

O&M Staff Training Module 7: Maintenance Best Practices for Water Quality Protection BMP Basics



City of Tacoma Environmental Services
2018

This training covers basic sediment and erosion control measures you may use in the field.

These Best Management Practices (BMPs)* are designed to reduce stormwater impacts by:

- Minimizing erosion and sedimentation
- Containing pollutants
- Avoiding habitat impacts

*Based on the *City of Tacoma Stormwater Management Manual* and *Regional Road Maintenance Program (RRMP) Guidance Manual*



This training will cover selected BMPs from:

**City of Tacoma Utility Employee
Stormwater Quality Best Management Practices Manual
(BMP Manual)**

June 2017



City of Tacoma
Environmental Services

Available online at: www.cityoftacoma.org/omtraining

Erosion control vs. Sediment control

Erosion Prevention = Source Control

Prevention or minimization of soil movement



Should be your **PRIMARY**
METHOD

Sediment Control = Treatment

Recapture soil before it leaves the work site



Should be your **BACKUP** or
SECONDARY METHOD

Sediment Control BMPs work to...

- Soak it in (mulch & seed)
- Spread it around (sheet-flow)
- Slow it down (roughened surface and check dams)
- Sift it out (perimeter barriers)
- Settle it out (pretreatment tanks and basins)

Best Management Practice (BMP)

How To's

Common BMPs

Erosion Prevention

- Erosion blankets and nets
- Mulching and Seeding

Sediment Control

- Catch Basin Protection
- Straw wattles/coir logs
- Silt fence
- Straw Bale alternatives

Spill clean-up

- Street Sweeper
- Eductor truck

Erosion Prevention Blankets and Nets



Important notes for nets and blankets

- Keep mat in direct contact with soil surface using staples or stakes
- Key in at the top of the slope
- Overlap side edges if using multiple sections
- Overlap up-slope blankets over down-slope (like roof shingles)
- Always place mats parallel to flow direction
- <https://www.youtube.com/watch?v=cFgL60LVJNc>

Erosion Prevention Mulching and Seeding



Important notes for mulching and seeding

There are many different types of hydraulic erosion control products to apply with seed – for different slopes and site conditions, for example:

- hydroseed = water, seed, color
- hydraulic mulch = thermally refined wood fibers with or without tackifier
- engineered fiber matrix = thermally refined wood fibers, dispersion granules, biopolymer water absorbents

Important notes for mulching and seeding

Important issues to consider:

- Do you need soil amendment or not prior to mulching and seeding
- Acreage to cover
- Desired thickness – 2 inch minimum typically, but increase thickness until achieve at least 95% surface coverage
- Access to water
- Longevity
- Seed germination window
- <https://www.youtube.com/watch?v=Bj-31Z4O0f4>
hydroseeding vs. blankets
- <https://www.youtube.com/watch?v=tiMYn6RihC0>
straw mulch

Sediment Control

Storm Drain Inlet Protection



Important notes for Inlet protection

- Keep sediment loading around the edges – don't allow sediment to cover or fill the inlet.
- Consider layering more than one BMP to provide extra protection in case of very messy jobs.
- Remove inlet protection when the job is done – so it doesn't create litter or system clogging.
- <https://www.youtube.com/watch?v=78aJSdH4xMs>

Sediment Control Wattles

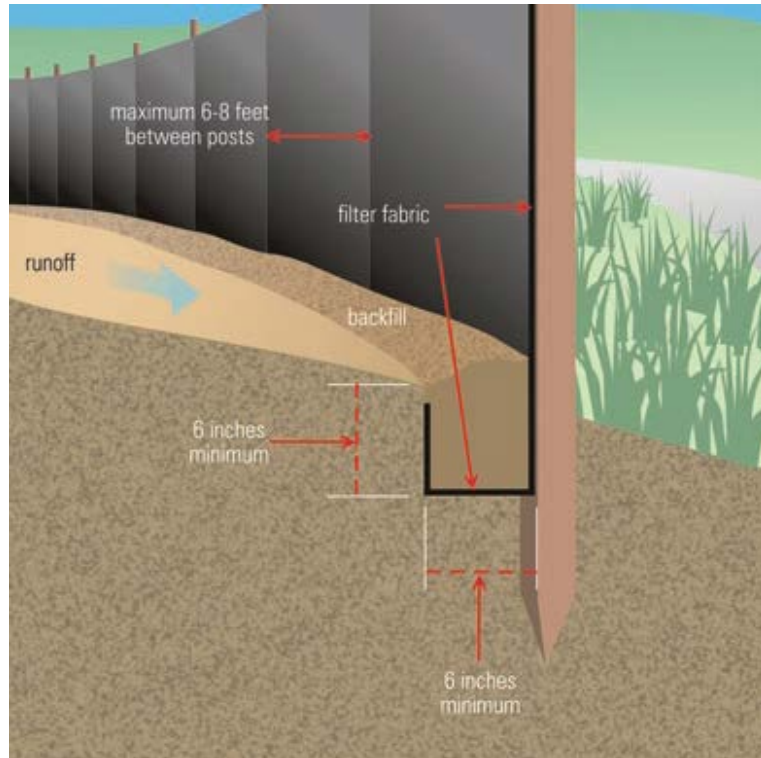
- Straw wattles
- Coir logs
- Terratubes
- Compost filter socks
- Blown compost socks



Important notes for Wattles

- Very versatile and helpful in various settings.
- Important to stake down or otherwise secure wattles in place.
- Stake wattles with 18"-24" stakes perpendicular to slope face
- Spacing between wattles varies based on slope and may be as close as every 5 feet for steep slopes
- Set wattles in 2-3 inch shallow trench
- If installing end to end, make sure the ends tightly abut
- <https://www.youtube.com/watch?v=MHYRgB4OnAM>
silt fence and wattles perimeter controls

Sediment Control Silt Fence



Important notes for Sediment Fence

DO:

- Use for containment
- Install along contours of slopes
- Key into slope
- Properly join ends of segments
- <https://www.youtube.com/watch?v=u2PeLrxY-A>

DON'T:

- Use for filtration
- Install as only line of defense at the bottom of slope
- Allow to fill with sediment or blow down

Alternatives to straw bales (which are no longer an approved BMP):

- For perimeter control: use silt fencing
- For check dams: use rock check dams or fiber rolls
- For slope protection: use geotextile or compost blankets
- For storm drain inlet protection: use sand bags, straw wattles, inlet cover mats

Concrete washout and dewatering

- Street Operations operates a concrete saw with a vacuum and storage tanks for slurry that is dewatered at their decant facility



- Other methods of controlling concrete washout and dewatering:

<https://www.youtube.com/watch?v=j-nYkCFFYKs>

Street Sweeper

- When the amount of sediment and debris on street cannot be handled by sweeping or blowing debris out of the street, collecting and disposing by hand.
- To schedule, call Environmental Services Maintenance and Operations 591-5585



Eductor Truck

- If you need larger vactoring services for slurry management or dewatering the job site.
- To schedule, call Environmental Services Maintenance and Operations 591-5585



Field Assistance

Need some help with your BMPs?

Environmental Services Department Environmental Compliance Team

Call 502-2222



Available 24/7

**Time to solve some sediment
control issues....**



What's Wrong With This Picture?



What solutions would you recommend?

What's Wrong With This Picture?

- Issues
 - Track out
 - Slope failure
- Solutions
 - Install/maintain construction entrance
 - Perimeter fencing
 - Slope stabilization with hydro seed or mulch

What's Wrong With This Picture?



What solutions would you recommend?

What's Wrong With This Picture?

- Issues
 - Track out
 - Slope failure
- Solutions
 - Perimeter fencing
 - Slope stabilization with hydroseed or mulch



What's Wrong With This Picture?



What solutions would you recommend?

What's Wrong With This Picture?

- Issues
 - Silt fence failure
 - Concentrated flows
- Solutions
 - Interceptor ditches
 - Retention basins

Review Questions

Question #1

What should be your primary method of preventing sediment from leaving your work site?

a) Erosion prevention



b) Sediment control



Question #2

When using inlet protection, what is key to remember?

- a) Don't allow sediment to cover or fill the inlet.
- b) Consider layering more than one BMP to provide extra protection in case of very messy jobs.
- c) Remove inlet protection when the job is done.
- d) All of the above.

Question #3

What are some alternatives to using straw bales on your site?

- a) Silt fencing
- b) Fiber rolls
- c) Sand bags
- d) All of the above.

Quiz Answers

- Question #1: a)
- Question #2: d)
- Question #3: d)