Muddy Roads Project

Abstract:

Unpaved roads in Vermont are subject to deterioration from seasonal freezing and thawing, and many towns have roads that suffer chronic serviceability problems during the so-called "spring thaw," or mud season. Several techniques thought to mitigate deterioration of unpaved roads during spring thaw were constructed on test sections of unpaved roads in two towns. Each potential remedy was aimed at providing some combination of limiting the availability of moisture in the winter, improving drainage during spring, and strengthening the upper portion of the road. Each technique used local and/or commercially available materials, and all were easy to construct, i.e., a town road crew could build them. For two spring thaw seasons, we compared strength estimates based on dynamic cone penetrometer tests and the percentage of the road surface rutted for treated and control sections. Methods that permanently improved the strength of the top 12 inches of the road or decreased the water content of the upper 12 inches of the road resulted in significant performance improvement during spring thaw. Cement and cellular confinement systems worked well by improving the strength of the upper layers of the soil. Two new techniques: Geowrap, comprising clean sand sandwiched by geotextile separators placed 12-18 inches deep, and the patented Geosynthetic Capillary Barrier Drain-provided beneficial by keeping the upper layers of the soil relatively dry. Geogrid and geotextile separators placed 12 inch deep and trench drains parallel to the road provided no observable benefit.

For a brief project description, click HERE.

Preventing Muddy Roads, a Road Commissioner's Toolbox. (Final Tech. Transfer Document)...

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