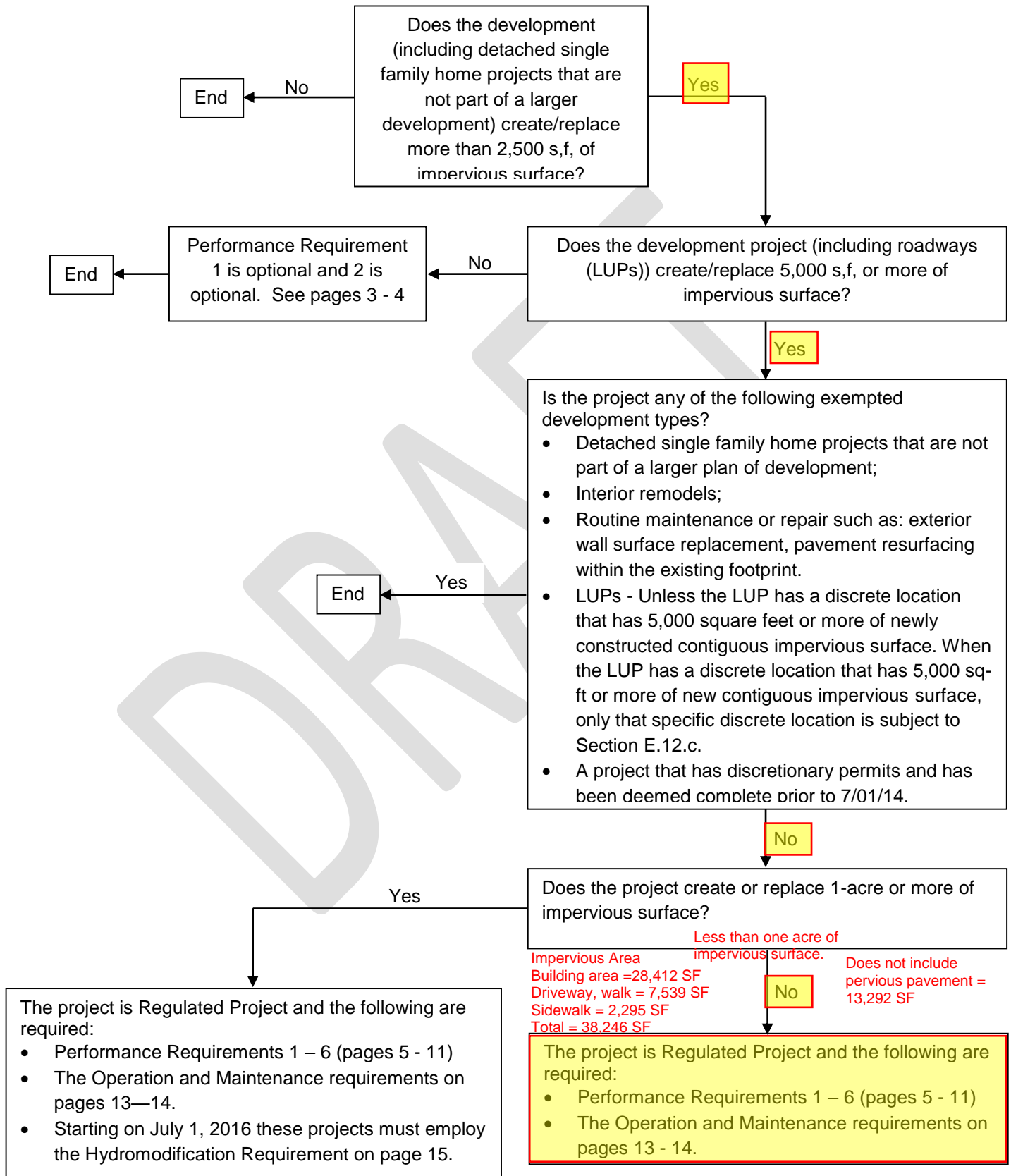


Section 1 Phase II Small MS4 SW General Permit Development Standards Flow Chart



Section 2 Site Design Measures

For projects that create or replace 2,500 but less than 5,000 s.f. of impervious surfaces.

For projects that create or replace 2,500 but less than 5,000 square feet of impervious surface, the Developer shall submit a stamped and signed Performance Requirement No.2 Certification by the Project Engineer prior to the issuance of a building permit. Performance Requirement No. 1 is optional for Developers more than 2,500 but less than 5,000 square feet of impervious surface. Developers may find it helpful to perform a Site Assessment Checklist below. See Section E.12.b Site Design Measures of the Permit in Appendix A.

(a) Site Assessment

At the earliest planning stages, all projects shall assess and evaluate how site conditions, such as soils, vegetation, and flow paths, will influence the placement of buildings and paved surfaces. The evaluation will be used to meet the goals of capturing and treating runoff and assuring these goals are incorporated into the project design. The Site Assessment Checklist below, may be helpful in achieving compliance with the Permit.

Performance Requirement No.1 - Site Assessment Checklist (Optional for Projects less than 5,000 sf of impervious surface)	
Project Name: 715 East	Date: 8/17/2021
Project Address: 715 Pole Line Road, Davis, CA	
	Included
1. Site topography	See Tentative Map
2. Hydrologic features including contiguous natural areas, wetlands, watercourses, seeps, or springs	See Tentative Map
3. Depth to seasonal high groundwater	N/A
4. Locations of groundwater wells used for drinking water	N/A
5. Depth to an impervious layer such as bedrock	N/A
6. Presence of unique geology (e.g., karst)	None
7. Geotechnical hazards	None
8. Documented soil and/or groundwater contamination	None
9. Soil types and hydrologic soil groups	Sandy Loam, Group A
10. Vegetative cover/trees	See Tentative Map
11. Run-on characteristics (source and estimated runoff from offsite which discharges to the project area)	See Tentative Map
12. Existing drainage infrastructure for the site and nearby areas including the location of municipal storm drains	See Tentative Map
13. Structures including retaining walls	None
14. Utilities	See Tentative Map
15. Easements	See Tentative Map
16. Covenants	See Tentative Map
17. Zoning/Land Use	See Tentative Map
18. Setbacks	See Tentative Map
19. Open space requirements	See Tentative Map
20. Other pertinent overlay(s)	N/A

PERFORMANCE REQUIREMENT NO. 2 CERTIFICATION

Incorporate into the project at least one of the following design strategies and perform the runoff reduction calculation in #10.

PERFORMANCE REQUIREMENT NO. 2 - CERTIFICATION	
SITE DESIGN MEASURES	INCORPORATED
1. Limit disturbance of creeks and natural drainage features by providing setbacks or buffers from the vegetated area including trees, shrubs, and herbaceous vegetation, that exists or is established adjacent to a stream system or drainage feature.	NO
2. Soil Quality Improvement and Maintenance - improvement and maintenance soil through soil amendments and creation of microbial community by minimizing compaction of highly permeable soils and using mulch for weed control.	NO
3. Tree Planting and Preservation - plant and preserve healthy, established trees that include both evergreens and deciduous, as applicable. Limit clearing and grading of native vegetation at the site to the minimum area needed to build the project, allow access, and provide fire protection.	YES
4. Concentrate improvements on the least sensitive areas of the site, while leaving the remaining land in a natural undisturbed state.	NO
5. Direct roof runoff into cisterns, rain barrels or permeable areas vegetated areas safely away from building foundations and footings.	YES
6. Direct runoff from impervious surfaces such as: sidewalks, walkways, patios, driveways and/or uncovered parking lots onto vegetated areas safely away from building foundations and footings.	YES
7. Porous Pavement - pavement that allows runoff to pass through it, thereby reducing the runoff from a site and surrounding areas and filtering pollutants by constructing bike lanes, driveways, uncovered parking lots, sidewalks, walkways, and patios with permeable surfaces.	YES
8. Green Roofs - a vegetative layer grown on a roof (rooftop garden).	NO
9. Vegetated Swales - a vegetated, open-channel management practice designed specifically to treat and attenuate storm water runoff;	NO
10. Developers shall quantify post construction runoff reduction using the State Water Board SMARTS Post-Construction Calculator, or equivalent resulting from implementation of site design measures. The SMARTS Post-Construction Calculator can be found at: https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp	SEE ATTACHED CALCULATIONS

I, _____, acting as the Project Engineer for _____ project, located at _____, hereby state that the Site Design and Runoff Reductions design strategies initialed have been incorporated into the design of the project.

Signature _____ Date _____

Section 3 Standards for Regulated Projects

For projects that create or replace 5,000 s.f. or more, but less than 1-acre of impervious surface.

For projects that create or replace 5,000 or more square feet, but less than 1 acre of impervious surface (Regulated Project), to achieve compliance with the Permit, the Developer follow the steps outlined below including providing the performance Requirement.

Step – Description – Location in Document

1. Site Assessment (Performance Requirement No.1 in Section 2 – page 3)
2. Site Design Measures (Performance Requirement No. 2 in Section 2 - page 4),
3. Source Control (Performance Requirement No. 3, page 6),
4. Site Design Measures for Regulated Projects (Performance Requirement No. 4, page 7),
5. Baseline Hydromodification Management & Stormwater Treatment Design (Performance Requirement No. 5, page 8),
6. Drainage Management Areas (page 10)
7. Stormwater Control Plan Checklist (Performance Requirement No. 6, page 10)

All Regulated Projects shall implement low impact development (LID) standards designed to reduce runoff, treat storm water, and provide baseline hydromodification management to the extent feasible, to meet the Numeric Sizing Criteria for Storm Water Retention and Treatment under Section E.12.e(ii)(c) of the Permit. For related language from the Permit, see Section E.12.e. Low Impact Development (LID) Design Standards in Appendix B. All regulated projects shall be designed with the objective of achieving infiltration, evapotranspiration and/or harvesting/reuse of the 85th percentile 24 hour storm event.

The developer shall submit stamped and signed Performance Requirement Certifications No. 1, 2, 3, 4, and.5 by the Project Engineer prior to the issuance of a building permit. For further clarification on what constitutes a regulated project, see the Definition for Regulated Projects in Appendix A and Section E.12.c Regulated Projects of the Permit in Appendix B.

Step 3. Source Control Measures

All Regulated Projects with pollutant-generating activities and sources are required to implement standard permanent and/or operation source control measures consistent with recommendations from the CASQA Stormwater BMP Handbook for Development (See the referenced BMP Fact Sheets in Appendix C) and Redevelopment and Municipal BMP Handbook or equivalent for the following activities (See Section E.12.d Source Control Measures of the Permit in Appendix B):

PERFORMANCE REQUIREMENT NO. 3 - CERTIFICATION OF SOURCE CONTROL MEASURES			
	POLLUTANT SOURCE	CASQA BMP FACTSHEET NUMBER	BMP INCORPORATED
1.	(a) Accidental spills or leaks	SC-11**	YES
2.	(b) Interior floor drains	SC-10**	NO
3.	(c) Parking/storage areas and maintenance	SC-43**	YES
4.	(d) Indoor and structural pest control	SC-10**	NO
5.	(e) Landscape/outdoor pesticide use	SC-41**	YES
6.	(f) Pools, spas, ponds, decorative fountains, and other water features	SC-72**	NO
7.	(g) Restaurants, grocery stores, and other food service operations	SC-10 & SC-11**	NO
	(h) Refuse areas	SD-32*	YES
	(i) Industrial processes	SC-10 & SC-11**	NO
	(j) Outdoor storage of equipment or materials	SD-34*	YES
	(k) Vehicle and equipment cleaning	SD-33*	NO
	(l) Vehicle and equipment repair and maintenance	SD-31*	YES
	(m) Fuel dispensing areas	SD-30*	YES
	(n) Loading docks	SD-31*	NO
	(o) Fire sprinkler test water	SC-10**	YES
	(p) Drain or wash water from boiler drain lines, condensate drain lines, rooftop equipment, drainage sumps, and other sources	SC-10**	YES
	(q) Unauthorized non-storm water discharges	SC-10**	YES
	(r) Building and grounds maintenance	SC-41**	YES

* Source CASQA Development and Redevelopment BMP Handbook

** Source: CASQA Municipal, and Industrial and Commercial BMP Handbooks.

I, _____, acting as the Project Engineer for _____ project, located at _____, hereby state that LID Site Design Measures initialed have been incorporated into the design of the project.

Signature _____ Date _____

Step 4. Site Design Measures for Regulated Projects

All Regulated Projects must be designed to achieve infiltration, evapotranspiration and/or harvesting/reuse of the 85th percentile 24-hour storm runoff event (0.65 inches). Site design measures shall be used to reduce the amount of runoff, to the extent technically feasible, for which retention and runoff is required. Any remaining runoff from impervious DMAs may then be directed to one or more bioretention facilities as specified in Section E.12.e.(ii)(f)

PERFORMANCE REQUIREMENT NO. 4 - CERTIFICATION OF SITE DESIGN MEASURES to the 85th Percentile 24 Hour Storm Event (0.65 inches)		
	DESIGN MEASURE	INCORPORATED/OPTIMIZED
1.	Defining the development envelope, identifying the protected areas, and identifying areas that are most suitable for development and areas to be left undisturbed	INCORPORATED
2.	Concentrate development on portions of the site with less permeable soils and preserve areas that can promote infiltration.	SITE HAS FAIRLY UNIFORM SOIL THROUGHOUT
3.	Identifying conserved natural areas, including existing trees, other vegetation, and soils (shown on the plans)	DUE TO PREVIOUS DEVELOPMENT, NOT MUCH EXISTING VEGETATION
4.	Limit the overall impervious footprint of the project with paving and roofs	INCORPORATED
5.	Set back development from creeks, wetlands, and riparian habitats	N/A
6.	Design conforms the site layout along natural landforms	INCORPORATED
7.	Design avoids excessive grading and disturbance of vegetation and soils	INCORPORATED
8.	Replicate the site's natural drainage patterns.	INCORPORATED
9.	Detain and retain runoff throughout the site.	INCORPORATED

I, _____, acting as the Project Engineer for _____ project, located at _____, hereby state that the Site Design Measures above have been incorporated into the design of the project to achieve infiltration, evapotranspiration and/or harvesting/reuse of the 85th percentile 24-hour storm runoff event.

Signature _____ Date _____

Step 5. Baseline Hydromodification Management & Stormwater Treatment Design

The Project Engineer shall certify the Project design optimizes the use of the following design measures. Initial each runoff retention measure that has been incorporated and optimized into the design or mark N/A if not applicable. See Appendix D for BMP Fact Sheets for various permanent treatment control measures. See Appendix E for rainfall charts for Sacramento. Assume 85th percentile one hour rain event for Davis is 0.1 inch/hour and the 85th percentile 24 hour rain event is 0.65. Assume annual 80th percentile rainfall for Davis is 19.1 inches.

PERFORMANCE REQUIREMENT NO. 5 CERTIFICATION		
	On-Site Water Quality Treatment Measures	INCORPORATED
1	<p>Low Impact Development (LID) Treatment Systems designed to retain stormwater runoff generated by the 85th percentile 24-hour storm. Stormwater Control Measures Implement (circle all that apply, design documentation is required)</p> <ul style="list-style-type: none"> • Harvesting and Use, • Infiltration, • Evapotranspiration 	INCORPORATED
2	<p>Biofiltration Treatment Systems – with the following design parameters:</p> <ol style="list-style-type: none"> 1. Maximum surface loading rate appropriate to prevent erosion, scour and channeling within the biofiltration treatment system itself and equal to 5 inches per hour, based on the flow of runoff produced from a rain event equal to or at least: <ol style="list-style-type: none"> a) 0.2 inches per hour intensity; or b) Two times the 85th percentile hourly rainfall intensity for the applicable area, based on historical records of hourly rainfall depth 2. Minimum surface reservoir volume equal to the biofiltration treatment system surface area times a depth of 6 inches 3. Minimum planting medium depth of 18 inches. The planting medium must sustain a minimum infiltration rate of 5 inches per hour throughout the life of the project and must maximize runoff retention and pollutant removal. A mixture of sand (60%-70%) meeting the specifications of American Society for Testing and Materials (ASTM) C33 and compost (30%-40%) may be used. A Regulated Project may utilize an alternative planting medium if it demonstrates its planting medium is equal to or more effective at attenuating pollutants than the specified planting medium mixture. 4. Proper plant selection 5. Subsurface drainage/storage (gravel) layer with an area equal to the biofiltration treatment system surface area and having a minimum depth of 12 inches 6. Underdrain with discharge elevation at top of gravel layer 7. No compaction of soils beneath the biofiltration facility (ripping/loosening of soils required if compacted) 8. No liners or other barriers interfering with infiltration, except for situations where lateral infiltration is not technically feasible 	N/A, USING POROUS PAVEMENT

3	Non-Retention Based Treatment Systems – designed to meet at least one of the following hydraulic sizing criteria: a) Volume Hydraulic Design Basis – Treatment systems whose primary mode of action depends on volume capacity shall be designed to treat stormwater runoff equal to the volume of runoff generated by the 85th percentile 24-hour storm event, based on local rainfall data.	N/A, USING POROUS PAVEMENT
	b) Flow Hydraulic Design Basis – Treatment systems whose primary mode of action depends on flow capacity shall be sized to treat: i. The flow of runoff produced by a rain event equal to at least two times the 85th percentile hourly rainfall intensity for the applicable area, based on historical records of hourly rainfall depths; or ii. The flow of runoff resulting from a rain event equal to at least 0.2 inches per hour intensity.	

I, _____, acting as the Project Engineer for _____ project, located at _____, hereby state that the On-Site Water Quality Treatment Measures initialed have been incorporated into the design of the project.

Signature

Date

Step 6. Drainage Management Areas

The site shall be designed to provide for decentralized storm water management with discrete DMAs.

1. The developer shall provide a map of the entire project site showing the discrete DMAs and detailing the drainage for the rainfall event specified along with the other project development plans.
2. Drainage from each DMA shall be accounted for using the following measures:
 - a) Undisturbed or areas planted with native vegetation that do not receive runoff from other areas are self-treating and no additional stormwater management is required.
 - b) Runoff from impervious surfaces, generated by the rainfall events identified for Performance Requirement No. 5, may be directed to undisturbed or natural landscaped areas. Where the design demonstrates that this runoff will be infiltrated and will not produce runoff to the storm drain system, or a surface receiving waterbody, or create nuisance ponding, then no additional stormwater management is required for these impervious surfaces.

Step 7. STORM WATER CONTROL PLAN CHECKLIST

A Storm Water Control Plan is required. At a minimum, the Storm Water Control Plan shall include the following on the building plan submittal:

Storm Water Control Plan Check List - Performance Requirement No. 6	
	COMPLETED
1. Project Information	
a. Project name	YES
b. Application number	N/A
c. Address and assessor's parcel number	YES
d. Name of Applicant	YES
e. Project Phase number (if project is being constructed in phases)	N/A
f. Project Type (e.g., commercial, industrial, multi-unit residential, mixed-use, public), and description	YES
2. Project Areas	
a. Total project site area	YES
b. Total new impervious surface area	YES
c. Total replaced impervious surface area	YES
d. Total new pervious area	YES
e. Calculation of Net Impervious Area	
3. Site Assessment Summary PR 1.	YES
4. Summary of Site Design PR 2	YES
5. Summary of Source Control measures PR 3	YES
7. Drainage Manage Area Map	YES
8. Summary of Baseline Hydromodification Management & Stormwater Treatment Design PR 4,	N/A
9. LID Measures Used	
a. List all site design measure incorporated into the design of the project	YES
b. Location and detail for all runoff reduction measures used	YES
c. Location and detail for all post-construction structural water quality treatment measures	YES

10. Calculations used to comply with the applicable on-site water quality treatment	YES
11. Calculations used to comply with the applicable runoff retention requirements	YES
12. Calculations used to comply with the applicable hydromodification management requirements for projects with 1 acre or more of new impervious surface	N/A
13. Documentation demonstrating infeasibility where Site Design and Runoff Reduction measures cannot retain required runoff volume	N/A
14. Documentation demonstrating infeasibility where retention-based Stormwater Control Measures cannot retain and/or treat the required runoff volume	N/A
15. Documentation demonstrating infeasibility where on-site compliance cannot be achieved	N/A
16. Documentation certifying that the selection, sizing, and design of the on-site water quality treatment measures meet the E.12 requirements.	N/A
16. Water quality treatment calculations used to comply with E.12 requirement and any analysis to support infeasibility determination	YES
17. Statement of Compliance: Statement that Water Quality Treatment Performance Requirement has been met on-site, or, if not achievable:	
a. Documentation of the volume of runoff for which compliance cannot be achieved on-site and the associated off-site compliance requirements.	
b. Statement of intent to comply with Water Quality Treatment Performance Requirement through Alternative Compliance	