

Storm Water Pollution Prevention Plan (SWPPP) & Water Pollution Control Program (WPCP) Preparation Workshop



Who are we? Who are you?

⇒ Part of Caltrans NPDES' Programs

- Testing
- Sampling
- Monitoring
- GIS
- BMP Design
- Inspections



⇒ Field Compliance provided by the Storm Water Task Force

- 5,000+ Compliance Inspections Statewide
- 10,000+ Trained
- 400+ SWPPPs Prepared/Reviewed

⇒ Audience Introductions

⇒ Your Facilitator

⇒ Rick Sidor, PE, CPESC



Why Are You Here?

- **To Review Past and Current Regulatory Issues**
- **To Learn How Caltrans wants you to Prepare SWPPPs and WPCPs on their construction Sites**
- **To Comply With Permit Requirements for Training**



Course Highlights

- ➔ Introduction
- ➔ Enforcement
- ➔ Regulations
- ➔ Pollutants
- ➔ Review Basic Concepts
- ➔ SWPPP Preparation
- ➔ WPCP Preparation
- ➔ Class Exercises



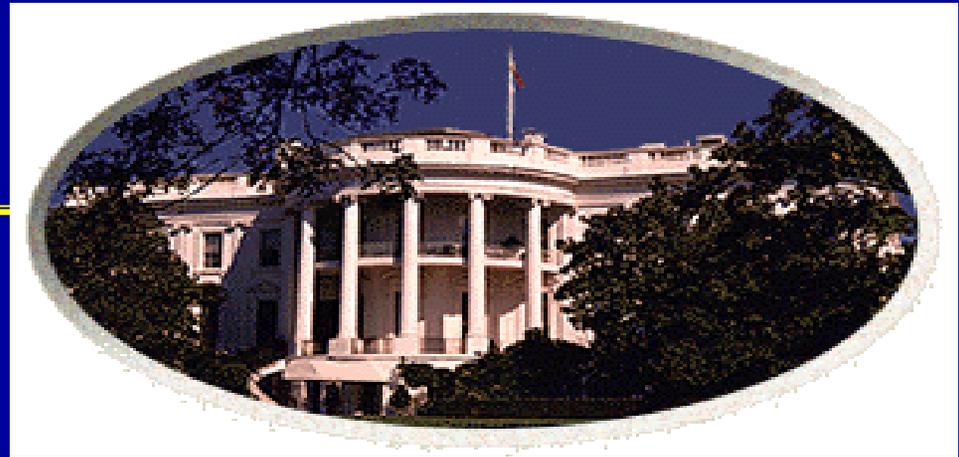
Glossary

- ⇒ **NPDES** - National Pollutant Discharge Elimination System
- ⇒ **SWMP** - Storm Water Management Plan
- ⇒ **SWPPP** - Storm Water Pollution Prevention Plan
- ⇒ **WPCP** - Water Pollution Control Program
- ⇒ **BMP** - Best Management Practice
- ⇒ **EPA** - Environmental Protection Agency
- ⇒ **SWRCB** - State Water Resources Control Board
- ⇒ **RWQCB** - Regional Water Quality Control Board
- ⇒ **NRDC** - Natural Resources Defense Council
- ⇒ **CSWC** – Construction Storm Water Coordinator
- ⇒ **SWTF** - Storm Water Task Force

The Regulations



Regulatory History



➔ In 1948

⇒ Congress passed the first version of the **FEDERAL WATER POLLUTION CONTROL ACT... the Clean Water Act**

➔ In 1972

⇒ A significant amendment to the **FEDERAL WATER POLLUTION CONTROL ACT** established the.....

- **NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES).**

Regulatory History

The FOCUS of NPDES was primarily POINT SOURCES of pollution such as;

- ⇒ SEWAGE TREATMENT PLANTS
- ⇒ PROCESS WASTEWATER from INDUSTRIAL or MANUFACTURING facility.



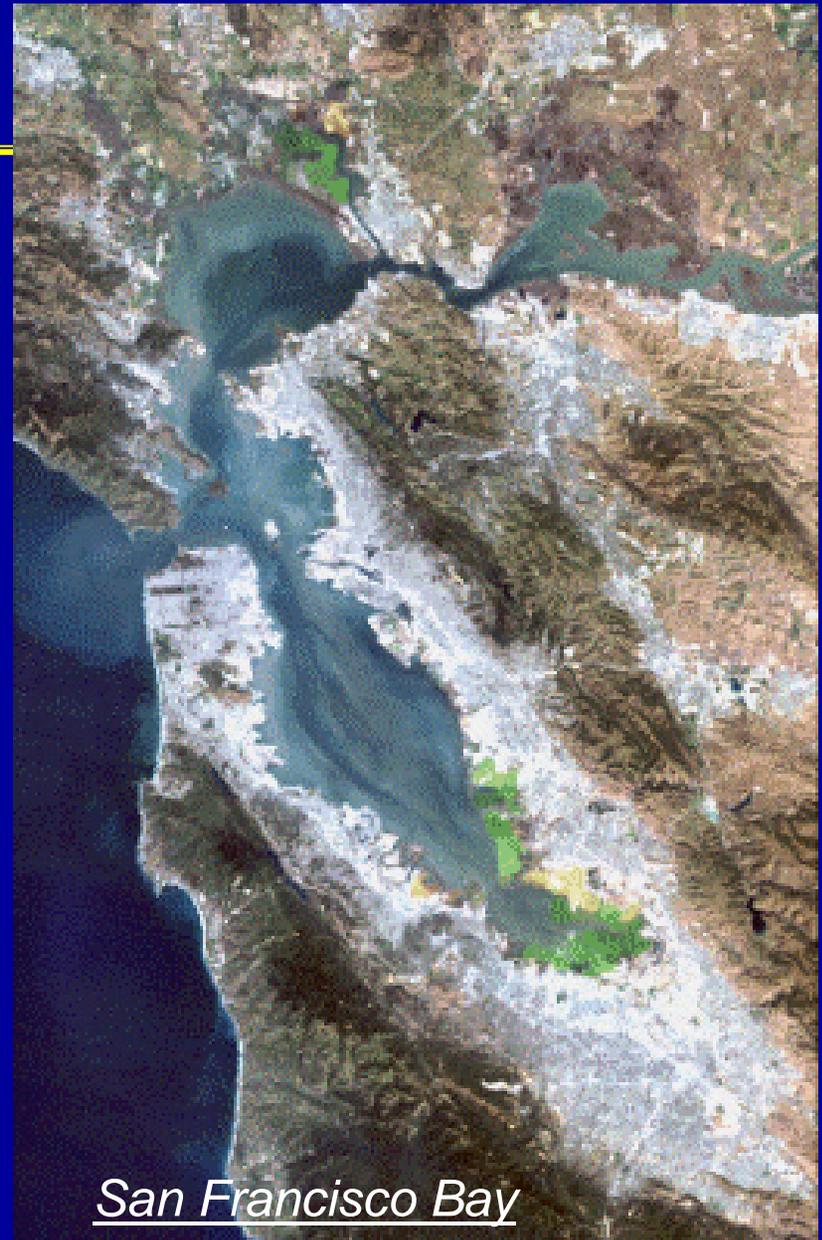
Regulatory History

⇒ After 1972, EPA studies showed that a major contribution to surface water pollution was from:

“NON-POINT SOURCES”

⇒ Such as **STORM WATER RUNOFF** from:

- URBAN
- RURAL
- COMMERCIAL and
- INDUSTRIAL areas.



San Francisco Bay

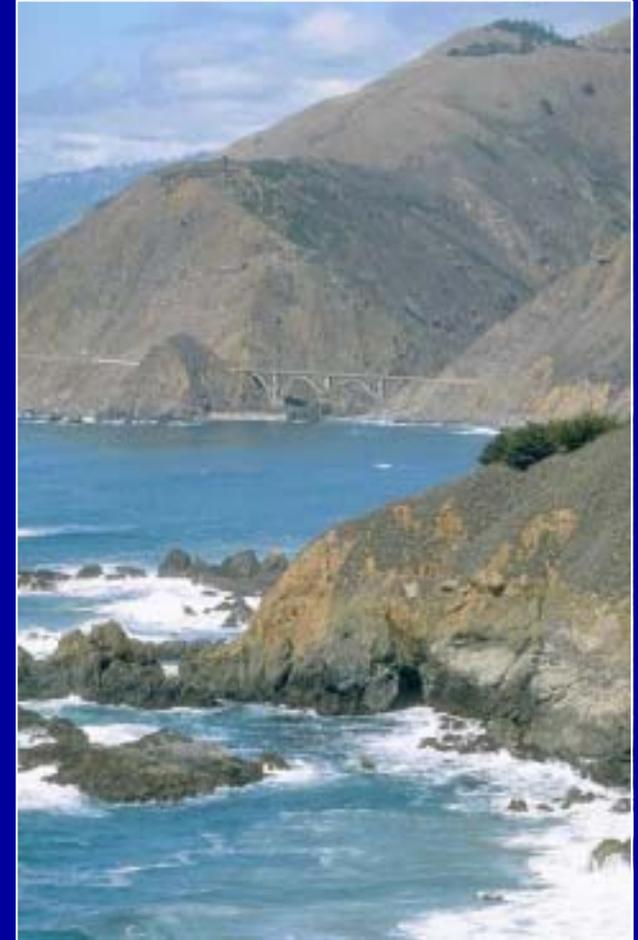
Regulatory History



- **In 1987: Amendments to the CWA**
 - ⇒ Established framework for regulating Storm Water as a Point Source
- **1990 EPA Published Final Regulations**
 - ⇒ Established Permit Requirements for Storm Water Discharges Associated with Industrial (Including Construction) Activities
- **1992 California's General Permit was Adopted**
 - ⇒ Established Requirements for Discharges Associated with Construction Activities
- **1999 New General Permit was issued**
 - ⇒ <http://www.swrcb.ca.gov/stormwtr/construction.html>
- **In addition, California has it's own water quality regulations called the Porter Cologne Water Quality Control Act**
 - ⇒ <http://www.ceres.ca.gov/wetlands/permitting/porter.html>

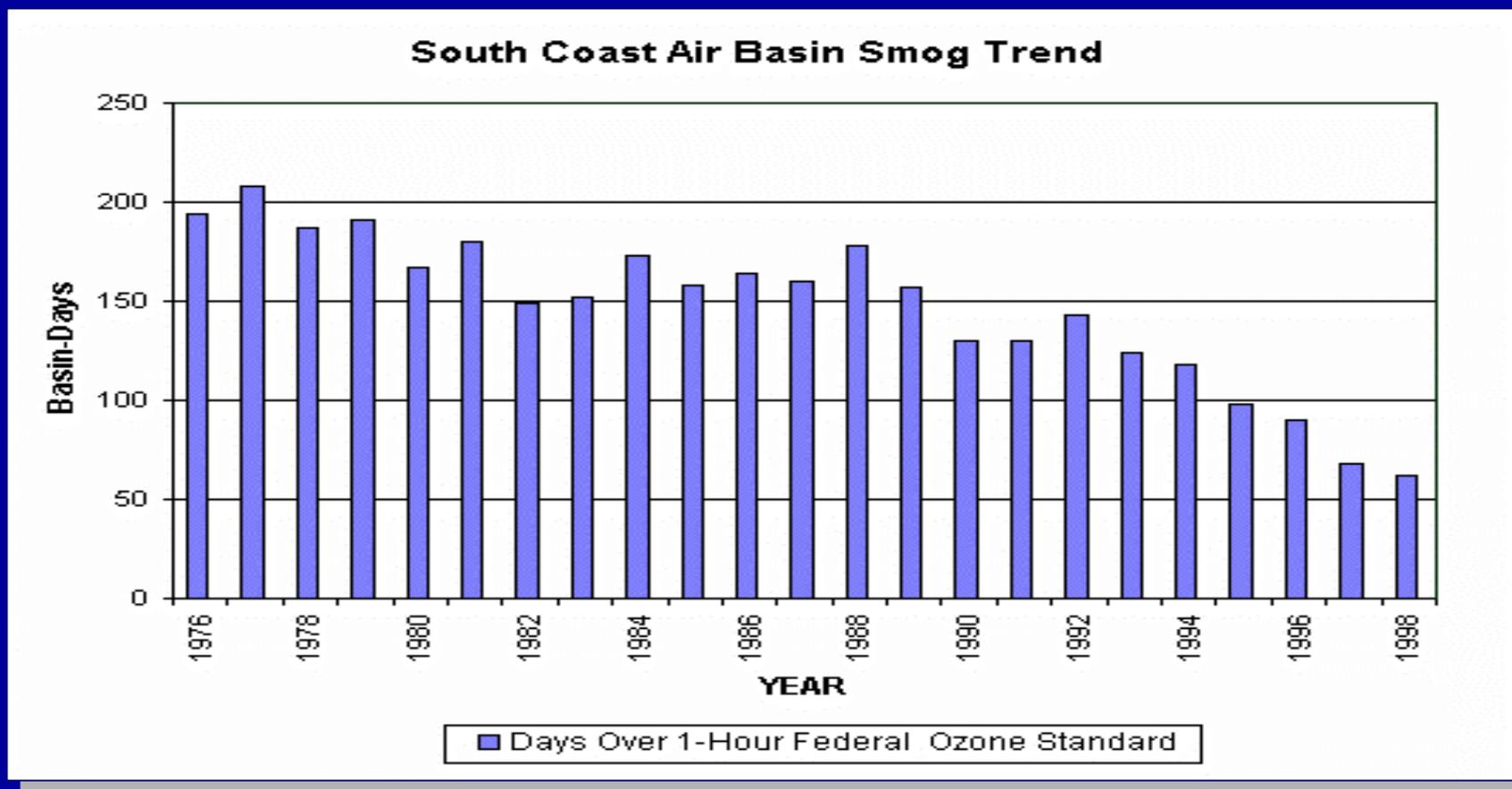
What Do the Regulations Mean in Plain English ?

- ⇒ “Only Rain in The Drain”
- ⇒ No Oil
- ⇒ No Concrete Wastes
- ⇒ No Septic Wastes
- ⇒ No Sediment
- ⇒Only Rain in the Drain



Are The Expectations Realistic?

➔ Look at Southern California's Air Quality improvements



Are Polluted Waters Really a Problem?

- ➔ According to the U.S. EPA, Forty percent of all U.S. waters are not fishable or swimmable.
- ➔ “Even a partial accounting shows that hundreds of millions of dollars are lost each year....due to urban stormwater pollution”

Natural Resources Defense Council



What Are These Regulations Supposed to Do?

⇒ Reduce
Potential
Environmental
and Human
Health Impacts



Who's Affected By the Regulations?

➔ Municipalities

➔ Industries

⇒ Agriculture

⇒ Manufacturers

➔ New Construction

⇒ Relatively minor contributor

⇒ Easy Target !



Enforcement



Who Enforces These Laws?

➔ EPA

⇒ CWA



➔ SWRCB and RWQCBs

⇒ NPDES

- General Construction Permit
- Caltrans Statewide Permit
- Regional Permits

⇒ Porter-Cologne



➔ Caltrans

➔ Local agencies



Who Else Do You Need to Be Concerned With?

➔ Private Citizens

⇒ NRDC



NATURAL RESOURCES DEFENSE COUNCIL

⇒ Baykeepers

⇒ Other Watchdog



⇒ Groups

➔ CWA 1365 gives public the right to sue

⇒ <http://www4.law.cornell.edu/uscode/33/1365.html>

What if We Don't Comply?

⇒ Fines to \$27,500 Per Day

⇒ California is using Porter Cologne:

- \$20k per day
- + \$20 per gallon
- +Cost of their time to inspect

⇒ “Any person who knowingly violates” ...can be fined \$10,000 or imprisoned up to 2 years
CWA Section 309(c)(4)

⇒ Current Regulatory Atmosphere

⇒ “The Learning Curve is Over”

⇒ Staffing Up!



Violation and Order for Compliance 03/96 Home Builder...Southern California

- ➔ ...discharging sediment-laden storm water.....
- ➔failing to properly develop and implement an effective SWPPP....
- ➔ Total Liability:
 - ⇒ 165 days x \$10,000/day = \$1,650,000



\$20,000

Violation and Order for Compliance 06/98 Caltrans Contractor

- ⇒ “...excessive amounts of sediment to the storm drain...”
- ⇒ ““...discharge of... miscellaneous construction debris to ...Creek and ... River.”
- ⇒ “ A sheen of fuel floating on the storm water was observed ponding in the area of asphalt patching approximately 40 feet from a drain inlet.”
- ⇒ SWPPP was deficient



Violation and Order for Compliance 08/00 Sacramento County

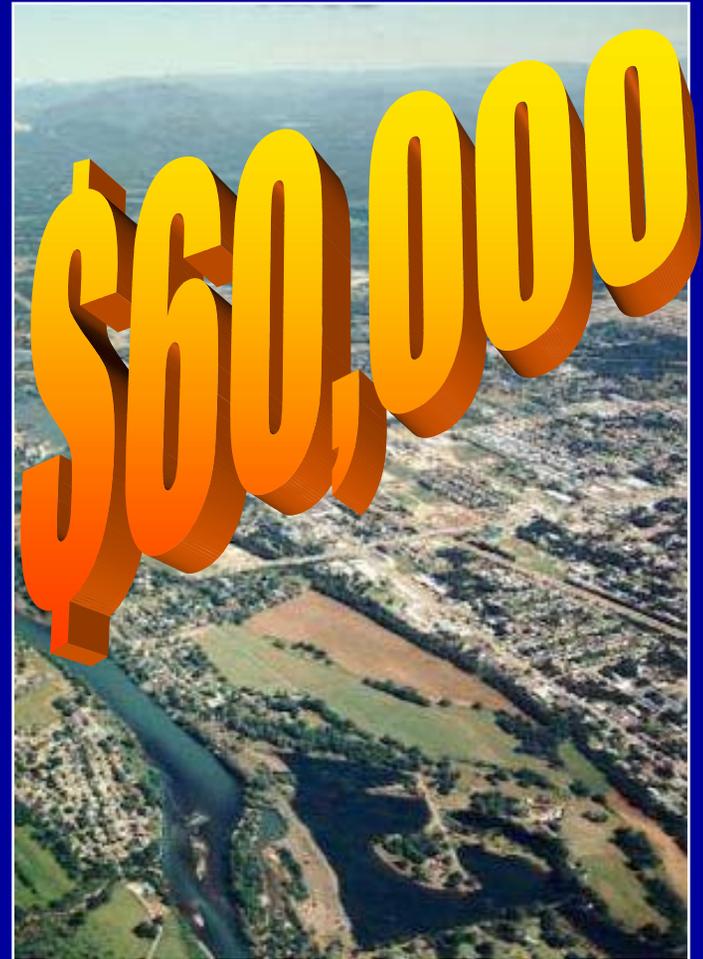
- ⇒ Lower Laguna Bypass
Roadway Construction
- ⇒ “Violated permit for
discharges of sediment”
- ⇒ “Failed to Develop a SWPPP”



\$52,400

Violation and Order for Compliance 12/00 Home Builder...Redding

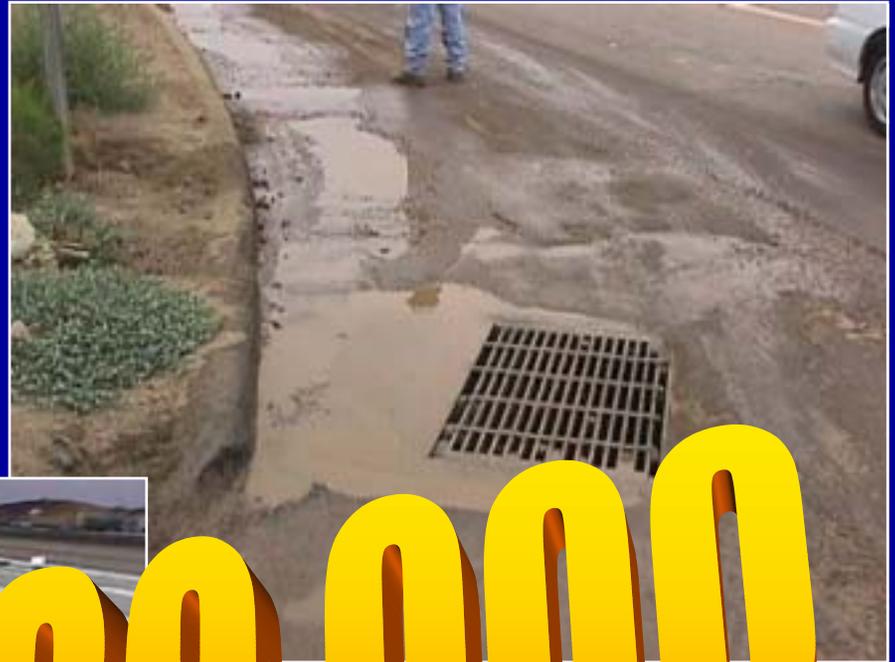
- ➔ “No effective erosion control and minimal sediment control measures....”
- ➔ The SWPPP was not properly implemented
- ➔ Notes:
 - ⇒ EPA visited the site in 1998 and 1999
 - ⇒ RWQCB issued two prior violation notices that went unheeded



Violation and Order for Compliance, 1998 District 11

➔ “..sloppy runoff-control practices at Caltrans construction sites, drainage facilities and maintenance yards”

San Diego Baykeeper



\$430,000

Violation and Order for Compliance 09/00 City of San Diego

- ➔ “Failing to curb erosion along a dirt road above the Los Penasquitos Lagoon”



USEPA Enforcement Action June, 2001

Walmart

⇒ Order to:

- ⇒ comply with environmental laws at each of its construction sites
- ⇒ minimize the impact of its building on streams and watersheds



\$1 million

+\$45 Million Plan

Southern California Builder San Diego regional Board Hearing 7/18/01

- ➔ Failed to get Permits
- ➔ Failed to Control Erosion and Runoff
- ➔ Total Liability:
 - ⇒ \$26.5 Million

\$12 million

The Pollutants



What Pollutants Come From Construction?



Traditional “Erosion Control” -The old way

➔ Sandbags after grading



➔ Hydroseed Slopes When Done With the Job



Is Sediment Really a Problem?



- ➔ YES!!!!!!
- ➔ Excessive Amounts of Sediment Can Block Sunlight and Be Harmful to Aquatic Life.
- ➔ Sediment Can Cause Flooding.....
- ➔ Other Pollutants Can Attach to Sediment and Be Carried Into Receiving Waters.

Introduction

- ⇒ Sediment, the most common pollutant washed from construction sites, clogs the gills of fish, blocks light transmission and increases ocean water temperature
.....harming aquatic life, and disturbing the food chain



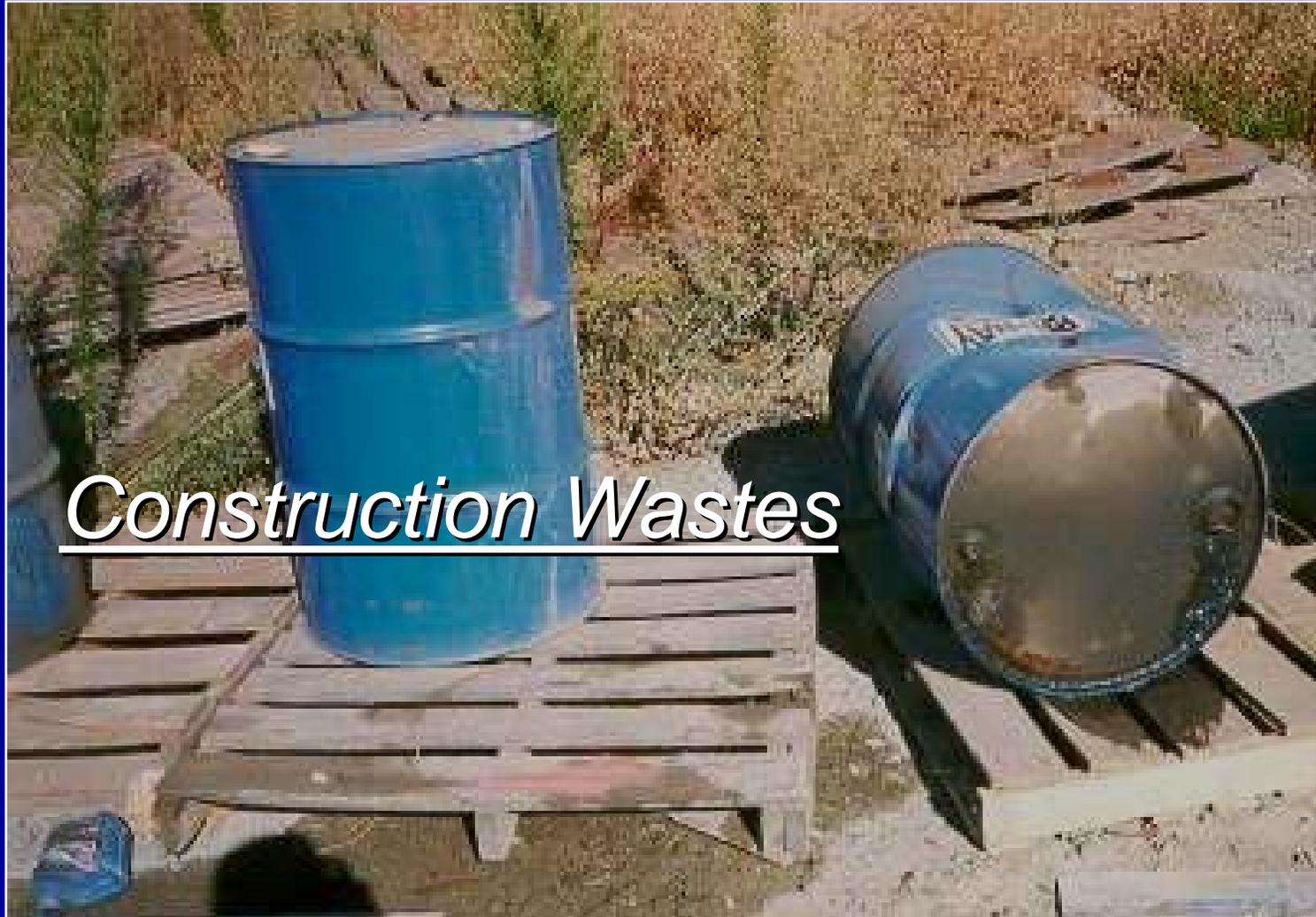
Introduction

➔ Construction site erosion can be 10 to 1,000 times greater than nature's erosion process

Ohio Department of Transportation



What Other Pollutants Should We Be Concerned With in Construction?



Historically “Pollution Control” Has Not Been a Priority During Construction

- Yard/Storage Areas
- Equipment Maintenance



- Concrete Washouts In or Near Storm Drain Inlets



Are these a big deal on Construction Sites?

- ➔ YES!!!!!!
- ➔ These Pollutants can be more harmful to humans and aquatic life than Sediment

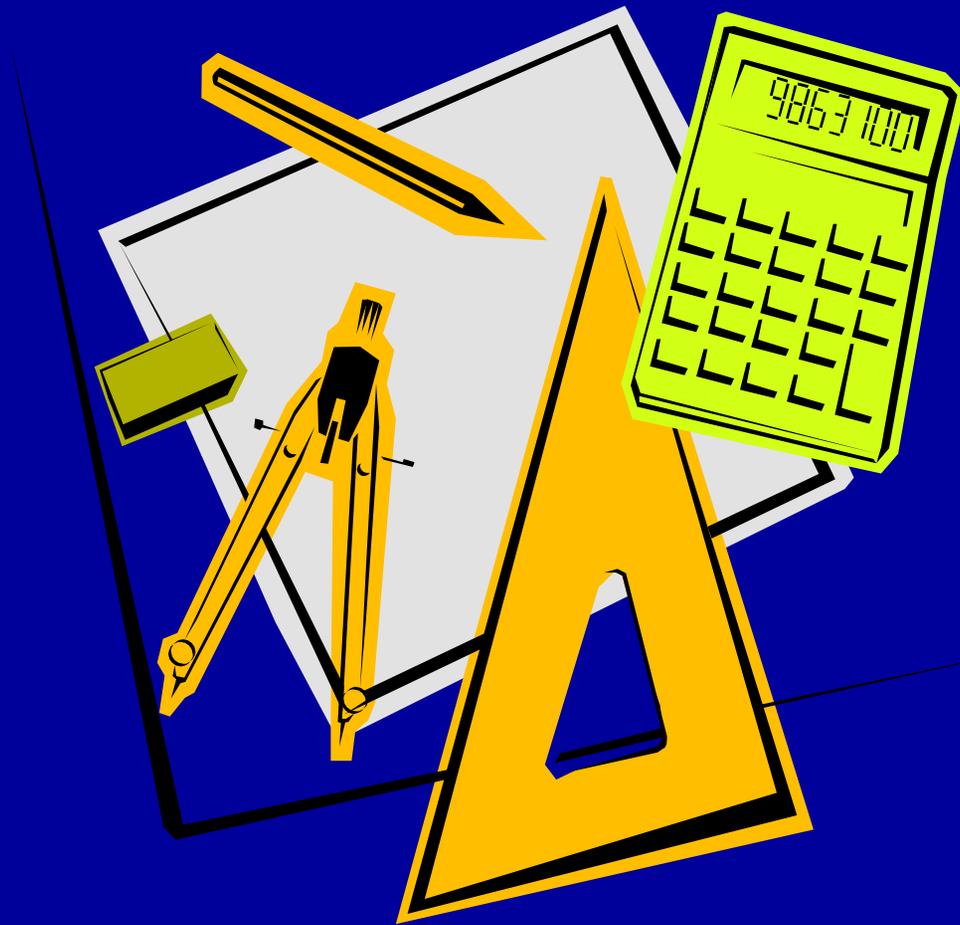


How Can We Minimize the Risk on Our Project?

- ➔ Know Your Enemy.....Pollution (Not Caltrans, Not the Regulators, Not Even the Watchdog Groups)
- ➔ Contain the Enemy.....Stop Pollution at the Source
- ➔ Capture Enemies.....Trap Sediment and Other Pollutants Before They Leave the Site
- ➔ It All Starts With a Good Plan



Review of Some Basic Concepts



Best Management Practices (BMP) Basics

Six BMP Categories

1. Temporary Soil Stabilization (Erosion Control)
2. Temporary Sediment Control
3. Wind Erosion Control
4. Tracking Control
5. Non-Storm Water Management
6. Waste Management and Materials Pollution Control

Best Management Practices (BMP) Basics

These three must be better understood

1. **Temporary Soil Stabilization (Erosion Control)**
2. **Temporary Sediment Control**
- 3.
- 4.
5. **Non-Storm Water Management**
- 6.

The Permit Requires the Control of Non-Storm Water Discharges.

⇒ What is Non-Storm Water?

⇒ Water that doesn't originate from a storm

- Hydrant Flush Water
- Wash Water
- Concrete sawcut slurry
- Water used for dust control
- Septic Waste
- Chemical Spills
- Dewatering Groundwater



Erosion Control vs Sediment Control

➔ The Permit Requires:

⇒ “...an effective Combination”

of Erosion and Sediment

Control for all disturbed

areas



A Very Important Concept for SWPPP Preparers: Erosion Vs Sediment

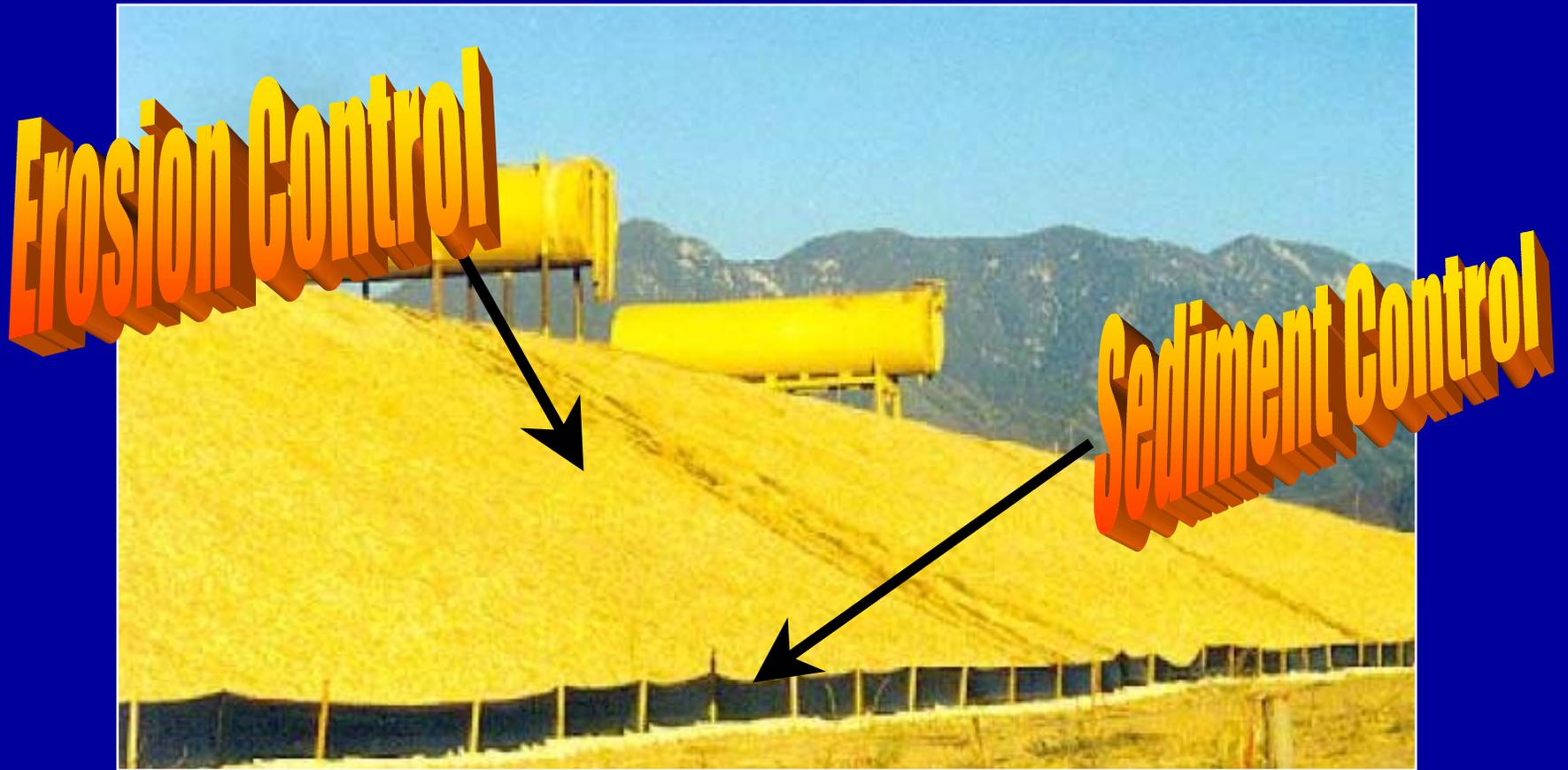
Erosion



Sediment

Erosion Control and Sediment Control

What's The Difference?



- ➔ Erosion Controls **Prevent/Reduce Erosion**
- ➔ Sediment Controls **Capture/Contain Sediment**

Why Aren't Sediment Controls Good Enough Anymore?

- ➔ Erosion Control (Covering the Soil) Is Typically 90-98% effective
- ➔ Sediment Basins (A sediment Control) Can be 70-90% effective
- ➔ Traditional Sediment Controls (Silt fence, Sand bags, etc.) are typically 40-50% effective when properly installed and maintained

– Ohio Dept. of Transportation



Class Exercise...Test your Understanding:

1. Erosion Control or Sediment Control?



7 pictures....fill in the appropriate box... we'll review when done

2. Erosion Control or Sediment Control?



3. Erosion Control or Sediment Control?



4. Erosion Control or Sediment Control?



5. Erosion Control or Sediment Control?



6. Erosion Control or Sediment Control?



7. Erosion Control or Sediment Control?



 Review

Class Exercise Results

⇒ Right Answers:

⇒ 6-7 **Go Home Now**

⇒ 4-5 **Pretty Good**

⇒ 2-3 **Cheat next time**

⇒ 0-1 **It's gonna be a long class**



Break

The Plan

Specs

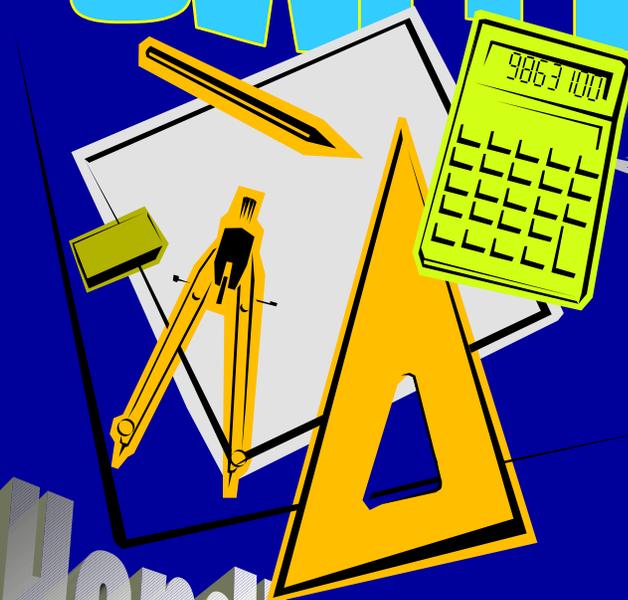
SWPPP

SWMP

WPCP

Handbooks

Specials



Where do I Start?

⇒ Standard Specifications

⇒ All Caltrans Project Require a Water Pollution Control Program

⇒ Plans and Special Provisions

⇒ Defines Project Specifics

⇒ Storm Water Quality Handbooks

⇒ SWPPP/WPCP Preparation Guide

⇒ BMP Handbook



Caltrans Standard Specifications



➔ Section 7-1.01G Water Pollution

➔ Related Sections

⇒ Section 10-1 Dust Control

⇒ Section 16-1 Clear and Grubbing

⇒ Section 18-1 Dust palliatives

⇒ Section 20-1 Erosion Control and Highway Planting

Project Plans

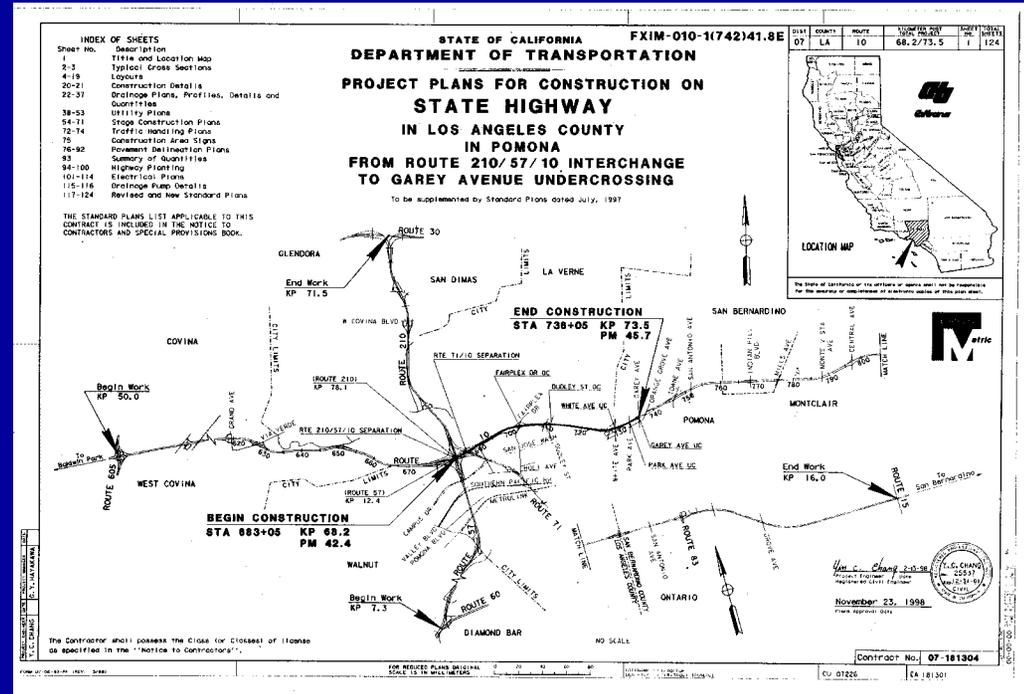
⇒ Important Sections:

⇒ Layout

⇒ Grading

⇒ Drainage

⇒ Water Pollution Control (on some projects)

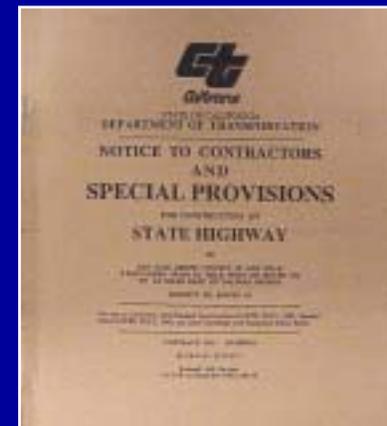


Contract Special Provisions

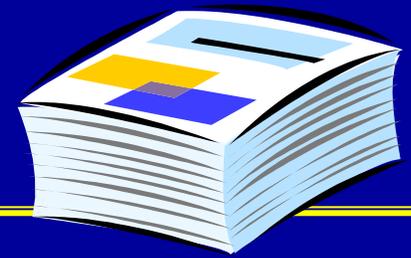
⇒ Section 10-1.0x

⇒ Defines Specific Water Pollution Control Requirements

- Statewide or Local Permit, Other Agency Permits
- Timeframe for submitting plan
- Winter Season
- Active and non-active disturbed soil area limitations
- Progress Payments
- Additional required BMPs
- Penalties for non-compliance
- Move In/Out (Erosion Control)
- Handbooks to Use
- SWPPP or WPCP



What Is a SWPPP?

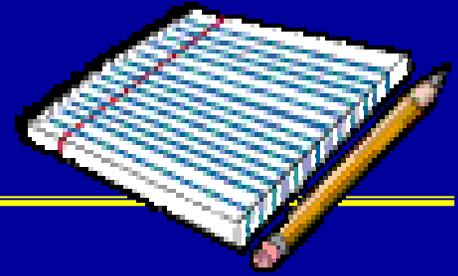


⇒ Storm Water Pollution Prevention Plan

⇒ A Lengthy, Detailed Document

- Required on jobs with soil disturbance of 2 ha (5ac) or more
- Jobs with soil disturbance under 2 ha may require a SWPPP
 - In or near a water body
 - Single phase or segment of a large project
- Covers Requirements of the NPDES Permits

What Is a WPCP?



⇒ Water Pollution Control Program

⇒ Short version of a SWPPP

- For projects with less than 2 ha (5ac)* of soil disturbance
 - Not governed by the General Permit

*Goes to 1 acre in 2003

SWPPP/WPCP Preparation Manual



- ➔ **Section 1** Brief Introductory Section
- ➔ **Section 2** Discussion and SWPPP Preparation
Instructions
- ➔ **Section 3** Discussion and WPCP Preparation
Instructions
- ➔ **Appendix A** Attachments for use in preparing a SWPPP
- ➔ **Appendix B** Abbreviations, acronyms, and definitions

Construction Site BMP Manual



- ➔ **Section 1** **Caltrans Approved BMPs**
- ➔ **Section 2** **Selecting and Implementing BMPs**
- ➔ **Sections 3-8** **Working Details for BMPs**
- ➔ **Appendix A** **Abbreviations, Acronyms, and Definitions**

Where do I get the Handbooks?

➔ Manuals can be purchased from Caltrans

Publications.

<http://caltrans-pac.ca.gov/publicat.htm>

➔ Or downloaded in Adobe format:

⇒ <http://www.dot.ca.gov/hq/construc/stormwater.html>

⇒ Be Patient...downloads can be slow



The Manuals Include a SWPPP Template

⇒ Each Section has:

1. **INSTRUCTIONS**Telling you what is necessary in that section
2. **REQUIRED TEXT** Telling you exactly what verbiage to use in the document

⇒ Some sections have:

3. **EXAMPLES** Showing you what the section might include

Example Look at Section 300

But It's in Adobe. Do I Have to Re-type the Whole Thing?



⇒ No !!!!!

⇒ You can download an electronic version of the SWPPP template MS Word format

- <http://www.dot.ca.gov/hq/construc/stormwater.html>

⇒ Note: The attachments are not currently downloadable in MS Word

Let's look at the SWPPP Template

- ⇒ What does the downloaded version of the SWPPP template will look like?
- ⇒ It's the same thing as in Section 2 of the SWPPP Preparation Manual Starting at page 7 ...but in color!
- ⇒ How much easier can this get?
 - All you do is edit!
- ⇒ [Hyperlink to SWPPP Template](#)



I've got my stack of books. What else do I need?



Gather all pertinent information and materials.

- ✓ Job site address and phone number.
- ✓ Construction start date and projected completion date.
- ✓ CPM schedule.
- ✓ Name of person responsible for SWPPP.
- ✓ Training History
- ✓ List of subcontractors -- name, address, phone, cellular phone, and person responsible for Water Pollution Control.
- ✓ Name and phone number of resident engineer.
- ✓ Copies of environmental permits (dept. Of fish & game, army corps, local agency flood permits), if any.
- ✓ Notification of Construction (NOC).
- ✓ Soils/Geotechnical report.
- ✓ Materials report.
- ✓ Drainage report or other documentation depicting drainage patterns and offsite flow calculations.

How Long Will It Take to Prepare the SWPPP?



➡ First Timers- It can be a struggle.

➡ Once you get the hang of it....

⇒ 2-3 Days to gather information from RE, Subs, etc.

⇒ 2-3 Days to Study the plans, permits, etc and put together the text and drawings.

⇒ A day or two to get it typed up.

How Long Will It Take to get the SWPPP approved?

- ➔ Caltrans will review (usually within 10 days) and provide a short list of comments/ revisions/ clarifications.



- ➔ Figure 2-3 days to address their comments and resubmit for approval.
- ➔ Hopefully no further revisions....be thorough!

Preparing a SWPPP



Preparing a SWPPP

⇒ **3 Ring Binder**

⇒ **SWPPP Sections**

⇒ **Title Page**

⇒ **Section 100...Certifications and Approvals**

⇒ **Section 200....Amendments**

⇒ **Section 300....Introduction/ Project Description**

⇒ **Section 400....Reference Section**

⇒ **Section 500....Body of SWPPP**

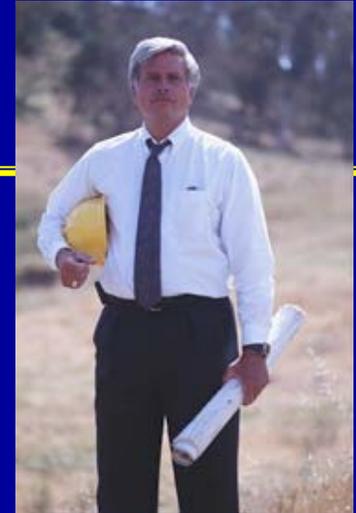
⇒ **Section 600 Monitoring Program and Reports**

⇒ **Appendices**

⇒ **Open your SWPPP/WPCP Manual to Section 2**

Title Page/ Table of Contents

- ➔ Job Site Address & Telephone Number
- ➔ Name of Contractors Water Pollution Control Manager (WPCM)
 - ⇒ This person is responsible for WPCP implementation, inspections, and repairs
- ➔ Name of Company That Prepared The SWPPP
 - ⇒ If prepared by an outside consultant, include name and title of preparer
- ➔ SWPPP Preparation Date
- ➔ Follow the Instructions



Section 100 SWPPP Certification and Approval

⇒ 100.1 Initial SWPPP Certification

⇒ By Contractor.....officer or authorized representative

⇒ 100.2 SWPPP Approval

⇒ By Resident Engineer

⇒ Use the Exact Format Provided in the Template

⇒ 100.3 Annual Certification of Compliance

⇒ Instructions for Submittal

- June 15th
- Submitted by Contractor/ Approved by RE

⇒ Include the Sample Form in Attachment M

- Note: Certification under penalty of fine or imprisonment



Section 200 SWPPP Amendments

- 200.1 SWPPP amendment certification and approval
 - ⇒ Instructions describing when to amend
 - Change in construction that may affect discharge
 - Permit violation
 - Annually, when required in the special provisions
 - RE directive
 - ⇒ Instructions describing what to include in the amendment
 - Letter describing amendment
 - Revised drawings (WPCDs)
 - ⇒ Amendment certification form
 - Signed by contractor and RE
- 200.2 Amendment log
 - ⇒ Log changes
- Include Blank forms in SWPPP and Log for the Field Staff to Use



Section 300 Introduction and Project Description

➔ 300.1 Intro and Project Description

⇒ Project Name, Location and Brief Description of Work

- You can Usually find a good description on the first page of the Special Provisions



Section 300 Introduction and Project Description

➔ 300.2 Unique Site Features

⇒ List Water Bodies, wetlands, endangered species, etc

- Review USGS map
- Review plans for water courses, ESAs
- Review any permits (ACOE, DFG)



Section 300 Introduction and Project Description

➔ 300.3 Construction Site Estimates

- ⇒ Area Calculations
- ⇒ Runoff Coefficients
 - See Attachment D
- ⇒ Impervious Areas Calculations
- ⇒ Run-on
 - Obtain Drainage Report or
 - See Attachment E



[link to att c and e](#)

Section 300 Introduction and Project Description

⇒ 300.4 Project schedule/ WPC schedule

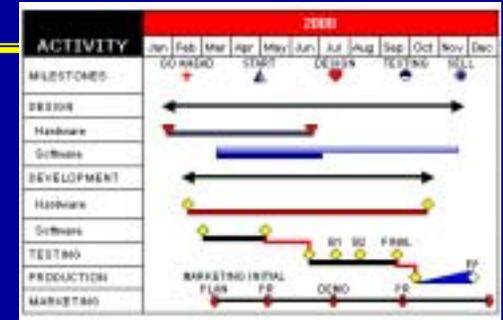
⇒ Written or graphical

- Major construction activities
- Water pollution control activities
- Certification dates
- Rainy season

⇒ Lets look at the Examples in the Manual

- Samples Also Downloadable

– http://www.dot.ca.gov/hq/construc/Sect_2_Pg_25_WPC.pdf



Section 300 Introduction and Project Description

➔ 300.5 Contact Information/

Responsible Parties

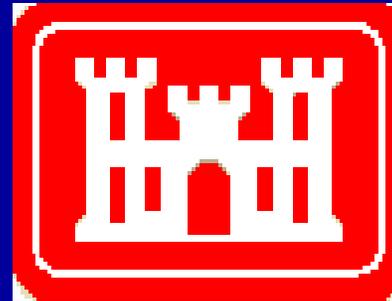
- ⇒ Water Pollution control Manager
- ⇒ Others responsible
- ⇒ List Persons and their Responsibilities



Section 400 References

➔ List:

- ⇒ Project Plans and Specs
- ⇒ NPDES Permit(s)
- ⇒ Handbooks
- ⇒ CSWPPP (if any)
- ⇒ 401 certification
- ⇒ USACE
- ⇒ Calif dept of Fish and Game 1603/1601
- ⇒ Local Flood Control Dist.



Section 500 Body of SWPPP

⇒ 500.1 Objectives of SWPPP

⇒ Simply copy verbiage in the template

⇒ Identify Pollutant Sources

⇒ Identify Non-Storm Water Discharges

⇒ Identify and Construct BMPs

⇒ Develop Maintenance Program

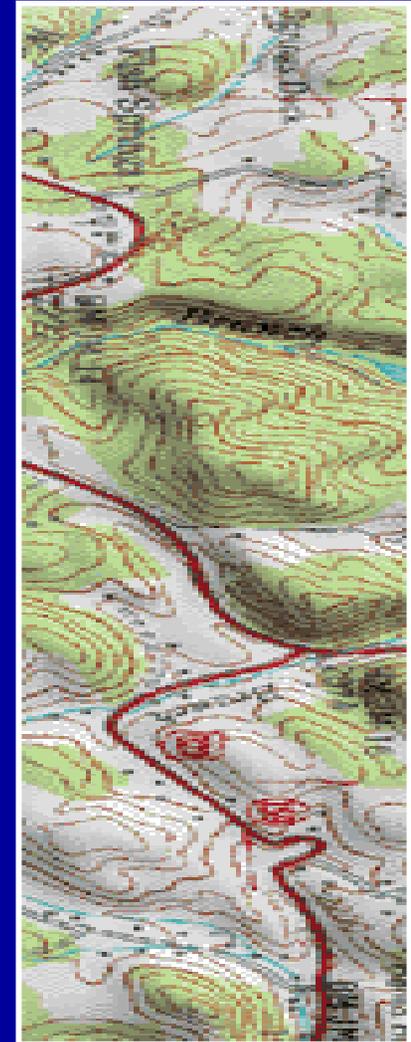
Section 500 Body of SWPPP

⇒ 500.2 Vicinity Map

⇒ Use USGS or Equal

⇒ Show:

- Perimeter
- Topo
- Roadways
- WaterBodies
- Offsite Drainage Areas



Section 500 Body of SWPPP

500.3 Pollutant Sources

⇒ 500.3.1 Inventory of potential pollutants

⇒ List Materials

⇒ List Activities

- Sediment generating activities
- Other Potentially polluting activities
 - Paving
 - Painting, etc.



Section 500 Body of SWPPP

➔ 500.3.2 Existing Control Measures

⇒ List any known:

- Basins
- Slope Paving
- RSP
- Lined Ditches

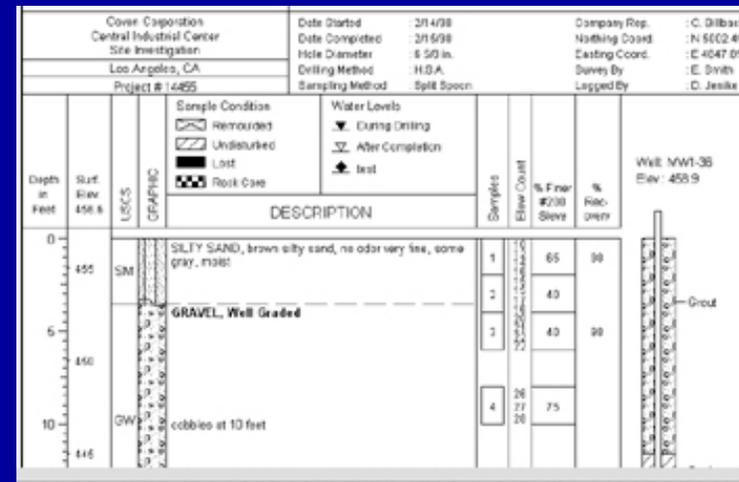


Section 500 Body of SWPPP

500.3.3 Nature of Fill Material/ Data on Existing Soil

⇒ Identify:

- Soil types
 - From Soils report or borings
- Known Past Pollutants
 - ADL
 - Spills
 - See Materials Report and Special Provisions



Section 500 Body of SWPPP

500.3.4 Soil Stabilization (Erosion Control)



⇒ Select Temp
Stabilization BMPs

⇒ Step 1: Go to
Checklist in
Attachment “C”

- Shows
Minimum
Requirements

Insert graph like attachment c

TEMPORARY SOIL STABILIZATION BMPs						
BMP No.	BMP	Minimum Requirement (2)	Check if Contract Requirement	Check if Used	Check if Not Used	If not used, State Reason
SS-1	Scheduling					
SS-2	Preservation of existing vegetation					
SS-3	Hydraulic Mulch					
SS-4	Hydroseeding					
SS-5	Soil Binders					
SS-6	Straw Mulch					
SS-7	Geotextiles, Plastic Covers & Erosion Control Blankets/Mats					
SS-8	Wood					
SS-9						
SS-10						
SS-11						

Section 500 Body of SWPPP

500.3.4 Soil Stabilization (Erosion Control)



➔ Select Temp Stabilization BMPs

⇒ Step 2: Go to Section 2 of the BMP Manual

- These Charts will give you BMP requirements based upon the location of your project

⇒ Class Exercise

Section 2
Selecting and Implementing Construction Site BMPs

- Slope inclination 1:2 (V:H) or greater at intervals, no greater than 100 feet.
- For non-active DSAs, permanent stabilization shall be complete during the construction phase.
- Provide construction site BMPs to control concentrated flows in a non-erosive manner.

AREA	DESCRIPTION
1	District 1 in the following areas: all of Del Norte and Humboldt Co. within 20 miles of the coast in MA
2	District 1 (except within Area 1) District 2 within the North Coast and Districts 3, 4 and 5
3	District 1 (except within Area 1) District 2 within the North Coast and Districts 3, 4 and 5
4	District 6 within the Central Valley District 7 within the Central Coast District 8 within the Santa Ana and District 10 District 11 within the San Diego RV District 12
5	District 6 within the Central Valley District 7 within the Central Coast District 8 within the Santa Ana and District 10 District 11 within the San Diego RV District 12
6	Statewide
7	District 6 within the Laborers RWQCD District 7 within the Laborers RWQCD District 8 within the Laborers and C District 9 within the Laborers RWQCD District 11 within the Colorado River

DESIGNATION

Section 2
8 of 10

Construction Site Best Management Practices Manual
November 2005

Section 2
3 of 10

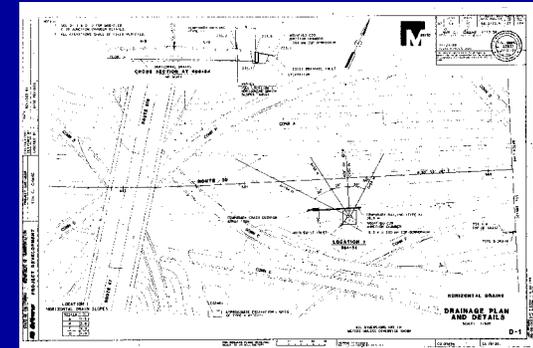
Section 500 Body of SWPPP

500.3.4 Soil Stabilization (Erosion Control)



⇒ Step 3: Create WPCDs from Project Plans

- ⇒ Grading and Drainage Plans work best
- ⇒ Otherwise use Layout Plans
- ⇒ Identify locations of slopes and concentrated flow areas that will require temp soil stabilization
- ⇒ Class Exercise later



Section 500 Body of SWPPP

500.3.4 Soil Stabilization (Erosion Control)



➔ Step 4: Describe Selected Temp Stabilization BMPs

- ⇒ Use Required Text
- ⇒ List additional BMPs that you've chosen through previous steps
 - Vegetation Preservation
 - Temp Soil Stabilization
 - Concentrated Flows

➔ Step 5: Discuss:

- ⇒ Availability of Soil Stabilizers
- ⇒ Plan for Mobilizing Resources



➔ Step 6: Go back to attachment C and Check off the Selected BMPs

Section 500 Body of SWPPP

500.3.5 Sediment Control



⇒ Select Sediment Controls BMPs

- ⇒ Step 1: Again, Go to Checklist in Attachment “C”
- Shows Minimum Requirements

Insert graph like attachment C

Section 500 Body of SWPPP

500.3.5 Sediment Control



➔ Select Sediment Control BMPs

⇒ Step 2: Again, Go to Section 2 of the BMP Manual

- BMP requirements based upon the location of your project

⇒ Class Exercise

Section 2
Selecting and Implementing Construction Site BMPs

- Slope inclination 1:2 (V:H) or greater at intervals no greater than 100 feet
- For non-active DSAs, permanent sediment control structures shall be installed and substantially complete during the construction phase
- Provide construction site BMPs to control sediment from concentrated flows (e.g., non-erosion control structures)

AREA	DESCRIPTION
1	District 1 in the following areas: all of Del Norte and Humboldt Counties within 20 miles of the coast in Mendocino, Siskiyou, and Curry Counties
2	District 2 (except within Area 1) District 2 within the North Coast and Districts 3, 4 and 5
3	District 3 (except within Area 1) District 3 within the North Coast and Districts 2, 4 and 5
4	District 4 within the Central Valley District 4 within the Central Valley District 4 within the Santa Ana and District 10 District 4 within the San Diego RV District 4
5	District 5 within the Central Valley District 5 within the Central Coast District 5 within the Santa Ana and District 10 District 5 within the San Diego RV District 5
6	Statewide
7	District 6 within the Laborers ROW District 7 within the Laborers ROW District 8 within the Laborers and C District 9 within the Laborers ROW District 11 within the Colorado River

Section 2
6 of 10

Section 2
3 of 10

Section 2
3 of 10

Section 2
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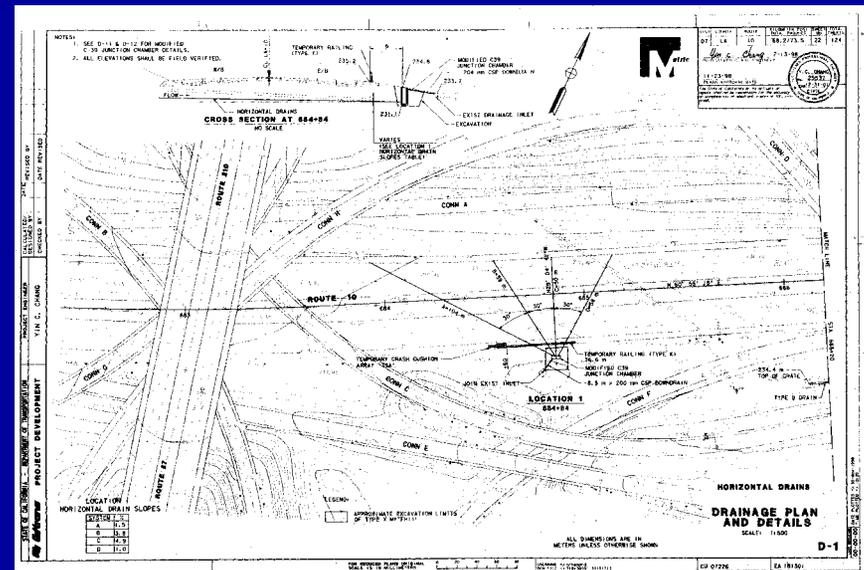
Section 500 Body of SWPPP



➔ 500.3.5 Sediment Control

⇒ Step 3: Again, Go to Your Plans (WPCDs)

- Identify locations of perimeter controls, basins, inlet protection, etc.
- Class Exercise Later



Section 500 Body of SWPPP

500.3.5 Sediment Controls



➔ Step 4: Describe Selected Sediment Control BMPs

⇒ Use Required Text

⇒ List additional BMPs that you've chosen through previous steps

- Basins
- Fiber Rolls
- Check Dams



Section 500 Body of SWPPP

500.3.5 Sediment Controls



- ➔ Step 5: If you are using Basins, provide Sizing Calculations
 - ⇒ Options
 - ⇒ Class Exercise

Section 500 Body of SWPPP

500.3.5 Sediment Controls



➔ Step 5: Discuss:

- ⇒ Availability of Sediment Controls
- ⇒ Plan for Mobilizing Resources

➔ Step 6: Go back to attachment C and Check off the Selected BMPs

Section 500 Body of SWPPP

500.3.6 Tracking Control



- ➔ Step 1: Again, Go to Checklist in Attachment “C”
 - Shows Minimum Requirements-Sweeping
 - Note SC-7, Sweeping and Vacuuming is a required minimum
- ➔ Step 2: Again, Go to Your Plans (WPCDs)
 - ⇒ Identify known locations of egress points
- ➔ Step 3: Describe Tracking Control BMPs
 - ⇒ Use Required Text
 - ⇒ List additional BMPs that you’ve chosen through previous steps
- ➔ Step 4: Go back to attachment C and Check off the Selected BMPs

Section 500 Body of SWPPP

500.3.7 Wind Erosion Controls



- ➔ Step 1: Again, Go to Checklist in Attachment “C”
 - ⇒ There is only one listed and It’s a minimum control
 - ⇒ Required year-round
- ➔ Step 2: Describe the Wind Erosion Control BMPs
 - ⇒ Use Required Text
- ➔ Step 3: Go back to attachment C and Check off the Selected BMP

Section 500 Body of SWPPP

500.3.8 Non-Storm Water Controls



⇒ What is Non-Storm Water?

⇒ Water that doesn't originate from a precipitation event

- Hydrant Flush Water
- Wash Water
- Concrete sawcut slurry
- Water used for dust control
- Septic Waste
- Chemical Spills

⇒ Select Non-Storm Water BMPs

⇒ Step 1: Again, Go to Checklist in Attachment "C"

- Shows Minimum Requirements

Section 500 Body of SWPPP

500.3.8 Non-Storm Water Controls



➔ Step 2: Describe Selected Sediment Control BMPs

⇒ Use Required Text

⇒ List additional BMPs that you've chosen through previous steps

- Water conservation
- Dewatering
- Irrigation water



➔ Step 3: Go back to attachment C and Check off the Selected BMPs

Section 500 Body of SWPPP

500.3.9 Waste Management and Materials Pollution Control



➔ Select Waste Management and Materials Pollution Control BMPs

- ⇒ Step 1: Again, Go to Checklist in Attachment “C”
 - Shows Minimum Requirements
- ⇒ Step 2: Describe Selected Sediment Control BMPs
 - Use Required Text
 - List additional BMPs that you’ve chosen through previous steps
- ⇒ Step 3: Go back to attachment C and Check off the Selected BMPs



Break

Section 500 Body of SWPPP

500.4 Water Pollution Control Drawings (WPCDs)

→ Cover Sheet

- ⇒ Title
- ⇒ Legend
- ⇒ List BMPs.. Construction Notes
- ⇒ General Notes

<p><i>Water Pollution Control Drawings For Route 88 City, County Contract No. 08-123456 Prepared by ZZ Top Construction</i></p>	
<p><u>Legend</u></p> <p>* Discharge Point ▶ Surface Flow Direction — Silt Fence etc.,</p>	<p><u>WPC Construction Notes</u></p> <ol style="list-style-type: none">1. Construct Silt Fence2. Apply Temporary Soil Stabilization3. Construct Temp swale4. Construct Temp Down-drain5. Construct Inlet Control
<p><u>General WPC Notes</u></p> <ol style="list-style-type: none">1. The Information on these Drawings is accurate for Water Pollution Control Purposes only2. Field Conditions may necessitate modifications to these drawings3. Etc.....	
<p>WPCD-1</p>	

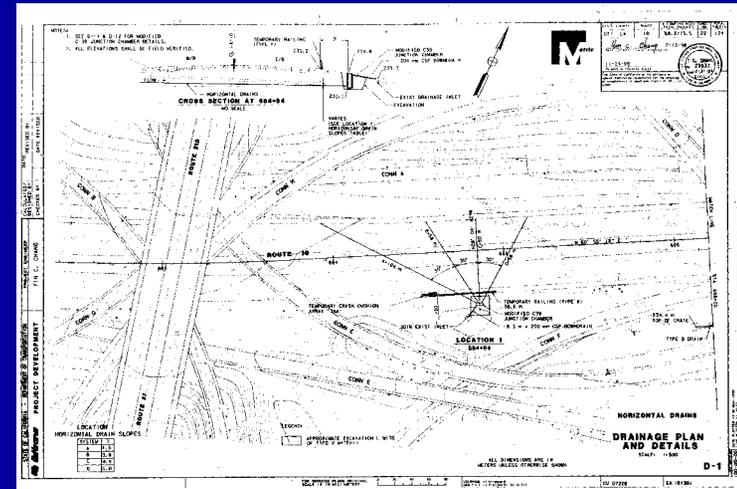
Section 500 Body of SWPPP

500.4 Water Pollution Control Drawings (WPCDs)

➔ Detailed Site Sheets

⇒ Step 2. Show Specific Site Information

- Discharge Points
- Tributary areas, drainage patterns
- Undisturbed Vegetation
- DSAs
- Known Contaminated areas
- If not graphically identifiable, provide narrative



Section 500 Body of SWPPP

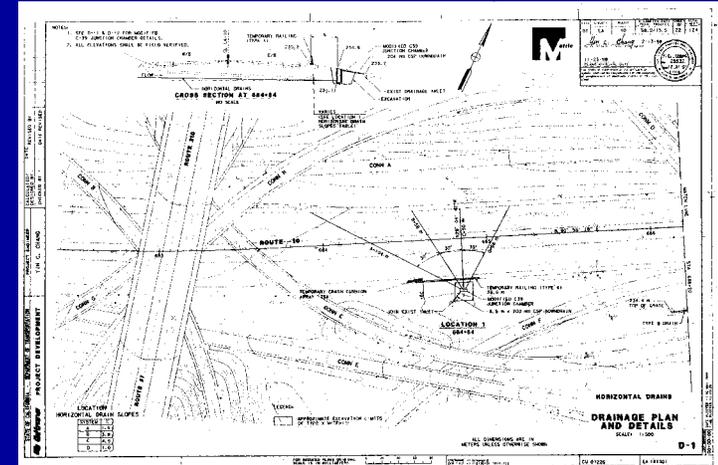
500.4 Water Pollution Control Drawings (WPCDs)

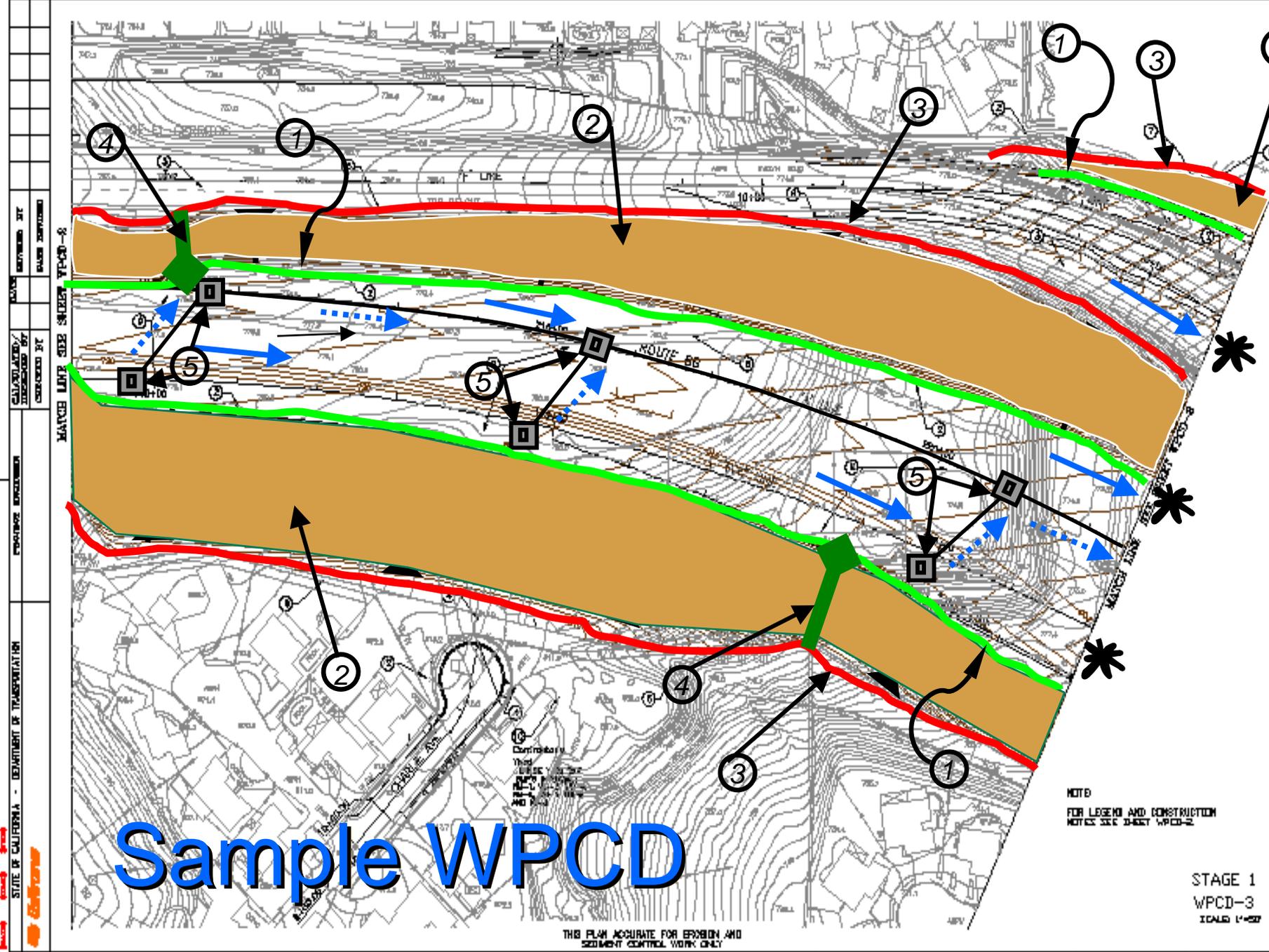
➔ Detailed Site Sheets

⇒ Step 3. Show Selected BMPs

- Soil stabilization
- Sediment Controls
- Drainage Conveyances
- Egress Points and Tracking Controls
- Waste Management BMPs

⇒ Include yards, borrow areas, staging areas, on and off site





Sample WPCD

Section 500 Body of SWPPP

⇒ 500.5 Maintenance, Inspection and Repair Program

⇒ Use the sample in attachment G to Develop your own Program



Section 500 Body of SWPPP

500.6 Post-Construction Storm Water Management

⇒ 500.6.1 Post construction Control Practices

⇒ List Permanent BMPs designed into the Project

- Permanent Erosion Control
- Detention Basins
- Lined ditches
- Rock Slope Protection



Section 500 Body of SWPPP

500.6 Post-Construction Storm Water Management

➡ 500.6.2 Operation/Maintenance after Project Completion

⇒ List Parties Responsible for Long term Maintenance

- Caltrans
- Local Agency

⇒ Funding Sources

⇒ Usually Provided by the RE



Section 500 Body of SWPPP

⇒ 500.7 Training

- ⇒ List Training of Responsible Parties in Attachment I
- ⇒ Log Formal and Informal Training

⇒ 500.8 List of Subcontractors

- ⇒ Company, Responsible Person, type of Work, etc.
- ⇒ Use Form in Attachment J

⇒ 500.9 Other Plans/ Permits

- ⇒ List and Include Copies in Attachment N



Section 600 Monitoring Program and Reports

⇒ 600.1 Site Inspections

⇒ Copy Verbiage in Template

⇒ List Inspection Personnel

- Name
- Phone number

⇒ Keep Copies of completed inspection forms in SWPPP

⇒ 600.2 Discharge Reporting

⇒ Copy Verbiage in Template

⇒ See Attachment K

⇒ 600.3 Record Keeping and Reporting

⇒ Keep Records for 3 years



Other Important Attachments

➡ Attachment H- Inspection Checklist

⇒ Important for Field Staff

➡ Attachment L- SWPPP Checklist

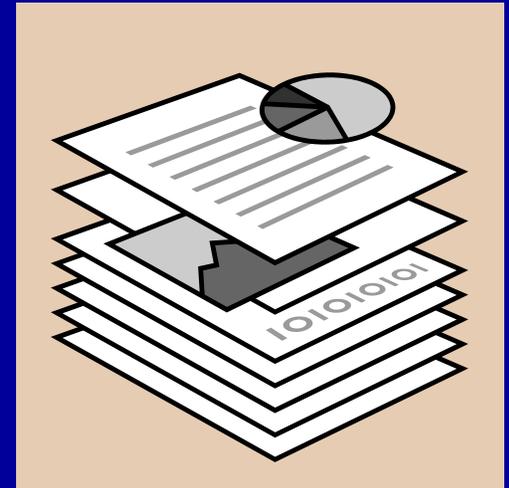
⇒ Double Check your Work

➡ Attachment M – Annual Certification Form

⇒ Field Staff will need this

➡ Attachment O- Notice of Completion

⇒ By Caltrans



What have we learned about preparing SWPPPs?

- ➔ It Takes Time
- ➔ Gather the Information
- ➔ Know the Project
- ➔ Follow the Handbook
- ➔ Be thorough



Preparing a WPCP



Lets Review the WPCP process

➔ **Similar to the SWPPP process, but shorter**

⇒ **Fill in the Blanks**

⇒ **Provide a Schedule**

⇒ **Prepare WPCDs**

➔ **WPCP Sections**

⇒ **Section 10....Title Page and Certification and Approvals**

⇒ **Section 20....Project Information**

⇒ **Section 30....Pollution Sources and Control Measures**

⇒ **Section 40....Amendments**

➔ **SWPPP/WPCP Manual Section 3**

Preparing a WPCP

⇒ Gather all Pertinent Information and Materials

- ✓ SWPPP/WPCP Preparation Manual
 - Purchase from Caltrans Publications.
 - <http://caltrans-pac.ca.gov/publicat.htm>
 - Or downloaded in Adobe format:
 - <http://www.dot.ca.gov/hq/construc/stormwater.html>
- ✓ Down load a Copy of the WPCP Template
 - <http://www.dot.ca.gov/hq/construction/>
- ✓ Special Provisions
- ✓ Project Plans
- ✓ Other Permits (Army Corp, Fish and Game, Ect)

Title Page

- ⇒ Job Site Address and Telephone Number (if any)
- ⇒ Name of Contractors Water Pollution Control Manager (WPCM)
 - This person is responsible for WPCP implementation, inspections, and repairs
- ⇒ Name of Company That Prepared The WPCP
 - If it was prepared by an outside consultant, include name and title of prepare
- ⇒ WPCP Preparation Date

Section 10.0

⇒ 10.1 Title Page

⇒ Required information

- ⇒ Water Pollution Control Plan
- ⇒ Construction Project Name
- ⇒ Caltrans Contract Number
- ⇒ Identification of Lead Agency (Caltrans or Local Agency)
- ⇒ Contractors Name, Address, Telephone Number, and Contact Person

Certification and Approval

➔ 10.2 Contractors Certification and Approval by the Resident Engineer

- ⇒ Project Name
- ⇒ Caltrans Contract Number
- ⇒ Contractors signature, Title, Date, and telephone number
- ⇒ RE signature
- ⇒ Telephone number
- ⇒ Date signed

Section 20.0

➔ Introductions and Project Description

- ⇒ Describe type of work that will be performed
- ⇒ Include project location

➔ Unique Site Features

- ⇒ Give a brief description of any unique site features

➔ Schedule Potential Pollutant Sources

- ⇒ Provide a written or graphical construction activity schedule
- ⇒ Show time lines for major activities and BMP implementation

Section 30.0

- ➔ Describe Construction Activities and Control Practices (BMPs)
 - ⇒ Identify all contract required BMPs
 - ⇒ Identify minimum requirement BMPs
 - ⇒ Select additional BMPs
 - ⇒ Complete the BMP consideration checklist for each section
 - ⇒ Show the selected BMPs on the Water Pollution Control Drawings (WPCDs)

Section 30.1

➤ Evaluate, Select, and Identify erosion and Sediment Controls

- ⇒ 30.1.1 Soil Stabilization Practices
- ⇒ 30.1.2 Sediment Control Practices
- ⇒ 30.1.3 Sediment Tracking Controls
- ⇒ 30.1.4 Wind Erosion Controls

Section 30.1.1

➔ Select Soil Stabilization Measures

- ⇒ Provide a description of soil disturbing activities
- ⇒ Complete the temporary soil stabilization table
- ⇒ Check all contract requirements BMPs

➔ 30.1.1.1 Selected Soil Stabilization BMPs

- ⇒ Describe the location and scheduled application for each selected BMP

Section 30.1.2

➔ Select Sediment Control Practices

- ⇒ Provide a description of soil disturbed areas that will necessitate sediment control BMPs
- ⇒ Complete the temporary sediment control table
- ⇒ Show selected BMPs on the WPCDs

➔ 30.1.2.1 Selected Sediment Control BMPs

- ⇒ Describe location and scheduled application for each selected BMP

Section 30.1.3

➔ Select Tracking Control Practices

- ⇒ Provide a description of site or soil condition
- ⇒ Describe where entrance/outlet location will be installed
- ⇒ Show entrance/exit location on the WPCDs

➔ 30.1.3.1 Selected Tracking Control BMPs

- ⇒ Describe location and scheduled application for each selected BMP

Section 30.1.4

➔ Select Wind Erosion Control BMPs

- ⇒ Determine if wind erosion controls are necessary
- ⇒ Discuss wind erosion control planned for the project
- ⇒ Minimum requirement is watering for dust control

Section 30.2

➔ Select Non-Storm water Management BMPs

- ⇒ List activities that have the potential to non storm water discharges
- ⇒ Discuss activities that require water usage
- ⇒ Complete the non-storm water management table
- ⇒ Show BMP locations on the WPCDs

➔ 30.2.1 Selected Non-Storm Water Management BMPs

- ⇒ Describe the Scheduled application for selected BMPs

Section 30.3

⇒ Select Selected Waste Management and Materials Pollution Control BMPs

- ⇒ Review project activities and identify construction material and waste
- ⇒ Identify material and waste that have special handling requirements
- ⇒ Complete the waste management and materials pollution control table
- ⇒ Show location of storage and waste facilities on the WPCDs

⇒ 30.3.1 Selected Waste Management and Materials Pollution Control BMPs

- ⇒ Describe the scheduled application for the selected BMPs

Section 30.4

- ➔ Show proposed locations for all construction site BMPs
 - ⇒ Show temporary soil stabilization and temporary sediment control BMPs
 - ⇒ Temporary on-site drainages which will carry concentrated flows
 - ⇒ BMPs implemented to divert offsite drainage around or through the site
 - ⇒ BMPs that protect inlets or outlets
 - ⇒ BMPs for waste management and material pollution controls
 - ⇒ Location of ingress and egress points
 - ⇒ Vehicle and equipment storage, fueling and maintenance areas
 - ⇒ Location of all post construction BMPs

Section 30.5

- ➔ Program for Maintenance, Inspection, and Repair of Construction site BMPs
 - ⇒ Describe maintenance, inspection, and repair program for all BMPs used on the project
 - ⇒ Inspection frequency
 - ⇒ Maintenance schedule
 - ⇒ Repair procedures

Section 40.0

⇒ SWPPP need to be Amended when

- ⇒ Changes in construction or operations which may affect the discharge of pollutants to surface waters, ground water, or municipal separate storm sewer system
- ⇒ If any conditions of the Permit are violated
- ⇒ General objective of reducing or eliminating pollutants in storm water discharges has not been achieved
- ⇒ If the RWQCB determines that a Permit violation has occurred
 - Changes implemented in 14 days
- ⇒ When required by the Special Provisions
- ⇒ When deemed necessary by the RE

Class Exercises



Class Exercise – Preparing WPCDs

➔ Project Criteria

- ⇒ Review the strategies
- ⇒ Refer to the project information sheet and layout sheets from the project plans
- ⇒ Break up into groups of 4 (5 groups total)
- ⇒ Review and compare answers

Water Pollution Control Strategies

Five critical areas to remember:

1. Protect disturbed soil areas from erosion.
2. Prevent storm water contact with the construction site.
3. Minimize sediment in storm water before discharge.
4. Prevent storm water contact with other pollutants.
5. Prevent non-storm water discharges.



1. Protect Disturbed Areas From Rainfall Impact and Sheet Erosion

➔ Direct rainfall

⇒ Scheduling

⇒ Soil stabilization measures

➔ Wind erosion



2. Protect the site from Erosion Caused by Concentrated Flows

➔ Direct Flows Through or around the Construction site

- ⇒ Off Site Flows (Storm Water Run-on)
- ⇒ On-site Flows



3. Minimize Sediment Discharge from active Areas

➔ Sediment Controls

- ⇒ Silt Fence
- ⇒ Sandbag barrier
- ⇒ Straw bale barrier

➔ Desilting Basins

➔ Tracking Control

- ⇒ Minimize egress points
- ⇒ Gravel Strips



4. Prevent Storm Water Contact With Other Pollutants

- ➔ Minimize storage and non-essential activities
- ➔ Store materials/wastes in watertight containers
- ➔ Cover stored materials/wastes
- ➔ Prevent run-on
- ➔ Clean up spills of materials/wastes



5. Prevent Non-Storm Water Discharges

- ➔ Line Flushing
- ➔ Dewatering operations
- ➔ Potable water/irrigation operations
- ➔ Vehicles and Equipment



Class Exercise – Basin Calculations

⇒ Under Construction



Class Exercise – Construction Site Estimates

⇒ Under Construction

Class Exercise – Off site runoff calculations

⇒ Under Construction

Summary Review

⇒ What we've Learned

⇒ Page Under Construction

In Closing

- ➔ Contact Information
- ➔ Quiz
- ➔ Evaluation Form