

MAINTENANCE & OPERATIONS

GOOD HOUSEKEEPING BMPs

- BMP 40.00.** Cold Weather Stabilization
- BMP 41.00.** Sanitary Waste Management
- BMP 42.00.** Vehicle/Equipment Storage, Maintenance and Fueling
- BMP 43.00.** Bridge Maintenance
- BMP 44.00.** Ditch Maintenance
- BMP 45.00.** Snow Removal

BMP 40.00. Cold Weather Stabilization

Objectives

Cold Weather Stabilization measures minimize erosion caused by breakup, snowmelt runoff, and thermal degradation in order to prevent negative impacts to projects and water quality.

Description

Cold Weather Stabilization practices are applied to projects involving construction activities extending beyond one construction season. They are measures that stabilize sites that will have activities and/or exposed areas between fall freezeup and spring thaw. Projects may fall into the two following categories, but stabilization measures are similar:

1. Sites that suspend active grading operations and shut down over the winter.
2. Projects for which work must be conducted during periods of cold weather may need to implement Cold Weather Stabilization techniques. Projects that require winter work must plan on limiting the extent and duration of exposed soils and provide for stabilization of inactive areas of the site.

Specifications

Employ the following Cold Weather Stabilization techniques during the period from fall freeze up until spring thaw:

- Limit the extent and duration of winter excavation and earthwork activities to minimize potential erosion and sediment impacts.
- Generally, limit the exposed area to only those areas in which work will occur and can be stabilized as soon as practicable, but no later than 14 calendar days, and those that can be stabilized in 1 day prior to any precipitation or runoff event.
- Subsequent work areas should not be exposed until the previously exposed work area has been fully stabilized.
- An area is considered "exposed" until stabilized with one or more of the following: gravel base on a road, runway, taxiway, or parking area; pavement; vegetation; mulching; or the installation of Rolled Erosion Control Products (RECPs) or riprap.
- Minimize the area of exposed, unstabilized soil and protect against erosion by the methods described in the Stormwater Pollution Prevention Plan (SWPPP) prior to any thaw or spring melt event. The area of exposed soil may be increased if activities are conducted according to a winter construction plan approved by the engineer and amended into the site SWPPP.
- Complete stabilization within 7 days of establishing final grade or in areas that otherwise will remain unworked for more than 7 days.
- Installation of RECPs should not occur over snow greater than 1-inch in depth.
- Standard anchoring devices for RECPs used in frozen soil conditions may be limited in their effectiveness. Alternate methods may be required to secure ground covers on frozen ground, such as sandbags or weights.
- Mulch that is spread on top of snow cover will work its way to the soil as snowpack is reduced and another snowfall occurs. This will hold the mulch in place until spring thaw, allowing it to stabilize the soil during and after breakup.
- Straw may be applied to snow as it will absorb sunlight and melt a very small amount of snow and freeze into the snow. When this occurs, the straw will remain in place during spring thaw, allowing it to stabilize the soil during and after breakup. Mulching can also be done on bare soil, with a little more attention to detail:
 - If applying on frozen ground, spray a tackifier on top (water can work in some cases) to freeze it in place.
 - If the soil is freshly graded and somewhat moist, it may still be possible to track-anchor the mulch (e.g., run tracked equipment over the mulch).
 - If the soil is freshly graded, it is not windy, and snowfall is anticipated very soon, the snow will hold it in place.
- Construct and stabilize all grass-lined ditches and channels by fall freezeup. Temporarily stabilize all ditches or swales that do not exhibit

a minimum of 70 percent vegetative growth by fall freeze-up, or are disturbed after fall freezeup, with stone or RECPs appropriate for the design flow conditions.

- Cover stockpiles of soil materials for over-winter protection with mulch at twice the normal rate or with RECPs designed to last the desired timeframe. Plastic covering may be used if consideration for increased flow volumes has been planned and managed. Cover should be placed within 24 hours of stockpiling, and re-established prior to any rainfall or snowfall. If possible, stockpiles should be placed farther than 100 feet of any wetland or other waters of the U.S.
- Stockpile frozen materials, (e.g., frost layer that is removed during winter construction), separately and in a location that is away from any area needing to be protected. Stockpiles of frozen material can melt in the spring and become unworkable and difficult to transport due to the high moisture content in the soil.
- Sediment barriers that are installed during frozen conditions should consist of continuous containment berms or fiber rolls.
- Frozen ground presents a real challenge to installing silt fence, but it can be done. Instead of using traditional manual or machine-sliced installation methods, you will have to:
 - Machine dig a trench with a ditch-witch or similar equipment; then make sure you backfill with loose soil and compact. Moisten the backfilled soil well, it will freeze up and grip the silt fence fabric in place; or
 - Use a specially equipped (typically carbide tipped) slicing machine. Do not leave large frost chunks as the backfill. Compact as well as possible (before installing the posts) with a heavy piece of equipment. Fill gaps and voids with very moist, loose soil, and then compact it again.
- Silt fences should not be installed when frozen conditions prevent proper embedment of the fabric.

Relationship to Other Erosion and Sediment Control Measures

All stabilization techniques may be applicable for winter stabilization. However, proper planning and scheduling is critical for successful Cold Weather Stabilization.

Common Failures or Misuses

- The most common problem with winter conditions is lack of planning. Scheduling that does not consider current forecasts for changing weather conditions will be difficult to manage. During breakup conditions soils may be too soft or saturated to allow access, preventing the implementation and installation of best management practices (BMPs).
- Re-establish BMPs in the spring, the risk of sediment discharges are greatest in the spring when the vegetative cover has not been established.

BMP 41.00. Sanitary Waste Management

Objectives

Eliminate discharge of sanitary/septic waste materials to storm drain systems, waters of the U.S., or groundwater.

Description

Provide convenient, well-maintained facilities, arrange for regular service and disposal. Ensure portable facilities include containment to prevent discharge of pollutants.

Applicability

Sanitary Waste Management practices are suitable for construction sites where portable or temporary facilities are required.

Installation

- Install temporary facilities as far away from stormwater drainage systems and waters of the U.S. as practicable.
- Secure from overturning.
- Provide containment to prevent any discharge.
- Ensure the facility is in an area that does not collect water.

Maintenance and Inspection

- Prohibit discharge or burial of sanitary/septic waste materials.
- Clean or replace sanitation facilities regularly. Use a reputable service provider that disposes of or treats the sanitary/septic waste materials in accordance with state and local requirements.
- Inspect facilities regularly for leaks and spills.
- Ensure sanitation facilities are secure from overturning due to high winds or other forces.

BMP 42.00. Vehicle/Equipment Storage, Maintenance and Fueling

SPECIFICATIONS

Objectives

Minimize or eliminate the discharge of pollutants and hazardous materials into storm drain systems, waters of the U.S., or groundwater.

Applicability

- Procedures and practices are used where on-site storage, maintenance, and fueling takes place.
- When practical, storage, maintenance, and fueling must be done off-site.

GENERAL VEHICLE/EQUIPMENT PRACTICES

- Designate areas to be used for storage, washing, maintenance, and fueling of equipment and vehicles. Locate these areas as far away from stormwater drainage systems and waters of the U.S. as practicable. Use paved surfaces if practicable.
- Provide appropriate perimeter best management practices (BMPs) to divert clean stormwater run-on from the storage, maintenance, or fueling area and to protect stormwater from maintenance area run-off (i.e. berms, silt fence or fiber rolls.)
- Place drip pans or absorbent pads under vehicles or equipment to contain potential drips or leaks that may develop during storage, maintenance, or fueling.
- Have drip pans, absorbent pads, and spill kits located near or within the storage, maintenance or fueling area.
- Properly dispose of any used absorbent pads or any wastes collected in drip pans.
- Check ground under vehicles and equipment for evidence of leaks or drips.
- Clean up any leaks, spills, or contaminated surfaces immediately. Use absorbent pads to clean small spills and properly dispose of used pads.
- Make sure spill kit is adequately stocked and replace used supplies promptly.

- Check perimeter BMPs according to their specified inspection guidelines.

VEHICLE/EQUIPMENT STORAGE

Description

If overnight storage of vehicles and equipment on-site is necessary, follow these procedures:

Procedures

- Inspect vehicles and equipment to be stored on-site for leaks. If leaks are found, either immediately repair the leak or contain the leak and repair as soon as possible.

VEHICLE/EQUIPMENT MAINTENANCE

Description

If maintenance or washing of vehicles and equipment on-site is necessary, follow these procedures:

Procedures

- Store waste fluids in labeled, sealable, leak-proof containers. Check containers used to store waste fluids and other liquids used for maintenance to make sure they are sealed and free of leaks.
- Properly dispose of fuels, lubricants, and other materials used for maintenance in accordance with manufacturer's instructions and state, federal, and local regulations.
- Any maintenance materials stored on-site must be protected from exposure to precipitation. Use secondary containment designed to prevent spills or leaked chemicals from mixing with stormwater.
- Detergents, soaps and solvents are prohibited from use by the CGP for any equipment washing.
 - All wash water must be treated through an appropriate control measure (i.e. sediment basin or equivalent) prior to discharge to stormwater drainage systems or waters of the U.S.

- Check vehicles and equipment for excess buildup of oil and grease. Clean vehicle or equipment and properly dispose of excess oil and grease.

VEHICLE/EQUIPMENT FUELING

Description

If fueling on-site is necessary, follow these procedures:

Procedures

- Fuel on a level grade area as far away from stormwater drainage systems and waters of the U.S., as practicable.
- Place drip pans or absorbent pads under vehicles or equipment to contain drips or leaks.
- Have drip pans, absorbent pads, and spill kits located nearby.
- During mobile fueling of equipment, properly protect the fueling hose from any damage.
- Fueling operations shall be attended at all times.
- Automatic shut-off nozzles are preferred. Do not “top off” fuel tanks. Leave adequate space for fuel expansion and movement in the tank while equipment is in operation.

BMP 43.00. Bridge Maintenance

Objectives

Perform Bridge Maintenance in a manner that protects quality of waters of the U.S. from pollutants created or caused by maintenance activities. Since many of these bridge maintenance activities require permits, contact the Environmental Analyst prior to planning the work.

Bridge Deck Cleaning

Prior to and during bridge cleaning, apply water to the surface in sufficient amounts to dampen the accumulated sediment and prevent dust generation but not so much that sediment particles are mobilized or run-off occurs.

Avoid material being swept over the edge of the bridge when removing sand, gravel, and debris with shovels, brooms, or mechanical sweepers. When mechanically sweeping bridges, ensure that the broom is orientated such that material is not swept over the edge of the bridge.

Bridge Structure Cleaning

When cleaning the lower chord of bridge trusses use compressed air. When necessary, water may be used to clean the lower chords.

Repairing Spalled Concrete and Expansion Joints

When repairing spalled concrete, clean the local area prior to work in a manner that minimizes discharge to waters of the U.S. Clean without using water, if possible. After work is complete, collect the debris created using brooms and shovels then relocate it to an approved disposal site. Repair spalled concrete during dry weather to limit the potential for discharges to waterways. Conduct concrete washout at a designated and contained area to prevent the discharge of concrete waste pollutants to storm water and groundwater. See standard drawings for Concrete Washouts.

Vegetation Management

During vegetation management avoid ground and wildlife disturbance. Avoid allowing cut vegetation to enter waters of the U.S. by removing cuttings. If any cut vegetation is left to decompose, then leave it

high on the bank to prevent it from entering waters of the U.S.

Armoring Slopes

Prevent erosion caused by heavy rain, high water events, human interference, and normal wear on surfaces by inspecting and reinforcing armored slopes with riprap. Place armor rock to re-establish the existing armor in areas near the bridge surface to areas below the water line. When possible, complete work during low water seasons to avoid working in the water, and use sediment control measures such as fiber rolls to protect the water bodies.

Repairing Timber Abutments and Wingwalls

Repair of broken members on timber abutments and wingwalls should be “in-kind” with all-weather wood not treated with creosote. Options are wood treated with AZCA (ammoniacal copper zinc arsenate), copper naphthenate or ACQ (ammoniacal copper quaternary). If retrofitting or doing a partial replacement, use wood treatment that is acceptable to the resource agencies. Contact the regional environmental analyst. Conduct work during dry conditions to avoid impacts to the waterway.

Vegetative and Woody Debris Removal from Piers

Remove vegetation caught on the pier either by hand or using mechanical equipment. When possible, remove the material and haul to an approved disposal site. If the material includes large trees, free the material to allow it to float down stream past the bridge structure unless otherwise specified by permitting.

Reference Drawings

- BMP – 06.00 Concrete Washout
- BMP – 10.00 Fiber Rolls for Erosion and Sediment Control

BMP 44.00. Ditch Maintenance

Objectives

Perform Ditch Maintenance in a manner that prevents pollutants from entering surface and storm waters. Pollutants may come from the road or include eroded sediment.

Debris Clearing

Accumulated debris, consisting of sediment deposits, brush, and trash, have the potential to be carried by stormwater runoff downstream and into waters of the U.S. Collect and dispose of all debris at an approved disposal site.

Regrading

Install perimeter sediment controls prior to regrading ditches to limit the potential for sediment to be transported to a water of the U.S. Establish a minimum 50-foot buffer where practicable between streams and ground-disturbing ditch work to protect water quality and fish habitat. Where appropriate, provide velocity dissipation such as temporary check dams to reduce the potential for erosion in the ditch. Riprap at culverts is a permanent best management practice (BMP) that prevents erosion due to scour at the inlet and outlet of a culvert. Ditch lining is another permanent BMP that provides protection from erosion in the ditch. Installation and maintenance methods for these BMPs are described in the standard drawings.

When regrading, restore the original cross-section and flow line. When possible, equipment is to remain on the roadway during regrading. Haul removed materials to a pre-approved disposal site. Hydroseed when ditch regrading has been completed to stabilize bare soil and prevent erosion.

Hydroseeding

Hydroseed as necessary when maintenance activities have removed the existing vegetation, such as after culvert replacement and ditch regrading. Hydroseeding establishes vegetation to prevent the ditch from eroding. Hydroseeding equipment is to remain on the roadway during hydroseeding activities. It is preferred to reseed recontoured ditches in the same day. If this isn't practicable, then reseed as soon as practicable after the regrading

work is complete. Use certified native seed mixes to revegetate ditches. Avoid work that requires hydroseeding during the fall in areas with high leaf concentrations due to the need to remove the debris prior to hydroseeding. The Alaska Plant Material Center recommends seeding before the following dates for optimum success:

- Arctic Coast: July 15
- Western Alaska: August 15
- Southcentral Alaska: August 31
- Southeast Alaska and Aleutian Islands: September 15
- Interior Alaska: August 15-31

Discuss seeding with the regional maintenance environmental analyst for more information.

Cross Drain Culvert Cleaning

Cross drain culvert maintenance is specific to culverts that convey run-off from the roadway and not streams or other waters of the U.S. Perform minor cleaning by hand when possible. When wheel mounted equipment is used, keep it on the roadway whenever possible. Transport material removed from the ditch and culvert to an approved disposal site.

Prevent erosion at outlets and inlets with armoring when necessary since these are areas of high flow, concentrated drainage, and steep slopes, which are susceptible to erosion. Replace existing or augment depleted armor to maintain the erosion control function.

Stream Culvert Cleaning

In-stream culvert maintenance is associated with waterways, wetlands, or other waters of the U.S. and requires permitting from appropriate agencies. When possible, schedule work during low flow to limit impacts to the stream. Working during low flow will reduce the amount of sediment that is conveyed to the stream.

Perform minor cleaning by hand when possible. Transport material removed from the ditch and culvert to an approved disposal site.

Guardrail Cleaning

During guardrail cleaning, manage removed sediment to prevent it from entering a water of the U.S. Pull material into the roadway and collect it for disposal. Where appropriate, sweep the roadway after guardrail cleaning.

Vegetation Management

During vegetation management, avoid ground and wildlife disturbance. When possible, avoid clearing and grubbing activities during sensitive migratory bird nesting windows. Contact your Environmental Analyst to find out what the windows are.

Avoid allowing cut vegetation to enter waters of the U.S. by removing cuttings. For vegetation cutting near waters of the U.S., place any cut vegetation that is left to decompose high on the bank to prevent it from entering the water.

During grubbing (e.g., ground disturbing activities), keep these practices in mind to protect storm water. Provide perimeter controls such as compost berms or socks, fiber rolls, prefabricated barrier systems, or silt fence to prevent sediment from being transported from the grubbed area. Hydroseed the area when the grubbing is completed to stabilize bare soil and prevent erosion.

Reference Drawings

- BMP – 31.00 Temporary Check Dams
- BMP – 04.00 Compost Berm and Sock
- BMP – 10.00 Fiber Rolls for Erosion and Sediment Control
- BMP – 13.00 Prefabricated Barrier System
- BMP – 20.00 Silt Fence

BMP 45.00. Snow Removal

Objectives

Perform Snow Removal in a manner that prevents pollution of surface and storm waters. There may be pollutants in snow removed from the roadway such as sand and chemical deicing and anti-icing compounds.

Plowing

Plow or remove snow in such a way that melt water is treated before it is discharged to waters of the U.S.

- Melt water from plowed snow will be treated by grass in the spring if it is left in a vegetated area. If the vegetated area is a ditch, refrain from plowing snow into the final 50 feet of the ditch up-gradient of a stream outfall in order to prevent melt water from entering the stream directly before running through ditch vegetation
- Snow removed with the use of graders, blowers, and loaders can be hauled to a snow storage site (see below).
- Prevent snow plowed from bridges or above culverts conveying waters of the U.S. by pushing snow on bridges to the end of the bridge, not over the side of the bridge. At the ends of bridges, either plow the snow onto the shoulders or medians or haul it to a snow storage site. Do not push or place snow at the ends of culverts to avoid blocking them for spring thaw.
- Snow plowed on roads, runways, or taxiways with piped storm drain systems that discharge to waters of the U.S. without treatment should be hauled to a properly sited, designed, and operated snow storage site, when possible.

Sanding, Chemical Deicing, and Chemical Anti-icing

During sanding, chemical deicing, and chemical anti-icing, avoid spraying materials from the truck into waters of the U.S. Near waters of the U.S., slow down and turn down the distribution until the truck is at least 50 feet beyond the water.

Store salt in a covered facility. If a sand-salt stockpile is stored outdoors, then establish a berm around it to divert drainage and cover it with plastic.

Snow Storage Sites

To protect water quality, snow storage sites should be located in areas where the melt water will infiltrate, and where surface run-off to waters of the U.S. is minimized. Treatment for surface run-off should be provided through one or more of the following: vegetative filtration; slow overland flow; pond(s) for infiltration; settling; dilution; or detention. Place snow in the snow storage site in a manner that maximizes melt water flow through the treatment system.