CONSTRUCTION STORMWATER REFRESHER

2010

Level II – Pre-Test

- Taken when registering for course via LMS
- Evaluates your current level of knowledge
- Covers course topics
- Same test will be given at the end of the course to evaluate what you learned
- Results will be used to evaluate the effectiveness of this training

Why Are You Here?

- **Caltrans is required to train Construction employees annually after initial training**
- **To Get Updated On District – Specific and Permit Requirements**
- **To Review Caltrans' General Requirements for Water Pollution Control on Construction Sites**

Water Pollution Prevention

- **Overall Purpose**
  - To Reduce Potential Environmental and Human Health Impacts
  - Comply with State and Federal Laws
  - Highest and Best Beneficial Use of Water Resources

Course Highlights

- Pollutant sources, potential impacts and Regulation Refresher
- Best Management Practices Refresher
- Contract Administration for Water Pollution, SWPPP Review, Inspection and Maintenance, and Sampling and Analysis Refresher

Definitions

- See Handout

New CGP Requirement

Impacts

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

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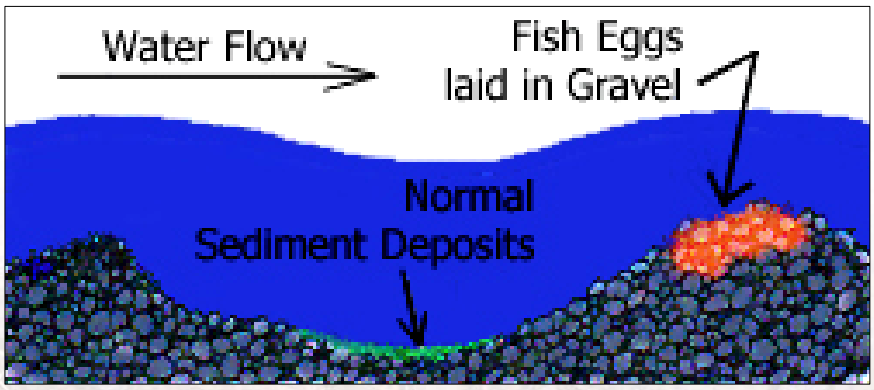
A healthy stream



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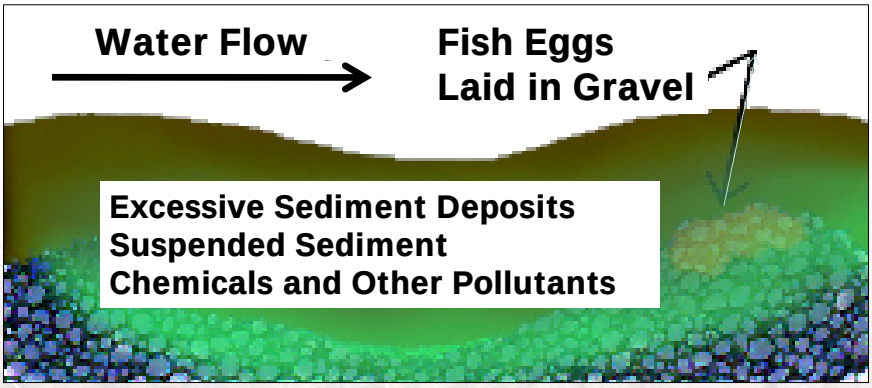
A stream impacted by a construction site



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The Law

- **California's General Construction NPDES Permit – CAS000002**
  - Issued in 1992 and reissued in 1999
  - Establishes Requirements for Discharges Associated with Construction Activities
  - Reissued 2009, effective July 2010 (New CGP)
- **Caltrans NPDES Permit - CAS000003**
  - Issued 1999
- **Local MS4 Permits and Ordinances**

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10

Permits

- **General Construction NPDES Permit CAS000002 – The 02 permit**
- **Caltrans NPDES Permit CAS000003 - The 03 permit**
  - The 03 Permit requires Caltrans construction sites that disturb 1 or more acres to comply with the 02 Permit for General Construction Activity
  - Local MS4 Permits and ordinances

Regional Permit – Lake Tahoe Unit

- **Discharge Prohibitions**
  - RWQCB must approve SWPPP
  - No soil disturbing activities Oct 15 thru May 1
  - Effluent limits
- **Reporting**
  - Annually – Oct 31
  - Final – completion of construction
- **Sampling**
  - Sedimentation/Siltation
  - Non-visible Pollutants

Discharges other than stormwater and authorized non-stormwater are prohibited

- This is achieved by developing and implementing an effective SWPPP/WPCP for the site
- SWPPP/WPCP review refresher is later in this presentation

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What if We Don't Comply?

- Federal EPA Fines Up to $37,500 per day
- State and Regional Water Boards Fines $10-20K per day plus $10-20 per gallon
- 3rd Party Lawsuits

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Notice of Violation (NOV)

- **Highest form of informal enforcement**
- **Requires corrective action**
- **Requires a written response**
- **Warns of further enforcement action**

Administrative Civil Liability (ACL)

- **Monetary Penalties**
- **Failure to Submit a Notice of Intent for Coverage under the appropriate stormwater NPDES permit.**
  - Minimum $5,000 plus recovery of RWQCB staff costs
- **Violation of Permit Terms or Basin Plan Prohibitions**
  - Minimum amount is the economic savings of the violation

Recent Enforcement Examples

- **District 1 ACL Confusion Hill Bypass Project – 2008**
  - $20,000 - $10,000 for discharge and $10,000 more for failure to report discharge
- **District 2 NOV Highway 44 Bridge Replacement – 2008**
  - Failure to implement an effective combination of erosion and sediment control BMPs
  - Failure to maintain, inspect and repair BMPs
  - Discharge of stormwater causing or threatening to cause pollution, contamination or nuissance
  - Failure to implement SWPPP
  - Required response included implementing BMPs, monitor and maintain BMPs, Inspect and submit monthly inspection reports , submit a BMP location map and written reports

Recent Enforcement Examples

- **District 2 NOV I-299 – 2007**
  - Failure to implement effective combination of erosion and sediment control on all DSAs
  - Inlet BMPs and wattles need maintenance
  - Signs of erosion, erosion under blanketing, need erosion control blanketing or equivalent

  - Slope needs additional hydromulch
  - Significant tracking; needs rock installed; need access restriction to road near waterway
  - Required: Effective combination of erosion and sediment control, copies of all inspection reports, report documenting problems and corrective action with photos

Recent Enforcement Examples

- **District 3 NOV Bear Creek Bridge – 2009**
  - Inadequate implementation of BMPs
  - Lack of dewatering plan and permit
  - Contractor drove across water diversion
  - Inadequate concrete waste and soil stabilization BMPs
  - Discharge of sediment to Bear Creek
  - Reports from the Water Board and Caltrans indicate failure to adequately develop and implement SWPPP
  - Required response included submitting a written report describing steps taken to train contractor; a report evaluating compliance with environmental requirements for clear water diversion

Recent Enforcement Examples

- **District 4 ACL I-880 at Route 82 – 2008**
  - $248,000 – **Cited for not notifying the SF RWQCB**
  - Discharge of 155,000 gallons of raw sewage and 18,000 gallons of sediment-ladened water from failed dewatering system

- **District 4 NOV Pigeon Pass Route 84 – 2007**
  - Previous notice to comply for failure to fully install sediment and erosion controls by October 15
  - Evidence of erosion readily apparent "Significant volumes of stormwater-deposited sediment in the roadside drainage ditch"

Recent Enforcement Examples

- **District 4 NOV Bay Bridge - 2009**
  - Failure to implement appropriate erosion controls
  - Failure to maintain installed sediment controls
  - Storage of hazardous waste in open bucket
  - Failure to maintain work areas to minimize potential discharges of wastes and trash to Bay
  - Failure to properly store hazardous materials
  - Required: SWPPP revisions, prepare and submit stormwater monitoring plan and revise BMPs, Sample during at least next storm event

Recent Enforcement Examples

- **District 4 NOV Four Sites on I-580 and I-680 - 2007**
  - Improper BMPs and maintenance
  - Absence of SWPPP and inspection reports
  - Failure to obtain required stormwater permits
  - Visible clouds of concrete dust
  - Pumping concrete slurry pond supernatant onto ground

Recent Enforcement Examples

- **District 4 NOV Highway 101 HOV Widening - 2009**
  - Lack of proper BMPs
  - Discharge of excess sediment
  - Lack of erosion control
  - Work in flowing and standing waters

  - Lack of notification of Discharge
  - Required a site investigation report, monitoring and reporting program, a report discussing policies, procedures and corrective actions

Recent Enforcement Examples

- **District 5 NOV 101 Milpas to Hot Springs - 2009**
  - BMPs completely insufficient
  - Lack of erosion and sediment controls
  - Sediment discharge to Sycamore Creek
  - Improperly protected storm drain inlet allowed sediment and unauthorized non-storm water discharge to Sycamore Creek
  - Dewatering BMPs were inappropriately sized
  - Sediment-ladened water discharged into the bird refuge

Recent Enforcement Examples

- **District 8 Notice of Correction on I-215 from County of San Bernardino - 2008**
  - Non-implementation of BMPs
  - Tracking soil in multiple locations
  - No stabilized entrance/exit
  - Ripped/torn bags need replacement
  - Sewage contaminated soil dumped on ROW
  - Required: implement erosion and sediment controls, install exit BMP, sweep streets, implement dust control, implement BMPs

Recent Enforcement Examples

- **District 9 NOV Black Rock Four Lane Conversion - 2009**
  - Failure to completely develop and implement a SWPPP and BMPs for clear water diversions
  - Required: SWPPP amendments to be submitted, submit report that documents corrective actions, Inspection reports submitted on monthly basis

Recent Enforcement Examples

- **District 10 NOV Angels Camp Highway 4 - 2009**
  - Lacked An effective combination of erosion and sediment control BMPs
  - Lacked adequate storm water BMPs
  - Inadequate BMPs, improperly installed BMPs and Inadequate maintenance of BMPs
  - Turbid stormwater discharge to adjacent wetland

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Recent Enforcement Examples

- **District 11 Notice to Comply SR 125 Gap - 2004**
  - Clean out basins
  - Apply additional BMPs to slopes
  - Implement BMP Plan
  - Stabilize outlet

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Recent Enforcement Summary

- Failure to report discharges has doubled fines
- Failure to implement an effective combination of erosion and sediment control BMPs
- Failure to Implement SWPPP
- Failure to Maintain BMPs
- Failure to Implement proper Dewatering BMPs and Clear Water Diversion BMPs

A little more work to get things implemented properly up front may prevent significantly more work after a NOV/ACL (reporting, monitoring, etc.)

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Erosion? Sediment? It's not the same thing?

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What is Erosion?

- Soil erosion is a **PROCESS**
- Soil particles become detached and are transported by water, wind, or gravity

What is Sediment?

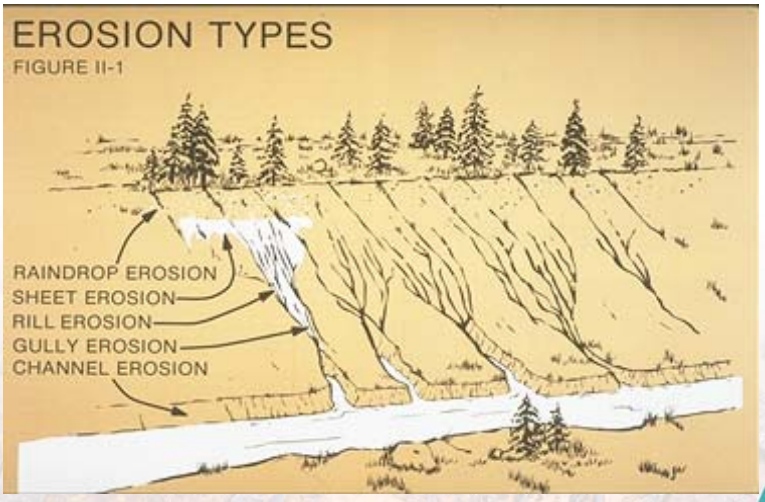
- Sediment is detached soil particles **deposited** downgradient

Types of Erosion

- Splash Erosion (Raindrop)
- Sheet Erosion (Overland Flow)
- Rill Erosion
- Gully Erosion
- Channel Erosion

Concentrated Flow

Types of Erosion



Wind Erosion

- Most common in arid and semi-arid regions, but can occur in any region during construction
- Occurs when wind is ≥ 8 mph above dry, bare ground
- Fine particles become suspended, coarser particles bounce and slide
- Different sites have different conditions that need to be considered

Erosion Control

- Any practice that protects the soil surface and prevents the soil particles from being detached
- Erosion control is a **source control** that keeps soil in place

Sediment Control

- Any practice that traps the soil particles after they have been detached and moved downgradient
- Sediment control measures are usually **passive systems** that rely on filtering or settling the particles

Which are More Effective?

- Erosion controls are preferred
  - keep the soil in place
  - enhance the protection of the site resources
- Use **erosion controls as the primary protection**, with **sediment controls as a secondary system**

Pop Quiz

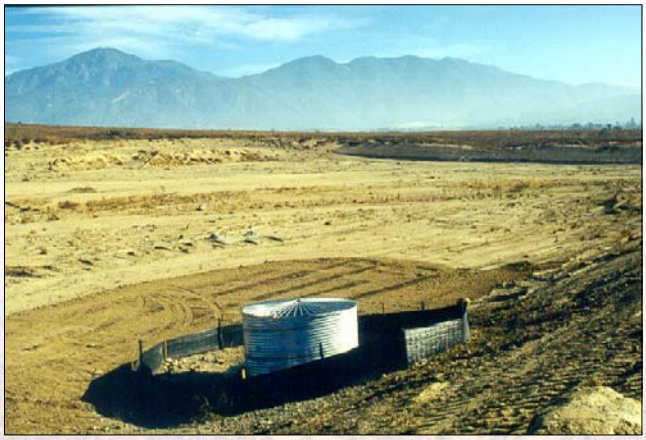
1. Erosion Control or Sediment Control?

Pop Quiz

2. Erosion Control or Sediment Control?

Pop Quiz

3. Erosion Control or Sediment Control?



Pop Quiz

4. Erosion Control or Sediment Control?

Pop Quiz

5. Erosion Control or Sediment Control?

Pop Quiz

6. Erosion Control or Sediment Control?

Pop Quiz

7. Erosion Control or Sediment Control?

➲ Review

Course Highlights

- Pollutant sources, potential impacts and Regulation Refresher
- Best Management Practices Refresher
- Contract Administration for Water Pollution, SWPPP Review, Inspection and Maintenance, and Sampling and Analysis Refresher

Water Pollution Control Strategies

- Prevent storm water contact with the construction site
- Limit amount of disturbed soil areas (DSAs)
- Protect (DSAs) from erosion
- Minimize sediment in storm water before leaving the site
- Prevent storm water contact with other pollutants

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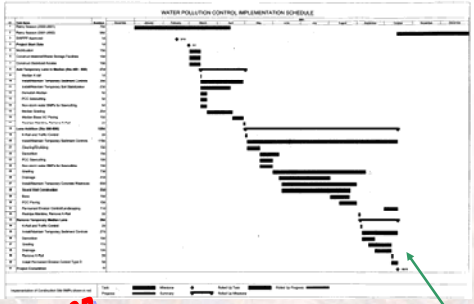
Prevent Storm Water Contact With The Construction Site

- Scheduling



New CGP Requirement

Rainy Season

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Limit the Amount of DSA

- Limit the amount and duration that DSA are exposed to rainfall impact, run-on and run-off and wind
- Implement temporary control practices on non-active DSAs within 14 days from the cessation of soil-disturbing activities or one day prior to the onset of precipitation, whichever occurs first
- Implement temporary control practices for active DSAs prior to the onset of precipitation and throughout each day for which precipitation is forecasted

Soil Preparation for Stabilization

- Proper preparation of the soil is necessary prior to the application of soil stabilization materials

Soil Stabilization BMPs

- Temporary Soil Stabilization BMPs are designed to eliminate or reduce the erosion of disturbed soil areas

Soil Stabilization BMP SSPs

New CGP Requirement

- 07-346 Temporary Fence (ESA Type)
- 07-351 Temporary Hydraulic Mulch
- 07-352 Temporary Hydraulic Mulch (Cementitious Binder)
- 07-353 Temporary Hydroseed
- 07-354 Temporary Tacked Straw
- 07-371 Temporary Soil Binder
- 07-380 Temporary Mulch

Soil Stabilization BMP SSPs

- 07-381 Temporary Hydraulic Mulch (Bonded Fiber Matrix)
- 07-382 Temporary Hydraulic Mulch (Polymer Stabilized Fiber Matrix)
- 07-390 Temporary Erosion Control Blanket
- 07-395 Temporary Cover
- 07-420 Temporary Fiber Roll
- 07-470 Temporary Gravel Bag Berm
- 07-485 Move In/Move Out (Temp. Erosion Control)

Soil Stabilization BMPs

- BMPs used to protect or bind disturbed soil area from raindrop impact erosion, sheet erosion and wind erosion
- This group of BMPs does not protect against concentrated flow erosion

Temporary Hydraulic Mulch
(07-351, 07-381, 07-382)

- A mixture of mulch, tackifier and water

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Temporary Hydraulic Mulch
(07-351, 07-381, 07-382)

- It's mixed into a slurry and applied using hydro-mulching equipment

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Temporary Hydraulic Mulch
(07-351, 07-381, 07-382)

- Roughen soil surface with small furrows along the contours
- Maximum slope 1:2
- Sprayed onto disturbed soil 2,000 to 5,500 lb/ac as a liquid slurry
- Takes about 4 hours/acre to apply (plan ahead)
- Protects against sheet erosion
- NOT EFFECTIVE ON CONCENTRATED FLOWS

Temporary Hydraulic Mulch

- Bonded Fiber Matrix (BFM)

Temporary Hydraulic Mulch

- **Polymer Stabilized Fiber Matrix (PSFM)**

Inadequate Preparation

Temporary Hydroseed (07-353)

- Mixture of tackifier, fiber, seed, and water to stabilize active and nonactive disturbed soil areas

Temporary Hydroseed (07-353)

- Roughen soil surface with small furrows along the contours
  - Ripping, Sheepsfoot, Track Walk
- Needs a month before effective
- Alone it is adequate for 1:3 slopes, with hydromulch 1:2
- For use when a year or more duration is needed
- 4-6 hours per acre to install; more when applied with erosion control blankets or with straw and emulsion

Temporary Soil Binder (07-371)

- **What is it?**
  - Plant based (long and short lived)
  - Polymeric emulsion blend (acrylic polymers)
- **They penetrate the top soil and bind the soil particles together**

Temporary Soil Binder (07-371)

- **For short duration up to 3 months, some up to a year**
- **For up to 1:2 slopes**
- **0-48 hours until effective**
- **4 hours per acre to install**

Temporary Tacked Straw (07-354)

- Tacked straw uses a mixture of tackifier, fiber, and water to stabilize active and nonactive disturbed soil areas

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Temporary Tacked Straw (07-354)

- For up to 1:2 slopes; duration: 3-12 months
- 2-6 hours/acre to install
- Apply 2 tons per acre

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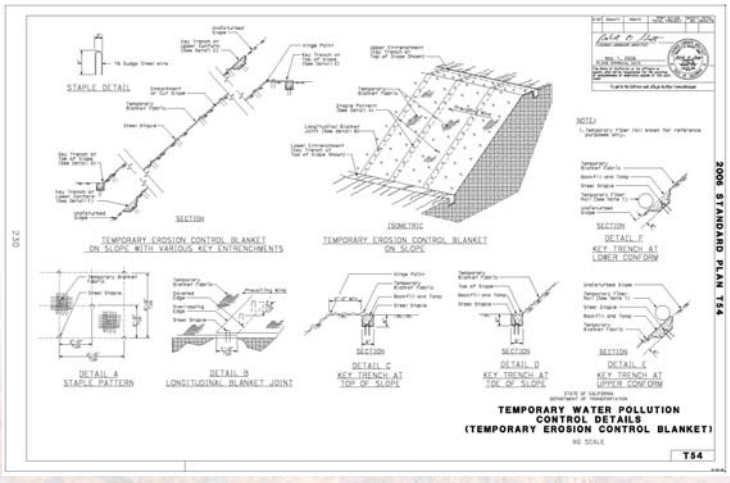
Temporary Erosion Control Blanket (07-390)

- **Rolled erosion control**
  - Double net excelsior blanket
  - Double net straw and coconut blanket
  - Jute netting
  - Coir netting
- **Long Term/Non Degradable**
  - Geosynthetic fabric (SS 88-1.06)
- **Standard Plans T54 and T55**

Temporary Erosion Control Blanket (07-390)

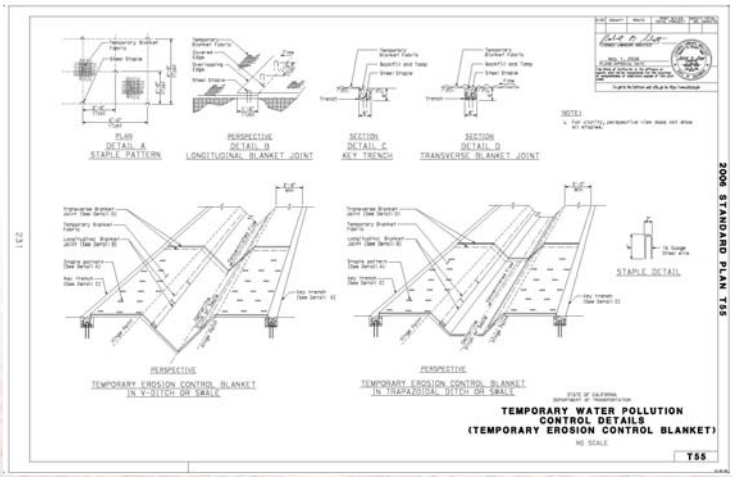


(Source: Caltrans Standard Plans, May 2006)

Temporary Erosion Control Blanket (07-390)

- **Can be used for concentrated flow protection for example in**
  - V-ditch or swale
  - Trapezoidal ditch or swale

Temporary Erosion Control Blanket (07-390)



(Source: Caltrans Standard Plans, May 2006)

Temporary Erosion Control Blanket (07-390)

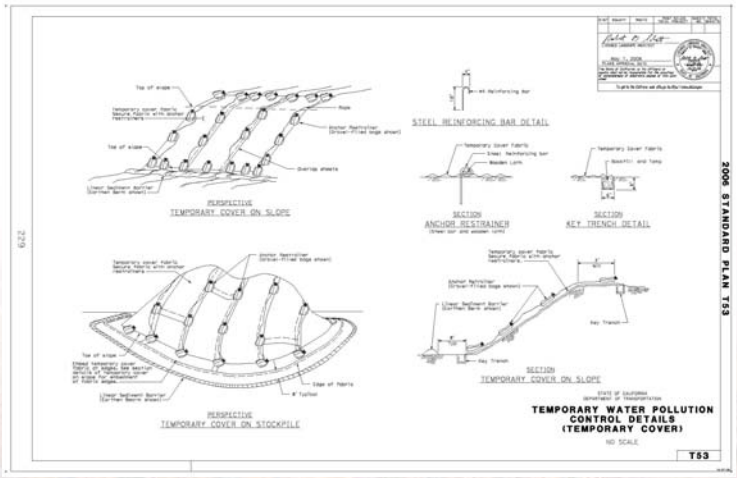
Slope Protection


Channel Protection


Temporary Cover (07-395)

- Standard Plan T53
- Geosynthetic cover fabric, plastic sheeting, or a combination of both
- Held in place with gravel bags and rope, wooden lath or approved alternative
- Linear barriers to protect from slopes and excavations from run-on
- Linear barriers surround stockpiles

Temporary Cover (07-395)



(Source: Caltrans Standard Plans, May 2006)

Temporary Cover (07-395)

New CGP Requirement

(Source: Caltrans Standard Plans, May 2006)

Temporary Mulch (07-380)

- **Compost, shredded green material, or a combination of both.**
  - Green material consisting of chipped, shredded, or ground vegetation; or clean processed recycled wood products
  - Biosolids
  - Manure
  - Mixed food waste
- **Uniform 2 inch cover**

Temporary Mulch (07-380)

Temporary Fiber Roll (07-420) Temporary Gravel Bag Berm (07-470)

- Fiber rolls or gravel bag berms can be used to break up the slope length and slow and spread the flows to minimize erosion

Concentrated Flow Conveyance Controls

- Use a combination of BMP SSPs to protect concentrated flows:
- Temporary Erosion Control Blankets (07-390)
  - Temporary lined ditches, temporary slope drains
- Temporary Check Dam (07-415) (typically a sediment control)

Sediment Control BMPs

- Temporary Silt Fence (07-430)
- Temporary Reinforced Silt Fence (07-432)
- Temporary Check Dam (07-415)
- Temporary Fiber Rolls (07-420)
- Temporary Large Sediment Barrier (07-421)
- Temporary Gravel Bag Berms (07-470)
- Street Sweeping (07-346 and 07-360)
- Temporary Straw Bale Barrier (07-460)
- Temporary Drain Inlet Protection (07-490)
- Temporary Active Treatment System (07-347)

New CGP Requirement

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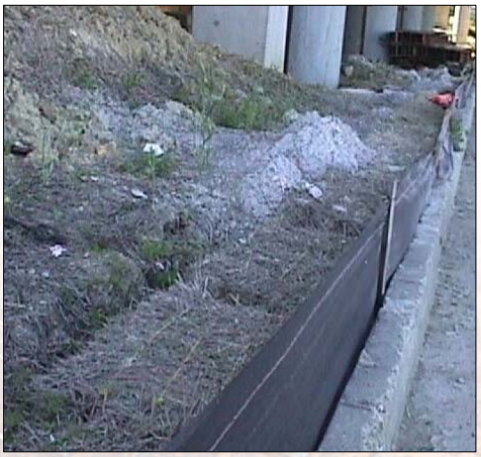
Temporary Silt Fence (07-430)

Permeable Polyester, Polypropylene or combination



- Installed per Standard Plan T51
- Fabric must be attached to stakes and keyed in properly
- Place along a contour
- Turns ends uphill
- Stakes must be the correct type, size and installed properly

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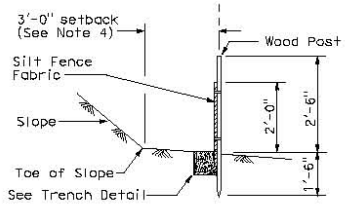
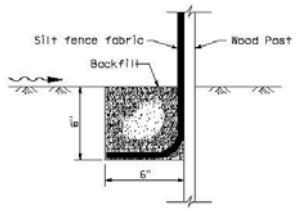
Temporary Silt Fence (07-430)



SECTION A-A
TEMPORARY SILT FENCE

- "Key-in" bottom of silt fence a minimum of 12 inches (6 inches down and six inches over in a 6-inch trench)



SECTION
TRENCH DETAIL

- 3 feet of setback which will vary to fit field conditions

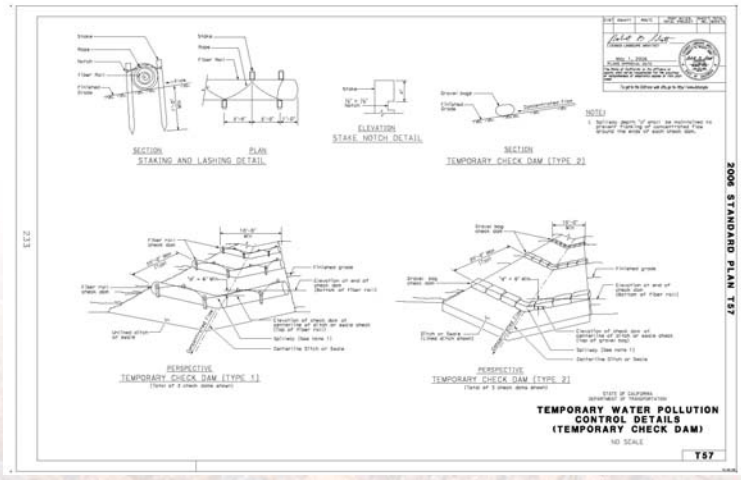
Temporary Silt Fence (07-430)

Improper silt fence application can cause erosion

Temporary Check Dams (07-415)

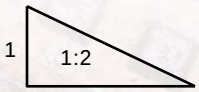
- Rock, gravel bags, fiber roll, or other proprietary devices placed across natural or man-made channels or ditches
- Used to trap sediment but also to slow flows and erosion

Temporary Check Dams (07-415)



Temporary Fiber Rolls (07-420)

- **For breaking-up slope length:**
  - 1:10 or flatter - space 50 feet apart
  - 1:4 or 1:10 – space 20 feet apart
  - 1:4 to 1:2 – space 15 feet apart
  - 1:2 or steeper – space 10 feet apart
- **Place fiber rolls into a 2 to 4 inches trench with stakes every 4 feet**
- **Or tie fiber rolls into place with stakes every 2 feet**



New CGP Requirement

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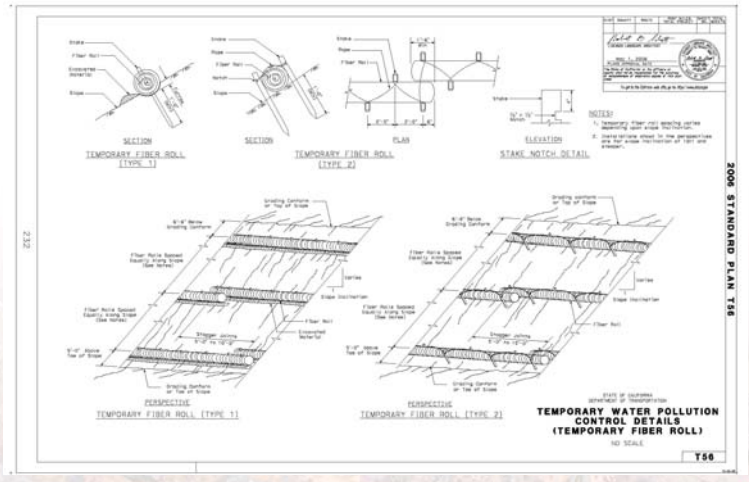
Temporary Fiber Rolls (07-420)



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Temporary Gravel Bag Berms (07-470)

- **Polyethylene, polypropylene, or combination fabric**
- **Bags shall have a length of 24-32 inches, width of 16-20 inches, and mass of approximately 30-50 pounds**
- **Clean gravel between 3/8 and 3/4 inch**

Temporary Gravel Bag Berms (07-470)

- **Installation requirements:**
  - Install along a level contour
  - Clear bedding area of obstructions one inch or larger in diameter
  - Place in single layer with ends abutted tightly and not overlapped
  - Turn ends of bags (last 6 feet) up slope to prevent flow around ends
  - Use in conjunction with temporary soil stabilization
  - Construct barriers with a set-back of a least 3 feet from toe of slope

Street Sweeping (07-360)

- Street sweeping must be done within 1 hour, if sediment or debris is observed during activities that require sweeping
- Street sweeping must be done within 24 hours, if sediment or debris is observed during activities that do not require sweeping

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Temporary Drain Inlet Protection (07-490)

- Type 1 – Temporary Silt Fence
- Type 2 – Excavated Sediment Trap
- Type 3A – Gravel Bag Barrier
- Type 3B – Gravel Bag Barrier
- Type 4A – Fiber Rolls
- Type 4B – Foam Barrier
- Type 5 – Sediment Filter Bag
- Type 6A – Rigid Plastic Barrier with grate
- Type 6B – Rigid Plastic Barrier curb inlet

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Temporary Drain Inlet Protection (07-490)

- **General requirements:**
  - Requires adequate area for ponding without encroaching upon the traveled way
  - Frequent maintenance is required
  - Draining areas greater than 1 acre shall be routed to a sediment trapping device
  - Requires other methods of temporary protection to prevent sediment-laden storm water and non-storm water flow from entering inlets
  - If high flows are expected use other sediment trapping devices in conjunction with inlet protection

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Temporary Drain Inlet Protection (07-490)

- **Type 1 and 2**
  - Do not place fabric underneath grate inlet when rain is expected

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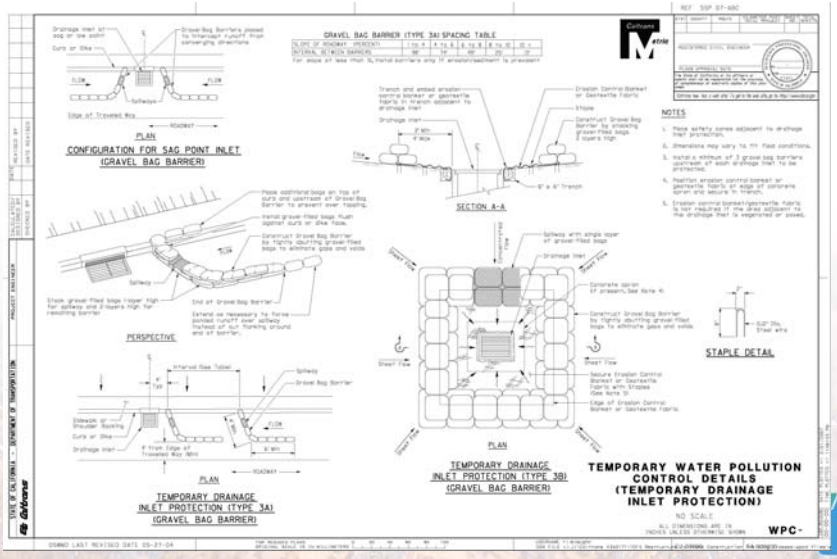
Temporary Drain Inlet Protection (07-490)

- **Type 3A and 3B Gravel Bag Barrier**
  - Appropriate where flows exceed 0.5 cfs and it is necessary to allow overtopping to **prevent flooding**
  - Flows shall not overtop curb
  - Ponded water shall not encroach on the traveled way
  - In areas with high silts and clayey soils use additional media for protection

Temporary Drain Inlet Protection (07-490)



Temporary Drain Inlet Protection (07-490)

- **Type 4A - Fiber Rolls and Type 4B – Foam Barriers**
  - Not appropriate for locations where they can not be properly anchored
  - Foam barriers – use on pavement and secure using anchoring nails, spikes, or adhesive
  - Fiber Rolls - use in unpaved areas around inlets anchored using stakes

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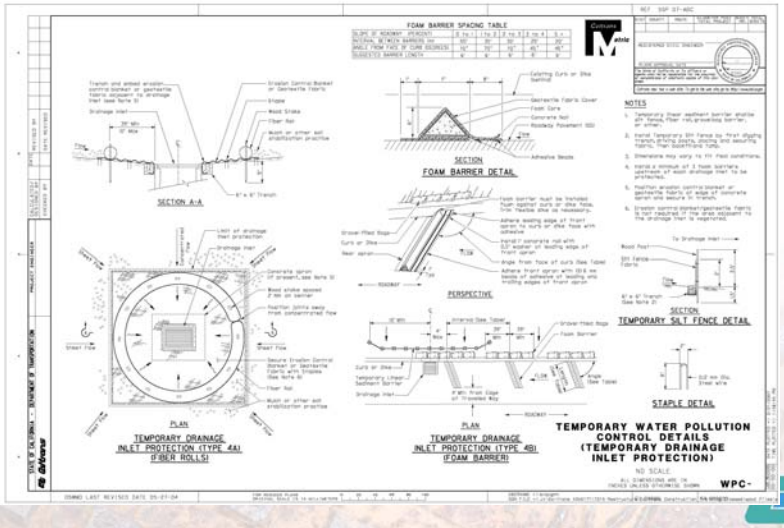
Temporary Drain Inlet Protection (07-490)



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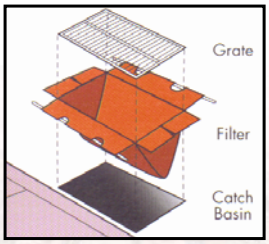
Temporary Drain Inlet Protection (07-490)

- **Type 5 – Sediment Filter Bag**
  - Sized to fit catch basin or drainage inlet



Temporary Drain Inlet Protection (07-490)

- **Type 5 – Sediment Filter Bag**
  - Must be made of filter fabric
  - Include a high flow bypass
  - May include a metal frame
  - If without a metal frame and deeper than 18 inches, must have lifting loops and dump straps; and a restraint cord to keep the sides of the bag away from the walls of the catch basin

Temporary Drain Inlet Protection (07-490)

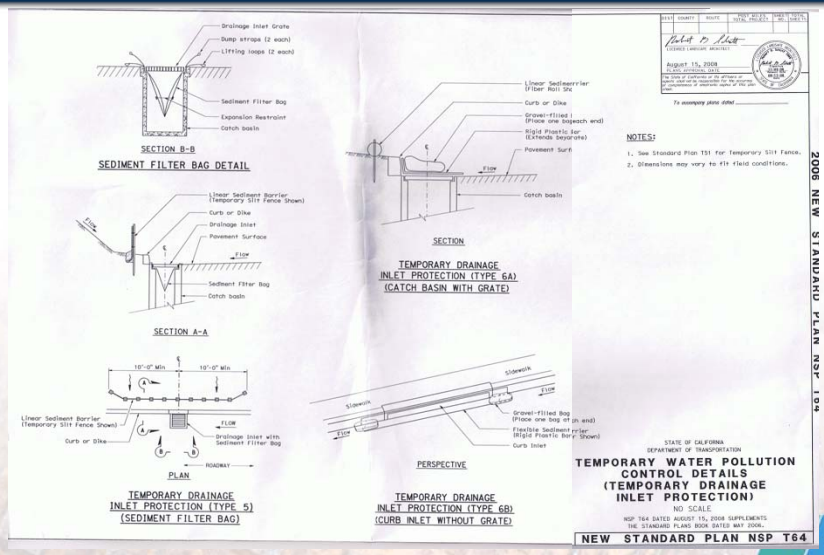
- **Type 6A and 6B – Rigid DI Protection**
  - Sized to fit curb inlet and grate

Temporary Drain Inlet Protection (07-490)

- **Type 6A and 6B – Flexible/Rigid DI Protection**

  Must:
  - Have an integrated filter
  - Be made from virgin or recycled materials free of biodegradable filler
  - Have A length of at least 4 feet with ability to interlock
  - Include a high-flow bypass
  - Be sized to fit the catch basin or drainage inlet
  - Cover the grate by at least 2 inches

Temporary Drain Inlet Protection (07-490)



Wind Erosion Control

Soil binder applied via water truck

- Section 10 of Standard Specifications call for applying either water or dust palliatives, or both
- Section 18: Dust Palliative

Temporary Construction Entrance (07-480)

- Use 3 – 6 inch diameter rock
- Place rock over geotextile fabric 12 inches deep
- Minimum of 50 feet in length
- All exit locations to be used continuously for a period of time shall be stabilized
- Construct sump within 20 feet of temporary construction entrance

New CGP Requirement

Large diameter rock used as a stabilized entrance / exit

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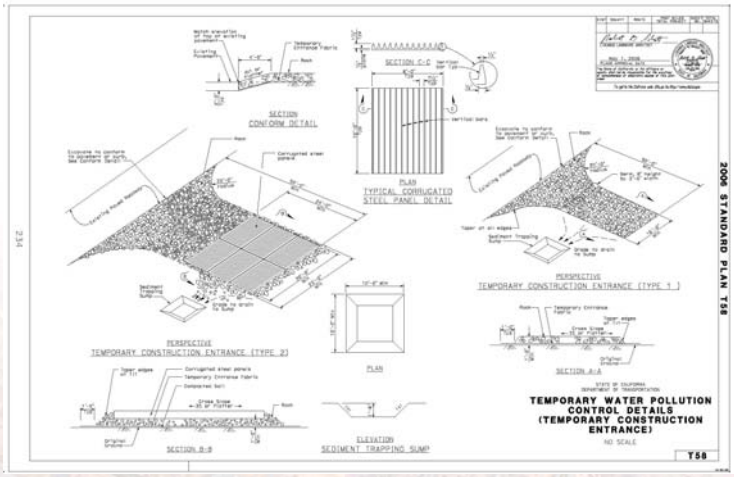
Temporary Construction Entrance (07-480)



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Construction Site Management (07-346)

- Spill Prevention and Control
- Material Management
- Material Storage
- Stockpile Management
- Solid Waste Management
- Hazardous Waste Management
- Contaminated Soil Management
- Concrete Waste Management
- Temporary Concrete Washout Facility
- Sanitary/Septic Waste Management
- Liquid Waste Management

New CGP Requirement

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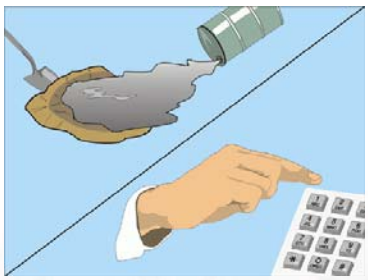
Spill Prevention and Control (07-346)

- Implement spill and leak prevention procedures when chemicals or hazardous substances are stored
- Spills shall be reported to the WPCM; WPCM shall report to RE immediately
- Spills shall be prevented from contacting stormwater before and during cleanup
- Spills shall not be buried or washed with water
- Keep material or waste storage areas clean, organized, and equipped cleanup supplies for the material being stored



New CGP Requirement

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Material Management/Material Storage (07-346)

- Properly label materials
- Store bagged or boxed material on pallets
- All liquids require secondary containment
- Cover materials during non-working days and when rain is predicted

Well maintained temporary containment facility

Substances that require secondary containment

New CGP Requirement

Stockpile Management (07-346)

- Locate out of flood plains and 50 feet from concentrated flow, drainage courses, inlets
- Applies to stockpiles of:
  - soil,
  - paving material,
  - pressure treated wood,
  - Portland cement concrete rubble,
  - AC, HMA, AC and HMA rubble,
  - aggregate base or aggregate sub-base and
  - cold mix asphalt

New CGP Requirement

Stockpile Management (07-346)

- **Active and inactive stockpiles must be**
  - Covered with plastic, geotextile cover, or soil stabilizer
  - Surrounded with linear sediment barrier
- **Store cold mix on impermeable surface, cover with impermeable material, and protect from run-on and runoff**
- **Place pressure treated wood on pallets and cover with impermeable material**

Solid Waste Management (07-346)

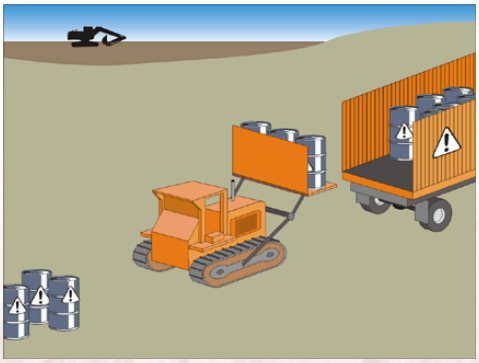
- **Do not allow litter or debris to accumulate on the job site**
- **Pick up and remove trash and debris from the job site at least once a week**
- **Furnish enough closed-lid dumpsters of sufficient size to contain the solid waste generated**
- **When refuse reaches the fill line, empty dumpsters**
- **Dumpsters must be watertight**
- **Do not wash out dumpsters**

New CGP Requirement

Hazardous Waste Management (07-346)

The following types of wastes are considered hazardous:

petroleum products, concrete curing compounds, palliatives, septic wastes, paints, stains, wood preservatives, asphalt products, pesticides, acids, solvents, and roofing tar



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Hazardous Waste Management (07-346)

- **WPCM shall oversee and enforce hazardous waste management practices**
- **Potentially hazardous waste shall be segregated from non-hazardous waste**
- **Hazardous waste shall be handled, stored, and disposed of as required**
- **Store in sealed containers, labeled with content, and date of accumulation**
- **Store waste away from storm drains, watercourses, moving vehicles, and equipment**
- **Clean paint brushes and equipment in containment areas**
- **Dispose of hazardous waste within 90 days of being generated**
- **Contractor to provide RE a copy of manifest**

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Concrete Waste Management (07-346)

Concrete washout

Uncontrolled concrete washouts

Prevent the discharge of portland cement concrete, AC, or HMA waste into storm drain systems or watercourses

Temporary Concrete Washout Facility (07-405)

- **Constructed facility above or below grade:**
  - Straw bales covered with plastic 10 mils thick above grade, or
  - Excavated area covered with plastic 10 mils thick held in place with gravel bags
  - 2 feet by 4 feet sign with 3 inch high black letters on white background

New CGP Requirement

Temporary Concrete Washout (Portable) (07-406)

- **55-gallon, labeled watertight containers**
  - For washout from concrete delivery trucks, slurries containing portland cement or hot mix asphalt from sawcutting, coring, grinding, grooving and hydroconcrete demolition

Temporary Concrete Washout Bin (07-407)

- Commercially available watertight roll-off bin
  - Sufficient capacity to contain all liquid and concrete waste without seepage or spills
  - No less than 5 cubic yards
  - Labelled for concrete waste exclusively

Sanitary and Septic Waste Management (07-346)

- Locate sanitary facilities at least 50 feet away from storm drains, water courses
- Do not discharge or bury within Department right-of-way
- WPCM to monitor weekly

Construction Site Management (07-346)

- Water Control and Conservation
- Illegal Connection and Discharge Detection and Reporting
- Vehicle and Equipment Cleaning
- Vehicle and Equipment Fueling and Maintenance
- Material and Equipment Use Over Water
- Structure Removal Over or Adjacent to Water
- Paving, Sealing, Sawcutting, and Grinding Operations
- Thermoplastic Striping and Pavement Markers
- Pile Driving
- Concrete Curing
- Concrete Finishing
- Sweeping
- Dewatering Operations

Vehicle and Equipment Cleaning (07-346)

- Notify the Engineer before cleaning vehicles and equipment at the job site with soap, solvents, or steam
- Contain and recycle or dispose of resulting waste under "Liquid Waste" or "Hazardous Waste"
- Use area paved with AC, HMA, or portland cement concrete surrounded by a containment berm

Vehicle and Equipment Fueling and Maintenance (07-346)

- If fueling or maintenance must be done at the job site, designate a site, or sites, and obtain approval before using
- Keep adequate quantities of absorbent spill cleanup material and spill kits
- Fueling or maintenance activities must not be left unattended
- Protected fueling and maintenance area from stormwater run-on

New CGP Requirement

Material and Equipment Use Over Water (07-346)

- Place drip pans and absorbent pads under vehicles and equipment
- Maintain a supply of spill cleanup material; keep it with the vehicle or equipment
- Place equipment and vehicles on plastic sheeting when on docks, barges or over water when equipment will be idle for more than one hour
- Use watertight curbs or toe boards on barges, platforms, docks, or other surfaces to contain material, debris, and tools
- Secure material to prevent spill or discharge

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121

Structure Removal Over or Adjacent to Water (07-346)

- Prevent demolished material from entering storm drain system and watercourses
- Debris covers and platforms must be approved by the RE
- Empty debris capturing devices regularly and handle using 07-346 Waste Management
- WPCM to conduct daily inspections of site within 50 feet of storm drain system or watercourses

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122

Paving, Sealing, Sawcutting, and Grinding Activities (07-346)

- Prevent materials from entering storm drain systems or water courses
- Cover drainage inlets and use linear sediment barriers to protect downhill watercourses
- Limit paving, sawcutting, and grinding during the rainy season to locations where runoff can be captured
- Vacuum grinding residue and slurry from saw cutting operations immediately

Vacuum sawcut slurry before it dries or reaches any drainage facility

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123

Sweeping (07-346)

- Sweeping must be done using hand or mechanical methods such as vacuuming
- Sweeping must be done:
  - At the end of each work shift
  - When the National Weather Service predicts precipitation with a probability of at least 30 percent
  - On paved roads at job site entrance and exit locations
  - On paved areas within the job site that flow to storm drains or water bodies
- Dispose of collected material at least once per week

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124