

# RIVERSIDE COUNTY WATERSHED PROTECTION



## *WQMP Basic Training for Local Agency Staff and the Public*

Prepared for: Whitewater River Region  
Water Quality Management Plans  
For Urban Runoff

Presented by: CASC Engineering and Consulting, Inc.

Spring 2019

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# Why are we here?



- ▶ State of California determined that discharges of stormwater and runoff from urban areas convey pollutants to downstream receiving waters
- ▶ Regional Water Quality Control Board issued a **National Pollutant Discharge Elimination System (NPDES)** permit to:
  - ▶ Riverside County Flood Control & Water Conservation District
  - ▶ County of Riverside
  - ▶ And Coachella Valley Water District
  - ▶ Incorporated Cities in the Whitewater River Watershed

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## MS4 Permit requires training



- ▶ Permittees are required to participate in annual training
- ▶ Permittees are required to provide MS4 Permit compliance related training for Permittee's staff to the MEP



# Permit Renewal Status



- ▶ Current MS4 Permit (Permit) is currently under renewal
  - ▶ NPDES Permit CAS617002, Order No. R7-2013-0011
  - ▶ WQMP requirements not anticipated to change
  
- ▶ Anticipated to be adopted in September 2018


**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD**  
**COLORADO RIVER BASIN REGION**  
 7570 Piedmont Drive, Suite 100, Palm Desert, CA 92260  
 Phone: (760) 438-7400 or Fax: (760) 438-7400  
 Web: <http://www.waterboards.ca.gov/coloradobasin>

**ORDER NO. R7-2013-0011**  
**NPDES NO. CAS617002**  
**WASTE DISCHARGE REQUIREMENT**  
**FOR**  
**DISCHARGES FROM THE MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)**  
**WITHIN THE WHITEWATER RIVER WATERSHED**  
**RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT,**  
**OWNER/OPERATOR**  
**COUNTY OF RIVERSIDE, OWNER/OPERATOR**  
**COACHELLA VALLEY WATER DISTRICT, OWNER/OPERATOR**  
**AND INCORPORATED CITIES OF RIVERSIDE COUNTY WITHIN THE**  
**WHITEWATER RIVER BASIN, OWNERS/OPERATORS**

**Table 1. Administrative Information**

This Order was adopted by the Regional Water Quality Control Board on:	June 20, 2013
This Order shall become effective on:	June 20, 2013
This Order shall expire on:	June 19, 2018
The Discharger shall file a Report of Waste Discharge in accordance with title 21, California Code of Regulations, not later than 180 days in advance of the order expiration date as application for issuance of new Waste Discharge Requirements.	
The date for submitting a complete application for reissuance is December 23, 2017.	

I, Robert Perdue, Executive Officer, do hereby certify that this Order, with all attachments, is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Colorado River Basin Region, on June 20, 2013.

  
 ROBERT PERDUE, Executive Officer

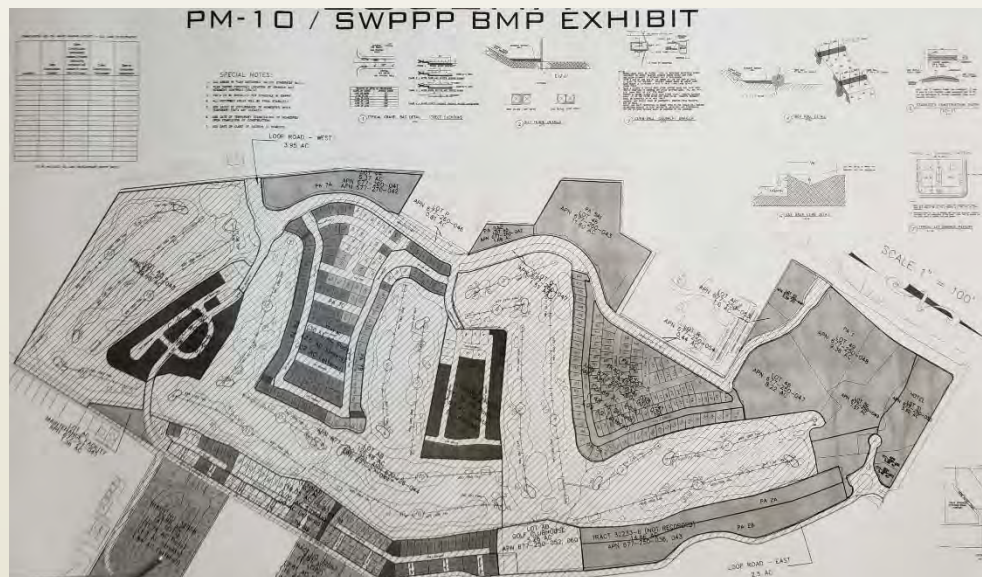


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# New Development and Redevelopment Program



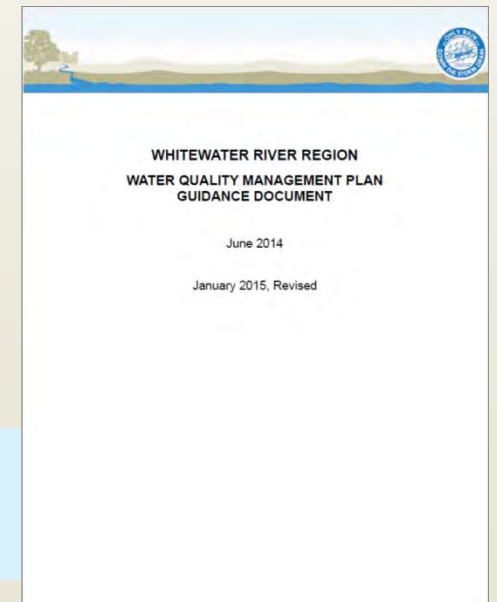
- ▶ Permit requires the “Permittees” to implement several programs to reduce pollutants in stormwater and urban runoff discharges
- ▶ Permit includes the requirements for New Development and Redevelopment projects



# WQMP Training Session Objectives



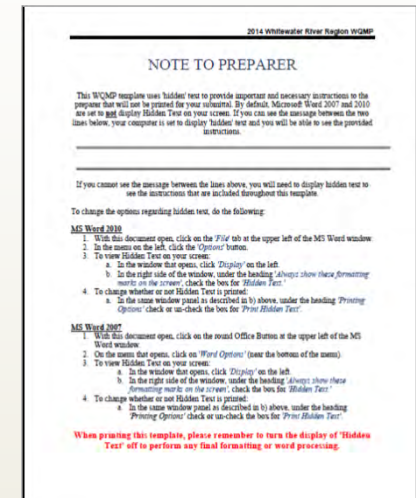
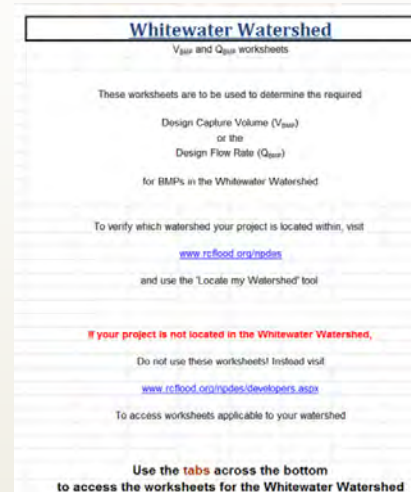
- ▶ To be aware of the State NPDES Permit that local agencies are subject to
- ▶ To understand the Programs that local agencies have committed to implement to protect water quality
- ▶ To understand the 2014 WQMP requirements for:
  - ▶ New Development Projects
  - ▶ Re-Development Projects
  - ▶ Other Projects



Download from:  
<http://rcflood.org/NPDES/WhitewaterWS.aspx/>  
Scroll down to "Compliance Documents" and select "WQMP"

# Important Documents

- 2014 WQMP Template – Last Updated in January 2015
- BMP Design Volume and BMP Design Flow Calculation Worksheets
- 2012 CWA Section 303(d) List of Water Quality Limited Segments



2010 California 303(d) List of Water Quality Limited Segments\*

Water quality limited segments requiring a TMDL (SA), being addressed by TMDL (SA), action being addressed by an action other than TMDL (SC).

POLLUTANT CATEGORY	FINAL LISTING DECISION	FINAL REQUIREMENT STATUS**	EXPECTED TMDL COMPLETION DATE**	COMMENTS
Pesticides	List on 303(d) list (TMDL required list)	SA	2021	
Pesticides	Do Not Delete from 303(d) list (TMDL required list)	SA	2019	
Pesticides	Do Not Delete from 303(d) list (TMDL required list)	SA	2021	
Pesticides	List on 303(d) list (TMDL required list)	SA	2021	
Pesticides	Do Not Delete from 303(d) list (TMDL required list)	SA	2019	
Pesticides	List on 303(d) list (TMDL required list)	SA	2021	
Phosphorus	List on 303(d) list (TMDL required list)	SA	2021	
Phosphorus	List on 303(d) list (TMDL required list)	SA	2021	
Phosphorus	List on 303(d) list (TMDL required list)	SA	2021	
Other Organics	Do Not Delete from 303(d) list (TMDL required list)	SA	2019	
Lead	Do Not Delete from 303(d) list (TMDL required list)	SA	2019	
Metal/Trace Metals	Do Not Delete from 303(d) list (TMDL required list)	SA	2019	Deletion or approval of this issue needs to be approved by a TMDL.
Pesticides	Do Not Delete from 303(d) list (TMDL required list)	SA	2019	
Pesticides	List on 303(d) list (TMDL required list)	SA	2021	This listing for 303(d) is Storm Water Change
Pesticides	List on 303(d) list (TMDL required list)	SA	2021	This listing for 303(d) is Storm Water Change
Other Organics	List on 303(d) list (TMDL required list)	SA	2021	This listing for 303(d) is Storm Water Change
Phosphorus	Do Not Delete from 303(d) list (TMDL required list)	SA	2019	This listing for 303(d) is Storm Water Change
Pesticides	Do Not Delete from 303(d) list (TMDL required list)	SA	2019	This listing for 303(d) is Storm Water Change
Metal/Trace Metals	List on 303(d) list (TMDL required list)	SA	2019	
Pesticides	List on 303(d) list (TMDL required list)	SA	2021	This listing for 303(d) is Storm Water Change
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Other Organics	Do Not Delete from 303(d) list (TMDL required list)	SA	2019	This listing for 303(d) is Storm Water Change

# EPA 303(d) List



- ▶ List of Water Quality Limited Segments
- ▶ Beginning in 2012 only 3 regions will be updated bi-annually.
- ▶ 2012 updated:
  - ▶ Region 1 - North Coast
  - ▶ Region 6 - Lahontan
  - ▶ Region 7 - Colorado River
- ▶ Approved October 12, 2016

2016 California 303(d) List of Water Quality Limited Segments  
Water quality limited segments requiring a TMDL(SA), being addressed by TMDL(S), and/or being addressed by an action other than TMDL(S).

REGION	WATER BODY NAME	ESTIMATED MILES AFFECTED	SWAT	POLLUTANT	POLLUTANT CATEGORY	FINAL LISTING REASON	FINAL REQUIREMENT STATUS**	EXPECTED TMDL COMPLETION DATE**	COMMENTS INCLUDED ON THIS LIST	POTENTIAL SOURCES	SOURCE CATEGORY
7	Alamo River	8	Miles	Chlorine	Neurotoxic	Met or 303(d) list (TMDL required list)	SA	2012		Source Unknown	Source Unknown
7	Alamo River	8	Miles	COP Herbicides	Neurotoxic	Do Not Defer from 303(d) list (TMDL required list)	SA	2012		Source Unknown	Source Unknown
7	Alamo River	8	Miles	PCBs (Polychlorinated biphenyls)	Neurotoxic	Do Not Defer from 303(d) list (TMDL required list)	SA	2012		Source Unknown	Source Unknown
7	Alamo River	8	Miles	Mercury	Neurotoxic	Do Not Defer from 303(d) list (TMDL required list)	SA	2012		Source Unknown	Source Unknown
7	Alamo River	8	Miles	Endrin/Aldrin	Neurotoxic	Do Not Defer from 303(d) list (TMDL required list)	SA	2012		Source Unknown	Source Unknown
7	Alamo River	8	Miles	Endrin/Aldrin (off (E. coli))	Neurotoxic	Do Not Defer from 303(d) list (TMDL required list)	SA	2012		Source Unknown	Source Unknown
7	Alamo River	8	Miles	PCBs (Polychlorinated biphenyls)	Neurotoxic	Do Not Defer from 303(d) list (TMDL required list)	SA	2012		Source Unknown	Source Unknown
7	Alamo River	8	Miles	Other Organics	Neurotoxic	Do Not Defer from 303(d) list (TMDL required list)	SA	2012		Source Unknown	Source Unknown
7	Alamo River	8	Miles	Selenium	Metals/Neurotoxic	Do Not Defer from 303(d) list (TMDL required list)	SA	2012		Source Unknown	Source Unknown
7	Alamo River	8	Miles	Chlorine	Neurotoxic	Do Not Defer from 303(d) list (TMDL required list)	SA	2012		Source Unknown	Source Unknown
7	Concha Valley Storm Water Channel	24	Miles	DDT (Dichlorodiphenylchloroethane)	Neurotoxic	Do Not Defer from 303(d) list (TMDL required list)	SA	2012	This listing for DDT only applies to a 2 mile area of the Concha Valley Storm Water Channel from Lincoln Street to the Salton Sea.	Source Unknown	Source Unknown
7	Concha Valley Storm Water Channel	24	Miles	DDT	Neurotoxic	Do Not Defer from 303(d) list (TMDL required list)	SA	2012	This listing for DDT only applies to a 2 mile area of the Concha Valley Storm Water Channel from Lincoln Street to the Salton Sea.	Source Unknown	Source Unknown
7	Concha Valley Storm Water Channel	24	Miles	PCBs (Polychlorinated biphenyls)	Other Organics	Do Not Defer from 303(d) list (TMDL required list)	SA	2012	This listing for PCBs only applies to a 2 mile area of the Concha Valley Storm Water Channel from Lincoln Street to the Salton Sea.	Source Unknown	Source Unknown
7	Concha Valley Storm Water Channel	24	Miles	Pathogens	Pathogens	Do Not Defer from 303(d) list (TMDL required list)	SA	2012	This listing for pathogens only applies to a 17 mile area of the Concha Valley Storm Water Channel from Delton Road to the Salton Sea.	Source Unknown	Source Unknown
7	Concha Valley Storm Water Channel	24	Miles	Toxachlorine	Neurotoxic	Do Not Defer from 303(d) list (TMDL required list)	SA	2012	This listing for Toxachlorine only applies to a 2 mile area of the Concha Valley Storm Water Channel from Lincoln Street to the Salton Sea.	Source Unknown	Source Unknown
7	Colorado River (Imperial Watershed in California-Mexico Border)	11	Miles	Selenium	Metals/Neurotoxic	Met or 303(d) list (TMDL required list)	SA	2012		Source Unknown	Source Unknown
7	Imperial Valley Drain	1225	Miles	Chlorine	Neurotoxic	Met or 303(d) list (TMDL required list)	SA	2012		Source Unknown	Source Unknown
7	Imperial Valley Drain	1225	Miles	DDT (Dichlorodiphenylchloroethane)	Neurotoxic	Do Not Defer from 303(d) list (TMDL required list)	SA	2012	This listing for DDT only applies to the Barbare Worth Drain, Peach Drain, and Olive Drain areas of the Imperial Valley Drain.	Source Unknown	Source Unknown
7	Imperial Valley Drain	1225	Miles	Delalin	Neurotoxic	Do Not Defer from 303(d) list (TMDL required list)	SA	2012	This listing for Delalin only applies to the Barbare Worth Drain and Fig Drain areas of the Imperial Valley Drain.	Source Unknown	Source Unknown
7	Imperial Valley Drain	1225	Miles	Endrin/Aldrin	Neurotoxic	Do Not Defer from 303(d) list (TMDL required list)	SA	2012	This listing for Endrin/Aldrin only applies to the Peach Drain area of the Imperial Valley Drain.	Source Unknown	Source Unknown
7	Imperial Valley Drain	1225	Miles	PCBs (Polychlorinated biphenyls)	Other Organics	Do Not Defer from 303(d) list (TMDL required list)	SA	2012	This listing for PCBs only applies to the Central Drain area of the Imperial Valley Drain, from Maxwell Road to the outlet into the Alamo River.	Source Unknown	Source Unknown

# EPA 303(d) List Additions



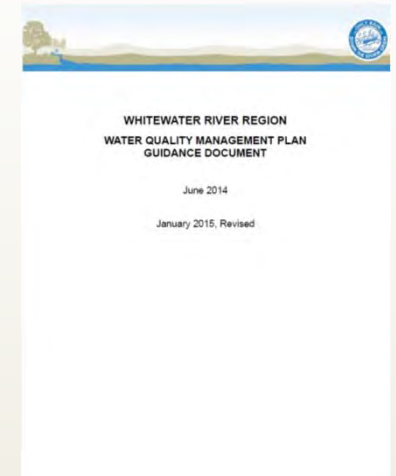
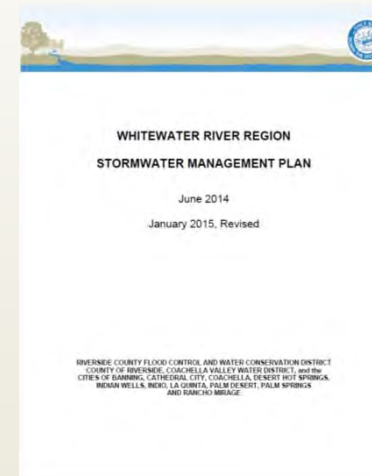
- Changes from 2010 to 2012 for Region 7
  - Nitrogen, as Total Ammonia (NH<sub>3</sub> + NH<sub>4</sub>)
  - Toxicity

Coachella Valley Storm Water Channel	Miles	DDT (Dichlorodiphenyltrichloroethane)	Pesticides
Coachella Valley Storm Water Channel	Miles	Dieldrin	Pesticides
Coachella Valley Storm Water Channel	Miles	Indicator Bacteria	Fecal Indicator Bacteria
Coachella Valley Storm Water Channel	Miles	Nitrogen, ammonia (Total Ammonia)	Nutrients
Coachella Valley Storm Water Channel	Miles	PCBs (Polychlorinated biphenyls)	Other Organics
Coachella Valley Storm Water Channel	Miles	Toxaphene	Pesticides
Coachella Valley Storm Water Channel	Miles	Toxicity	Toxicity



# Other Important WQMP-Related Documents

- ▶ 2014 Whitewater River Region Stormwater Management Plan – Updated 2015
- ▶ 2014 Water Quality Management Plan for Urban Runoff – Updated 2015
- ▶ 2014 Whitewater River Region Stormwater Quality Best Management Practice Design Handbook for Low Impact Development







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# WQMP Basic Training for Local Agency Staff and the Public

Stormwater/Urban Runoff

Program Overview

Spring 2018

# MS4 Permittees



- ▶ NPDES Permit applies to operators of municipal storm drain systems between the San Gorgonio Pass area and the Salton Sea
- ▶ Includes the following “Permittees”:
  - ▶ Banning
  - ▶ Cathedral City
  - ▶ Coachella
  - ▶ Coachella Valley Water District
  - ▶ Desert Hot Springs
  - ▶ Indian Wells
  - ▶ Indio
  - ▶ La Quinta
  - ▶ Palm Desert
  - ▶ Palm Springs
  - ▶ Rancho Mirage
  - ▶ Riverside County
  - ▶ Riverside County Flood Control and Water Conservation District



# MS4 Permit - Summary



## Requires Permittees to

- Minimize impacts of urban runoff on receiving waters to the Maximum Extent Practicable (MEP)
- Specifically implement a program to control water pollution associated with new development and redevelopment
- Require discretionary New Development and Redevelopment projects (Priority Development Projects) comply with WQMP design standards, including
  - Site Design BMP Concepts,
  - Source Control,
  - LID/Site Design and Treatment Control BMPs.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
 COLORADO RIVER BASIN REGION  
 73-725 First World Drive, Suite 120, Palm Desert, CA 92260  
 Phone: (760) 340-3401 • Fax: (760) 340-4500  
 Web: www.waterboards.ca.gov/colorado

ORDER NO. R7-2013-0011

NPCDES NO. CAS017002

WASTE DISCHARGE REQUIREMENT  
 FOR  
 DISCHARGES FROM THE MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)  
 WITHIN THE WHITEWATER RIVER WATERSHED,  
 RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT,  
 OWNER/OPERATOR  
 COUNTY OF RIVERSIDE, OWNER/OPERATOR  
 COACHELLA VALLEY WATER DISTRICT, OWNER/OPERATOR  
 AND INCORPORATED CITIES OF RIVERSIDE COUNTY WITHIN THE  
 WHITEWATER RIVER BASIN, OWNERS/OPERATORS

**Table 1. Administrative Information**

This Order was adopted by the Regional Water Quality Control Board on:	June 20, 2013
This Order shall become effective on:	June 20, 2013
This Order shall expire on:	June 19, 2018
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, not later than 180 days in advance of the Order expiration date as application for issuance of new Waste Discharge Requirements.	
The date for submitting a complete application for reissuance is December 23, 2017.	

I, Robert Perdue, Executive Officer, do hereby certify that this Order, with all attachments, is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Colorado River Basin Region, on June 20, 2013.

  
 ROBERT PERDUE, Executive Officer

# Permit Coverage Applicability



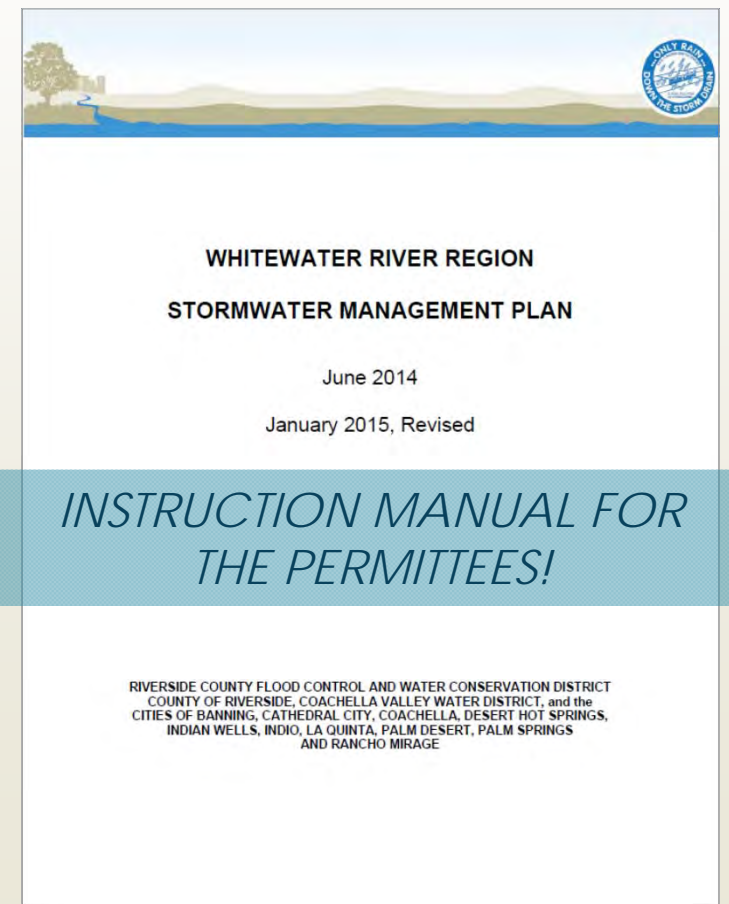
- ▶ Entities that are **not** Permittees (SWMP Section 1.4):
  - ▶ California and Federal Facilities\*
  - ▶ Native American Tribal Lands\*
  - ▶ Utilities and Special Districts
  - ▶ Agricultural Activities (Exempted by the CWA)
- ▶ These entities may be subject to municipal programs
- ▶ Check with the Permittee's NPDES Coordinator to determine whether the Permittee's programs apply to these entities and their projects within the Permittee's jurisdiction

\*Comprises 60% of the Whitewater River Watershed

# SWMP Overview

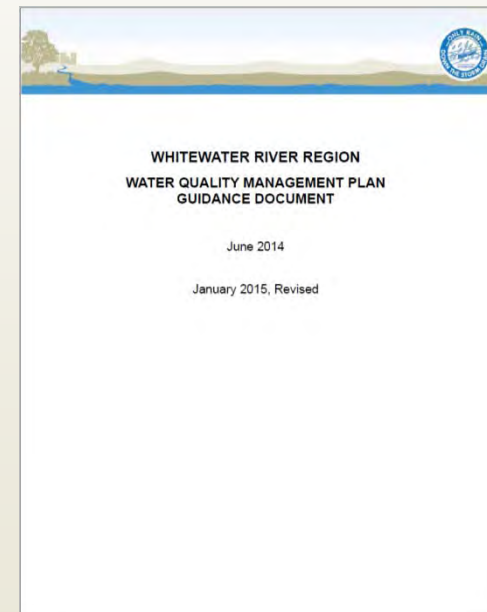


- Describes the Permittees' approach to comply with 2013 NPDES permit
- Describes a program for each Permittee to...“ensure that controls are in place to prevent or minimize water quality impacts from New Development and Redevelopment Projects to the MEP”
- Requires Priority Development Projects comply with WQMP requirements



# 2014 WQMP - Water Quality Management Plan for Urban Runoff

- ▶ Describes specific requirements that apply to Development and Re-Development Projects
- ▶ Specifically addresses post-construction urban runoff
- ▶ Guidelines for project-specific post-construction Best Management Practices (BMPs)
  - ▶ Site Design BMP Concepts
  - ▶ Source Control BMPs
  - ▶ LID/Site Design BMPs
  - ▶ Treatment Control BMPs



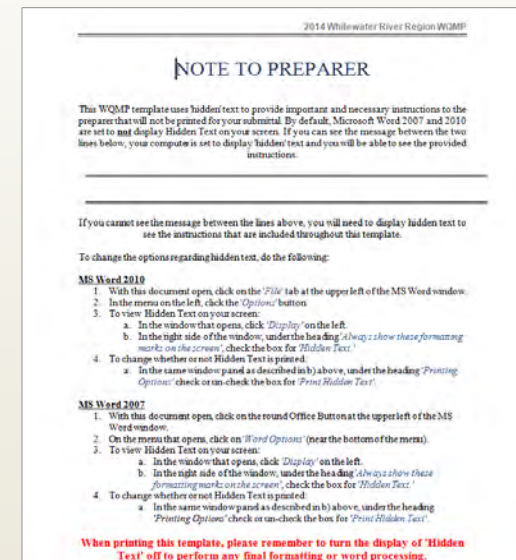
*INSTRUCTION MANUAL FOR  
WQMP PREPARERS AND PLAN  
CHECKERS!*



# Water Quality Mgmt. Plan Template – 2014 (Updated 2015)



- Serves as the model for the content and organization of a Water Quality Management Plan (WQMP)
  - Functions as a “Template”
  - Microsoft Word
  - Hidden Text feature that provides guidance for filling out each section
- A Permittee may approve an alternative Template



*A TOOL FOR WQMP  
PREPARERS!*

# Development Program Summary

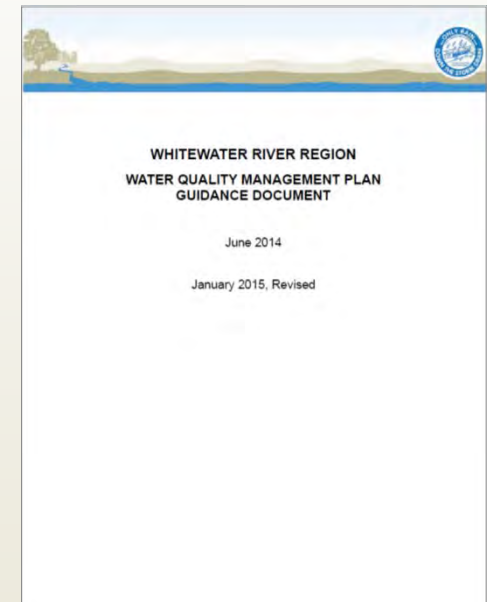


- ▶ Local agencies are responsible for implementing development regulations within their jurisdictions and for compliance with the NPDES permit
- ▶ The WQMP is a key element of development programs
- ▶ Not requiring an appropriate and complete WQMP could cause agencies to be FINED by the State
- ▶ Effective date of the 2014 WQMP Guidance is based on the approval date by the RWQCB's Executive Officer.

# Effective Date – 2014 WQMP Guidance



- ▶ WWR WQMP Guidance for 2014 was approved on December 31, 2014 and became effective on December 31, 2014.
- ▶ All applications for development received prior to the 2014 WQMP Guidance effective will be subject to the 2009 WQMP Guidance.



# 2014 WQMP Guidance – Exhibit 6 FAQ



- ▶ **Frequently Asked Questions (FAQ) in Guidance Document**
  - ▶ Offers clarification on 29 questions that local agencies commonly hear.
  - ▶ **Examples:**
    - ▶ “Where can the latest 303(d) list be found?” (Q.9)
    - ▶ “Do street projects require a WQMP in the WWR Region?” (Q.19)



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# Water Quality Management Plans Overview and Projects Requiring a WQMP

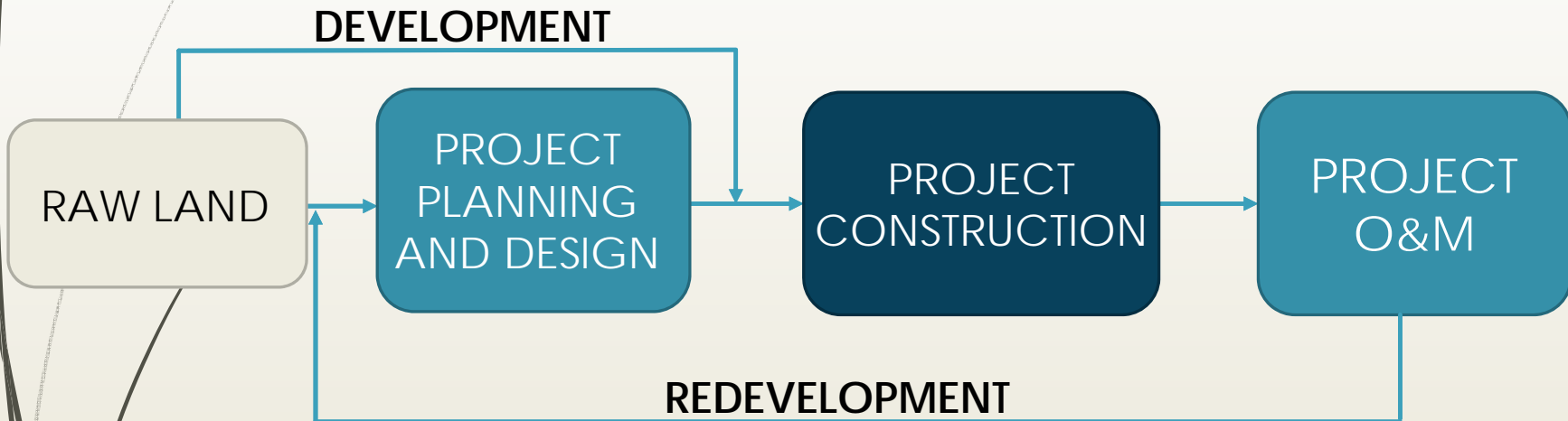
# Project-Specific WQMP



- ▶ **The Final Project-Specific WQMP...**
  - ▶ Is a planning level document that:
    - ▶ Is expected to identify and show the location of structural BMPs
    - ▶ Is expected to provide design parameters and design concepts for treatment BMPs
    - ▶ Should set aside sufficient space for the BMPs
  - ▶ Must be approved prior to issuance of building or grading permits
  - ▶ Final Project plans should be checked for consistency with the WQMP

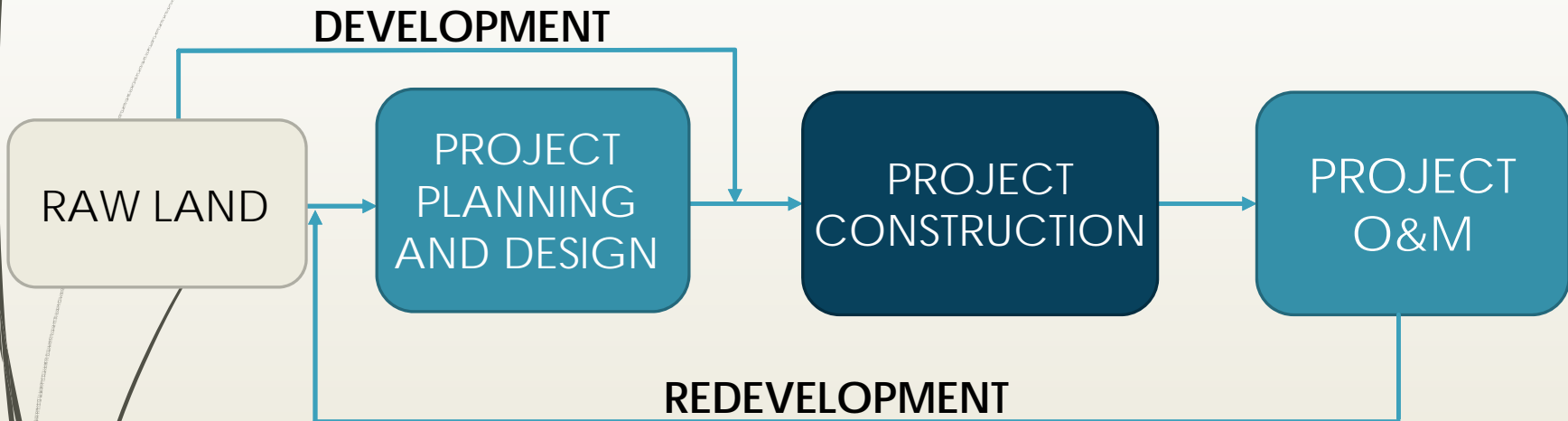


# Project Lifecycle and WQMPs



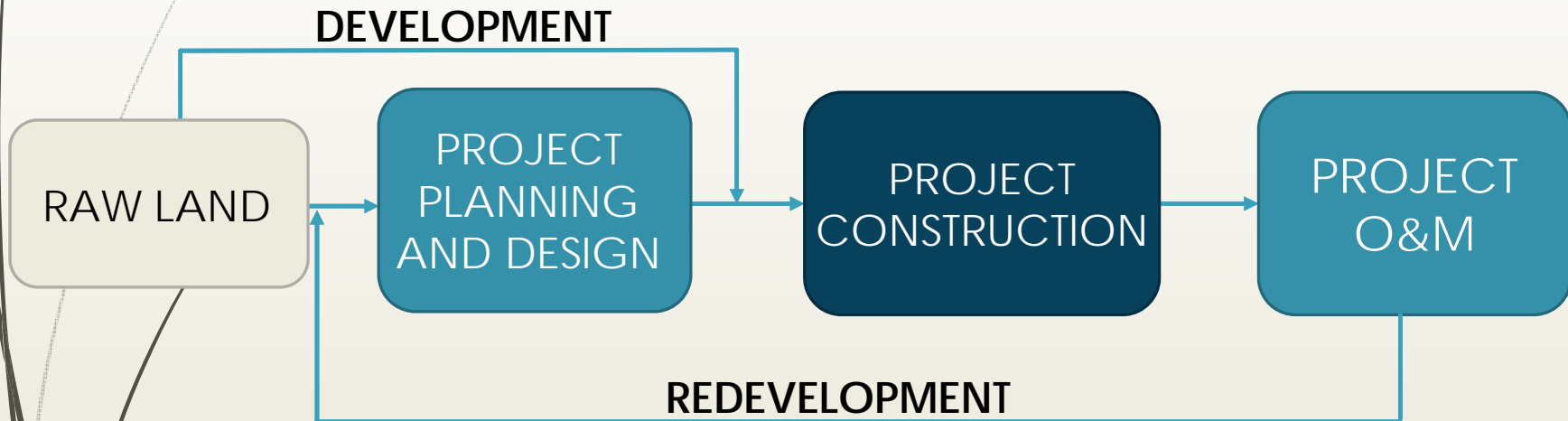
This is the domain of the Storm Water Pollution Prevention Plan (SWPPP)

# Project Lifecycle and WQMPs



This is the domain of the Water Quality Management Plan(WQMP)

# Project Lifecycle and WQMPs



*Pollution Prevention is now a part of every Project Stage!*

# Which Projects Require a WQMP?

- A WQMP is required for **Priority Development Projects (PDP)**
- One page of information is usually sufficient for determining a project category and whether a SQMP will be required.



Checklist for Identifying Discretionary New Development or Redevelopment Projects as Priority Development Projects Requiring a Project-Specific WQMP  
Whitewater River Region

Project File No.	
Project Name	
Project Location	
Project Description	
Project Applicant Information (Name, Address, Telephone No.)	

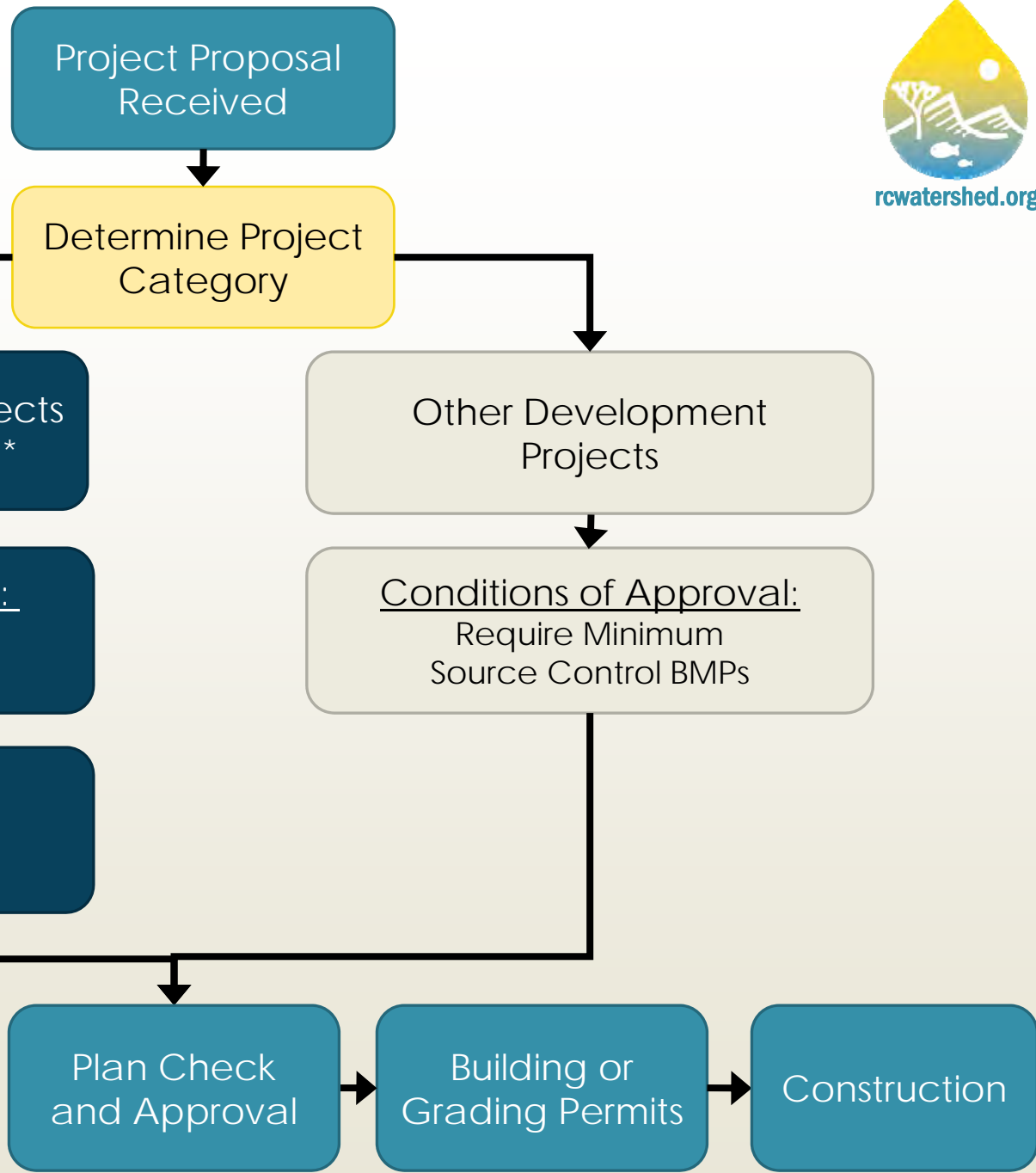
Proposed Project Consists of or Includes:	Yes	No
Single-family infill residences that create 10,000 square feet, or more, of impervious area where the natural slope is 25% or greater.		
Single-family infill residences that create 10,000 square feet, or more, of impervious area where the natural slope is 10% or greater where erosion control conditions are known.		
Commercial and industrial developments of 100,000 square feet or more.		
Automotive repair shops (Standard Industrial Classification (SIC) codes 8011, 8030, 8031, 8034, 8037, 8038 and 8039).		
Formal gasoline stations (including greater than 5,000 square feet).		
Fishery or aquaculture greater than 5,000 square feet.		
Animal husbandry with 10 or more animals with...		
Having lots of 5,000 square feet or more, or with 10 or more parking spaces, and potentially exposed to Urban Runoff.		

\* Descriptors of SIC codes can be found at <http://www.cmh.gov/011131/12403.htm>.

**DETERMINATION: Circle appropriate determination.**

All questions answered "YES" —> Project requires a project-specific WQMP.

All questions are answered "NO" —> Project requires incorporation of Site Design BMPs and Source Control BMPs imposed through Conditions of Approval or Permit conditions.





Project Proposal Received

Determine Project Category

Priority Development Projects  
Conditions of Approval\*

Other Development Projects

Conditions of Approval:  
Require Project Specific WQMP

Conditions of Approval:

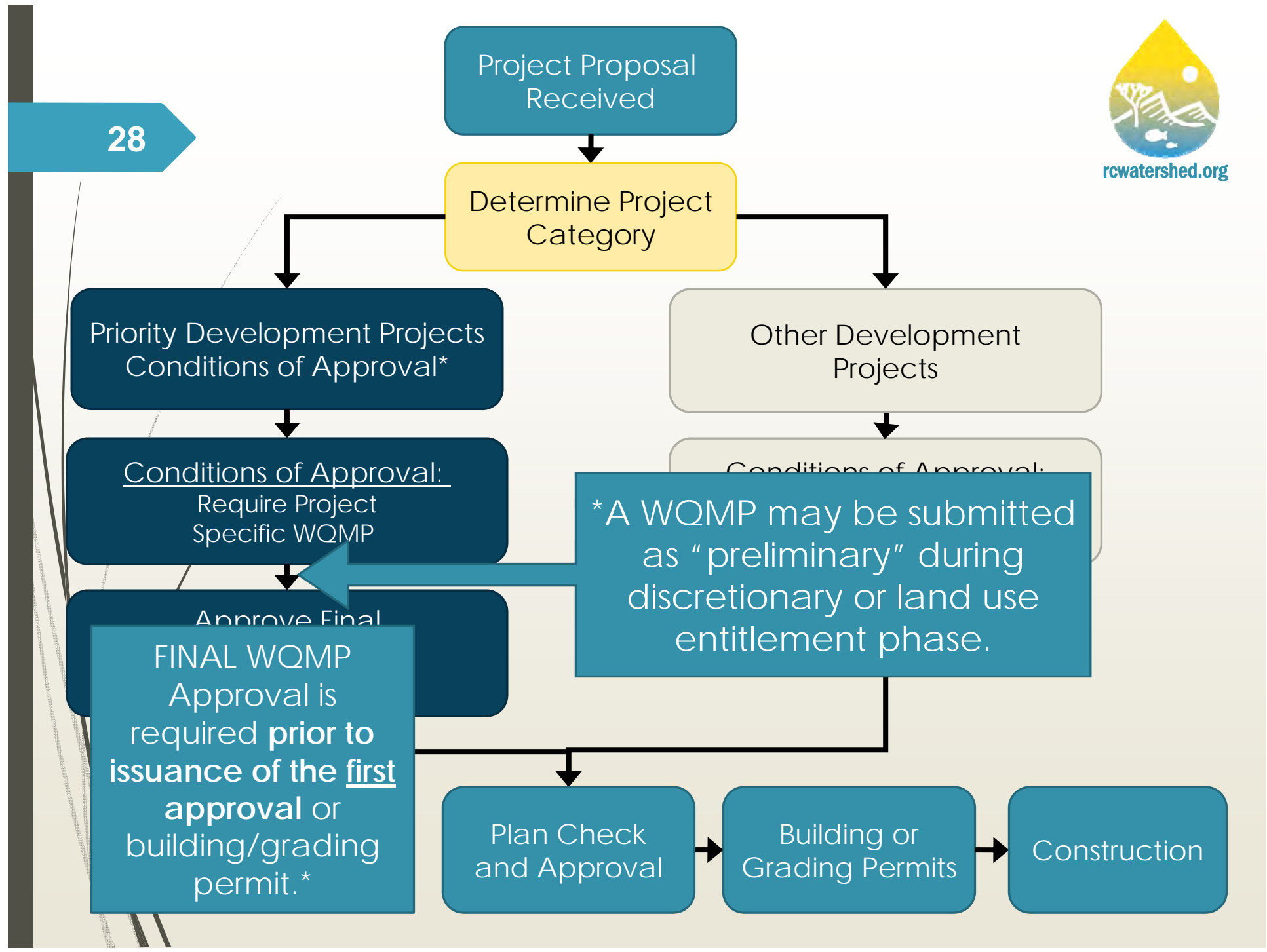
\*A WQMP may be submitted as "preliminary" during discretionary or land use entitlement phase.

Approve Final  
FINAL WQMP Approval is required prior to issuance of the first approval or building/grading permit.\*

Plan Check and Approval

Building or Grading Permits

Construction







Project Proposal Received

Determine Project Category

Other Development Projects

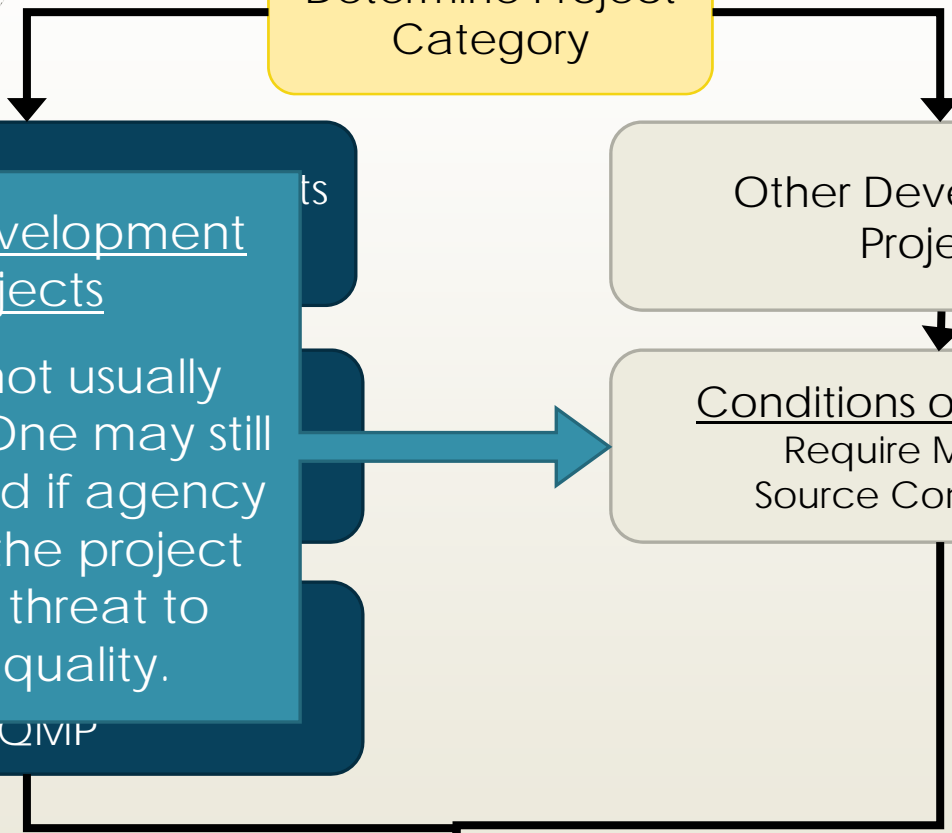
Conditions of Approval:  
Require Minimum Source Control BMPs

Other Development Projects  
WQMP not usually required. One may still be required if agency believes the project poses a threat to water quality.

Plan Check and Approval

Building or Grading Permits

Construction



# Preliminary Project-Specific WQMP

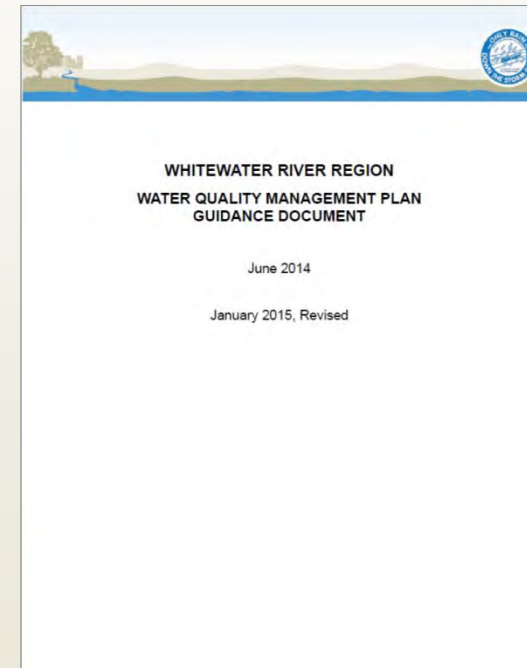


- ▶ A Preliminary Project-Specific WQMP may be required
  - ▶ When a project is subject to discretionary approval during the planning and entitlement process (tentative tract map, parcel map, or subdivision map) and
  - ▶ Will be subject to ministerial approvals for subsequent grading or building permits
- ▶ Submit Preliminary WQMP with project application
  - ▶ Preliminary WQMP is dependent upon local permitting agency. Developers are encouraged to coordinate with local permitting agency.
  - ▶ In General, P-WQMP will be required if project type is known at time of application submittal, project triggers a priority development project category, and also requires a discretionary action from the local land use authority. (See FAQ Q.24)

# Final Project-Specific WQMP



- ▶ The Final Project-Specific WQMP will contain
  - ▶ Site Design BMP Concepts,
  - ▶ Source Control BMPs,
  - ▶ LID/Site Design BMPs or
  - ▶ Treatment Control BMPs,
  - ▶ BMP maintenance descriptions,
  - ▶ BMP funding description,
  - ▶ BMP operation responsibilities.
- ▶ Must conform to the Guidance!



*Permittees may supplement the WQMP Guidance with Agency-specific requirements.*



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# New Development and Redevelopment Priority Development Projects

Priority Development Projects?

# Determining Project Category



- ▶ The correct Project Category is easy to determine for most projects.
- ▶ When a project falls into the “gray areas” of the category definitions: Check the “Exhibit 6 – FAQ” and then consult local agency’s NPDES Coordinator for guidance.
- ▶ An incorrect determination of Project Category could create significant future headaches such as...
  - ▶ Permit enforcement actions against the agency or owner
    - ▶ Against the Agency under the Municipal NPDES permit
    - ▶ Against the Owner under the General Construction NPDES Permit
  - ▶ Requirements to retrofit a complete or near-complete project

# Single-Family Hillside Residence



▶ 10,000 square feet or more of impervious surface is created AND

- ▶ The natural slope is 25% or more OR
- ▶ The natural slope is 10% or more and erosive soil conditions are known

Natural Slope  
(Definition in Permit)

The natural grade of a slope prior to grading activity.





# Commercial and Industrial



- ▶ Commercial and Industrial developments of 100,000 square feet or more
- ▶ Examples include:
  - ▶ Recreational facilities
  - ▶ Mini-malls
  - ▶ Hotels
  - ▶ Office buildings
  - ▶ Warehouses
  - ▶ Light industrial facilities
  - ▶ Heavy industrial facilities



# Automotive Repair Shops



## Based on Standard Industrial Classification Codes

- ▶ 5013 - Motor Vehicle Supplies and New Parts
- ▶ 7532 - Top, Body, Upholstery Repair Shops and Paint Shops
- ▶ 7533 - Automotive Exhaust System Repair Shops
- ▶ 7534 - Tire Retreading and Repair Shops
- ▶ 7537 - Automotive Transmission Repair Shops
- ▶ 7538 - General Automotive Repair Shops
- ▶ 7539 - Automotive Repair Shops, NEC





# Retail Gasoline Outlets



- ▶ Where project disturbs greater than 5,000 square feet
  - ▶ See Exhibit 6 – FAQ Q.18 for further guidance



# Restaurants



- ▶ Where development disturbs greater than 5,000 square feet
- ▶ See Exhibit 6 – FAQ Q.18 for further guidance



# Home Subdivisions



rcwatershed.org

- ▶ Construction of 10 or more housing units
- ▶ Examples include:
  - ▶ Single family dwelling units
  - ▶ Multi-family dwelling units
  - ▶ Condominiums
  - ▶ Apartments





# Parking Lots



- ▶ Parking potentially exposed to urban runoff AND
  - ▶ 5,000 square feet or more of impervious surface OR
  - ▶ 25 or more spaces
  - ▶ See FAQs #12 and #21



# Redevelopment PDP: Permit Definition



- ▶ Redevelopment Project is defined as:
  - ▶ New development on a previously disturbed parcel.
- ▶ The following are not included as “Redevelopment”
  - ▶ Emergency redevelopment activities required to protect public health and safety, and
  - ▶ Routine maintenance activities conducted to maintain original line and grade, hydraulic capacity, or restore original purpose of the facility.

# Determining Project Category



- **SWMP Figure 4-2**
  - Useful tool Permittees may use to determine project category
  - Simple to use checklist
  - Provides a place to document category determination!
  
- **WQMP Guidance Section 1** also provides a description of each project category

**Checklist for Identifying Discretionary New Development or Redevelopment Projects as Priority Development Projects Requiring a Project-Specific WQMP**  
Whitewater River Region

Project File No.		
Project Name		
Project Location		
Project Description		
Project Applicant Information (Name, Address, Telephone No.)		

Proposed Project Consists of or Includes:	Yes	No
Single-family hillside residences that create 10,000 square feet, or more, of impervious area where the natural slope is 25% or greater.	<input type="checkbox"/>	<input type="checkbox"/>
Single-family hillside residences that create 10,000 square feet, or more, of impervious area where the natural slope is 10% or greater where erosive soil conditions are known.	<input type="checkbox"/>	<input type="checkbox"/>
Commercial and industrial developments of 100,000 square feet or more.	<input type="checkbox"/>	<input type="checkbox"/>
Automotive repair shops (Standard Industrial Classification (SIC) codes <sup>1</sup> 5013, 7530, 7533, 7534, 7537, 7538, and 7539).	<input type="checkbox"/>	<input type="checkbox"/>
Retail gasoline outlets disturbing greater than 5,000 square feet.	<input type="checkbox"/>	<input type="checkbox"/>
Restaurants disturbing greater than 5,000 square feet.	<input type="checkbox"/>	<input type="checkbox"/>
Home subdivisions with 10 or more housing units.	<input type="checkbox"/>	<input type="checkbox"/>
Parking lots of 5,000 square feet or more, or with 25 or more parking spaces, and potentially exposed to Urban Runoff.	<input type="checkbox"/>	<input type="checkbox"/>

<sup>1</sup> Descriptions of SIC codes can be found at <http://www.coho.gov/policies/sicsearch.html>.

---

**DETERMINATION: Circle appropriate determination.**

**All** question answered "YES" → Project requires a project-specific WQMP.

**All** questions are answered "NO" → Project requires incorporation of Site Design BMPs and Source Control BMPs imposed through Conditions of Approval or Permit conditions.

# Special Considerations for Redevelopment



## The 50% Rule for Redevelopment Projects

- ▶ Where a Priority Redevelopment Project replaces
  - ▶ < 50% of the impervious surfaces on an existing developed site, and
  - ▶ The site was not previously subject to Priority Development Project requirements, then
  - ▶ The WQMP design standards apply only to the addition or replacement, and not to the entire developed site.
- ▶ Where a Priority Redevelopment Project replaces
  - ▶  $\geq$  50% of the impervious surfaces on an existing developed site, then
  - ▶ The WQMP design standards apply to the entire development.

# Public Works Projects



- ▶ A WQMP is required for Public Works Projects that have similarities to Priority Development Projects (PDP)
- ▶ For example...



# Public Works Projects



▶ A Public Works project must have a WQMP if:

- ▶ it has similar functions or characteristics of a Priority Development Project, or may conduct similar activities after construction

▶ Examples Include:

- ▶ A corporation yard with a vehicle and equipment maintenance facility is similar to an automotive repair shop
- ▶ A civic center or library has characteristics similar to a commercial office building
- ▶ A senior center with a cafeteria is similar to a restaurant



# Other Development Projects



- ▶ A WQMP is not required\* for Other Development Projects



*\*Agencies may require a WQMP on any project where deemed necessary to protect receiving waters from the impacts of urban runoff, or at the discretion of the local Agency.*

# Other Development Projects

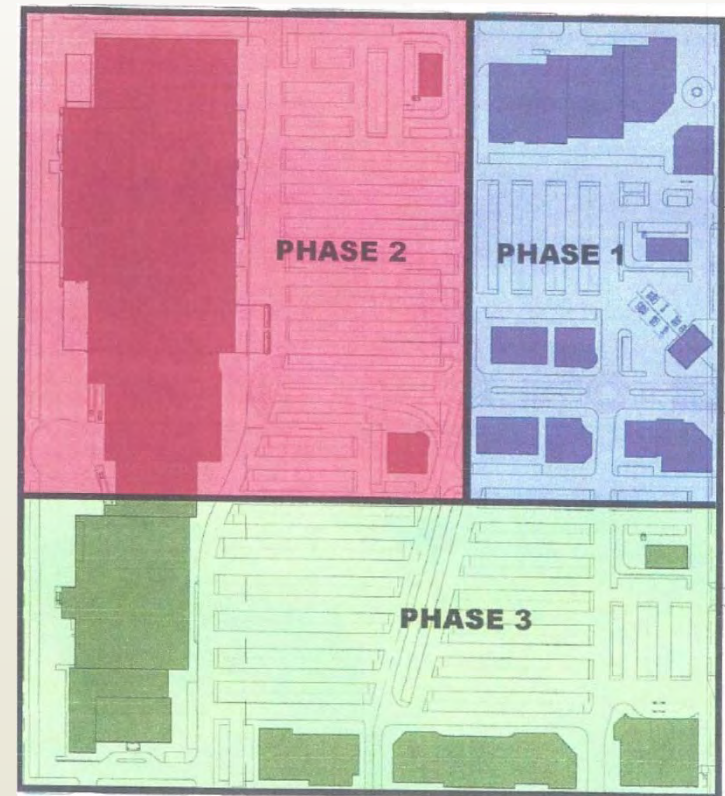


- ▶ **Other Development Projects**
  - ▶ Projects that are not Priority Development Projects AND
  - ▶ Discharge into a MS4 AND
  - ▶ Disturb an area of one acre or more, or less than one acre if part of a larger plan of development
- ▶ **Other Development Projects are not required\* to prepare a WQMP**
  - ▶ \*Agencies may require a WQMP on any project where deemed necessary to protect receiving waters from the impacts of urban runoff
- ▶ **Other Development Projects must incorporate a combination of Structural and Non-Structural Source Control BMPs as applicable and feasible.**

# Desert Cities Question:



- ▶ Have you had any “other” Projects?
  - ▶ If so, what type of Projects?





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# Using the WQMP Template

Front Cover through Section III



# The WQMP Template



- The 2014 WQMP Template is useful in preparing a WQMP
- The WQMP Template may be downloaded from:
  - <http://rcflood.org/NPDES/hitewaterWS.aspx>
  - Scroll down and select the “WQMP” tab to find the download link

2014 Whitewater River Region WQMP

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## NOTE TO PREPARER

This WQMP template uses 'hidden' text to provide important and necessary instructions to the preparer that will not be printed for your submittal. By default, Microsoft Word 2007 and 2010 are set to not display Hidden Text on your screen. If you can see the message between the two lines below, your computer is set to display 'hidden' text and you will be able to see the provided instructions.

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If you cannot see the message between the lines above, you will need to display hidden text to see the instructions that are included throughout this template.

To change the options regarding hidden text, do the following:

**MS Word 2010**

1. With this document open, click on the 'File' tab at the upper left of the MS Word window.
2. In the menu on the left, click the 'Options' button.
3. To view Hidden Text on your screen:
  - a. In the window that opens, click 'Display' on the left.
  - b. In the right side of the window, under the heading 'Always show these formatting marks on the screen', check the box for 'Hidden Text'.
4. To change whether or not Hidden Text is printed:
  - a. In the same window panel as described in b) above, under the heading 'Printing Options' check or un-check the box for 'Print Hidden Text'.

**MS Word 2007**

1. With this document open, click on the round Office Button at the upper left of the MS Word window.
2. On the menu that opens, click on 'Word Options' (near the bottom of the menu).
3. **To view Hidden Text on your screen:**
  - a. In the window that opens, click 'Display' on the left.
  - b. In the right side of the window, under the heading 'Always show these formatting marks on the screen', check the box for 'Hidden Text'.
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  - a. In the same window panel as described in b) above, under the heading 'Printing Options' check or un-check the box for 'Print Hidden Text'.

When printing this template, please remember to turn the display of 'Hidden Text' off to perform any final formatting or word processing.

# The WQMP Template

## A Look Inside



- WQMP Template is a Microsoft Word Template
  - MS Word 2007 and 2010 Compatible
- WQMP Template utilizes 'hidden' text to provide instructions
- Successful use of the WQMP Template requires reading the "Note to Preparer"

2014 Whitewater River Region WQMP

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# The WQMP Template

## A Look Inside



- ▶ **Cover**
- ▶ **Owner's Certification**
- ▶ **Contents**
- ▶ **Sections**
  - I. Project Description
  - II. Site Characterization
  - III. Pollutants of Concern
  - IV. Hydrologic Conditions of Concern
  - V. Best Management Practices
  - VI. Operation and Maintenance Responsibility for BMPs
  - VII. Funding
- ▶ **Appendices**
  - A. Conditions of Approval
  - B. Vicinity Map, WQMP Site Plan, and Receiving Water Map
  - C. Supporting Detail Related to Hydrologic Conditions of Concern
  - D. Educational Materials
  - E. Soils Report
  - F. Structural BMP and/or Retention Facility Sizing Calculations and Design Details
  - G. Agreements Ensuring On-Going O&M and Funding
  - H. Phase I Environmental Assessment
  - I. WQMP Summary Data Form



# Cover Sheet, Owners Certification, TOC



- ▶ Content is generally self-explanatory
- ▶ Complete identification information aids in the review and approval of the WQMP
- ▶ WQMPs must be signed and sealed by a Civil Engineer
- ▶ Owner must certify the WQMP
  - ❖ Agency *may* waive signature on Preliminary WQMPs

2014 Whitewater River Region WQMP

---

**Project Specific  
Water Quality Management Plan**

For: Project Title  
Location Address

DEVELOPMENT NO.      TRACT, PARCEL OR OTHER ID NUMBER  
DESIGN REVIEW NO.    DESIGN REVIEW NO.

Prepared for:  
Name of Owner/Developer  
Street Address  
City, State Zip  
Telephone: Telephone Number

Prepared by:  
Name and Title of Preparer  
Company Name  
Street Address  
City, State ZIP  
Telephone: Telephone Number

Original Date Prepared:      Date  
Revision Date(s):              Date

# I – Project Description



- Content is generally self explanatory
- Receiving Water
  - Use Table 2 or Figure 2 from the WQMP Guidance to identify the receiving water.
  - Watershed maps can be found at <http://rcflood.org/NPDES/WhitewaterWS.aspx>. Scroll down and select the 'Map' tab.
  - Geodatabase – We'll talk about this a little later.

Let's look at Table 2 and Figure 2...

2014 Whitewater River Region WQMP Project Title	
<b>I. Project Description</b>	
<b>Project Owner:</b>	Name of Owner/Developer Street Address City, State Zip Telephone Number
<b>WQMP Preparer:</b>	Name and Title of Preparer Street Address City, State ZIP Telephone Number
<b>Project Site Address:</b>	Insert Project Street Address Insert Project City, State, ZIP
<b>Planning Area/ Community Name/ Development Name:</b>	Insert Planning Area / Community Name/ Development Name, if known
<b>APN Number(s):</b>	Insert APN Number(s) - ENTER for new line
<b>Latitude &amp; Longitude:</b>	Insert coordinates here
<b>Receiving Water:</b>	Enter Receiving Water which project will directly or indirectly discharge to, from Table 2 and/or Figure 2 of the Whitewater River Region WQMP Guidance
<b>Project Site Size:</b>	Insert site size (indicate to 0.1 acres); include size of existing site, if required
<b>Standard Industrial Classification (SIC) Code:</b>	Insert SIC, code, if applicable
<b>Formation of Home Owners' Association (HOA) or Property Owners Association (POA):</b>	Y <input type="checkbox"/> N <input type="checkbox"/>
<b>DATE</b>	1-1

# Table 2: WQMP Guidance

## Page 9



**Table 2. List of Sub-Watersheds/Receiving Waters in Whitewater River Watershed**

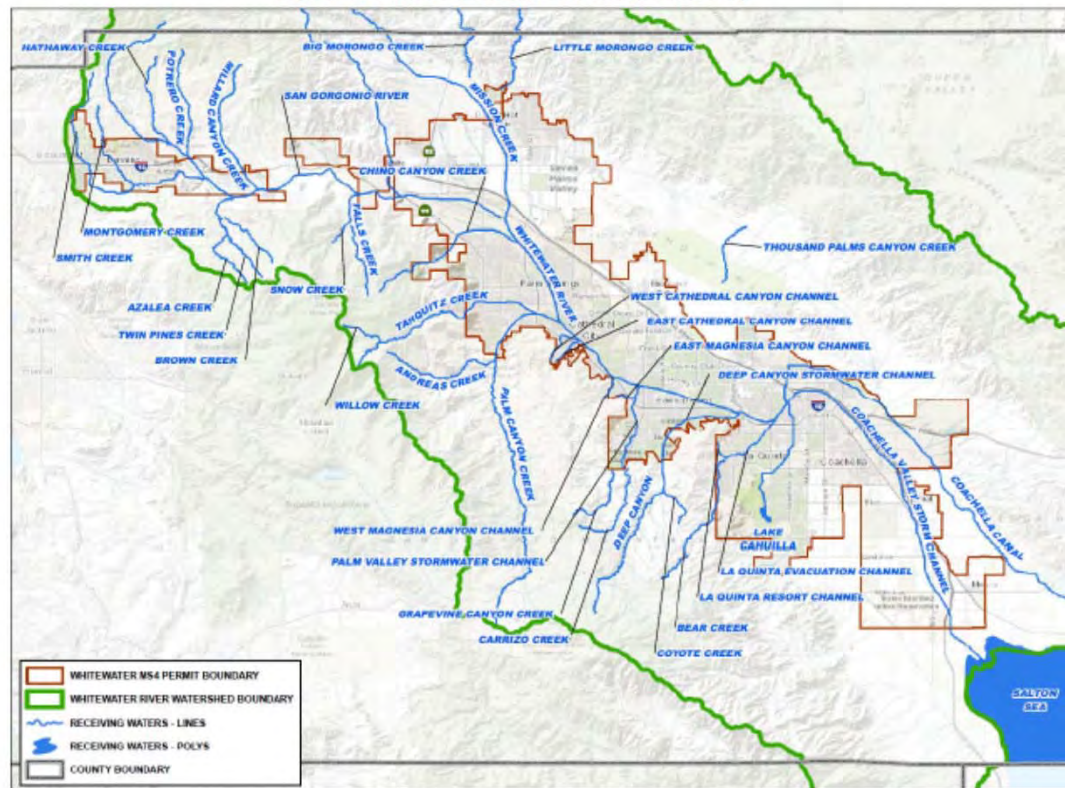
Drains or Streams <sup>a</sup>	Washes <sup>b</sup>
Coachella Valley Stormwater Channel	Bear Creek
Little Morongo Creek	Deep Canyon Stormwater Channel
Mission Creek	East Cathedral Canyon Channel
Palm Canyon Creek	East Magnesia Canyon Channel
San Gorgonio River	La Quinta Evacuation Channel
Tahquitz Creek	La Quinta Resort Channel
Whitewater River	Montgomery Creek
	Palm Valley Stormwater Channel
	Smith Creek
	West Cathedral Canyon Channel
	West Magnesia Canyon Channel
	Whitewater River from recharge basins to the Coachella Valley Stormwater Channel

Notes: a. Colorado River Basin Regional Water Quality Control Board Order No. R7-2013-0011, Finding 33.  
b. Colorado River Basin Regional Water Quality Control Board Order No. R7-2013-0011, Finding 32.

# Figure 2: WQMP Guidance Page 10



Figure 2. Whitewater River Region Receiving Waters Map



June 2014

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# I – Project Description



- ▶ **Standard Industrial Classification Codes (SIC) provide information about planned uses**

Project Site Address:	Insert Project Street Address Insert Project City, State, ZIP
Planning Area/ Community Name/ Development Name:	Insert Planning Area / Community Name/ Development Name, if known
APN Number(s):	Insert APN Number(s) - ENTER for new line
Latitude & Longitude:	Insert coordinates here
Receiving Water:	Enter Receiving Water which project will directly or indirectly discharge to, from Table 2 and/or Figure 2 of the Whitewater River Region WQMP Guidance
Project Site Size:	Insert site size (indicate to 0.1 acres); include size of existing site, if required
Standard Industrial Classification (SIC) Code:	Insert SIC, code, if applicable
Formation of Home Owners' Association (HOA) or Property Owners Association (POA):	Y <input type="checkbox"/> N <input type="checkbox"/>

# I – Project Description



## ➤ Additional Permits

- Other permits often contain requirements related to urban runoff.
- Avoid redundant efforts, consider requirements of all permits.

2014 Whitewater River Region WQMP	
Project Title	
Additional Permits/Approvals required for the Project:	
AGENCY	Permit required
State Department of Fish and Wildlife, Fish and Game Code §1602 Streambed Alteration Agreement	Y <input type="checkbox"/> N <input type="checkbox"/>
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Certification	Y <input type="checkbox"/> N <input type="checkbox"/>
US Army Corps of Engineers, CWA Section 404 permit	Y <input type="checkbox"/> N <input type="checkbox"/>
US Fish and Wildlife, Endangered Species Act Section 7 biological opinion	Y <input type="checkbox"/> N <input type="checkbox"/>
Statewide Construction General Permit Coverage	Y <input type="checkbox"/> N <input type="checkbox"/>
Statewide Industrial General Permit Coverage	Y <input type="checkbox"/> N <input type="checkbox"/>
Other (please list in the space below as required)	

# I – Project Description



- Describe Project
  - Provide a detailed project description
- WQMP Appendix References
  - Conditions of Approval included in Appendix A
    - Include copy and highlight applicable conditions
  - Vicinity Map
    - Provide sufficient detail to locate project
    - Receiving Water Map
  - Site Plan
    - Provide the listed details. May require multiple sheets

Whitewater River Region WQMP  
**Project Title**

---

Describe Project here.

Appendix A of this project-specific WQMP includes a complete copy of the final Conditions of Approval. Appendix B of this project-specific WQMP includes:

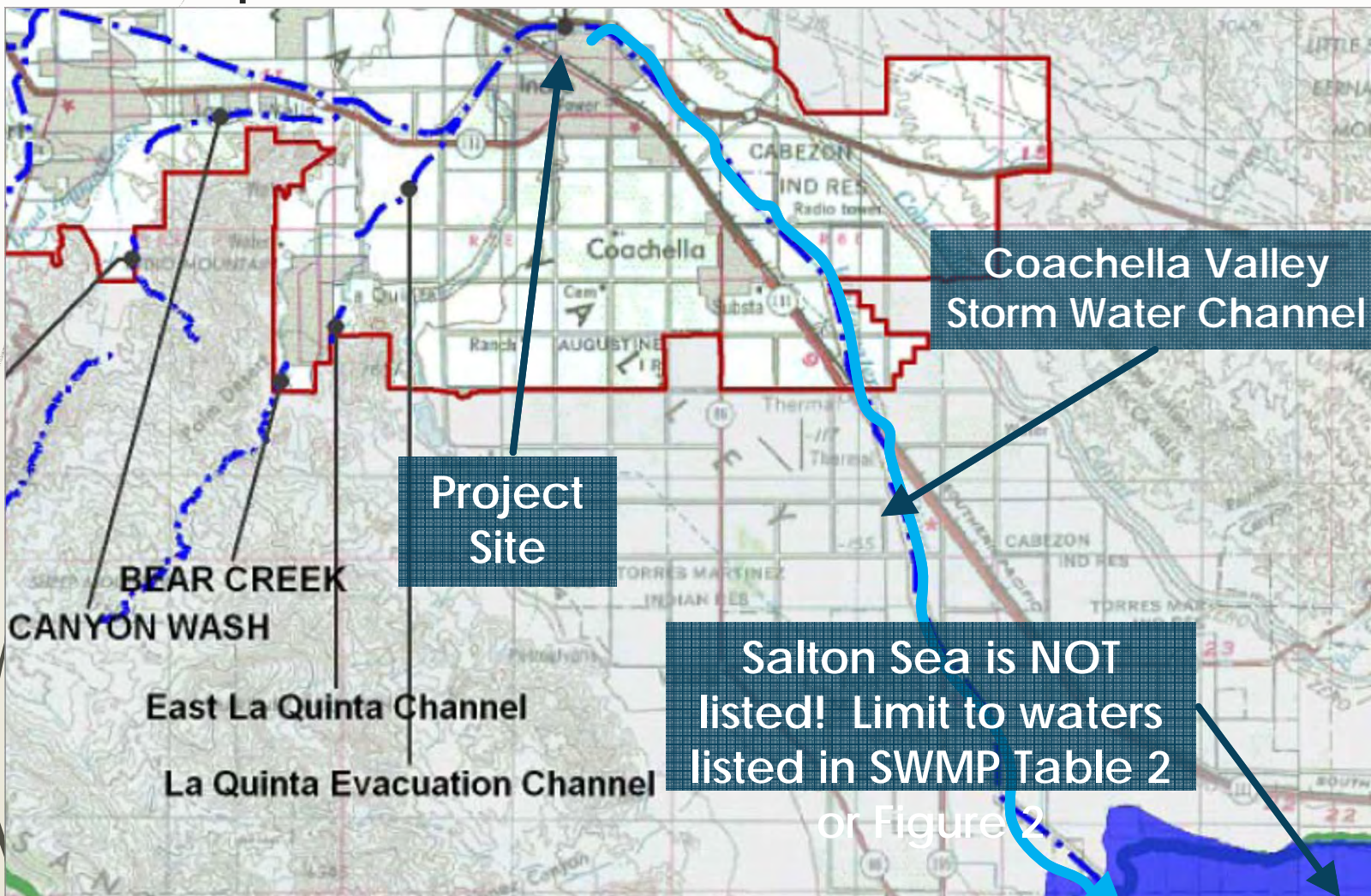
- a. A Vicinity Map identifying the project site and surrounding planning areas in sufficient detail to allow the project site to be plotted on Permittee base mapping; and
- b. A Site Plan for the project. The Site Plan included as part of Appendix B depicts the following project features:
  - Location and identification of all structural BMPs, including Treatment Control BMPs.
  - Landscaped areas.
  - Paved areas and intended uses (i.e., parking, outdoor work area, outdoor material storage area, sidewalks, patios, tennis courts, etc.).
  - Number and type of structures and intended uses (i.e., buildings, tenant spaces, dwelling units, community facilities such as pools, recreation facilities, tot lots, etc.).
  - Infrastructure (i.e., streets, storm drains, etc.) that will revert to public agency ownership and operation.
  - Location of existing and proposed public and private storm drainage facilities (i.e., storm drains, channels, basins, etc.), including catch basins and other inlet/outlet structures. Existing and proposed drainage facilities should be clearly differentiated.
  - Location(s) of Receiving Waters to which the project directly or indirectly discharges.
  - Location of points where onsite (or tributary offsite) flows exit the property/project site.
  - Proposed drainage area boundaries, including tributary offsite areas, for each location where flows exit the property/project site. Each tributary area should be clearly denoted.
  - Pre- and post-project topography.

Appendix I to the SWMP is a one page form that summarizes pertinent information relative to this project-specific WQMP.

DATE 1-3



# Example Receiving Water Map



Appendix B#-Tract 29394 Receiving Water Map



## II – Site Characterization



- **Current and Proposed Property Use - Describe**
  - Existing use may be used to indicate legacy pollutants
  - Proposed use must be consistent with the SIC codes provided in Section I – Project Description

2014 Whitewater River Region WQMP	
<u>Project Title</u>	
<b>II. Site Characterization</b>	
Land Use Designation or Zoning:	Insert current and proposed zoning or land use designation
Current Property Use:	Insert actual use(s) of property (i.e., undeveloped, previously developed but vacant, etc.)
Proposed Property Use:	Insert proposed use of property
Availability of Soils Report:	Y <input type="checkbox"/> N <input type="checkbox"/> <i>Note: A soils report is required if infiltration BMPs are utilized. Attach report in Appendix E.</i>
Phase 1 Site Assessment:	Y <input type="checkbox"/> N <input type="checkbox"/> <i>Note: If prepared, attached remediation summary and use restrictions in Appendix H.</i>

## II – Site Characterization



- ▶ **Soils Report – Check Y or N**
  - ▶ Report is required if infiltration BMPs are proposed. Include in Appendix E.
  - ▶ WWR Stormwater Quality BMP Design Handbook for LID – Appendix B’s Infiltration Testing Guidelines shall be used to make sure that appropriate testing and evaluation methods are utilized in the soils investigation
- ▶ **Phase 1 Site Assessment – Check Y or N**
  - ▶ The Phase 1 report, if available, helps identify potential legacy pollutants. Include the report/summary in Appendix H.

2014 Whitewater River Region WQMP	
Project Title	
<b>II. Site Characterization</b>	
Land Use Designation or Zoning:	Insert current and proposed zoning or land use designation
Current Property Use:	Insert actual use(s) of property (i.e., undeveloped, previously developed but vacant, etc.)
Proposed Property Use:	Insert proposed use of property
Availability of Soils Report:	Y <input type="checkbox"/> N <input type="checkbox"/> <i>Note: A soils report is required if infiltration BMPs are utilized. Attach report in Appendix E.</i>
Phase 1 Site Assessment:	Y <input type="checkbox"/> N <input type="checkbox"/> <i>Note: If prepared, attached remediation summary and use restrictions in Appendix H.</i>

## II – Site Characterization



- ▶ Receiving Water summary table:
  - ▶ List tributary receiving waters from upstream to downstream
    - ▶ Use the map prepared in Section I – Project Description
  - ▶ List 303(d) impairments of receiving waters, if any
  - ▶ List designated beneficial uses of receiving waters
  - ▶ List proximity of site to any downstream receiving water with a RARE beneficial use

2014 Whitewater River Region WQMP  
Project Title

Receiving Waters for Urban Runoff from Site

Receiving Waters	EPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use Designated Receiving Waters
Insert name of 1st Receiving Water	List any EPA approved 303(d) impairments of 1st Receiving Water, including approved TMDL pollutant limitations	Insert designated Beneficial Use of 1st Receiving Water	Insert distance of project to RARE-designated waters (indicate whether feet, yards, or miles)
Insert name of 2nd Receiving Water			Insert distance of project to RARE-designated waters (indicate whether feet, yards, or miles)
Insert name of 3rd Receiving Water			Insert distance of project to RARE-designated waters (indicate whether feet, yards, or miles)

Finding this information is easy! FAQ Q.4 provides resource information and direct links.

# 303(d) List Impairment Determination



## 2010 California 303(d) List of Water Quality Limited Segments\*

Water quality limited segments requiring a TMDL(5A), being addressed by TMDL(5B), and/or being addressed by an action other than TMDL(5C).

REGION	WATER BODY NAME	ESTIMATED SIZE AFFECTED	UNIT	POLLUTANT	POLLUTANT CATEGORY	POTENTIAL SOURCES	SOURCE CATEGORY
7	Alamo River	57	Miles	Toxaphene	Pesticides	Source Unknown	Source Unknown
7	Coachella Valley Storm Water Channel	24	Miles	DDT (Dichlorodiphenyltrichloroethane)	Pesticides	Source Unknown	Source Unknown
7	Coachella Valley Storm Water Channel	24	Miles	Dieldrin	Pesticides	Source Unknown	Source Unknown
7	Coachella Valley Storm Water Channel	24	Miles	PCBs (Polychlorinated biphenyls)	Other Organics	Source Unknown	Source Unknown
7	Coachella Valley Storm Water Channel	24	Miles	Pathogens	Pathogens	Source Unknown	Source Unknown
7	Coachella Valley Storm Water Channel	24	Miles	Toxaphene	Pesticides	Source Unknown	Source Unknown
7							Unknown
7							Unknown
7							Unknown
7							Unknown

### See FAQ Q.14

Provides verification that DDT, Dieldrin, PCBs, and Toxaphene do not need to be addressed in a project's WQMP.

Coachella Valley Storm Water Channel 303(d) Impairments:  
DDT, Dieldrin, PCBs, Pathogens, and Toxaphene  
The impaired reach of the CVSC is outside the Permit area.



# II – Site Characterization



## Updates to Table 3 in the 2014 WQMP Guidance

WQMP Guidance Table 3 – Page 12

Designated Beneficial Use Determination

Whitewater River Region WQMP Guidance

Table 3. Receiving Waters and Beneficial Uses

Receiving Water	Beneficial Uses										
	MUN	AGR	FRSH	GWR	REC I	REC II	WARM	COLD	WILD	POW	RARE
Big Morongo Creek	P	X		X	X <sup>a</sup>	X	X		X		
Coachella Canal	P	X		X	X <sup>c</sup>	X <sup>c</sup>	X		X		X <sup>d</sup>
Coachella Valley Stormwater Channel <sup>b</sup>			X		X <sup>c</sup>	X <sup>c</sup>	X		X		X <sup>d</sup>
Chino Canyon Creek	X			X	P	X	X		X		
Lake Cahulla	P	X			X	X	X	I	X		
Little Morongo Creek	P	X		X	X	X	X		X		
Millard Canyon Creek	X	X		X	X	X	X		X		
Mission Creek	P	X		X	X	X	X		X		
Palm Canyon Creek	P	X		X	X	X	X		X		
Potero Creek	P	X		X	X	X	X		X		
San Geronio River	P	X		X	X	X		X	X		
Tehquitz Creek	P			X	X	X		X	X		
Whitewater River <sup>e</sup>	X	X		X	X	X	I	X	X	X	
Washes (Ephemeral Streams) <sup>f</sup>			I <sup>g</sup>	I		I	<sup>h</sup>		I		

Abbreviations:

X – Existing Beneficial Use  
I – Intermittent Beneficial Use

MUN – Municipal & Domestic Supply

FRSH – Freshwater Replenishment

REC I – Water Contact Recreation

WARM – Warm Freshwater Habitat

WILD – Wildlife Habitat

RARE – Preservation of Rare, Threatened, or Endangered Species

P – Potential Beneficial Use

AGR – Agricultural Supply

GWR – Groundwater Recharge

REC II – Non-Contact Water Recreation

COLD – Cold Freshwater Habitat

POW – Hydropower Generation

Notes:

a. Although it is not encouraged, children play in the water infrequently on the wildlife reserve.

b. Section of perennial flow from approximately Indian to the Salton Sea.

c. Unauthorized use.

d. Rare, endangered, or threatened wildlife exists in or utilizes some of this waterway.

e. Includes the section of flow from the headwaters in the San Geronio Mountains to (and including) the Whitewater

Recharge Basins near Indian Avenue crossing in the City of Palm Springs.

f. Applies only to tributaries to the Salton Sea.

g. This beneficial use, if any, to be determined on a case-by-case basis.

h. Includes the section of ephemeral flow in the Whitewater River Stormwater Channel and Coachella Valley Stormwater

Channel from Indian Canyon Drive to approximately 1/2 mile west of Monroe Street crossing.

Source: Table 2-3, Beneficial Uses of Surface Waters in the West Colorado River Basin, "Water Quality Control Plan

for the Colorado River Basin Region" adopted June 2006. The "Water Quality Control Plan for the Colorado River

Basin Region" is periodically updated and the most recent version is available at

[http://www.waterboards.ca.gov/coloradriver/water\\_issues/programs/basin\\_planning/](http://www.waterboards.ca.gov/coloradriver/water_issues/programs/basin_planning/)

# III – Pollutants of Concern



## ▶ Pollutants of Concern

- ▶ Detailed instructions are part of ‘Hidden Text’ and will not be displayed when the WQMP Template is printed.
- ▶ Template Instructions contain succinct, but important guidance. Developers should read and understand the instructions!

Whitewater River Region WQMP  
Project Title

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### III. Pollutants of Concern

*Instructions:*

*Potential pollutants associated with Urban Runoff from the proposed project must be identified. Exhibit 1 of the WQMP provides brief descriptions of typical pollutants associated with Urban Runoff and a table that associates typical potential pollutants with types of development (land use). It should be noted that at the Permittee's discretion, the Permittee may also accept updated studies from the California Association of Stormwater Quality Agencies (CASQA), USEPA, SWZCB and/or other commonly accepted agencies/associations acceptable to the Permittee for determination of Pollutants of Concern associated with given land use. Additionally, in identifying Pollutants of Concern, the presence of legacy pesticides, nutrients, or hazardous substances in the site's soils as a result of past uses and their potential for exposure to Urban Runoff must be addressed in project-specific WQMPs. The Permittee may also require specific pollutants commonly associated with urban runoff to be addressed based on known problems in the watershed. The list of potential Urban Runoff pollutants identified for the project must be compared with the pollutants identified as causing an impairment of Receiving Waters, if any. To identify pollutants impairing proximate Receiving Waters, each project proponent preparing a project-specific WQMP shall, at a minimum, do the following:*

- a. For each of the proposed project discharge points, identify the proximate Receiving Water for each discharge point, using hydrologic unit basin numbers as identified in the most recent version of the Water Quality Control Plan for the Colorado River Basin.*
- b. For each proximate Receiving Water identified, review the most recent Clean Water Act Section 303(d) list of impaired water bodies (available at [http://www.waterboards.ca.gov/colorado/river/water\\_issues/programs/mdl/](http://www.waterboards.ca.gov/colorado/river/water_issues/programs/mdl/)) and list all pollutants for which the proximate Receiving Waters are impaired in Table 1, Pollutants of Concern Summary. In addition, projects tributary to the flowing reach of the Coachella Valley Storm Water Channel shall identify Bacteria and Viruses within Table 1 as impairing Receiving Waters.*
- c.*
- d. Using Exhibit 1 (General Categories of Pollutants of Concern) of the Whitewater River Region WQMP, identify all post-construction potential pollutants of concern from the project site and summarize them in Table 1, Pollutants of Concern Summary.*
- e. Compare the list of pollutants for which the proximate Receiving Waters are impaired with the pollutants of concern to be generated by the project. For pollutants of concern that are causing an impairment in Receiving Waters, the project WQMP shall incorporate one or more Treatment Control BMPs of medium or high effectiveness in reducing those pollutants.*

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## III – Pollutants of Concern



### ▶ Pollutant of Concern Summary Table

- ▶ Pollutant Category
- ▶ Potential for Project?
  - ▶ Answer 'Yes' or 'No'
- ▶ Causing Receiving Water Impairment?
  - ▶ Answer 'Yes' or 'No'.
  - ▶ Refer to the Receiving Water Summary Table, 303(d) List of Impairments, prepared in Section II – Site Characterization

**Table 1. Pollutant of Concern Summary**

Pollutant Category	Potential for Project and/or Existing Site	Causing Receiving Water Impairment
Bacteria/Virus		
Heavy Metals		
Nutrients		
Toxic Organic Compounds		
Sediment/Turbidity		
Trash & Debris		
Oil & Grease		
Other (specify pollutant):		
Other (specify pollutant):		



# Determination of Potential Pollutants



## Potential Pollutants Generated by Land Use Type

(Sources: San Bernardino and Orange County Technical Guidance Documents for Water Quality Management Plans, dated July 28, 2011 and May 19, 2011, respectively, and the Riverside County Water Quality Management Plan, Santa Ana Region, dated October 22, 2012)

Type of Development (Land Use)	General Pollutant Categories						
	Sediment/ Turbidity	Nutrients	Toxic Organic Compounds	Trash & Debris	Bacteria & Viruses (also: Pathogens)	Oil & Grease	Heavy Metals
Detached Residential Development	P	P	P	P	P	P	N
Attached Residential Development	P	P	N	P	P	P(2)	N
Commercial/ Industrial Development	P	P(1)	P(5)	P	P(3)	P	P(6)
Automotive Repair Shops	N	N	P(4,5)	P	N	P	P
Restaurants							N
Hillside Development							N
Parking Lots							P
Retail Gasoline Outlets	N	N	P(4)	P	N	P	P

Type of Development

**Potential Pollutants**

N = Not a Potential Pollutant  
P = A Potential Pollutant

# Determination of Potential Pollutants



- ▶ **Table Notes are important!**
- ▶ **Notes 1-3 specify activities or site features associated with the Potential Pollutant.**
  1. A potential pollutant if non-native landscaping exists or is proposed on site.
  2. A potential pollutant if the project includes uncovered parking areas.
  3. A potential pollutant if land use involves food or animal waste.
- ▶ **Notes 1-3 allow a Potential Pollutant to be eliminated if the activity or site feature is “Not Part of the Project.”**
- ▶ **Notes 4-6 only clarify the nature of a Potential Pollutant.**
  4. Specifically, petroleum hydrocarbons.
  5. Specifically, solvents. No expected for commercial projects unless vehicle related.
  6. A potential pollutant if outdoor storage or metal roofs.

# Example Determination of Potential Pollutants



Type of Development (Land Use)	General Pollutant Categories						
	Sediment/ Turbidity	Nutrients	Toxic Organic Compounds	Trash & Debris	Bacteria & Viruses (also: Pathogens)	Oil & Grease	Heavy Metals
Detached Residential Development	P	P	N	P	P	P	N
Attached Residential Development	P	P	N	P	P	P <sup>(2)</sup>	N
Commercial/ Industrial Development	P	P <sup>(1)</sup>	P <sup>(5)</sup>	P	P <sup>(3)</sup>	P	P <sup>(6)</sup>
Automotive Repair Shops	N	N	P <sup>(4,5)</sup>	P	N	P	P
Restaurants	N	N	N	P	P	P	N
Hillside Development	P	P	N	P	P	P	N
Parking Lots	P	P <sup>(1)</sup>	P <sup>(4)</sup>	P	P	P	P
Retail Gasoline Outlets	N	N	P <sup>(4)</sup>	P	N	P	P

Example Project - Identify Potential Project Pollutants  
Restaurant and Parking Lot with Landscaping

See FAQ – Q.12 and Q.13

# Example Determination of Potential Pollutants



## Restaurant and Parking Lot with Landscaping Coachella Valley Storm Water Channel

Pollutant Category	Potential for Project and/or Existing Site	Causing Receiving Water Impairment
Bacteria/Virus	Yes	Yes - Pathogens
Heavy Metals	Yes	
Nutrients	Yes	
Toxic Organic Compounds	Yes	
Sediment/Turbidity	Yes	
Trash & Debris	Yes	
Oil & Grease	Yes	
Other (specify pollutant):	Yes	
Other (specify pollutant):	Yes	

*Remember to Check  
Phase 1 Report  
for Legacy Pollutants*



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# Using the WQMP Template

Section IV through Section V

## IV – Hydrologic Conditions of Concern



- ▶ **Hydrologic Conditions of Concern – HCOC Defined:**
- ▶ “Changes caused by a New Development or Redevelopment Project to Urban Runoff
  - ▶ flow rates,
  - ▶ velocities,
  - ▶ durations and/or
  - ▶ volumes
- ▶ that cause significant downstream erosion beyond the pre-development condition or
- ▶ cause significant adverse impacts to stream habitat.”

# IV – Hydrologic Conditions of Concern



- ▶ **On-Site Retention Required? Check Yes or No: YES**
  - ▶ Check “Yes” if local ordinances require the project to retain urban runoff on site.
    - ▶ WQMP Guidance Table 6 identifies agencies with retention requirements.
    - ▶ If “Yes” is checked, then this Section IV is DONE!

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### IV. Hydrologic Conditions of Concern

**Local Jurisdiction Requires On-Site Retention of Urban Runoff:**

Yes  The project will be required to retain urban runoff onsite in conformance with local ordinance (See Table 6 of the WQMP Guidance document, “Local Land use Authorities Requiring Onsite Retention of Stormwater”). This section does not need to be completed, however, retention facility design details and sizing calculations must be included in Appendix F.

No  This section must be completed.

**This Project meets the following condition:**

**Condition A:** 1) Runoff from the Project is discharged directly to a publicly-owned, operated and maintained MS4 or engineered and maintained channel, 2) the discharge is in full compliance with local land use authority requirements for connections and discharges to the MS4 (including both quality and quantity requirements), 3) the discharge would not significantly impact stream habitat in proximate Receiving Waters, and 4) the discharge is authorized by the local land use authority.

**Condition B:** The project disturbs less than 1 acre and is not part of a larger common plan of development that exceeds 1 acre of disturbance. The disturbed area calculation must include all disturbances associated with larger plans of development.

**Condition C:** The project’s runoff flow rate, volume, velocity and duration for the post-development condition do not exceed the pre-development condition for the 2-year, 24-hour and 10-year 24-hour rainfall events. This condition can be achieved by, where applicable, complying with the local land use authority’s on-site retention ordinance, or minimizing impervious area on a site and incorporating other Site-Design BMP concepts and LID/Site Design BMPs that assure non-exceedance of pre-development conditions. This condition must be substantiated by hydrologic modeling methods acceptable to the local land use authority.

**None:** Refer to Section 3.4 of the Whitewater River Region WQMP Guidance document for additional requirements.

Supporting engineering studies, calculations, and reports are included in Appendix C.

	2 year – 24 hour		10 year – 24 hour	
	Precondition	Post-condition	Precondition	Post-condition
Discharge (cfs)				
Velocity (fps)				
Volume (cubic feet)				
Duration (minutes)				

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# IV – Hydrologic Conditions of Concern



- ▶ On-Site Retention Required? Check Yes or No: YES
- ▶ Retention facility design details and sizing calculations must be included in Appendix F.

*Important to Remember!*

2014 Whitewater River Region WQMP  
Project Title

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### IV. Hydrologic Conditions of Concern

**Local Jurisdiction Requires On-Site Retention of Urban Runoff:**

Yes  The project will be required to retain urban runoff onsite in conformance with local ordinance (See Table 6 of the WQMP Guidance document, "Local Land use Authorities Requiring Onsite Retention of Stormwater"). This section does not need to be completed, however, retention facility design details and sizing calculations must be included in Appendix F.

No  This section must be completed.

**This Project meets the following condition:**

**Condition A:** 1) Runoff from the Project is discharged directly to a publicly-owned, operated and maintained MS4 or engineered and maintained channel, 2) the discharge is in full compliance with local land use authority requirements for connections and discharges to the MS4 (including both quality and quantity requirements), 3) the discharge would not significantly impact stream habitat in proximate Receiving Waters, and 4) the discharge is authorized by the local land use authority.

**Condition B:** The project disturbs less than 1 acre and is not part of a larger common plan of development that exceeds 1 acre of disturbance. The disturbed area calculation must include all disturbances associated with larger plans of development.

**Condition C:** The project's runoff flow rate, volume, velocity and duration for the post-development condition do not exceed the pre-development condition for the 2-year, 24-hour and 10-year 24-hour rainfall events. This condition can be achieved by, where applicable, complying with the local land use authority's on-site retention ordinance, or minimizing impervious area on a site and incorporating other Site-Design BMP concepts and LID/Site Design BMPs that assure non-exceedance of pre-development conditions. This condition must be substantiated by hydrologic modeling methods acceptable to the local land use authority.

**Note:** Refer to Section 3.4 of the Whitewater River Region WQMP Guidance document for additional requirements.

Supporting engineering studies, calculations, and reports are included in Appendix C.

	2 year – 24 hour		10 year – 24 hour	
	Precondition	Post-condition	Precondition	Post-condition
Discharge (cfs)				
Velocity (fps)				
Volume (cubic feet)				
Duration (minutes)				

DATE 1-7

# IV – Hydrologic Conditions of Concern



- ▶ On-Site Retention Required? Check Yes or No: NO
  - ▶ Check “No” if local ordinances do not require the project to retain urban runoff on site (even if the project will retain said runoff)
  - ▶ If “No” is checked, then this Section must be completed

2014 Whitewater River Region WQMP  
Project Title

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### IV. Hydrologic Conditions of Concern

Local Jurisdiction Requires: On-Site Retention of Urban Runoff:

Yes  The project will be required to retain urban runoff onsite in conformance with local ordinance (See Table 6 of the WQMP Guidance document, “Local Land use Authorities Requiring Onsite Retention of Stormwater”). This section does not need to be completed, however, retention facility design details and sizing calculations must be included in Appendix F.

No  This section must be completed.

This Project meets the following condition:

**Condition A:** 1) Runoff from the Project is discharged directly to a publicly-owned, operated and maintained MS4 or engineered and maintained channel, 2) the discharge is in full compliance with local land use authority requirements for connections and discharges to the MS4 (including both quality and quantity requirements), 3) the discharge would not significantly impact stream habitat in proximate Receiving Waters, and 4) the discharge is authorized by the local land use authority.

**Condition B:** The project disturbs less than 1 acre and is not part of a larger common plan of development that exceeds 1 acre of disturbance. The disturbed area calculation must include all disturbances associated with larger plans of development.

**Condition C:** The project's runoff flow rate, volume, velocity and duration for the post-development condition do not exceed the pre-development condition for the 2-year, 24-hour and 10-year 24-hour rainfall events. This condition can be achieved by, where applicable, complying with the local land use authority's on-site retention ordinance, or minimizing impervious area on a site and incorporating other Site-Design BMP concepts and LID/Site Design BMPs that assure non-exceedance of pre-development conditions. This condition must be substantiated by hydrologic modeling methods acceptable to the local land use authority.

**Note:** Refer to Section 3.4 of the Whitewater River Region WQMP Guidance document for additional requirements.

Supporting engineering studies, calculations, and reports are included in Appendix C.

	2 year – 24 hour		10 year – 24 hour	
	Precondition	Post-condition	Precondition	Post-condition
Discharge (cfs)				
Velocity (fps)				
Volume (cubic feet)				
Duration (minutes)				

DATE \_\_\_\_\_ 1-7

# IV – Hydrologic Conditions of Concern



- HCOC Prevention by Definition
- None

- Select this option when Condition A, Condition B, or Condition C cannot be checked
- An HCOC evaluation will need to take place.

This Project meets the following condition:

- Condition A:** 1) Runoff from the Project is discharged directly to a publicly-owned, operated and maintained MS4 or engineered and maintained channel, 2) the discharge is in full compliance with local land use authority requirements for connections and discharges to the MS4 (including both quality and quantity requirements), 3) the discharge would not significantly impact stream habitat in proximate Receiving Waters, and 4) the discharge is authorized by the local land use authority.
- Condition B:** The project disturbs less than 1 acre and is not part of a larger common plan of development that exceeds 1 acre of disturbance. The disturbed area calculation must include all disturbances associated with larger plans of development.
- Condition C:** The project's runoff flow rate, volume, velocity and duration for the post-development condition do not exceed the pre-development condition for the 2-year, 24-hour and 10-year 24-hour rainfall events. This condition can be achieved by, where applicable, complying with the local land use authority's on-site retention ordinance, or minimizing impervious area on a site and incorporating other Site-Design BMP concepts and LID/Site Design BMPs that assure non-exceedance of pre-development conditions. This condition must be substantiated by hydrologic modeling methods acceptable to the local land use authority.
- None:** Refer to Section 3.4 of the Whitewater River Region WQMP Guidance document for additional requirements.

Supporting engineering studies, calculations, and reports are included in Appendix C.

	2 year - 24 hour		10 year - 24 hour	
	Precondition	Post-condition	Precondition	Post-condition
Discharge (cfs)				
Velocity (fps)				
Volume (cubic feet)				
Duration (minutes)				

DATE

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# IV – Hydrologic Conditions of Concern



- ▶ HCOC Prevention by Definition
- ▶ Provide summary hydrology information for the pre- and post-development condition at each discharge point, including
  - ▶ Discharge
  - ▶ Velocity
  - ▶ Volume
  - ▶ Duration

2-yr, 24-hr & 10-yr, 24-hr Events, Pre- & Post Development Conditions, with BMPs

	2 year – 24 hour		10 year – 24 hour	
	Precondition	Post-condition	Precondition	Post-condition
Discharge (cfs)				
Velocity (fps)				
Volume (cubic feet)				
Duration (minutes)				

# HCOC Evaluations



## ➤ HCOC Evaluations

- Required for projects not subject to retention ordinances and that can't substantiate Condition A, Condition B, or Condition C

## ➤ HCOC Evaluation Objective (WQMP Guidance, Section 3.4)

- To “...demonstrate that discharge flow rates, velocities, durations, and volumes from a 2-year and 10-year, 24-hour rainfall event will not significantly impact downstream erosion or stream habitat.”

# Best Management Practices



- ▶ Defined in 40 CFR 122.2 **as schedules of activities, prohibitions of practices, maintenance procedures, and other management practices** to prevent or reduce the pollution of Waters of the U.S. BMPs also include **treatment requirements, operating procedures and practices** to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. (WQMP Guidance, Exhibit 6 FAQ Q.6)



# Best Management Practices



- ▶ **Best Management Practices**
  - ▶ Essential elements for effective water pollution control
- ▶ **WQMPs must include**
  - ▶ Site Design BMP Concepts
  - ▶ LID/Site Design and Treatment Control BMPs
  - ▶ Source Control BMPs

# Site Design BMP Concepts



- ▶ Concepts that aim to incorporate natural site features such as vegetation and porous surfaces to reduce and control post-development runoff rates.
- ▶ Examples includes:
  - ▶ Impervious Area Disconnect
  - ▶ Minimize Impervious Area



# Self-Retaining Area (SRA)



- ▶ An area within a Priority Development Project that has been designed to capture and retain the volume of runoff requiring treatment from that area.
- ▶ Examples include:
  - ▶ Depressed Landscape Areas
  - ▶ Pervious Pavement
  - ▶ Fountains



# Self-Treating Area (STA)



- ▶ **Examples of Site Design BMP Concepts that may qualify as STAs include:**
  - ▶ **Conserved Natural Spaces**
  - ▶ **Undeveloped Areas**
  - ▶ **Landscaped Areas**





# LID Site Design BMPs



- ▶ **Site Design BMP concepts aim to incorporate natural site features**
  - ▶ **Vegetation**
  - ▶ **porous surfaces**
  - ▶ **Work to reduce size of necessary LID/Site Design and/or Treatment Control BMPs**
  - ▶ **See FAQs #27 and #29 for further guidance**

# Treatment Control BMPs



- ▶ Any engineered system designed and constructed to remove pollutants from urban runoff.
- ▶ Pollutant removal is achieved by simple gravity settling of particulate pollutants, filtration, biological uptake, media adsorption or any other physical, biological, or chemical process
- ▶ WQMP Guidance, Exhibit 6 FAQs #6, #27, and #29



# Source Control BMPs



- ▶ Activities or programs to educate the public or provide low cost nonphysical solutions, as well as facility design or practices aimed to limit the contact between pollutant sources and runoff
  - ▶ Scheduling
  - ▶ Prohibitions of practices
  - ▶ Street sweeping
  - ▶ facility maintenance.
- ▶ Examples include
  - ▶ Lids to trash containers
  - ▶ Covered trash storage
- ▶ WQMP Guidance, Exhibit 6 FAQ Q.6

# Whitewater River Region BMPs to Incorporate into WQMPs



BMP Type	When to Use
Site Design BMP Concepts	Utilize to the extent feasible up to the measurable goal.
LID/Site Design BMPs	Utilize to meet all of the measurable goal, whenever possible
Treatment Control BMPs	Utilize when infeasibility is demonstrated to meet entire measurable goal with LID/Site Design BMPs
Non-Structural and Structural Source Control BMPs	Utilize unless they do not apply given project features



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# Best Management Practices

Examples

# Minimize Impervious Surfaces





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# Minimize Impervious Surfaces



[rcwatershed.org](http://rcwatershed.org)





# Porous Pavement





# Porous Pavement





# Porous Surface





# Pervious Pathway



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# Infiltration Trench



rcwatershed.org





# Infiltration Area





# Vegetated Swale





# Vegetated Swale





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# Extended Detention Basin



[rcwatershed.org](http://rcwatershed.org)





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# Extended Detention Basin



102

# Sand Filter



[rcwatershed.org](http://rcwatershed.org)





# Non-Structural Source Control



rcwatershed.org



# Source Control – MS4 Stenciling and Signage





# Structural Source Control –

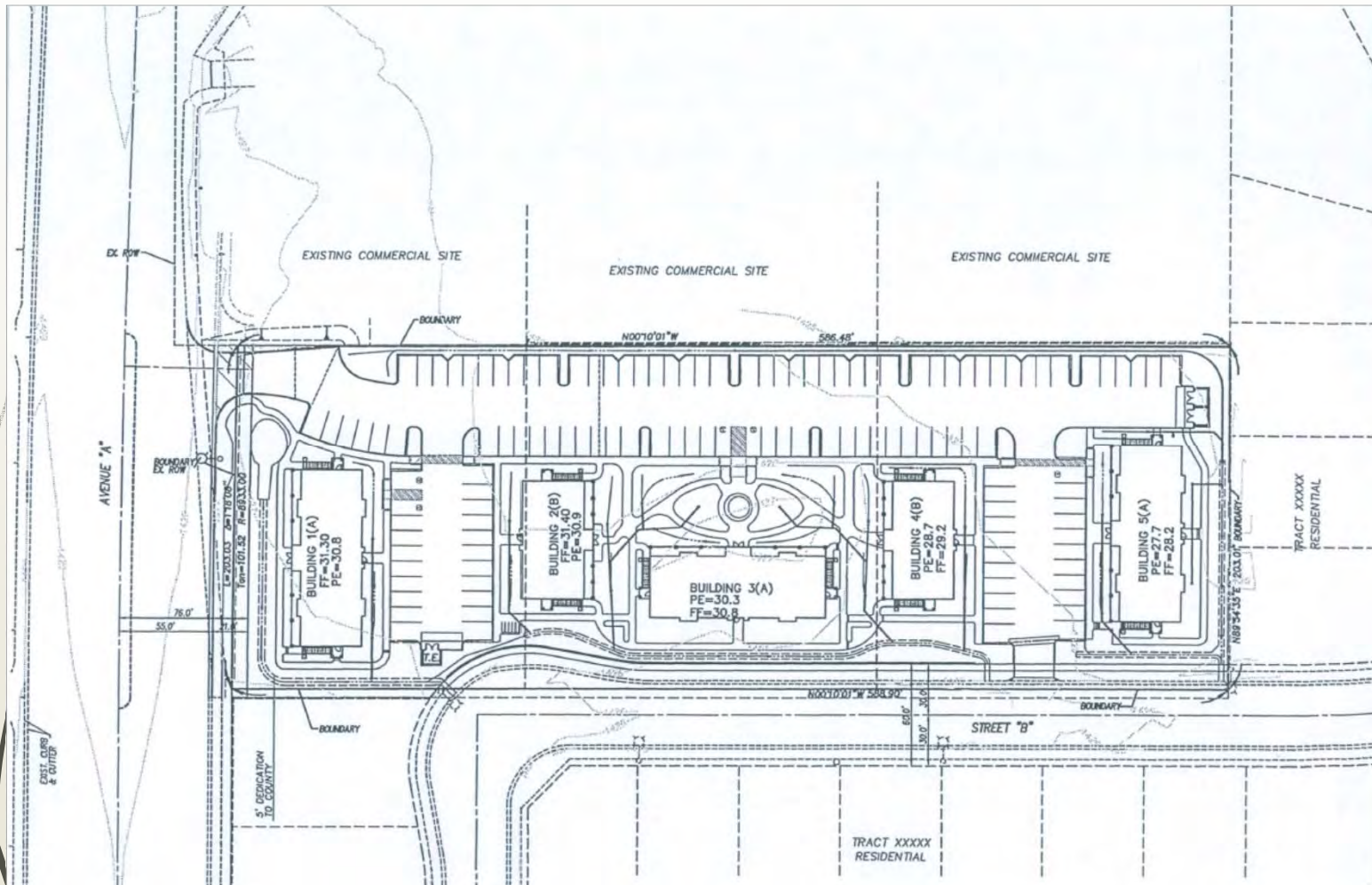




# Site Plan Evaluation for Integration of BMPs

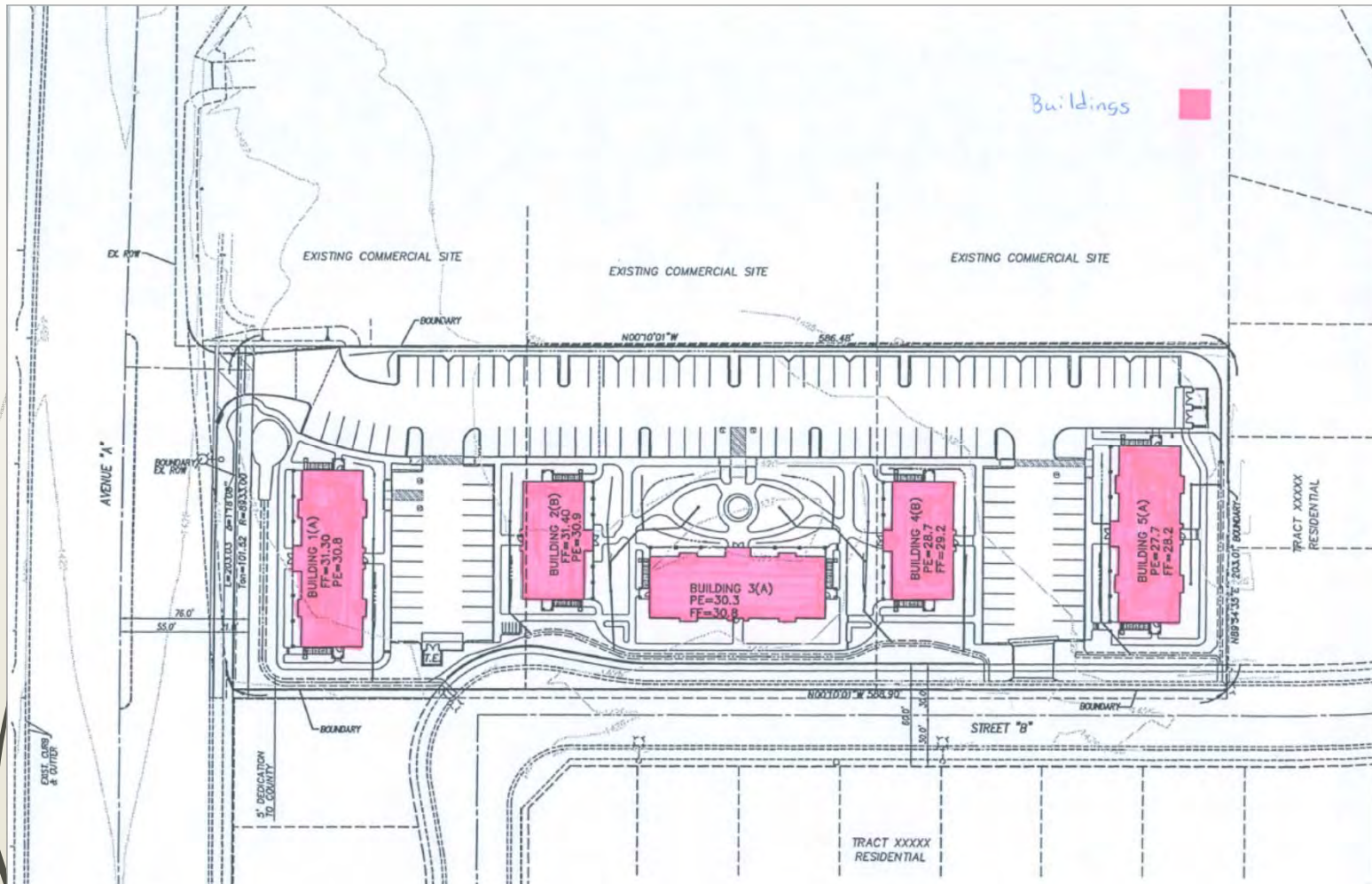
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# Base Site Plan



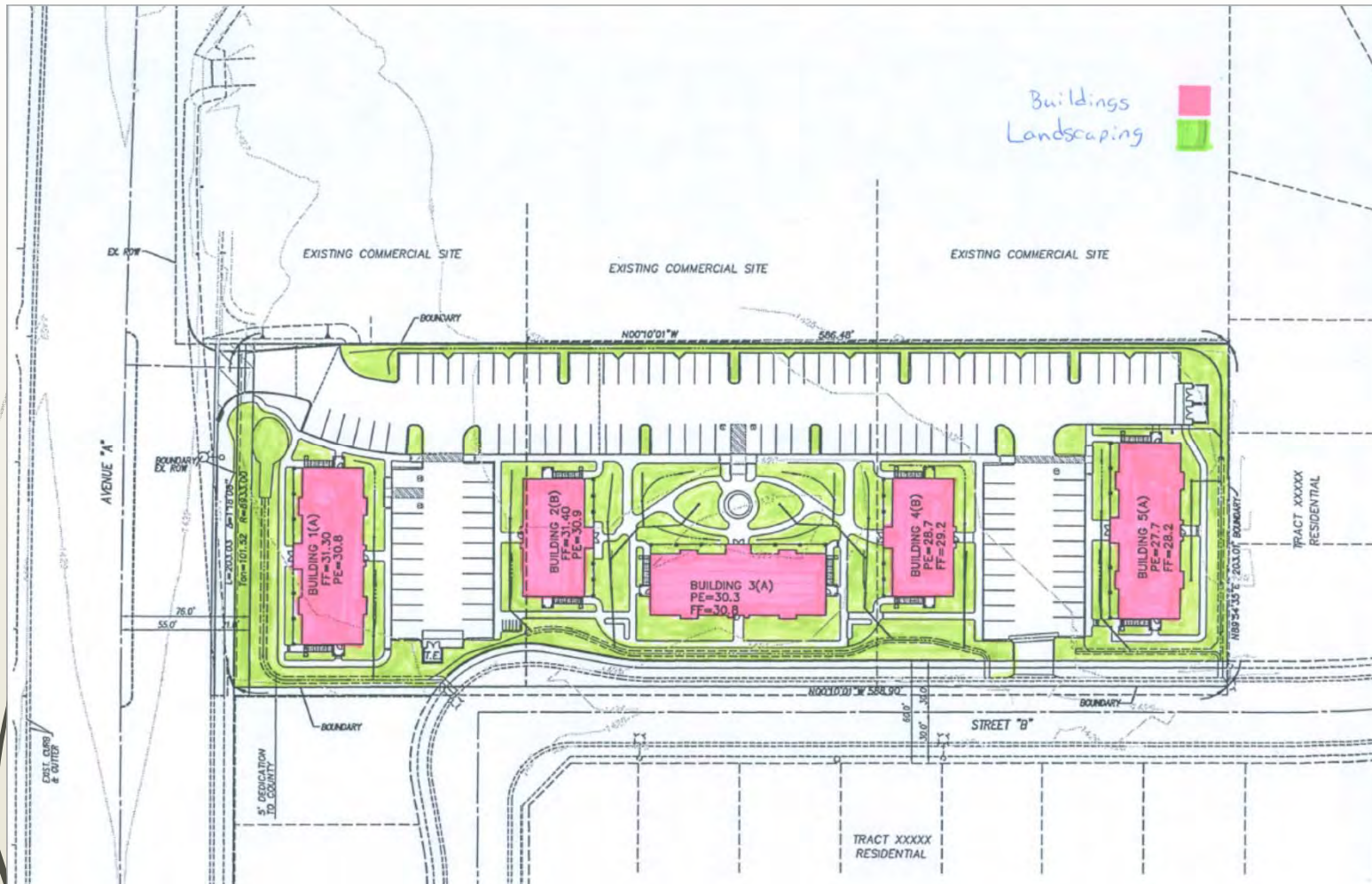


# Buildings Highlighted

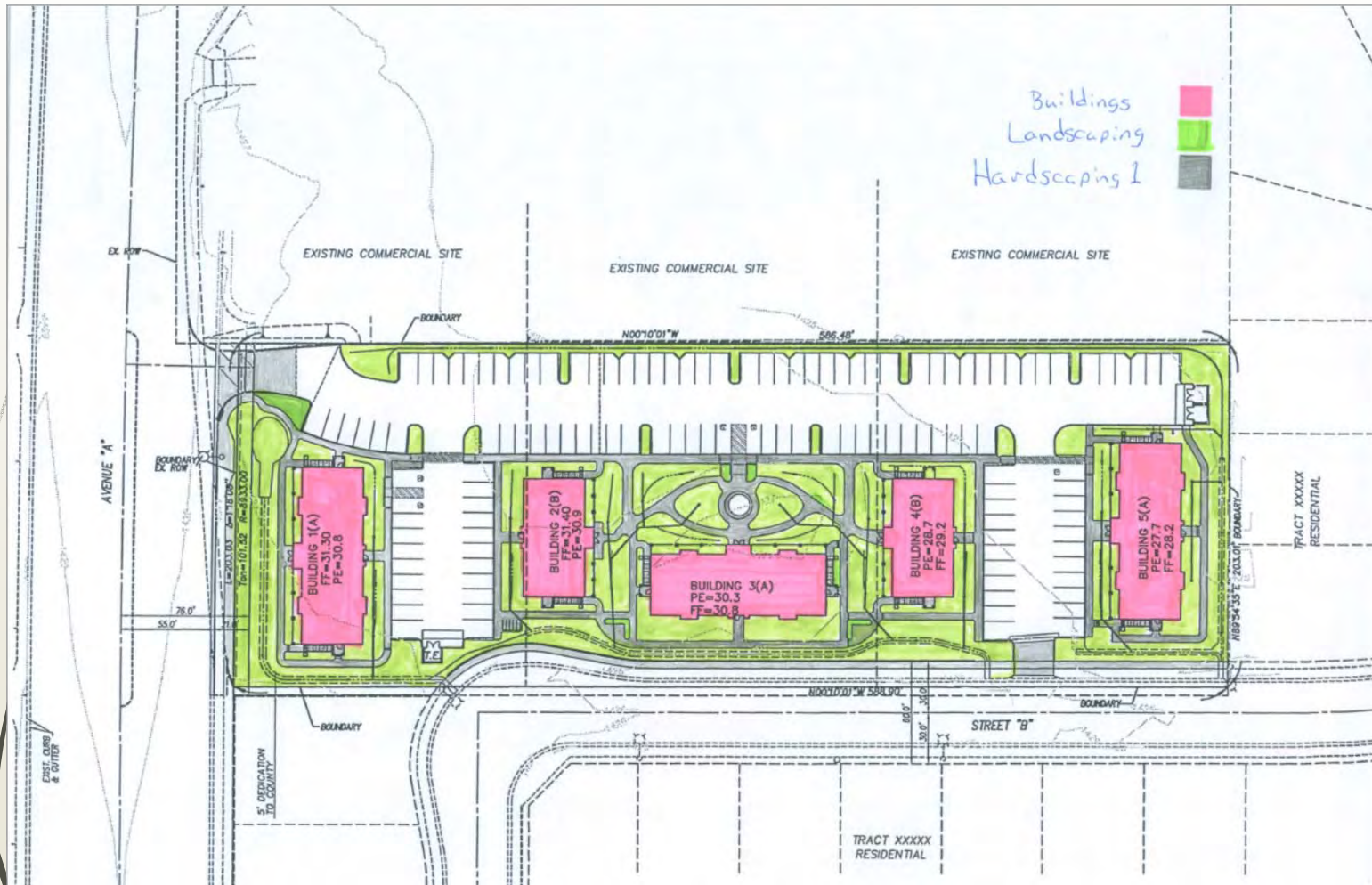




# Landscaping Highlighted



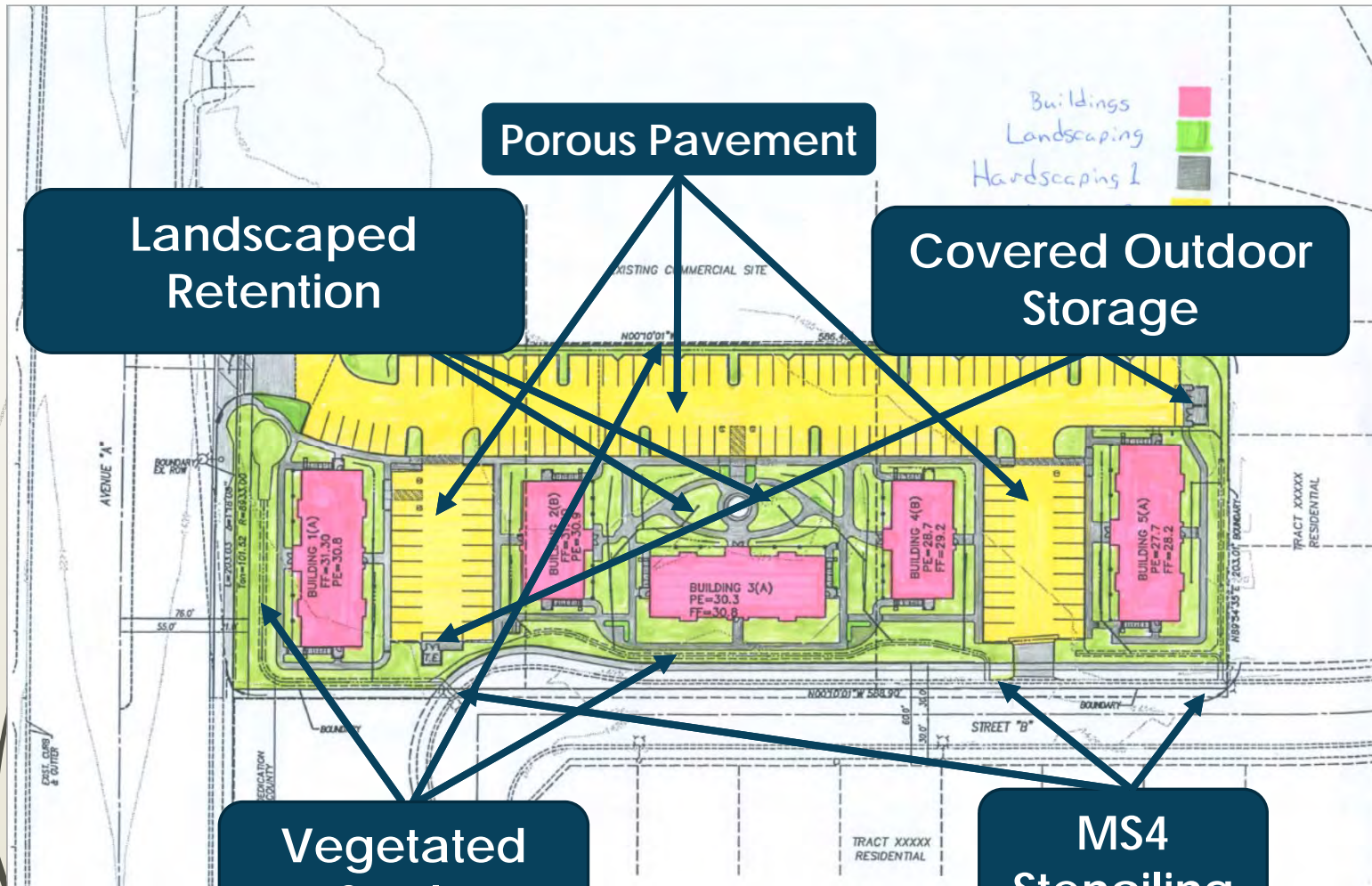
# Hardscaping 1 Highlighted





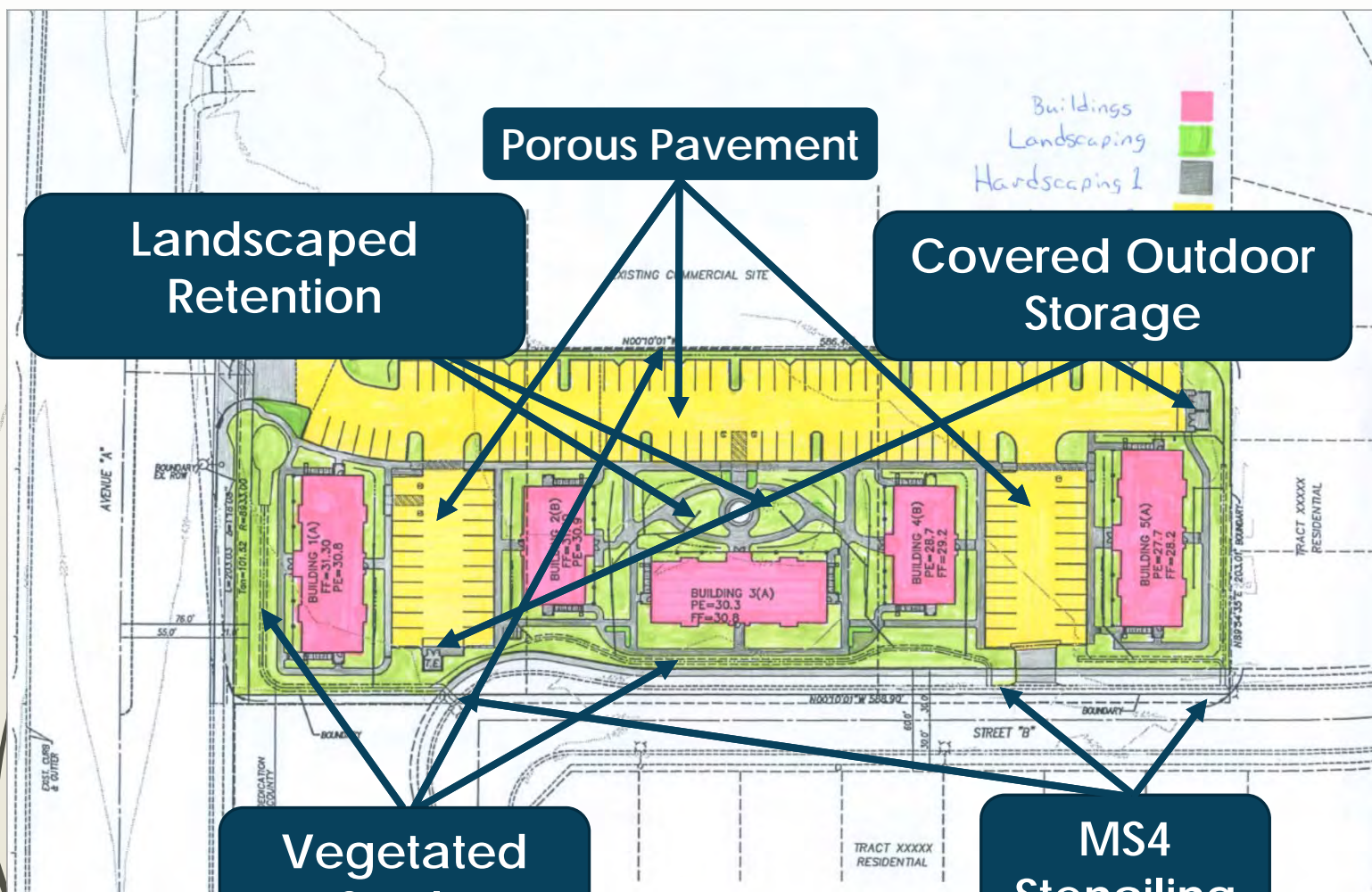


# BMP Integration





# BMP Integration





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Let's get back to the  
WQMP Template!

# WQMP Template – Section V Selecting BMPs



- Selecting BMPs
- Table 2 is used to identify appropriate BMPs
- Table 2 is used in conjunction with Table 1 developed in Section III – Pollutants of Concern

**Table 1. Pollutant of Concern Summary**

Pollutant Category	Potential for Project and/or Existing Site	Causing Receiving Water Impairment
Bacteria/Virus	<b>Yes</b>	<b>Yes - Pathogens</b>
Heavy Metals	<b>Yes</b>	
Nutrients	<b>Yes</b>	
Toxic Organic Compounds	<b>Yes</b>	
Sediment/Turbidity	<b>Yes</b>	
Trash & Debris	<b>Yes</b>	
Oil & Grease	<b>Yes</b>	
Other (specify pollutant):	<b>Yes</b>	
Other (specify pollutant):	<b>Yes</b>	

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**Table 2. BMP Selection Matrix Based Upon Pollutant of Concern Removal Efficiency (1)**

(Source: Arkansas County Flood Control & Water Conservation District Design Handbook for Low Impact Development Best Management Practices, dated September 2011, the Oregon County Technical Services Department for Water Quality Management Plans, dated May 10, 2011, and the Southern Treatment District Technology Report, dated April 2010 and April 2008.)

Pollutant of Concern	Landscape Swale <sup>1,2</sup>	Landscape Strip <sup>1,2</sup>	Landscaped Filtration with underdrain <sup>1,3</sup>	Extended Detention Basin <sup>4</sup>	Sand Filter Basin <sup>5</sup>	Infiltration Basin <sup>6</sup>	Infiltration Trench <sup>7</sup>	Permeable Pavement <sup>8</sup>	Landscaped Retention w/o underdrain <sup>1,3</sup>	Other BMPs including Proprietary BMPs <sup>4,6,9</sup>
Sediment & Turbidity	M	M	H	M	H	H	H	H	H	Varies by Product <sup>4</sup>
Nutrients	L/M	L/M	M	L/M	L/M	H	H	H	H	
Toxic Organic Compounds	M/H	M/H	M/H	L	L/M	H	H	H	H	
Trash & Debris	L	L	H	H	H	H	H	L	H	
Bacteria & Viruses (also: Pathogens)	L	M	H	L	M	H	H	H	H	
Oil & Grease	M	M	H	M	H	H	H	H	H	
Heavy Metals	M	M/H	M/H	L/M	M	H	H	H	H	

**Abbreviations:**  
L: Low removal efficiency    M: Medium removal efficiency    H: High removal efficiency

**Notes:**

- (1) Periodic performance assessment and updating of the guidance provided by this table may be necessary.
- (2) Expected performance when designed accordance with the most current edition of the document, "Riverside County, Whitewater River Region Stormwater Quality Best Management Practice Design Handbook".
- (3) Performance dependent upon design which includes implementation of thick vegetative cover. Local water conservation and/or landscaping requirements should be considered; approval is based on the discretion of the local land use authority.
- (4) Includes proprietary stormwater treatment devices as listed in the CASQA Stormwater Best Management Practices Handbooks, other stormwater treatment BMPs not specifically listed in this WQMP (including proprietary filters, hydrodynamic separators, inserts, etc.), or newly developed/emerging stormwater treatment technologies.
- (5) Expected performance should be based on evaluation of unit processes provided by BMP and available testing data. Approval is based on the discretion of the local land use authority.
- (6) When used for primary treatment as opposed to pre-treatment, requires site-specific approval by the local land use authority.

# Site Design BMP Concepts



▶ The project shall incorporate each of the following Site Design BMP Concepts to the extent feasible

- ▶ Concept 1 – Minimize Urban Runoff, Minimize Impervious Footprint, and Conserve Natural Areas
- ▶ Concept 2 – Minimize Directly Connected Impervious Area

2014 Whitewater River Region WQMP  
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**V.1.A SITE DESIGN BMP CONCEPTS AND LID/SITE DESIGN BMPs**

**Instructions:**  
The project shall incorporate each of the following Site Design BMP concepts to the extent feasible:

Concept 1: ..... Minimize Urban Runoff, Minimize Impervious Footprint, and Conserve Natural Areas (WQMP section 3.5.1.3)

Concept 2: ..... Minimize Directly Connected Impervious Areas (WQMP section 3.5.1.4)

Further, the project must implement LID/Site Design BMPs to meet the measurable goal described in Section 3.5.1.1 of the WQMP Guidance document by selecting, sizing and implementing any one or combination of BMPs from Table 2 above which promote retention and/or feature a natural treatment mechanism (inclusive of off-site and regionally-based BMPs which fit these criteria), to meet the 'Treatment Control BMP Requirements' to the extent feasible.

Where implementation of Site Design BMP concepts involves utilization of structural LID/Site Design BMPs outlined in Table 2 above (i.e., retention, permeable pavements, etc.), and implementation of those BMPs completely address the volumetric and/or flow-based Treatment Control BMP requirement for the drainage sub-area, that area also applies towards the LID/Site Design measurable goal. Additionally, where implementation of Site Design BMP concepts involves utilization of project areas which, on their own, address the volumetric and/or flow-based Treatment Control BMP design criteria for their footprint area (i.e., Self-Retaining and/or Self-Treating Areas), those areas also apply towards the LID/Site Design measurable goal.

---

This section documents the Site Design BMP concepts and LID/Site Design BMPs that will be implemented on this project to comply with the requirements detailed in Section 3.5.1 of the WQMP Guidance document.

- Table 3 herein documents the implementation of the Site Design BMP Concepts described in sub-sections 3.5.1.3 and 3.5.1.4.
- Table 4 herein documents the extent to which this project has implemented the LID/Site Design goals described in sub-section 3.5.1.1.

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DATE 1-14



# Site Design Concept 1



2014 Whitewater River Region WQMP  
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**Table 3. Implementation of Site Design BMP Concepts**

Design Concept	Technique	Specific BMP	Included			Brief Reason for BMPs Indicated as No or N/A
			Yes	No	N/A	
Site Design BMP Concept 1	Minimize Urban Runoff, Minimize Impervious Footprint, and Conserve Natural Areas (See WQMP Section 3.5.1.3)	Conserve natural areas by concentrating or clustering development on the least environmentally sensitive portions of a site while leaving the remaining land in a natural, undisturbed condition.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Conserve natural areas by incorporating the goals of the Multi-Species Habitat Conservation Plan or other natural resource plans.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Preserve natural drainage features and natural <u>depressional</u> storage areas on the site.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Maximize canopy interception and water conservation by preserving existing native trees and shrubs, and planting additional native or drought tolerant trees and large shrubs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Use natural drainage systems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Where applicable, incorporate Self-Treating Areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Where applicable, incorporate Self-Retaining Areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Increase the building floor to area ratio (i.e., number of stories above or below ground).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Construct streets, sidewalks and parking lot aisles to minimum widths necessary, provided that public safety and a walkable environment for pedestrians are not compromised.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Reduce widths of streets where off-street parking is available.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Minimize the use of impervious surfaces, such as decorative concrete, in the landscape design.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other comparable and equally effective Site Design BMP concept(s) as approved by the local land use authority (Note: Additional narrative required to describe BMP and how it addresses site design concept).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			

DATE

1-11

# Measurable Goal



*“The measurable goal shall be to have 100% of the Treatment Control BMP requirement (Section F.1.c.v.4) achieved through use of Site Design BMPs.”*

– NPDES Permit 2013

- ▶ Treatment requirements for the Whitewater River Region have been standardized and are described in the Whitewater River Region Stormwater Quality Best Management Practice Design Handbook for Low Impact Development (June 2014)

# Measurable Goal Documentation



(1) DRAINAGE SUB-AREA ID OR NO.	(2) LID/SITE DESIGN BMP TYPE*	(3) POTENTIAL POLLUTANTS OF CONCERN WITHIN DRAINAGE SUB-AREA	(4) POTENTIAL POLLUTANTS WITHIN SUB- AREA CAUSING RECEIVING WATER IMPAIRMENTS	(5) EFFECTIVENESS OF LID/SITE DESIGN BMP AT ADDRESSING IDENTIFIED POTENTIAL POLLUTANTS	(6) BMP MEETS WHICH DESIGN CRITERIA?	(7) TOTAL AREA WITHIN DRAINAGE SUB-AREA
	(See Table 2)	(Refer to Table 1)	(Refer to Table 1)	(U, L, M, H/M, H; see Table 2)	(Identify as $V_{BMP}$ OR $Q_{BMP}$ )	(Nearest 0.1 acre)

**Goal here is to calculate the total area of the project which has been addressed utilizing LID/Site Design BMPs**

- ▶ BMP Drainage Area ID for each Site Design BMP
- ▶ BMP Type (e.g., Biofilter, Infiltration Basin)
- ▶ Pollutants Potentially Generated in Sub-Area
- ▶ Pollutants Potentially Impairing Receiving Waters
- ▶ BMP Effectiveness for Pollutants Impairing Receiving Waters
- ▶ BMP Design Standard (e.g.,  $V_{BMP}$  or  $Q_{BMP}$ )
- ▶ BMP Tributary Area

# Treatment Control BMPs



▶ Treatment Control BMPs are required to address POCs where it is infeasible to meet the measurable goal through Site Design BMP Concepts and LID/Site Design BMPs.

▶ LID/Site Design BMPs Address or Do Not Address the POCs for the entire project site?

▶ If LID/Site Design BMPs Address POCs for the entire site, Section V.1.B need not be completed

▶ If LID/Site Design BMPs Do Not Address the POCs for the entire site, Section V.1.B must be completed

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**Justification of infeasibility for sub-areas not addressed with LID/Site Design BMPs**  
Insert text here listing each drainage sub-area wherein the design criteria of VBMP and/or QBMP are not treated using LID/Site Design BMPs as required in WQMP Guidance Section 3.5.1.1, and provide justification of infeasibility for each.

**V.1.B TREATMENT CONTROL BMPs**  
Conventional Treatment Control BMPs shall be implemented to address the project's Pollutants of Concern as required in WQMP Section 3.5.1 where, and to the extent that, Section V.1.A has demonstrated that it is infeasible to meet these requirements through implementation of LID/Site Design BMPs.

The LID/Site Design BMPs described in Section V.1.A of this project-specific WQMP completely address the 'Treatment Control BMP requirement' for the entire project site (and where applicable, entire existing site) as required in Section 3.5.1.1 of the WQMP Guidance document. Supporting documentation for the sizing of these LID/Site Design BMPs is included in Appendix F. \*Section V.1.B does not need to be completed.

The LID/Site Design BMPs described in Section V.1.A of this project-specific WQMP do NOT completely address the 'Treatment Control BMP requirement' for the entire project site (or where applicable, entire existing site) as required in Section 3.5.1.1 of the WQMP. \*Section V.1.B must be completed.

The Treatment Control BMPs identified in this section are selected, sized and implemented to treat the design criteria of VBMP and/or QBMP for all project (and if required, existing site) drainage sub-areas which were not fully addressed using LID/Site Design BMPs. Supporting documentation for the sizing of these Treatment Control BMPs is included in Appendix F.

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# Treatment Control BMP Summary



Treatment Control BMPs must be selected, sized, and implemented to address POCs and the volumetric and/or flow-based requirement for all sub-areas not fully addressed by implementing LID/Site Design BMPs

**Table 5: Treatment Control BMP Summary**

(1) DRAINAGE SUB-AREA ID OR NO.	(2) TREATMENT CONTROL BMP TYPE*	(3) POTENTIAL POLLUTANTS OF CONCERN WITHIN DRAINAGE SUB-AREA	(4) POTENTIAL POLLUTANTS WITHIN SUB-AREA CAUSING RECEIVING WATER IMPAIRMENTS	(5) EFFECTIVENESS OF TREATMENT CONTROL BMP AT ADDRESSING IDENTIFIED POTENTIAL POLLUTANTS	(6) BMP MEETS WHICH DESIGN CRITERIA?	(7) TOTAL AREA WITHIN DRAINAGE SUB-AREA
	(See Table 2)	(Refer to Table 1)	(Refer to Table 1)	(U, L, M, H/M, H; see Table 2)	(Identify as V <sub>BMP</sub> OR Q <sub>BMP</sub> )	(Nearest 0.1 acre)
<b>TOTAL PROJECT AREA TREATED WITH TREATMENT CONTROL BMPs (NEAREST 0.1 ACRE)</b>						

# Template Control BMPs



(1) DRAINAGE SUB-AREA ID OR NO.	(2) TREATMENT CONTROL BMP TYPE*	(3) POTENTIAL POLLUTANTS OF CONCERN WITHIN DRAINAGE SUB-AREA	(4) POTENTIAL POLLUTANTS WITHIN SUB-AREA CAUSING RECEIVING WATER IMPAIRMENTS	(5) EFFECTIVENESS OF TREATMENT CONTROL BMP AT ADDRESSING IDENTIFIED POTENTIAL POLLUTANTS	(6) BMP MEETS WHICH DESIGN CRITERIA?	(7) TOTAL AREA WITHIN DRAINAGE SUB-AREA
	(See Table 2)	(Refer to Table 1)	(Refer to Table 1)	(U, L, M, HM, H; see Table 2)	(Identify as $V_{BMP}$ OR $Q_{BMP}$ )	(Nearest 0.1 acre)

- ▶ BMP Drainage Area ID for each Treatment Control BMP
- ▶ BMP Type (e.g, Detention Basin, Filtration System)
- ▶ Pollutants Potentially Generated in Sub-Area and Impairing Receiving Waters
- ▶ BMP Effectiveness for Pollutants Impairing Receiving Waters
- ▶ BMP Design Standard (e.g.,  $V_{BMP}$  or  $Q_{BMP}$ )
- ▶ BMP Tributary Area

# Measurable Goal Summary



- Document the extent to which the measurable Goal will be achieved with Site Design BMP Concepts
- Table 6 is used to document the extent the measurable Goal will be achieved

2014 Whitewater River Region WQMP  
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**V.I.C MEASURABLE GOAL SUMMARY**

This section documents the extent to which this project has met the measurable goal described in WQMP Section 3.5.1.1 of addressing 100% of the project's Treatment Control BMP requirement with LID/Site Design BMPs. Projects required to retain Urban Runoff onsite in conformance with local ordinance are considered to have met the measurable goal; for these instances, '100%' is entered into Column 3 of the Table.

**Table 6: Measurable Goal Summary**

(1) Total Area Treated with LID/Site Design BMPs <small>(Last row of Table 4)</small>	(2) Total Area Treated with Treatment Control BMPs <small>(Last row of Table 5)</small>	(3) % of Treatment Control BMP Requirement addressed with LID/Site Design BMPs

See FAQ Q.29 for guidance on calculating the Measurable Goal

# 4 Measurable Goal Documentation



**Table 6: Measurable Goal Summary**

(1)	(2)	(3)
<b>Total Area Treated with LID/<u>Site Design</u> BMPs</b>	<b>Total Area Treated with <u>Treatment Control</u> BMPs</b>	<b>% of Treatment Control BMP Requirement addressed with LID/<u>Site Design</u> BMPs</b>
(Last row of Table 4)	(Last row of Table 5)	

- ▶ Total Area Addressed with LID/Site Design BMPs
- ▶ Total Area Addressed with Treatment Control BMPs

- ▶ Percent Treatment Control BMP requirement addressed with LID/Site Design BMPs



# 5 Measurable Goal Calculation



Measurable Goal Summary  
Table 6

**Instructions:**

Column (1) ..... Enter the total project area number from the last row of **Table 4**

Column (2) ..... Enter the total project area number from the last row of **Table 5**

Column (3) ..... Calculate the % of the Treatment Control BMP Requirement that was addressed using LID/Site Design BMPs for the project using the following

$$\text{formula: Column(3)} = \left[ \frac{\text{Column(1)}}{\text{Column(1)} + \text{Column(2)}} \right] * 100$$

**Table 6: Measurable Goal Summary**

(1)	(2)	(3)
<b>Total Area Treated with LID/Site Design BMPs</b>	<b>Total Area Treated with Treatment Control BMPs</b>	<b>% of Treatment Control BMP Requirement addressed with LID/Site Design BMPs</b>
<b>(Last row of Table 4)</b>	<b>(Last row of Table 5)</b>	

# 6 Source Control BMPs



- ▶ All applicable Source Control BMPs must be implemented on each project, including
  - ▶ Non-Structural Source Controls
  - ▶ Structural Source Controls

2014 Whitewater River Region WQMP  
Project Title

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**V.2 SOURCE CONTROL BMPs**

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This section identifies and describes the Source Control BMPs applicable and implemented on this project.

**Instructions:**

All applicable Source Control BMPs must be implemented on each project. Identify which BMPs are included, and where a particular BMP is not applicable, briefly state the reason in the last column for that BMP.

In the field below Table 7, provide a narrative describing how each included Source Control BMP will be implemented. The implementation frequency, inspection and maintenance frequency, inspection criteria, and the entity or party responsible for implementation, maintenance, and/or inspection shall be identified in Section VI herein. The location of each Structural Source Control BMP must also be shown on the Project Specific WQMP Site Plan included in Appendix B.

**Table 7. Source Control BMPs**

BMP Name	Check One		If not applicable, state brief reason
	Included	Not Applicable	
<b>Non-Structural Source Control BMPs</b>			
Educating for Property Owners, Owners, Tenants, Occupants, or Employees	<input type="checkbox"/>	<input type="checkbox"/>	
Activity Restrictions	<input type="checkbox"/>	<input type="checkbox"/>	
Irrigation System and Landscape Maintenance	<input type="checkbox"/>	<input type="checkbox"/>	
Common Area Litter Control	<input type="checkbox"/>	<input type="checkbox"/>	
Street Sweeping Private Streets and Parking Lots	<input type="checkbox"/>	<input type="checkbox"/>	
Drainage Facility Inspection and Maintenance	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Structural Source Control BMPs</b>			
Storm Drain Inlet Stenciling and Signage	<input type="checkbox"/>	<input type="checkbox"/>	
Landscape and Irrigation System Design	<input type="checkbox"/>	<input type="checkbox"/>	
Protect Slopes and Channels	<input type="checkbox"/>	<input type="checkbox"/>	
Provide Community Car Wash Racks	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Properly Design*:</b>			
Fueling Areas	<input type="checkbox"/>	<input type="checkbox"/>	
Air/Water Supply Area Drainage	<input type="checkbox"/>	<input type="checkbox"/>	

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# Equivalent Treatment Control BMP Alternatives

- ▶ Off-site and Regionally-based LID/Site Design BMPs and/or Treatment Control BMPs may be an alternative if the project is part of a Master Drainage Plan
- ▶ Consultant local permitting agency.



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## V.3 EQUIVALENT TREATMENT CONTROL BMP ALTERNATIVES

### Instructions:

Where off-site LID/Site Design and/or Treatment Control BMPs are determined to be more feasible or practicable, equivalent treatment may be provided off site when approved by the local land use authority. **Off-site BMPs must meet the criteria described in WQMP Guidance document Section 3.5.3.** Project area which has been treated off site can count towards the LID/Site Design measurable goal if the selected BMP: 1) promotes retention and/or features a natural treatment mechanism, 2) addresses the project's potential Pollutants of Concern and 3) has high or medium effectiveness at addressing Pollutants of Concern causing impairment in Receiving Waters.

Utilized off-site BMPs must be included in Tables 4 and/or 5 above. Design details, calculations and other supporting documentation demonstrating that these BMPs address the Treatment Control BMP Requirements, and where applicable, the Hydrologic Conditions of Concern for their tributary area must be included in Appendix F.

Insert text describing utilized off-site LID/Site Design and/or Treatment Control BMPs, or state "Not applicable." Note: The project-specific WQMP preparer should refer to Section 3.5.3 of the Whitewater River Region WQMP Guidance document.

## V.4 REGIONALLY-BASED BMPs

### Instructions:

Where regionally-based LID/Site Design and/or Treatment Control BMPs are determined to be more feasible or practicable, equivalent treatment may be provided on a regional scale, when approved by the local land use authority. **Regionally-based BMPs must meet the criteria described in WQMP Guidance document Section 4.0.** Project area which has been treated via regionally-based BMP can count towards the LID/Site Design measurable goal if the selected BMP: 1) promotes retention and/or features a natural treatment mechanism, 2) addresses the project's potential Pollutants of Concern, and 3) has high or medium effectiveness at addressing Pollutants of Concern causing impairment in Receiving Waters.

Utilized regionally-based BMPs must be included in Tables 4 and/or 5. Where applicable, design details, calculations and other supporting documentation demonstrating that these BMPs address the Treatment Control BMP Requirements, and where applicable, the Hydrologic Conditions of Concern for their tributary area must be included in Appendix F.

Insert text describing utilized regionally-based LID/Site Design and/or Treatment Control BMPs, or state "Not applicable." Note: The project-specific WQMP preparer should refer to Section 4.0 of the Whitewater River Region WQMP Guidance document.



# Using the WQMP Template

Section VI through Section VII and Appendices



# Operation and Maintenance Responsibility for BMPs



## ▶ Operation and Maintenance Details to Include in the WQMP

- ▶ Identify each BMP that requires O&M
- ▶ Describe O&M activities and process, and the handling and placement of wastes
- ▶ Provide BMP start-up dates
- ▶ Identify the frequency of O&M for each BMP
- ▶ Identify parties responsible for BMP O&M, and provide a copy of the O&M agreement
- ▶ Describe self-inspections and record keeping requirements and the party responsible
- ▶ Describe any required monitoring

2014 Whitewater River Region WQMP  
Project Title

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**VI. Operation and Maintenance Responsibility for BMPs**

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**Instructions:**

Operation and maintenance (O&M) requirements for structural Site Design BMP concepts, Source Control, LID Site Design, and Treatment Control BMPs shall be identified in the project-specific WQMP. The project-specific WQMP shall address the following:

- Identification of each BMP that requires O&M.
- Thorough description of O&M activities, the O&M process, and the handling and placement of any wastes.
- BMP start-up dates.
- Schedule of the frequency of O&M for each BMP.
- Identification of the parties (name, address, and telephone number) responsible for O&M, including a written agreement with the entities responsible for O&M. This agreement can take the form of a Covenant and Agreement recorded by the project proponent with the County Recorder, HOA or POA, CC&Rs, BMP maintenance agreement, formation of a maintenance district or assessment district or other instrument sufficient to guarantee perpetual O&M. The preparer of this project-specific WQMP should carefully review Section 3.6 of the WQMP prior to completing this section of the project-specific WQMP.
- Self-inspections and record-keeping requirements for BMPs (review local specific requirements regarding self-inspections and/or annual reporting), including identification of responsible parties for inspection and record-keeping.
- Thorough descriptions of water quality monitoring, if required by the local land use authority.

Identify below all operations and maintenance requirements, as described above, for each structural BMP. Where a public agency is identified as the funding source and responsible party for a BMP, a copy of the written agreement, stating the public agency's acceptance of these responsibilities must be provided in Appendix G.

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Appendix G of this project-specific WQMP includes copies of CC&Rs, Covenant and Agreements, BMP Maintenance Agreement and/or other mechanisms used to ensure the ongoing operation, maintenance, funding, transfer and implementation of the project-specific WQMP requirements.

**Insert text as instructed above**

# O&M Responsibility for BMPs Resources



### A.3.3 Landscaped Swale Design Criteria

Table 1: Landscaped Swale Design Criteria

Design Parameter	Unit	Design Criteria
Design flow	cfs	Queue
Minimum bottom width	ft	2 ft
Maximum channel side slope	H:V	3:1
Minimum slope in flow direction	%	0.2 (provide underdrains for slopes < 0.5)
Maximum slope in flow direction	%	2.0 (provide grade-control checks for slopes > 2.0)
Maximum flow velocity	ft/sec	1.0 (based on Manning n = 0.20)
Maximum depth of flow	inches	5 to 8 (1 inch below top of native landscaping)
Minimum contact time	minutes	5
Minimum length	ft	Sufficient length to provide minimum contact time
Vegetation	-	Select appropriate landscaping suitable for the BMP
Landscaping height	inches	4 to 6 (mow/trim to maintain height)

#### Inspection and Maintenance Schedule

The landscaped swale area should be inspected for erosion, dead vegetation, soggy soils, or standing water. The use of fertilizers and pesticides on the plants inside the landscaped swale should be minimized.

Table 2: Inspection and Maintenance Schedule

Schedule	Activity
Ongoing	<ul style="list-style-type: none"> <li>Keep adjacent landscaped areas maintained. Remove clippings from landscape maintenance activities</li> <li>Remove trash and debris</li> <li>Remove accumulated sediment</li> <li>Replace damaged landscaping and/or plants</li> <li>Maintain vegetation to design height through periodic mowing and/or trimming</li> </ul>
After storm events	<ul style="list-style-type: none"> <li>Inspect areas for ponding</li> </ul>
Annually	<ul style="list-style-type: none"> <li>Inspect/clean any inlets and outlets</li> </ul>

➤ Riverside County Whitewater River Region Stormwater Quality Best Management Practice Design Handbook (June 2014)

➤ California Stormwater Quality Association (CASQA)

➤ New Development Handbook

➤ Excellent Resource for BMP O&M Information

➤ [www.cabmphandbooks.com](http://www.cabmphandbooks.com)

# 1 Funding

- ▶ A funding source for O&M of LID/Site Design and Treatment Controls must be identified
- ▶ Applicants, in certifying the WQMP...
  - ▶ are certifying that the funding responsibilities have been addressed, and that...
  - ▶ funding responsibilities will be transferred to future owners
  - ▶ Funding responsibilities are commonly recorded against the deed
- ▶ Identify and describe the source of funding for BMP O&M



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### VII. Funding

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**Instructions:**  
A funding source or sources for the O&M of each LID Site Design and/or Treatment Control BMP identified in the project-specific WQMP must be identified. By certifying the project-specific WQMP, the project applicant is certifying that the funding responsibilities have been addressed and will be transferred to future owners. One example of how to adhere to the requirement to transfer O&M responsibilities is to record the project-specific WQMP against the title to the property.

**Insert text identifying the funding source or sources for the operation and maintenance of each LID Site Design and/or Treatment Control BMP included in the project.**

DATE \_\_\_\_\_

# 2 Appendix A and Appendix B



## ▶ Appendix A

- ▶ Include the Project's Conditions of Approval

## ▶ Appendix B

- ▶ Vicinity Map shows
  - ▶ Project site
  - ▶ Surrounding planning area
- ▶ Site Plans



# Appendix B continued...

## WQMP Site Plan



- ▶ **WQMP Site Plan shows**
  - ▶ Structures and intended use
  - ▶ Paved areas and intended use
  - ▶ Landscaped areas
  - ▶ Infrastructure that will revert to agency ownership and operation
  - ▶ Location of existing / proposed drainage facilities
  - ▶ Proposed structural BMPs, their locations, references to details, specs, and product information
  - ▶ Locations where onsite and tributary offsite flows exit the project site
  - ▶ Tributary area boundaries, including offsite areas, for each location where flows exit the property.
  - ▶ Pre- and post-project topography

# Appendix B

## WQMP Site Plan



### ► Guidance

- Standard sized engineering drawings are required by most agencies.
- Multiple drawings are appropriate for all but the most basic projects.
- The WQMP is for Post-Construction - Do Not include SWPPP details on the WQMP Site Plan

# Appendix B

## Receiving Waters Map



- ▶ **Receiving Waters Map**
  - ▶ Location of Receiving Waters to which the project directly or indirectly discharges
  - ▶ Show the following:
    - ▶ Project location
    - ▶ Path urban runoff follows to reach Receiving Waters
    - ▶ Name of each Receiving Water

# 6 Appendix C



- ▶ **Supporting Details Related to Hydrologic Conditions of Concern**
- ▶ **Include materials that support the HCOC findings documented in WQMP Section IV**
  - ▶ Calculations
  - ▶ Engineering Studies
  - ▶ Reports
  - ▶ Drainage Study Report
  - ▶ Detailed Drainage Study
  - ▶ Field Reconnaissance Report
  - ▶ Photographs
  - ▶ Environmental Documentation
  - ▶ Etc.



# 7 Appendix D



- ▶ **Educational Materials**
- ▶ **Include water pollution control educational materials for educating:**
  - ▶ Owners
  - ▶ Operators
  - ▶ Employees
  - ▶ Residents, etc.
- ▶ **Source Control BMP educational materials are to be included in this Appendix.**
- ▶ **Information available at:**
  - ▶ <http://www.rcflood.org/Stormwater/>
  - ▶ “For Developers” Tab on left side of website

# Appendix E Soils Report



- ▶ Soils report must be included if infiltration BMPs are proposed
- ▶ Must be in compliance with Appendix B\* and include appropriate testing to guide design
  - ▶ Borings or exploration pits to document soil conditions below infiltration BMPs, and the presence of groundwater
  - ▶ Infiltration tests to determine the steady-state infiltration rate of the soils.

**Table 1 - Infiltration Testing Requirements**

WQMP Stage	Testing Options	Ring Infiltrometer Tests <sup>1</sup>	Percolation Test <sup>2</sup>	Test Pits or Boring Logs <sup>3</sup>	Final Report <sup>4</sup>	Hydrology Manual <sup>5</sup>	Factor of Safety
Preliminary WQMP	Option 1▶	2 tests min. with at least 1 per BMP location <sup>6</sup>	-	1 boring or test pit per BMP location	Required	-	FS ≥ 3
	Option 2▶	-	4 tests min. with at least two per BMP location <sup>6</sup>	1 boring or test pit per BMP location	Required	-	FS ≥ 3
	Option 3 <sup>7</sup> ▶	-	-	1 boring or test pit per BMP location	Required	-	FS ≥ 6
	Option 4 <sup>7</sup> ▶	-	-	1 representative boring or test pit per site	-	Only	FS ≥ 10
Final WQMP	Option 1▶	2 tests min. with at least 1 per BMP location <sup>6</sup>	-	1 boring or test pit per BMP location	Required	-	FS ≥ 3
	Option 2▶	-	4 tests min. with at least 2 per BMP location <sup>6</sup>	1 boring or test pit per BMP location	Required	-	FS ≥ 3

**Table Footnotes:**

<sup>1</sup> Ring Infiltrometer tests per Section 2.2

<sup>2</sup> Percolation tests per Section 2.3 and Well Permeameter Test per Section 2.4

<sup>3</sup> Test pits or boring logs per Section 2.5

<sup>4</sup> Final Report per Section 1.7

<sup>5</sup> See Plate E-6.2 of the District's Hydrology Manual

<sup>6</sup> For BMPs with a wetted footprint in excess of 10,000 ft<sup>2</sup>, provide one (1) ring infiltrometer test or two (2) percolation tests for each additional 10,000 ft<sup>2</sup>

<sup>7</sup> This option is limited to BMPs with a tributary drainage area ≤ 5 acres.

\* See WWR Stormwater Quality Best Management Practice Design Handbook for Low Impact Development Appendix B and Table 1

# 9 Appendix F



- ▶ **LID/Site Design BMP and Treatment Control BMP Sizing Calculations and Design Details**
- ▶ **Include calculations supporting the design of each LID/Site Design BMP and Treatment Control BMP**
- ▶ **The Worksheets in the “*Whitewater River Region Stormwater Quality Best Management Practice Design Handbook for Low Impact Development*” (June 2014) provide an excellent means to document BMP design calculations**

# Appendix F



- ▶ Worksheets to be used for determining:
  - ▶ Design Capture Volume ( $V_{BMP}$ )
  - ▶ Design Flow Rate ( $Q_{BMP}$ )
- ▶ Excel Format
  - ▶ Allows direct inputs

**Whitewater Watershed**

$V_{BMP}$  and  $Q_{BMP}$  worksheets

These worksheets are to be used to determine the required  
Design Capture Volume ( $V_{BMP}$ )  
or the  
Design Flow Rate ( $Q_{BMP}$ )  
for BMPs in the Whitewater Watershed

To verify which watershed your project is located within, visit  
[www.rcflood.org/npdes](http://www.rcflood.org/npdes)  
and use the 'Locate my Watershed' tool

**If your project is not located in the Whitewater Watershed,**  
Do not use these worksheets! Instead visit  
[www.rcflood.org/npdes/developers.aspx](http://www.rcflood.org/npdes/developers.aspx)  
To access worksheets applicable to your watershed

Use the **tabs** across the bottom  
to access the worksheets for the Whitewater Watershed

Main VBMP QBMP



# 1 Appendix G



- ▶ **Agreements**
  - ▶ Covenants, Codes, and Restrictions (CC&Rs)
  - ▶ Covenant and Agreement and/or other mechanism for ensuring ongoing BMP O&M, funding, and transfer of requirements to future owners
- ▶ **Include copies of Agreements in this appendix**

## 2 Appendix H



- ▶ **Phase I Environmental Assessment – If Conducted**
- ▶ **Include the Summary of Site Remediation Conducted and Use Restrictions**
  - ▶ The Phase I may yield important information regarding legacy pollutants.
  - ▶ The Phase I may indicate areas on site where certain BMPs may not be appropriate, for example, infiltration BMPs.

# 3 Appendix I



**Project-Specific WQMP Summary Data Form**

Applicant Information	
Name and Title	
Company	
Phone	
Email	
Project Information	
Project Name <small>(as shown on project application/permit/contract/ WQMP)</small>	
Street Address	
Nearest Cross Street	
Municipality <small>(City or Incorporated County)</small>	
Zip Code	
Parcel Number(s) and/or Assessor Parcel Number(s)	
Other <small>(other information to help identify location of project)</small>	
Indicate type of project:	<b>Priority Development Projects (Use an "X" in cell preceding project type):</b> <input type="checkbox"/> SF (single residence) impervious area $\geq 10,000$ sq. ft., Slope $\geq 15\%$ <input type="checkbox"/> SF (single residence) impervious area $\geq 10,000$ sq. ft., Slope $\geq 10\%$ & surface water <input type="checkbox"/> Commercial or Industrial $\geq 100,000$ sq. ft. <input type="checkbox"/> Automobile repair shop <input type="checkbox"/> Retail Gasoline Outlet (dismounting $\geq 5,000$ sq. ft.) <input type="checkbox"/> Restaurant/dishwashing $\geq 5,000$ sq. ft. <input type="checkbox"/> Home maintenance $\geq 10$ housing units <input type="checkbox"/> Parking lot $\geq 5,000$ sq. ft. or $\geq 10$ parking spaces
Date Project-Specific WQMP Submitted	
Size of Project Area (acres) (1 acre)	
Does project replace more than 50% of the impervious surfaces on an existing developed site?	
Is project area managed with LID/Site Design BMPs (measured 8.3 acres)?	
Are Treatment Control BMPs required?	
Is project subject to onsite retention by ordinance or policy?	
Did the project meet the 100% LID/Site Design "Measurable Goal"?	
Entity responsible for O&M (Name of the entity that will implement, operate, and maintain the post-construction BMPs)	
Contact Name	
Street or Mailing Address	
City	
Zip Code	
Phone	
Space Below for Use by City/County Staff Only	
Preceding Information Verified by <small>(consistent with information in project-specific WQMP)</small>	Name: Date:
Date Project-Specific WQMP Approved:	
Date Entered by	Name: Date:

## Project Specific WQMP Summary Data Form

- Applicant Information
- Project Information
  - Project Name
  - Location Information
  - Project Identifiers (e.g., Tract)
  - Development Category
  - WQMP Submittal Date
  - Project Size
  - Area Managed via Site Design BMPs
  - Entity responsible for O&M
  - Contact Information, etc.

## Agency Use

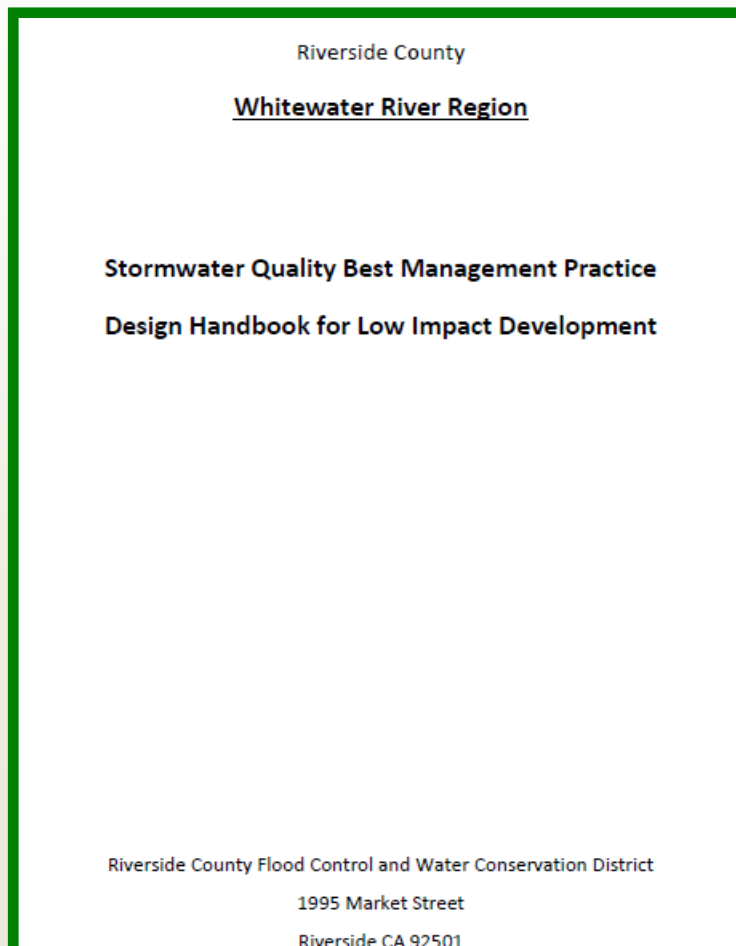


4

# Resources, WQMP Tracking, Questions and Answers

5

# Resource for Stormwater Quality BMP Design





# Resource for Stormwater Quality BMP Design



- ▶ **Purpose of WWR BMP Handbook**
  - ▶ To provide selection and design guidance for stormwater Best Management Practices within the Whitewater River Region while meeting the goals of Low Impact Development.
- ▶ **Helps implement LID/Site Design BMPs as set forth in the WWR WQMP**
- ▶ **LID/Site Design BMPs promote retention and/or feature a natural treatment mechanism to address a site's Potential Pollutants of Concern.**

# Resource for Stormwater Quality BMP Design



- ▶ **WWR BMP Handbook provides guidance for**
  - ▶ **Selecting LID/Site Design BMPs to effectively address the potential project pollutants of concern**
  - ▶ **Site layout features to decrease the amount of impervious surface**
  - ▶ **Sizing LID/Site Design BMPs to treat the required water quality volume ( $V_{BMP}$ ) or water quality design flow ( $Q_{BMP}$ )**

# Resource for Stormwater Quality BMP Design



- ▶ **WWR BMP Handbook is not applicable to**
  - ▶ Priority Development Projects (PDPs) located in an area subject to on-site retention requirements
- ▶ **WWR BMP Handbook is applicable to**
  - ▶ PDPS not subject to local on-site retention requirements
    - ▶ Applies to selection, sizing, and design of LID/Site Design and Treatment Control BMPs
    - ▶ The local land use authority may have agency-specific standards that supersede the WWR BMP Handbook

# Tributary Drainage Area



- ▶ Relates **discharge points** and **tributary drainage areas** to BMP sizing and design
- ▶ Introduces the **impervious ratio** for a tributary drainage area and promotes its reduction to reduce the runoff a BMP will need to address
- ▶ Introduces design techniques to reduce the amount of runoff to be addressed with BMPs
  - ▶ *Self-Retaining Areas*
  - ▶ *Self-Treating Areas*

# BMP Selection



rcwatershed.org

- ▶ **Identifying Project Pollutants of Concern**
  - ▶ Updated: Potential Pollutants Generated by Land Use Type
- ▶ **Identifying Receiving Water Impairment**
- ▶ **Addressing Potential Project Pollutants of Concern**
- ▶ **BMP Pollutant Removal Effectiveness**
  - ▶ Updated: BMP Selection Matrix Based Upon Pollutants of Concern Removal Efficiency
    - ▶ Reflects benefits of infiltration, more BMPs rated “High”
    - ▶ Proprietary BMPs for primary treatment: requires site specific approval of local land use authority
- ▶ **Final BMP Selection**
- ▶ **Basis for BMP Design**



# 1 BMP Sizing



- ▶ Impervious Ratio
- ▶ Drawdown Times
  - ▶ 48 hours or less, typically 24 to 48 hours
  - ▶ Drawdown times longer than 48 hours require site-specific continuous simulation modeling to determine the Unit Basin Storage Volume
- ▶ Maximum Depth
- ▶  $V_{BMP}$  or  $Q_{BMP}$  Based Design
  - ▶ Calculation worksheets now included
    - ▶ Active Microsoft Excel worksheets

# 2 BMP Factsheets and Design Worksheets



- ▶ Includes updated Factsheets and Worksheets
  - ▶ Factsheets: Provide guidance on siting and design of a BMP
  - ▶ Worksheets: Provide spreadsheets for documenting BMP design calculations
    - ▶ Active Microsoft Excel worksheets

## Factsheets and Worksheets Included in WWR BMP Handbook

A.1 Landscaped Swales	A.5 Sand Filter Basin
A.2 Landscaped Filter Strips	A.6 Permeable Pavement
A.3 Landscaped Retention Facilities	A.7 Infiltration Basin
A.4 Extended Detention Basin	A.8 Infiltration Trench

# 3 Resources



- ▶ Includes: **Local Land Use Authority Onsite Retention Requirements** by agency
  - ▶ Summarizes requirement, if any
  - ▶ Provides reference to enabling Ordinance
- ▶ Includes: **Local Land Use Authority Standards and Ordinances** by agency
  - ▶ Indicates agencies with various standards or ordinances
    - ▶ Retention Basin Standard
    - ▶ Drywell Standards
    - ▶ Water Conservation Landscaping Ordinance
    - ▶ Desert Plant Palette
- ▶ Provides links to the local land use authorities

# References



- ▶ Provides links to the local land use authorities. Provides references to resources used in development of the WWR BMP Handbook
- ▶ Appendix A – BMP Factsheets
  - ▶ Includes the BMP Factsheets and BMP Worksheets
- ▶ Appendix B – Infiltration Testing Guidelines
  - ▶ Provides Infiltration Testing Guidelines
  - ▶ For use where infiltration BMPs are proposed
  - ▶ Local land use authority may choose to alter these guidelines and may have different/additional requirements
- ▶ Appendix C – Underdrain Guidelines
  - ▶ Provides guidelines for underdrains when incorporated into BMPs

# 5 Regional Geodatabase



- ▶ Regional tool has been updated for your use!
  - ▶ Designed to assist developers with writing WQMPs
- ▶ A SAR Permit and WAP requirement
  - ▶ The tool should be helpful for developers in all of the County's watersheds where WQMPs are required.



# The Regional Geodatabase is That Place!



- ▶ The Geodatabase is almost a one-stop shop for users
  - ▶ Much of information can be copied from the web application and pasted into a WQMP
  - ▶ The tool can also provide reports (i.e. soils, groundwater, etc.) which can be useful for developers
- ▶ Access to the site
  - ▶ Location: <http://rivco.permitrack.com>
- ▶ Let's take a look at some example uses.

# Site Specific Assessments



Outline Project Site or Select Parcels



# 8 Development Project Reports



<a href="http://rivco.permitrack.com/report/report.asp?septic=&amp;SECAREA=&amp;PNUM=502032009,502032008,502032010,502032007&amp;">http://rivco.permitrack.com/report/report.asp?septic=&amp;SECAREA=&amp;PNUM=502032009,502032008,502032010,502032007&amp;</a>	
<p>Remove 303d listed Water bodies and TMDLs have the following Pollutants of Concern (POC):</p>	<p><b>Bacterial Indicators</b> - Enterococcus, Pathogens  <b>Metals/Metalloids</b> - Arsenic, Selenium  <b>Nutrients</b> - Nutrients  <b>Other Organics</b> - PCBs (Polychlorinated biphenyls)  <b>Pesticides</b> - Chlorpyrifos, DDT (Dichlorodiphenyltrichloroethane), Dieldrin, Toxaphene  <b>Salinity</b> - Salinity</p>
<p>Is Site subject to Hydromodification:</p>	<p>No</p>
<p>Investigations on Infiltration:</p>	<p><b>Project Site Onsite Soils Group(s)</b> - A  <b>Known Groundwater Contamination Plumes within 1000'</b> - No  <b>Adjacent Water Supply Wells(s)</b> - No information available please contact your local water agency for more information. Your local contact agency is CITY OF PALM SPRINGS. Your local wholesaler contact agency is DESERT WATER AGENCY.</p>
<p>Environmentally Sensitive Areas within 200'(Fish and Life Habitat/Species):</p>	<p>None</p>
<p>Environmentally Sensitive Areas within 200'(CVMSHCP):</p>	<p>None</p>
<p>Environmentally Sensitive Areas within 200'(WRMSHCP):</p>	<p>None</p>
<p>Groundwater elevation from Mean Sea Level:</p>	<p>No Data</p>
<p>Percentile Design Storm Depth (in):</p>	<p>0.40</p>
<p>Groundwater Basin:</p>	<p>Palm Springs Sub Area</p>
<p>CVMSHCP/CVMSHCP Criteria Cell(s):</p>	<p>No Data</p>
<p>Applicable Ordinance Information:</p>	<p><b>City</b> - PALM SPRINGS  <b>Ordinance</b> - Title 8, Sec. 8.70.100  <b>Description</b> - Hillside residences and commercial projects over 2 acres, in drainage areas that are less than 70% developed.  <b>Storm Event (Required Design Capture Volume)</b> - Retain the difference between most conservative 100-year storm in the developed condition and the pre-development condition</p>
<p>Files and Reports Related to Project Site:</p>	<p><a href="#">water fact 3 7.11</a>  <a href="#">Palm Springs MDP</a></p>



# 9 Water Quality Data



A screenshot of a web browser displaying the "Riverside County SWCT2 Stormwater &amp; Water Conservation Tracking Tool". The browser address bar shows "http://rivco.permitrack.com/". The page has a header with the tool's name and a search bar. Below the header is a map of a region with various colored overlays: blue lines for drainage facilities, yellow lines for areas not susceptible to hydromodification, and black dashed lines for hydrologic region boundaries. A legend on the left side of the map lists various data layers. At the bottom of the map, there is a "Reports" dropdown menu with several report names listed, including "IBI Scores - Southern Cal", "MANGULAR\_CHANNEL", "StormDrainIndexMaps", "StormDrainMPIIndexMap", and "HemetMasterEld. Control &amp; Drainage Plan84".

A screenshot of a GIS application window showing a map of the "South Coast Hydrologic Region". The browser address bar shows "http://gis3.rbf.com/RivCo\_SV". The map displays various hydrologic features, including basins and subbasins, with a legend on the right side. The legend includes: "124 Basin Number", "1221 Subbasin Number", "Basin", "Hydrologic Region Boundaries", and "County Lines". The map shows a complex network of basins and subbasins, with some areas shaded in gray.

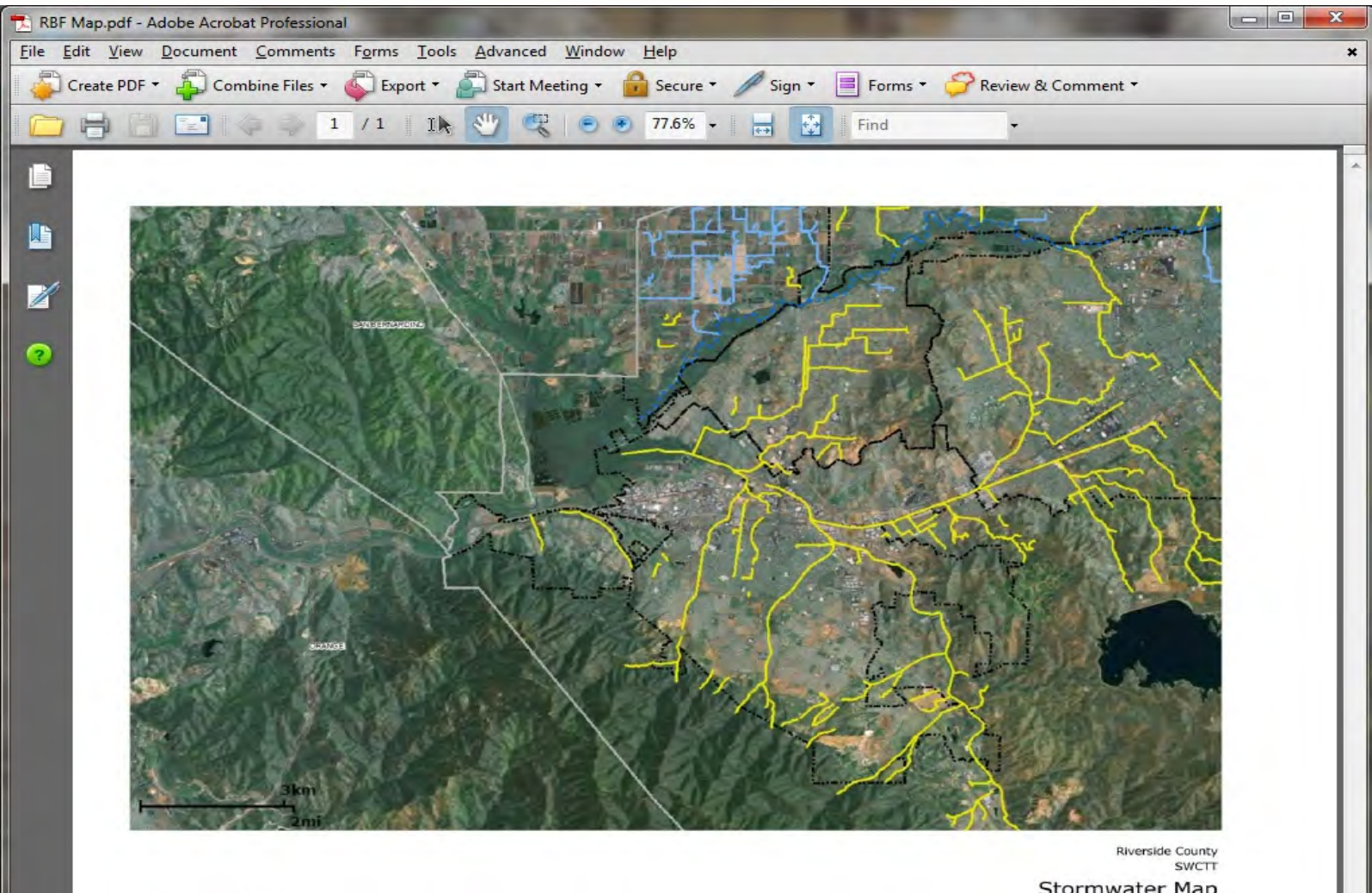
# Surface/Groundwater Mgmt. Plans



The screenshot shows a web browser window displaying a GIS application. The browser's address bar shows the URL <http://rivco.permitrack.com/>. The application header includes the RivCo logo, the text "DRAFT SWCT<sup>2</sup> Stormwater & Water Conservation Tracking Tool", and another "DRAFT" label. Below the header is a search bar with the text "Choose search item from list" and "Enter Value". A left-hand navigation menu lists categories: "Base Maps", "Base Data", "Stormwater Data", "Groundwater Data", and "Habitat/Species". The main area is a satellite map of a residential neighborhood with a yellow rectangular area highlighted. A red line traces a path across the map. An inset window in the bottom right shows a report titled "2010 Urban Water Management Plan" for Jurupa Community Services District, dated May 2011, by Kennedy-Jenks Consultants. The report cover features images of water treatment facilities and a landscape. At the bottom of the browser window, a "Reports" panel lists several report names: "bulletin118\_4-sc", "water\_fact\_3\_7.11", and "8039-SAR-Hydrmodification".



# 1 Create Maps and exhibits



# 2 Tracking and Inspection



- Anytime a Project crosses the counter – LOG IT IN!
- Require reporting forms be filled out by Public when submitting WQMPs for review

**New Development and Redevelopment Projects  
Required Reporting Information for Projects Requiring  
Project-Specific WQMPs**

---

**APPLICANT:**

PRINT NAME      TITLE      COMPANY      PHONE      EMAIL

1. Project name as it is shown on the project application or project specific WQMP:

\_\_\_\_\_

2. Project Location:

ADDRESS      CITY      ZIP CODE

NEAREST CROSS STREETS

3. Tract Numbers:

\_\_\_\_\_

4. Assessor Parcel Numbers:

\_\_\_\_\_

5. Other:

OTHER INFORMATION TO HELP IDENTIFY LOCATION OF PROJECT OR OTHER PERTINENT INFORMATION

\_\_\_\_\_

6. Nearby Receiving Waters:

NEARBY CREEKS OR STREAMS

\_\_\_\_\_

7. Size of Site (acres):

\_\_\_\_\_

8. Pre-construction Percentage of Site Impervious:

\_\_\_\_\_

9. Estimated Post Construction Percentage of Site Imperviousness:

\_\_\_\_\_

10. Does project require a WQMP? \_\_\_\_\_

**New Development and Redevelopment Projects  
Required Reporting Information for Projects Requiring  
Project-Specific WQMPs**

---

11. Project Area with Site Design/LID BMPs (in acres): \_\_\_\_\_

12. On-site Retention Required? \_\_\_\_\_

13. Treatment Control BMPs Required? \_\_\_\_\_

14. Other Development Conditions Established (specify)? \_\_\_\_\_

\_\_\_\_\_

15. Do you know what entity will operate and manage the BMPs after construction? If yes, provide.

NAME      CONTACT NAME      ADDRESS      PHONE

\_\_\_\_\_

16. Pollutant(s) of Concern Summary- Fill In Table Below:

POLLUTANT CATEGORY	POTENTIAL FOR PROJECT	POSSIBLE REC.WATER IMPAIRMENT
Bacteria / Virus		
Heavy Metals		
Nutrients		
Pesticides		
Organic Compounds		
Sediments		
Trash & Debris		
Oxygen Demanding Substances		
Oil & Grease		
Other Pollutant:		
Other Pollutant:		

17. Site Design BMPs Measurable Goal Summary- Fill in Table Below:

Site Design BMP	Site Design BMP Sizing	Drainage Subarea ID	Site Design BMP Tributary (acres)

TOTAL OF SITE DESIGN BMP TRIBUTARY AREAS ( NEAREST 0.1 ACRE): \_\_\_\_\_

TOTAL PROJECT SITE AREA (NEAREST 0.1 ACRE): \_\_\_\_\_

18. Signature / Date: \_\_\_\_\_





4

# Questions and Answers