RIVERSIDE COUNTY
WATERSHED PROTECTION

rcwatershed.org

# Training for Construction Site Inspectors

1

Prepared For: Santa Ana River Watershed Permittees

Presented By: CASC Engineering and Consulting

Spring 2019

# Training Objectives

rcwatershed.org

- To comply with the Construction Sites requirements of the Regional Permit
- To assist Construction Inspectors stay informed about:
  - The stormwater program
  - Pollution prevention at construction sites

# Introductions

rcwatershed.org

- Your Presenter
  - Daniel Secrist
    - Certified Erosion Sediment Stormwater Inspector (CESSWI)
    - Certified Professional in Erosion and Sediment Control (CPESC)
    - CGP Trainer-of-Record
    - Qualified SWPPP Developer

# Introductions

rcwatershed.org

- Audience Introductions
  - Agency
  - Division
- Discussion:
  - What is the worst example of non-compliance you have seen?

# 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

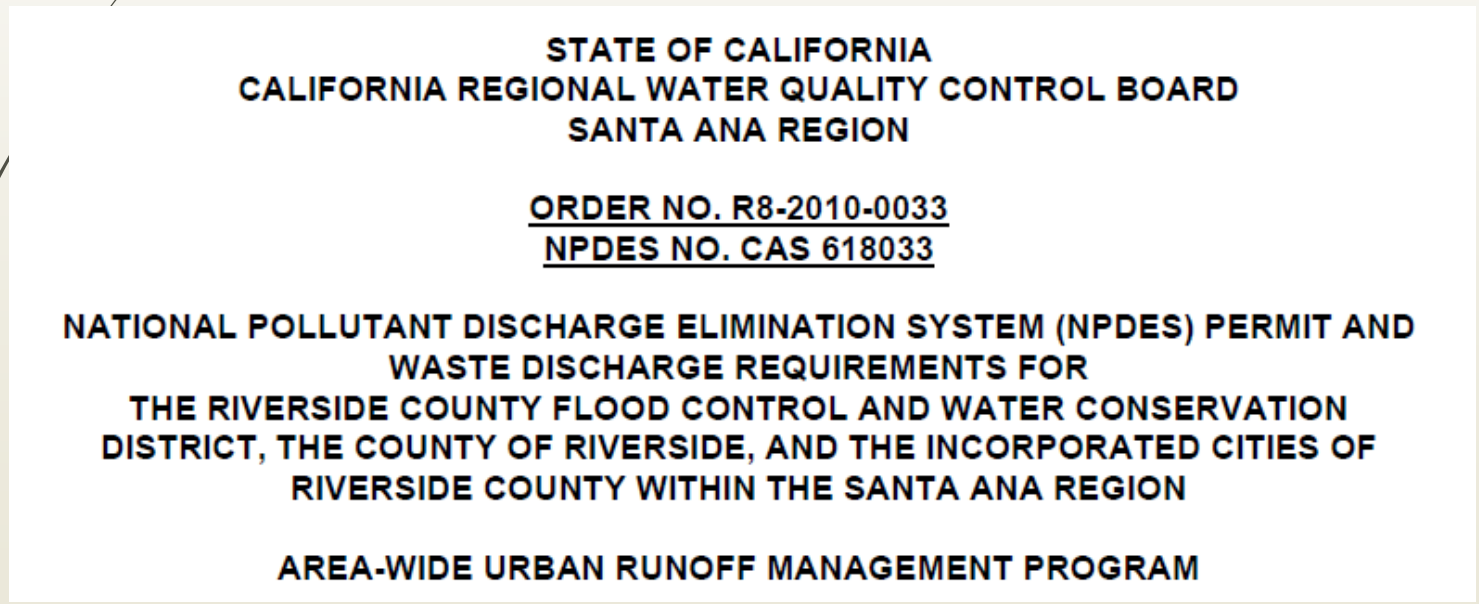
rcwatershed.org

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

# Santa Ana RWQCB (8) – For Santa Ana River Basin

rcwatershed.org

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



STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SANTA ANA REGION

ORDER NO. R8-2010-0033
NPDES NO. CAS 618033

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT AND WASTE DISCHARGE REQUIREMENTS FOR
THE RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, THE COUNTY OF RIVERSIDE, AND THE INCORPORATED CITIES OF RIVERSIDE COUNTY WITHIN THE SANTA ANA REGION

AREA-WIDE URBAN RUNOFF MANAGEMENT PROGRAM

# Municipal Permits

rcwatershed.org

- Covered by Santa Ana RWQCB Permit
  - County of Riverside*
  - Riverside County Flood Control and Water Conservation District*
  - Beaumont
  - Calimesa
  - Canyon Lake
  - Corona
  - Eastvale
  - Hemet
  - Jurupa Valley
  - Lake Elsinore
  - Menifee
  - Moreno Valley
  - Norco
  - Perris
  - Riverside
  - San Jacinto

*Agencies covered by multiple permits

# Local Programs

rcwatershed.org

- Local programs in the Santa Ana Watershed developed to comply with the NPDES Permits.
  - Drainage Area Management Plan (DAMP)
  - Local Implementation Plans (LIP)
- Compliance documents can be found here:
  - http://rcflood.org/NPDES/SantaAnaWS.aspx

# Drainage Area Management Plan (DAMP)

rcwatershed.org

- The DAMP is the document that serves as a model to document the 2010 Santa Ana Region MS4 Permit (amended in 2013) requirements, and provides guidance to the cities in the development and implementation of their Local Implementation Plans (LIP).


rcwatershed.org
RIVERSIDE COUNTY
WATERSHED PROTECTION

RIVERSIDE COUNTY
DRAINAGE AREA MANAGEMENT PLAN

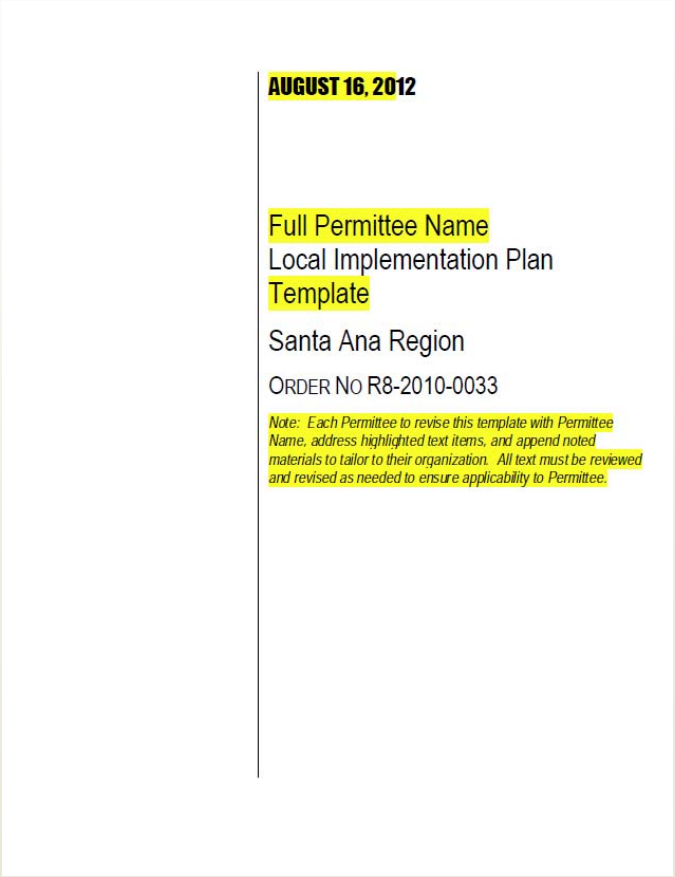
SANTA ANA REGION

JUNE 30, 2017

# Local Implementation Plan (LIP)

rcwatershed.org

- The LIP 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.



**AUGUST 16, 2012**

Full Permittee Name
Local Implementation Plan
Template

Santa Ana Region

ORDER NO R8-2010-0033

*Note: Each Permittee to revise this template with Permittee Name, address highlighted text items, and append noted materials to tailor to their organization. All text must be reviewed and revised as needed to ensure applicability to Permittee.*

# Construction Activity Requirements

# Construction Activity Requirements

rcwatershed.org

Each Co-permittee must implement a construction activity program in accordance with the Drainage Area Management Plan (DAMP).

Prior to the issuance of grading or construction permits:

- Construction General Permit
  - Verify that the project applicant has obtained coverage under the statewide Construction General Permit (Order 2009-0009-DWQ or subsequent Order), if applicable
- Prioritize Construction Sites
  - High – Sites ≥ 50 ac and Sites > 1 ac discharging to sediment impaired waters
  - Medium – Sites ≥ 10 ac and < 50 ac
  - Low – Sites that are not Medium or High

# Construction Activity Requirements

rcwatershed.org

Prior to the issuance of grading or construction permits (continued):

- Construction Site BMP Implementation
  - Require implementation of the BMPs identified in the DAMP in construction site erosion and sediment control plans, as appropriate and applicable
  - Ensure that erosion and sediment control plans include BMPs such that a distinct and effective combination of BMPs consistent with the site risk is implemented through all phases of construction

# Construction Activity Requirements

rcwatershed.org

- Construction Site BMPs
  - The DAMP references appropriate BMPs from several handbooks. Permittees may consider other BMPs of equivalent or better performance on a case-by-case basis.

*Excerpt from Riverside County DAMP*

**Table 7-1. Construction Site BMPs**

| BMP Name | Stormwater BMP Handbook Portal : Construction | Caltrans Construction Site BMP Manual | Included in USEPA Construction Site Menu of BMPs |
|---|---|---|---|
| ***Stabilize Exposed Soils*** | | | |
| Chemical Stabilization (Soil Binders) | EC-5 | SS-5 | X |
| Polyacrylamide | SE-11 | | |
| Mulching | | | |
| Hydraulic Mulch | EC-3 | SS-3 | X |
| Straw Mulch | EC-6 | SS-6 | X |
| Wood Mulching | EC-8 | SS-8 | X |
| Permanent Seeding | | | X |
| Sodding | | | X |
| Soil Roughening | | | X |
| Temporary Seeding/Hydroseeding | EC-4 | SS-4 | |
| ***Protect Steep Slopes*** | | | |
| Earth Dikes/Drainage Swales/Lined Ditches | EC-9 | SS-9 | |
| Fiber Roll | SE-5 | SC-5 | |
| Geotextiles | EC-7 | SS-7 | X |
| Gradient Terraces | | | X |
| Soil Retention | | | X |
| Straw Bale Barrier | SE-9 | SC-9 | |
| Temporary Slope Drain | EC-11 | SS-11 | X |
| ***Protect Waterways*** | | | |
| Check Dams | SE-4 | SC-4 | X |
| Outlet Protection/Velocity Dissipation Devices | EC-10 | SS-10 | |
| Streambank Stabilization | EC-12 | SS-12 | |
| Temporary Stream Crossings | NS-4 | NS-4 | X |
| Vegetated Buffer | | | X |
| ***Phase Construction*** | | | |
| Construction Sequencing (Scheduling) | EC-1 | SS-1 | X |
| Dust Control (Wind Erosion Control) | WE-1 | WE-1 | X |
| ***Preserve Site Condition*** | | | |
| Entrance/Outlet Tire Wash | TC-3 | TC-3 | |
| Preservation of Existing Vegetation | EC-2 | SS-2 | |
| Stabilized Construction Entrance/Exit | TC-1 | TC-1 | |
| Stabilized Construction Roadway | TC-2 | TC-2 | |

# Construction Activity Requirements

rcwatershed.org

- Inventory Database
  - Each Co-permittee must maintain a database of construction sites for which
    - they have issued a building or grading permit, and
    - activities include soil movement, uncovered storage of materials or wastes, or exterior mixing of cementaceaous products
  - Construction sites are included even if they are not subject to the Construction General Permit
  - Include at a minimum:
    - Project Name, Address, Tract or APN, Watershed
    - Project Type, Priority, Site Size
    - WDID#, Grading Permit #, Other Permits
    - Developer's information, Site contact
    - Number of inspections performed, Enforcement status

# Construction Activity 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 ordinances, and the requirements of this Order.
  - Inspection Frequency

| Season | Low Priority | Medium Priority | High Priority |
|---|---|---|---|
| Wet Season<br>Oct 1 to May 31 | Once In<br>Wet Season | Twice In<br>Wet Season | Monthly |
| Dry Season<br>Jun 1 to Sep 30 | At Frequency Sufficient to Ensure Sediment and Other Pollutants are Properly Controlled and Unauthorized Non-Stormwater Discharges are Prevented | | |

# Inspection Frequency / Prioritization

rcwatershed.org

- After each inspection, re-assess the priority based on the matrix, and update the database

**Table 7-2. SAR Construction Site Prioritization Matrix**

| Priority | Supporting Criteria [a] | Wet Season[b] Inspection Frequency |
|---|---|---|
| High | Project Size<br>Sites that disturb an area greater than 50 acres (initial inventory)<br>Proximity and Sensitivity of Receiving Waters<br>Sites disturbing an area greater than one (1) acre with Direct Discharge to Receiving Waters with CWA Section 303(d) listed waters for sediment or turbidity Impairments and site specific characteristics [d].<br>Soil Erosion Potential<br>Hillside sites that disturb an area greater than five acres<br>History of Compliance<br>Sites that disturb an area greater than one (1) acre with a low-range (0-50%) compliance with respective city/County NPDES site inspection/verification checklists | Once monthly |
| Medium | Project Size<br>Sites disturbing an area between 10 to less than 50 acres.<br>History of Compliance<br>Sites that received repeated verbal notification of non-compliance with respective city/County NPDES site inspection/verification checklists | Twice |
| Low | Project Size<br>Sites disturbing 1 to less than 10 acres.<br>History of Compliance<br>Sites that are in compliance with respective city/County NPDES site inspection/verification checklists<br>Sites that disturb an area of one (1) acre or greater | Once |

*Excerpt from Riverside County DAMP*

# Construction Activity Requirements

rcwatershed.org

- Inspection Content

  At a minimum, address the following:

  - Verify coverage under the Construction General Permit (Notice of Intent (NOI) and/or WDID number) during initial inspections, when applicable
  - Verify that a Stormwater Pollution Prevention Plan (SWPPP) is on site
  - Verify that the BMPs onsite are effective for the phase
  - Confirm compliance with the local stormwater ordinances
  - Visual observations of poorly managed authorized non-storm water discharges, or evidence of actual or potential illicit discharges

# Construction Activity Requirements

rcwatershed.org

**Figure 7-1. Example Construction Site Inspection Form**

Insert Co-Permittee logo here

**Construction Activity Compliance Inspection Notice**
Public Works Department and/or Division
Insert Co-Permittee address here, CA

Date:

| | | | |
|---|---|---|---|
| TRACT/PARCEL #: | WDID#: | WEATHER: | SITE INSPECTION PRIORITY LEVEL: ☐ HIGH ☐ MEDIUM ☐ LOW |
| APN: | GRADING PERMIT #: | SIZE/DISTURBED ACREAGE: | OFFICE USE: ☐–PAID ☐–INVOICE |

SITE NAME AND ADDRESS:

PROPERTY OWNER AND MAILING ADDRESS (IF DIFFERENT):

| | | | |
|---|---|---|---|
| CROSS STREETS: | INSPECTED BY: | PHONE #: | DA |
| FUTURE SITE USAGE: ☐ RESIDENTIAL ☐ INDUSTRIAL ☐ COMMERCIAL ☐ MIXED-USE | POST-CONSTRUCTION BMPs ON-SITE: ☐ YES NOTES- | | |

**NOTICE:** The [Insert Co-Permittee Name] performs a construction site inspection to determ compliance or not in compliance with the [Insert Co-Permittee Name] Stormwater Ordina regulations, and codes.

**1. PERMITS: (MS4 Permit Ref: Section IX.A.3.a)**
- ☐ Copy of NOI located at the project site?
- ☐ Copy of WDID located at the project site?
- ☐ Copy of [Insert Co-Permittee Name] permit at project site?

**2. STORM WATER POLLUTION PREVENTION PLAN (SWPPP): (MS4 Permit Ref: Section IX.A.3.b)**
- ☐ Copy of SWPPP located at the project site? If not, Regional Board must be notified.

**3. BEST MANAGEMENT PRACTICES (BMPS):**
- ☐ BMPs installed in conformance with local permits and [Insert Co-Permittee Name] Stormwater Ordinance, i.e. drain inlet protection, etc?
- ☐ BMPs in place for the various subcontractor trades, i.e. PCC cleanout, material storage, waste storage, etc?
- ☐ Project site BMPs effective?
- ☐ Effective combination of erosion and sediment controls on site?

**4. EROSION CONTROL:**
- ☐ No evidence of erosion present on manufactured and/or denuded slopes?
- ☐ No evidence of rill or gully erosion present?
- ☐ Erosion control BMPs installed in conformance with local permits and [Insert Co-Permittee Name] Stormwater Ordinance?

**5. SEDIMENT CONTROL:**
- ☐ No evidence of sediment outside the permit area or present on the site in an area that requires protection?
- ☐ No evidence of construction site sediment on City-maintained streets, downstream storm drains and/or drainage ways?
- ☐ No evidence of "Track-out" observed on surface streets adjoining the project site?
- ☐ Sediment controls installed and maintained in conformance with local permits and [Insert Co-Permittee Name] Stormwater Ordinance?

**6. ILLEGAL/ILLICIT DISCHARGES:**
- ☐ No evidence that structural controls are breached or failed under storm events of minor intensity?
- ☐ No evidence that active non-storm water discharges or potential illicit connections or illegal discharges to the streets or storm drains?

**VIOLATIONS:**

| | |
|---|---|
| ☐ Verbal warning: | ☐ Written warning: (attach copy) |
| ☐ NOV: (attach copy) | ☐ Stop Work: (attach copy) |
| ☐ Other: | |

**ADDITIONAL:**

| | | |
|---|---|---|
| RECEIVED BY: | NAME/SITE CONTACT (PRINT): | 24-HOUR PHONE: |
| DATE: | VIOLATIONS: ☐ CORRECTED ☐ NOT CORRECTED | PAGE ____ OF____ |
| REGIONAL BOARD NOTFICIATION: ☐ YES ☐ NO | DATE: TIME: | CONTACT: |

*Excerpt from Riverside County DAMP*

# Enforcement

rcwatershed.org

- Construction Inspection Program
  - Follow minimum inspection and enforcement procedures.
  - Follow criteria for characterizing the significance of violations, prioritizing violations, appropriate response actions and enforcement/compliance responses.
  - Standardize the implementation and enforcement of the respective Storm Water Ordinances.
  - Enforce the respective Storm Water Ordinances consistent with the DAMP and the local MS4 Permit.

# Prioritizing Violations

rcwatershed.org

**Table 3-1. Prioritization Factors for Violations**

| Prioritization Factor | Description |
|---|---|
| Characteristics of the Potential Pollutant | Based on chemical characteristics and potential to impact Beneficial Uses of Receiving Waters. The more toxic, hazardous, or detrimental to the Beneficial Uses of the Receiving Waters a Pollutant is the higher priority the discharge. |
| Sensitivity of the Affected Receiving Waters | The sensitivity of the affected Receiving Waters should be considered directly proportional to the priority of the violation because, for example, a more sensitive Receiving Water may suffer severe adverse effects from the discharge of a particular Pollutant, whereas, a less sensitive Receiving Water may suffer no adverse effects from the same Pollutant discharge. It is also important to consider that a Receiving Water may be highly sensitive to one potential Pollutant discharge while, at the same time, completely insensitive to another potential Pollutant. Examples of Receiving Waters that may be particularly sensitive include those with municipal supply or wildlife habitat designated Beneficial Uses. |
| Proximity of Receiving Waters | The closer a Receiving Water is to the discharge, the less chance there is for dispersion, dilution, or degradation of the potential Pollutant. Therefore, the closer the discharge is to Receiving Waters, the higher priority of the violation. |
| Magnitude of Discharge (volume and mass) | A larger Illegal Discharge should be of a higher priority than a smaller Illegal Discharge because as the magnitude of the Pollutant discharge increases the extent of impact of the discharge on the environment increases as well. |
| Responsiveness of the Discharger in taking corrective actions | A discharger who is responsive and implements a good faith effort to correct a violation is more likely to minimize adverse impacts to surface water quality than a discharger who takes no action to correct a violation. Therefore, the priority of a violation should decrease as the responsiveness of the discharger increases. |
| Intent of the Discharger | Is the violation accidental or the result of an accident or a deliberate attempt to circumvent regulations? |
| Frequency of the Violation | Violations of local Stormwater Ordinances and erosion control ordinances that are continuous or reoccurring should be of a higher priority than isolated occurrences of violations. The more frequent a violation, the more likely it is that the discharge will impact surface water quality. |
| Previous History of Non-Compliance of the Responsible Party | A poor history of non-compliance of a discharger should result in a higher prioritization of subsequent violations as compared to a discharger with a good history of compliance because a history of non-compliance is evidence of a discharger's lack of concern for complying with local stormwater and erosion control ordinances. |

*Excerpt from Riverside County DAMP*

# Severity of Violations

rcwatershed.org

**Table 3-2. Severity of Violations**

| Factors Affecting the Severity of Violations | Severity Priority Level | | |
|---|---|---|---|
| | High | Medium | Low |
| Pollutant characteristics | Hazardous Materials (e.g., pesticides and solvents) | Metals, nutrients, sediment, other non-Hazardous Materials | Trash and debris |
| Sensitivity of Receiving Waters | Drinking water source, wildlife refuge, Illegal Discharges containing Pollutants identified as Impairing the Receiving Water. | Recreational reservoir, riparian habitat | Dry, ephemeral stream |
| Proximity of Receiving Waters | Adjacent | Several hundred feet away | Several hundred yards away |
| Discharge magnitude | 1000's of gallons | 100's of gallons | 10's of gallons |
| Responsiveness of discharger | No action to contain or mitigate discharge | Reactive to control discharge when requested (i.e., cooperative) | Implements spill control plan at own initiative or shows good faith effort to respond |
| Intent of violation | Intentional | Discharge due to lack of controls or negligence | Implemented and maintained controls that failed (i.e., accident) |
| Frequency of violation | Continuous | Intermittent | Isolated incident |
| Previous history of discharger | Enforcement and cleanup historically resisted and more than one previous violation | Enforcement and cleanup performed when threatened and one or less previous violations | Enforcement and cleanup performed when requested and no previous violations |

*Excerpt from Riverside County DAMP*

# Regional Board Notification

rcwatershed.org

- Each Co-permittee must notify the Santa Ana Regional Board by telephone or email within two (2) working days of receiving notice of potential non-compliance with the Construction Activity permits of a non-emergency nature. Examples:
  - Site can't demonstrate coverage under the applicable permit
  - Site does not have a SWPPP available
  - Site BMPs are not properly maintained

# Annual Reports

rcwatershed.org

- Each Co-permittee must complete and submit an Annual Report Form each year

**Figure 7-2. Standardized Spreadsheet for Co-Permittee Construction Site Inspections**

| PROJECT GENERAL INFORMATION | | | | | | | | | | | MUNICIPAL PERMITS See Note C. | | DEVELOPER INFORMATION | | | | | | SITE CONTACT INFORMATION | | ENFORCEMENT STATUS See Note D. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Facility Name (dba) See Note A. | Project Location | | | | | | | Project Type | Project Priority | No. of Stormwater Inspections | Site Size | WDID No. (General Permit) | Grading Permit No.(s) | Other Permits Specify: Building, Encroachment, Right-of-Way, etc. | Name | Contact Name | Mailing Address | | | | Name (24 Hour) | Phone Number (24 Hour) | Satisfactory | Verbal Warning | Written Warning | Notice of Violation | Stop Work Order | Referred to RWQCB |
| | Street Address | Cross Street | City | Zip | Tract Nos. or Assessor Parcel Nos. See Note B. | Watershed | | | | | | | | | | | Street Address | City | Zip | Phone Number | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

*Excerpt from Riverside County DAMP*

# 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 municipal CIP projects pay no fee)
    - Proof of coverage is the Waste Discharge Identification (WDID) issued electronically after fees are received (SAR municipal CIP projects receive an Application ID)
      - Construction may not begin until the WDID is obtained and can be presented on demand


Water Boards Storm Water Multip

Notice Of Intents Search Results

Following are the results that matched with your

Export to Excel

| App ID | WDID | Application Type | Status | Status Date |
|---|---|---|---|---|
| 497925 | | Region 8 MS4 CIPs | Active | 05/21/2018 |
| 497775 | | Region 8 MS4 CIPs | Active | 05/17/2018 |
| 497703 | | Region 8 MS4 CIPs | Active | 05/17/2018 |
| 497205 | | Region 8 MS4 CIPs | Active | 05/01/2018 |
| 496986 | | Region 8 MS4 CIPs | Active | 05/22/2018 |

# 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-Storm Water Management
  - Non-Storm Water 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
- Run-on 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

Pesticides

Sediment (Turbidity)

Nutrients

Concrete Waste (High pH)

Bacteria

Project Pollutants

Oil & Grease

# 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)

rcwatershed.org

36

# Construction Site BMP Implementation

# Construction Site BMP Implementation

rcwatershed.org

- The following are BMPs required in the Construction General Permit:
  - Good Site Management "Housekeeping"
  - Non-Storm Water Management
  - Erosion Control
  - Sediment Control
  - Run-on and Run-off Control

# 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

# 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 Ana 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?

Santa Ana Region

# Management of Construction Materials

rcwatershed.org

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


Santa Ana Region

# Management of Construction Materials

rcwatershed.org

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

Santa Ana 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 surfaces
  - 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 Ana Region

**Location, Location, Location!**

# Waste Management

rcwatershed.org

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

# Waste Management

rcwatershed.org

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


Santa Ana Region

# 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 Ana Region

# Waste Management

rcwatershed.org

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

# 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?

Adequate size for job

Silt fence linear barrier

Trash picked up on a regular basis

Santa Ana Region

# 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


# 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!

rcwatershed.org



# Break Time

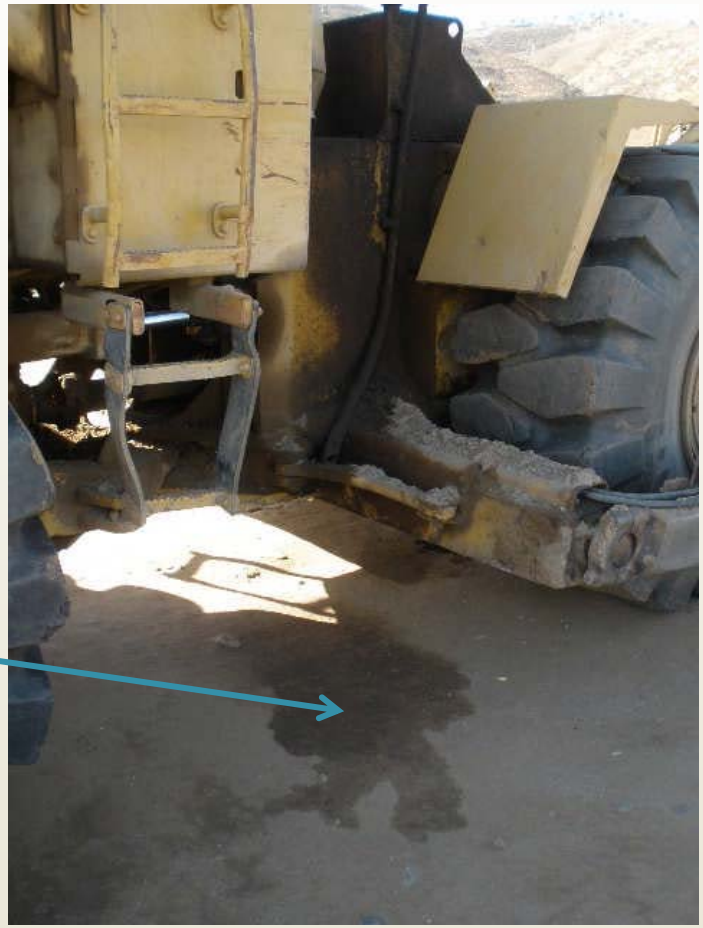
## Stretch Your Legs!

## 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?


Santa Ana Region

Impervious surface
Bermed area

# 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 Ana 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

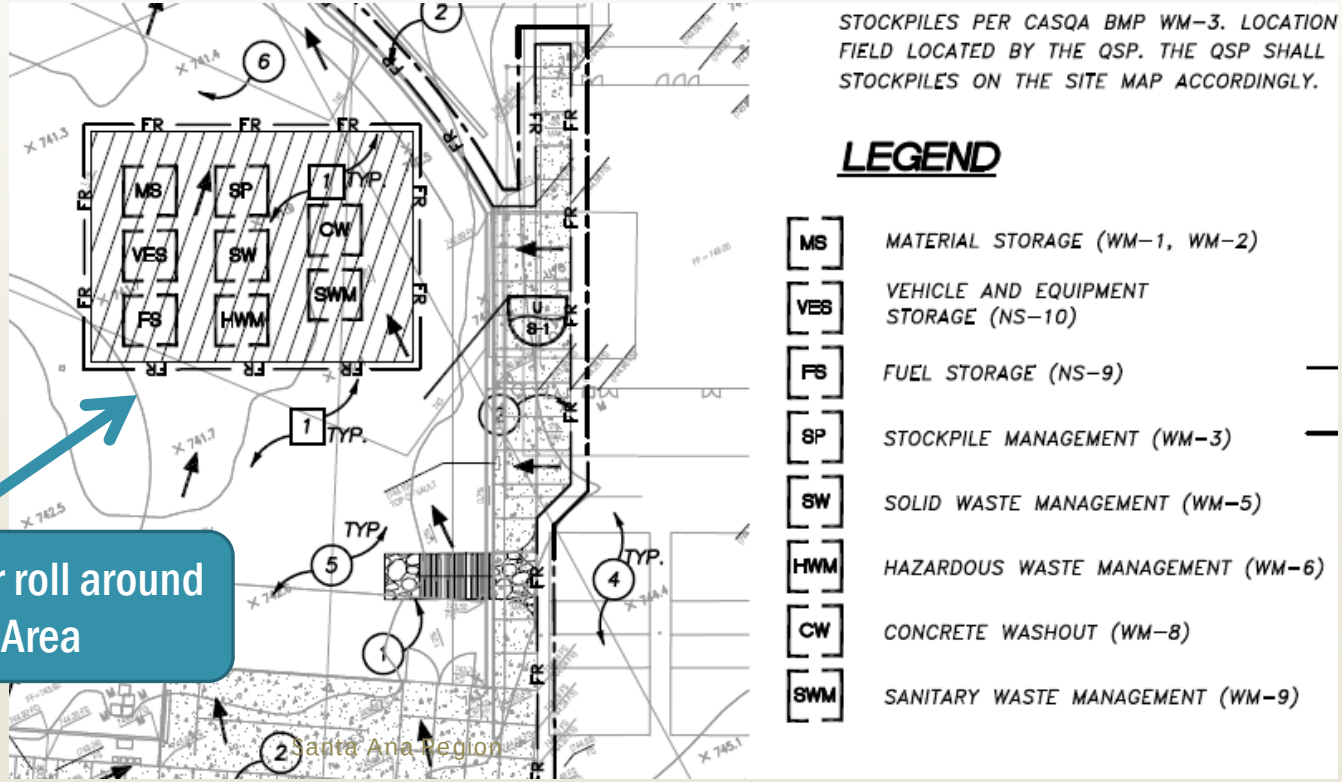
***How will it react with Stormwater flows?***

  - 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



# 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-Storm Water Management

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

Soil binder in high wind areas.

Surface roughening

# 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.

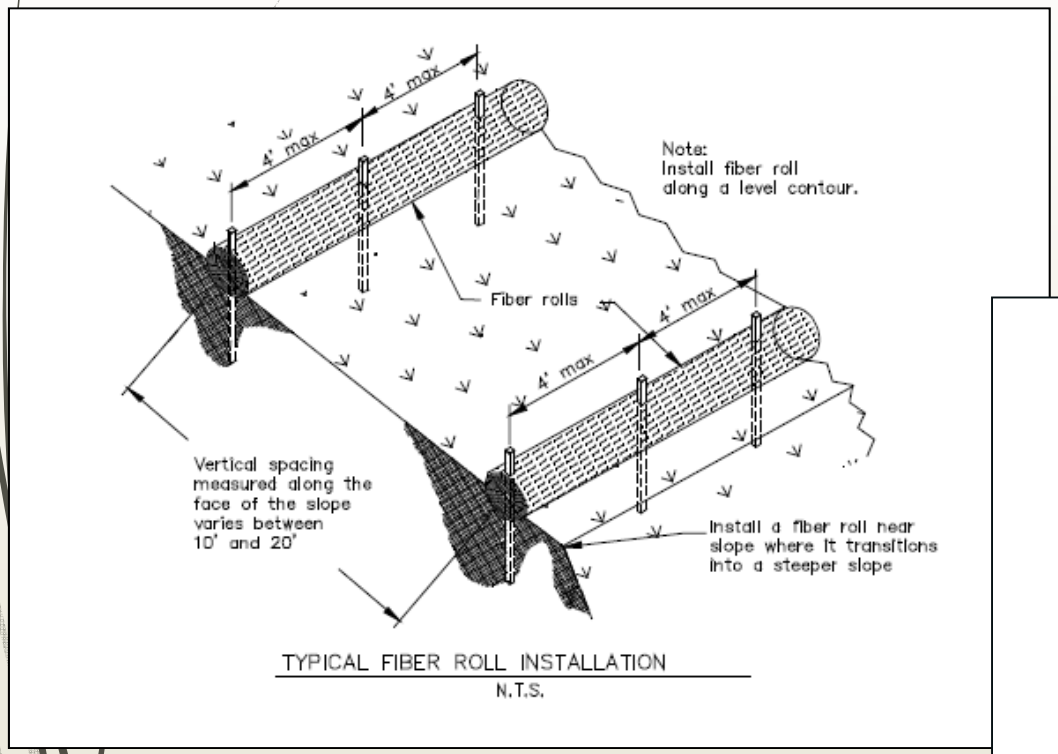
# Sediment Controls

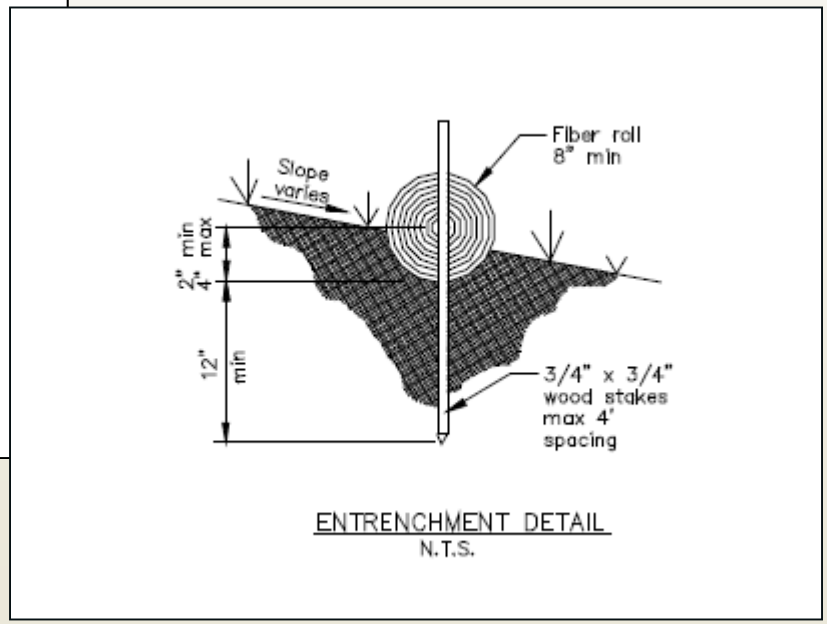
rcwatershed.org


Fiber roll linear barriers.
Properly staked and overlapped.

# Perimeter Controls

rcwatershed.org




**Fiber roll installation.**

# Perimeter Controls

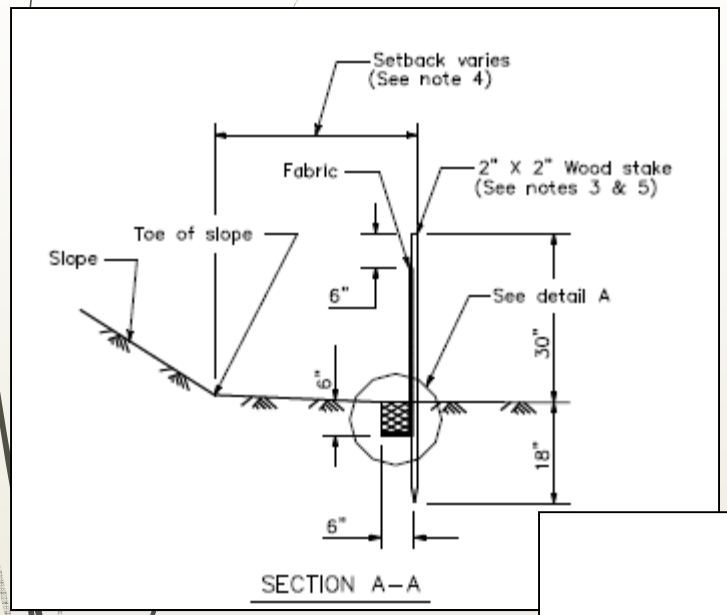
rcwatershed.org

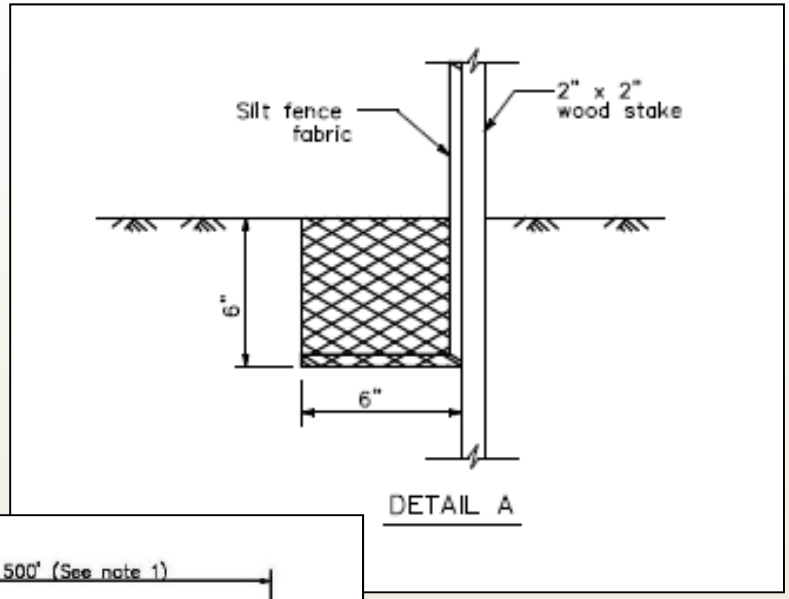


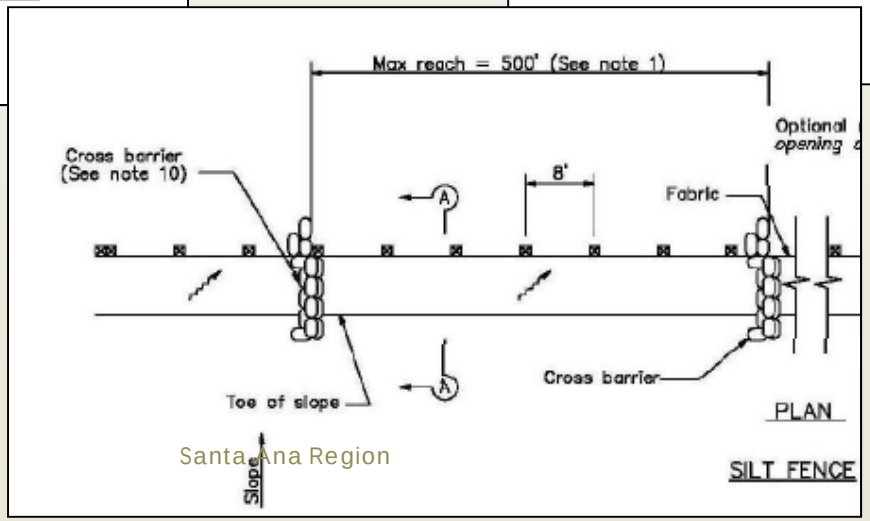
Silt fence linear barriers.
Stakes are on the downgrade side.

# Perimeter Controls

rcwatershed.org




Silt fence installation.

# Perimeter Control

rcwatershed.org



# 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 Ana Region

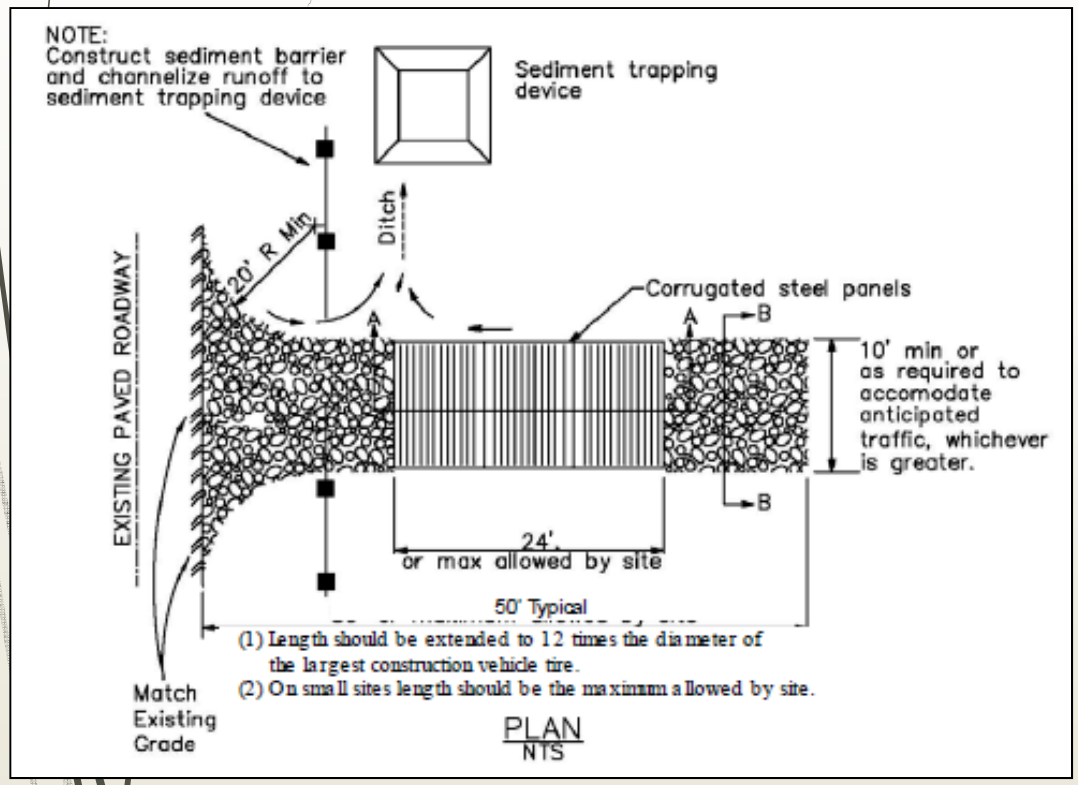
# Sediment Controls

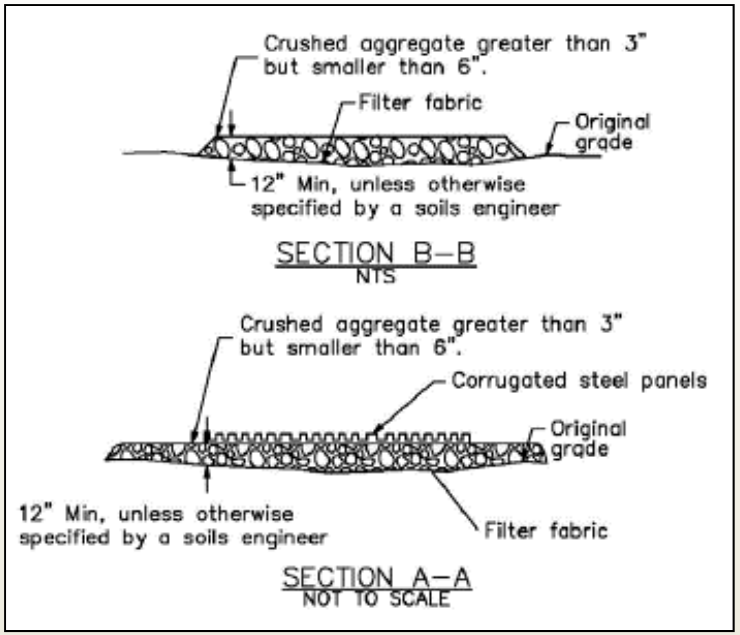
rcwatershed.org

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


# Sediment Controls

rcwatershed.org

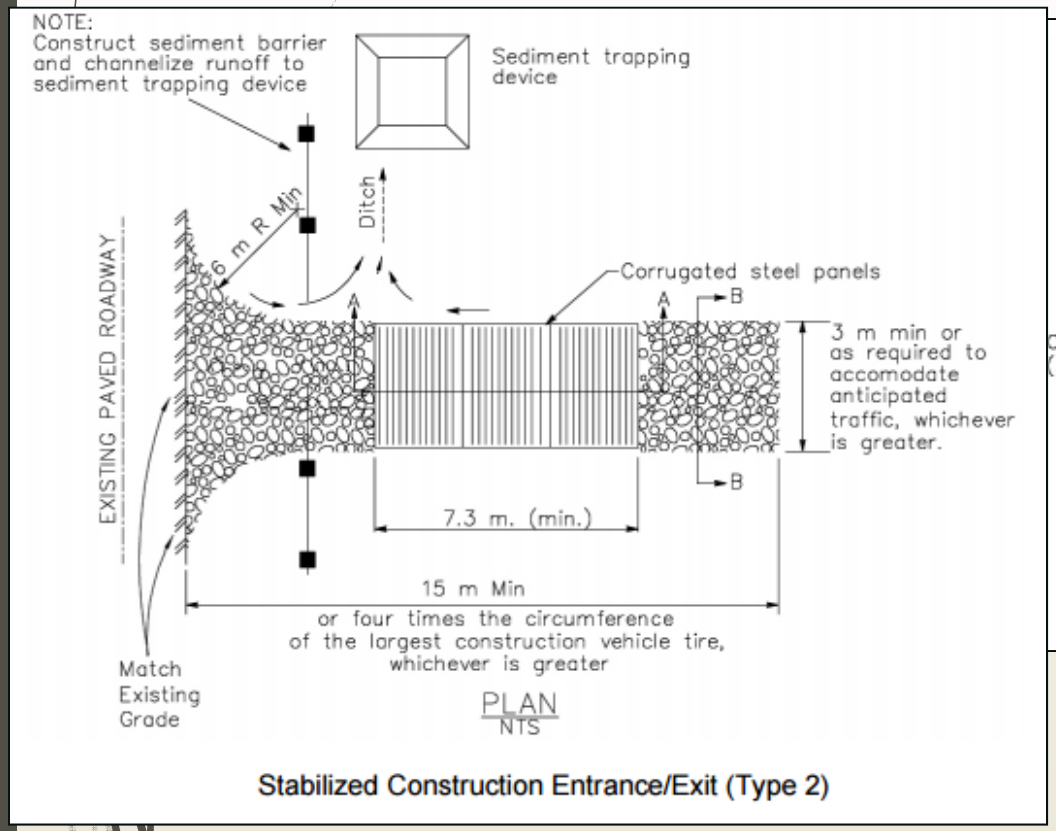


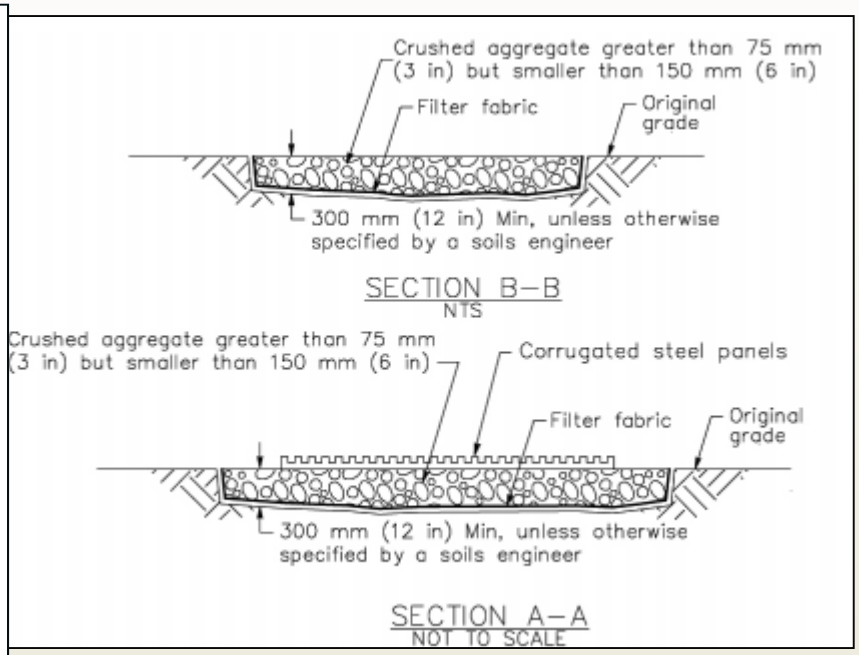

**CASQA Stabilized Construction Entrance/Exit Installation**

# Sediment Controls

rcwatershed.org



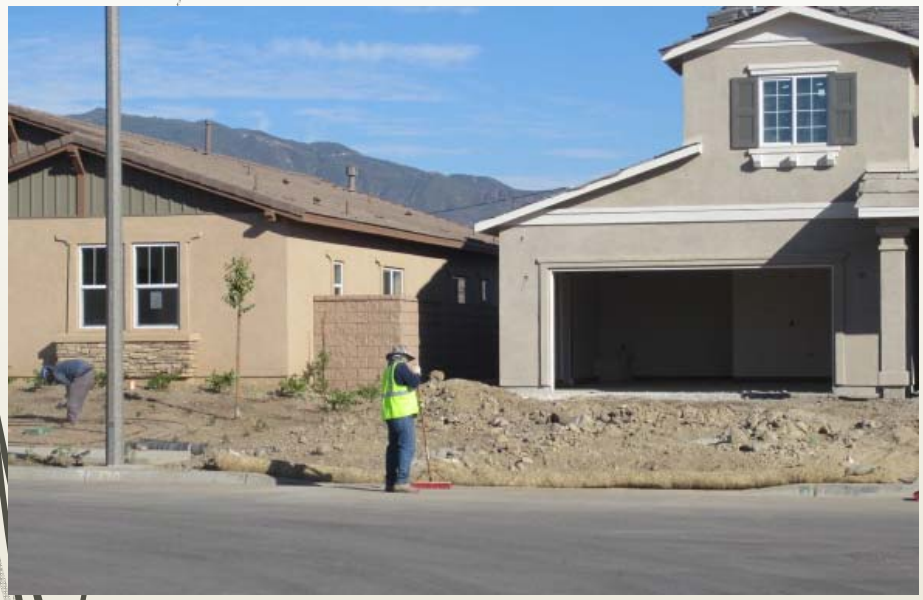

Stabilized Construction Entrance/Exit (Type 2)




**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

rcwatershed.org

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

Santa Ana 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 Ana 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.

# 1 Sediment Controls

rcwatershed.org

Controlled access point limits the potential of track out.

Santa Ana 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?

# 4 Run-on and Runoff Controls

rcwatershed.org

Gravel bag check dams in curb flow lines

# Run-on and Runoff Controls

rcwatershed.org


# Run-on and Runoff Controls

rcwatershed.org

- Runoff control using a temporary diversion during grading phase.

# Run-on and Runoff Controls

rcwatershed.org

- Runoff control using a temporary diversion during grading phase.

rcwatershed.org



# Additional CGP Requirements

# 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).
- 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.

# 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.

# 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

# 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.

rcwatershed.org

27

# Questions and Answers