

NPDES Stormwater Training

Water Quality Management Plans



Water Quality Management Plans
For
Santa Ana and Santa Margarita Watersheds
Of
Riverside County



Basic Training
Spring 2009



ALCASC

Why are we here?

- ❖ Storm water and urban runoff from areas of new development and redevelopment must be cleaned prior to discharge.
- ❖ The development community is responsible for complying with new regulations that require water quality control features be included in most new projects.
- ❖ City and County staff are responsible for implementing development regulations within their jurisdiction, and must be trained on Water Quality Management Plan requirements.



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Training Session Objectives

To learn about the role of Project-Specific Water Quality Management Plans in new development and redevelopment projects in the Riverside County Santa Ana River and Santa Margarita Watersheds

To better understand the modifications to the development project review, approval, permitting, and inspection processes that have emerged from the municipal NPDES storm water permits issued in the Riverside County Santa Ana River and Santa Margarita Watersheds

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Water Quality Management Plans



Today's Agenda

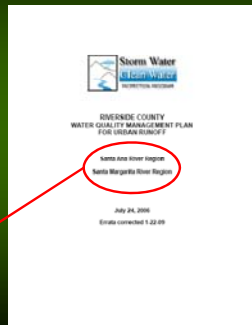
- ❖ Welcome and Training Process
- ❖ Water Quality Management Plans - Introduction
 - ◆ Overview
 - ◆ Fundamentals
- ❖ Break
- ❖ Water Quality Management Plans - Hands-On Exercises
- ❖ WQMP Plan Checking
- ❖ Roundtable Discussion – Learning from Experience
 - ◆ Best Management Practices
 - ◆ Water Quality Management Plans



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Prerequisites for Successful Course Completion

- ❖ A desire to learn about Water Quality Management Plans
- ❖ A willingness to participate in the learning process!
- ❖ A basic understanding of the development review and approval process at your agency or at the agencies where you submit plans
- ❖ A copy of the document, "Riverside County Water Quality Management Plan for Urban Runoff"
 - ◆ Dated July 24, 2006
 - ◆ Errata corrected 1-22-09



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Introductions

- ❖ Your AEI-CASC Presenters
 - ◆ Jeff Endicott, P.E., DEE
 - ◆ Melanie Sotelo
- ❖ Audience Introductions
 - ◆ Agency Staff – By Dept.
 - ◆ Engineering Department
 - ◆ Planning Department
 - ◆ Building Department
 - ◆ Code Enforcement
 - ◆ Others?
 - ◆ Agency Staff – By Prof.
 - ◆ Engineering
 - ◆ Planning
 - ◆ Biological Sciences
 - ◆ Management
 - ◆ Others?



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Training Process

- ❖ Restrooms
- ❖ Cell phones – turn off, set to vibrate, or set to stun
 - ◇ If you must take a call, I'll stop talking and we'll all listen in!
- ❖ A mid-session break is planned
- ❖ Questions
 - ◇ We have a lot to cover
 - ◇ "In-scope" questions – Please signal
 - ◇ Will take them to the extent that many will benefit
 - ◇ "Out-of-scope" questions will be deferred
- ❖ Goal – To complete the session within 4 hours
 - ◇ Sticking to the process will help accomplish this goal!
- ❖ I will be available after the session if you have additional questions

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Water Quality Management Plans
For
Santa Ana and Santa Margarita Watersheds
Of
Riverside County



Water Quality Management Plan Overview
Spring 2009



Today's Agenda

- ❖ Welcome and Training Process
- ❖ Water Quality Management Plans - Introduction
 - ◇ Overview
 - ◇ Fundamentals
- ❖ Break
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Course Indexing

- ❖ This course is indexed to assist you in following along in your printed documents
- ❖ Watch for the index boxes
- ❖ Following along is OPTIONAL in this particular module!

This is an index box.

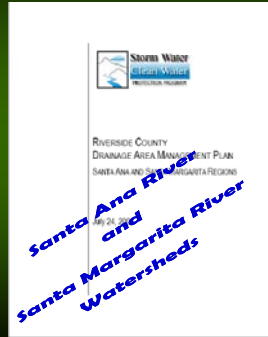
Index boxes refer you to the document, "Riverside County Water Quality Management Plan for Urban Runoff for the Santa Ana Region and Santa Margarita Region" (WQMP) or the Drainage Area Management Plan (DAMP)

WQMP
Page #

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Riverside County Drainage Area Management Plan (DAMP)

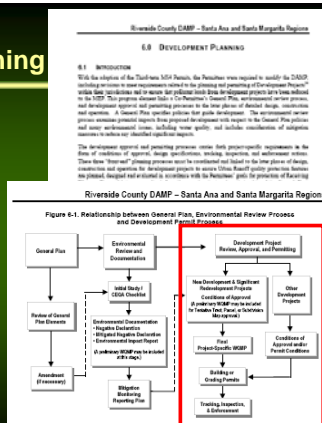
- ❖ Describes urban runoff management strategies planned by the municipal NPDES permit holders
- ❖ Addresses the prescriptive and stringent requirements in the 2002 Santa Ana Watershed and 2004 Santa Margarita Watershed municipal permits
- ❖ Status...
 - ❖ Santa Ana RWQCB
 - ❖ Submitted Jan. 2005
 - ❖ San Diego RWQCB
 - ❖ Updated since Jan. 2005 to address Santa Margarita Region issues



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DAMP Section 6 Development Planning

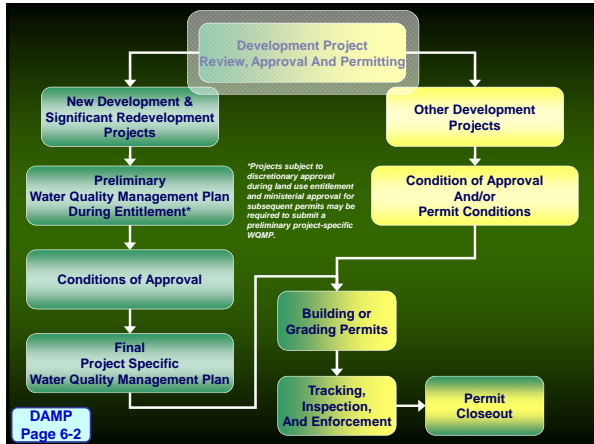
- ❖ Covers the entire spectrum
 - ❖ Land Use Planning
 - ❖ General Plans
 - ❖ General Plan Amendments
 - ❖ Environmental Review
 - ❖ Initial Studies
 - ❖ Negative Declarations
 - ❖ Environmental Impact Reports
 - ❖ Development Review, Approval, and Permitting
 - ❖ Conditioning
 - ❖ Permitting
 - ❖ Project closeout



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Three Project Categories

Development Project Review, Approval, Permitting, And Inspection Process

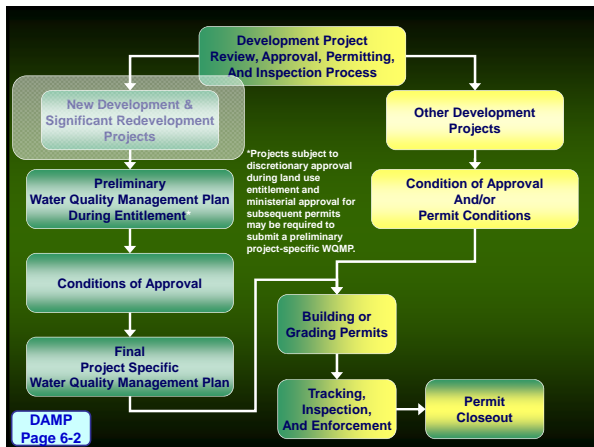
- ❖ Redevelopment
- ❖ New development
- ❖ Other development

Knowing your project category is key to understanding the requirements for the project!

Today, we'll look *briefly* at definitions of each category.

For detailed definitions, consult program *Guidance Documents (DAMP/WQMP)*.

DAMP
Page 6-2



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New Development Residential

New Development & Significant Redevelopment Projects

- ❖ Construction of 10 or more dwelling units.
- ❖ Examples include:
 - ◆ Single family dwelling units
 - ◆ Multi-family dwelling units
 - ◆ Condominiums
 - ◆ Apartments



DAMP
Fig 6-2a, b

16

New Development Industrial and Commercial

New Development & Significant Redevelopment Projects

- ❖ Where the land area represented by the proposed map or permit is 100,000 square feet or more.
- ❖ Examples include:
 - ◆ Hospitals
 - ◆ Educational institutions
 - ◆ Recreational facilities
 - ◆ Mini-malls
 - ◆ Hotels
 - ◆ Office buildings
 - ◆ Warehouses
 - ◆ Light industrial facilities
 - ◆ Heavy industrial facilities



DAMP
Fig 6-2a, b

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New Development Automotive Repair Shops

New Development & Significant Redevelopment Projects

- ❖ 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
 - ◆ Santa Margarita Watershed, Add...
 - ◆ 5014 Tires and Tubes
 - ◆ 5541 Gasoline Service Stations
 - ◆ 7536 Automotive Glass Replacement Shops



DAMP
Fig 6-2a, b

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New Development Restaurants

New Development & Significant Redevelopment Projects

- ❖ Where the project site is 5,000 square feet or more in the Santa Ana Watershed and smaller restaurants in the Santa Margarita Watershed*
- ❖ SIC 5812 - Eating and Drinking Places



DAMP
Fig 6-2a, b

*Smaller restaurants in the Santa Margarita Watershed are treated similar to "Other Development" in the Santa Ana Watershed.

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New Development Hillside Development

New Development & Significant Redevelopment Projects

- ❖ Where 10,000 square feet or more of impervious surface is created in the Santa Ana Watershed or 5,000 square feet or more of impervious surfaces is created in the Santa Margarita Watershed
- ❖ Includes areas with known erosive soil conditions OR
- ❖ Includes areas where the natural slope is 25% or more



DAMP
Fig 6-2a, b

20

New Development Development Near ESAs

New Development & Significant Redevelopment Projects

- ❖ Where 2,500 square feet or more of impervious area is created (or increases existing imperviousness by 10% or more in the Santa Margarita Watershed) and...
- ❖ Is adjacent to (within 200') or discharges directly into waters designated in the Basin Plan as supporting habitat for rare, threatened, or endangered species (RARE Beneficial Use), OR
- ❖ Is adjacent to (within 200') or discharges directly into waters listed on the 303(d) list as being impaired.



DAMP
Fig 6-2a, b

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New Development Parking Lots

New Development & Significant Redevelopment Projects

- ❖ Where 5,000 square feet or more of impervious surface will be exposed to storm water in the Santa Ana Watershed or 15 or more spaces potentially exposed to urban runoff in the Santa Margarita Watershed.
- ❖ Includes site and facilities for the temporary storage of motor vehicles.



DAMP
Fig 6-2a, b

22

New Development Retail Gasoline Outlets

New Development & Significant Redevelopment Projects

- ❖ In the Santa Margarita Watershed, retail gasoline outlets of 5,000 square feet or more and a projected ADT of 100 or more vehicle per day.



DAMP
Fig 6-2 b

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Significant Redevelopment

New Development & Significant Redevelopment Projects

- ❖ The addition or creation of 5,000 square feet or more of impervious surface on an existing developed site.
- ❖ Examples include (but of course, are not limited to):
 - ❖ Additional buildings and structures
 - ❖ Extension of the footprint of a building
 - ❖ Impervious or compacted soil parking lots
 - ❖ Streets and roads in the Santa Margarita Watershed
- ❖ Excludes routine maintenance
- ❖ Excludes emergency work to protect public health and safety

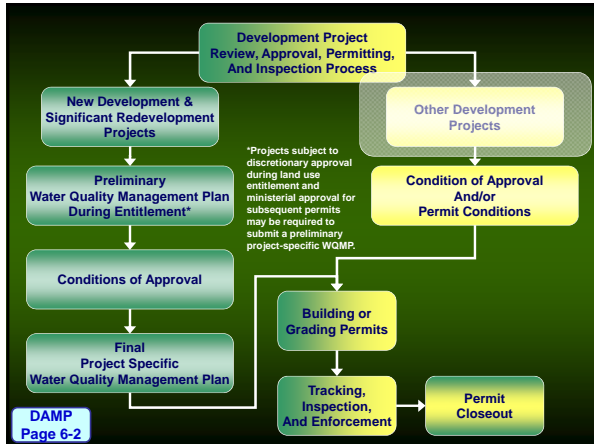


DAMP
Fig 6-2a, b

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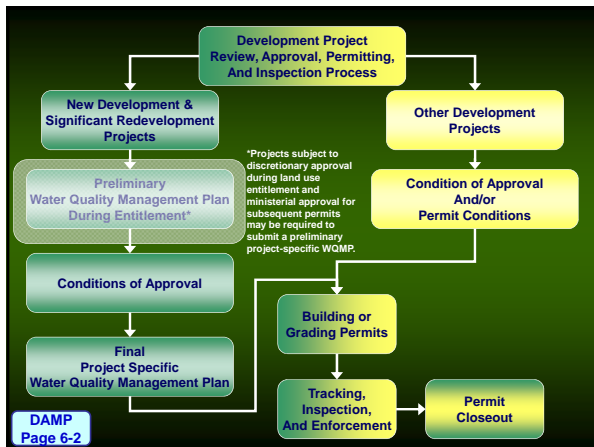


Other Development

Other Development Projects

- ❖ Projects not meeting the definition of Significant Redevelopment or New Development
 - ❖ This is a pretty small group of projects and is likely to be limited to infill-type projects

DAMP
Page 6-13



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First Things First! What Is A WQMP?

Preliminary Water Quality Management Plan During Entitlement*

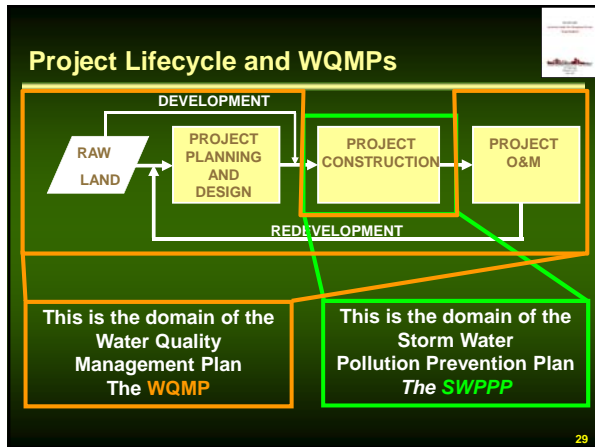
WQMP

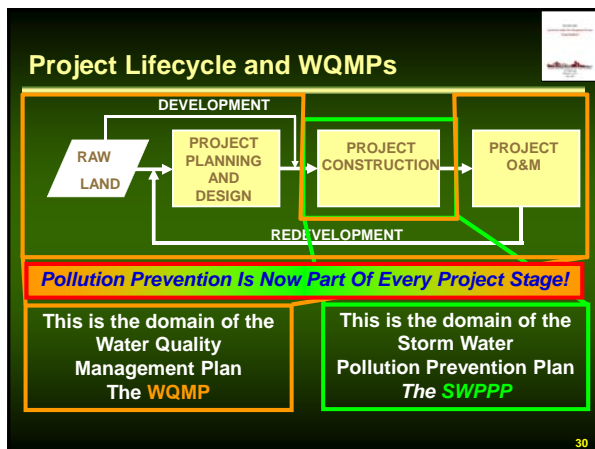
- ❖ **W**ater
- ❖ **Q**uality
- ❖ **M**anagement
- ❖ **P**lan

❖ The **WQMP** is a project-specific plan of Best Management Practices (BMPs), including site design, source controls, and treatment controls, to address post-construction urban runoff quality and quantity to protect receiving waters.

❖ A project-specific **WQMP** must be submitted and approved prior to the first discretionary project approval or permit for all Significant Redevelopment and New Development projects.

WQMP Page 1 28





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Preliminary Project-Specific WQMP Preliminary Water Quality Management Plan During Entitlement*

- ❖ 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 WQMP with project application

DAMP
Page 6-9 31

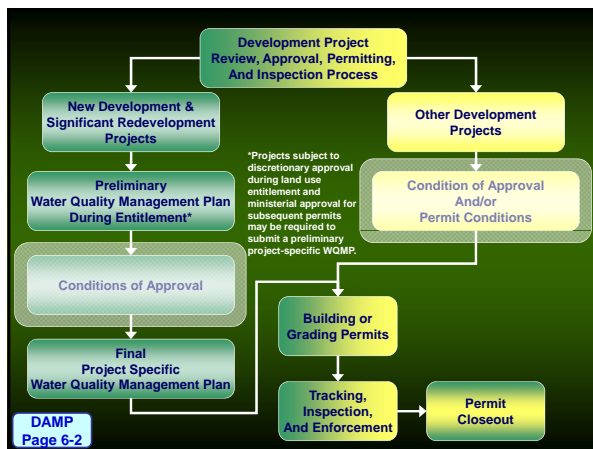
Preliminary Project-Specific WQMP Preliminary Water Quality Management Plan During Entitlement*

- ❖ Level of detail in a Preliminary Project-Specific WQMP will depend on the overall project design at the time project approval is sought.
 - ❖ Key point – The Preliminary WQMP needs to be specific enough to identify the land required for BMP implementation!

Many cities have adopted City-specific requirements to guide the Preliminary WQMP process

- ❖ A Final Project-Specific WQMP that is in substantial conformance with the Preliminary Project-Specific WQMP (and in full conformance with the WQMP Guidance) will be required prior to issuance of any building or grading permit.

DAMP
Page 6-9 32



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Standard Conditions Help Implement WQMPs

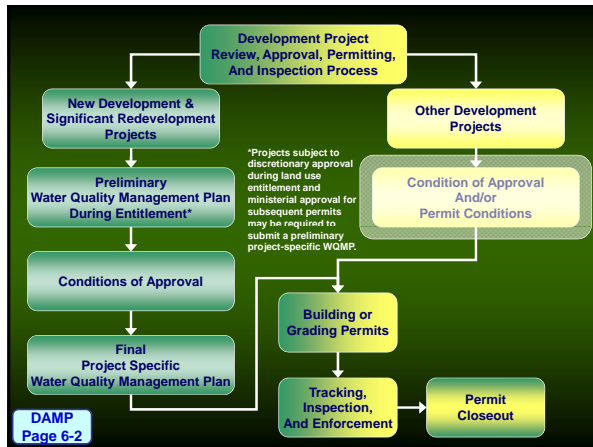
Conditions of Approval

Condition of Approval And/or Permit Conditions

- ❖ Assist in compliance with the statewide General Permit-Construction or the General Permit-Industrial
- ❖ Assist in compliance with adopted Total Maximum Daily Load (TMDL) allocations
- ❖ Requires that structural BMPs are installed in conformance with approved plans
- ❖ Requires that applicants are prepared to implement all non-structural BMPs included in Conditions of Approval
- ❖ Santa Margarita Region limits grading during the wet season without additional BMPs in compliance with Third-Term SMR MS4 Permit

DAMP
Page 6-14,15

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Conditions for "Other" Projects (No WQMP)

Condition of Approval And/or Permit Conditions

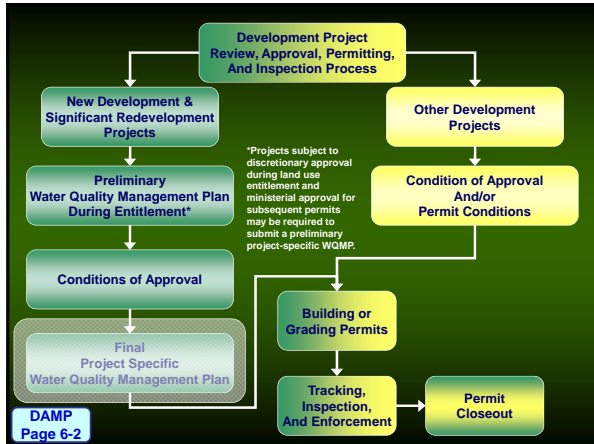
- ❖ In addition to the "Conditions of Approval" reviewed a moment ago...
- ❖ Other Projects shall incorporate Site Design BMPs and Source Control BMPs into project plans as applicable and feasible.
- ❖ Other Projects may, on a case-by-case basis, be required to incorporate Treatment Control BMPs
 - ❖ Key point: recommended for projects discharging to 303(d) listed water bodies!
 - ❖ Key point: highly recommended for projects discharging to waters with an adopted TMDL.
- ❖ Requirements for "Other Projects" will be included in
 - ❖ Conditions of Approval or
 - ❖ Grading or Building Permit Conditions

DAMP
Page 6-13

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Final Project-Specific WQMP

Final Project Specific Water Quality Management Plan

WQMP

DAMP Page 6-15

- ❖ **W**ater
- ❖ **Q**uality
- ❖ **M**anagement
- ❖ **P**lan

❖ **The Final Project-Specific WQMP...**

- ❖ Is a planning level document
- ❖ Is not expected to contain final BMP design drawings and details
- ❖ Is expected to identify and show the location of structural BMPs
- ❖ Is expected to provide design parameters and final design concepts of treatment BMPs
- ❖ Must be approved prior to issuance of building or grading permits

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Final Project-Specific WQMP

Final Project Specific Water Quality Management Plan

- ❖ **The Final Project-Specific WQMP will contain**
 - ❖ Site Design BMPs
 - ❖ Source Control BMPs
 - ❖ Treatment Control BMPs
 - ❖ BMP maintenance descriptions
 - ❖ BMP funding description
 - ❖ BMP operation responsibilities
- ❖ **Must conform to the Guidance!**

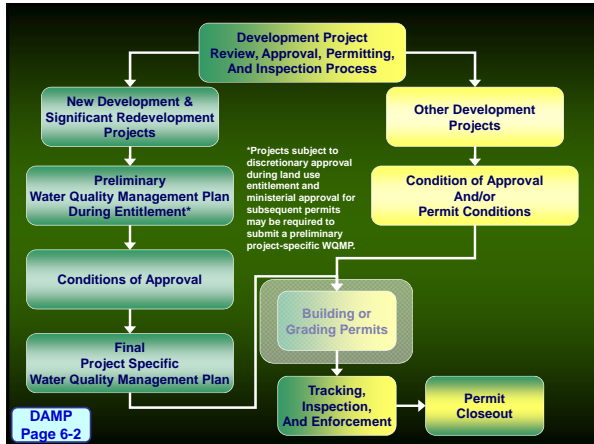
Many cities supplement the Guidance with City-specific requirements.

DAMP Page 6-15 **WQMP Page 8**

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Mandatory Notes for Construction Plans

- ❖ **DAMP Requirements Prior to Grading/Building Permits**
 - ❖ Requires a number of standard notes on construction plans as part of the grading and building permit process
 - ❖ These notes are detailed in the DAMP and won't be covered here

DAMP Pg 6-15,16 41

Grading and Building Permits Are Issued After

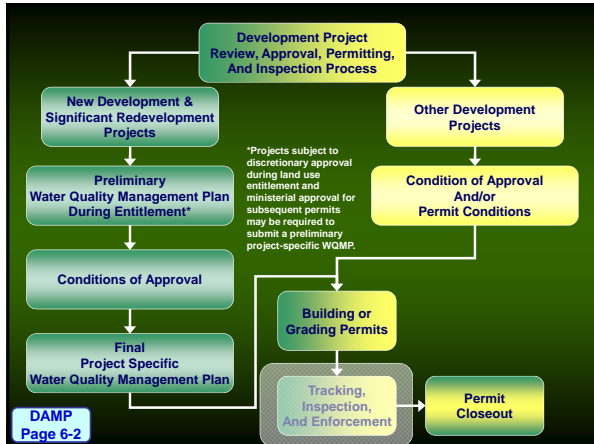
Building or Grading Permits

- ❖ **Redevelopment and New Development Projects**
 - ❖ Final Project-Specific WQMP is approved
 - ❖ Plan Check verifies that
 - ❖ BMPs from WQMP are incorporated into plans
 - ❖ Standard Notes have been placed on plans
 - ❖ Conditions of Approval have been met
- ❖ **Other Projects**
 - ❖ Construction plans incorporate site design and source control BMPs
 - ❖ Standard Notes have been placed on plans
 - ❖ Condition of Approval have been met

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Water Quality Management Plans

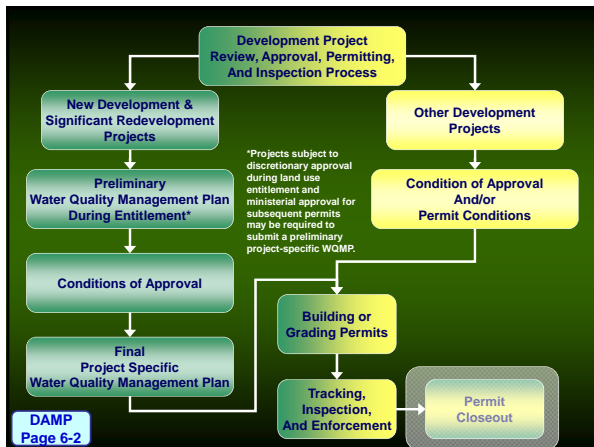


Tracking, Inspection, and Enforcement

- ❖ These subjects will be covered in other training sessions



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Permit Closeout, Certificates of Use and Occupancy Permit Closeout

- ❖ Applicants will be required to demonstrate that:
 - ❖ All structural BMPs have been constructed and installed in conformance with approved plans and specifications.
 - ❖ A mechanism or agreement acceptable to the Co-Permittee has been executed for the long-term funding and implementation, operation, maintenance, repair, and/or replacement of BMPs.
 - ❖ The applicant is prepared to implement all non-structural BMPs.
 - ❖ An adequate number of copies of the project-specific WQMP, if applicable, are available onsite.
 - ❖ Industrial facilities subject to California's General Permit for Stormwater Discharges Associated with Industrial Activity as defined by Standard Industrial Classification (SIC) code provide proof of coverage by providing a copy of the Notice of Intent (NOI) submitted to the State Board and/or a copy of the notification of the issuance of a Waste Discharge Identification (WDID) Number.

DAMP
Page 6-17 46

Summary of Requirements

- ❖ Post-construction water pollution control, a requirement for many years, is now being more rigorously enforced!
 - ❖ A WQMP is required for all but the smallest of projects
 - ❖ Final Project-Specific WQMP is required before issuance of grading/building permits
 - ❖ Preliminary Project-Specific WQMP may be required during project entitlement phase
- ❖ New MS4 Permit is expected 2009/10 – Stay Tuned

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**Water Quality Management Plans
For
Santa Ana and Santa Margarita Watersheds
Of
Riverside County**



**Water Quality Management Plan Fundamentals
Spring 2009**



AEI/CASC

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Water Quality Management Plans



Today's Agenda

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 - ❖ Water Quality Management Plans

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Determining Project Category

- ❖ A correct Project Category determination is essential!
- ❖ The Project Category is a key factor in...
 - ❖ Deciding whether a WQMP is required!
 - ❖ Identifying the pollutants likely to be associated with the project
- ❖ The correct Project Category is easy to determine for most projects
- ❖ Projects that fall into the “gray areas” of the category definitions will require careful consideration!
- ❖ An incorrect determination of Project Category could create significant future headaches such as...
 - ❖ Permit enforcement actions against the agency or owner
 - ❖ Requirements to retrofit a complete or near-complete project

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Determining Project Category

- ❖ DAMP Figure 6-2a or 2b
 - ❖ Simple to use checklist
 - ❖ Use for projects in areas covered by the Santa Ana and Santa Margarita RWQCB MS4 NPDES Permit
 - ❖ Provides a place to document category determination!
- ❖ WQMP Guidance Document Section 3 provides a narrative description of each project category

Figure 6-2a Checklist - Projects Requiring Project-Specific WQMPs within the Santa Ana Region

Checklist for Identifying Projects Requiring a Project-Specific WQMP within the Santa Ana Region

Project File No.	Project Name	Project Location	Project Description	Yes	No
<p style="font-size: x-small;">1. Project Type/Category or Activity</p> <p style="font-size: x-small;">(a) Construction: Construction of a new or expanded building or structure, including but not limited to, residential, commercial, industrial, institutional, or public works. Construction of a new or expanded parking lot, driveway, or other paved area. Construction of a new or expanded storm drain, sewer line, or other underground utility. Construction of a new or expanded storm drain, sewer line, or other underground utility. Construction of a new or expanded storm drain, sewer line, or other underground utility.</p> <p style="font-size: x-small;">(b) Demolition: Demolition of a building or structure, including but not limited to, residential, commercial, industrial, institutional, or public works. Demolition of a building or structure, including but not limited to, residential, commercial, industrial, institutional, or public works. Demolition of a building or structure, including but not limited to, residential, commercial, industrial, institutional, or public works.</p> <p style="font-size: x-small;">(c) Land Disturbance: Clearing, grading, or other land disturbance activities, including but not limited to, residential, commercial, industrial, institutional, or public works. Clearing, grading, or other land disturbance activities, including but not limited to, residential, commercial, industrial, institutional, or public works. Clearing, grading, or other land disturbance activities, including but not limited to, residential, commercial, industrial, institutional, or public works.</p> <p style="font-size: x-small;">(d) Other: Other activities, including but not limited to, residential, commercial, industrial, institutional, or public works. Other activities, including but not limited to, residential, commercial, industrial, institutional, or public works. Other activities, including but not limited to, residential, commercial, industrial, institutional, or public works.</p>					

(b) Installation required: "Yes" — Project involves a project-specific WQMP.
 (c) Conditionally exempt: "Yes" — Project involves construction of the Design BMPs and Storm Control BMPs through installation of approved storm control devices.
 (d) Exempt: "Yes" — Project involves construction of the Design BMPs and Storm Control BMPs through installation of approved storm control devices.

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Identifying the Project Watershed

- ❖ Identify the project watershed
 - ❖ Santa Ana River Watershed
 - ❖ Santa Margarita River Watershed
- ❖ Identify the sub-watershed
 - ❖ The Basin Plans have a nice list of sub-watersheds



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Identifying the Project Watershed

- ❖ Correct identification of watershed and sub-watershed is critical to identification of Receiving Waters, Impairments, and Pollutants of Concern
- ❖ Example Situation (From 2006 CWA Section 303(d) List and TMDLs)
 - ❖ Canyon Lake – Impaired due to Nutrients and Pathogens
 - ❖ Lake Elsinore – Impaired due to Nutrients, Organic Enrichment/Low Dissolved Oxygen, PCBs, and Unknown Toxicity
 - ❖ Santa Ana River Reach 3 – Impaired due to Pathogens
- ❖ Example Ramifications
 - ❖ All three waters are in the Santa Ana River watershed
 - ❖ Discharges to Canyon Lake and Santa Ana River Reach 3 require extra attention to Pathogens due to the impairments
 - ❖ Discharges to Lake Elsinore do not carry the same level of concern for Pathogens because it is not Pathogen impaired

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Identifying Project Receiving Waters

- ❖ Project watershed and sub-watershed provide for receiving water identification
- ❖ Maps from Flood Control, USGS, and others are useful in finding the receiving waters



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Identifying Project Receiving Waters

- ❖ Proximate Receiving Waters – Generally receiving waters closest to your project
 - ◆ A precise definition has not been established (yet)
 - ◆ When TMDLs come into play, they are likely to push the “Proximate Threshold” further downstream
- ❖ Downstream Receiving Waters – Include all receiving waters that could receive drainage from the project site

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Identifying Receiving Water Impairments

- ❖ Impairments of receiving waters can be obtained from several sources:
 - ◆ County website for Resources - including 2006 Watershed impairment Maps for SAR and SMR Regions
 - ◆ <http://www.floodcontrol.co.riverside.ca.us/> (verified April 2009)
 - ◆ Your Agency NPDES Coordinator
 - ◆ California Clean Water Act Section 303(d) list of impaired water quality segments and TMDL
 - ◆ http://www.waterboards.ca.gov/water_issues/programs/tmdl/303d_lists2006_approved.shtml (verified April 2009)

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Identifying Receiving Water Impairments

- ❖ 303(d) list for the Statewide impairments:
 - ◆ http://www.waterboards.ca.gov/water_issues/programs/tmdl/303d_lists2006_approved.shtml (verified April 2009)

Total Maximum Daily Load Program

2006 CLEAN WATER ACT SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS

- ◆ **2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments Being Addressed By U.S.EPA Approved TMDLs**
This portion of the section 303(d) list contains those waters and pollutants where a TMDL has been approved and an implementation is available, but water quality standards are not yet met. This portion of the list is required by section 2.2(1) of the Listing Policy.
* Statewide - View [ESE] [Excel]
- ◆ **2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments Being Addressed By Action Other Than TMDLs**
This portion of the section 303(d) list contains those waters and pollutants where the water quality problem is being addressed by an action other than a TMDL and water quality standards are not yet met. This portion of the list is required by section 2.2(2) of the Listing Policy.
* Statewide - View [ESE] [Excel]
- ◆ **2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments with the three categories - Requiring TMDLs, Being Addressed by USEPA Approved TMDLs, and Being Addressed by Action Other Than TMDLs**
This was created to provide a more convenient means of working with the 2006 303(d) list by combining the three categories. The categories basically describe the TMDL requirement status for each water body pollutant combination. The TMDL requirement status is identified in a specific column within the list.
* Statewide - View [ESE] [Excel]

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Identifying Receiving Water Impairments

RESOLUTION NO. R8-2004-0037

Resolution Amending the Water Quality Control Plan for the Santa Ana River Basin to Incorporate Nutrient Total Maximum Daily Loads (TMDLs) for Lake Elsinore and Canyon Lake

1. **Lake Elsinore and Canyon Lake Nutrient Total Maximum Daily Load (TMDL)**

Lake Elsinore and Canyon Lake are not attaining water quality standards due to excessive nutrients (nitrogen and phosphorus). Reports prepared by Regional Board staff describe the impact nutrient discharges have on the beneficial uses of Lake Elsinore and Canyon Lake [Ref. #1, 2] Lake Elsinore was formed in a geologically active graben area and has been in existence for thousands of years. Due to the mediterranean climate and watershed hydrology, fluctuations in the level of Lake Elsinore have been extreme, with alternate periods of a dry lake bed and extreme flooding. These drought/flood cycles have a great impact on lake water quality. Fish kills and excessive algae blooms have been reported in Lake Elsinore since the early 20th century. As a result, in 1994, the Regional Board placed Lake Elsinore on the 303(d) list of impaired waters due to excessive levels of nutrients and organic enrichment/low dissolved oxygen.

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Identifying Receiving Water Impairments

Table S-9a

Lake Elsinore and Canyon Lake Nutrient TMDL Implementation Plan/Schedule Report Due Dates

Task	Description	Compliance Date-As soon As Possible but No Later Than
TMDL Phase 1		
Task 7	Urban Discharges	Plan/schedule due:
	7.1 Revision of Drainage Area Management Plan (DAMP)	7.1 August 1, 2006
	7.2 Revision of the Water Quality Management Plan (WQMP)	7.2 August 1, 2006
	7.3 Update of the Caltrans Stormwater Management Plan and Regional Plan	7.3 April 1, 2006
	7.4 Update of US Air Force, March Air Reserve Base SWPPP	7.4 Dependent on Task 3 results. See text.

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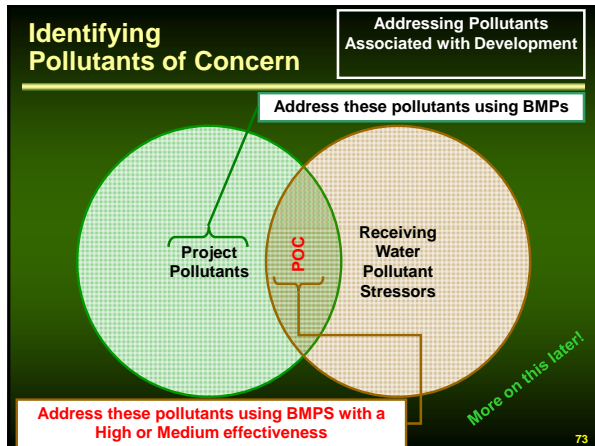
Identifying Pollutants of Concern

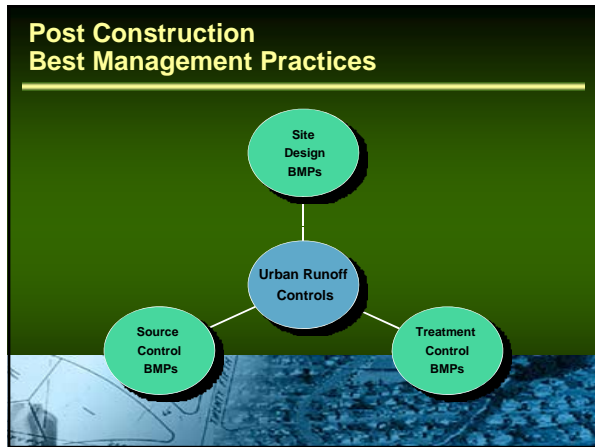
- ❖ Pollutants of Concern (POC) are those Project Pollutants that have been identified as Pollutant Stressors in Project Receiving Waters
 - ❖ 303(d) list pollutant stressors
 - ❖ Constituents addressed in TMDLs

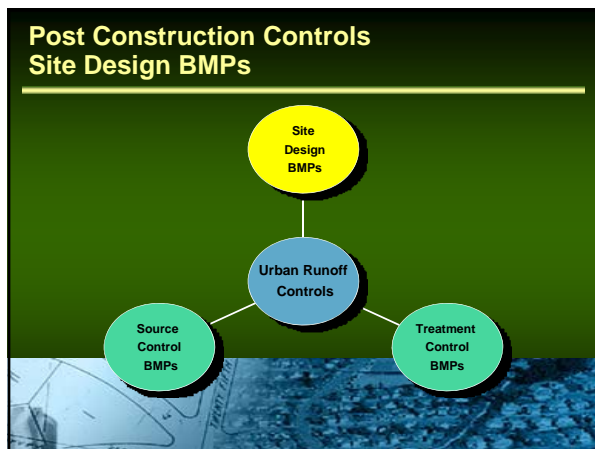
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Post Construction Controls Site Design BMPs

- ❖ Reduce runoff
- ❖ Increase Infiltration
- ❖ Reduce the pollutant transport mechanism
- ❖ Minimize difference between pre and post development runoff
- ❖ Reduce the size of structural controls (filtering devices)

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Post Construction Controls Site Design BMPs

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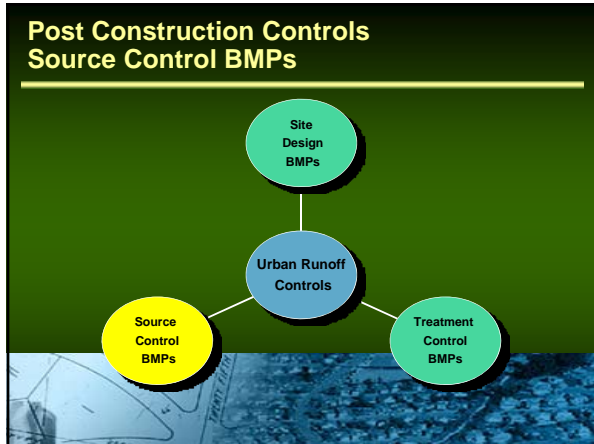
Post Construction Controls Site Design BMPs

- ❖ Strategy
 - ❖ "Do what you can where you can." (Geoff Brosseau, BASMAA)
 - ❖ Integrate BMPs throughout the site
 - ❖ Every surface presents an opportunity!
 - Landscaping
 - Hardscaping
 - ❖ Use drainage as an organizing element

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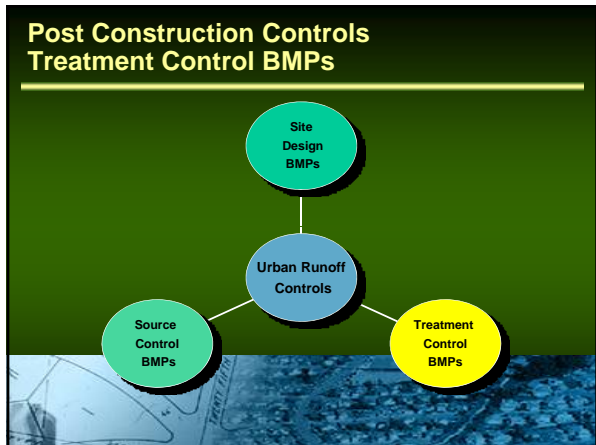
Water Quality Management Plans



Post Construction Controls Source Control BMPs

- ❖ Strategy
 - ◇ Protect pollutant sources from contact with
 - ◇ Rainfall
 - ◇ Runoff
 - ◇ Integrate pollution prevention behaviors into daily routines
 - ◇ Educate kids, tenants, owners, employees
 - ◇ Mandate thorough activity restrictions and prohibitions

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Post Construction Controls Treatment Control BMPs

- ❖ Engineered systems designed and constructed to treat the adverse impacts of urban runoff
- ❖ BMPs that remove pollutants by...
 - ◇ Filtration
 - ◇ Media absorption
 - ◇ Other physical, biological, or chemical processes

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Post Construction Controls Treatment Control BMPs

❖ Example 1 – Find a Medium or Highly effective Treatment Control BMP for Nutrients

Pollutant of Concern	Biofilters ⁽¹⁾	Detention Basins ⁽²⁾	Infiltration BMPs ⁽³⁾	Wet Ponds or Wetlands ⁽⁴⁾	Filtration Systems ⁽⁵⁾	Water Quality Inlets	Hydrodynamic Separator Systems ⁽⁷⁾	Manufactured or Proprietary Devices ⁽⁸⁾
Sediment/Turbidity	HM	M	HM	HM	HM	L	HM (L for Turbidity)	U
Nutrients	L	M	HM	HM	L/M	L	L	U
Organic Compounds	U	U	U	U	HM	L	L	U
Trash & Debris	L	M	U	U	HM	M	HM	U
Oxygen Demanding Substances	L	M	HM	HM	HM	L	L	U
Bacteria & Viruses	U	U	HM	U	HM	L	L	U
Oil & Grease	HM	M	U	U	HM	M	L/M	U
Pesticides (non-soil bound)	U	U	U	U	U	L	L	U
Metals	HM	M	H	H	H	L	L	U

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Post Construction Controls Treatment Control BMPs

❖ Example 2 – Find a Medium or Highly effective Treatment Control BMP for Nutrients and Pathogens

Pollutant of Concern	Biofilters ⁽¹⁾	Detention Basins ⁽²⁾	Infiltration BMPs ⁽³⁾	Wet Ponds or Wetlands ⁽⁴⁾	Filtration Systems ⁽⁵⁾	Water Quality Inlets	Hydrodynamic Separator Systems ⁽⁷⁾	Manufactured or Proprietary Devices ⁽⁸⁾
Sediment/Turbidity	HM	M	HM	HM	HM	L	HM (L for Turbidity)	U
Nutrients	L	M	HM	HM	L/M	L	L	U
Organic Compounds	U	U	U	U	HM	L	L	U
Trash & Debris	L	M	U	U	HM	M	HM	U
Oxygen Demanding Substances	L	M	HM	HM	HM	L	L	U
Bacteria & Viruses	U	U	HM	U	HM	L	L	U
Oil & Grease	HM	M	U	U	HM	M	L/M	U
Pesticides (non-soil bound)	U	U	U	U	U	L	L	U
Metals	HM	M	H	H	H	L	L	U

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Post Construction Controls Treatment Control BMPs

❖ Example 3 – Find a Medium or Highly effective TC BMP for Pathogens and that also treats for Oils and Grease

Pollutant of Concern	Biofilters ⁽¹⁾	Detention Basins ⁽²⁾	Infiltration BMPs ⁽³⁾	Wet Ponds or Wetlands ⁽⁴⁾	Filtration Systems ⁽⁵⁾	Water Quality Inlets	Hydrodynamic Separator Systems ⁽⁷⁾	Manufactured or Proprietary Devices ⁽⁸⁾
Sediment/Turbidity	HM	M	HM	HM	HM	L	HM (L for Turbidity)	U
Nutrients	L	M	HM	HM	L/M	L	L	U
Organic Compounds	U	U	U	U	HM	L	L	U
Trash & Debris	L	M	U	U	HM	M	HM	U
Oxygen Demanding Substances	L	M	HM	HM	HM	L	L	U
Bacteria & Viruses	U	U	HM	U	HM	L	L	U
Oil & Grease	HM	M	U	U	HM	M	L/M	U
Pesticides (non-soil bound)	U	U	U	U	U	L	L	U
Metals	HM	M	H	H	H	L	L	U

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Filtration BMP will meet the treatment goals
Biofilter BMP + Infiltration BMP will meet the treatment goals

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Post Construction Controls Treatment Control BMPs

❖ Strategy

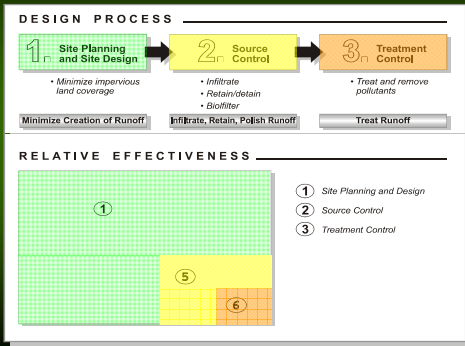
- ❖ Stick with the BMPs recommended in Table 3 for various pollutants
- ❖ If you deviate, document your reasons in the project file...you may be called on later to explain the change
- ❖ Pay particular attention to the "Notes" at the bottom of the table
- ❖ BMP Treatment Trains (two or more BMPs in series) can provide for a wide range of pollutant removal

❖ Latest Information on BMPs

- ❖ Caltrans Treatment BMP Technology Report – April 2008
 - ❖ An excellent source of well-researched information on BMP performance
 - ❖ See Report CTSW-RT-08-167.02.02

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Summary of BMP Deployment Strategy



Today's Agenda

- ❖ Welcome and Training Process
- ❖ Water Quality Management Plans - Introduction
 - ❖ Overview
 - ❖ Fundamentals
- ❖ Break
- ❖ Water Quality Management Plans – Hands-On Exercises
- ❖ WQMP Plan Checking
- ❖ Roundtable Discussion – Learning from Experience
 - ❖ Best Management Practices
 - ❖ Water Quality Management Plans





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Water Quality Management Plans



Water Quality Management Plans
For
Santa Ana and Santa Margarita Watersheds
Of
Riverside County

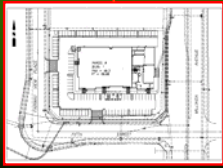


Hands-On WQMP Exercise
Spring 2009



Today's Agenda

- ❖ Welcome and Training Process
- ❖ Water Quality Management Plans - Introduction
 - ❖ Overview
 - ❖ Fundamentals
- ❖ Break
- ❖ Water Quality Management Plans – Hands-On Exercises
- ❖ WQMP Plan Checking
- ❖ Roundtable Discussion – Learning from Experience
 - ❖ Best Management Practices
 - ❖ Water Quality Management Plans



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Hands On Project A – Small Commercial Site

- ❖ Assumptions
 - ❖ Located in Murrieta
 - ❖ Santa Margarita River Watershed
 - ❖ Murrieta Creek Watershed
 - ❖ You can revise the site design
- ❖ Assignment – Determine the Following
 - ❖ Project category
 - ❖ Identify the Project Pollutants
 - ❖ Identify the Pollutants of Concern
 - ❖ Identify potential BMPs in all three Categories
 - ❖ Site Design BMPs
 - ❖ Source Control BMPs
 - ❖ Treatment Control BMPs

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Water Quality Management Plans



Hands On Project B – Single Family Residential

- ❖ Assumptions
 - ◆ Located in Riverside County between Moreno Valley and Perris
 - ◆ Santa Ana River Watershed
 - ◆ San Jacinto River Sub Watershed (Enters at SJR Reach 3)
 - ◆ The Owner and Engineer have their heart set on the layout
- ❖ Assignment – Determine the Following
 - ◆ Project category
 - ◆ Identify the Project Pollutants
 - ◆ Identify the Pollutants of Concern
 - ◆ Identify potential BMPs in all three Categories
 - ◆ Site Design BMPs
 - ◆ Source Control BMPs
 - ◆ Treatment Control BMPs

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Water Quality Management Plans For Santa Ana and Santa Margarita Watersheds Of Riverside County



WQMP Plan Checking
Spring 2009

AFI CASC



Today's Agenda

- ❖ Welcome and Training Process
- ❖ Water Quality Management Plans - Introduction
 - ◆ Overview
 - ◆ Fundamentals
- ❖ Break
- ❖ Water Quality Management Plans – Hands On Exercises
- ❖ **WQMP Plan Checking**
- ❖ Roundtable Discussion – Learning from Experience
 - ◆ Best Management Practices
 - ◆ Water Quality Management Plans

Pop Quiz
Is this woman a
WQMP
Preparer, a
Project Owner,
or a WQMP
Plan Checker?



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Water Quality Management Plans



WQMP Plan Check Approach

- ❖ Provide Early Certainty
 - ◇ Make it known early on that a WQMP is required
 - ◇ The earlier in the planning process the better
 - ◇ Agencies – meet with Applicants, get them informed
 - ◇ Consultants – meet with your Clients, get them informed
- ❖ Recognize that WQMPs, both preparation and approval, are an incremental increase in workload!
 - ◇ Negotiate an adequate fee to prepare the document
 - ◇ Staff and budget for the load of reviews
- ❖ Train Your Staff
 - ◇ Few staff will have experience or training on WQMPs
 - ◇ WQMPs may be a new twist for many involved in the development process including owners, consultants, and plan check staff

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WQMP Plan Check Approach

- ❖ Preliminary WQMP Review
 - ◇ Review occurs before first discretionary project approval
 - ◇ Land use entitlement
 - ◇ Look for a commitment to implementing BMPs appropriate to the project category and receiving waters
 - ◇ Full design details are not necessary at this stage because the project will change as it moves through design
 - ◇ Reject plans that fail to show a commitment to addressing water quality issues
 - ◇ Develop "Conditions" appropriate for the project
 - ◇ A Final WQMP must be submitted for approval prior to application for a grading permit
 - ◇ Etc.

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WQMP Plan Check Approach

- ❖ Interim WQMP Review
 - ◇ Interim submittals are likely to be required for most projects as the applicant moves from a Preliminary WQMP to a Final WQMP
 - ◇ Review document for appropriate deployment and design of BMPs
 - ◇ Review hydrology report
 - ◇ Review BMP design calculations
 - ◇ Verify BMPs selected are appropriate
 - ◇ Review BMP Operation and Maintenance details
 - ◇ Review Funding details
 - ◇ Review access agreements
 - ◇ Review recording and transfer to future owners

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Water Quality Management Plans



WQMP Plan Check Approach

- ❖ Final WQMP Review
 - ◇ This review is critical
 - ◇ Once the WQMP is approved, the project will go ahead
 - ◇ Verify that Conditions have been met and previous comments addressed
 - ◇ Verify that the document appropriately signed, notarized, and recorded

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WQMP Plan Check Approach

- ❖ The WQMP Checklist will
 - ◇ Aid in guiding reviews
 - ◇ Document reviews
- ❖ The WQMP Checklist will be found in Appendix P of the DAMP.
- ❖ A sample copy is included in the course handouts

Appendix P Project Specific WQMP Checklist

Water Quality Management Plan Checklist
The purpose of this checklist is to provide a format for reviewing, approving, and well-documented reviews of the Water Quality Management Plan (WQMP) submitted to project applicants. The completed checklist should be submitted to the project applicant with the project WQMP. A copy of the completed checklist should be retained with the project planning permitting file.

Planning Project/Change Review Number: _____
Project Name: _____
Project Address: _____

First Review
WQMP Received on: _____
Review Completed on: _____

Second Review
WQMP Received on: _____
Review Completed on: _____

Third Review
WQMP Received on: _____
Review Completed on: _____

Signature of Reviewer: _____ Date: _____

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Roundtable

- ❖ Best Management Practices
 - ◇ What are you seeing in your agency? What are you finding agencies will accept?
 - ◇ Treatment Control BMPs
 - ◇ Site Design BMPs
 - ◇ Source Control BMPs
- ❖ Water Quality Management Plans
 - ◇ Please share your experiences to date

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