

Installation & Maintenance - Ecofill 75 & Ecofill 50

Ecofill 75 is to be used as a Class 9 Capping and/or Fill material as detailed in the Standards for Highways: Manual of Contract Documents for Highways Works, Specification for Highways Works 600 series and/or Hydraulically Stabilized Soil in accordance with BS EN 14227-15 and Design Manual for Roads and Bridges CD 225 - Design for new pavement foundations.

Ecofill 50 is produced to the same specification as Ecofill 75 and requires the same storage, installation and maintenance. However due to the higher stiffness modulus Ecofill 50, the material can also be used as the subbase layer in non-adoptable earthworks structures.

In particular, please see below guidance in regard to storage, installation and maintenance of Ecofill 75 and Ecofill 50.

Storage

Stockpile Husbandry: Ecofill 75 & 50 will be stored in stockpiles. The stockpiles will be required to be tracked and sealed to prevent water ingress from inclement weather.

Installation

Compaction & Layer Thickness: EcoFill 75 & 50 shall be compacted in the relevant layer depths as per Table 6/4 Method 6 or 7 of the Specification for Highway Works 600 Series.

In addition to any grading requirements the maximum particle size of any fill material shall be no more than two-thirds of the compacted layer thickness except that cobbles having an equivalent diameter of more than 150 mm shall not be deposited beneath verges or central reserves within 1.30 m of the finished surface.

Inclement Weather: No unprotected sub-formation which is to receive capping shall remain continuously exposed to rain causing degradation, nor be left uncovered overnight.

The Contractor shall not carry out use of Ecofill 75 & 50 when the shade temperature is below 3°C or during periods of rain. During periods when the air temperature is forecast to drop below 3°C or when ground frost is forecast, Ecofill 75 & 50 shall be protected, to prevent freezing, for a period of 7 days from the time of completion of compaction. Such protection shall be sealed to prevent the ingress of moisture.

Do not allow compacted Ecofill 75 & 50 to remain continuously exposed to rain causing degradation or be left uncovered overnight.

Construction plant and other vehicular traffic (except for that required for preparation of the formation in compliance with Clause 616) shall not be operated on the formation unless adequate protection, if necessary, in addition to any weather protection is provided. The Contractor therefore must limit any areas of completed formation to suit the output of plant in use and the rate of deposition. No prepared formation must remain continuously exposed to rain causing degradation or to be left uncovered overnight.

Foundation layers also have to be either protected from, or to be of sufficient durability to withstand environmental effects from rain, frost, high temperature etc, without sustaining damage.

Ecofill 75 & 50 must be of sufficient stiffness for the overlying structural layers to be placed and adequately compacted.

After compacting Ecofill 75 to the top of formation level, the subbase layer should be laid and compacted as soon as possible so inclement weather and trafficking do not damage the Ecofill 75 layer.

In relation to the Ecofill 50 material, a protective layer or the additional layers in the earthworks structure should be laid and placed as soon as possible to ensure inclement weather and trafficking do not damage the material. If this is not the case, then adequate protection should be installed to ensure that the Ecofill 75 & 50 layer does not sustain damage by inclement weather and trafficking.

Water Table: The presence of a high or perched water table (300 mm or less below formation level) can reduce subgrade stiffness, culminating in low subgrade surface modulus values at the time of construction.

When installing Ecofill 75 & 50 ensure that the water table is maintained at least 0.3m below the level of the underside of the Ecofill 75 & 50 compacted layer. This must take into account seasonal variations of the water table.



Maintenance

Trafficking: No material is allowed to be deposited on the compacted layer nor construction plant allowed to traffic the layer until the bearing ratio (i.e., the CBR result obtained during construction) has been achieved. After compacting Ecofill 75 to the top of formation level, the subbase layer should be laid and compacted as soon as possible so inclement weather and trafficking do not damage the Ecofill 75 layer. In relation to the Ecofill 50 material a protective layer or the additional layers in the earthworks structure should be laid and placed as soon as possible to ensure inclement weather and trafficking do not damage the material. If this is not the case, then adequate protection should be installed to ensure that the Ecofill 75 & 50 layer does not sustain damage by inclement weather and trafficking.

Drainage: water must not be allowed to stand on the Ecofill 75 & 50. This can cause saturation of Ecofill 75 & 50 layers and if frozen, can cause damage. Surfacing should occur asap.

It is essential that the drainage system ensures that there is no accumulation of water in the pavement and foundation layers and that all excess moisture is allowed to disperse.

Installing deep subgrade drains and sloping the formation to shed water could also prevent problems due to excess water not only during construction but also in the completed pavement.

Subsoil Parameters Required for Ecofill Treatment

As per Britpave Guidance Document 16 'Guidelines for Stabilisation of Sulphate Bearing Soils' testing will be required if TPS is above 0.25% to verify that Ecofill Treatment will be effective.

Do not treat material that contains more than 2% Natural Organics, unless testing has been carried out to prove Ecofill Stabilisation will be sufficient.

Do not treat Peat.

Moisture content of subsoil to be treated with Ecofill is within +6% of Optimum Moisture Content (moisture contents above 6% OMC may require Pr-Ecofill)

Initial laboratory testing is carried out to confirm designs. This includes Mix design(s) to verify that required stiffness/load bearing can be achieved.