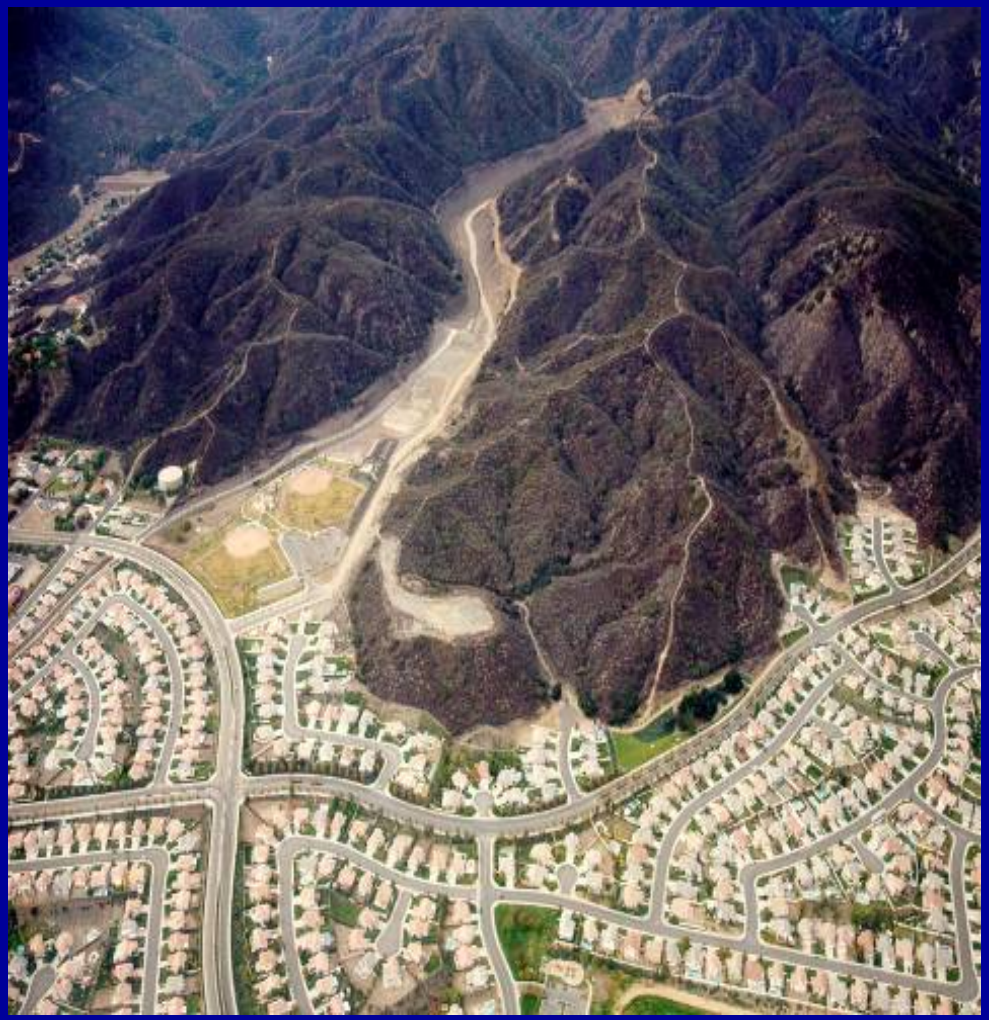
Water Quality Management Plans In Riverside County Basic Training

Welcome and Training Process

Spring 2008

Why are we here?

- The time has come when 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 the new Water Quality Management Plan requirements.



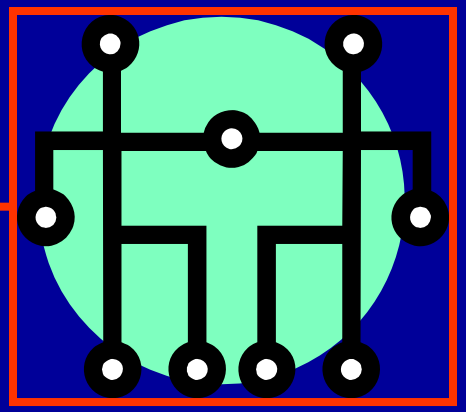
Training Session Objectives

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 River 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 River Watersheds

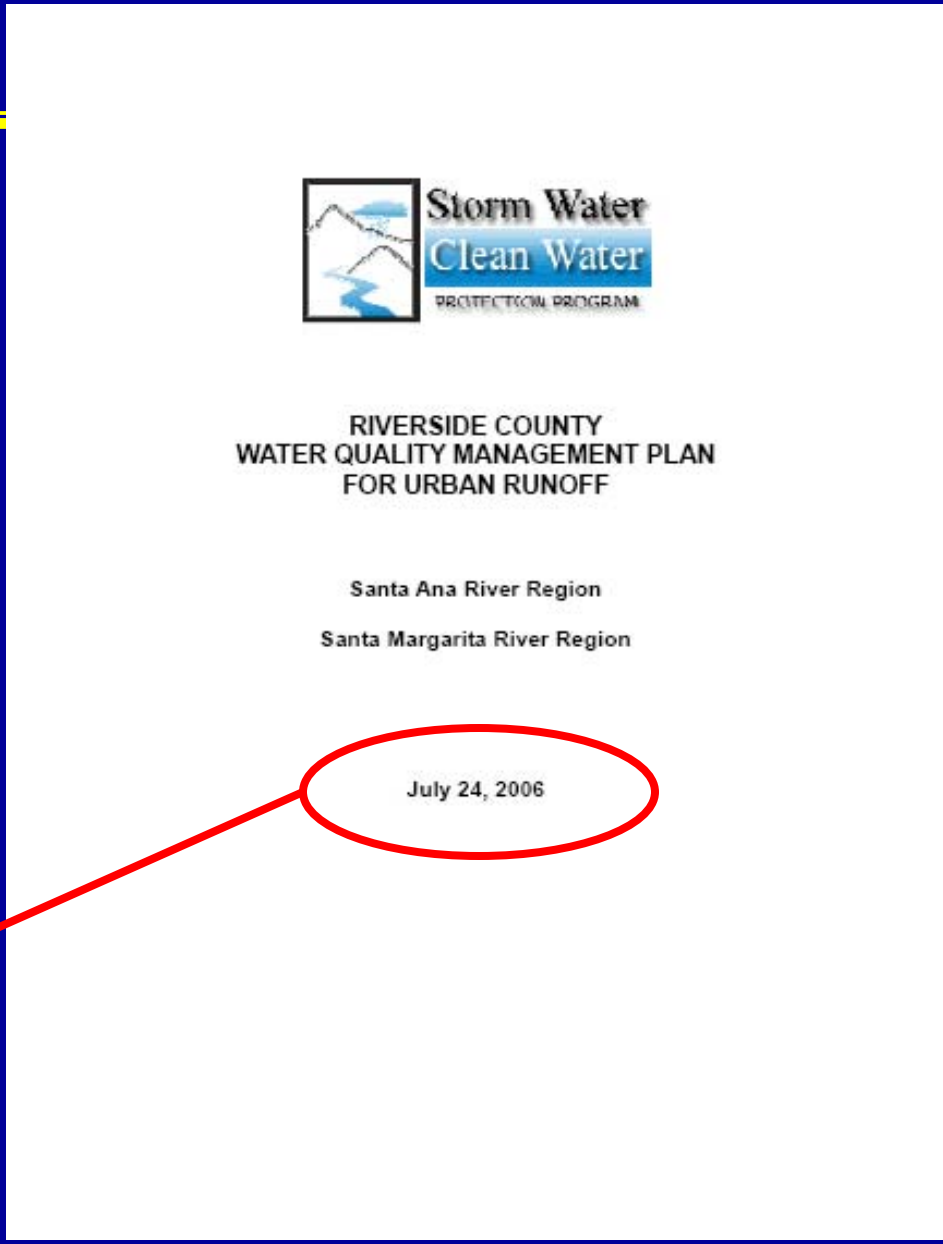
Today's Agenda

- 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



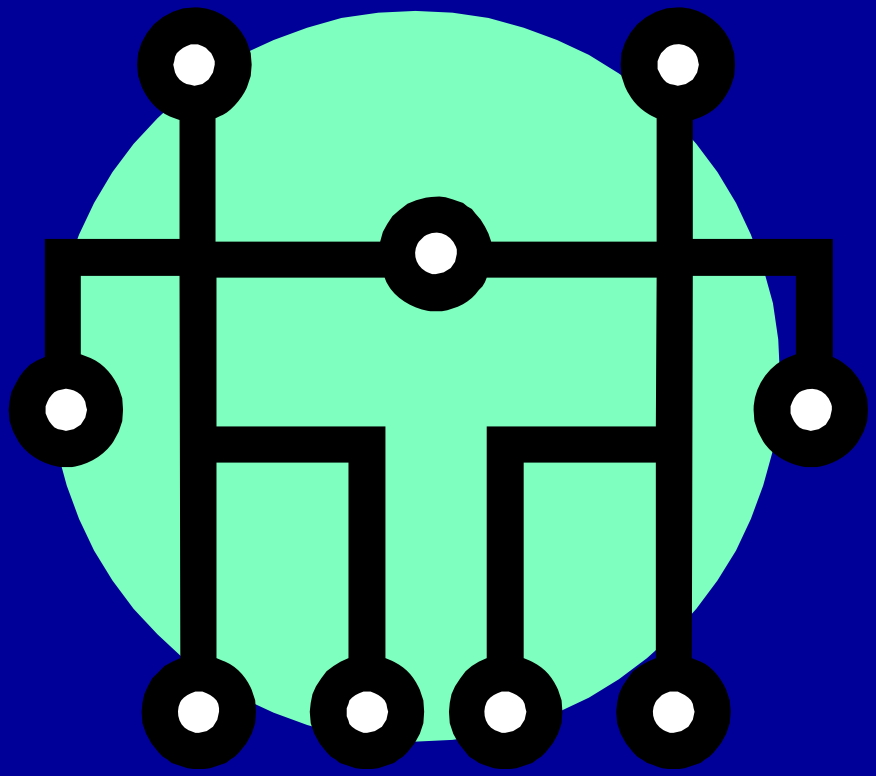
Prerequisites for Successful Course Completion

- 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
  - This is the newest edition!



Introductions

- Your AEI-CASC Presenter
  - Jeff Endicott, P.E., DEE
- 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?



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

Water Quality Management Plans
In Riverside County
Basic Training

Water Quality Management Plan Overview

Spring 2008

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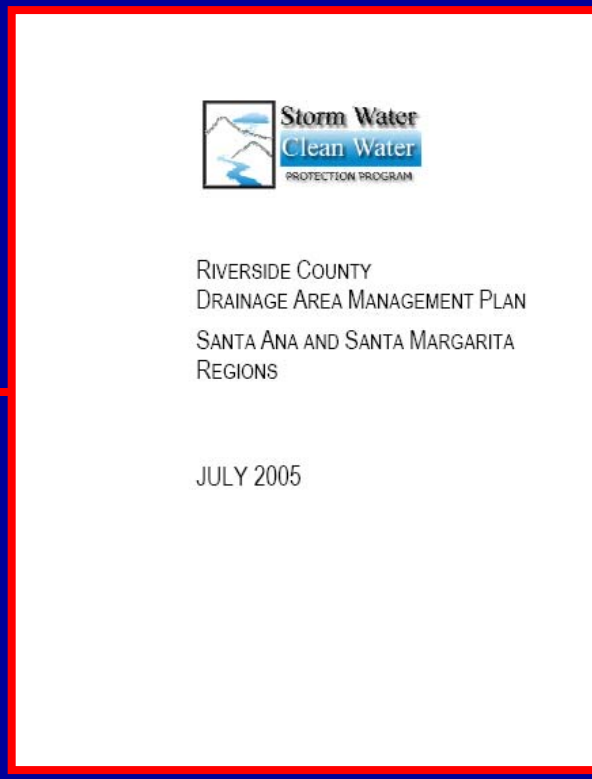
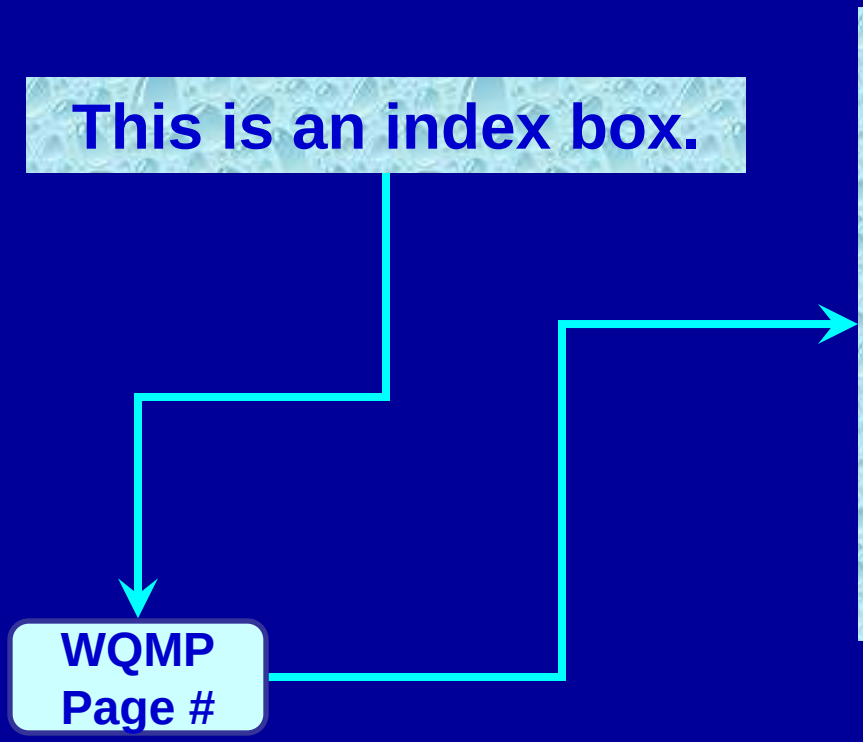


Course Indexing

- 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!



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)

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

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

6.0 Development Planning

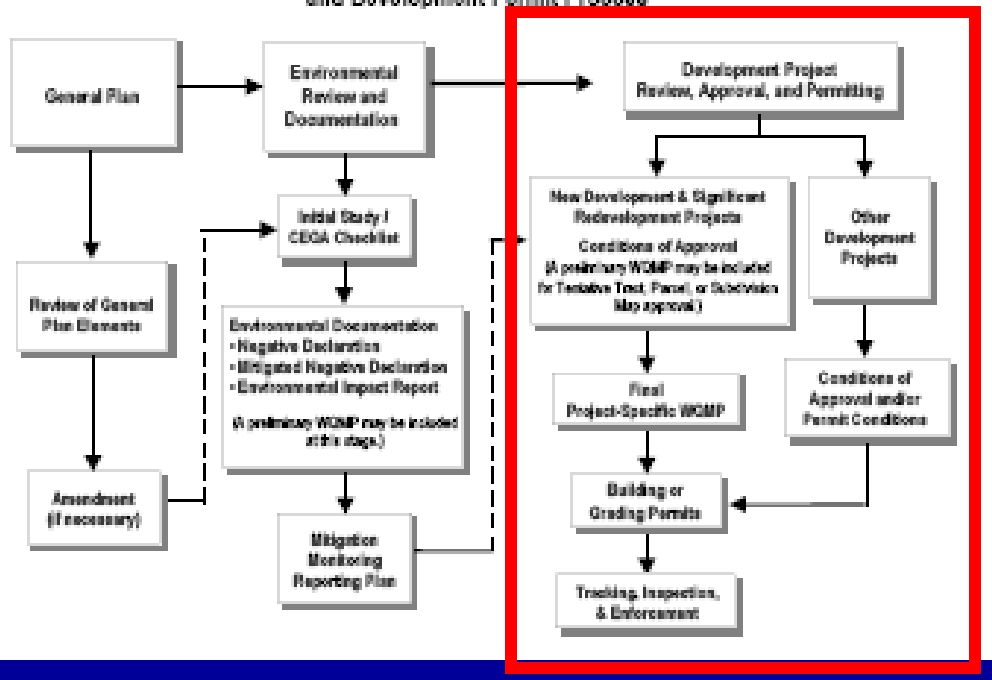
6.1 Introduction

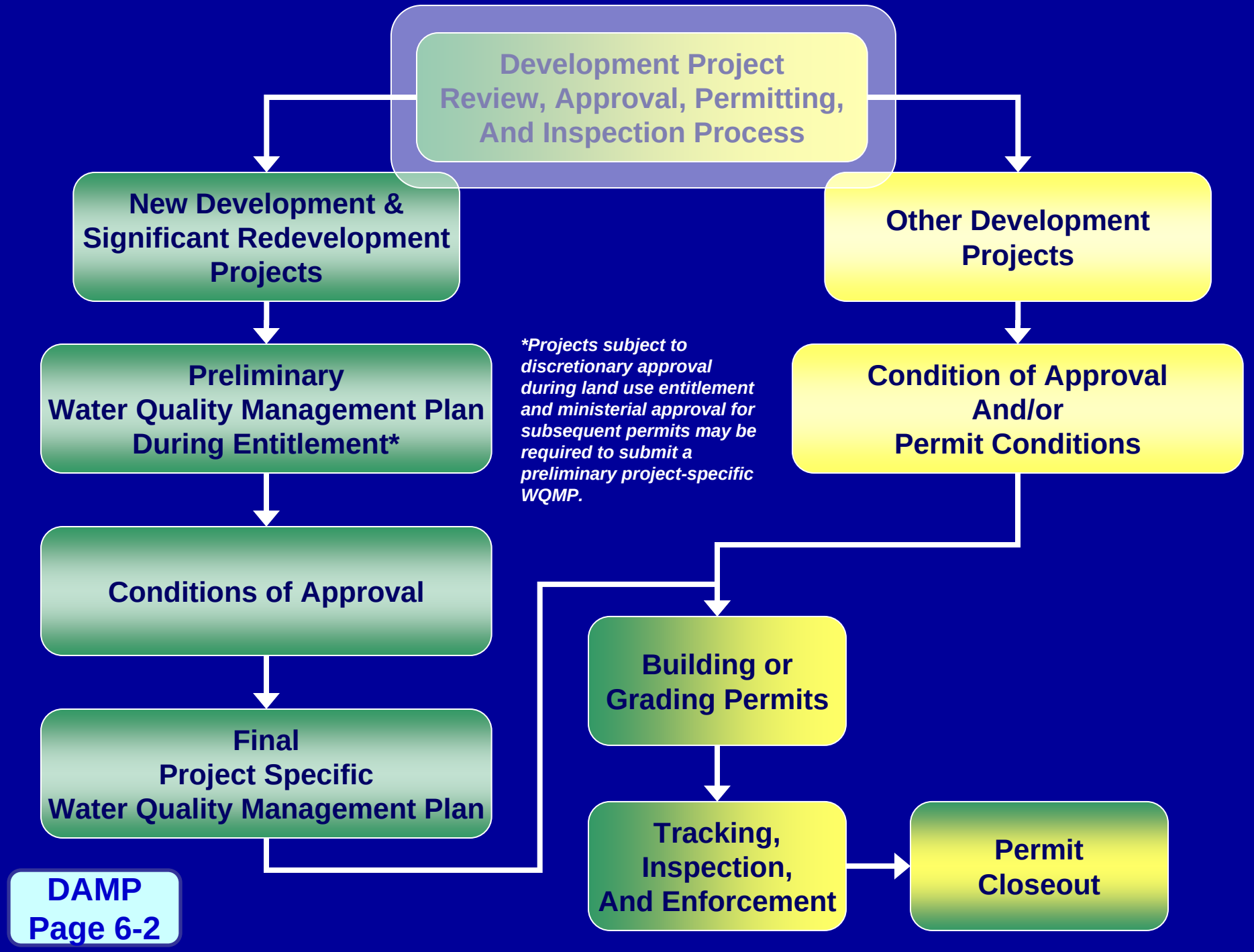
With the adoption of the Third-term MS4 Permits, the Permittees were required to modify the DAMP, including revisions to meet requirements related to the planning and permitting of Development Projects[44] within their jurisdictions and to ensure that pollutant loads from development projects have been reduced to the MEP. This program element links a Co-Permittee's General Plan, environmental review process, and development approval and permitting processes to the later phases of detailed design, construction and operation. A General Plan specifies policies that guide development. The environmental review process examines potential impacts from proposed development with respect to the General Plan policies and many environmental issues, including water quality, and includes consideration of mitigation measures to reduce any identified significant impacts.

The development approval and permitting processes carries forth project-specific requirements in the form of conditions of approval, design specifications, tracking, inspection, and enforcement actions. These three "front-end" planning processes must be coordinated and linked to the later phases of design, construction and operation for development projects to ensure Urban Runoff quality protection features are planned, designed and evaluated in accordance with the Permittees' goals for protection of Receiving

Riverside County DAMP – Santa Ana and Santa Margarita Regions

Figure 6-1. Relationship between General Plan, Environmental Review Process and Development Permit Process




Development Project
Review, Approval, Permitting,
And Inspection Process
New Development &
Significant Redevelopment
Projects
Other Development
Projects
Preliminary
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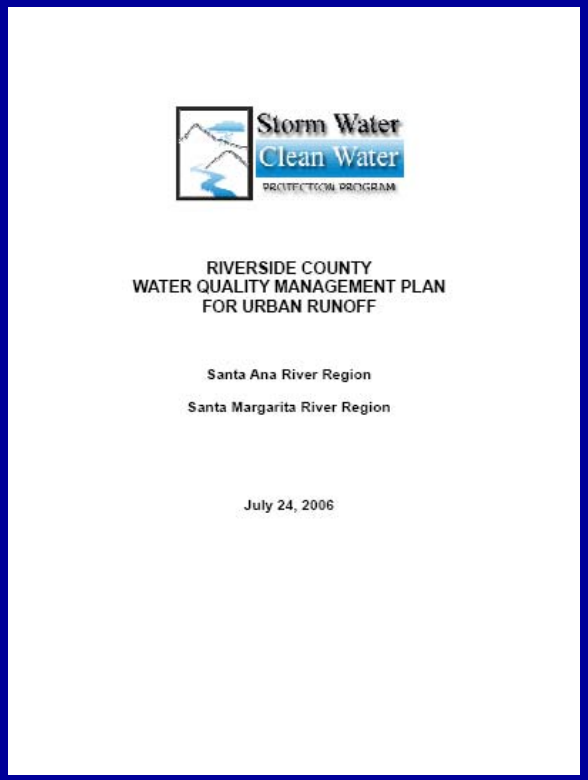
Tracking,
Inspection,
And Enforcement
Permit
Closeout
DAMP
Page 6-2

Three Project Categories

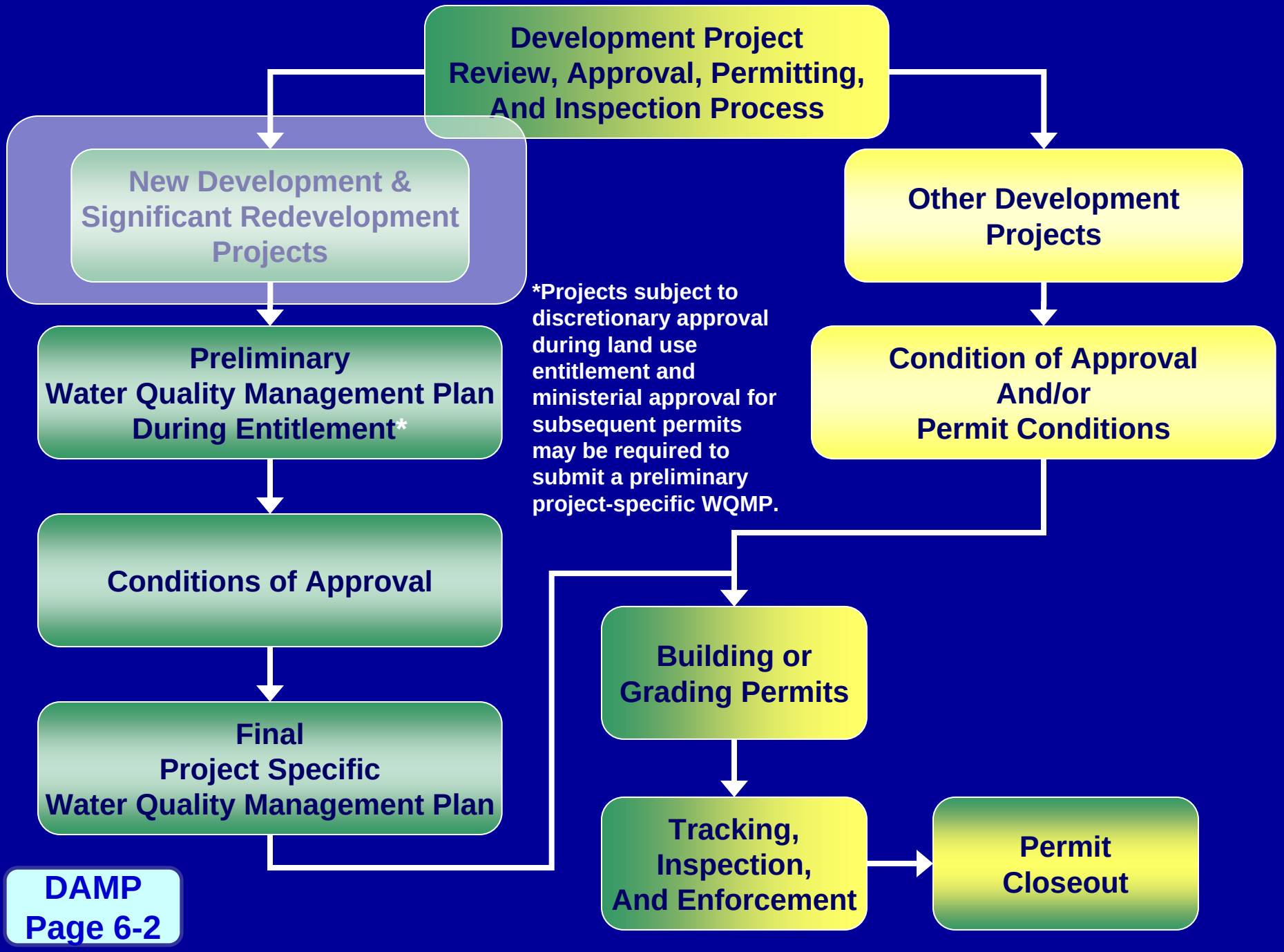
- Redevelopment
- New development
- Other development

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).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DAMP Page 6-2

New Development Residential

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

DAMP Fig 6-2a, b

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

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

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

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

DAMP Fig 6-2a, b

New Development
Hillside Development

- 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

New Development Development Near ESAs

- 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

New Development Parking Lots

- 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

New Development
Retail Gasoline Outlets

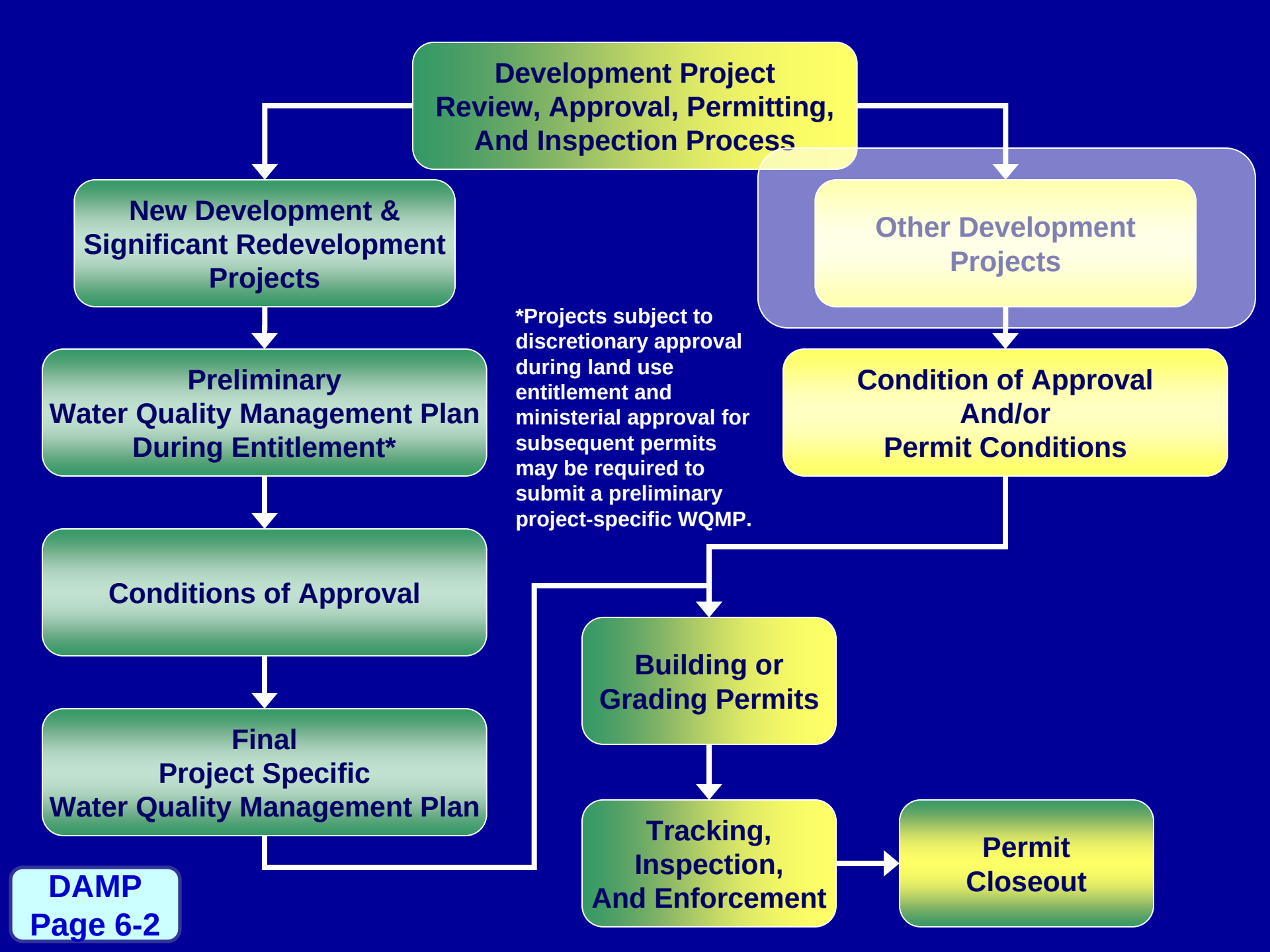
- In the Santa Margarita Watershed, retail gasoline outlets of 5,000 square feet or more and a projected ADT of 100 or more vehicle per day.

DAMP
Fig 6-2 b

Significant Redevelopment

- 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

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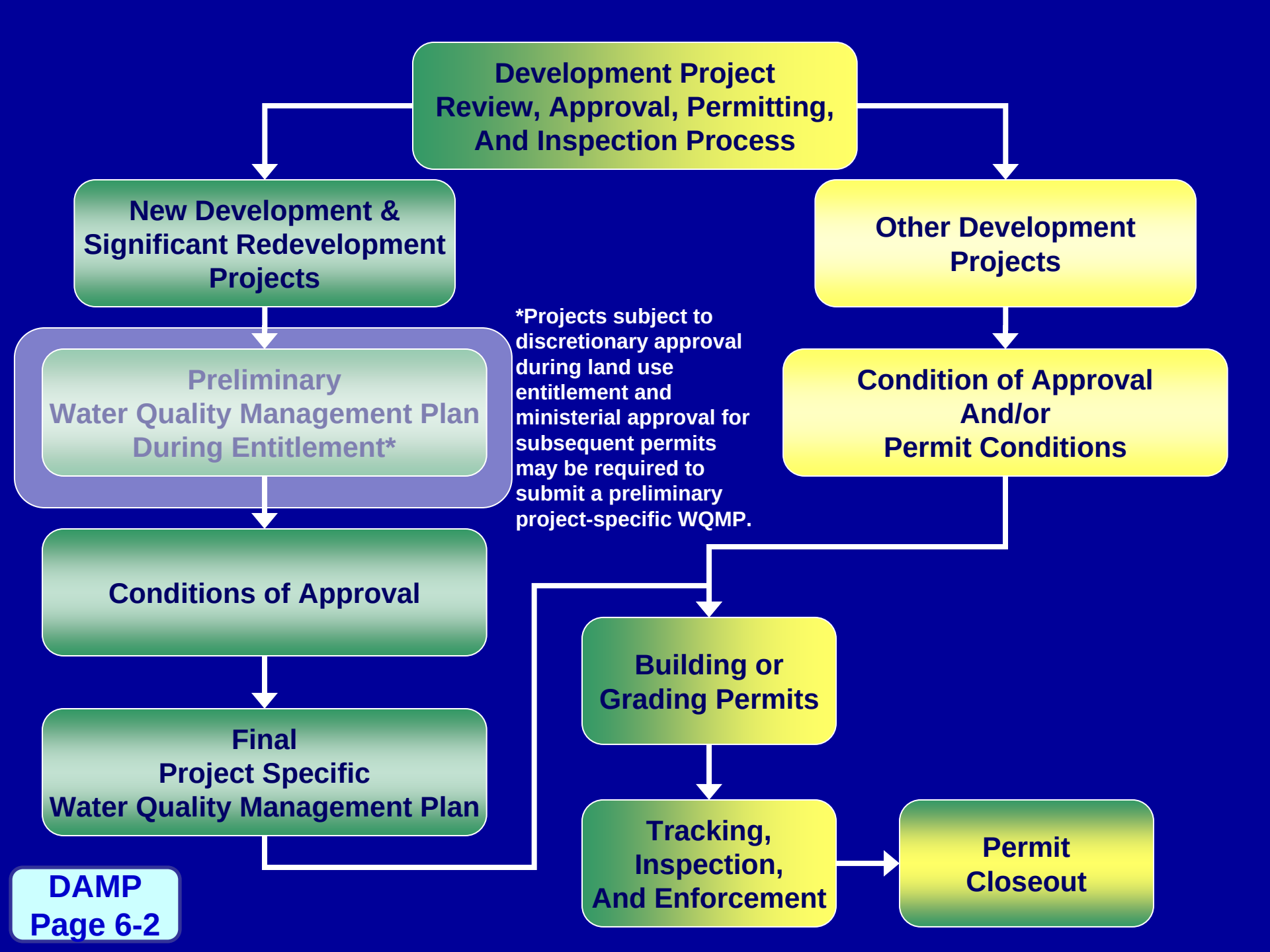
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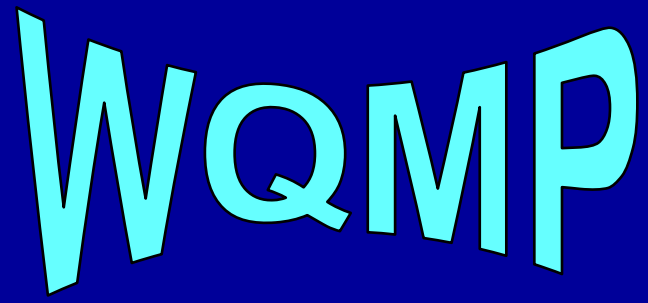
First Things First!
What Is A WQMP?

Preliminary
Water Quality Management Plan
During Entitlement*

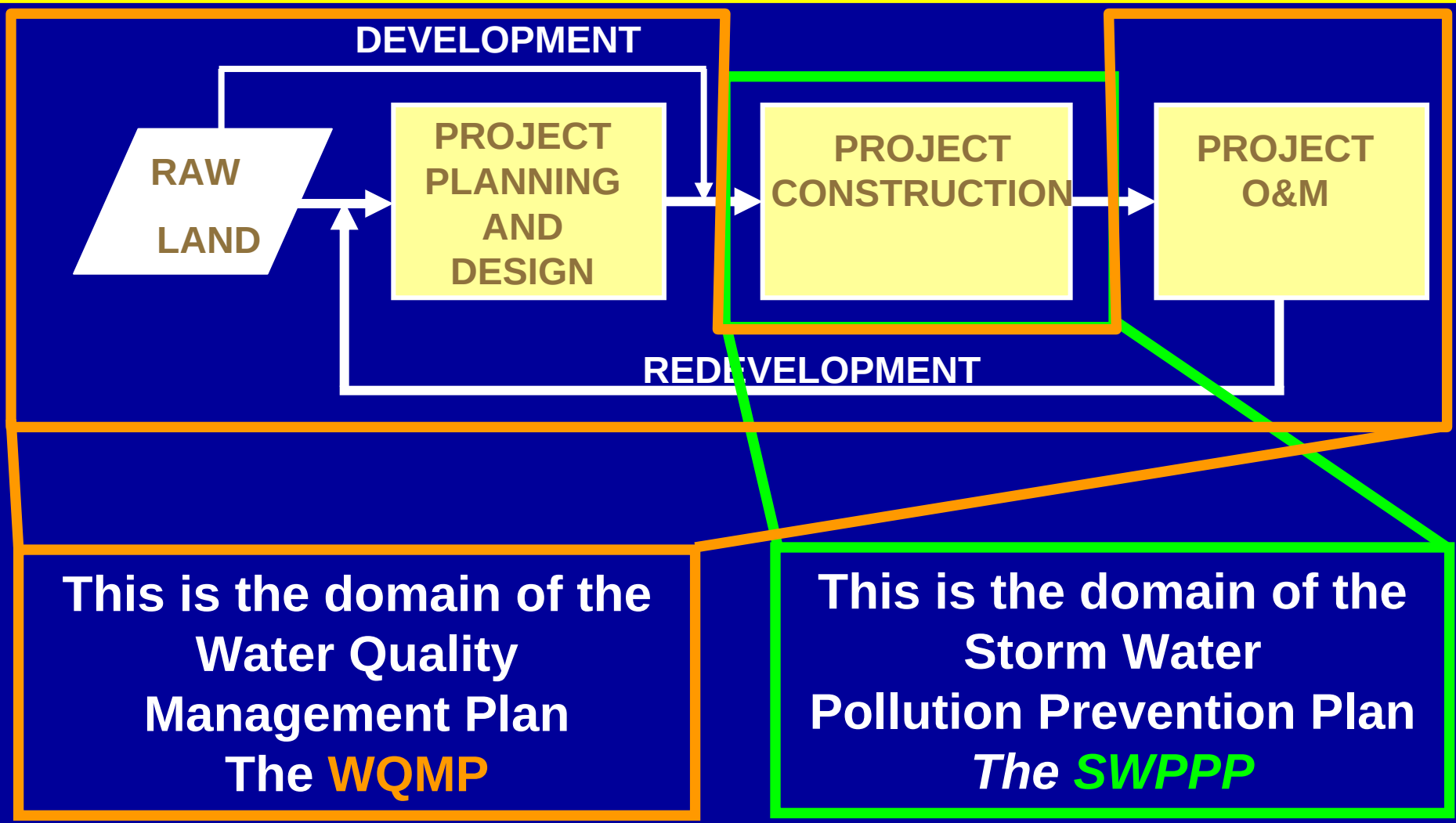
- **W**ater
- **Q**uality
- **M**anagement
- **P**lan



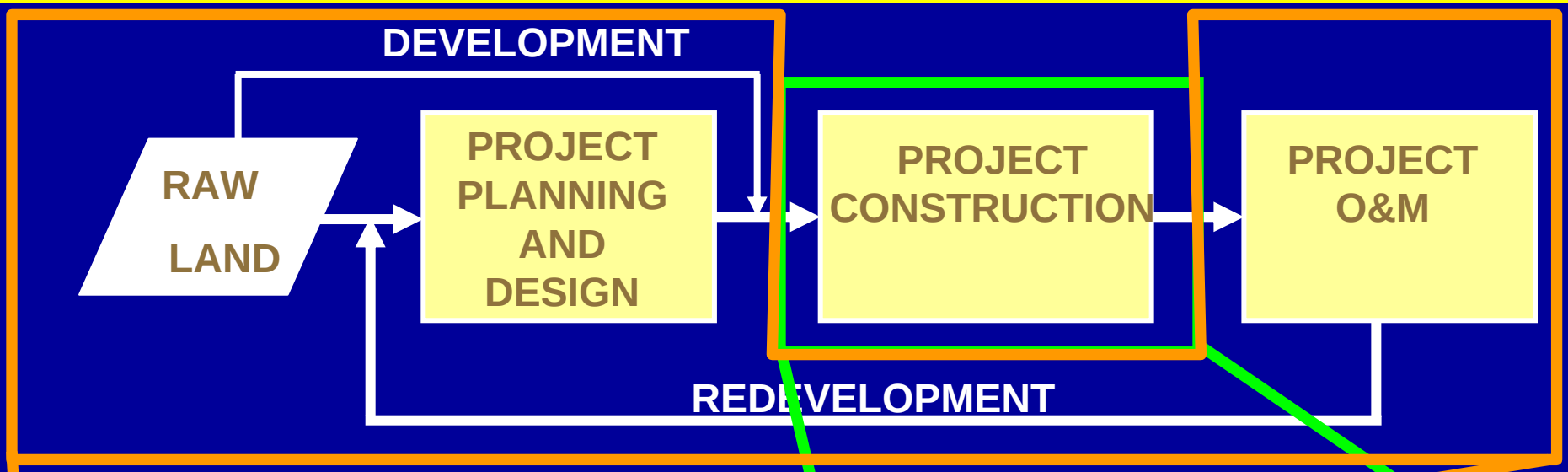
- The **WQMP** is a project-specific plan of Best Management Practices (BMPs), including site design, source controls, and treatment controls, to address post-construction urban runoff quality and quantity to protect receiving waters.
- A project-specific **WQMP** must be submitted and approved prior to the first discretionary project approval or permit for all Significant Redevelopment and New Development projects.

WQMP
Page 1

Project Lifecycle and WQMPs



Project Lifecycle and WQMPs



Pollution Prevention Is Now Part Of Every Project Stage!

This is the domain of the Water Quality Management Plan
The WQMP

This is the domain of the Storm Water Pollution Prevention Plan
The SWPPP

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

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.**

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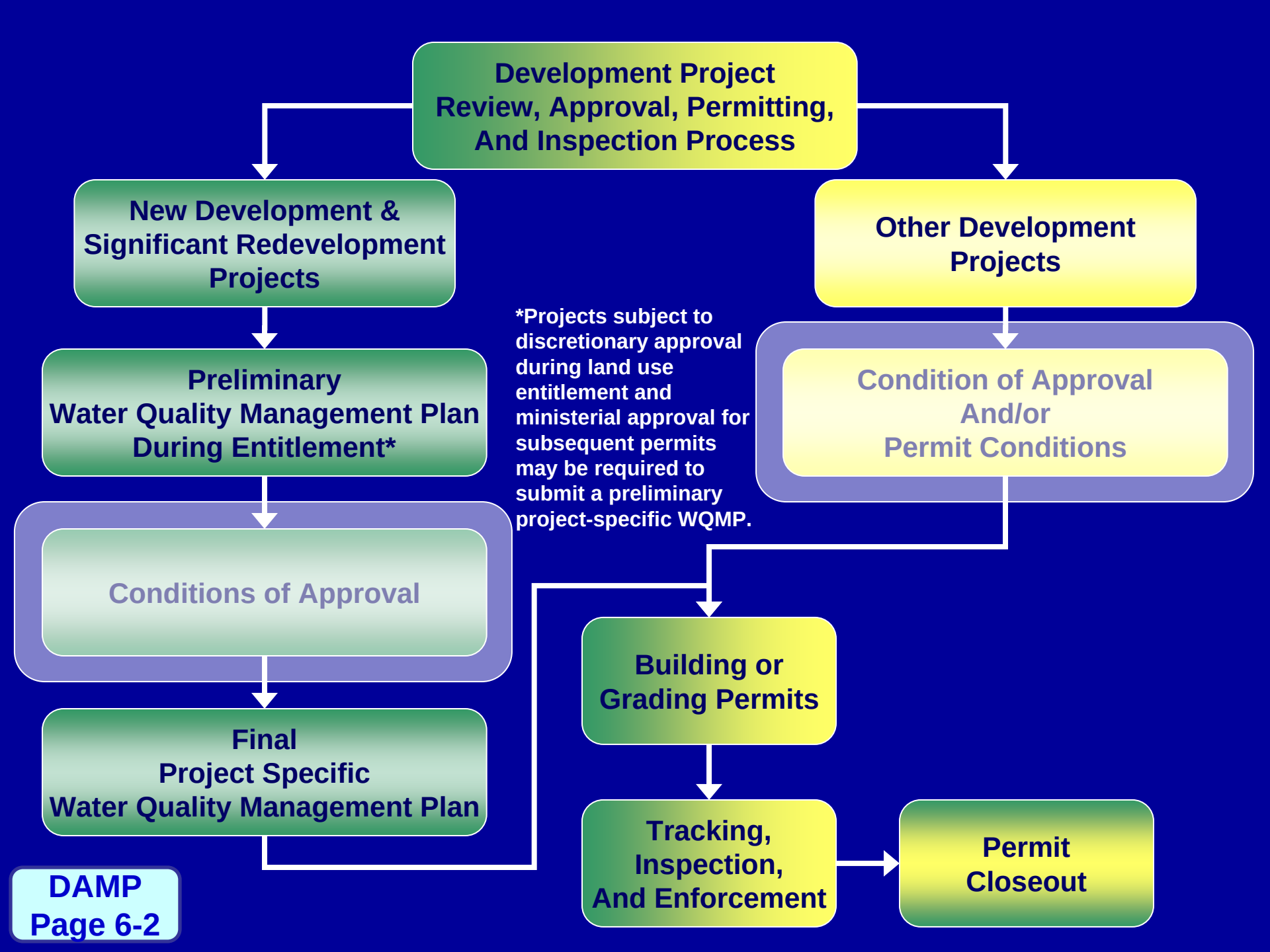
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DAMP Page 6-2

Standard Conditions Help Implement WQMPs

Conditions of Approval

Condition of Approval
And/or
Permit Conditions

- Prior to the issuance of any grading or building permits for projects that will result in soil disturbance of one or more acres of land…
  - the applicant shall demonstrate that coverage has been obtained under California's General Permit for Stormwater Discharges Associated with Construction Activity…
  - by providing a copy of the Notice of Intent (NOI) submitted to the State Board and a copy of the subsequent notification of the issuance of a Waste Discharge Identification (WDID) number or other proof of filing.

DAMP
Page 6-14

Standard Conditions Help Implement WQMPs

Conditions of Approval

Condition of Approval
And/or
Permit Conditions

- Projects that must comply with the statewide General Permit for Storm Water Discharges Associated with Construction Activity …
  - shall prepare and implement a stormwater pollution prevention plan (SWPPP).
  - A copy of the current SWPPP shall be kept at the project site and be available for review upon request.

DAMP
Page 6-14

Standard Conditions Help Implement WQMPs

Conditions of Approval

Condition of Approval
And/or
Permit Conditions

- Prior to grading or building permit close-out and/or the issuance of a certificate of use or a certificate of occupancy, the applicant shall:
  - Demonstrate that all structural BMPs have been constructed and installed in conformance with approved plans and specifications; and
  - Demonstrate that applicant is prepared to implement all non-structural BMPs included in the conditions of approval or building/grading permit conditions.

DAMP
Page 6-14

Standard Conditions Help Implement WQMPs

Conditions of Approval

Condition of Approval
And/or
Permit Conditions

- For industrial facilities subject to California's General Permit for Stormwater Discharges Associated with Industrial Activity as defined by Standard Industrial Classification (SIC) code, prior to grading or building permit close-out and/or the issuance of a certificate of use or a certificate of occupancy,
  - the applicant shall demonstrate that coverage has been obtained providing a copy of the Notice of Intent (NOI) submitted to the State Board and a copy of the notification of the issuance of a Waste Discharge Identification (WDID) Number or other proof of filing.

DAMP
Page 6-14

Standard Conditions Help Implement WQMPs

Conditions of Approval

Condition of Approval
And/or
Permit Conditions

- Santa Margarita Region Specific Elements
  - Grading during the wet season should be limited and scheduled to coincide with seasonal dry weather periods to the extent feasible.
  - Grading during the wet season should identify additional BMPs for rain events that may occur as necessary for compliance with the Third-term SMR MS4 Permit.

DAMP
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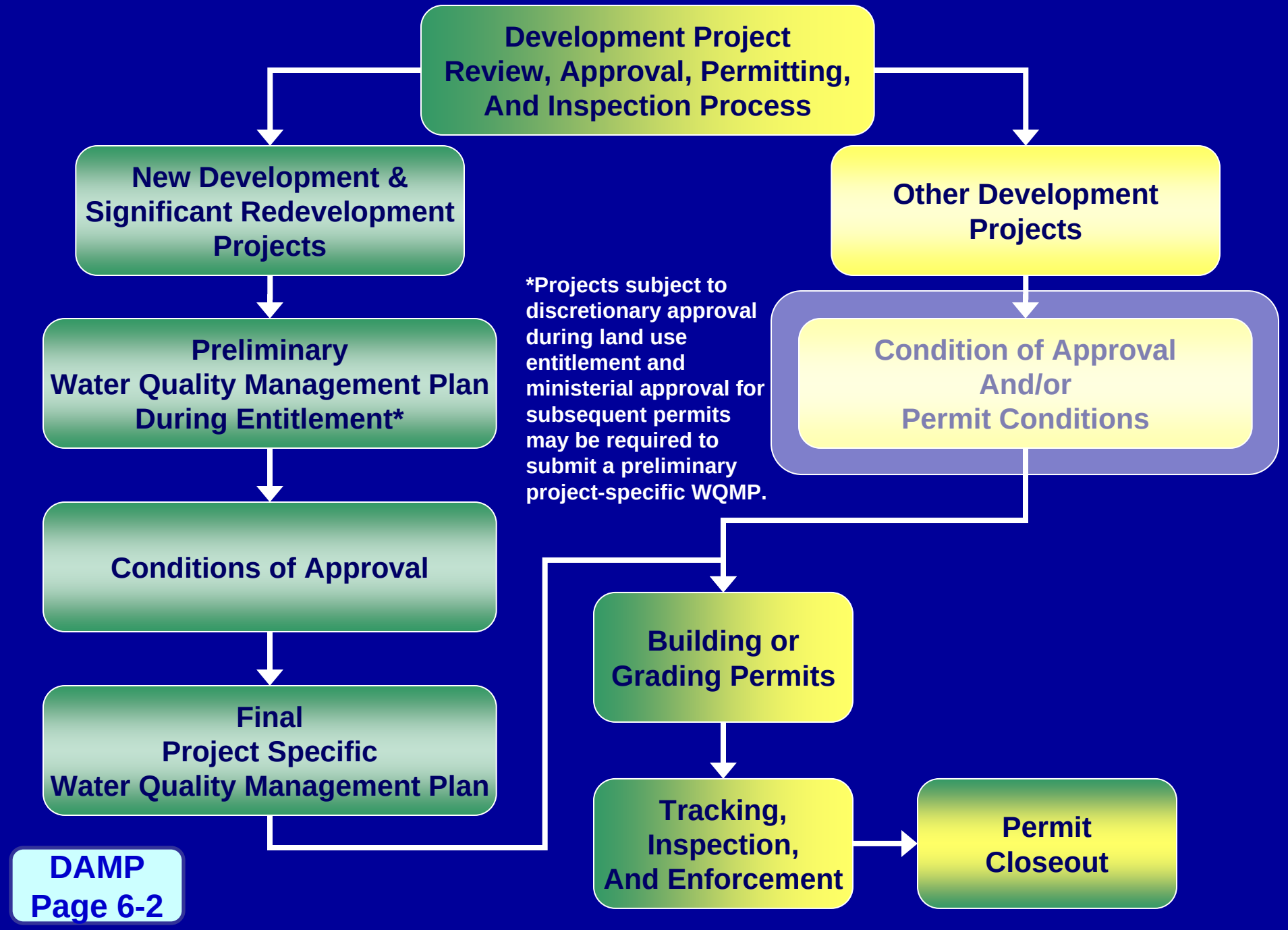
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Conditions for "Other" Projects (No WQMP)

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
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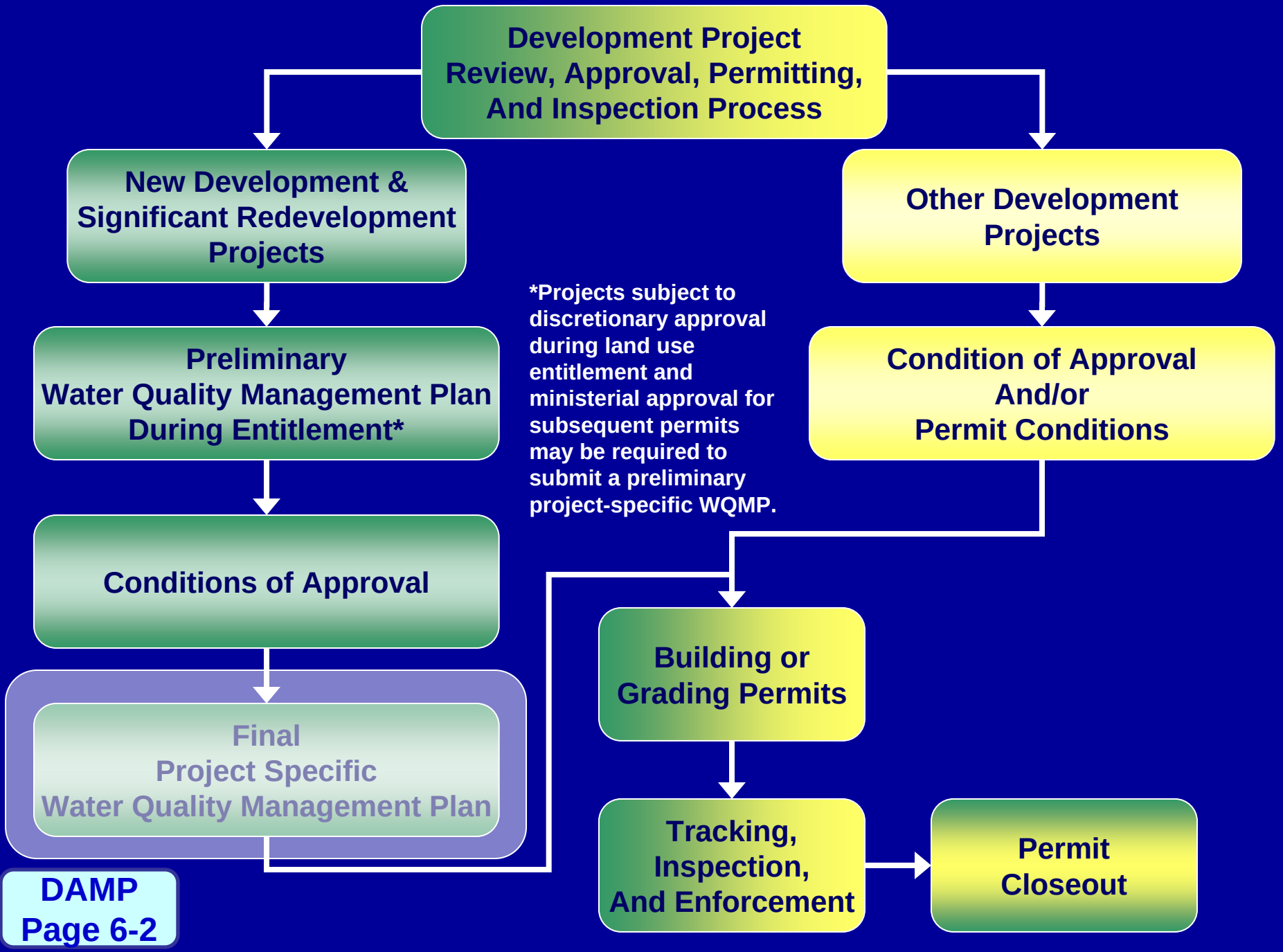
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Final Project-Specific WQMP

Final
Project Specific
Water Quality Management Plan

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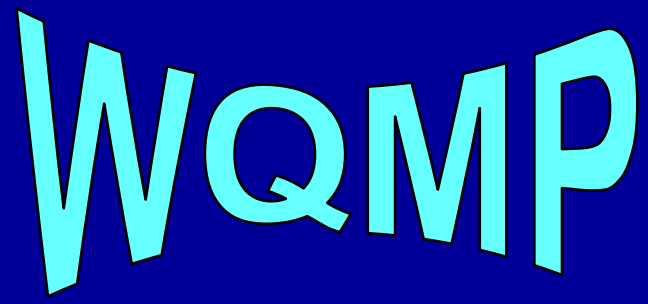
- **W**ater
- **Q**uality
- **M**anagement
- **P**lan



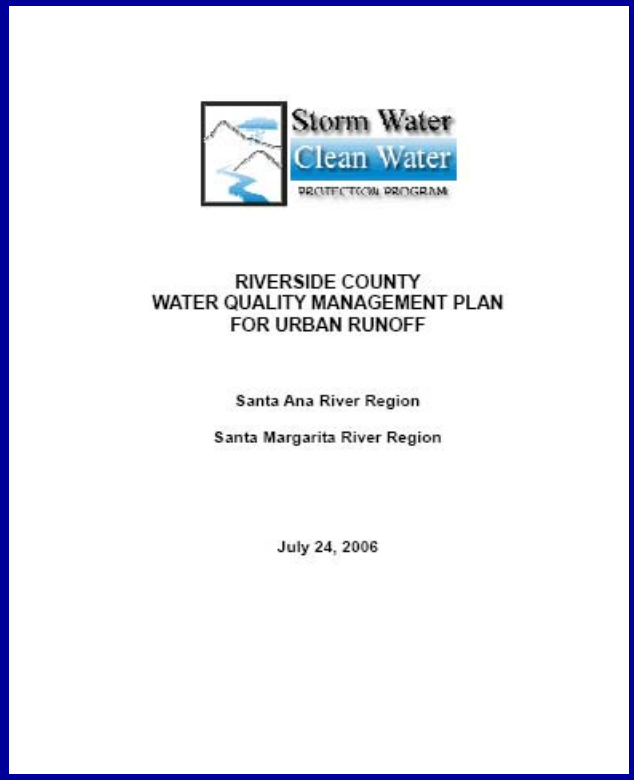
- The Final Project-Specific WQMP…
  - Is a planning level document
  - Is not expected to contain final BMP design drawings and details
  - Is expected to identify and show the location of structural BMPs
  - Is expected to provide design parameters and final design concepts of treatment BMPs
  - Must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

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.



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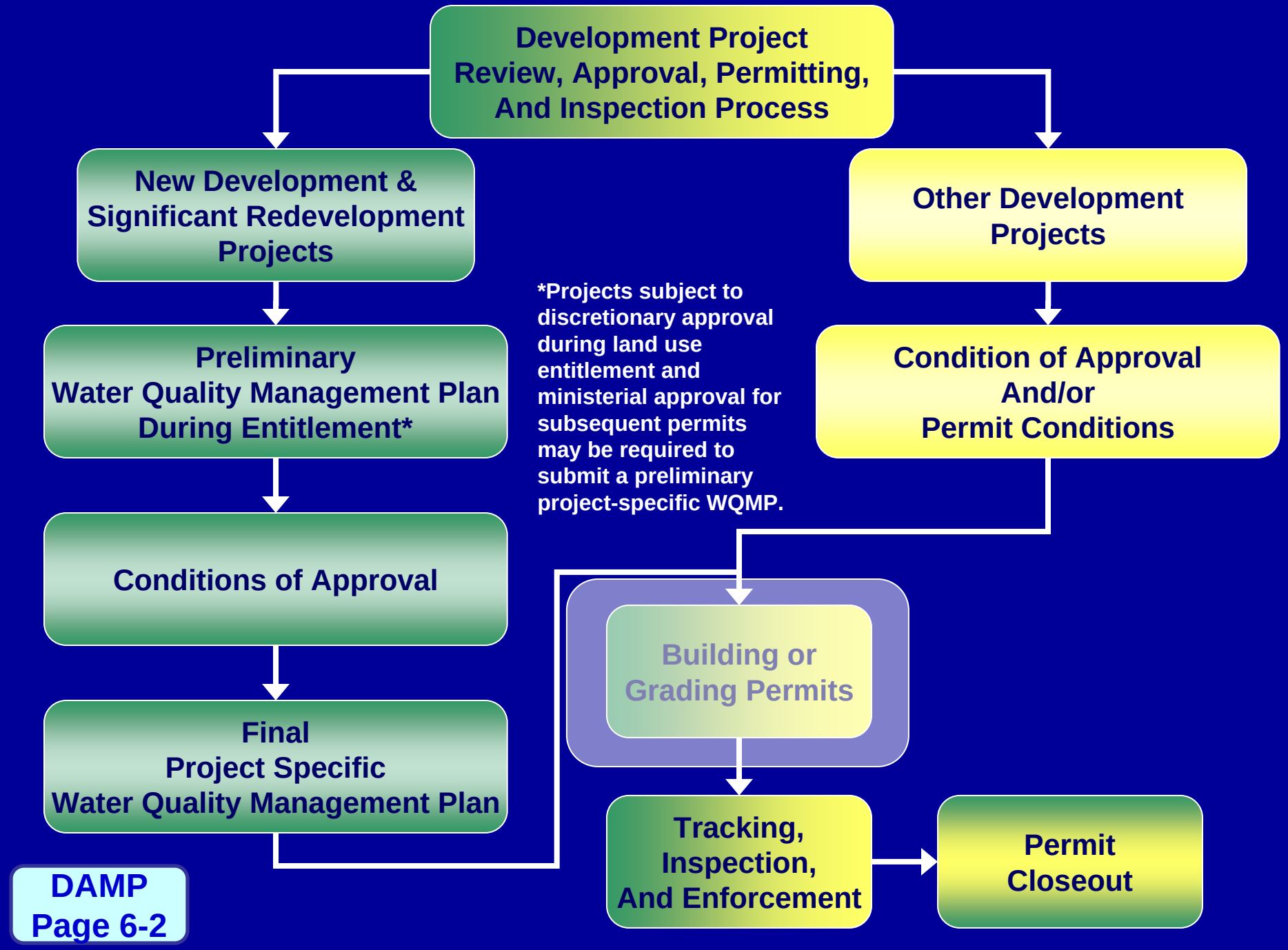
WQMP Page 8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Mandatory Notes for Construction Plans

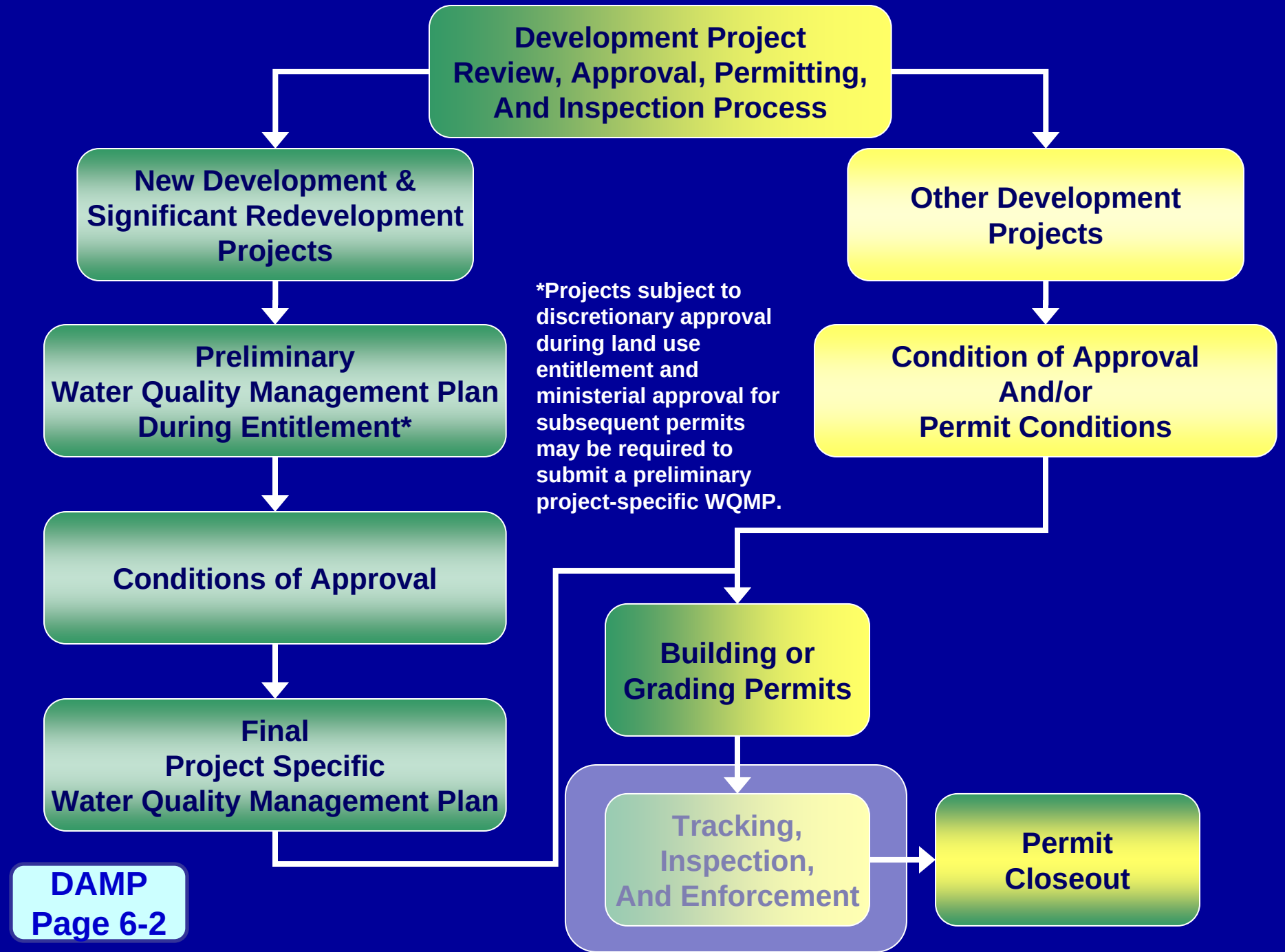
- DAMP Requirements Prior to Grading/Building Permits
  - Requires a number of standard notes on construction plans as part of the grading and building permit process
  - These notes are detailed in the DAMP and won't be covered here

DAMP
Pg 6-15,16

Grading and Building Permits Are Issued After

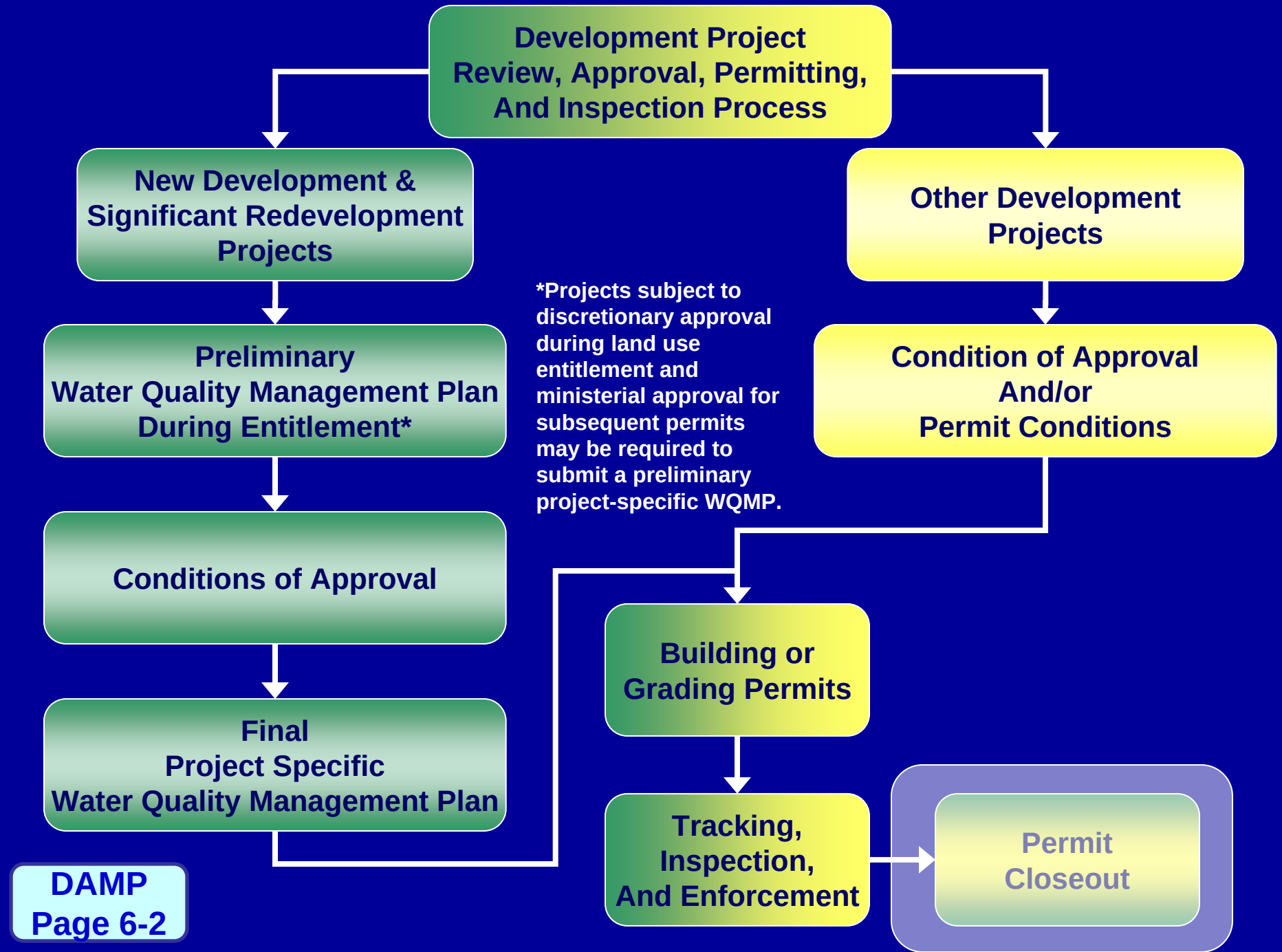
Building or Grading Permits

- 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


Development Project Review, Approval, Permitting, And Inspection Process
New Development & Significant Redevelopment Projects
Other Development Projects
Preliminary Water Quality Management Plan During Entitlement*
Condition of Approval And/or Permit Conditions
*Projects subject to discretionary approval during land use entitlement and ministerial approval for subsequent permits may be required to submit a preliminary project-specific WQMP.
Conditions of Approval
Building or Grading Permits
Final Project Specific Water Quality Management Plan
Tracking, Inspection, And Enforcement
Permit Closeout
DAMP Page 6-2

Tracking, Inspection, and Enforcement

- These subjects will be covered in other training sessions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DAMP Page 6-2

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

Summary of Changes

- 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

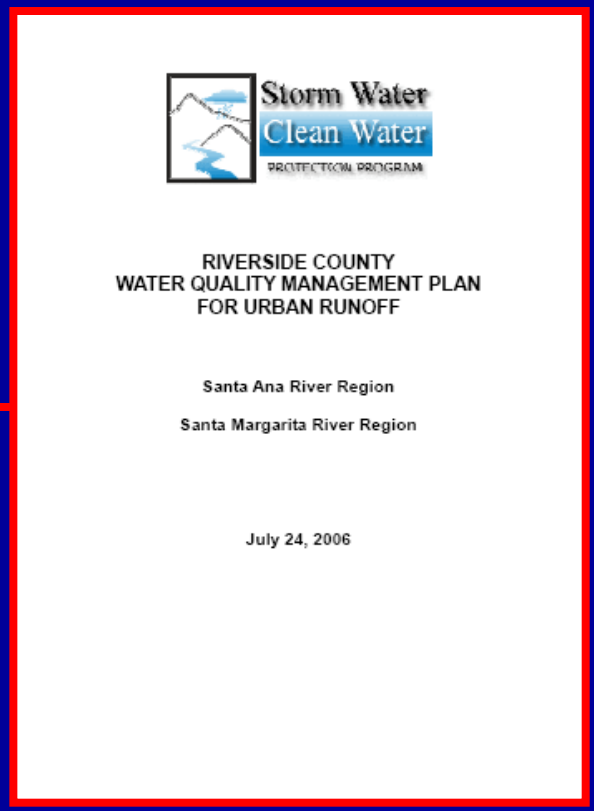
Water Quality Management Plans
In Riverside County
Basic Training

Water Quality Management Plan Fundamentals

Spring 2008

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



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

Determining Project Category

- DAMP Figure 6-2a
  - Simple to use checklist
  - Use for projects in areas covered by the Santa Ana RWQCB MS4 NPDES Permit
  - Provides a place to document category determination!
- WQMP Guidance Document Section 3 provides a narrative description of each project category
- A sample is included the course handouts

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	

Proposed Project Consists of or Includes:	Yes	No
Significant Redevelopment: The addition or creation of 5,000 square feet or more of impervious surface on an existing developed site. This includes, but is not limited to, construction of additional buildings and/or structures, extension of the existing footprint of a building, construction of impervious or compacted soil parking lots. Does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, the original purpose of the constructed facility or emergency actions required to protect public health and safety		
Residential development of 10 dwelling units or more, including single family and multi-family dwelling units, condominiums, or apartments.		
Industrial and commercial development where the land area[1] represented by the proposed map or permit is 100,000 square feet or more, including, but not limited to, non-residential developments such as hospitals, educational institutions, recreational facilities, mini-malls, hotels, office buildings, warehouses, light industrial, and heavy industrial facilities.		
Automotive repair shops [Standard Industrial Classification (SIC) codes[2] 5013, 7532, 7533, 7534, 7537, 7538, and 7539].		
Restaurants (SIC code 5812) where the project site is 5,000 square feet or more.		
Hillside development that creates 10,000 square feet or more, of impervious surface(s) including developments in areas with known erosive soil conditions or where natural slope is 25 percent or more.		
Developments creating 2,500 square feet or more of impervious surface that is adjacent to (within 200 feet) or discharging directly into areas designated in the Basin Plan[3] as waters supporting habitats necessary for the survival and successful maintenance of plant or animal species designated under state or federal law are rare, threatened, or endangered species (denoted in the Basin Plan as the "RARE" beneficial use) or waterbodies listed on the CWA Section 303(d) list of Impaired Waterbodies[4]. "Discharging directly to" means Urban Runoff from subject Development or Redevelopment site flows directly into aforementioned waterbodies. Urban Runoff is considered a direct discharge unless it first flows through a) a municipal separate storm sewer system (MS4) that has been formally accepted by and is under control and operation of a municipal entity; b) a separate conveyance system where there is co-mingling of flows with off-site sources; or c) a tributary or segment of a water body that is not designated with "RARE" beneficial uses nor listed on the 303(d) list before reaching the water body or segment designated as RARE or 303(d) listed..		
Parking lots of 5,000 square feet or more of impervious surface exposed to Urban Runoff, where "parking lot" is defined as a site or facility for the temporary storage of motor vehicles.		

1 Land area is based on acreage disturbed.
2 Descriptions of SIC codes can be found at http://www.osha.gov/pls/imis/sicsearch.html.
3 The Basin Plan for the Santa Ana River Basin, which has beneficial uses for Receiving Waters listed in Chapter 3, can be viewed or downloaded from www.swrcb.ca.gov/rwqcb8/pdf/R8BPlan.pdf.
4 The most recent CWA Section 303(d) list can be found at www.swrcb.ca.gov/tmdl/303d_lists.html.

DETERMINATION: Circle appropriate determination.

Any 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.

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Determining Project Category

- DAMP Figure 6-2b
  - Simple to use checklist
  - Use for projects in areas covered by the San Diego RWQCB MS4 NPDES Permit
  - Provides a place to document category determination!
- WQMP Guidance Document Section 3 provides a narrative description of each project category
- A sample is included in the course handouts

Figure 6-2b. Checklist – Projects Requiring Project-Specific WQMPs within the Santa Margarita Region

Checklist for Identifying Projects Requiring a Project-Specific SUSMP within the Santa Margarita Region

Project File No.	
Project Name:	
Project Location:	
Project Description	

Proposed Project Consists of or Includes:	Yes	No
Significant Redevelopment: The addition, creation, or replacement of at least 5,000 square feet of impervious surfaces on an already developed site of a project category or location as listed below in this table. This includes, but is not limited to: the expansion of a building footprint or addition or replacement of a structure; structural development including an increase in gross floor area and/or exterior construction or remodeling; replacement of impervious surface that is not part of a routine maintenance activity; and land disturbing activities related with structural or impervious surfaces. [Note: Where redevelopment results in an increase of less than 50% of the impervious surfaces of a previously existing development, and the existing development was not subject to SUSMP requirements, the requirement for treatment control BMPs [MS4 Permit requirement F.2.b(3)], applies only to the addition, and not to the entire development.]		
Housing subdivisions of 10 or more dwelling units. Includes single-family homes, multi-family homes, condominiums, and apartments.		
Commercial development greater than 100,000 square feet. Defined as any development on private land that is not for heavy industrial or residential uses where the land area for development is greater than 100,000 square feet. Includes, but is not limited to: hospitals; laboratories and other medical facilities; educational institutions; recreational facilities; municipal facilities; commercial nurseries; multi-apartment buildings; car wash facilities; mini-malls and other business complexes; shopping malls; hotels; office buildings; public warehouses; automotive dealerships; airfields; and other light industrial facilities.		
Automotive repair shops. Includes facilities characterized by any one of the following Standard Industrial Classification (SIC) codes[1]: 5013, 5014, 5541, 7532, 7533, 7534, 7536, 7537, 7538, or 7539.		
Restaurants. A facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC code 5812), where the land area for development is greater than 5,000 square feet. Restaurants where land development is less than 5,000 square feet shall meet all SUSMP requirements except for treatment control BMPs [MS4 Permit requirement F.2.b(3)] and peak flow management [MS4 Permit requirement F.2.b(2)(a)].		
All Hillside development greater than 5,000 square feet. Any development that creates greater than 5,000 square feet of impervious surface which is located in an area with known erosive soil conditions, where the development will include grading on any natural slope that is 25% or greater.		
Environmentally Sensitive Areas (ESAs)[2]. All development located within or directly adjacent to or discharging directly to an ESA (where discharges from the development or redevelopment will enter receiving waters within the ESA), which either creates 2,500 square feet of impervious surface on a proposed project site or increases the area of imperviousness of a proposed project site to 10% or more of its naturally occurring condition. "Directly adjacent" means situated within 200 feet of the ESA. "Discharging directly to" means outflow from a drainage conveyance system that is composed entirely of flows from the subject development or redevelopment site, and not commingled with flows from adjacent lands.		
Parking lots of 5,000 square feet or more. A land area or facility for the temporary parking or storage of motor vehicles used personally for business or commerce.		
Streets, roads, highways, and freeways. Includes any paved surface that is 5,000 square feet or greater used for the transportation of automobiles, trucks, motorcycles, and other vehicles.		
Retail Gasoline Outlets (RGOs). Includes RGOs that meet the following criteria: (a) 5,000 square feet or more, or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles.		

1 Descriptions of SIC codes can be found at http://www.osha.gov/pls/imis/sicsearch.html.

2 Areas "in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which would easily be disturbed or degraded by human activities and developments. ESAs subject to urban runoff requirements include, but are not limited to: all CWA Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the Basin Plan; water bodies designated with a RARE beneficial use in the Basin Plan; areas within the Western Riverside County Multi-Species Habitat Conservation Plan area that contain rare or especially valuable plant or animal life or their habitat; and any other equivalent environmentally sensitive areas that the Permittees have identified. The Basin Plan for the San Diego Basin (beneficial uses listed in Chapter 2) can be viewed or downloaded from www.swrcb.ca.gov/rwqcb9/programs/basinplan.html. The most recent CWA Section 303(d) list can be found at www.swrcb.ca.gov/tmdl/303d_lists.html.

DETERMINATION: Circle appropriate determination.

Any 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.

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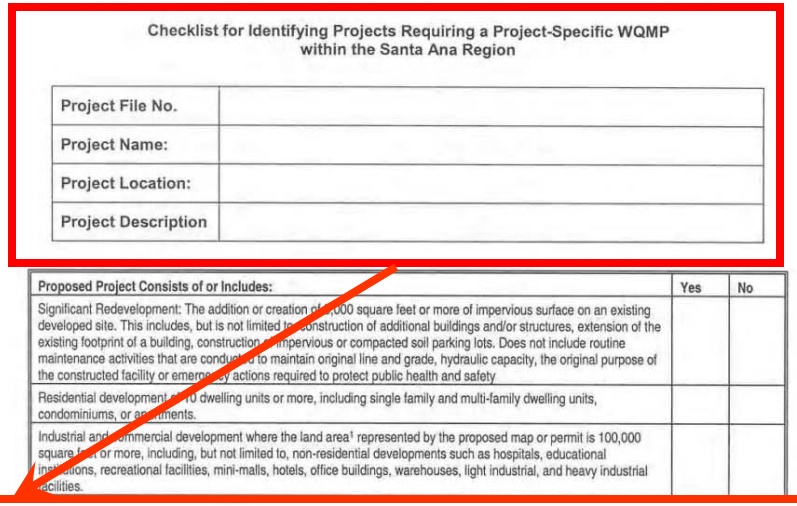
Let's Walk Thru The Checklist

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	

Proposed Project Consists of or Includes:	Yes	No
Significant Redevelopment: The addition or creation of 5,000 square feet or more of impervious surface on an existing developed site. This includes, but is not limited to, construction of additional buildings and/or structures, extension of the existing footprint of a building, construction of impervious or compacted soil parking lots. Does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, the original purpose of the constructed facility or emergency actions required to protect public health and safety		
Residential development of 10 dwelling units or more, including single family and multi-family dwelling units, condominiums, or apartments.		
Industrial and commercial development where the land area[1] represented by the proposed map or permit is 100,000 square feet or more, including, but not limited to, non-residential developments such as hospitals, educational institutions, recreational facilities, mini-malls, hotels, office buildings, warehouses, light industrial, and heavy industrial facilities.		

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

Project File No.	
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Let's Walk Thru The Checklist

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Automotive repair shops [Standard Industrial Classification (SIC) codes[2] 5013, 7532, 7533, 7534, 7537, 7538, and 7539].		
Restaurants (SIC code 5812) where the project site is 5,000 square feet or more.		
Hillside development that creates 10,000 square feet or more, of impervious surface(s) including developments in areas with known erosive soil conditions or where natural slope is 25 percent or more.		
Developments creating 2,500 square feet or more of impervious surface that is adjacent to (within 200 feet) or discharging directly into areas designated in the Basin Plan[3] as waters supporting habitats necessary for the survival [illegible]		

Significant Redevelopment: The addition or creation of 5,000 square feet or more of impervious surface on an existing developed site. This includes, but is not limited to, construction of additional buildings and/or structures, extension of the existing footprint of a building, construction of impervious or compacted soil parking lots. Does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, the original purpose of the constructed facility or emergency actions required to protect public health and safety

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Residential development of 10 dwelling units or more, including single family and multi-family dwelling units, condominiums, or apartments.

downloaded from www.swrcb.ca.gov/rwqcb8/publications.html.

4 The most recent CWA Section 303(d) list can be found at www.swrcb.ca.gov/tmdl/303d_lists.html.

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Restaurants (SIC code 5812) where the project site is 5,000 square feet or more.

3 The Basin Plan for the Santa Ana River Basin, which has beneficial uses for Receiving Waters listed in Chapter 3, can be viewed or downloaded from www.swrcb.ca.gov/rwqcb8/pdf/R8BPlan.pdf.

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DETERMINATION: Circle appropriate determination.

Any 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.

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Let's Walk Thru The Checklist

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	

Proposed Project Consists of or Includes:	Yes	No
Significant Redevelopment: The addition or creation of 5,000 square feet or more of impervious surface on an existing developed site. This includes, but is not limited to, construction of additional buildings and/or structures, extension of the existing footprint of a building, construction of impervious or compacted soil parking lots. Does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, the original purpose of the constructed facility or emergency actions required to protect public health and safety		
Residential development of 10 dwelling units or more, including single family and multi-family dwelling units, condominiums, or apartments.		
Industrial and commercial development where the land area[1] represented by the proposed map or permit is 100,000 square feet or more, including, but not limited to, non-residential developments such as hospitals, educational institutions, recreational facilities, mini-malls, hotels, office buildings, warehouses, light industrial, and heavy industrial facilities.		
Automotive repair shops [Standard Industrial Classification (SIC) codes[2] 5013, 7532, 7533, 7534, 7537, 7538, and 7539].		
Restaurants (SIC code 5812) where the project site is 5,000 square feet or more		
Hillside development that creates 10,000 square feet or more, of impervious surface(s) including developments in areas with known erosive soil conditions or where natural slope is 25 percent or more.		
Developments creating 2,500 square feet or more of impervious surface that is adjacent to (within 200 feet) or discharging directly into areas designated in the Basin Plan[3] as waters supporting habitats necessary for the survival and successful maintenance of plant or animal species designated under state or federal law are rare, threatened, or endangered species (denoted in the Basin Plan as the "RARE" beneficial use) or waterbodies listed on the CWA Section 303(d) list of Impaired Waterbodies[4]. "Discharging directly to" means Urban Runoff from subject Development or Redevelopment site flows directly into aforementioned waterbodies. Urban Runoff is considered a direct discharge unless it first flows through a) a municipal separate storm sewer system (MS4) that has been formally accepted by and is under control and operation of a municipal entity; b) a separate conveyance system where there is co-mingling of flows with off-site sources; or c) a tributary or segment of a water body that is not designated with "RARE" beneficial use or listed on the 303(d) list before reaching the water body or segment designated as RARE or 303(d) listed..		
Parking lots of 5,000 square feet or more of impervious surface exposed to Urban Runoff, where "parking lot" is defined		

Hillside development that creates 10,000 square feet or more, of impervious surface(s) including developments in areas with known erosive soil conditions or where natural slope is 25 percent or more.

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

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Determining Project Category - Summary

- The Checklist is easy to use!
- The Checklist for projects in the San Diego RWQCB MS4 Permit area is used the same way as the Santa Ana RWQCB MS4 Permit area checklist
  - Caution – The project categories are similar, but with important differences, between the two checklists

Determining Project Pollutants

- Expected Project Pollutants depend on the Project Category!
- WQMP Exhibit B identifies expected pollutants for each project category.

Potential Pollutants Generated by Land Use Type

(Excerpted, with minor revision, from the San Bernardino Water Quality Management Plan dated April 14, 2004)

Type of Development (Land Use)	Sediment/ Turbidity	Nutrients	Organic Compounds	Trash & Debris	Oxygen Demanding Substances	Bacteria & Viruses	Oil & Grease	Pesticides	Metals
Detached Residential Development	E	E	N	E	E	E	E	E	N
Attached Residential Development	E	E	N	E	P(1)	P	P(2)	E	N
Commercial/ Industrial Development	P(1)	P(1)	P(5)	E	P(1)	P(3)	E	P(1)	P
Automotive Repair Shops	N	N	E(4,5)	E	N	N	E	N	P
Restaurants	N	N	N	E	E	E	E	N	N
Hillside Development	E	E	N	E	E	E	E	E	N
Parking Lots	P(1)	P(1)	E(4)	E	P(1)	P(6)	E	P(1)	E
Streets, Highways & Freeways	E	P(1)	E(4)	E	P(1)	P(6)	E	P(1)	E

Determining Project Pollutants

- **Exhibit B is easy to use!**

Potential Pollutants Generated by Land Use Type

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Detached Residential Development	E	E	N	E	E	E	E	E	N
Attached Residential Development	E	E	N	E	P(1)	P	P(2)	E	N
Commercial/ Industrial Development	P(1)	P(1)	P(5)	E	P(1)	P(3)	E	P(1)	P
Automotive Repair Shops	N	N	E(4,5)	E	N	N	E	N	P
Restaurants	N	N	N	E	E	E	E	N	N
Hillside Development	E	E	N	E	E	E	E	E	N
Parking Lots	P(1)	P(1)	E(4)	E	P(1)	P(6)	E	P(1)	E
Streets, Highways & Freeways	E	P(1)	E(4)	E	P(1)	P(6)	E	P(1)	E

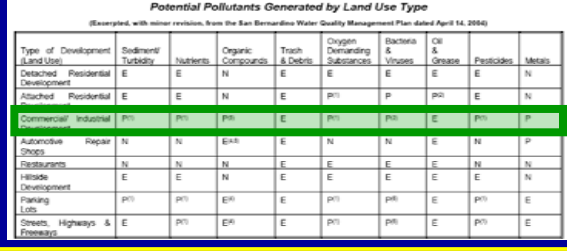
Determining Project Pollutants – Example

Potential Pollutants Generated by Land Use Type

(Excerpted, with minor revision, from the San Bernardino Water Quality Management Plan dated April 14, 2004)

Type of Development (Land Use)	Sediment/ Turbidity	Nutrients	Organic Compounds	Trash & Debris	Oxygen Demanding Substances	Bacteria & Viruses	Oil & Grease	Pesticides	Metals
Detached Residential Development	E	E	N	E	E	E	E	E	N
Attached Residential Development	E	E	N	E	P(1)	P	P(2)	E	N
Commercial/ Industrial Development	P(1)	P(1)	P(5)	E	P(1)	P(3)	E	P(1)	P
Automotive Repair Shops	N	N	E(4,5)	E	N	N	E	N	P
Restaurants	N	N	N	E	E	E	E	N	N
Hillside Development	E	E	N	E	E	E	E	E	N
Parking Lots	P(1)	P(1)	E(4)	E	P(1)	P(6)	E	P(1)	E
Streets, Highways & Freeways	E	P(1)	E(4)	E	P(1)	P(6)	E	P(1)	E

Determining Project Pollutants - Example



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Attached Residential	E	E	N	E	P(1)	P	P(2)	E	N
Commercial/ Industrial	P(1)	P(1)	P(5)	E	P(1)	P(3)	E	P(1)	P
Automotive Repair Shops	N	N	E(4,5)	E	N	N	E	N	P
Restaurants	N	N	N	E	E	E	E	N	N
Hillside Development	E	E	N	E	E	E	E	E	N
Parking Lots	P(1)	P(1)	E(4)	E	P(1)	P(3)	E	P(1)	E
Streets, Highways & Freeways	E	P(1)	E(4)	E	P(1)	P(3)	E	P(1)	E

- Project Pollutants
  - Sediment/Turbidity - A potential pollutant (Note 1)
  - Nutrients – A potential pollutant (Note 1)
  - Organic Compounds – A potential pollutant (Note 5)
  - Trash and Debris – An expected pollutant
  - Oxygen Demanding Substances – A potential pollutant (Note 1)
  - Bacteria and Viruses – A potential pollutant (Note 3)
  - Oil and Grease – An expected pollutant
  - Pesticides – A potential pollutant (Note 1)
  - Metals – A potential pollutant

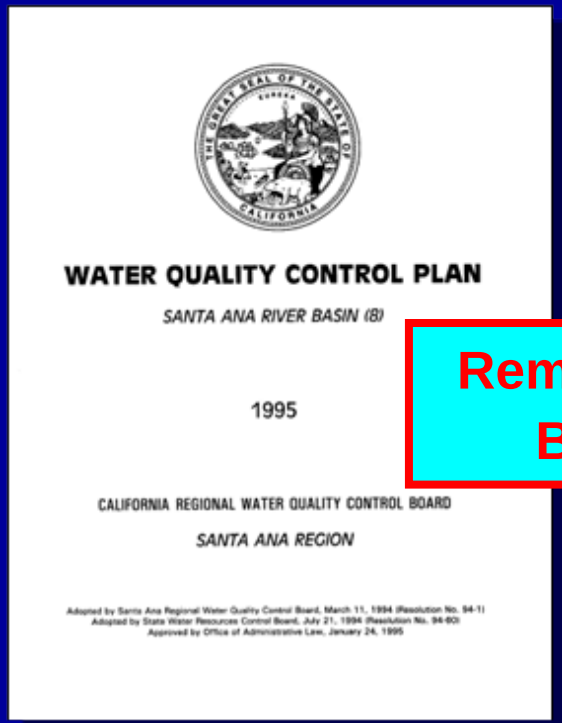
- Note 1 – A potential pollutant if landscaping or open area exists on the project site
- Note 3 – A potential pollutant if land use involves animal waste
- Note 5 – Specifically solvents

Determining Project Pollutants

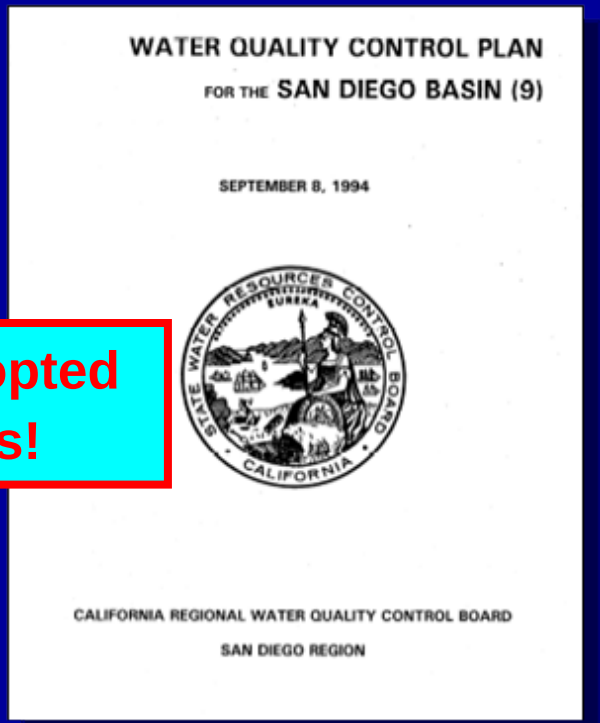
- Project Pollutants
  - Stick with Exhibit B unless you have a very good reason to deviate!
  - If you deviate, document your reasons in the project file…you may be called on later to explain the change.
  - Pay particular attention to the “Notes” at the bottom of the table.

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



Remember to consider adopted Basin Plan Amendments!

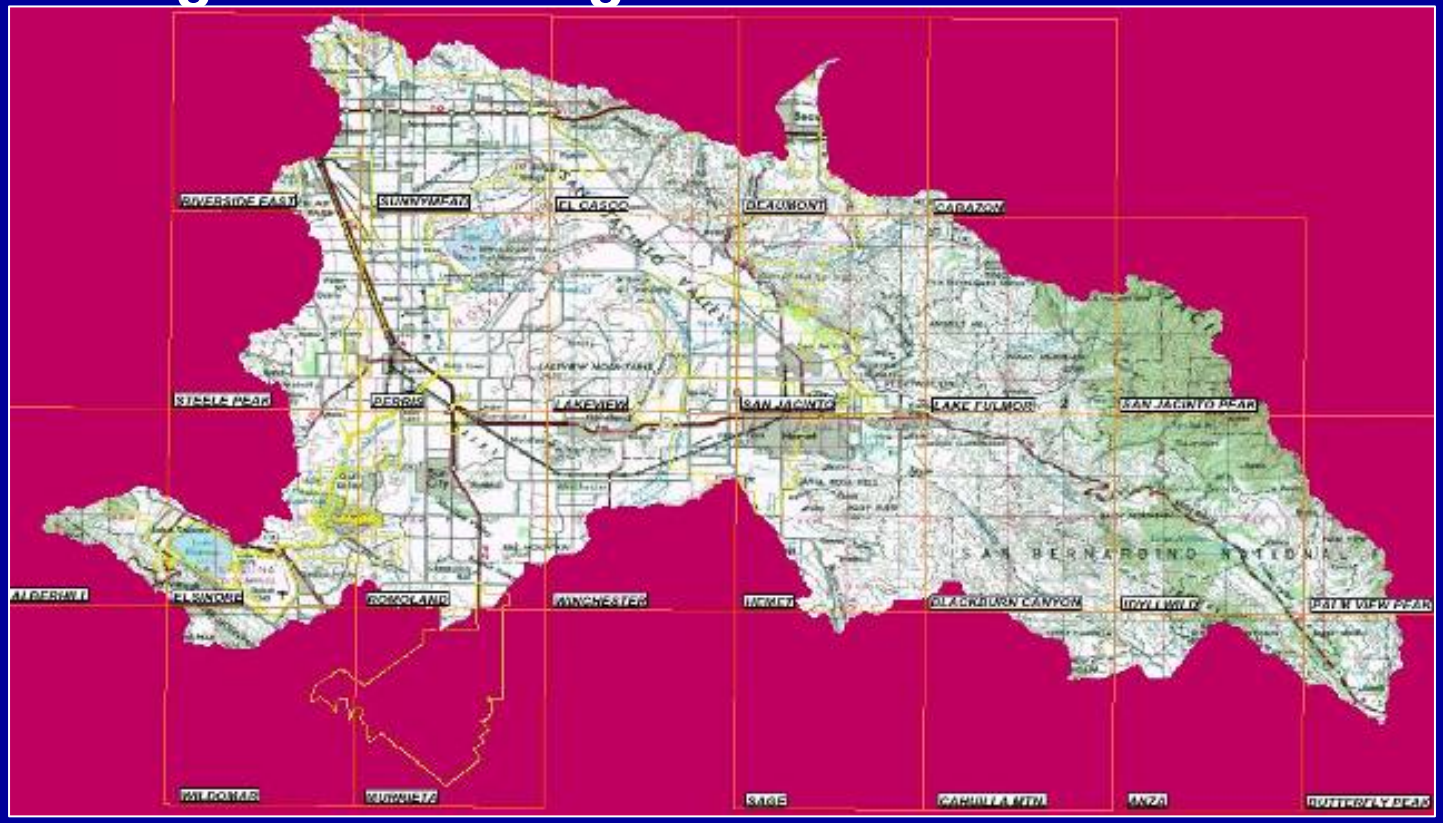


Identifying the Project Watershed

- 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)
  - 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 due not carry the same level of concern for Pathogens because it is not Pathogen impaired

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



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

Identifying Receiving Water Impairments

- The 303(d) list is the place to go to find out if a receiving water is impaired and what is causing the impairment

PROPOSED 2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS

SANTA ANA REGIONAL BOARD

SWRCB APPROVAL DATE: OCTOBER 25, 2006

REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
8	R	Chino Creek Reach 1	80121000	Nutrients		7.8 Miles	2019
					Agriculture		
					Dairies		
8	L	Elsinore, Lake	80231000	PCBs (Polychlorinated biphenyls)		2431 Acres	2019
					Source Unknown		
				Unknown Toxicity		2431 Acres	2007
					Unknown Nonpoint Source		
8	L	Fulmor, Lake	80221000	Pathogens		4.2 Acres	2019
					Unknown Nonpoint Source		
8	R	Grout Creek	80171000	Metals		3.5 Miles	2007
					Unknown Nonpoint Source		
				Nutrients		3.5 Miles	2008
					Unknown Nonpoint Source		

Identifying Receiving Water Impairments

PROPOSED 2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS

SANTA ANA REGIONAL BOARD

SWRCB APPROVAL DATE: OCTOBER 25, 2006

Receiving Water Names

Pollutant Stressors

REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
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	L	Elsinore, Lake	80231000	PCBs (Polychlorinated biphenyls)	Source Unknown	2431 Acres	2019
				Unknown Toxicity	Unknown Nonpoint Source	2431 Acres	2007
	L	Fulmor, Lake	80221000	Pathogens	Unknown Nonpoint Source	4.2 Acres	2019
	R	Grout Creek	80171000	Metals	Unknown Nonpoint Source	3.5 Miles	2007
				Nutrients	Unknown Nonpoint Source	3.5 Miles	2008

Identifying Receiving Water Impairments

- Adopted Total Maximum Daily Loads (TMDLs) are also important to consider.
- TMDLs includes requirements that address specific pollutant stressors in receiving waters.

California Regional Water Quality Control Board
Santa Ana Region

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

WHEREAS, the California Regional Water Quality Control Board, Santa Ana Region (hereinafter, Regional Board), finds that:

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.

Identifying Receiving Water Impairments

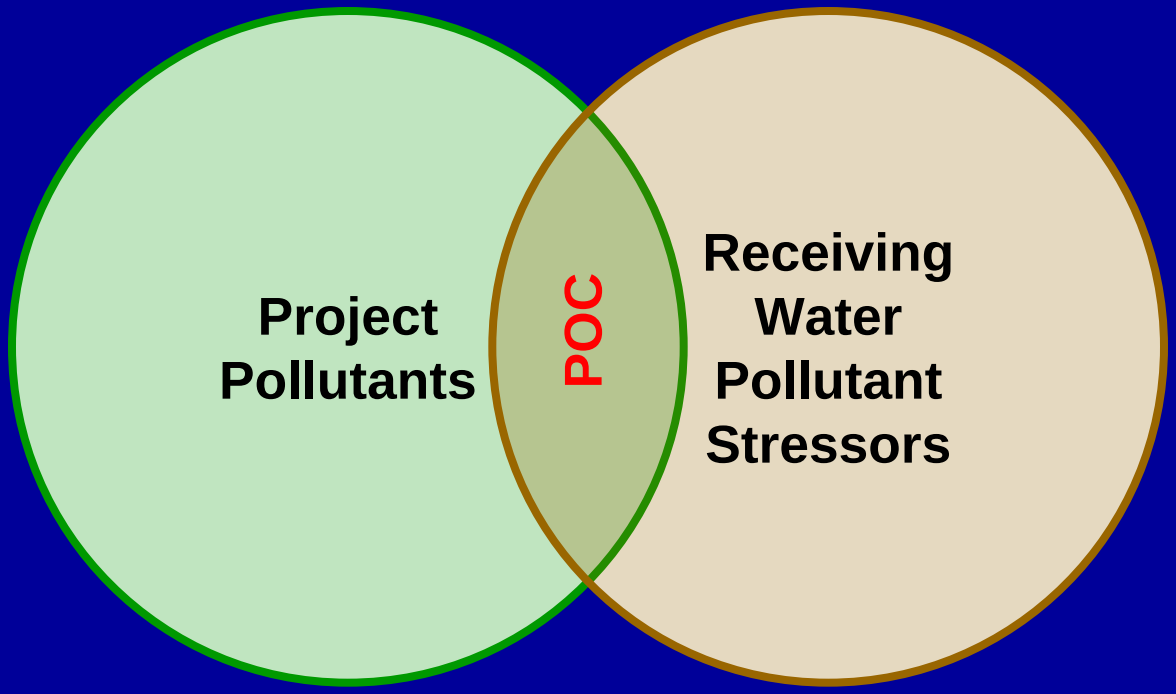
Table 5-9s

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.

Identifying Pollutants of Concern

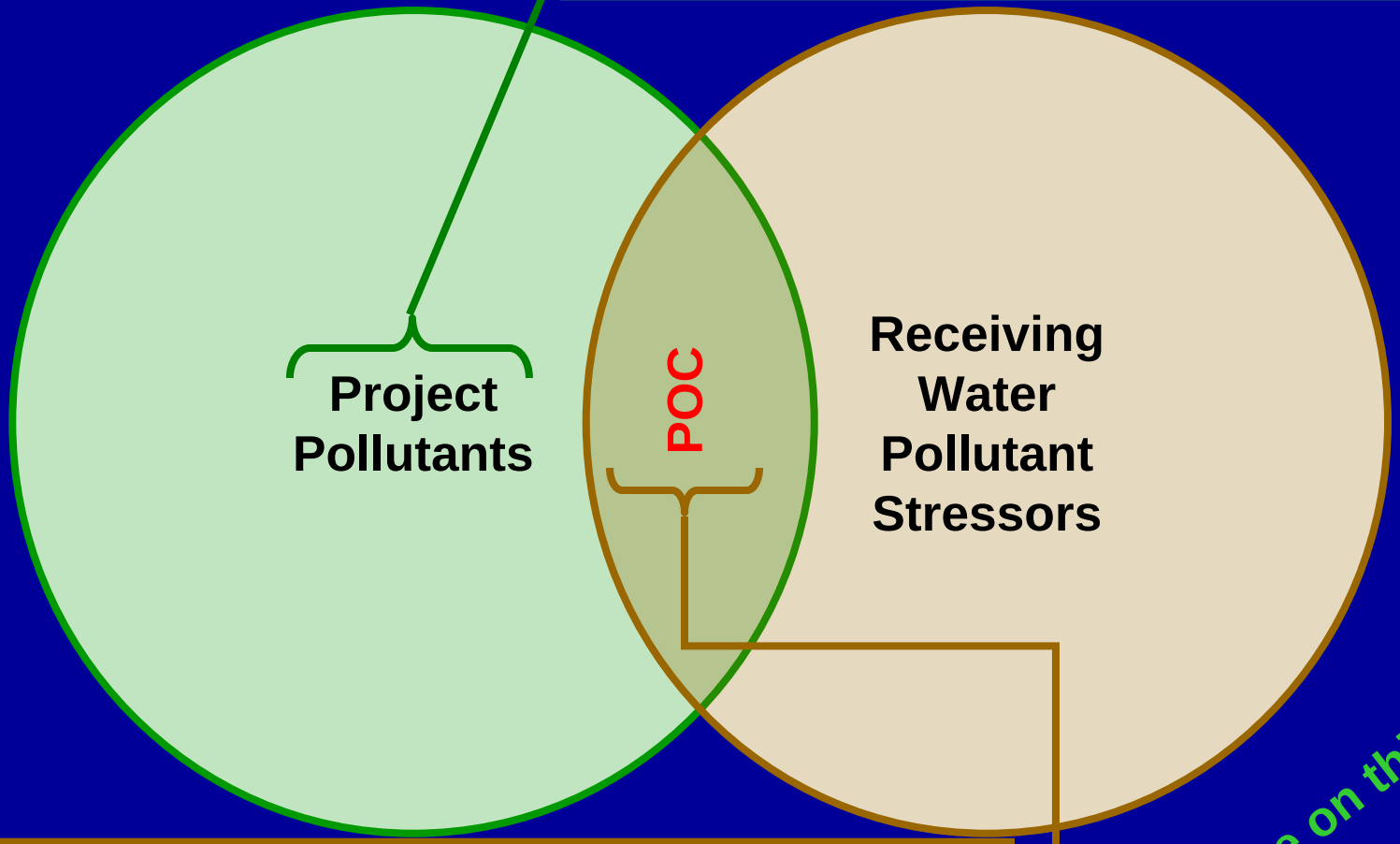
- Pollutants of Concern (POC) are those Project Pollutants that have been identified as Pollutant Stressors in Project Receiving Waters
  - 303(d) list pollutant stressors
  - Constituents addressed in TMDLs



Identifying Pollutants of Concern

Addressing Pollutants Associated with Development

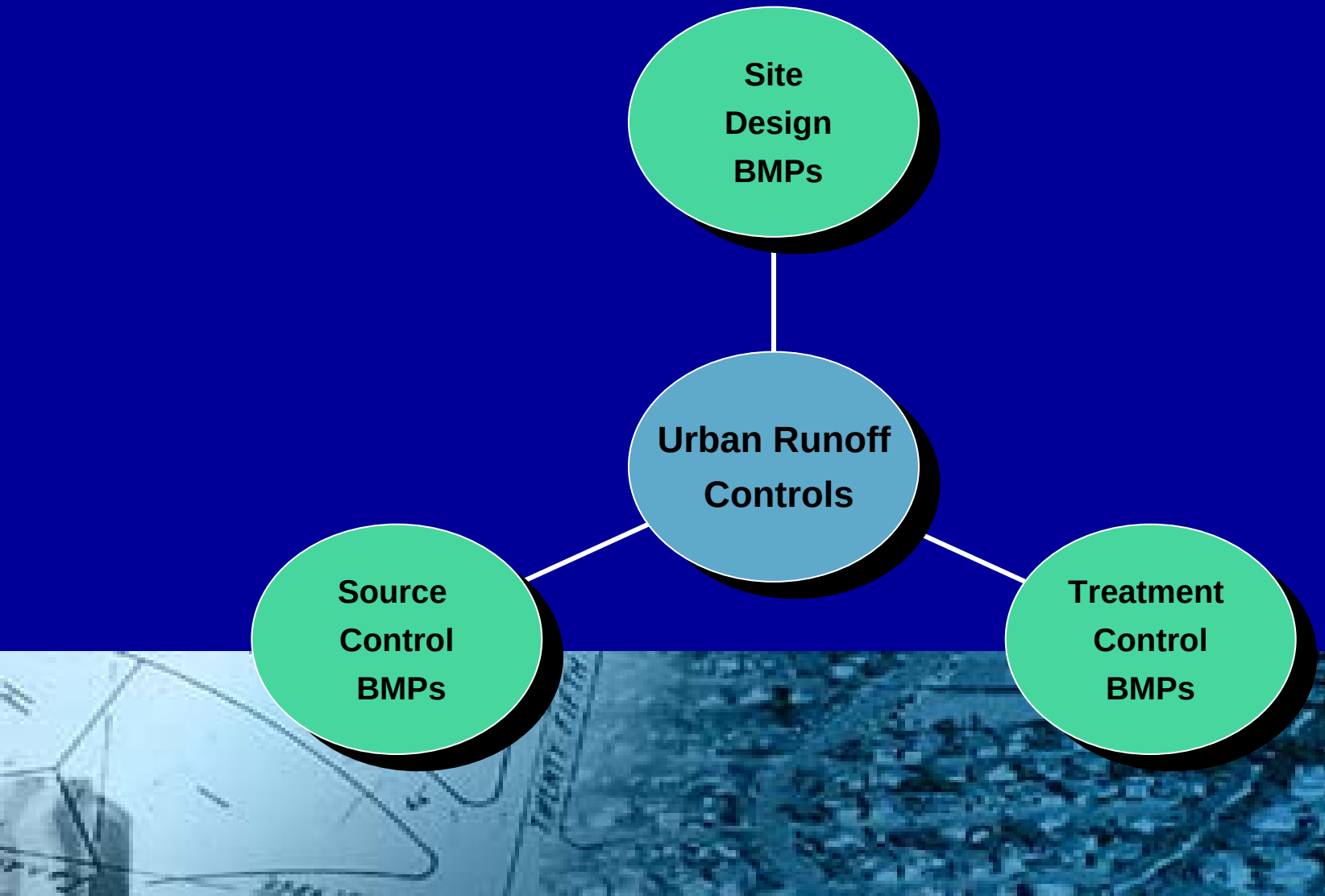
Address these pollutants using BMPs



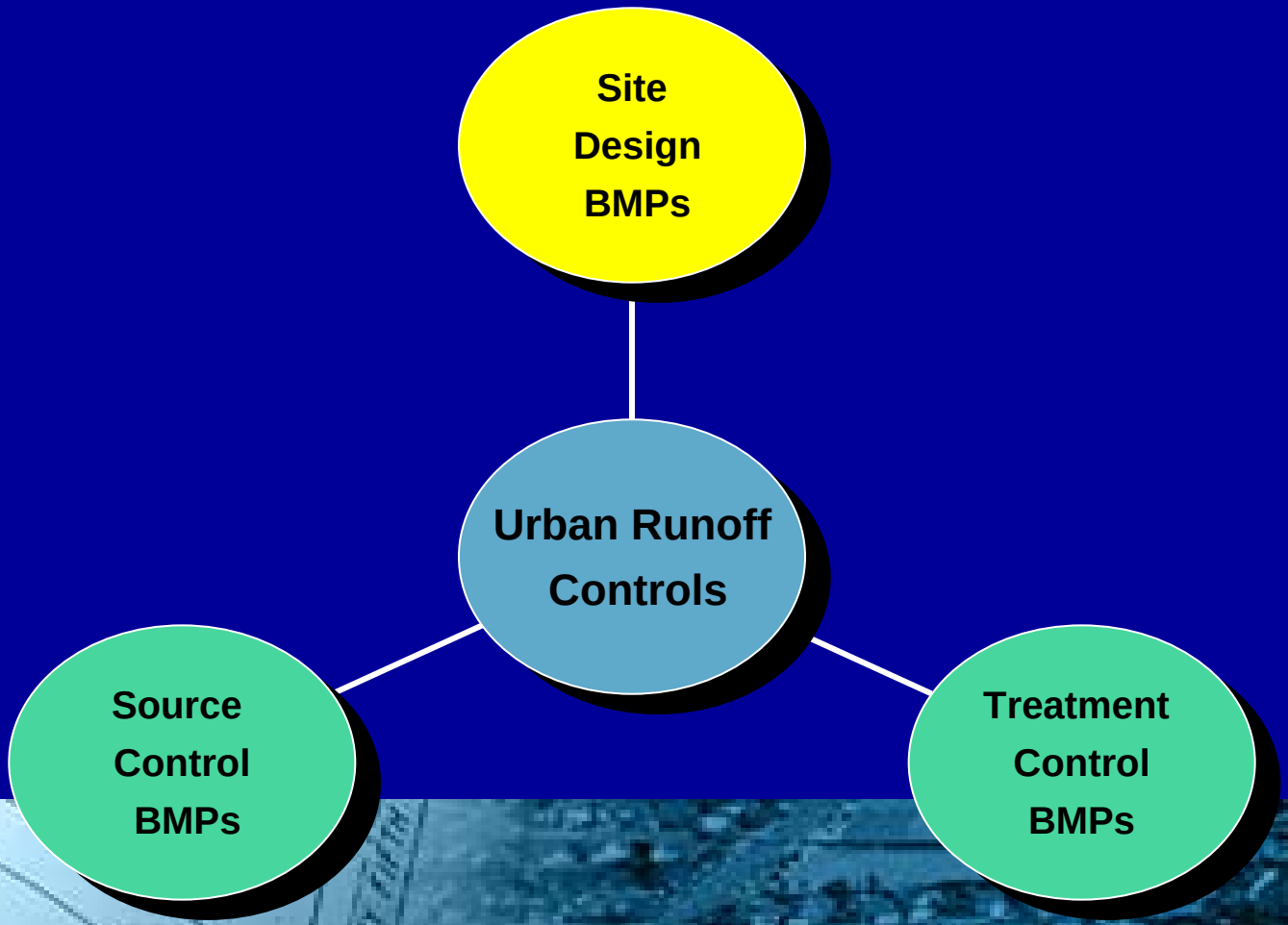
Address these pollutants using BMPS with a High or Medium effectiveness

More on this later!

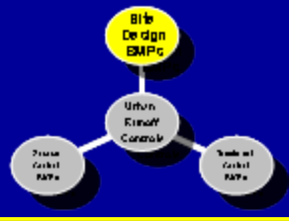
Post Construction Best Management Practices



Post Construction Controls
Site Design BMPs



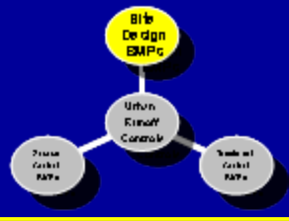
Post Construction Controls
Site Design BMPs



- 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)

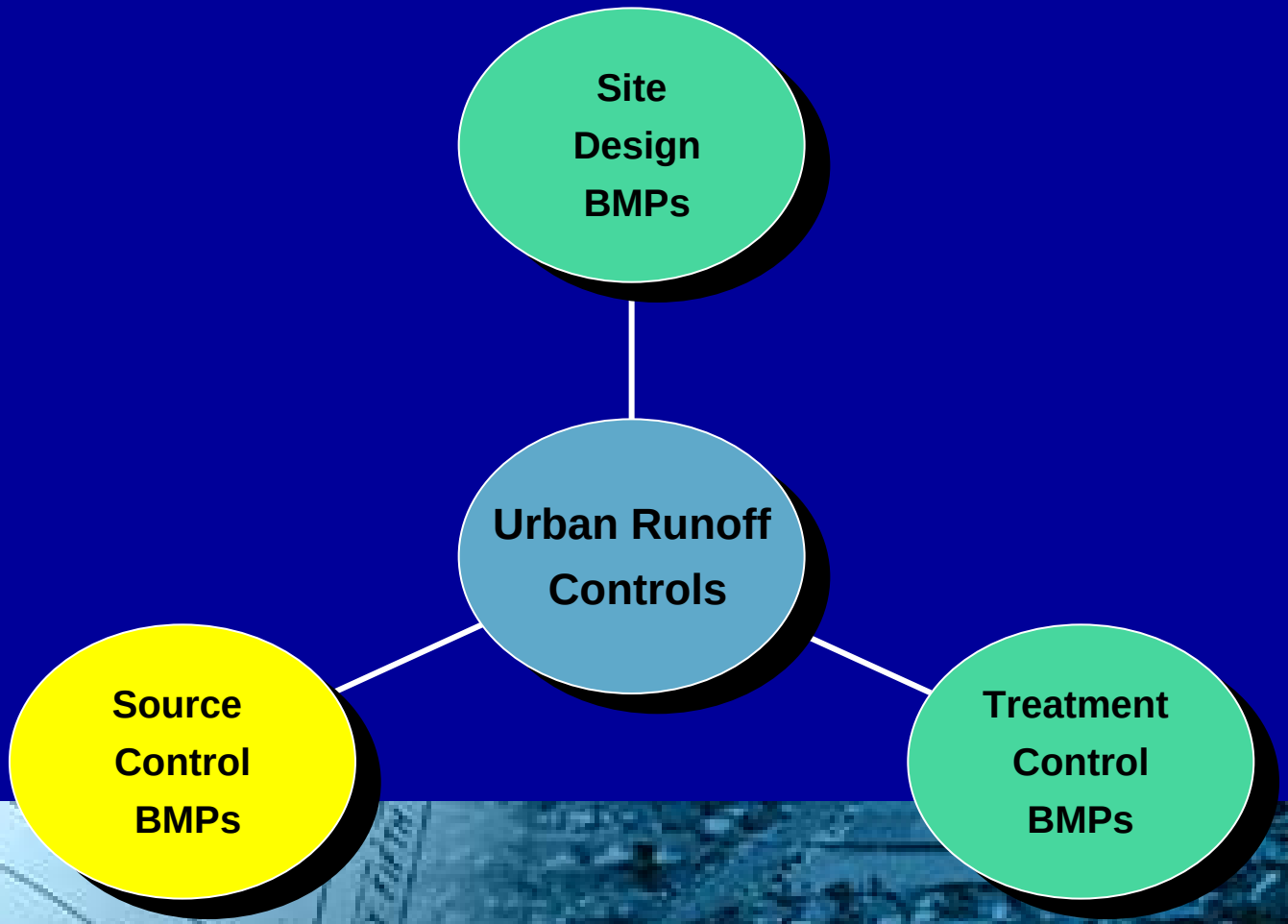
Post Construction Controls
Site Design BMPs

Post Construction Controls
Site Design BMPs

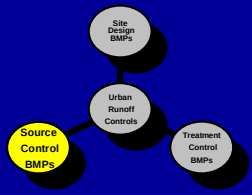


- Strategy
  - "Do what you can where you can." (Geoff Brosseau, BASMAA)
  - Integrate BMPs throughout the site
    - Every surface presents an opportunity!
      - Landscaping
      - Hardscaping
  - Use drainage as an organizing element

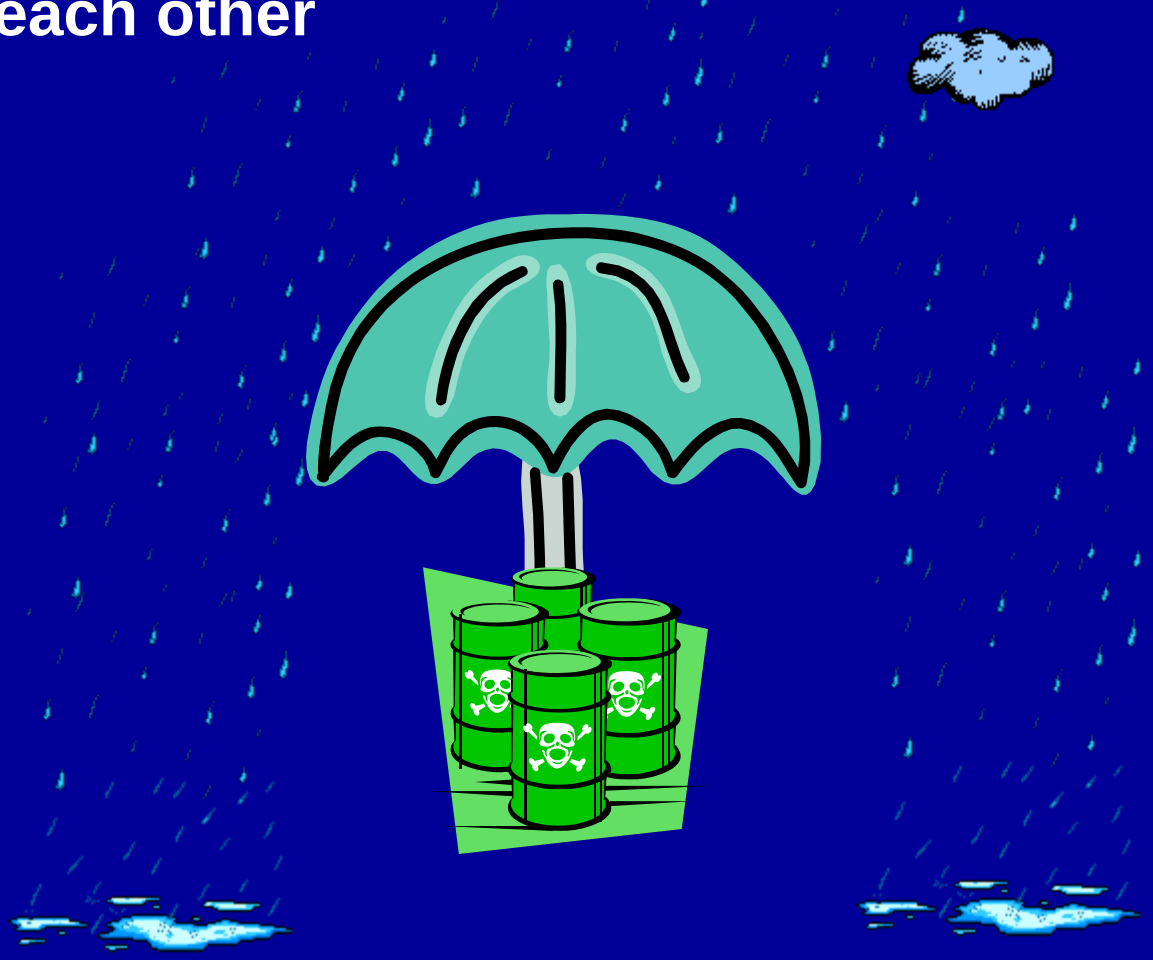
Post Construction Controls
Source Control BMPs



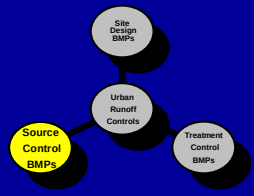
Post Construction Controls
Source Control BMPs

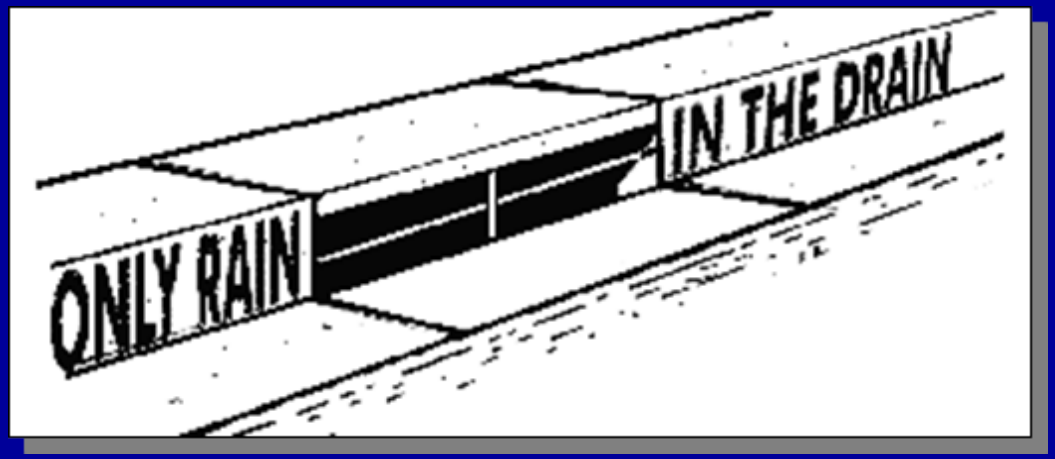


- Reduce potential for rainfall, runoff, and pollutants to contact each other

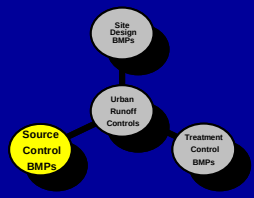


Post Construction Controls
Source Control BMPs



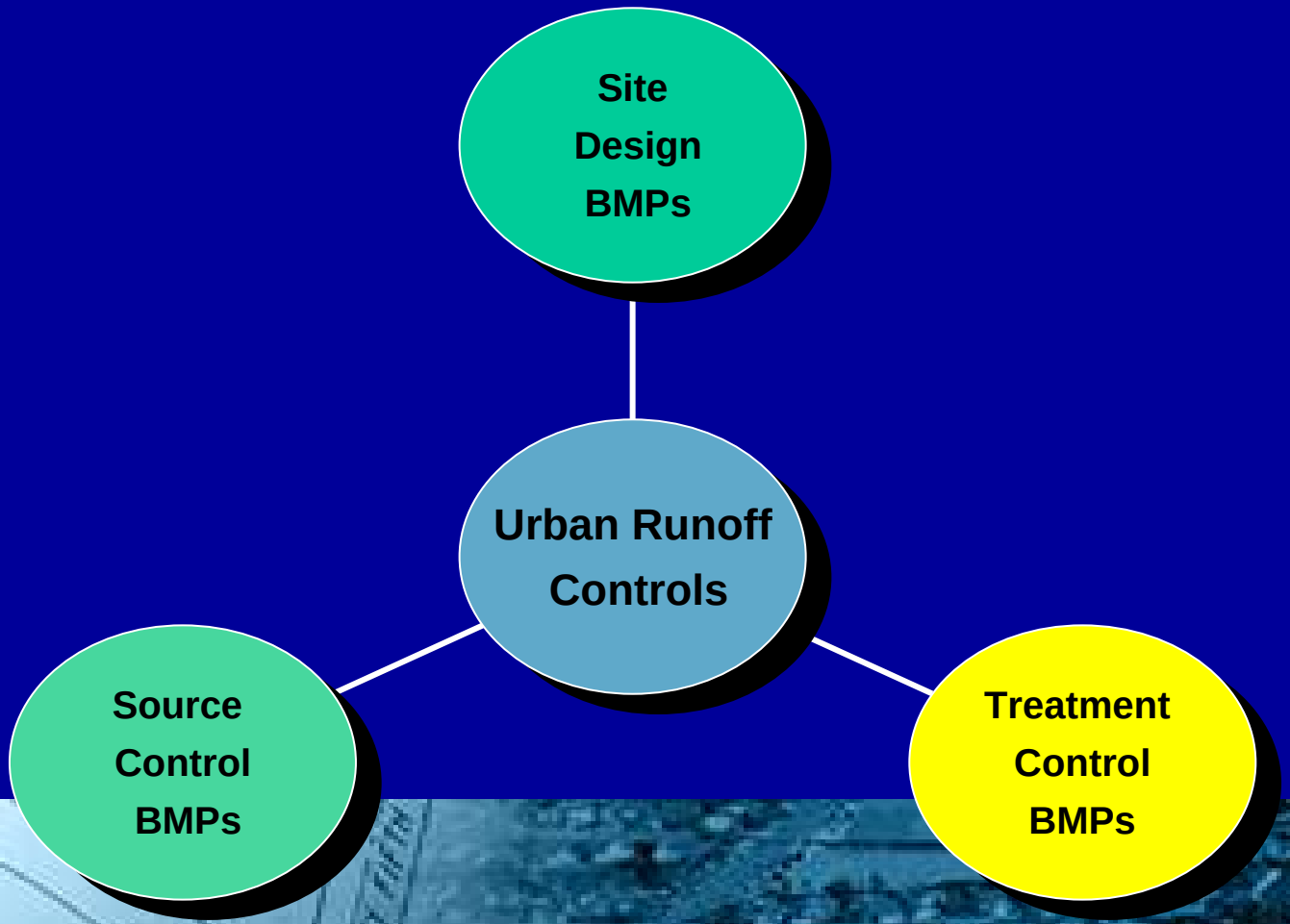


Post Construction Controls
Source Control BMPs



- **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**

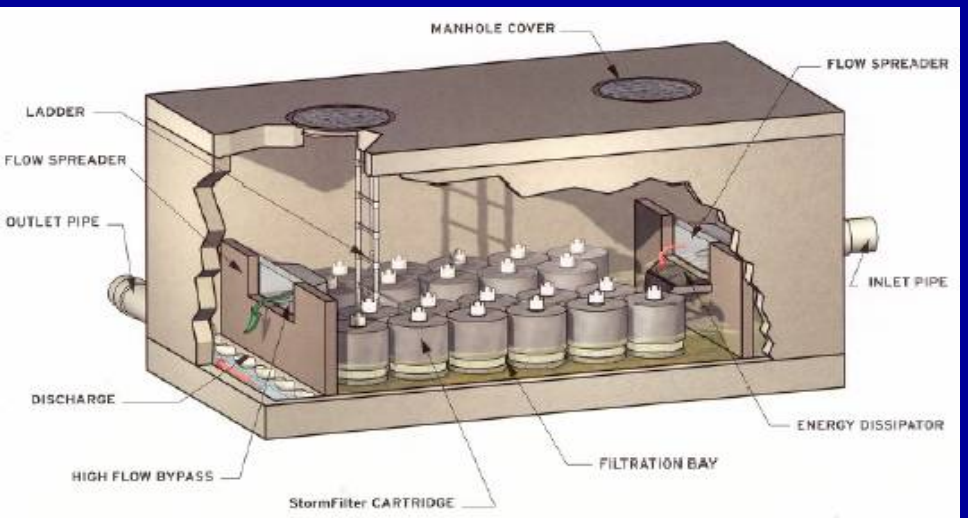
Post Construction Controls
Treatment Control BMPs



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

Post Construction Controls
Treatment Control BMPs



Post Construction Controls
Treatment Control BMPs

- Select treatment controls based on Project Pollutants
- When Project Pollutants include Pollutant Stressors in impaired Receiving Waters, Treatment Control BMPs of Medium or High effectiveness must be used.
- Use WQMP Guidance Document Table 3 to identify Treatment Control BMPs

Pollutant of Concern	Biofilters [2]	Detention Basins [3]	Infiltration BMPs [4]	Wet Ponds or Wetlands [5]	Filtration Systems [6]	Water Quality Inlets	Hydrodynamic Separator Systems [7]	Manufactured or Proprietary Devices [8]
Sediment/Turbidity	H/M	M	H/M	H/M	H/M	L	H/M (L for Turbidity)	U
Nutrients	L	M	H/M	H/M	L/M	L	L	U
Organic Compounds	U	U	U	U	H/M	L	L	U
Trash & Debris	L	M	U	U	H/M	M	H/M	U
Oxygen Demanding Substances	L	M	H/M	H/M	H/M	L	L	U
Bacteria & Viruses	U	U	H/M	U	H/M	L	L	U
Oil & Grease	H/M	M	U	U	H/M	M	L/M	U
Pesticides (non-soil bound)	U	U	U	U	U	L	L	U
Metals	H/M	M	H	H	H	L	L	U

Post Construction Controls
Treatment Control BMPs

Pollutant of Concern	Biofilters [2]	Detention Basins [3]	Infiltration BMPs [4]	Wet Ponds or Wetlands [5]	Filtration Systems [6]	Water Quality Inlets	Hydrodynamic Separator Systems [7]	Manufactured or Proprietary Devices [8]
Sediment/Turbidity	H/M	M	H/M	H/M	H/M	L	H/M (L for Turbidity)	U
Nutrients	L	M	H/M	H/M	L/M	L	L	U
Organic Compounds	U	U	U	U	H/M	L	L	U
Trash & Debris	L	M	U	U	H/M	M	H/M	U
Oxygen Demanding Substances	L	M	H/M	H/M	H/M	L	L	U
Bacteria & Viruses	U	U	H/M	U	H/M	L	L	U
Oil & Grease	H/M	M	U	U	H/M	M	L/M	U
Pesticides (non-soil bound)	U	U	U	U	U	L	L	U
Metals	H/M	M	H	H	H	L	L	U

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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 [2]	Detention Basins [3]	Infiltration BMPs [4]	Wet Ponds or Wetlands [5]	Filtration Systems [6]	Water Quality Inlets	Hydrodynamic Separator Systems [7]	Manufactured or Proprietary Devices [8]
Sediment/Turbidity	H/M	M	H/M	H/M	H/M	L	H/M (L for Turbidity)	U
Nutrients	L	M	H/M	H/M	L/M	L	L	U
Organic Compounds	U	U	U	U	H/M	L	L	U
Trash & Debris	L	M	U	U	H/M	M	H/M	U
Oxygen Demanding Substances	L	M	H/M	H/M	H/M	L	L	U
Bacteria & Viruses	U	U	H/M	U	H/M	L	L	U
Oil & Grease	H/M	M	U	U	H/M	M	L/M	U
Pesticides (non-soil bound)	U	U	U	U	U	L	L	U
Metals	H/M	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 to for Nutrients and Pathogens**

Pollutant of Concern	Biofilters (2)	Detention Basins (3)	Infiltration BMPs (4)	Wet Ponds or Wetlands (5)	Filtration Systems (6)	Water Quality Inlets	Hydrodynamic Separator Systems (7)	Manufactured or Proprietary Devices (8)
Sediment/Turbidity	H/M	M	H/M	H/M	H/M	L	H/M (L for Turbidity)	U
Nutrients	L	M	H/M	H/M	L/M	L	L	U
Organic Compounds	U	U	U	U	H/M	L	L	U
Trash & Debris	L	M	U	U	H/M	M	H/M	U
Oxygen Demanding Substances	L	M	H/M	H/M	H/M	L	L	U
Bacteria & Viruses	U	U	H/M	U	H/M	L	L	U
Oil & Grease	H/M	M	U	U	H/M	M	L/M	U
Pesticides (non-soil bound)	U	U	U	U	U	L	L	U
Metals	H/M	M	H	H	H	L	L	U

WQMP Page 26

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 [2]	Detention Basins [3]	Infiltration BMPs [4]	Wet Ponds or Wetlands [5]	Filtration Systems [6]	Water Quality Inlets	Hydrodynamic Separator Systems [7]	Manufactured or Proprietary Devices [8]
Sediment/Turbidity	H/M	M	H/M	H/M	H/M	L	H/M (L for Turbidity)	U
Nutrients	L	M	H/M	H/M	L/M	L	L	U
Organic Compounds	U	U	U	U	H/M	L	L	U
Trash & Debris	L	M	U	U	H/M	M	H/M	U
Oxygen Demanding Substances	L	M	H/M	H/M	H/M	L	L	U
Bacteria & Viruses	U	U	H/M	U	H/M	L	L	U
Oil & Grease	H/M	M	U	U	H/M	M	L/M	U
Pesticides (non-soil bound)	U	U	U	U	U	L	L	U
Metals	H/M	M	H	H	H	L	L	U

WQMP Page 26

Filtration BMP will meet the treatment goals

Biofilter BMP + Infiltration BMP will meet the treatment goals

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 2006
    - An excellent source of well-researched information on BMP performance
    - See Report CTSW-RT-06-167.02.02

Summary of BMP Deployment Strategy

DESIGN PROCESS

1. Site Planning and Site Design

- *Minimize impervious land coverage*

Minimize Creation of Runoff

2. Source Control

- *Infiltrate*
- *Retain/detain*
- *Biolfilter*

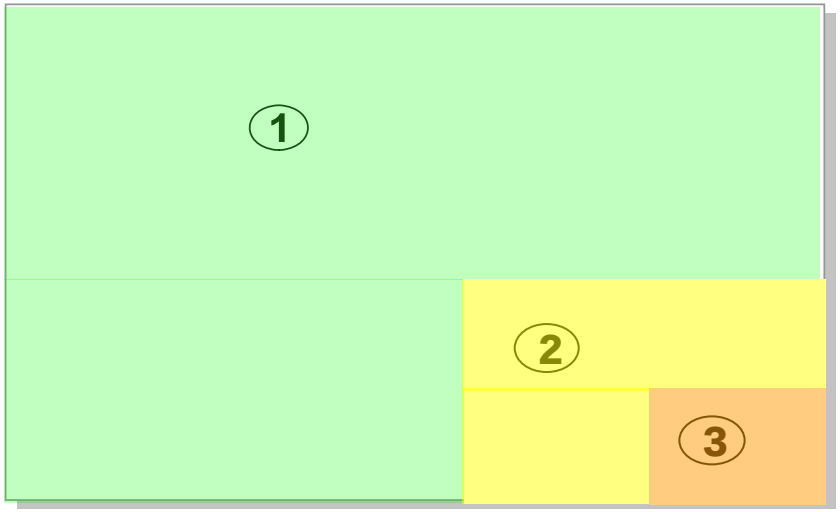
Infiltrate, Retain, Polish Runoff

3. Treatment Control

- *Treat and remove pollutants*

Treat Runoff

RELATIVE EFFECTIVENESS



1. *Site Planning and Design*
2. *Source Control*
3. *Treatment Control*

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

Water Quality Management Plans In Riverside County Basic Training

Hands-On WQMP Exercises

Spring 2008

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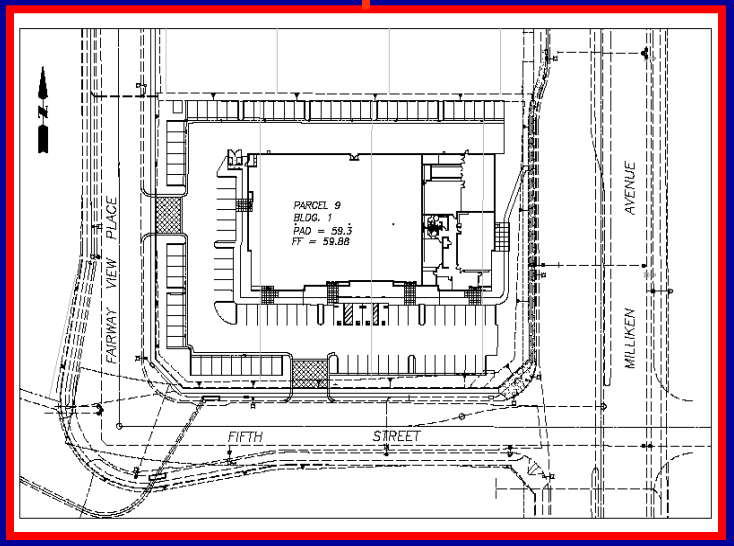

Hands On
Project A – Small Commercial Site

- 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

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

Water Quality Management Plans In Riverside County Basic Training

WQMP Plan Checking

Spring 2008

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  - Water Quality Management Plans

Pop Quiz

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

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

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.

WQMP Plan Check Approach

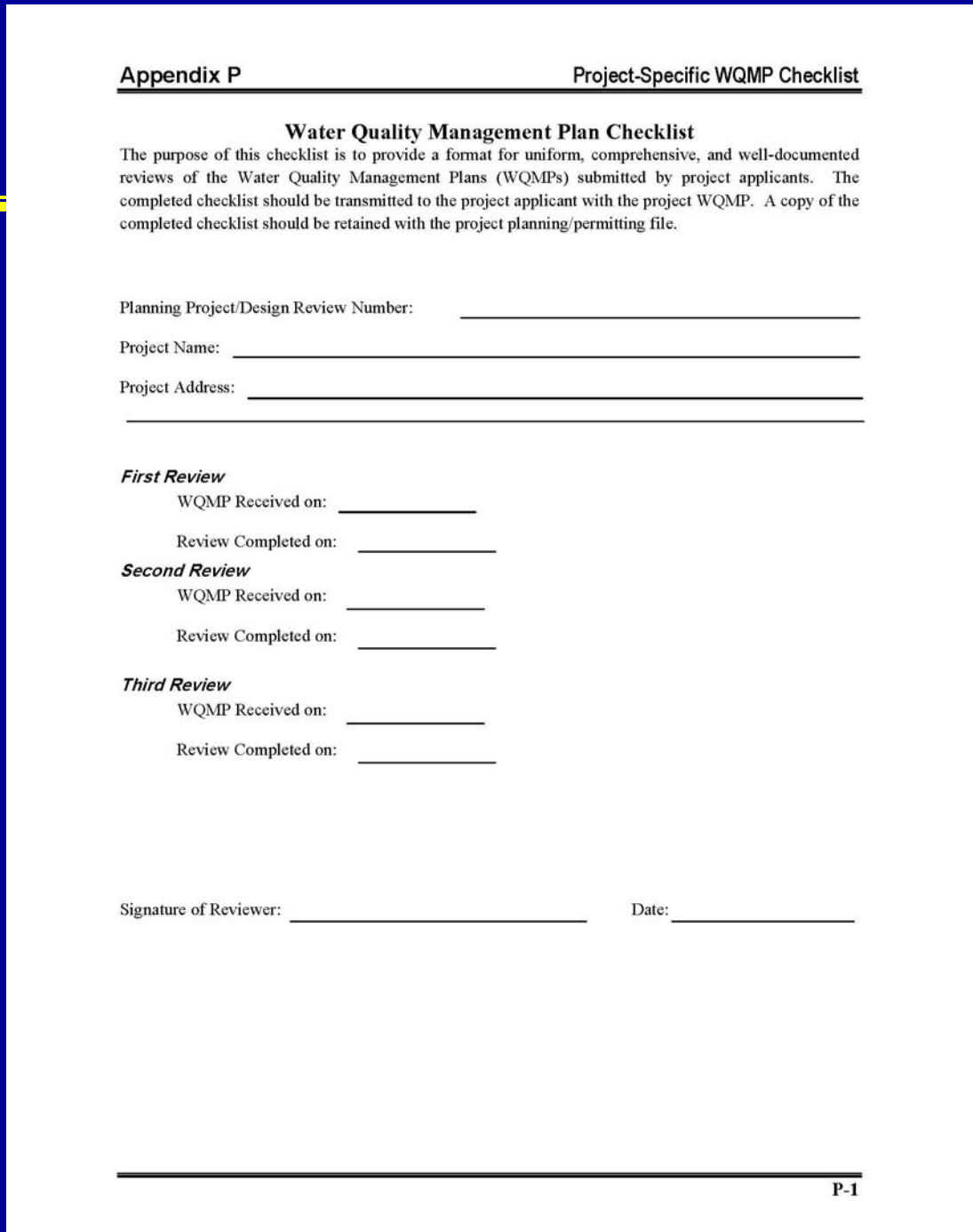
- Interim WQMP Review
  - Interim submittals are likely to be required for most projects as the applicant moves from a Preliminary WQMP to a Final WQMP
  - Review document for appropriate deployment and design of BMPs
    - Review hydrology report
    - Review BMP design calculations
    - Verify BMPs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

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

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



Water Quality Management Plan Checklist

The purpose of this checklist is to provide a format for uniform, comprehensive, and well-documented reviews of the Water Quality Management Plans (WQMPs) submitted by project applicants. The completed checklist should be transmitted 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/Design 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: _____

Water Quality Management Plans
In Riverside County
Basic Training

WQMP and BMP Roundtable Discussion

Spring 2008

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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

We're all done!
Congratualtions!

Water Quality Management Plans In Riverside County Basic Training

Presented by

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