Construction Academy
(AKA “Boot Camp”)
Environmental Issues

- Objectives
- Water Pollution Control
- Other Environmental Issues
- Archeological Site
- Summary
Objectives

The participant will learn:

- How to identify environmental issues
- Correct and Incorrect BMP Installations
- Understand the environmental requirements, policies, and laws that pertain to Caltrans Construction activities
Section 1: Water Pollution Control
What are the two primary factors that impact waters adjacent to construction sites?

- Visible Pollutants: Sediment, PCC, Petroleum
- Non-Visible Pollutants: Solvents, Acids, Fertilizers
Section 1: Water Pollution Control

Introduction

Construction Site Pollutants

Erosion and Sedimentation

Construction Wastes
Introduction

- Forty percent of all U.S. waters are not fishable or swimmable, according to the U.S. EPA

- “Even a partial accounting shows that hundreds of millions of dollars are lost each year….due to urban stormwater pollution”

Natural Resources Defense Council
Introduction

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

*Ohio Department of Transportation*
The Law

- Discharge of polluted storm water, into waters of the U.S. is prohibited

- The National Pollutant Discharge Elimination System (NPDES) permit regulate discharges to waters of the U.S.
Who Enforces These Laws?

- EPA
- SWRCB / RWQCB
- Other Agencies

- Private Citizens
  - NRDC
  - Baykeepers
  - Other Watchdog Groups
Section 1: Water Pollution Control

What If We Don’t Comply?

- Fines to $32,500 Per Day – Per CWA
- Fines to $15,000 Per Day and $20 a gallon – Per Porter Cologne Act
- Current Regulatory Atmosphere
  - Violators will be held accountable
Contract Special Provisions

- Contract Special Provisions - Section 10
  - Requires compliance with the NPDES Permit requirements
  - Requires the use of Caltrans Storm Water Quality Handbooks
  - Defines water pollution control requirements
Section 1: Water Pollution Control

Manuals

- Caltrans Storm Water Quality Handbooks
  - Project Planning and Design Guide
  - SWPPP / WPCP Preparation Manual
  - Construction Site BMPs Manual
    - Get Manuals online at
      or hard copies are available from Caltrans Publications

- Construction Manual
- Construction Site BMP Field Manual and Troubleshooting Guide
- Dewatering Guide
- Guidance for Temporary Soil Stabilization
Objectives:

- Promote Good Housekeeping
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
Construction Site Best Management Practices - BMPs

Objectives:

- Protect Slopes and Channels
- Control Site Perimeter
- Control Internal Erosion
Construction Site Best Management Practices - BMPs

• BMP defined – a technique, measure or structural control that is used for a given set of conditions to manage the quantity and improve the quality of storm water runoff in the most cost-effective manner

• Sometimes referred to as temporary control practices
BMP Installation

BMP Categories
- Temporary Soil Stabilization
- Temporary Sediment Control
- Wind Erosion Control
- Tracking Control
- Non-Storm Water Management
- Waste Management and Materials Pollution Control
Section 1: Water Pollution Control

BMP Use - Soil Stabilization

SS-1 Scheduling

Example of Graphical Schedule
BMP Installation - Soil Stabilization

SS-3 Hydraulic Mulch

Caltrans Requirements

- Mulch must be approved by RE or CSWC
- Prior to application, roughen embankment and fill areas
- Hydraulic matrices need 24 hours to dry before rainfall occurs to be effective unless approved by the RE
- Application rates per SS-3

Hydraulically applied paper mulch
BMP Installation - Sediment Controls

Sediment Controls plus Soil Stabilization
= An effective combination
BMP Installation - Sediment Controls
SC-3 Sediment Trap

Requirements

- Size limited by availability of right-of-way
- Not appropriate for drainage areas greater than 5 acres
- If captured runoff has not completely infiltrated within 72 hours dewater trap
- Fencing, in accordance with Standard Spec Section 80-"Fencing", shall be provided to prevent unauthorized entry

Sediment Trap without required fencing
### Wind Erosion Control

<table>
<thead>
<tr>
<th>ID</th>
<th>BMP Name</th>
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<tbody>
<tr>
<td>WE-1</td>
<td>Wind Erosion Control</td>
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BMP Installation - Tracking Control
TC-1 Stabilized Construction Entrance / Exit

Lack of stabilized entrance / exit
BMP Installation - Non-Storm Water
NS-2 Dewatering Operations

Caltrans Requirements

• Notify District Construction Storm Water Coordinator
• Use Caltrans’ Field Guide to Construction Site Dewatering
• Use where groundwater or accumulated precipitation will be discharged from site
• Addresses sediment only
• Notify RE if pollutant other than sediment is present
• Must comply with applicable permits
BMP Installation – Non-Storm Water
NS-6 Illicit Connection / Illegal Discharge

Caltrans Requirements
• Can be in liquid or solid form
  • Refers to discharges and dumping caused by parties other than contractor
• Inspect site before beginning of job
• Proceed with caution – notify RE, and CSWC at time of discovery
BMP Installation - Waste Management
WM-1 Material Delivery and Storage

Well maintained temporary containment facility

Caltrans Requirements

- Facility shall provide for a spill containment volume able to contain precipitation from a 24-hour, 25-year storm, plus 10% of the aggregate volume of all containers or 100% of the capacity of the largest container whichever is greater
- Facility shall be impervious to the materials for 72 hours

Substances that require storage in a containment facility
BMP Installation - Waste Management
WM-1 Material Delivery and Storage

Caltrans Requirements
- Liquids, petroleum products, and substances listed in 40 CFR Parts 110, 117, and 302 require containment
- During rainy season provide permanent cover and side wind protection

Temporary containment facility for fuel
Section 1: Water Pollution Control

BMP Installation - Waste Management

WM-8 Concrete Waste Management

Controlled concrete washout

Uncontrolled concrete washouts
Maintenance of BMPs is a critical requirement for an effective water pollution control program.
Water Quality Sampling and Analysis

First things first

- Caltrans personnel will not be collecting any samples – this is the responsibility of the contractor or their lab
- Sampling and Analysis requirements apply only to SWPPP projects
Water Quality Sampling and Analysis

What are these new Sampling and Analysis requirements intended to do?

- The new requirements are intended to determine if BMPs implemented on the construction site are effective for preventing sediment/silt and other non-visible pollutants from impacting water quality objectives.
Section 1: Water Pollution Control

Water Quality Sampling and Analysis

Pollutants Requiring Sampling

- Sediment

Non-Visible
Non-Visible Pollutants

- They are not visually detectable in storm water discharges
  - Examples: Acids, Solvents, Lime, Gypsum, Copolymer
    - Toxic properties: Caustic, Carcinogenic, Flammable etc.
Water Quality Sampling and Analysis

- Make sure potential non-visible pollutants are:
  - Cleaned-up
  - Covered
  - Contained

- $C^3$
Construction Period Responsibilities

- Cover as topic item in pre-Construction meeting
- Review & approve plan
- Inspections - Caltrans self enforcement
- Request, review, & approve amendments for plan deficiencies
Construction Period Responsibilities

- Report illegal dumping
- Complete annual certificates (June 15th)
- Report non-compliance events to RE
- Complete Notice of Completion of Construction (NCC) at end of Construction
Inspections

- Frequency
  - Prior to anticipated storm events
  - During extended storm events (once each 24-hour period)
  - After actual storm events
  - As specified in the Special Provisions
Notice Of Discharge

- Action required upon discovery of a discharge or if the project receives a written notice or order from any regulatory agency.

- Failure to report is subject to a $32,500 fine.
Section 1: Water Pollution Control

Documentation

File Organization

- Category 20
- Inspections - Daily Reports
- Correspondence
- Certifications – Annual due June 15
- SWPPP / WPCP
- Amendments
- Photographs
- Notice of Completion
- Retain for Three Years