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Impact of Spring Snowmelt on Erosion and Sediment Controls

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Early spring offers unique challenges for maintaining the integrity of erosion and sediment controls on construction sites. During the winter, vegetation is dormant, the ground is frozen, and substantial snowpack is formed. When warmer temperatures and spring rain arrive, these conditions can have negative impacts on erosion and sediment controls if SWPPP measures are not properly implemented.

Most vegetation becomes dormant in late fall and does not become active again until spring. If liquid precipitation occurs during the dormant period, the stormwater volume absorbed by vegetation is significantly less than the amount absorbed by established vegetation during the summer months. This can cause an increase in stormwater runoff volume. Site perimeter Best Management Practices (i.e., silt fence, stormwater conveyance channels, etc.) may need to be maintained more frequently to account for the increased sediment load (both entering and leaving the site) caused by the additional stormwater runoff.

During extended periods of freezing temperatures, soil becomes frozen to a certain depth. The infiltration rate of frozen soil is significantly less than that of thawed soil. If liquid precipitation occurs while the soil is frozen, the stormwater runoff volume will be substantially higher than during thawed soil conditions. On-site culverts, detention basins, and other stormwater impoundments should be designed to account for increased stormwater runoff generated by frozen soils.

After the top layer of soil has thawed, but the bottom layer remains frozen, saturated surficial soil and mud may become problematic for erosion and sediment controls. It may be necessary to suspend construction activity during this period, because of the damage construction equipment can cause to partially thawed soil. If construction activity is occurring during the period of partially thawed soil, special attention must be given to the condition of the construction entrance. The construction entrance may receive a high load of sediment from construction vehicles entering and exiting the site during this period. It must be maintained regularly to keep sediment from being tracked onto nearby roadways, and any sediment that is incidentally tracked onto nearby roadways should be removed.

Snowpack will begin to melt as warmer spring temperatures arrive. Snowmelt, combined with typical heavy spring rain, can overwhelm on-site erosion and sediment controls. Silt fence, rolled erosion control products (RECP), temporary stabilization measures, and inlet and outlet protection should be inspected and maintained to ensure proper function during the snowmelt period. Additional erosion and sediment controls not prescribed in the Stormwater Pollution Prevention Plan may be required to contain the increased stormwater runoff volume from snowmelt.

If you have a project that includes a Construction General Permit for Stormwater, ATL, a WBE certified company, has Qualified Stormwater Inspectors, working under the direct supervision of ATL's Licensed Professional Engineers, located throughout New York State to perform SWPPP Inspections as required in your General Permit.

For more information, contact Evan Renwick, PE, CPESC, at 315-386-4578, erenwick@atlantictesting.com, or visit AtlanticTesting.com.

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