RIVERSIDE COUNTY
WATERSHED PROTECTION

rcwatershed.org

Training for Construction Site Inspectors

Prepared For: Santa Margarita River Watershed Permittees

Presented By: CASC Engineering and Consulting

Spring 2019

Training Objectives

rcwatershed.org

- To comply with the provisions II.E.4 Construction Management requirements of the Regional Permit
- To assist Construction Inspectors stay informed about:
  - The stormwater program
  - Pollution prevention at construction sites

Training Goal

rcwatershed.org

Provide quality training to ensure that individuals and organizations are knowledgeable of stormwater regulations and the requirements of the local agency permit

Training Requirements

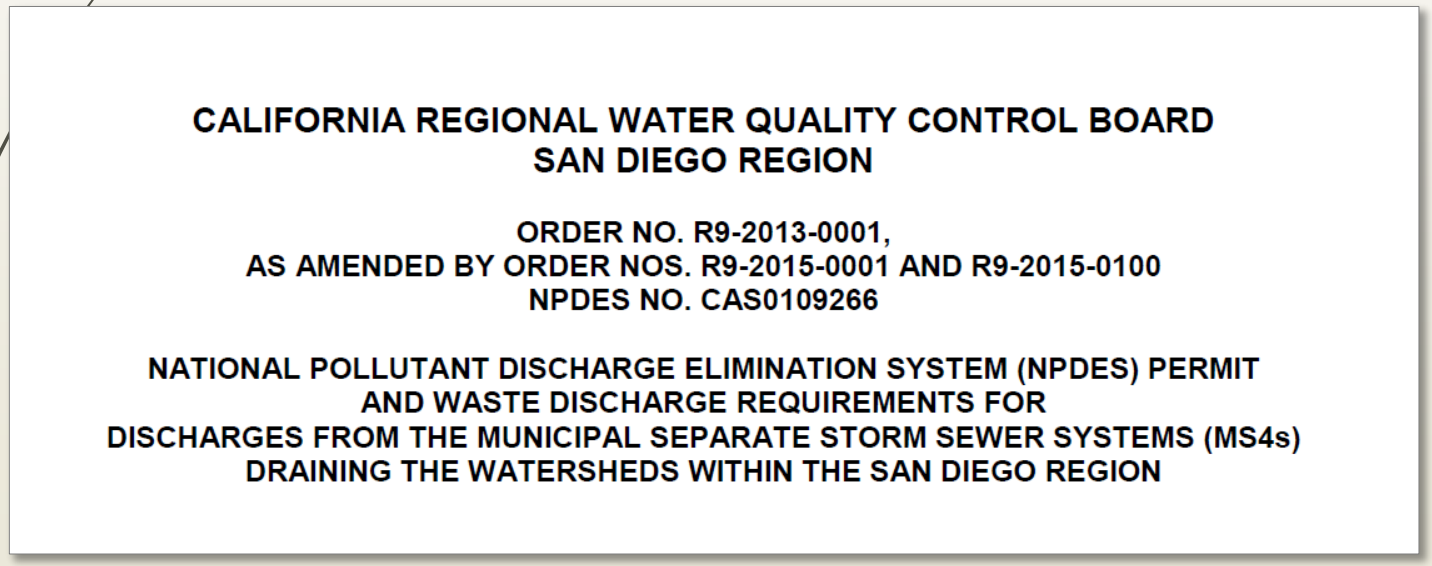
rcwatershed.org

- The Riverside County Flood Control District, County of Riverside, and incorporated cities in the Santa Margarita River watershed have NPDES Stormwater Permits and various implementation plans
- The Permits and/or implementation plans require that Construction Inspectors receive periodic training regarding requirements applicable to inspection of Permittee and private construction sites

San Diego RWQCB (9) – For Santa Margarita River Basin

rcwatershed.org

- Purpose:
  - Regulates the discharge of pollutants from Municipal Separate Storm Sewer Systems (MS4s)



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

ORDER NO. R9-2013-0001,
AS AMENDED BY ORDER NOS. R9-2015-0001 AND R9-2015-0100
NPDES NO. CAS0109266

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT
AND WASTE DISCHARGE REQUIREMENTS FOR
DISCHARGES FROM THE MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s)
DRAINING THE WATERSHEDS WITHIN THE SAN DIEGO REGION

Municipal Permits

rcwatershed.org

- Covered by San Diego RWQCB Permit
  - County of Riverside*
  - Riverside County Flood Control and Water Conservation District*
  - Murrieta
  - Temecula
  - Wildomar

*Agencies covered by multiple permit

Local Programs

rcwatershed.org

- Local programs in the Santa Margarita Watershed developed to comply with the NPDES Permits.
  - Jurisdictional Runoff Management Program (JRMP)
  - Water Quality Improvement Plan (WQIP) (Final Draft)
- Compliance documents can be found here:
  - http://rcflood.org/NPDES/SantaMargaritaWS.aspx#SMdocs

Jurisdictional Runoff Management Program (JRMP)

rcwatershed.org

- The JRMP is the principal document that comprehensively translates the MS4 Permit requirements into actions each City will be implementing to comply with the 2013 (amended 2015) San Diego Region MS4 Permit.
- The JRMP plan describes each City's specific runoff management (water quality) program and activities that will be implemented to comply with the requirements of the MS4 Permit in the Santa Margarita Region (SMR).
- The JRMP will be reviewed at least annually to incorporate new and revised compliance programs specified in the MS4 Permit.

Water Quality Improvement Plan (WQIP)

rcwatershed.org

- Purpose:
  - To guide the development and implementation of jurisdictional runoff management programs
- Is one of two planning efforts and plans required under the San Diego Region (Permit)
- Developed on a watershed basis
- Identifies the highest priority water quality condition(s) (HPWQC(s)) in a watershed
- Identifies goals, strategies, and schedules to improve discharge and receiving water quality

Water Quality Improvement Plan (WQIP)

rcwatershed.org

- The WQIP consists of three phases:
  - **Phase 1:** Identify priority and highest priority water quality conditions and potential water quality improvement strategies for the watershed (Permit Provision B.2)
  - **Phase 2:** Identify the numeric goals for the highest priority water quality conditions (HPWQC) along with strategies to implement and achieve numeric goals (Permit Provision B.3)
  - **Phase 3:** Develop a monitoring and assessment program to provide feedback to program managers

Water Quality Improvement Plan (WQIP)

rcwatershed.org

- Highest Priority Water Quality Condition:

Table ES-1. Highest Priority Water Quality Condition (Eutrophication)

Beneficial Use Category	Highest Priority Water Quality Condition	Temporal Extent	Geographic Extent
Aquatic Life: Eutrophication	Eutrophication impacts (elevated algal biomass)	Dry	SMR Estuary [1], Warm Springs, Redhawk Channel [2]
	Nutrient loading to TMDL waterbody	Dry	All Upper and Lower SMR Subwatershed subareas except Vail Lake, Fallbrook Creek and Sandia Creek[1]
		Wet	Rainbow Creek

1. Storm drain discharges within the following subareas may reach the SMR Estuary during dry weather and contribute to the Eutrophication HPWQC in the Santa Margarita River Estuary: Upper Murrieta Creek and Tributaries, Warm Springs, Santa Gertrudis, Murrieta Creek and Long Canyon, Temecula Creek and Redhawk Channel, Upper Santa Margarita River, Lower Santa Margarita River, Rainbow Creek and De Luz Creek.
2. Other areas may be added as result of TMDL Alternative development during adaptive management process.

- Eutrophication impacts – elevated algal biomass
  - Causes: Nutrients reaching the storm drain

Construction Management Requirements

Construction Management Requirements

rcwatershed.org

Each Co-permittee must implement a construction management program in accordance with the strategies in the Water Quality Improvement Plan and includes, at a minimum, the following requirements:

- Project Approval Process
  - Verify that the project applicant has obtained coverage under the statewide Construction General Permit (Order 2009-0009-DWQ or subsequent Order), if applicable
- Construction Site Inventory and Tracking
  - Each Co-permittee must maintain and update, at least quarterly
  - Each Co-permittee must identify all construction sites within its jurisdiction that represent a high threat to downstream surface water quality

Construction Management Requirements

rcwatershed.org

- Construction Site BMP Implementation
  - These BMPs must be site specific, seasonally appropriate, and construction phase appropriate.
  - BMPs must be implemented at each construction site year round.
  - Dry season BMP implementation must plan for and address unseasonal rain events that may occur during the dry season (May 1 through September 30)

Construction Management Requirements

rcwatershed.org

- Co-permittees must implement, or require the implementation of, BMPs in the following categories:
  - Project Planning
  - Good Site Management
  - Non-storm Water Management
  - Erosion Control
  - Sediment Control
  - Run-on and Run-off Control
  - Active/Passive Sediment Treatment Systems, where applicable

Example of Minimum BMPs

rcwatershed.org

Table 6-1. Construction Activity BMPs

BMP Name	CASQA BMP Handbook-Construction[1]	Caltrans Construction Site BMP Manual[2]	MS4 Permit-Required Categories						
			Project Planning	Housekeeping/ Waste Management	Non-Storm Water Management	Erosion Control	Sediment Control	Run-On/ Run-Off Control	Active/Passive Sediment Treatment
Preserve Site Condition									
Preservation of Existing Vegetation	EC-2	SS-2	X			X			
Phase Construction									
Construction Sequencing (Scheduling)	EC-1	SS-1	X			X			
Stabilize Exposed Soils (Erosion Control)									
Chemical Stabilization (Soil Binders)	EC-5	SS-5				X			
Hydraulic Mulch	EC-3	SS-3				X			
Straw Mulch	EC-6	SS-6				X			
Wood Mulching	EC-8	SS-8				X			
Permanent Seeding / Sodding			X			X			
Geotextiles and Mats	EC-7	SS-7				X			
Compost Blankets	EC-14					X			
Non-Vegetated Stabilization	EC-16					X			
Soil Preparation-Roughening	EC-15					X			
Temporary Seeding/Hydroseeding	EC-4	SS-4				X			
Dust Control (Wind Erosion Control)	WE-1	WE-1				X			

Excerpt from County of Riverside JRMP

Example of Minimum BMPs

rcwatershed.org

Temporary Sediment Control									
Silt Fence	SE-1	SC-1					X		
Sediment Basin	SE-2	SC-2					X		
Sediment Trap	SE-3	SC-3					X		
Check Dams	SE-4	SC-4					X		
Fiber Rolls	SE-5	SC-5					X		
Gravel Bag Berm	SE-6	SC-6					X		
Street Sweeping	SE-7	SC-7					X		
Sand Bag Barrier	SE-8	SC-8					X		
Straw Bale Barrier	SE-9	SC-9					X		
Storm Drain Inlet Protection	SE-10	SC-10					X		
Manufactured Linear Sediment Controls	SE-12	SC-12					X		
Compost Sock and Berm	SE-13	SC-11					X		

Excerpt from County of Riverside JRMP

Example of Minimum BMPs

rcwatershed.org

BMP Name	CASQA BMP Handbook-Construction[1]	Caltrans Construction Site BMP Manual[2]	MS4 Permit-Required Categories						
			Project Planning	Housekeeping/ Waste Management	Non-Storm Water Management	Erosion Control	Sediment Control	Run-On/ Run-Off Control	Active/Passive Sediment Treatment
Biofilter Bags	SE-14						X		
Advanced/Passive Sediment Treatment	SE-11						X		X
Sediment Tracking Controls									
Stabilized Construction Entrance/Exit	TC-1	TC-1					X		
Entrance/Outlet Tire Wash	TC-3	TC-3					X		
Stabilized Construction Roadway	TC-2	TC-2					X		
Protect Steep Slopes									
Earth Dikes/Drainage Swales/Lined Ditches	EC-9	SS-9	X			X	X	X	
Fiber Roll	SE-5	SC-5					X		
Geotextiles	EC-7	SS-7				X			
Gradient Terraces						X			
Straw Bale Barrier	SE-9	SC-9					X		
Temporary Slope Drain	EC-11	SS-11					X	X	

Excerpt from County of Riverside JRMP

Example of Minimum BMPs

rcwatershed.org

Protect Waterways									
Outlet Protection/Velocity Dissipation Devices	EC-10	SS-10				X			
Streambank Stabilization	EC-12	SS-12				X		X	
Temporary Stream Crossings	NS-4	NS-4			X	X		X	
Vegetated Buffer							X		
Clear Water Diversion	NS-5	NS-5	X		X			X	
Material and Equipment Use Over Water	NS-14	NS-13			X				
Demolition Removal Adjacent to Water	NS-15	NS-15			X				
Non-Stormwater Management									
Water Conservation Practices	NS-1	NS-1			X				
Dewatering Operation	NS-2	NS-2			X		X	X	
Paving and Grinding Operation	NS-3	NS-3			X				
Illicit Connection/Discharge	NS-6	NS-6			X				
Potable Water/Irrigation	NS-7	NS-7			X				
Vehicle and Equipment Cleaning	NS-8	NS-8			X				
Vehicle and Equipment Fueling	NS-9	NS-9			X				
Vehicle and Equipment Maintenance	NS-10	NS-10			X				
Concrete Curing	NS-12	NS-12			X				
Concrete Finishing	NS-13	NS-14			X				
Temporary Batch Plants	NS-16				X				

Excerpt from County of Riverside JRMP

Example of Minimum BMPs

rcwatershed.org

BMP Name	CASQA BMP Handbook-Construction[1]	Caltrans Construction Site BMP Manual[2]	MS4 Permit-Required Categories						
			Project Planning	Housekeeping/ Waste Management	Non-Storm Water Management	Erosion Control	Sediment Control	Run-On/ Run-Off Control	Active/Passive Sediment Treatment
Waste Management /Material Pollution Control									
Material Delivery and Storage	WM-01	WM-1		X					
Material Use	WM-02	WM-2		X					
Stockpile Management	WM-03	WM-3		X		X	X		
Spill Prevention and Control	WM-04	WM-4		X					
Solid Waste Management	WM-05	WM-5		X					
Hazardous Waste Management	WM-06	WM-6		X					
Contaminated Soil Management	WM-07	WM-7		X					
Concrete Waste Management	WM-08	WM-8		X					
Sanitary-Septic Waste Management	WM-09	WM-9		X					
Liquid Waste Management	WM-10	WM-10		X					

[1] Available at: https://www.casqa.org/resources/bmp-handbooks.

[2] Available at: http://www.dot.ca.gov/hq/construc/stormwater/CSBMP-May-2017-Final.pdf.

Excerpt from County of Riverside JRMP

Construction Management Requirements

rcwatershed.org

- Implement Enhanced Measures for construction
  - At sites that are tributary to waters impaired by sediment or turbidity
  - At sites that are adjacent to or discharging directly to receiving waters within environmentally sensitive areas

Enhanced BMPs are control actions specifically targeted to the pollutant or condition of concern and of higher quality and effectiveness than the minimum control measures otherwise required.

Enhanced means better, not simply more, BMPs.

303(d) Listings for the SMR WMA

rcwatershed.org

Table 2-6. 2010 303 (d) Listings for the SMR WMA

	Water Body [3]											
	Upper Santa Margarita River Subwatershed						Lower Santa Margarita River Subwatershed					
Pollutant/ Stressor	Warm Springs	Long Canyon Creek [1]	Murrieta Creek [1]	Santa Gertrudis Creek	Temecula Creek [2]	Redhawk Channel [2]	Santa Margarita River Upper	Santa Margarita River Lower	Rainbow Creek [4]	De Luz Creek	Sandia Creek	Santa Margarita River Estuary [5]
Chlorpyrifos	•	•	•	•	•	•						
Copper			•	•	•	•						
Diazinon						•						
Escherichia coli (*E. coli*)	•			•		•						
Enterococcus								•				
Eutrophic												XX
Fecal Coliform	•	•		•		•		•				
Iron	•	•	•	•		•			•	•	•	
Manganese	•	•	•	•		•				•		
Nitrogen			•			•			X	•		
Phosphorus	•		•	•	•	•	•	•	X			
Sulfates									•	•	•	
Total Dissolved Solids					•	•			•		•	
Total Nitrogen as N	•							•				
Toxicity			•		•		•					

1. Both reaches are within the Murrieta and Long Canyon Creeks subarea.
2. Both reaches are within the Temecula Creek and Redhawk Channel subarea.
3. There are no 303(d) listings for any waterbodies in the Vail Lake and Pechanga Creek or Fallbrook Creek subareas.
4. X – Currently being addressed by a TMDL.
5. XX – Currently being addressed by a TMDL Alternative.

SMR WMA WQIP January 2018, p. 2-15

Where to find Receiving Water Information?

rcwatershed.org

Construction Management Requirements

rcwatershed.org

- Construction Site Inspections
  - Each Co-Permittee must conduct construction site inspections to require and confirm compliance with its local permits and applicable local permits and applicable local ordinances, and the requirements of this Order.
  - Inspection Frequency:
    - Co-permittee must conduct inspections at all inventoried sites, including high threat to water quality sites, at an appropriate frequency for each phase of construction to confirm the site reduces the discharge of pollutants in storm water
    - Inspection frequencies, high threat, Inspection frequencies appropriate for addressing the highest water quality priorities identified in the Water Quality Improvement Plan
    - Based upon inspection findings, each Co-permittee must implement all follow-up actions (i.e., re-inspection, enforcement) necessary to require

Example of Inspection Frequency

rcwatershed.org

Table 6-2. Rainy Season Construction Site Inspection Frequency

Priority	Supporting Criteria [a]	Rainy Season Inspection Frequency
High	▪ Sites located within a hydrologic subarea where sediment is known or suspected to contribute to the highest priority water quality conditions identified in the Water Quality Improvement Plan (E.4.b.(2)). ▪ Sites surrounded by or previously used for agricultural operations. ▪ Sites that disturb an area greater than 30 acres with rough grading or with active, unstabilized slopes occurring during the Rainy Season. ▪ Sites disturbing an area greater than one (1) acre within the same hydrologic subarea and tributary to Receiving Waters with CWA Section 303(d) listed waters for sediment or turbidity Impairments or within, directly adjacent to, or discharging directly to a Receiving Water within an ESA. ▪ Other sites determined by the County as a significant threat to water quality, considering the following factors: — Soil erosion potential (e.g. Hillside sites) — Project size and type — Sensitivity of and proximity to Receiving Waters (particularly ESAs since no Receiving Waters are 303(d) listed for sediment or turbidity) — History or presence of Illegal Non-Stormwater Discharges — Known past record of non-compliance by the operators of the Construction Site — Any other relevant factors.	Twice per month
Medium	Sites disturbing an area of one acre or more.	Monthly
Low	Sites disturbing less than 1 acre.	As needed

Excerpt from County of Riverside JRMP

Construction Management Requirements

rcwatershed.org

- Inspection Content:

  Inspections of construction sites by the Co-permittee must include, at a minimum:

  - Verification of coverage under the Construction General Permit (Notice of Intent (NOI) and/or WDID number) during initial inspections, when applicable
  - Assessment of compliance with its local permits and applicable local ordinances related to pollution prevention, including the implementation and maintenance of applicable BMPs
  - Assessment of BMP adequacy and effectiveness
  - Visual observations of actual non-storm water discharges
  - Visual observations of actual or potential discharge of sediment and/or construction related materials from the site
  - Visual observations of actual or potential illicit connections
  - If any violations are found and BMP corrections are needed, inspectors must take and document appropriate actions in accordance with the Enforcement Response Plan pursuant to Provision E.6

Construction Management Requirements

rcwatershed.org

Inspection Tracking and Records

- The co-permittee must retain all inspection records in an electronic database or tabular format, which must be made available to the San Diego Water Board upon request. Inspection records, must include at a minimum:
  - Site name, location (address and hydrologic subarea), and WDID number (if applicable)
  - Inspection date
  - Approximate amount of rainfall since last inspection
  - Description of problems observed with BMPs and indication of need for BMP addition/replacement and any scheduled re-inspection, and date of re-inspection
  - Descriptions of any other specific inspection comment which must, at a minimum, include rationales for longer compliance time
  - Description of enforcement actions issues in accordance with the Enforcement Response Plan pursuant to Provision E.6
  - Resolution of problems noted and date problems fixed

Annual Reports

rcwatershed.org

- Each Co-permittee must complete and submit a Jurisdictional Runoff Management Program Annual Report Form no later than October 31 of each year
  - Reporting period (i.e. July 1 to June 30)

JURISDICTIONAL RUNOFF MANAGEMENT PROGRAM
ANNUAL REPORT FORM
FY _____

VI. CONSTRUCTION MANAGEMENT PROGRAM	
Has the Copermittee implemented a construction management program that complies with Order No. R9-2013-0001?	YES ☐ NO ☐
Number of construction sites in inventory	
Number of active construction sites in inventory	
Number of inactive construction sites in inventory	
Number of construction sites closed/completed during reporting period	
Number of construction site inspections	
Number of construction site violations	
Number of enforcement actions issued	
Number of escalated enforcement actions issued	

Annual Reports

rcwatershed.org

- Monitoring and Records
  - Copermittes must retain reports and records for a period of at least three (3) years from the date of the report
  - This period may be extended by request of the San Diego Water Board at any time

Reporting of Non-Compliant Sites

rcwatershed.org

- Each Co-permittee must notify the San Diego Water Board in writing within five (5) calendar days of issuing escalated enforcement (as defined in the Co-permittee's Enforcement Response Plan) to a construction site that poses a significant threat to water quality as a result of violations or other non-compliance with its permits and applicable local ordinances, and the requirements of this Order. Written notification may be provided electronically by email to the appropriate San Diego Water Board staff.
- Each Co-permittee must notify the San Diego Water Board of any persons required to obtain coverage under the statewide Industrial General Permit and Construction General Permit and failing to do so, within five (5) calendar days from the time the Co-permittee become aware of the circumstances. Written notification may be provided electronically by email to RB9_Nonfilers@waterboards.ca.gov

What is at Stake!

California Regional Water Quality Control Board, San Diego Region, Administrative Civil Liability

rcwatershed.org

- On July 18, 2016 the Assistant Executive Officer of the San Diego Regional Water Board issued Administrative Civil Liability Complaint No. R9-2016-0155 ("Complaint") to the City, proposing $4,614,868 in administrative civil liability.
- The MS4 Permit requires the City to conduct the necessary oversight of construction projects in the within its jurisdiction to ensure compliance with the requirements therein. The City's alleged violations of the MS4 Permit pertain to this lack of oversight and were grouped into the following categories:
  - Failure to require implementation of minimum best management practices (BMPs) designated by the City's storm water standards at construction sites
  - Failure to comply with discharge prohibitions requiring a reduction of pollutants from construction site discharges to the maximum extent practicable (MEP)
  - Failure to implement an escalating enforcement process to require implementation of designated minimum BMPs at construction site

What is at Stake!

San Diego Water Board Issues $848,374 Penalty to Developer for Sediment Pollution

rcwatershed.org

- The site was brought to the San Diego Water Board's attention after the city of Lemon Grove had issued multiple administrative citations, stop work notices, and correct work notices for water quality violations to the developer, with minimal response. Even after the San Diego violations.
- *"Repeat non-compliance tells us they didn't take the city or our inspectors very seriously,"* said Chiara Clemente, San Diego Water Board's enforcement coordinator. *"These requirements are not new. It's unfortunate that it's taking a large monetary penalty to motivate them to do basic management measures that the industry considers routine for protecting downstream water quality."*

Construction Management Requirements

rcwatershed.org

- Implement Active/Passive Sediment Treatment (AST)
  - At sites determined by Permittee to be an **exceptional** risk to water quality. Risk factors include:
    - Soil erosion potential or soil type
    - Slopes
    - Project size and type
    - Sensitivity of receiving waters
    - Proximity to receiving waters
    - Non-stormwater discharges
    - Ineffectiveness of other BMPs
    - Proximity and sensitivity of aquatic threatened and endangered species of concern
    - Known effects of AST chemicals
    - Other relevant factors

Construction General Permit Overview

Construction General Permit

Effective Dates & Type of Projects Covered

rcwatershed.org

- Construction General Permit
  - Order No. 2009-0009-DWQ
  - Adopted September 1, 2009, Effective July 1, 2010
  - Amended by Orders
    - 2010-0014-DWQ - Clarified definition of LRP
    - 2012-0006-DWQ - Removed non ATS NELs
  - Covers construction or demolition activity or any other activity that results in a land disturbance of ≥ 1 ac
    - Includes smaller sites if part of a larger plan of development
    - Some sites ≥ 1 ac and ≤ 5 ac may qualify for an erosivity waiver
  - Covers both
    - Traditional Projects
    - Linear Utility Projects (e.g., Underground or Overhead Power Lines, Pipelines, Communication Lines, etc., but not roads)

Construction General Permit
Obtaining Coverage

rcwatershed.org

- Construction General Permit, Continued…
  - CGP coverage is obtained by filing for coverage via SMARTS
    - Electronically submit Permit Registration Documents (PRDs)
      - Notice of Intent (NOI)
      - Risk Assessment
      - Site Map
      - Storm Water Pollution Prevention Plan (SWPPP)
      - Certification by the Legally Responsible Party (LRP)
    - Annual fees submitted via mail (SAR Permittees pay no fee)
    - Proof of coverage is the Waste Discharge Identification (WDID) issued electronically after fees are received (SAR Permittees receive an Application ID)
      - Construction may not begin until the WDID is obtained and can be presented on demand

Construction General Permit
Important Provisions

rcwatershed.org

- Construction General Permit, Continued…
  - A Risk-Based Permit
    - Risk is based on two factors
      - Project's Sediment Risk
      - Project's Receiving Water Risk
  - Specifies essential minimums that increase with project risk
    - BMP requirements
    - Visual Observation (Inspection) requirements
    - Discharge Monitoring (Sampling) requirements
    - Receiving Water Monitoring (Sampling) requirements

Construction General Permit
Important Provisions – NALs and NELs

rcwatershed.org

- **Construction General Permit, Continued…**
  - Sets Numeric Action Levels
    - pH: ≤6.5 Units or ≥8.5 Units
    - Turbidity : 250 NTU
    - When exceeded, requires actions to improve water quality
    - Applies to Risk Level 2 and 3 and LUP Type 2 and 3 Projects
  - Sets Numeric Effluent Limitations (NELs)*
    - Turbidity: 10 NTU daily average, 20 NTU any one sample.
    - Applies to Active Treatment Systems (ATS).
  - Set a Receiving Water Monitoring Triggers.
    - pH: ≤6.0 Units or ≥9.0 Units.
    - Turbidity : ≥500 mg/L.
    - Applies to Risk Level 3 and LUP Type 3 Projects.

*NELs for construction site discharges only were removed by Order 2012-0006-DWQ

Construction General Permit

Minimum BMP Categories

rcwatershed.org

- Good Site Management (Housekeeping)
  - Construction Materials Management
  - Waste Material Management
  - Vehicle Storage and Equipment Management
  - Landscape Materials Management
  - Air Deposition of Site Materials Management
- Non-Stormwater Management
  - Non-Stormwater Discharge Control
  - Vehicle Washing Controls
  - Street Cleaning Controls
- Erosion Control
  - Wind Erosion Control
  - Erosion Control (Soil Cover) for Inactive Areas
  - Limited Use of Plastic

Construction General Permit

Minimum BMP Categories

rcwatershed.org

- Sediment Control
  - Perimeter Controls
  - Entrance and Exit Controls
  - Sediment Basin Management
  - Erosion and Sediment Control for Active Areas
  - Linear Sediment Controls at Toe/Along Face of Slopes
  - Construction Traffic Management
  - Perimeter Controls and DI Protection at Entrances/Exits
  - Access Road Management
- Runon and Runoff Control
- Inspection, Maintenance, and Repair
- Rain Event Action Plans

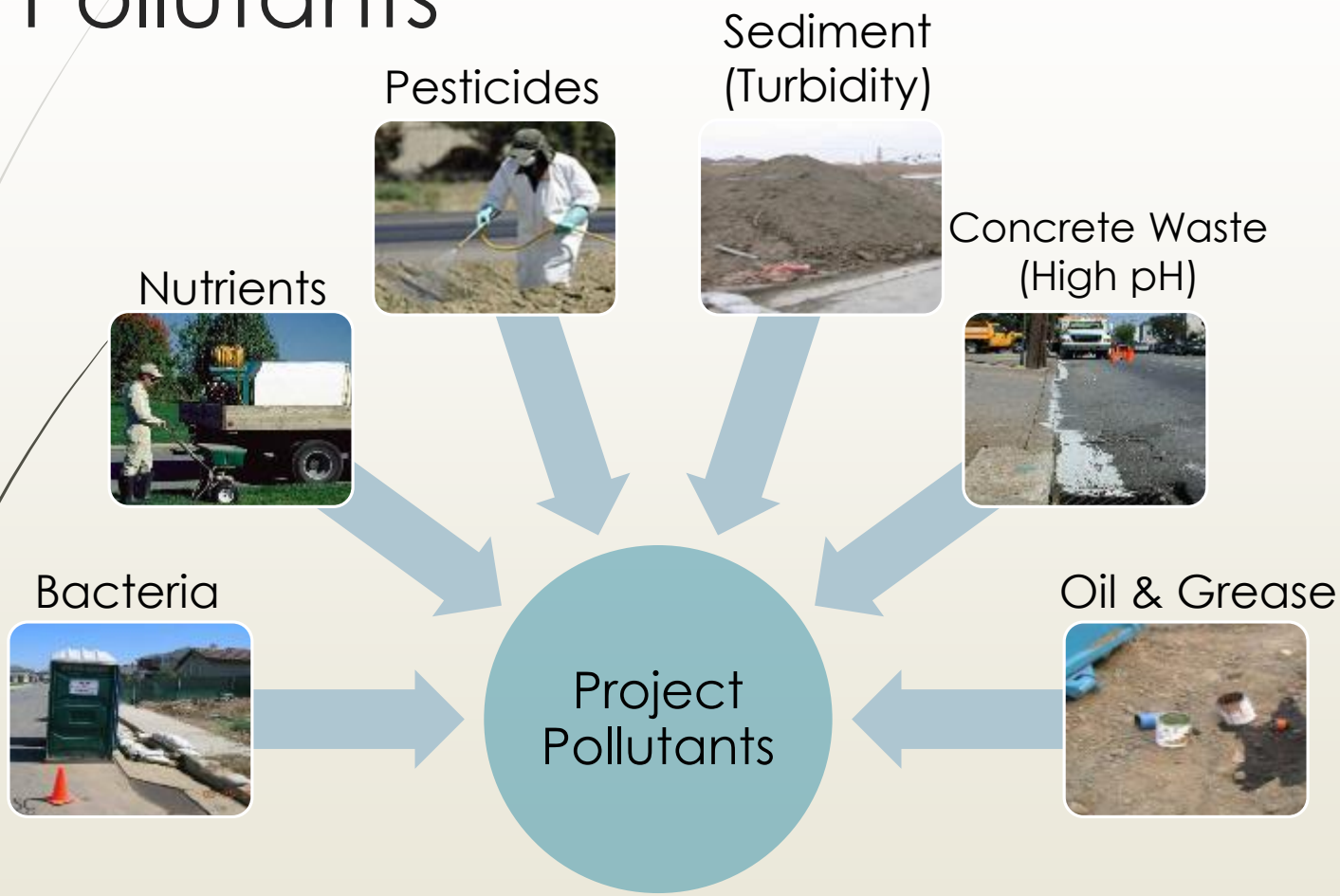
Is all this "prevention" really necessary?

rcwatershed.org

- Yes!
- The agency that you work for must comply with its NPDES Stormwater Permit.
  - Including the requirement to control discharges from construction sites (both agency and permitted sites).

Common Construction Site Pollutants

rcwatershed.org



As We Continue Today

rcwatershed.org

- Consider what the Pollutants of Concern might be in a particular situation.
- Consider what's needed to keep those Pollutants of Concern from leaving the construction site.
- Let's discuss things as we go along!
- Remember the Common Construction Site Pollutants
  - Bacteria
  - Nutrients
  - Pesticides
  - Oil and Grease
  - Sediment and Cement Waste (Potential Monitoring)

Construction Site BMP Implementation

Construction Site BMP Implementation

rcwatershed.org

- Co-permittees must implement, or require, the implementation of BMPs in the following categories:
  - Project Planning
  - Good Site Management "Housekeeping", including waste management
  - Non-storm Water Management
  - Erosion Control
  - Sediment Control
  - Run-on and Run-off Control
  - Active/Passive Sediment Treatment Systems, where applicable

Good Site Management "Housekeeping"

rcwatershed.org

- What is Housekeeping?
  - Managing the following on a construction site:
    - Construction Materials
    - Waste
    - Vehicle Storage and Maintenance
    - Landscape Materials
    - Potential Pollutant Sources
    - Air Deposition of Site Materials and Operations

Management of Construction Materials

rcwatershed.org

- Stockpiles
  - Soils
  - Spoils
  - Aggregate
  - Fly-ash
  - Stucco
  - Hydrated Lime
- What's wrong here?
- What's missing?

Management of Construction Materials

rcwatershed.org

- Are stockpiled materials covered and bermed?

[Not actively being used]

Management of Construction Materials

rcwatershed.org

- Are stockpiles out of flow lines, away from water courses?
  - 50 feet recommended

Drainage swale to inlet

Management of Construction Materials

rcwatershed.org

- Are stockpiles protected from stormwater run-on using temporary sediment barriers?
  - Silt fence
  - Fiber rolls
  - Gravel bag berm

Santa Margarita Region

Management of Construction Materials

rcwatershed.org

- Are cold mix stockpiles
  - Placed on plastic sheeting?
  - Covered & bermed?

Management of Construction Materials

rcwatershed.org

- Are wind erosion controls implemented on soil stockpiles:
  - Water
  - Hydraulic mulch
  - Geo-textiles
  - Soil binders

Management of Construction Materials

rcwatershed.org

- Are Stockpiles Covered and bermed?
  - Stockpiles of materials that may raise the pH of runoff.
    - Important for Risk Level 2 sites.
  - Stockpiles of pressure treated wood.
    - Treated with copper or zinc arsenate.

Management of Construction Materials

rcwatershed.org

- Are chemicals stored in watertight containers with secondary containment?

Oops Hazardous!

Management of Construction Materials

rcwatershed.org

- Are chemicals stored in watertight containers with secondary containment?
  - Fuels
  - Oils
  - Hydraulic Fluids

Santa Margarita Region

Management of Construction Materials

rcwatershed.org

- Are chemicals stored in watertight containers with secondary containment?
  - Curing compound
  - Concrete Admixtures

Santa Margarita Region

Management of Construction Materials

rcwatershed.org

- Are chemicals stored in a completely enclosed storage shed?

Management of Construction Materials

rcwatershed.org

- Are portable tanks in a lined and bermed area?

Management of Construction Materials

rcwatershed.org

- Is the exposure of materials to precipitation minimized?

Minimize exposure of materials to precipitation.

rcwatershed.org

- Are bagged and boxed materials stored on pallets and under cover?

Waste Management

rcwatershed.org

- Is the contractor preventing disposal of rinse or wash waters or materials?
  - on impervious
  - or pervious site surfaces
  - or into the storm drain system
- Covers the whole site!

Waste Management

rcwatershed.org

- Are washout bins watertight and plastic lined?

Cover during a rain event.

Waste Management

rcwatershed.org

- Is concrete washout contained?

Not so good!

Waste Management

rcwatershed.org

- Do concrete washout areas
  - Provide leak-proof bins?
  - Adequately sized?

Waste Management

rcwatershed.org

- Are concrete washout areas designated?

Could use a sign

Watch for Tracking
Tracking Control may be needed

Waste Management

rcwatershed.org

- Are concrete washout areas
  - Located at least 50 ft. from inlets and water courses?

Santa Margarita Region

Location, Location, Location!

Waste Management

rcwatershed.org

- Ensure the containment of sanitation facilities (e.g., portable toilets)

Spill containment pans

Waste Management

rcwatershed.org

- Ensure the containment of sanitation facilities (e.g., portable toilets)

Bermed containment area Gravel with a plastic liner

Waste Management

rcwatershed.org

- Are sanitation facilities clean?
- Inspect them for leaks and spills

Area around facility is neat and clean

No signs of paper waste

Santa Margarita Region

Waste Management

rcwatershed.org

- Are sanitation facilities out of streets?
- And away from inlets and water courses?

Santa Margarita Region

Waste Management

rcwatershed.org

- Are stockpiled waste materials contained?

Neatly stockpiled but a steel bin is more secure.

Waste Management

rcwatershed.org

- Are waste disposal containers covered at the end of every business day and during a rain event?

Trash receptacles should be equipped with attached lids

Waste Management

rcwatershed.org

- Are discharges from waste disposal containers prevented from reaching the storm water drainage system or receiving water?

Santa Margarita Region

Adequate size for job

Silt fence linear barrier

Trash picked up on a regular basis

Waste Management

rcwatershed.org

- Are hazardous wastes
  - Stored in sealed containers
  - Properly labeled
  - In secondary containment
    - Properly sized
    - Impervious for 72 hour contact
    - Adequate spacing of containers

Santa Margarita Region

Waste Management

rcwatershed.org

- Are procedures established for potential hazardous and non-hazardous spills?
- Is there a spill response and implementation element in the SWPPP?
  - Equipment and materials for cleanup
  - Appropriate spill personnel
    - Designate a point of contact
  - TRAINING!

Break Time

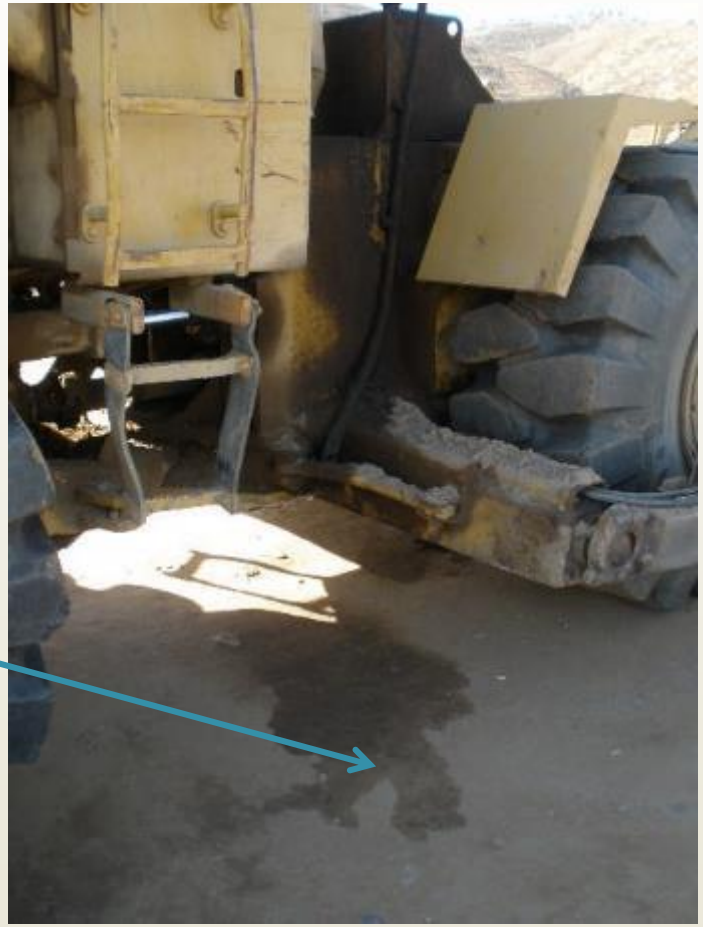
Stretch Your Legs!

Back in 15 Minutes!

Vehicle Storage and Maintenance

rcwatershed.org

- Is oil, grease, or fuel prevented from leaking?



Contaminated soil is now a Hazardous Waste!

Vehicle Storage and Maintenance

rcwatershed.org

- Are there plastic barriers under maintenance operations?

Vehicle Storage and Maintenance

rcwatershed.org

- Are equipment or vehicles stored in a designated area fitted with appropriate BMPs?

Impervious surface
Bermed area

Santa Margarita Region

Vehicle Storage and Maintenance

rcwatershed.org

- Are leaks cleaned up immediately and wastes properly disposed?
  - If hazardous, then handle and store in accordance with Federal, State, and local requirements.

Landscape Materials

rcwatershed.org

- Are stockpiled landscape materials properly contained?
  - Mulches
  - Topsoil
  - Fertilizers

Too close to an inlet & improper implementation of BMP at inlet.

Not actively being used

Landscape Materials

rcwatershed.org

- Are landscape materials stacked on pallets and covered when not being used.

Needs to be covered
Potential for pollutant to contaminate storm water run-off

Santa Margarita Region

Landscape Materials

rcwatershed.org

- Application of erodible landscape materials should be discontinued 48 hours prior to forecasted rain event.
- Erodible landscape materials should be applied per manufacturers specifications or written specifications by certified personnel.

Potential Pollutant Sources

rcwatershed.org

- When inspecting BMPs consider the following:
  - Quantity and physical characteristic of material
    - Liquid
    - Powders
    - Solid

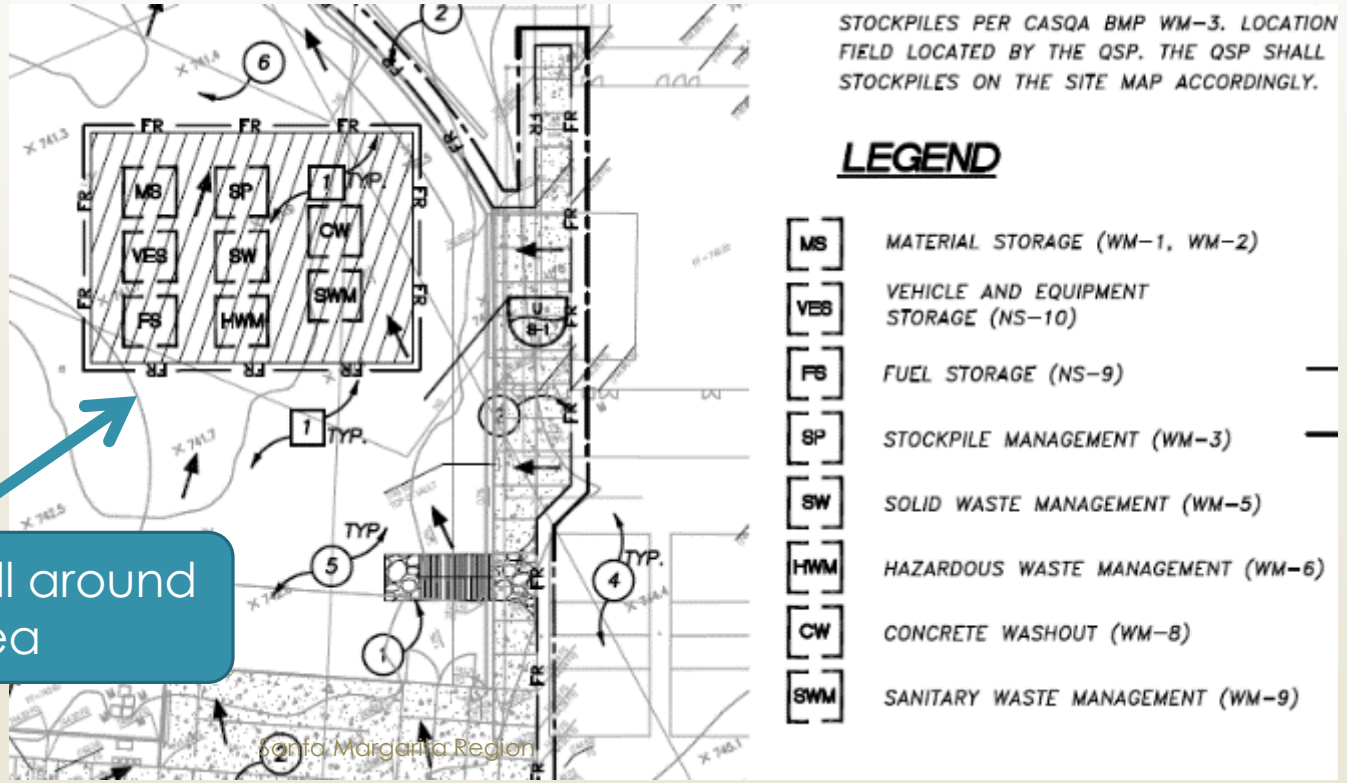
How will it react with Stormwater flows?

  - Locations of potential pollutant sources
    - How close are materials stored to drainage inlets or pathways?

Potential Pollutant Sources

rcwatershed.org

- Identify any areas of the site where additional BMPS are necessary



Additional fiber roll around Staging Area

Air Deposition of Site Materials and Operations

rcwatershed.org

- Pollutant particulates can include:
  - Sediment
  - Nutrients
  - Trash
  - Metals
  - Bacteria
  - Oil
  - Grease
  - Organics

Air Deposition of Site Materials and Operations

rcwatershed.org

- Pollutant particulates:
  - Nutrients
  - Metals
  - Bacteria
  - Oil
  - Grease
  - Organics
- Are materials
  - Covered
  - Contained
  - Stored in an enclosure

Air Deposition of Site Materials and Operations

rcwatershed.org

- Pollutant particulates: Sediment
  - Soils easily dry out in our California climate
  - During Windy Conditions
  - Earth moving operations
- Are contractors applying:
  - Water to dry soils
  - Soil binders
  - Mulch

Air Deposition of Site Materials and Operations

rcwatershed.org

- Pollutant particulates: Trash
  - Is all trash contained?
  - Is there a wind fence?

Non-Storm Water Management

rcwatershed.org

- Are contractors:
  - Implementing measures to control all non-storm water dischargers during construction.
  - Washing vehicles in a manner to prevent discharges to surface waters or MS4 drainage systems.
  - Cleaning streets without discharges.

Non-Stormwater Management

Non-Stormwater Discharge Control

rcwatershed.org

Non-Storm Water Discharges

Control generally means to prevent or eliminate the discharge of non-stormwater from the construction site.

Exceptions

The CGP authorizes certain non-storm water discharges:

- Dechlorinated potable water;
- Fire hydrant flush water;
- Irrigation water from vegetative erosion controls;
- Pipe flushing and testing;
- Dust control water;
- Uncontaminated groundwater from dewatering; and
- Other discharges not subject to a separate NPDES permit.

Discharges must comply with CGP conditions.

Erosion Control

rcwatershed.org

- Has effective wind erosion control been implemented?
- Has effective soil cover been provided for inactive areas and all finished slopes, open space, utility backfill, and completed lots? (CGP Requirement).
- Dischargers shall limit the use of plastic materials when more sustainable, environmentally friendly alternatives exist.

Inactive Areas

Areas of construction activity
that have been disturbed
and are not scheduled to be re-disturbed
for at least 14 days.

Erosion Control

rcwatershed.org

Is effective wind erosion control implemented?

Dust Control

rcwatershed.org

Erosion Controls

rcwatershed.org

Surface roughening

Soil binder in high wind areas.

Erosion Control

rcwatershed.org

Hydraulic Mulch evenly applied (No shadowing)

Are contractors providing effective soil cover for inactive areas and all finished slopes, open space, utility backfill, and completed lots?

Erosion Control

rcwatershed.org

Erosion Control Blankets

Sediment Controls

rcwatershed.org

- Are controls installed, maintained, and effective?
  - Perimeters
  - Construction entrance and exits
  - Drain inlets
- Are basins designed per CASQA BMP Manual?

Sediment Controls

rcwatershed.org

Multi-layer gravel bag linear barrier.

The ends of the bags should overlap.

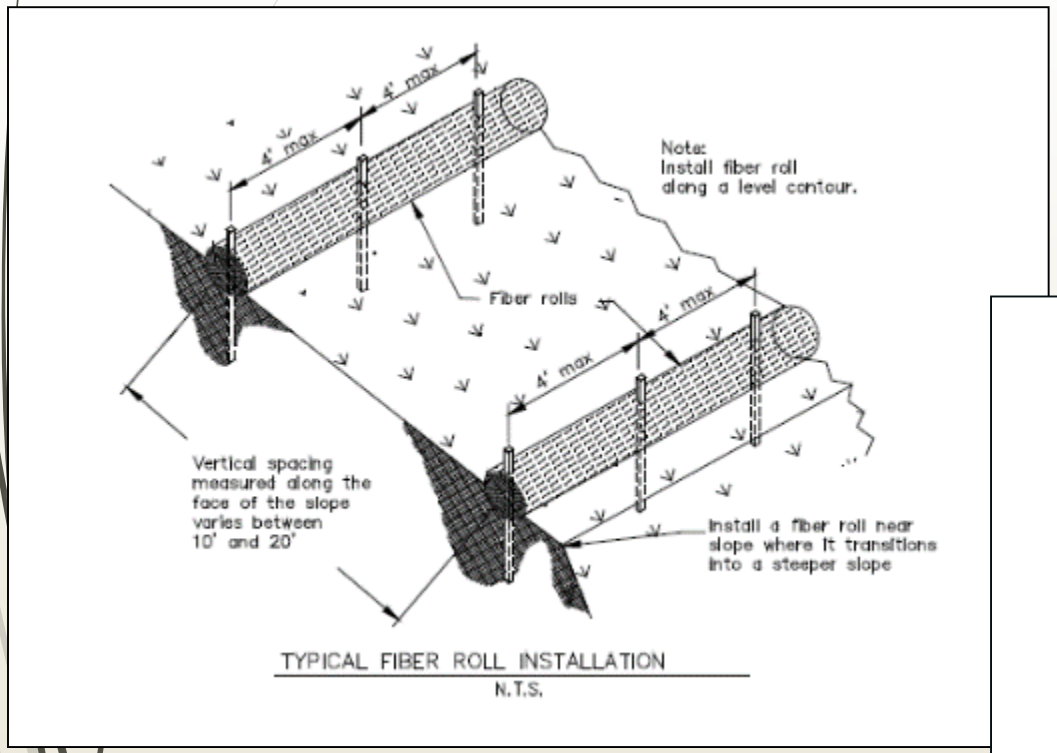
Sediment Controls

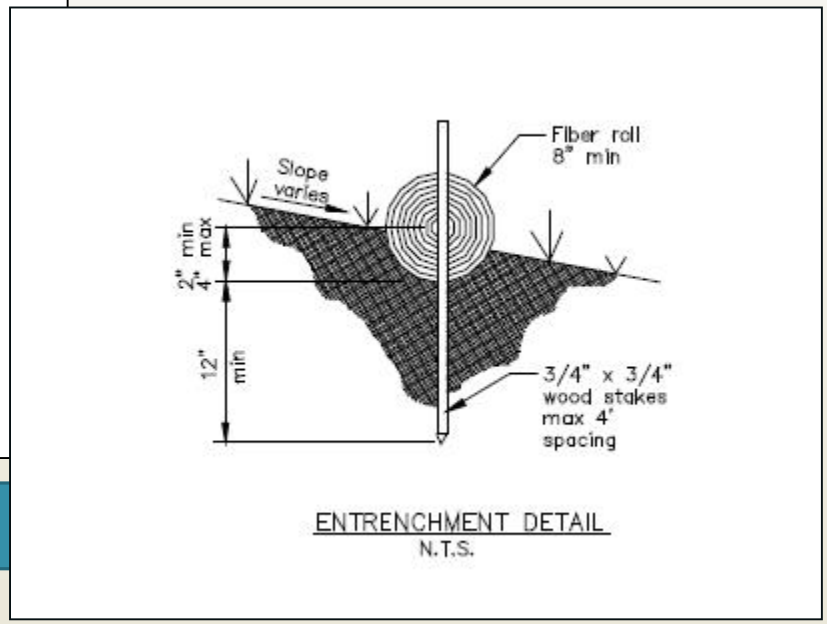
rcwatershed.org

Fiber roll linear barriers. Properly staked and overlapped.

Perimeter Controls

rcwatershed.org





Fiber roll installation.

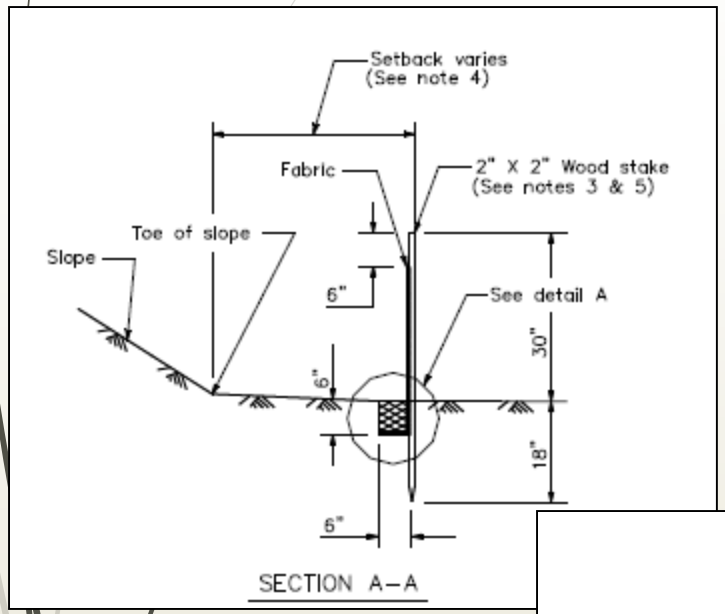
Perimeter Controls

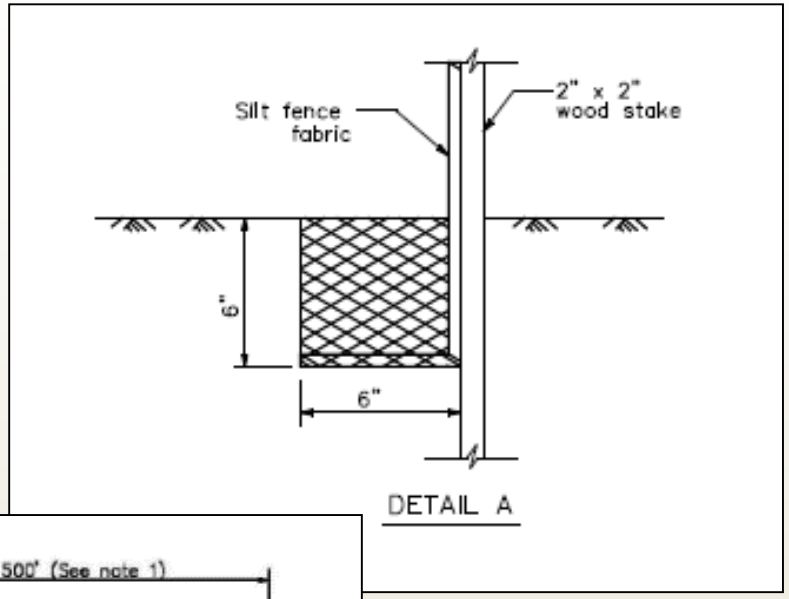
rcwatershed.org

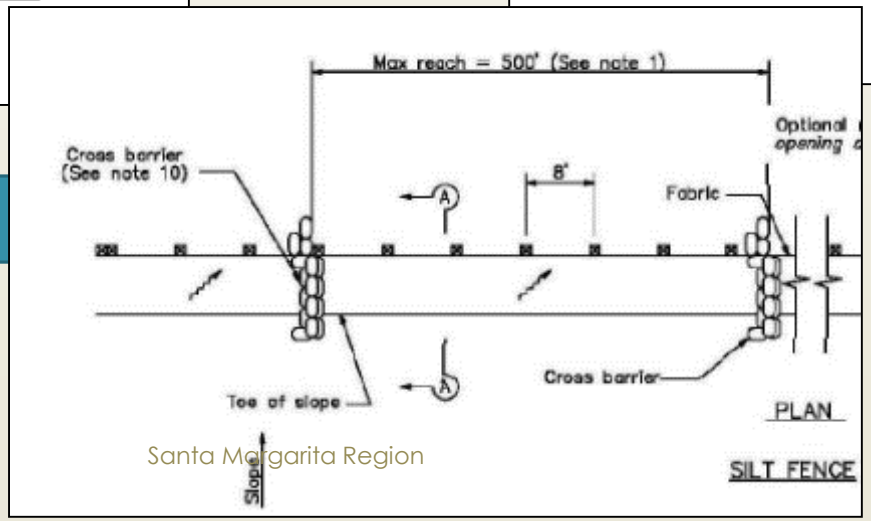
Silt fence linear barriers.
Stakes are on the downgrade side.

Perimeter Controls

rcwatershed.org







Silt fence installation.

Perimeter Control

rcwatershed.org

Santa Margarita Region

Sediment Controls

rcwatershed.org

Drain Inlets are considered a perimeter where storm water could leave the site.

Sediment Controls at Drain Inlet

rcwatershed.org

Santa Margarita Region

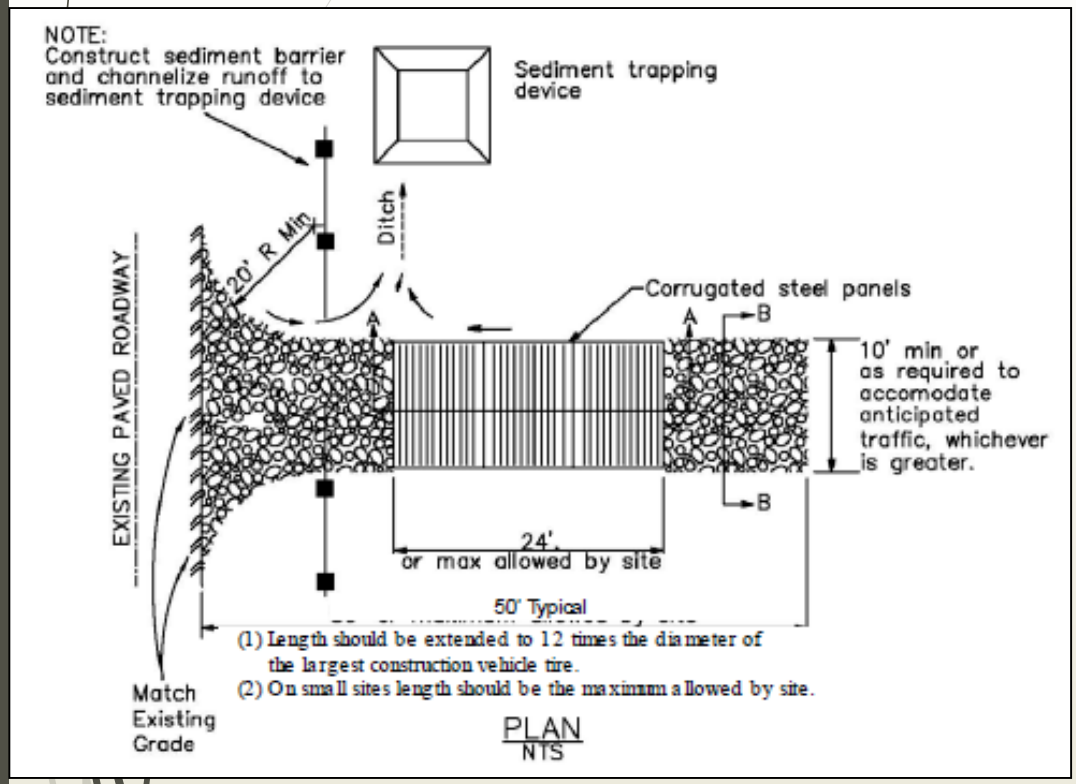
Sediment Controls

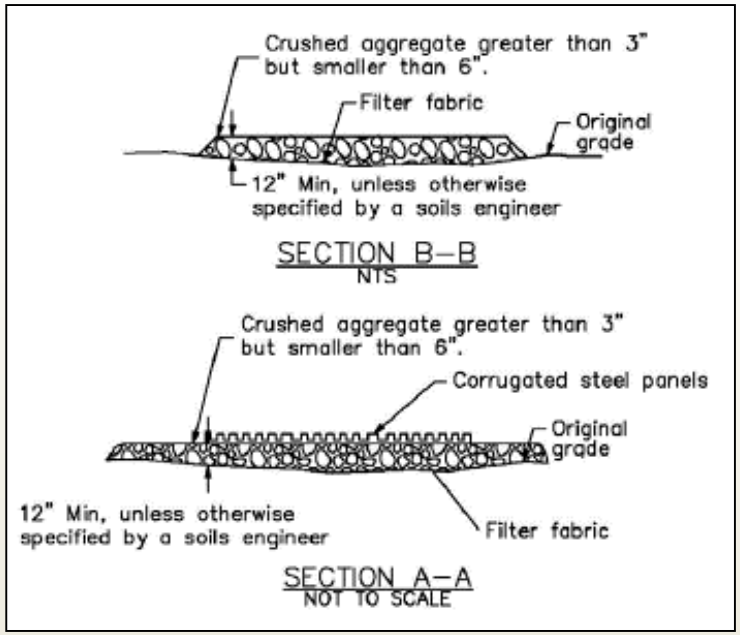
rcwatershed.org

Are construction entrances and exits stabilized to sufficiently control erosion and sediment discharges from the site?

Sediment Controls

rcwatershed.org

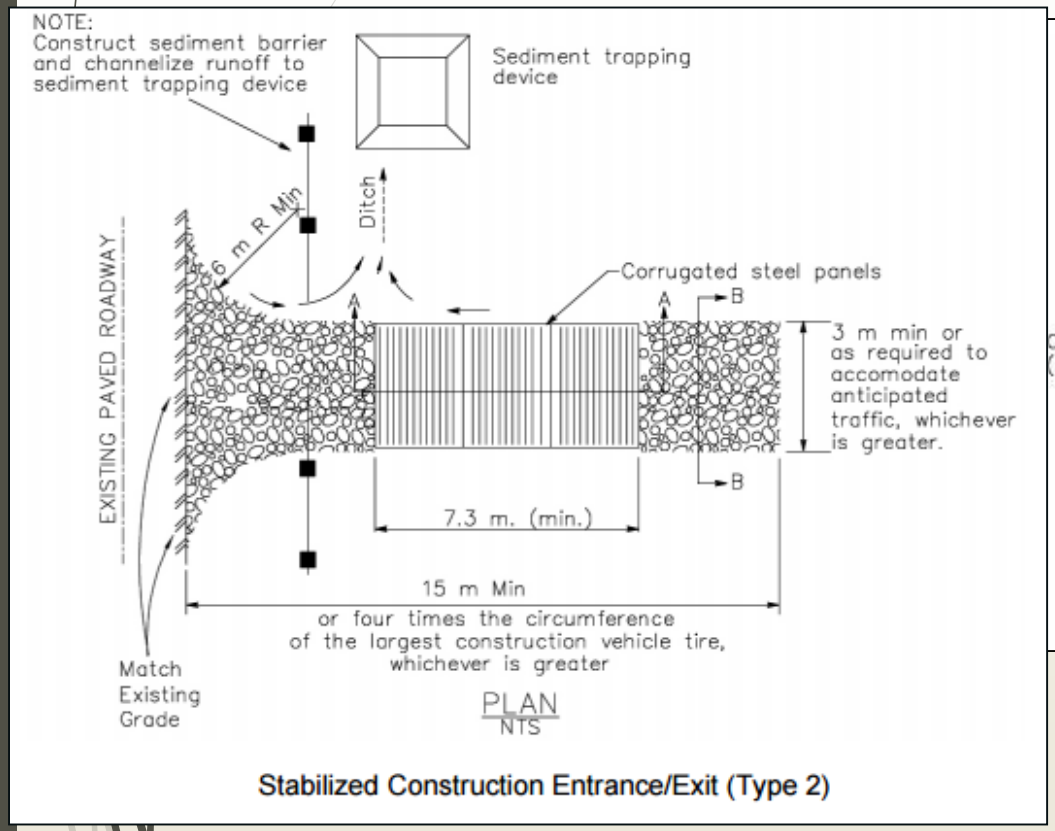


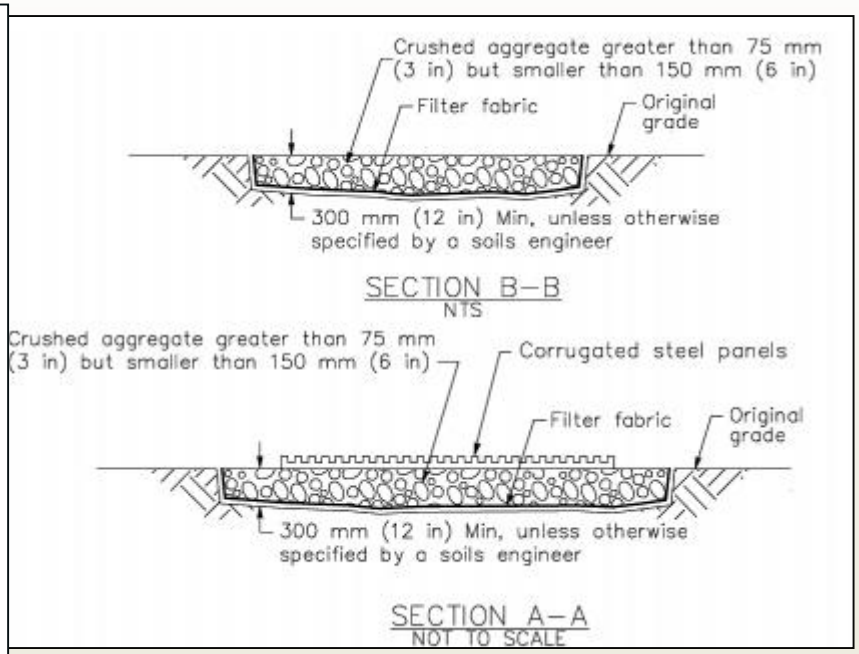


CASQA Stabilized Construction Entrance/Exit Installation

Sediment Controls

rcwatershed.org





Caltrans Stabilized Construction Entrance/Exit Installation

Street Sweeping/Track-Out Control

rcwatershed.org

Additional Risk Level 2 & 3

rcwatershed.org

- Implement appropriate erosion control BMPs (runoff control and soil stabilization) in conjunction with sediment control BMPs for areas under active construction
- Apply linear sediment controls along the toe of the slope, face of the slope, and at the grade breaks of exposed slopes
  - Table 1 in Attachment D

Sediment Control

Sediment Controls on Slopes – Risk Level 2 & 3

rcwatershed.org

- **The CGP requires linear sediment controls along the toe of the slope, face of the slope, and at grade breaks of exposed slopes.**

Critical Slope/Sheet Flow Length Combinations	
Slope Percentage	Sheet Flow Length Not to Exceed
0 – 25%	20 feet
25 – 50%	15 feet
Over 50%	10 feet

Sediment Control

Sediment Controls on Slopes – Risk Level 2 & 3

- **Linear sediment controls must be used on slopes.**

Santa Margarita Region

Sediment Control

Sediment Controls on Slopes – Risk Level 2 & 3

rcwatershed.org

Erosion & Sediment Control

rcwatershed.org

Hydraulic mulch and fiber rolls on slope at a Risk Level 2 project.

Erosion & Sediment Control

rcwatershed.org

Hydraulic mulch and gravel bag check dams in flow path of a Risk Level 2 site.

Santa Margarita Region

Sediment Control

Erosion and Sediment Control – Risk Level 2 & 3

rcwatershed.org

- The CGP requires that Risk Level 2 & 3 projects implement erosion controls (runoff control and soil stabilization) in conjunction with sediment controls for areas under active construction.

Active Areas

Areas of construction undergoing
land surface disturbance.
This includes construction activity during the preliminary stage, mass grading stage,
streets and utilities stage,
and the vertical construction stage.

Additional Risk Level 2 & 3

rcwatershed.org

- Limit project access to effective construction entrances.
- Ensure all inlets are maintained and protected.
- Inspect on a daily basis all immediate access roads daily and prior to a rain event remove sediment or materials.
- Perimeter controls, runoff controls, and controls at entrances and exits maintained and protected from activities that reduce their effectiveness.

Sediment Controls

rcwatershed.org

Controlled access point limits the potential of track out.

Santa Margarita Region

Sediment Control

Sediment Basin Management

rcwatershed.org

- The CGP requires sediment basins be designed according to the CASQA optional methods.
  - Option 1 - Design sediment basin based on:
    - Settling velocity of the design particle size determined using wet sieve analysis;
    - Peak basin flow rate for the 10 year, 6-hour flow; and the
    - EPA basin efficiency reduction factor of 1.2 (Safety Factor).
  - Option 2 – Design pursuant to local ordinance.
  - Option 3 – Use an equivalent surface area design or equation that is equal or more protective than Option 1.
- CASQA also specifies the criteria for basin configuration.

Run-on and Runoff Controls

rcwatershed.org

- Is Run-on and runoff effectively managed?
- Is Run-on directed away from all disturbed areas
- Or be in compliance with effluent limitations of the General Permit?

Run-on Runoff Controls

rcwatershed.org

Gravel bag check dams in curb flow lines

Run-on Runoff Control

rcwatershed.org

Run-on and Run-off Controls

rcwatershed.org

- Runoff control using a temporary diversion during grading phase.

Santa Margarita Region

Run-on and Run-off Controls

rcwatershed.org

- Runoff control using a temporary diversion during grading phase.

Santa Margarita Region

Inspection, Maintenance, and Repair

rcwatershed.org

- The CGP requires that BMPs be inspected, maintained, and repaired.
- Inspection, maintenance, and repair shall be performed or supervised by a Qualified SWPPP Practitioner (QSP).

Inspection, Maintenance, and Repair

rcwatershed.org

- Inspections:
  - Weekly;
  - Within 48-hours prior to a Qualifying Rain Event;
  - Once each 24-hours during extended storms;
  - Within 48-hours after a Qualifying Rain Event; and
  - When store storm water from a Qualifying Rain Event is released.
  - Exceptions:
    - During dangerous weather conditions such as flooding and electrical storms; and
    - Outside of scheduled business hours.
    - When exceptions are utilized, they must be explained in the SWPPP and Annual Report.

Inspection, Maintenance, and Repair

rcwatershed.org

- Inspection checklist is required to record:
  - Date of inspection and report;
  - Weather information, including precipitation (start time, end time, time since last rain, and amount);
  - Site information, including stage of construction, activities, and area exposed;
  - BMPs evaluated and deficiencies noted;
  - Observations of odor or sheen on discharges;
  - During inclement weather, if site is:
    - Accessible, observations of all BMPs; or
    - Not accessible, observations of outfalls /discharge points/etc.
  - Photos taken, if any; and
  - Inspectors name, title, and signature.

Inspection, Maintenance, and Repair

rcwatershed.org

- Maintenance and Repair
  - When failures or other shortcomings are identified, must begin implementing repairs or design changes to BMPs within 72 hours of identification and completed the changes as soon as possible.

Rain Event Action Plan

Risk Level 2 & 3

rcwatershed.org

- Rain Events Action Plan (REAP)
  - Apply to Risk Level 2 and Risk Level 3 sites.
    - The SWPPP will identify the site's Risk Level.
  - Required for active sites.
  - Required for inactive sites (halted, postponed, etc.)
  - Triggered by a Likely Precipitation Event 48 hours out.
  - The Qualified SWPPP Practitioner (QSP) is responsible for ensuring the REAP is prepared.

Rain Event Action Plan

rcwatershed.org

- Risk Level 2 & 3
  - The QSP must develop the REAP
  - 48 hours prior to any likely precipitation event.
  - Forecast to have a 50% or greater probability of producing precipitation in the project area.
  - The REAP must be onsite and be implemented 24 hours in advance of a predicted precipitation event per NOAA's National Weather Service Forecast.

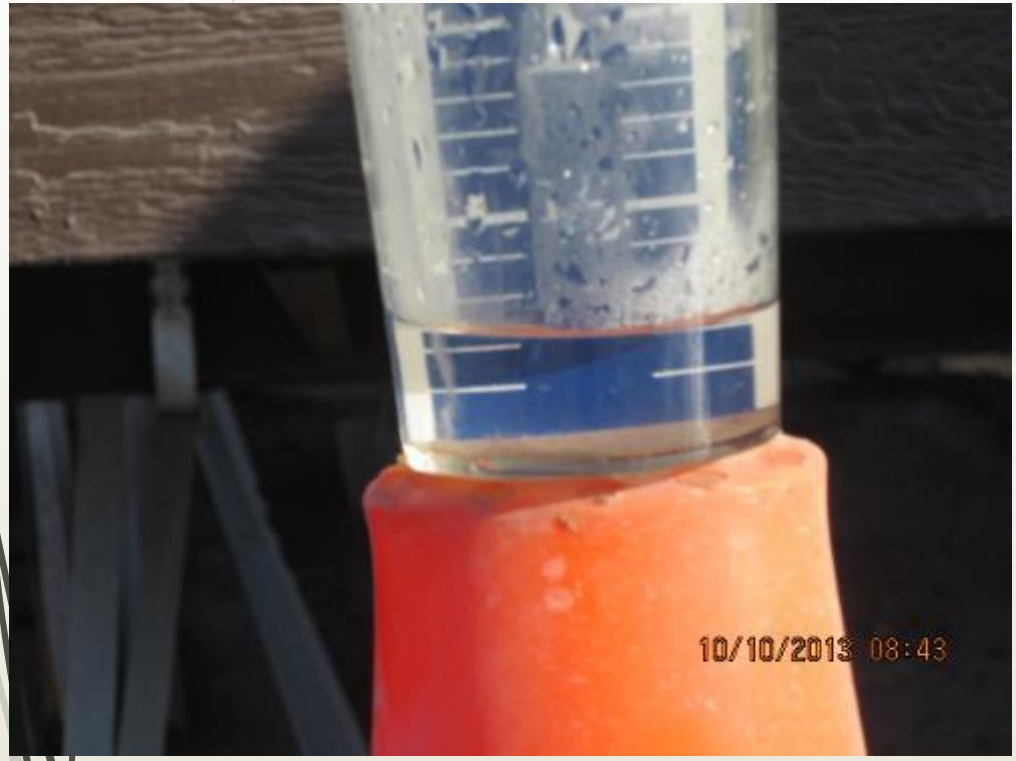
Rain Event Action Plan

rcwatershed.org

- Must include the following site and phase-specific information:
  - Site Address
  - Calculated Risk Level (2 or 3)
  - Site Stormwater Manager (24-hour phone #)
  - Erosion and Sediment Control Provider (24-hour phone #)
  - Stormwater Sampling Agent (24-hour phone #)
  - Activities associated with each construction phase
  - Trades active on the construction site during each phase
  - Trade contractor information
  - Suggested actions for each Project phase

Rain Gauge

rcwatershed.org



Is there a rain gauge on site?

Sampling

rcwatershed.org

- If Risk Level 2 & 3
  - Is site in compliance with sampling and analysis requirements?
  - Sampling and analysis of construction site runoff and non-storm water discharge for pH and turbidity;

Notice of Termination (NOT)

rcwatershed.org

- The Regional Water Board will consider a construction site complete only when (Cont'd)
  - Compliance with the Post-Construction Standards in Section XIII of the General Permit has been demonstrated;
  - Post-construction storm water management measures have been installed and a long-term maintenance plan has been established; and
  - All construction-related equipment, materials and any temporary BMPs no longer needed are removed from the site.

Training Limitations

rcwatershed.org

- The information in this training is general so as to cover many types of sites under a wide range of conditions.
- For site specific requirements, reference should be made to:
  - The Construction General Permit and MS4 permit; and
  - The project SWPPP.

Questions and Answers