

## BMP 40.00. Cold Weather Stabilization

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### *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.