY OF VALLEJO**



Equation 4-3:

$$Min.IMP\ Area\ or\ Volume = \sum \left( \frac{DMA\ Area}{Footage} \times \frac{DMA\ Runoff}{Factor} \right) \times \left( \frac{IMP\ Sizing}{Factor} \right) \times \left( \frac{Rain\ Adjustment}{Factor} \right) \times \left( \frac{0.2Q_2\ to\ 0.1Q_2}{Adjustment\ Factor} \right)$$

Page 54. Table 4-13. This table should be modified as indicated below for projects using IMPs to meet flow control requirements.

Table 4-13. FORMAT FOR PRESENTING CALCULATIONS of minimum IMP Areas and Volumes

<i>DMA Name</i>	<i>DMA Area (square feet)</i>	<i>Post-project surface type</i>	<i>DMA Runoff factor</i>	<i>DMA Area × runoff factor</i>	<i>Soil Type:</i>	<i>IMP Name</i>					
						<i>IMP Sizing factor</i>	<i>Rain Adjustment Factor</i>	<i>0.2Q<sub>2</sub> to 0.1Q<sub>2</sub> Adjustment Factor</i>	<i>Minimum Area or Volume</i>	<i>Proposed Area or Volume</i>	
<b><i>Total</i></b>											<b><i>IMP Area</i></b>
											<b><i>V or V1</i></b>
											<b><i>V2</i></b>
										<b><i>Orifice Size:</i></b>	

Page 55. Step 7: Compute Maximum Orifice Flow Rate. Do not use Equation 4-18. Equation 4-19 for the orifice diameter should be adjusted to account for a low flow discharge of 0.1Q<sub>2</sub> instead of 0.2Q<sub>2</sub> by dividing the orifice diameter by the square root of 2 (or, 1.414).

Equation 4-19.

$$Orifice\ Diameter\ (in\ inches) = 12 \times \sqrt{\frac{4 \times Orifice\ Area}{2\pi}}$$

Page 57. Table in IV (Areas draining to IMPs) should be revised per revised Table 4-13 above.

**Chapter 6. Operation & Maintenance of Stormwater Facilities.**

This chapter refers to the CCCWP C.3 website for facts sheets on general maintenance requirements, step-by-step instructions for preparation of an O&M Plan, forms for designation of responsible individuals, etc.

**ADDENDUM TO  
CONTRA COSTA CLEAN WATER PROGRAM STORMWATER C.3  
GUIDEBOOK  
FOR USE IN THE CITY OF VALLEJO**

---



**Acknowledgements:**

The City of Vallejo would like to acknowledge the Contra Costa County permittees and the Contra Costa Clean Water Program for their authorization of use of the CCCWP Stormwater C.3 Guidebook by the City of Vallejo.

**References:**

Contra Costa County Clean Water Program. Stormwater C.3 Guidebook. 6<sup>th</sup> Edition. February 15, 2012.

Geosyntec Consultants. Final Hydromodification Management Plan (HMP). April 2013. Prepared for City of Vallejo.