

# **Construction Site BMPs and MRP Requirements**

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EOA, Inc.**

**March 11, 2019**

# Outline of Presentation

- **Regulatory Basics**
  - Construction General Permit
  - Municipal Regional Permit
- **MRP Construction Site Control Program Requirements**
- **Best Management Practices**
- **Resources**

# Stormwater Regulations



U.S. EPA

Clean Water Act establishes NPDES permit program

State Water Resource Control Board

- NPDES Permitting authority in CA
- Issues State Stormwater Construction General Permit

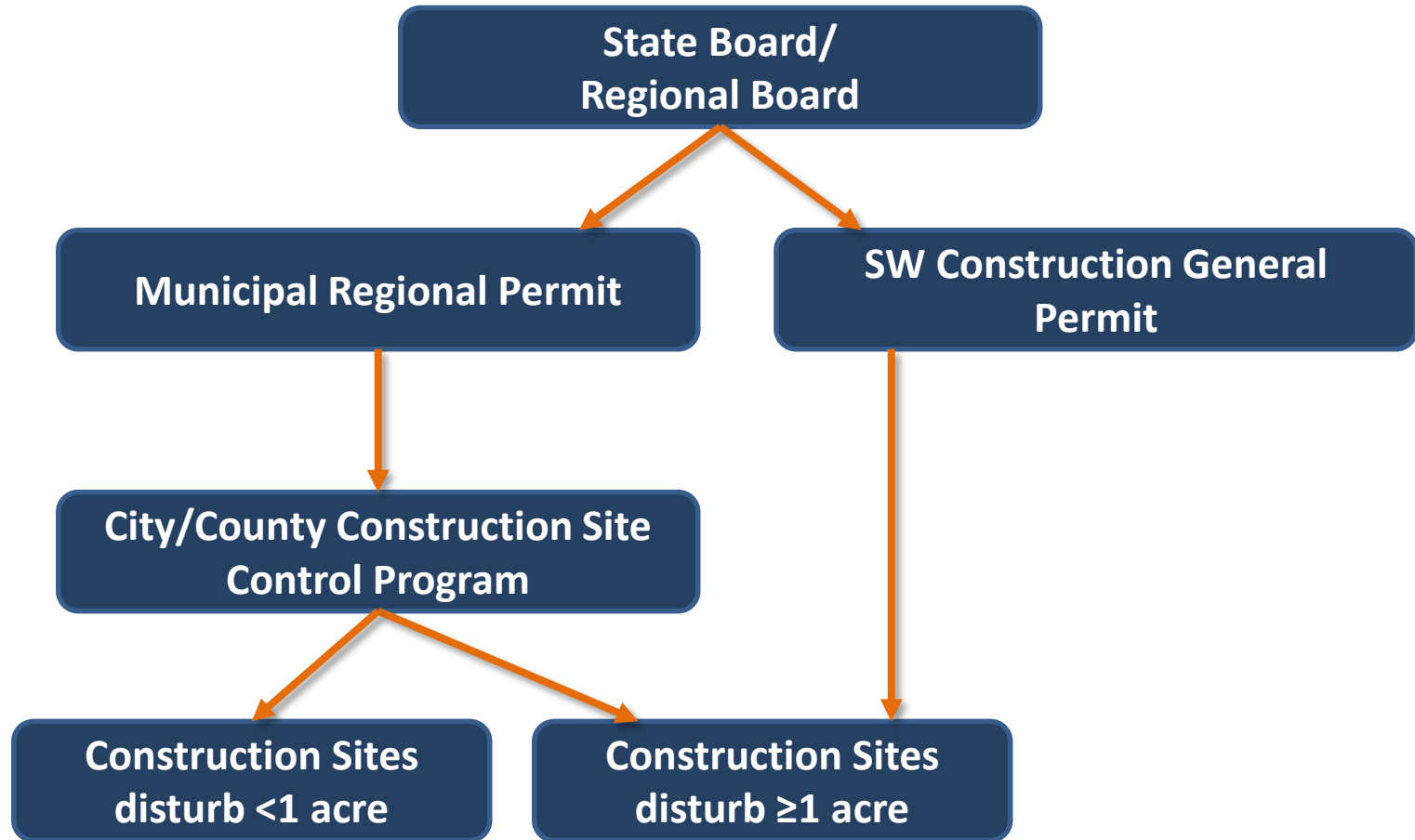
Regional Water Quality Control Board  
9 regions

- Issues Municipal Regional Permit (MRP)
- Inspects/Enforces State SW Construction General Permit

Municipal Separate Storm Sewer System (MS4)

Implement Local Stormwater Program

# Construction Site Regulations



# Construction General Permit

- **Applies to projects that disturb  $\geq 1$  acre of land in California**
- **RWB staff responsible for compliance inspections & enforcement**
- **Contains requirements for minimum BMPs, inspections, sampling, SWPPP, reporting (SMARTs), QSP/QSD certification**

# Construction General Permit

## ■ **MRP requirement to:**

- Verify owners of construction sites that disturb  $\geq 1$  acre have filed NOI for coverage by CGP
- Inspect construction sites that disturb  $\geq 1$  acre monthly during wet season for compliance with local ordinances



# Construction General Permit

## ■ Tips for Municipalities

- Reviewing SWPPP, QSP inspection records, sampling results, etc. may help inform your MRP inspection
- Public projects  $\geq 1$  acre must file for coverage under the CGP
- Overall site compliance reflects on your inspection program

# Municipal Regional Permit

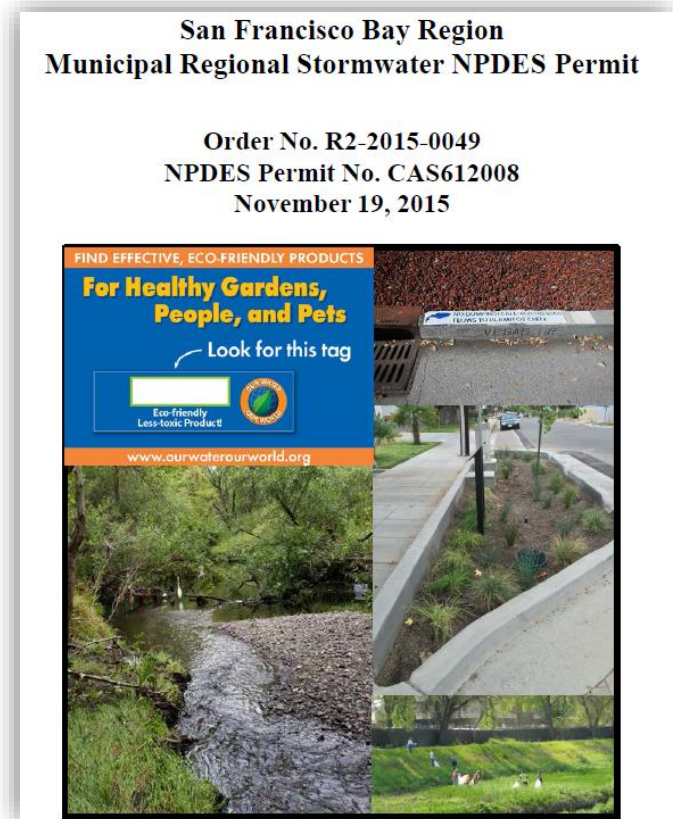
- Regional permit regulating municipal stormwater systems
- Applies to 76 cities, counties, and districts in:
  - Santa Clara, Alameda, Contra Costa, and San Mateo Counties
  - Fairfield and Suisun City (Solano County)
  - Vallejo (Solano County)





# Municipal Regional Permit

- First adopted by Regional Water Board: October 14, 2009
- Permit renewed every 5 years
- Effective January 1, 2016
- Beginning MRP 3.0 discussions



# MRP Permit Provisions

- C1 Compliance with Discharge Prohibitions
- C2 Municipal Maintenance
- C3 New Development and Redevelopment
- C4 Industrial and Commercial Discharge
- C5 Illicit Discharge Detection and Elimination
- C6 Construction Site Controls
- C7 Public Information and Outreach
- C8 Water Quality Monitoring
- C9 Pesticide Toxicity Control
- C10 – Trash Reduction
- C11 – Mercury Load Reduction
- C12 – PCBs
- C13 – Copper
- C14 – PBDE and Legacy Pesticides
- C15 – Exempted & Conditionally Exempted Discharges

# Construction Site Control Program

- **MRP Provision C.6**
- **Prevent discharges of pollutants and impacts on receiving waters**
- **Require appropriate BMPs in six categories**
  - at ALL construction sites (private and public)
  - ALL year long



# Construction Site Control Program

- Legal authority
- Plan approval process
- Require appropriate BMPs
  - site specific
  - phase appropriate
  - seasonally appropriate



# Construction Site Control Program

- **Six BMP categories**
  - Erosion Control
  - Sediment Control
  - Good Site Management
  - Non-Stormwater Management
  - Run-on and Run-off Control
  - Active Treatment Systems (ATS)

# Minimum Inspection Requirements

- **Pre-wet season letter by September 1st**
- **Monthly inspections during wet season**
  - October 1<sup>st</sup> – April 30<sup>th</sup>
- **Applies to following sites (public & private)**
  - disturbing  $\geq 1$  acre,
  - hillside projects disturbing  $\geq 5,000$  sq ft (projects defined by municipality in 2016 Annual Report)
  - identified as “high priority” by municipality

# Inspection Recordkeeping and Reporting

- **Complete inspection form for every required inspection**
- **Track inspection data in database/spreadsheet**
  - Specific data required by MRP
  - Can be requested by RWB at any time
  - Inspection tables should match Annual Report summaries

Site Name	Inspection Date	Inspector	Weather During Inspection	Enforcement	Problems Observed						
					Erosion Control	Run-on & Runoff	Sediment Control	Active Treatment	Good Site Management	Non-Stormwater Management	Illicit Discharge
Panoramic Views	9/30/2015	Kristin Kerr	Clear	Written Warning			x				
Panoramic Views	10/15/2015	Jill Bicknell	Clear	No Action							
Panoramic Views	11/15/2015	Jill Bicknell	Rain	Stop Work Order	x		x				x
Panoramic Views	11/15/2015	Jill Bicknell	Rain	No Action							



# Enforcement Response Plan

- Guidance for inspectors to take consistent actions to bring sites into compliance
- Identify enforcement tools
- Identify roles and responsibilities
- Enforcement procedures
- Appropriate time periods for corrective actions

Each city has it's own ERP

<b>17. Enforcement/Follow-Up</b>		Date problem first identified: _____	Next follow-up inspection date: _____
Comments: _____			
Enforcement: <input type="checkbox"/> None/In compliance <input type="checkbox"/> Verbal Warning <input type="checkbox"/> Notice of Violation <input type="checkbox"/> Notice to Comply <input type="checkbox"/> Stop Work <input type="checkbox"/> Administrative Fine			
<b>18. Resolution:</b>		<input type="checkbox"/> Problem Fixed <input type="checkbox"/> Need More Time (include rationale in comments) <input type="checkbox"/> Escalate Enforcement	
		Date resolved: _____	_____/_____/_____
Was there rain with runoff after problem identified and before resolution? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Items corrected during inspection (see comments)			
Comments: _____			



# Enforcement Response Plan

- **Corrective Actions**
  - Active discharge – cease immediately
  - Corrective actions w/in 10 business days or before next rain event (longer if rationale is documented)
- **Verify corrective actions**
  - Problem fixed by end of inspection
  - Site submits photographs
  - Follow-up inspection

# Inspection Report

FAILURE TO CORRECT VIOLATION(S) within 10 business days (or as specified in this notice) may result in PENALTIES described on page 2!



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Water Pollution Prevention Program  
Clean Water. Healthy Community.

## CONSTRUCTION SITE INSPECTION REPORT

1. Inspection Date: \_\_\_\_\_ 1a. Current weather conditions: \_\_\_\_\_
2. Name of Project: \_\_\_\_\_ 2a. Project No./Permit No.: \_\_\_\_\_
3. Project Address: \_\_\_\_\_
4. Inspection Type: ☐ Routine ☐ Follow-up ☐ Other
5. Permit Type: ☐ Building Permit ☐ Grading Permit ☐ Site Development ☐ CIP Project
6. Project disturb  $\geq 1$  acre? \_\_\_\_\_ (Y/N - If Yes, inspect monthly during wet season.) NOT Required? \_\_\_\_\_ (Y/N) SWPPP dated \_\_\_\_/\_\_\_\_/\_\_\_\_  
Project covered under statewide Construction General Permit? \_\_\_\_\_ (Y/N) SWPPP on site? \_\_\_\_\_ (Y/N)
7. High Priority Site (significant threat to water quality)? \_\_\_\_\_ 7.a. Hillside Project? \_\_\_\_\_ (Y/N - If Yes, inspect monthly during wet season.)
8. Project Type: ☐ Residential ☐ Commercial/Industrial ☐ Institutional ☐ Landscaping  
☐ Utility (water, sewer, PG&E) ☐ Grading ☐ Demolition ☐ Street Improvement ☐ Other: \_\_\_\_\_

9. Erosion Control Measures:	Inspection Finding (A / NM / P / NAY)	Location on site/Comments
<input type="checkbox"/> Jute Netting/Fiber Blankets		
<input type="checkbox"/> Mulch		
<input type="checkbox"/> Hydroseed/Soil binder/Compost blanket		
<input type="checkbox"/> Mark Areas to be Preserved		
<input type="checkbox"/> Tree Protection Fencing		
<input type="checkbox"/> Riparian Area Barrier		
10. Sediment Control Measures		
<input type="checkbox"/> Stabilized construction entrance		
<input type="checkbox"/> Street Sweeping		
<input type="checkbox"/> Dust Control		
<input type="checkbox"/> Wattles / Fiber Rolls / Compost Socks		
<input type="checkbox"/> Silt Fences / Compost Berms		
<input type="checkbox"/> Sedimentation Basin		
<input type="checkbox"/> Check Dams		
<input type="checkbox"/> Inlet Filters (Gravel bags)		
<input type="checkbox"/> Earth Dikes / Drainage Swales		
11. Run-on and Runoff Control		
<input type="checkbox"/> Earth Dikes / Perimeter Swales		

# Best Management Practices

- **Prevent pollutants from leaving the site**

- **SEDIMENT**

- Concrete washout
  - Paint
  - Oil and grease
  - Litter
  - Waste
  - Construction materials



Source: Michigan DEQ

- **By preventing**

- Contact with stormwater runoff
  - Mobilization of pollutants
  - Illicit discharge

# Best Management Practices

- **Inspectors don't select BMPs to use**
- **Ask questions**
- **Know appropriate use**
- **Recognize proper installation**
- **Observe if maintenance needed**
- **Note if additional controls needed**

# Erosion & Sediment Control

- **Erosion control**

- First line of defense
- Prevent soil movement by wind and water

- **Sediment control**

- Second line of defense
- Remove soil before it leaves the site

- **Temporary or Permanent Controls**

- Remove temporary BMPs at completion

# Erosion Control BMPs

9. <u>Erosion Control Measures:</u>	<u>Inspection Finding</u> <u>(A / NM / P / NA)*</u>	<u>Location on site/Comments</u>
<input type="checkbox"/> Jute Netting/Fiber Blankets		
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<input type="checkbox"/> Mark Areas to be Preserved		
<input type="checkbox"/> Tree Protection Fencing		
<input type="checkbox"/> Riparian Area Barrier		

# Erosion Control BMPs

- **Most effective BMP - Vegetation**
  - Shields soil from impact of wind & water
  - Increases permeability/infiltration
  - Slows run-off to non-erosive velocities
  - Filters sediment out of run-off
- **Preserve existing vegetation**
- **Apply seed, compost & mulch as soon as possible (final cover)**

# Erosion Control BMPs

## ■ Sites should consider

- Equipment needed
- Product flexibility (condition of slope)
- Used to establish vegetation
- Installation timing (e.g., sprays need time to dry before rain)
- Length of time
- Irrigation availability
- End use of site – for vegetation or building?  
Compost-based BMPs can be used to enhance soil



# Erosion Control BMPs

- **Temporary protection of exposed soil**
  - Sprays – such as straw or bonded fiber matrix (BFM)
  - Mats – such as jute, coir or other fiber
  - Compost blankets

# Bonded Fiber Matrix (BFM)

- **Spreading rate and weight**
  - Seeds included?
- **Synthetic fertilizers in mix?**
- **Combined with Fiber Rolls or other BMP?**
- **Spray from two directions: uphill and downhill**









Compost Berm, Blanket, Irrigation and Plants  
vs. BFM & Fiber Rolls

# Mats

## ■ Anchors

- Mats trenched in on top of slope
- Staple/anchor down center & staggered with anchors along edges
- Number of anchors per sq.yd. depends on slope
- Mat should be flush with the ground

## ■ No Visible Soil

- Overlap mats vertically

# Mats

## ■ Contact with soil

- Soil preparation
  - Groomed (e.g. large rocks/boulders removed)
- No stretching
  - matting will conform if not stretched





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# Compost Blankets

- Provide best contact with soil
- Seeds can be added, if desired
- Holds soil moisture
- Can be pneumatically applied (sprayed)
- Can be combined with netting – especially in windy dry environments to prevent blowing
- Rip soil, if compacted, before applying









# Sediment Control

- **Trap sediment before it leaves the site**
  - Intercept flow
  - Perimeter controls
    - site perimeter
    - storm drains
  - Filter sediment out of flow
  - Slow flow to allow sediment to settle out



# Sediment Control BMPs

10. Sediment Control Measures		
<input type="checkbox"/> Stabilized construction entrance		
<input type="checkbox"/> Street Sweeping		
<input type="checkbox"/> Dust Control		
<input type="checkbox"/> Wattles / Fiber Rolls / Compost Socks		
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<input type="checkbox"/> Inlet Filters (Gravel bags)		
<input type="checkbox"/> Earth Dikes / Drainage Swales		





# Sediment Control BMPs

## ■ Fiber Rolls

- Erosion control on slope - slow flow
- Sediment control around perimeter, inlet protection or check dam - filter sediment out of flow and trap flow to allow sediment to settle out
- Don't use monofilament wattles (dangerous to wildlife)



# Fiber Rolls

- **Contact with ground**
  - Staked in
  - Trenched on slope
- **Overlap rolls**
- **Along contours of hillside**
- **Spacing depends on slope**





# Fiber Rolls

- Turn ends up slope - height of roll to capture runoff
- Not for high traffic areas



# Fiber Rolls

- **Maintain**

- Backfill rills, gullies, etc.
- Remove captured sediment
- Replace damaged rolls



# Fiber Rolls

- **Perimeter control**
  - Contact with ground
  - Not effective on imperious surfaces
  - Stake in
  - Trench in
  - Overlap ends
  - Replace damaged rolls













# Compost Socks

- **Features:**

- Similar to fiber rolls
- Contact with ground
- No need to trench in

- **Used for:**

- Inlet protection
- Perimeter control
- Check dams
- Slope interruption

















Staking required on  
“downhill side” of slope only

# Sediment Control BMPs

## ■ Check dams

- filter sediment out of flow and/or trap flow to allow sediment to settle out
- gravel bags, fiber rolls
- Compost socks









# Sediment Control BMPs

## ■ Silt Fence

- Perimeter control
- Sheet flow
- Not for concentrated flow
- Continuous contact with ground
- No daylight underneath – trenched in
- Ends overlap
- Remove accumulated sediment



# Silt Fence









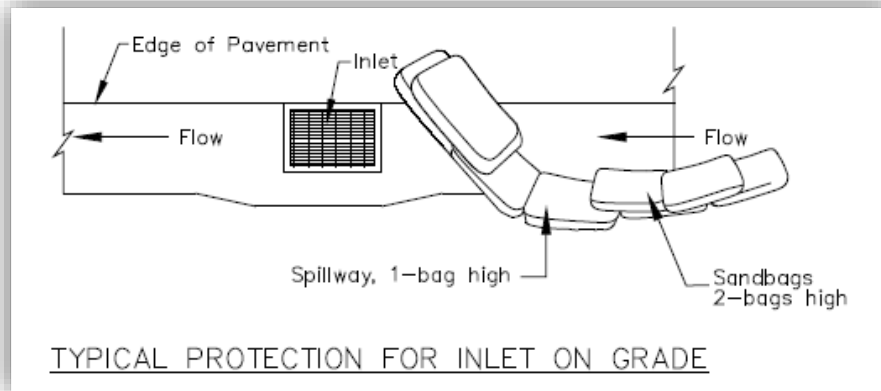


# Sediment Control BMPs

- **Inlet protection should not:**
  - cause flooding (where does overflow go?)
  - cause sediment discharge (i.e. broken sand bags/gravel bags)
- **Inlet protection should be:**
  - maintained regularly
  - removed at end of job
- **Inlet protection may be off site**

# Inlet Protection

- **Gravel bags**
  - Located around inlet based on direction of flow







# Poor Inlet Protection





# Construction Site Entrance

- **Entrance/Exit Stabilization- look for:**
  - Sediment in gravel/rumble plates
  - Signs of other exits
  - Track out in streets











## Wrong rumble plates orientation



## WHAT'S INSIDE?

**LE:** weed-free rice straw

**SE:** weed seed free rice straw

**XX:** 2" minus compost

**TER TUBES:** excelsior & rock

**ER BAGS:** excelsior & rock

**IBES:** wood- and man-made fibers

**AGS:** ¾" rock

**S:** bio-matrix (peat moss)

**ER:** trifluralin

## MUD MATS

AGES 8' X 15'

SITE ACCESS / BRIDGE SOFT AREA  
CONSTRUCTION ENTRANCES



RG# 659248

REED & CROSBY  
Customized Solutions for Coastal Restoration

1.800.305.1234







# Construction Site Entrance

- **Additional BMPs may be needed**
  - Street sweeping
  - Wheel wash



# Good Site Management

13. <u>Good Site Management</u>		
<input type="checkbox"/> Soil Stockpiles		
<input type="checkbox"/> Waste Systems Management		
<input type="checkbox"/> Construction Materials (wood, cement, ...)		
<input type="checkbox"/> Hazardous Materials (paint, solvents)		
<input type="checkbox"/> Petroleum Products (oil, fuel)		
<input type="checkbox"/> Vehicle Servicing		

# Good Site Management

- **a.k.a. Good housekeeping**
- **Materials that have potential to be pollutants in stormwater**
  - Material storage/use
  - Waste storage
  - Stockpiles
  - Porta potties
  - Waste disposal





# Good Site Management

- Keep stormwater from coming into contact with materials that can mobilize
- Keep materials from being exposed
- Keep materials from leaking
- Keep potential discharges from leaving the site (e.g., placement)
- Safety and disposal issues



# Good Site Management

## ■ Check for

- Designated concrete washout areas
- Covered and contained stockpiles
- Covered and elevated material storage
- Placement of portable toilets and secondary containment.



# Good Site Management

## ■ Stockpiles

- Cover when not being used
- Protect all year long
- Placement (e.g. not in gutter)
- Berm around stockpile or upstream side





# Good Site Management

## ■ Concrete Washout

- Large enough for volume expected
- Lined – prevent contact with or leaching into soils
- pH issue
- Dispose of hardened concrete









# Non-Stormwater Management BMPs

14. <u>Non-Stormwater Management</u>		
<input type="checkbox"/> Concrete/Stucco washout area		
<input type="checkbox"/> Architectural copper rinsewater		
<input type="checkbox"/> Other:		

# Non-Stormwater Management

- **Activities that have potential to discharge**
  - Potable water use
  - Paving/grinding operations
  - Vehicle/equipment use, cleaning, fueling and maintenance
  - Concrete work
  - Waste and recycling disposal



# Non-Stormwater Management



- Place drip pans, tarp, or containers under leaky vehicles/equipment
- Fix leaks promptly
- Fuel, repair and wash equipment/vehicles off site



# Other BMP Categories

## ■ Run-on Controls

- Keep water from off-site, upstream property from flowing through construction site
  - May bring off-site pollutants
  - May increase stormwater runoff flows
    - causing erosion or
    - overwhelming BMPs

## ■ Runoff Controls

- Manage stormwater flow to prevent erosion or flooding at downstream location

# Other BMP Categories

## ■ Active Treatment Systems

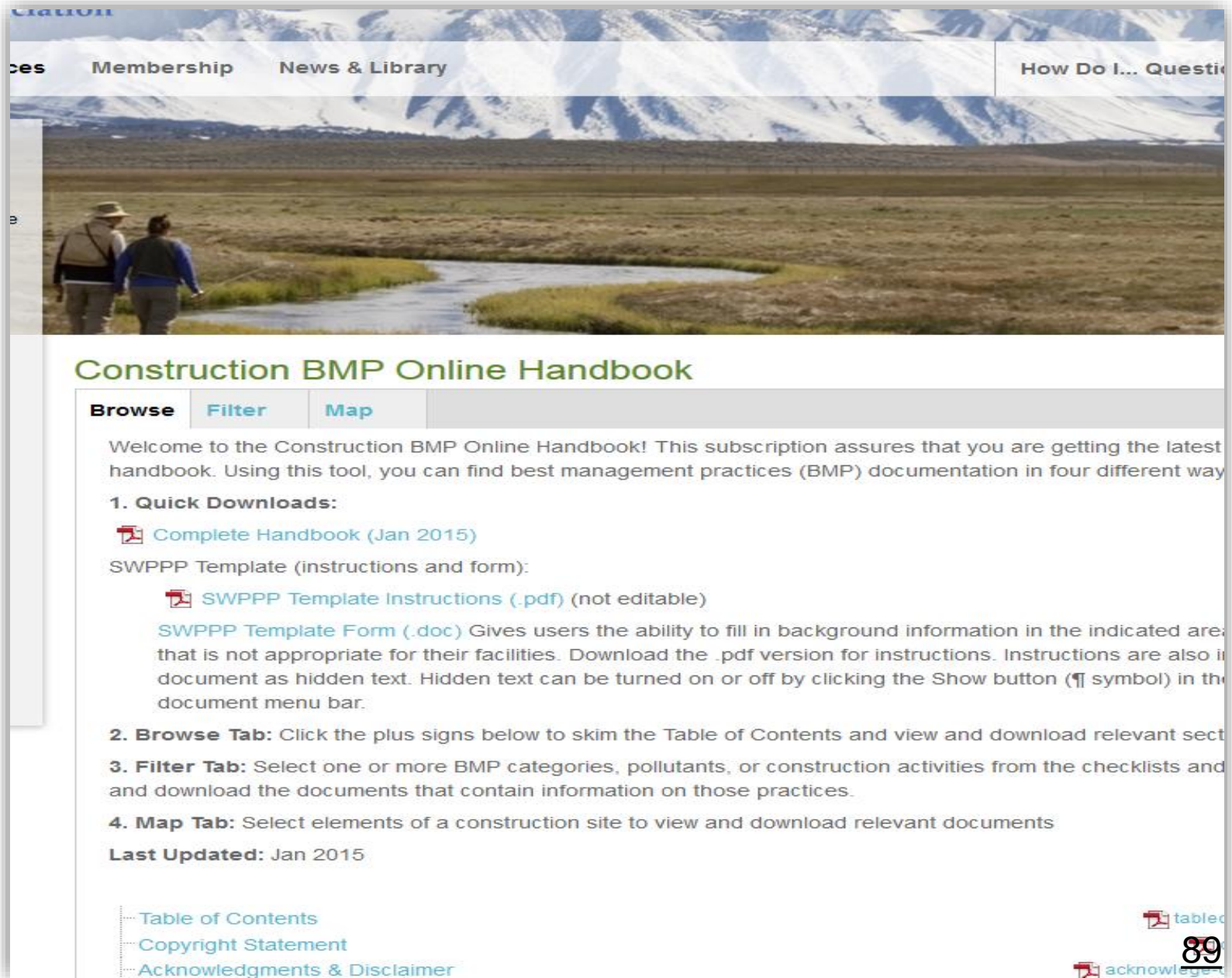
- Adds chemicals for coagulation, flocculation and/or filtration
- Not common - expensive
- State General Permit requires
  - ATS Plan: O&M manual, monitoring, sampling, spill prevention plan,
  - Designated operator and training
  - Data recording system
  - Numeric effluent limits for discharge

# Resources

- **SMCWPPP Website:** [www.flowstobay.org](http://www.flowstobay.org)
  - BMP Plan Sheet
  - BMP brochures
  - Workshop Powerpoint presentations
- **CASQA Construction BMP Handbook Portal –** [www.casqa.org](http://www.casqa.org)
  - contact your agency SW coordinator for information on how to access web subscription



# CASQA Online Handbook





ces Membership News & Library How Do I... Questions

## Construction BMP Online Handbook



**Browse** Filter Map

Welcome to the Construction BMP Online Handbook! This subscription assures that you are getting the latest handbook. Using this tool, you can find best management practices (BMP) documentation in four different way

- 1. Quick Downloads:**
  -  [Complete Handbook \(Jan 2015\)](#)
  - SWPPP Template (instructions and form):
    -  [SWPPP Template Instructions \(.pdf\)](#) (not editable)
    - [SWPPP Template Form \(.doc\)](#) Gives users the ability to fill in background information in the indicated area that is not appropriate for their facilities. Download the .pdf version for instructions. Instructions are also in the document as hidden text. Hidden text can be turned on or off by clicking the Show button (¶ symbol) in the document menu bar.
- 2. Browse Tab:** Click the plus signs below to skim the Table of Contents and view and download relevant sections
- 3. Filter Tab:** Select one or more BMP categories, pollutants, or construction activities from the checklists and download the documents that contain information on those practices.
- 4. Map Tab:** Select elements of a construction site to view and download relevant documents

**Last Updated:** Jan 2015

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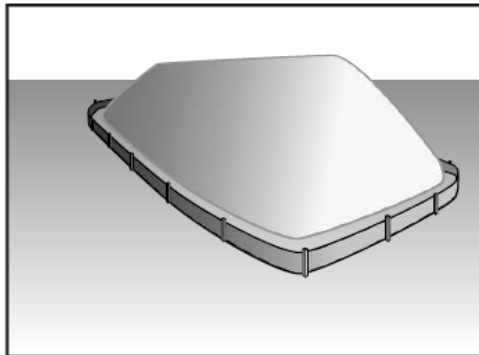
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# CASQA BMP Fact Sheets

## Stockpile Management

## WM-3



### Description and Purpose

Stockpile management procedures and practices are designed to reduce or eliminate air and stormwater pollution from stockpiles of soil, soil amendments, sand, paving materials such as portland cement concrete (PCC) rubble, asphalt concrete (AC), asphalt concrete rubble, aggregate base, aggregate sub base or pre-mixed aggregate, asphalt minder (so called "cold mix" asphalt), and pressure treated wood.

### Suitable Applications

Implement in all projects that stockpile soil and other loose materials.

### Limitations

- Plastic sheeting as a stockpile protection is temporary and hard to manage in windy conditions. Where plastic is used, consider use of plastic tarps with nylon reinforcement which may be more durable than standard sheeting.
- Plastic sheeting can increase runoff volume due to lack of infiltration and potentially cause perimeter control failure.
- Plastic sheeting breaks down faster in sunlight.
- The use of Plastic materials and photodegradable plastics should be avoided.

### Implementation

Protection of stockpiles is a year-round requirement. To properly manage stockpiles:

### Categories

EC	Erosion Control	
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

### Legend:

- ☒ Primary Category
- ☒ Secondary Category

### Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	<input checked="" type="checkbox"/>
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>

### Potential Alternatives

None

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# CASQA Interactive Map

## Construction BMP Online Handbook

Browse Filter Map

Select a construction site element from the map, and scroll down to view the documents that contain best management practices information for those elements.



### Stockpile Management

BMP Code: WE-1

BMP Name: Wind Erosion Control

Fact Sheet:  [we-1.pdf](#) (107.21 KB)

BMP Code: WM-3

BMP Name: Stockpile Management



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