

# **GEOSYNTHETICS USED AS VENEER REINFORCEMENT**

Prepared by  
TenCate™ Geosynthetics North America  
365 South Holland Drive  
Pendergrass, GA 30567  
Tel 706 693 2226  
Fax 706 693 4400  
[www.tencate.com](http://www.tencate.com)

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## General

This document is prepared to help ensure that the geosynthetic veneer 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 practice of identifying, handling, storing and installing geosynthetic material. 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 geosynthetic will be rolled on cores having strength sufficient to avoid collapse or other damage from normal use. Each roll will be wrapped with plastic covering to protect the geosynthetic from damage during shipping and handling, and will be identified with a durable gummed label will 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 the geosynthetic itself. If the geosynthetic is to be stored for an extended period of time, the geosynthetic should be located and placed in a manner that ensures that the integrity of the wrapping, core, and label as well as the physical properties of the geosynthetic. This can be accomplished by elevating the geosynthetic off the ground 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 70°C(160°F), and human or animal destruction.

## Geosynthetic Placement

Prepare the surface on which the geosynthetic reinforcement is to be placed so that no damage to the geosynthetic will occur. The subgrade should be cleared of all obstacles and proofrolled. The surface should be smooth and level such that any shallow depressions or humps do not exceed six (6) inches in depth and height.

Before unrolling the geosynthetic, verify the roll identification, length, and installation location with the contract drawings. While unrolling the geosynthetic, inspect it for damage or defects. Damage that occurs during storage, handling or installation shall be repaired as directed by the Engineer.

Orientation of the geosynthetic is of extreme importance since geosynthetic may vary in strength with direction. The geosynthetic panel length should be measured in the field then the geosynthetic should be rolled out and cut to the measured length using a razor blade, scissors, sharp knife, or equivalent. Typically it is best to exercise this procedure in the area of the anchor trench/anchorage runout area. The geosynthetic

should then be laid in the direction of main reinforcement from the anchorage area (top of slope) down towards the toe of slope. The contractor is responsible for correct geosynthetic orientation.

After being rolled out, the geosynthetic should be tensioned until taut, free of wrinkles and laying flat. Adjacent geosynthetic rolls should be overlapped as necessary to ensure 100 percent coverage, unless otherwise specified on the contract drawings. Adjacent geosynthetic panels should be joined or sewn to prevent the loss of 100 percent coverage due to geosynthetic panel shifting during backfill operation. No splices are allowed in the primary strength direction. Therefore the geosynthetic should be installed with the roll direction extending the full length of the reinforced area.

To install the geosynthetic around manholes and gas collection headers, slice the geosynthetic through the cross machine members an appropriate length to place around the obstacle. This will allow the geosynthetic to be installed in a continuous sheet over the top of the obstacle. Certain fill properties, fill placement procedures and/or weather conditions may require the reinforcement to be held in place by sandbags or fills, as directed by the Engineer.

### **Fill Placement**

Deployment of fill should be performed as directed by the engineer in charge of quality assurance. Fill should be compacted as defined in the project specifications or as directed by the Engineer. Fill placement and spreading should be done in a manner that prevents wrinkles and/or slippage of the geosynthetic. Fill placement should proceed in the direction of the adjacent panel overlap, and from the bottom of the slope upward; however, anchoring may be required at the trench/runout area to prevent geosynthetic pullout during slope fill placement.

After fill material is placed on the geosynthetic, final spreading and compaction may be carried out by small dozer with low to moderate ground pressure and /or front-end loaders. A minimum cover of twelve (12) inches should be maintained between construction equipment and the geosynthetic, with thickness depending upon degree of site preparation performed prior to geosynthetic placement and upon the size and angularity of fill material. The contractor is responsible for verifying any equipment loading constraints with the Engineer before fill placement begins.

Construction equipment should not be allowed onto the exposed geosynthetic. Additional fill compaction can be accomplished after spreading, grading, and track/tire compaction using either a pneumatic or vibratory roller. Sheepsfoot rollers should not be used for initial compaction, as feet may damage the geosynthetic.

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