

**OBJECTIVES**

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion

**TARGETED POLLUTANTS**

**H M L**

- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses
- Other Waste

**IMPLEMENTATION REQUIREMENTS**

**H M L**

- Capital Costs
- O&M Costs
- Maintenance
- Training
- Staffing
- Administrative

H = High M = Medium L = Low

**DESCRIPTION:**

Use of rolling, tamping, or vibration to stabilize fill materials and control erosion by increasing the soil density. Increasing the density of soil improves soil strength, reduces long-term soil settlement, and provides resistance to erosion.

**APPLICATIONS:**

- Stabilize fill material placed around various structures.
- Improve soil in place as foundation support for roads, parking lots, and buildings.

**INSTALLATION / APPLICATION CRITERIA:**

- Make sure soil moisture content is at optimum levels.
- Use proper compaction equipment.
- Install sediment control and storm water management devices below compacted areas and runoff interceptor devices above these areas. Drainage from compacted areas must be carefully planned to protect adjacent uncompacted soils.
- The surface of compacted areas should be scarified and seeded or mulched and seeded to increase the effectiveness of compaction.

**LIMITATIONS:**

- Compaction tends to increase runoff.
- Over-compaction will hamper revegetation efforts.

**MAINTENANCE:**

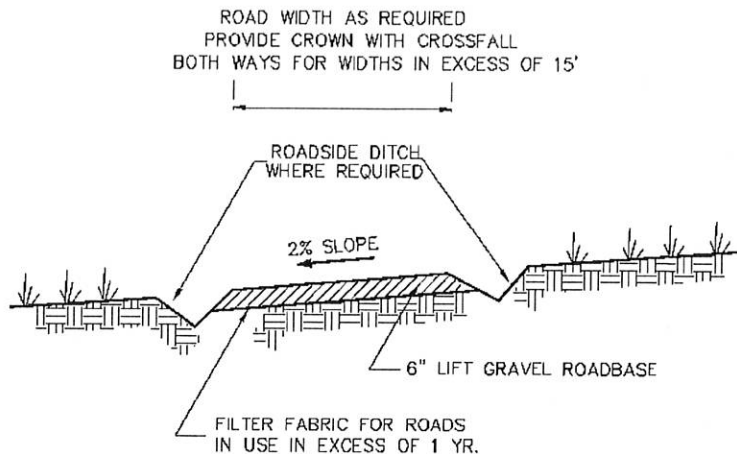
No maintenance required.



1500 East 650 North  
Fruit Heights, UT 84037

# BMP: Construction Road Stabilization

CR



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## DESCRIPTION:

Temporary stabilization of on-site roadway by placement of gravel roadbase.

## APPLICATION:

- On-site roadways used daily by construction traffic (may not apply to gravelly type soils)
- Parking or staging areas susceptible to erosion due to traffic use

## INSTALLATION / APPLICATION CRITERIA:

- Grade temporary access road with 2% cross fall, for two-way width provide crown
- Provide roadside ditch and outlet controls where required
- Place 6 inches of 2-inch to 4-inch crushed rock on driving area

## LIMITATIONS:

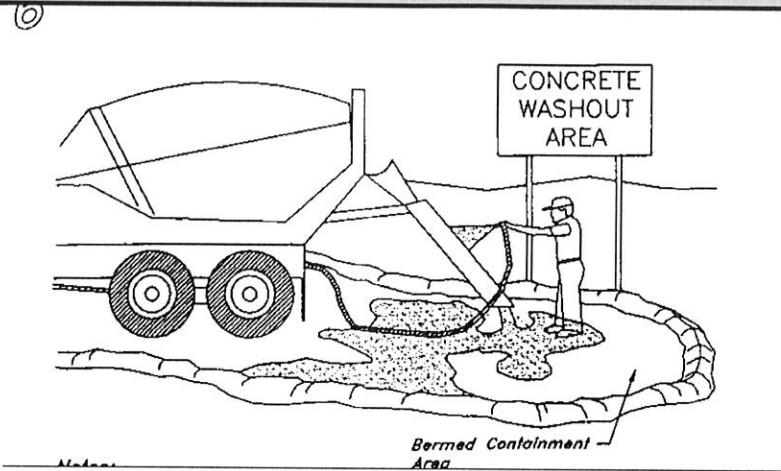
- May require removal of gravel roadbase at completion of activities if final cover is not impervious
- May require controls for surface storm water runoff

## MAINTENANCE:

- Inspect after major rainfall events and at a minimum of once every two weeks
- Place additional gravel as needed and repair any damaged areas
- Maintain any roadside drainage controls



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**DESCRIPTION:**

Prevent or reduce the discharge of pollutants to storm water from concrete waste by conducting washout off-site, performing on-site washout in a designated area, and training employees and subcontractors.

**APPLICATION:**

This technique is applicable to all types of sites

**INSTALLATION / APPLICATION CRITERIA:**

- Store dry materials under cover, away from drainage areas
- Minimize excess mixing of fresh concrete, mortar or cement on site
- Do not wash out concrete trucks into storm drains, open ditches, streets, or streams
- Do not allow excess concrete to be dumped on-site, except in designated areas
- When washing concrete to remove fine particles and expose the aggregate, avoid creating runoff by draining the water within a bermed or level area (6" tall X 6' wide)
- Train employees and subcontractors in proper concrete waste management

**LIMITATIONS:**

- Off-site washout or concrete wastes may not always be possible

**MAINTENANCE:**

- Inspect subcontractors to ensure that concrete wastes are being properly managed
- If using a temporary pit, dispose of hardened concrete on a regular basis

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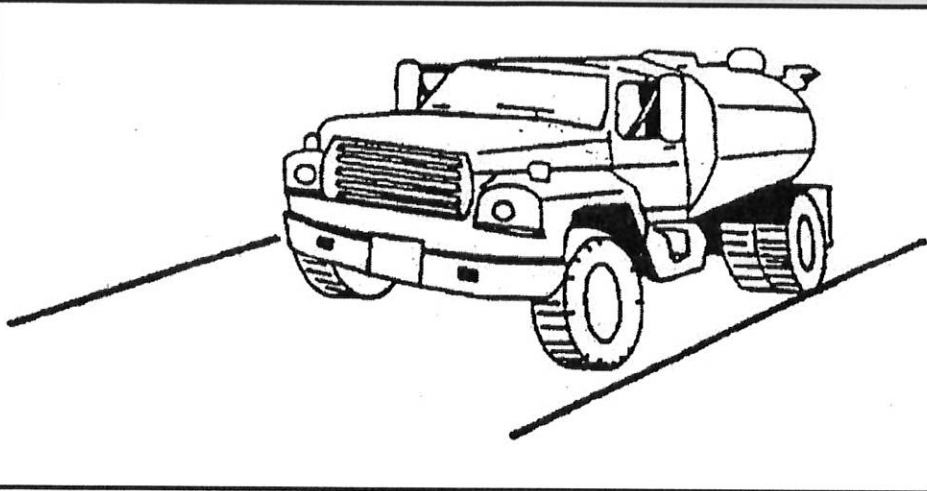
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**DESCRIPTION:**

Dust control measures are used to stabilize soil from wind erosion, and reduce dust by construction activities.

**APPLICATION:**

Dust control is useful in any process area, loading and unloading area, material handling areas, and transfer areas where dust is generated. Street sweeping is limited to areas that are paved.

**INSTALLATION / APPLICATION CRITERIA:**

- Mechanical dust collection systems are designed according to the size of dust particles and the amount of air to be processed. Manufacturers' recommendations should be followed for installation (as well as the design of the equipment).
- Two kinds of street sweepers are common: brush and vacuum. Vacuum sweepers are more efficient and work best when the area is dry.
- Mechanical equipment should be operated according to the manufacturers' recommendations and should be inspected regularly.

**LIMITATIONS:**

- More elaborate equipment may be impossible to maintain by plant personnel
- Is labor and equipment intensive and may not be effective for all pollutants (street sweepers)

**MAINTENANCE:**

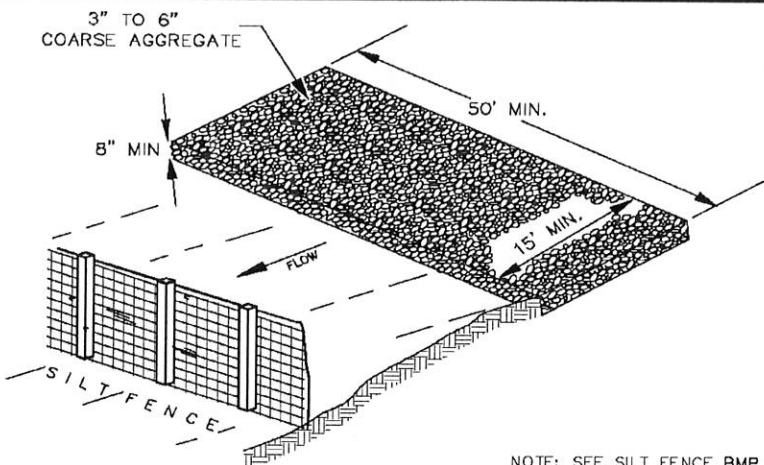
If water sprayers are used, dust-contaminated waters should be collected and taken for treatment. Areas will probably need to be resprayed to keep dust from spreading.



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# BMP: Equipment and Vehicle Wash Down Area

EVWA



NOTE: SEE SILT FENCE BMP SHEET

## DESCRIPTION:

A stabilized pad of crushed stone for general washing of equipment and construction vehicles.

## APPLICATION:

At any site where regular washing of vehicles and equipment will occur. May also be used as a filling point for water trucks limiting erosion caused by overflow or spillage of water.

## INSTALLATION / APPLICATION CRITERIA:

- Clear and grub area and grade to provide maximum slope of 1%
- Compact subgrade and place filter fabric if desired (recommended for wash areas to remain in use for more than 3 months)
- Place coarse aggregate, 1 to 2-1/2 inches in size, to a minimum depth of 8 inches
- Install silt fence downgradient (see silt fence BMP information sheet)

## LIMITATIONS:

Cannot be utilized for washing equipment or vehicles that may cause contamination of runoff such as fertilizer equipment or concrete equipment. Solely used to control sediment in wash water.

## MAINTENANCE:

- Inspect daily for loss of gravel or sediment buildup
- Inspect adjacent area for sediment deposit and install additional controls as necessary
- Repair area and replace gravel as required to maintain control in good working condition
- Expand stabilized area as required to accommodate activities
- Maintain silt fence as outlined in specific silt fence BMP information sheet

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- |                                     |                          |                                     |                     |
|-------------------------------------|--------------------------|-------------------------------------|---------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | Sediment            |
| <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Nutrients           |
| <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Heavy Metals        |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | Toxic Materials     |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | Oil & Grease        |
| <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Floatable Materials |
| <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Bacteria & Viruses  |
| <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Other Waste         |

## IMPLEMENTATION REQUIREMENTS

### H M L

- |                          |                                     |                                     |                |
|--------------------------|-------------------------------------|-------------------------------------|----------------|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Capital Costs  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | O&M Costs      |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Maintenance    |
| <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Training       |
| <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Staffing       |
| <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Administrative |

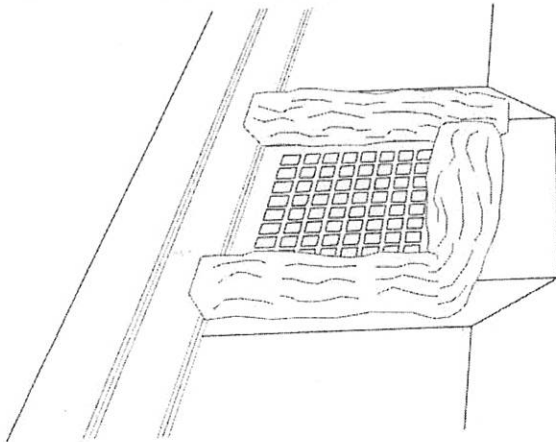
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# BMP: Inlet Protection - Gravel Bags

IP-GB



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## DESCRIPTION:

Sediment barrier erected around storm drain inlet.

## APPLICATION:

Construct at storm drainage inlets located down-gradient of areas to be disturbed by construction

## INSTALLATION / APPLICATION CRITERIA:

- Provide up-gradient sediment controls, such as silt fence during construction of inlet
- When construction of curb and gutter and roadway is complete, install gravel filled bags around perimeter of inlet
- Fill to recommended levels to reduce splitting of bags

## LIMITATIONS:

- Recommended maximum contributing drainage area of one acre
- Requires shallow sloped adjacent to inlet.

## MAINTENANCE:

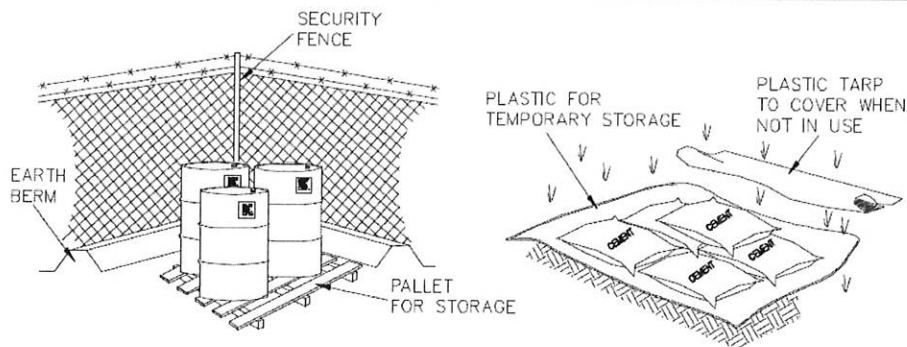
- Inspect inlet protection following storm event and at a minimum of once every 14 days.
- Remove accumulated sediment when it reaches half the height of the bag.
- Look for bypassing or undercutting and repair or realign as needed.
- Replace and clean up spilled gravel when bags split.



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# BMP: Materials Storage

MS



- ▶ CONTROLLED STORAGE LOCATION
- ▶ BARRIER AROUND PERIMETER
- ▶ ELEVATE CONTAINERS OFF GROUND
- ▶ COVER WHEN NOT IN USE

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## DESCRIPTION:

Controlled storage of on-site materials.

## APPLICATION:

- Storage of hazardous, toxic, and all chemical substances
- Any construction site with outside storage of materials

## INSTALLATION / APPLICATION CRITERIA:

- Designate a secured area with limited access as the storage location. Ensure no waterways or drainage paths are nearby
- Construct compacted earthen berm (See Earth Berm Barrier Information Sheet), or similar perimeter containment around storage location for impoundment in the case of spills
- Ensure all on-site personnel utilize designated storage area. Do not store excessive amounts of material that will not be utilized on site
- For active use of materials away from the storage area ensure materials are not set directly on the ground and are covered when not in use. Protect storm drainage during use

## LIMITATIONS:

- Does not prevent contamination due to mishandling of products
- Spill Prevention and Response Plan still required
- Only effective if materials are actively stored in controlled location

## MAINTENANCE:

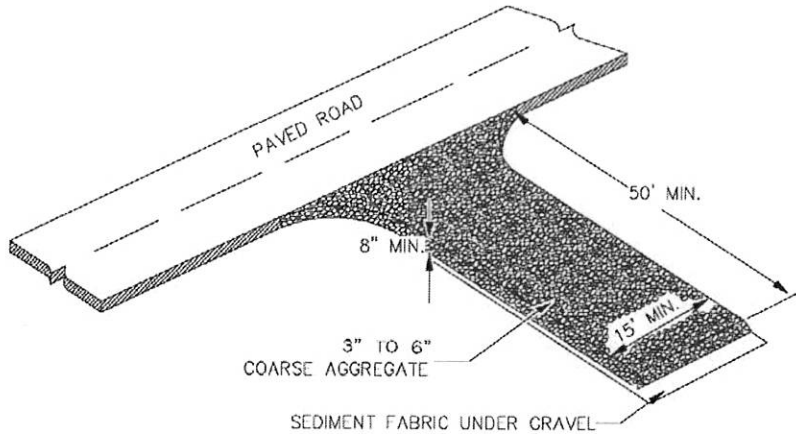
- Inspect daily and repair any damage to perimeter impoundment or security fencing
- Check materials are being correctly stored (i.e. standing upright, in labeled containers, tightly capped) and that no materials are being stored away from the designated location



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# BMP: Stabilized Construction Entrance

SCE



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## DESCRIPTION:

A stabilized pad of crushed stone located where construction traffic enters or leaves the site from or to paved surface.

## APPLICATION:

At any point of ingress and egress at a construction site where adjacent traveled way is paved. Generally applies to sites over 2 acres unless special conditions exist.

## INSTALLATION / APPLICATION CRITERIA:

- Clear and grub area and grade to provide maximum slope of 2%
- Compact subgrade and place filter fabric if desired (recommended for entrances to remain for more than 3 months)
- Place coarse aggregate, 3-6 inches in size, to a minimum depth of 8 inches

## LIMITATIONS:

- Requires periodic top dressing with additional stones
- Should be used in conjunction with street sweeping on adjacent public right-of-way

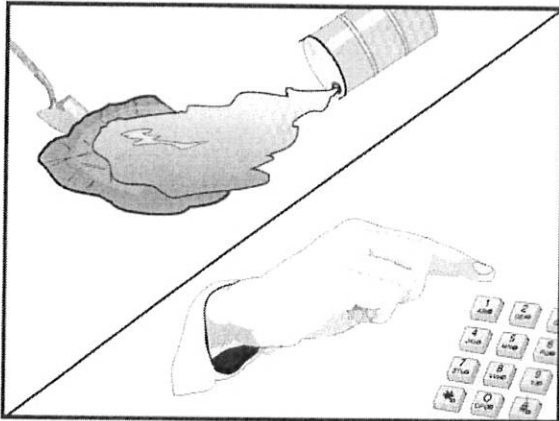
## MAINTENANCE:

- Inspect daily for loss of gravel or sediment buildup
- Inspect adjacent roadway for sediment deposit and clean by sweeping or shoveling
- Repair entrance and replace gravel as required to maintain control in good working condition
- Expand stabilized area as required to accommodate traffic and prevent erosion at driveways



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Standard Symbol

- BMP Objectives**
- Soil Stabilization
  - Sediment Control
  - Tracking Control
  - Wind Erosion Control
  - Non-Storm Water Management
  - Materials and Waste Management

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**DESCRIPTION:**

Practices to clean-up leakage/spillage of on-site materials that may be harmful to receiving waters.

**APPLICATION:**

All sites

**GENERAL:**

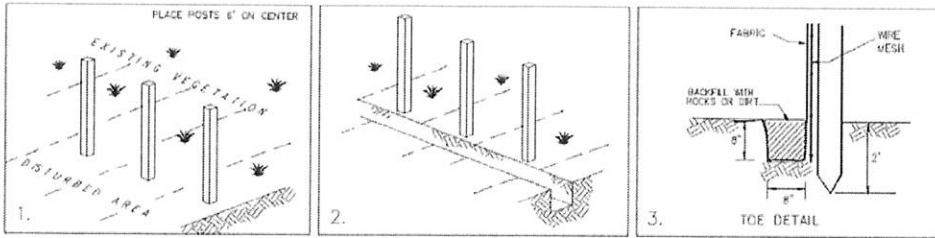
- Store controlled materials within a storage area
- Educate personnel on prevention and clean-up
- Designate an Emergency Coordinator responsible practices and for providing spill response
- Maintain a supply of clean-up equipment on-site response agencies with phone numbers

**METHODS:**

- Clean-up spills/leaks immediately and remediate cause
- Use as little water as possible. NEVER HOSE DOWN OR BURY SPILL CONTAMINATED MATERIAL
- Use rags or absorbent material for clean-up. Excavate contaminated soils. Dispose of clean-up material and soil as hazardous waste
- Document all spills with date, location, substance, volume, actions taken and other pertinent data.
- Contact local Fire Department and State Division of Environmental Response and Remediation (Phone #536-4100) for any spill of reportable quantity



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**DESCRIPTION:**

A temporary sediment barrier consisting of entrenched filter fabric stretched across and secured to supporting posts.

**APPLICATION:**

- Perimeter control: place barrier at downgradient limits of disturbance
- Sediment barrier: place barrier at toe of slope or soil stockpile
- Protection of existing waterways: place barrier at top of stream bank
- Inlet protection: place fence surrounding catch basins

**INSTALLATION / APPLICATION CRITERIA:**

- Place posts 6' apart on center along contour (or use preassembled unit) and drive 2' minimum into ground. Excavate an anchor trench immediately up gradient of posts
- Cut fabric to require width, unroll along length of barrier and drape over barrier. Secure fabric to mesh with twine, staples, or similar, with trailing edge extending into anchor trench
- Backfill trench over fabric to anchor
- Fabric must have 85% minimum sediment removal efficiency

**LIMITATIONS:**

- Recommended maximum drainage area of 0.5 acre per 100 feet
- Recommended maximum upgradient slope length of 150'
- Recommended maximum uphill grade of 2:1 (50%)
- Recommended maximum flow rate of 0.5 cfs
- Ponding should not be allowed behind fence

**MAINTENANCE:**

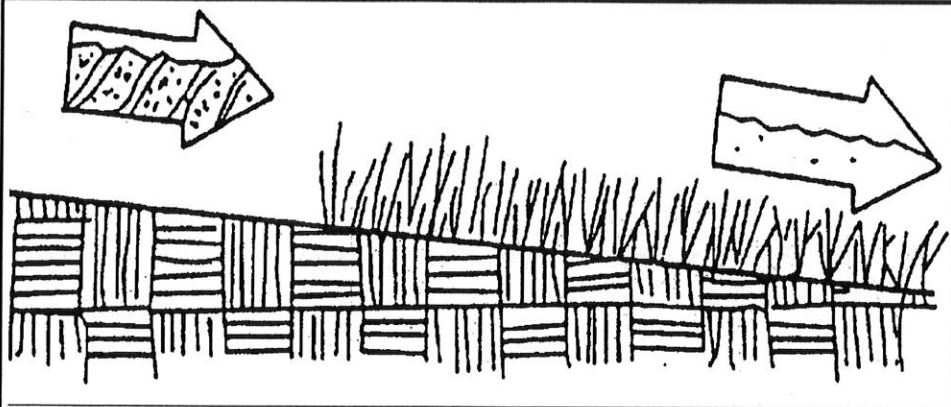
- Inspect immediately after any rainfall and at least daily during prolonged rainfall
- Look for runoff bypassing ends of barriers or undercutting barriers
- Repair or replace damaged areas of the barrier and remove accumulated sediment
- Reanchor fence as necessary to prevent shortcutting
- Remove accumulated sediment when it reaches 1/2 the height of the fence



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**BMP: Seeding and Planting**

**SP**



**DESCRIPTION:**

Seeding of grass and plantings of trees, shrubs, vines and ground covers provide long-term stabilization of soil. In some areas, with suitable climates, grasses can be planted for temporary stabilization.

**APPLICATION:**

- Appropriate for site stabilization both during construction and post-construction
- Any graded/cleared areas where construction activities have ceased
- Open space cut and fill areas
- Steep slopes, spoil piles, vegetated swales, landscape corridors, stream banks. Use in conjunction with matting, mulch or blanketing where appropriate.

**INSTALLATION / APPLICATION CRITERIA:**

Type of vegetation, site and seedbed preparation, planting time, fertilization and water requirements should be considered for each application.

**Grasses:**

- Ground preparations: fertilize and mechanically stabilize the soil
- Tolerant of short-term temperature extremes and waterlogged soil composition
- Appropriate soil conditions: shallow soil base, good drainage, slope 2:1 or flatter
- Mowing, irrigating, and fertilizing are vital for promoting vigorous grass growth

**Trees and Shrubs:**

- Selection criteria: vigor, species, size, shape & wildlife food source
- Soil conditions: select species appropriate for soil, drainage & acidity
- Other factors: wind/exposure, temperature extremes, and irrigations needs

**Vines and Ground Covers:**

- Ground preparation: lime and fertilizer preparation
- Use proper seeding rates
- Appropriate soil conditions: drainage, acidity and slopes
- Generally avoid species requiring irrigation

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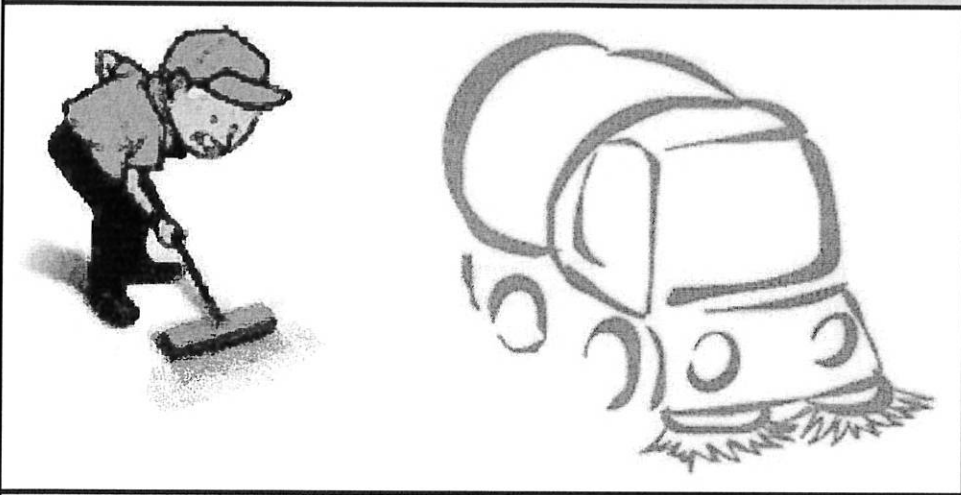
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**DESCRIPTION:**

Prevent sediment from entering storm water by sweeping the streets near construction activities.

**APPLICATION:**

- Useful for any paved streets near construction sites where sediment is blown, tracked, or spilled onto the streets.

**INSTALLATION / APPLICATION CRITERIA:**

- The equipment used should be appropriate for the conditions. Vacuum sweepers work more effectively when the area is dry. Brush sweepers work better when the sediment is wet or stuck to the surface.
- Mechanical equipment should be operated and maintained according to the manufacturer's recommendations

**LIMITATIONS:**

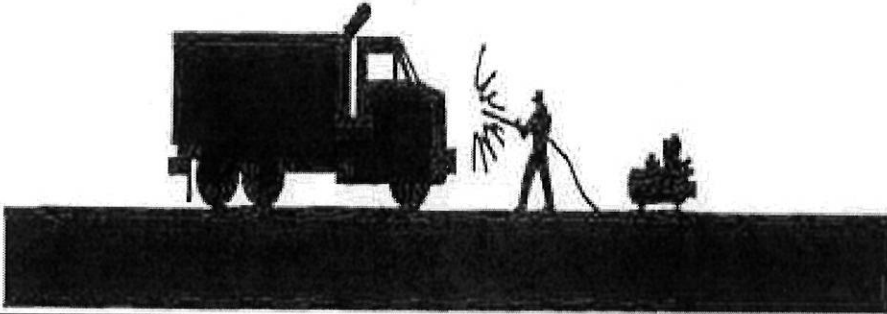
- Is labor and equipment intensive
- May cause dust

**MAINTENANCE:**

- The street should be checked daily for any sediment deposits. Street sweeping should be implemented whenever sediment from construction activity is found on the streets



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**DESCRIPTION:**

Prevent or reduce the discharge of pollutants to storm water from vehicle and equipment cleaning by using off-site facilities, washing in designated, contained areas only, eliminating discharges to the storm drain by infiltrating or recycling the wash water, and/or training employees and subcontractors.

**INSTALLATION / APPLICATION CRITERIA:**

- Use off-site commercial washing businesses as much as possible. Washing vehicles and equipment outdoors or in areas where wash water flows onto paved surfaces or into drainage pathways can pollute storm water. If you wash large number of vehicles or pieces of equipment, consider conducting this work at an off-site commercial business. These businesses are better equipped to handle and dispose of the wash waters properly. Performing this work off-site can also be economical by eliminating the need for a separate washing operation at your site.
- If washing must occur on-site, use designated, bermed wash areas to prevent wash water contact with storm water, creeks, rivers, and other water bodies. The wash area can be sloped for wash water collection and subsequent infiltration into the ground.
- Use as little water as possible to avoid having to install erosion and sediment controls for the wash area. Use phosphate-free biodegradable soaps. Educate employees and subcontractors on pollution prevention measures. Do not permit steam cleaning on-site. Steam cleaning can generate significant pollutant concentrations.

**LIMITATIONS:**

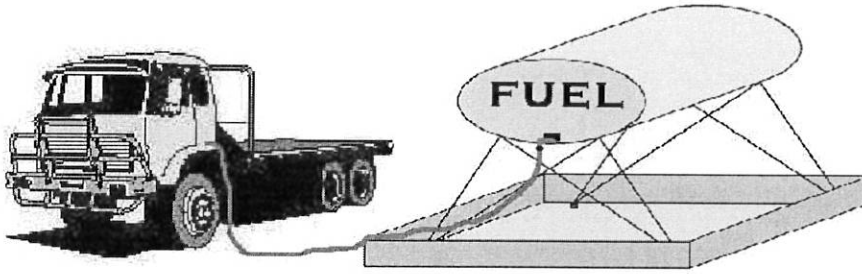
- Even phosphate-free, biodegradable soaps have been shown to be toxic to fish before the soap degrades
- Sending vehicles/equipment off-site should be done in conjunction with Stabilized Construction Entrance

**MAINTENANCE:**

- Minimal, some berm repair may be necessary



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H = High M = Medium L = Low

**DESCRIPTION:**

Prevent fuel spills and leaks, and reduce their impacts to storm water by using offsite facilities, fueling in designated areas only, enclosing or covering stored fuel, implementing spill controls, and training employees and subcontractors.

**INSTALLATION / APPLICATION CRITERIA:**

- Use off-site fueling stations as much as possible. Fueling vehicles and equipment outdoors or in areas where fuel may spill/leak onto paved surfaces or into drainage pathways can pollute storm water. If you fuel a large number of vehicles or pieces of equipment, consider using an off-site fueling station. These businesses are better equipped to handle fuel and spills properly. Performing this work off-site can also be economical by eliminating the need for a separate fueling area at your site.
- If fueling must occur on-site, use designated areas, located away from drainage courses, to prevent the run on of storm water and the runoff of spills. Discourage "topping-off" of fuel tanks.
- Always use secondary containment, such as a drain pan or drop cloth, when fueling to catch spills/leaks. Place a stockpile of spill cleanup materials where it will be readily accessible. Use adsorbent materials on small spills rather than hosing down or burying the spill. Remove the adsorbent materials promptly and dispose of properly.
- Carry out all Federal and State requirements regarding stationary above ground storage tanks.(40 CF Sub. J) Avoid mobile fueling of mobile construction equipment around the site; rather, transport the equipment to designated fueling areas. With the exception of tracked equipment such as bulldozers and perhaps forklifts, most vehicles should be able to travel to a designated area with little lost time. Train employees and subcontractors in proper fueling and cleanup procedures.

**LIMITATIONS:**

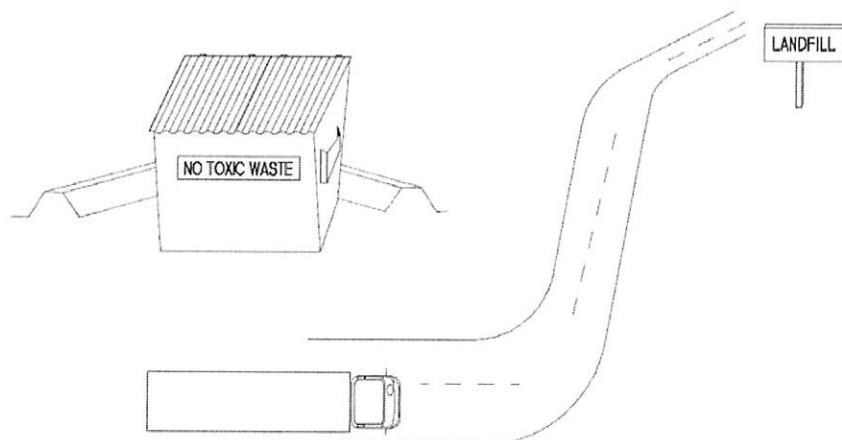
Sending vehicles/equipment off-site should be done in conjunction with Stabilized Construction Entrance

**MAINTENANCE:**

- Keep ample supplies of spill cleanup materials on-site
- Inspect fueling areas and storage tanks on a regular schedule



1500 East 650 North  
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**OBJECTIVES**

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion

**TARGETED POLLUTANTS**

**H M L**

- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses
- Other Waste

**IMPLEMENTATION REQUIREMENTS**

**H M L**

- Capital Costs
- O&M Costs
- Maintenance
- Training
- Staffing
- Administrative

**H = High M = Medium L = Low**

**DESCRIPTION:**

Controlled storage and disposal of solid waste generated by construction activities.

**APPLICATION:**

All construction sites

**INSTALLATION / APPLICATION CRITERIA:**

- Designate one or several waste collection areas with easy access for construction vehicles and personnel. Ensure no waterways or storm drainage inlets are located near the waste collection areas.
- Construct compacted earthen berm (See Earth Berm Barrier Information Sheet), or similar perimeter containment around collection area for impoundment in the case of spills.
- Ensure all on site personnel are aware of and utilize designated waste collection area properly and for intended use only (e.g. all toxic, hazardous, or recyclable materials shall be properly disposed of separately from general construction waste).
- Arrange for periodic pickup, transfer and disposal of collected waste at an authorized disposal location. Include regular Porto-potty service in waste management activities.

**LIMITATIONS:**

- On-site personnel are responsible for correct disposal of waste

**MAINTENANCE:**

- Discuss waste management procedures at progress meetings
- Collect site trash daily and deposit in containers at designated collection areas
- Randomly check disposed materials for any unauthorized waste (e.g. toxic materials).



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