

WINTER GRADING

As winter approaches project managers find themselves scrambling to bring projects to a point where they are "in the dry" so work can continue unhampered by wet weather brought on by winter. Unfortunately, not all projects get to that point before the winter rains begin. These are some measures that can be taken to help keep grading moving along if you are required to "move dirt" during the winter.

Standard summer practice is to grade a building pad to subgrade elevation, leaving it flat while foundations and walls are constructed. During winter construction this practice can spell disaster. As the soils get wet and construction equipment crosses the site, the subgrade can lose its strength, requiring undercut to prepare for slab construction. Grading the building pad "high" and crowned will help protect the slab subgrade from direct contact by heavy construction traffic. When the time comes to construct the slab, the additional soils can be cut to subgrade elevation with little or no additional undercut necessary. This technique is especially cost effective if the building pad is "in cut". An alternative technique would be to grade to subgrade and place a stone base. The stone should be a well graded stone such as crusher run, commonly referred to as 21A in some areas. Compacted crusher run tends to shed water, where washed stone (an open graded stone) will hold water.

On larger construction sites it is good practice to establish a network of roads to channel construction traffic. These construction roads can be better stabilized with crusher run or geotextiles so access to the site can continue during the worst weather conditions. Construction roads will typically require maintenance during the winter. Equally important, the contractor must enforce access discipline so these access ways are properly utilized.

While site grading can be accomplished during the winter period, it comes with a greater cost. Grading generally takes more time due to wetter soils and more "weather" days. Frequently soils are wasted because of frost and higher moisture contents. These costs and extra time are a reality and should be figured into the project schedule and budget. Strategies to reduce the impact of weather during winter grading include: 1) Working larger areas with each lift. Placing soil over a larger area can allow the soils more time to dry before the next lift is added. 2) Work wet soils with light equipment. Wet soils can be compacted if they are within a compactable moisture range; however, repeated crossing of those soils with heavy equipment, such as dump trucks or pans, can cause the soil to start "pumping" even if it was previously compacted and stable. These wetter soils can best be worked by pushing them out into a lift with a self-propelled compactor from a single dump point.

Winter is also an excellent time to employ chemical stabilization of wet soils using lime, cement, or stable flyash, as appropriate. Lime can be used to help dry any soil, and can be used with some clays to improve the soil. Cement can also be used to "dry" soil, and as a stabilizing agent. Properly employed with the appropriate soils, both lime and cement can be used to create nearly "weatherproof" subgrades. Flyash should only be used as a last resort as not all flyash is stable. Ask for a certified laboratory swell test on material; if one cannot be supplied, do not use flyash.

Finally, there is no substitute for "good housekeeping". The site should be sloped to clear water quickly, and channelize it away from the work area. Pot holes, rough areas, and wheel ruts need to be regularly filled in to facilitate rapid clearing of rain or snow melt.

In closing, winter construction will increase the cost of construction, especially site grading. However, careful planning and proper execution can reduce these costs and help make your project even more successful. We hope this Lesson Learned is beneficial to you in achieving that goal.

Respectfully,

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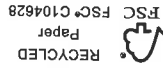
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LEARNED**

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and Lessons of General Interest to

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