

# **INSTALLATION GUIDELINES FOR GEOSYNTHETICS USED IN SUBGRADE STABILIZATION**

**Prepared by**

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## **General**

This document is prepared to help ensure that the geosynthetic soil reinforcement, once installed, will perform its intended design function. To do so, the geosynthetic must be identified, handled, stored, and installed in such a way that its physical property values are not affected and that the design conditions are ultimately met as intended. This document contains information consistent with generally accepted practices of identifying, handling, storing, and installing geosynthetic materials. Failure to follow these guidelines may result in the unnecessary failure of the geosynthetic in a properly designed application.

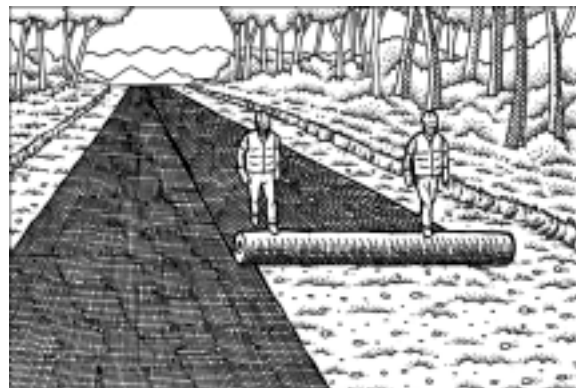
## **Material Identification, Storage and Handling**

The geotextile shall be rolled on cores having strength sufficient to avoid collapse or other damage from normal use. Each roll shall be wrapped with a plastic covering to protect the geosynthetic from damage during shipping and handling, and shall be identified with a durable gummed label or the equivalent, clearly readable on the outside of the wrapping for the roll. The label shall show the manufacturer's name, the style number, and the roll number. Roll identification corresponding to the proposed location of the roll as shown on the construction drawings and as approved by the Engineer, Owner and Contractor can be provided.

While unloading or transferring the geosynthetic from one location to another, prevent damage to the wrapping, core, label, or to the geosynthetic itself. If the geosynthetic is to be stored for an extended period of time, the geosynthetic shall be located and placed in a manner that ensures the integrity of the wrapping, core, and label as well as the physical properties of geosynthetic. This can be accomplished by elevating the geosynthetic off the ground on dunnage and ensuring that it is adequately covered and protected from ultraviolet radiation including sunlight, chemicals that are strong acids or strong bases, fire or flames including welding sparks, temperatures in excess of 60°C (140°F), and human or animal destruction.

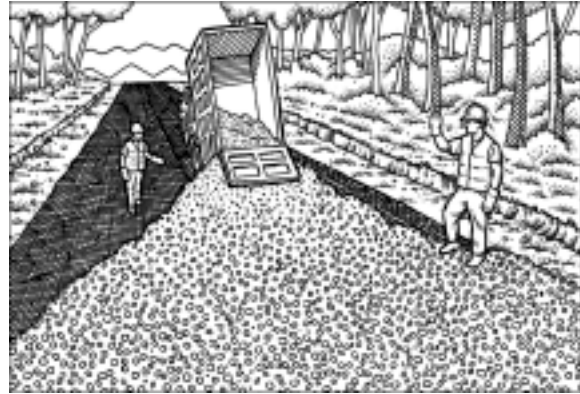
## **Geosynthetic Placement**

All trees and brush should be cleared from the site. Specialized equipment with low ground pressure, as directed by the Engineer, may be required. Depending on the water table location and subgrade strength, the remaining vegetative mat may remain in place to keep near surface soils stabilized, as directed by the Engineer. For stronger

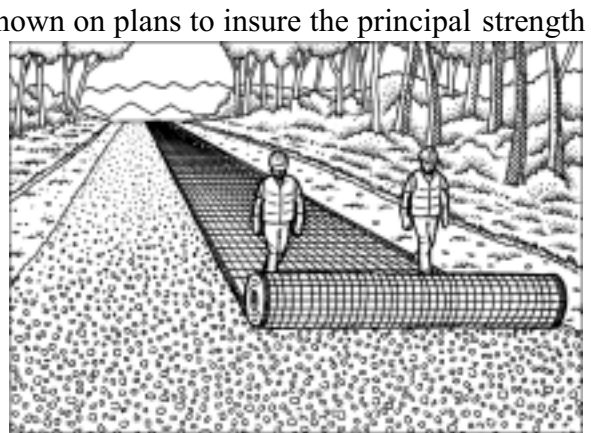


subgrades, the subgrade should be cleared of all vegetation and proof rolled.

Excessively rutting or pumping soils may be excavated and replaced with granular fill. The surface of the subgrade should be smooth and level, and depressions or humps greater than 15 cm (6 in) should be graded out.



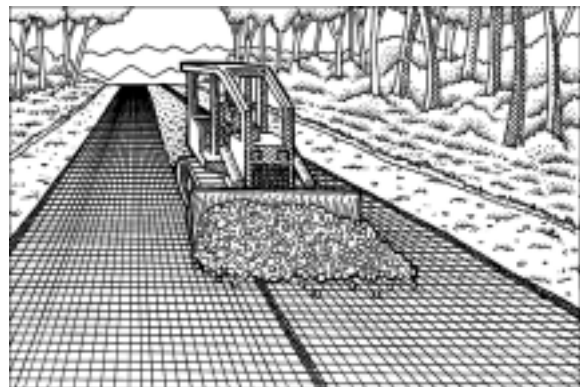
The geosynthetic reinforcement shall be placed directly on the prepared subgrade. It should be rolled out flat and tight with no folds. The rolls should be oriented as shown on plans to insure the principal strength direction of the material is placed in the correct orientation. Adjacent rolls should be overlapped as a function of subgrade strength (CBR) as follows: 30 cm (12 in) to 45 cm (18 in) for CBR 3.0 and above; 60 cm (24 in) to 90 cm (36 in) for CBR 1.0 to 3.0, 90 cm (36 in) or more or sewn for CBR values 0.5 to 1.0; and sewn for CBR values less 0.5.



Prior to fill placement, the geosynthetic should be held in place using suitable means such as pins, piles of soil, etc. so that it doesn't move around during fill placement.

### **Fill Placement**

Fill should be placed directly over the geosynthetic in 20 cm (8 in) to 30 cm (12 in) loose lifts. For very weak subgrades, 45 cm (18 in) lifts or thicker lifts, may be required to stabilize the subgrade, as directed by the Engineer.



Most rubber-tired vehicles can be driven at slow speeds, less than 16 km/h (10 mph) and in straight paths over the exposed geosynthetic without causing damage to the geosynthetic. Sudden braking and sharp turning should be avoided. Tracked construction equipment should not be



operated directly upon the geosynthetic. A minimum fill soil thickness of 15cm (6 in) is required prior to operation of tracked vehicles over the geosynthetic. Turning of tracked vehicles should be kept to a minimum to prevent tracks from displacing the fill and damaging the geosynthetic.

Once a stable working platform has been obtained, as determined by the Engineer, fill shall be compacted to 95% of standard Proctor density at a moisture content within  $\pm 3$  % of optimum moisture content.