

Installation Guideline for Tensar SS Geogrid for Stabilisation of Granular Fill over Weak Subgrade

This Installation Guideline provides a step by step guide to Contractors installing Tensar SS biaxial geogrid supplied by Tensar International or any of its appointed distributors.

The Guideline applies to both the permanent and temporary mechanical stabilisation of areas over which vehicular access is to be provided. It does NOT cover the use of Tensar SS geogrid for void spanning, for which specific advice should be sought from Tensar.

Specifications for Tensar geogrid products are available on request from Tensar International or a local Tensar Distributor.

Subgrade Preparation

For a subgrade over which construction plant cannot safely traverse:

Tensar geogrid shall be laid directly on the site, having removed major protrusions such as rocks and tree and bush stumps and also having filled local hollows and depressions with the approved fill but otherwise retaining the vegetation and topsoil covering the site.

Or where site conditions permit:

The subgrade shall be levelled in accordance with Highway Agency, Manual of Contract Documents for Highway Works (MCDHW), Specification for Highway Works, Clause 616. Or as specified in the Contract Documents.

Placing Tensar Geogrid

Heavy duty gloves should be worn when handling Tensar SS Geogrid.

Tensar geogrid may be placed on the subgrade either parallel to the road centre line or in the transverse direction. If a geotextile separator has also been specified with the geogrid, then the geogrid must be placed above the geotextile (so that the placed fill can interlock with the apertures of the geogrid).

If a second layer of geogrid is specified within the fill, this geogrid shall be placed on the compacted surface of the approved fill and covered with an additional specified thickness of fill.

Jointing Techniques

Simple Overlaps: this is the normal method employed on site as it generally presents the quickest and most economic means of making an effective joint.

The width of overlap between adjacent rolls is dependent upon the grading and thickness of sub-base and the stiffness of the subgrade. The minimum overlap shall be 300mm and the maximum normally required shall be 600mm or as directed within the contract documents.

Overlaps must be maintained during the filling operation. This is generally achieved by placing small heaps of granular fill locally over the overlaps ahead of the main filling operation.

Granular Fill

A graded aggregate subbase is suitable for the unbound granular fill. Type 1 or 2 is recommended, as described in UK Manual of Contract Documents for Highway Works (MCDHW) Volume 1 Specification for Highway Works, Series 800, clauses 803 and 804 respectively, or as specified in the Contract Documents.

Specifiers are requested to contact Tensar International or a local Tensar Distributor for specific advice when fill other than the above is to be used.

BS sieve size mm	Percentage by mass passing	
	Sub-base Type 1	Sub-base Type 2
75	100	100
31.5	75-99	75-99
16	43-81	50-90
8	23-66	30-75
4	12-53	15-60
2	6-42	
1	3-32	0-35
0.063	0-9	0-9
	The size fraction of the unbound mixture passing the 0.425 mm size test sieve shall be non-plastic as defined by BS 1377-2 and tested in compliance therewith	The size fraction of the unbound mixture passing the 0.425 mm size test sieve when tested in compliance with BS 1377-2 shall have a plasticity index of less than 6

Table 1 Subbase Type 1 and Type 2

UK Manual of Contract Documents for Highway Works (MCDHW) Volume1 Series 800

Placing Granular Fill

Lorry loads of granular fill material shall be tipped into stockpiles on placed fill and not tipped directly onto the geogrid. The fill stockpiles shall be spread by mechanical plant which causes the aggregate to cascade onto the geogrid, such as an excavator bucket or dozer with an opening bucket.

Fill shall be spread in layers of not less than 150mm thickness. The initial layer thickness to be placed on the geogrid shall be specified in the contract documents along with the maximum layer thickness.

In the stabilisation of wide and broad areas, fill shall be spread such that the first layer advances across roll widths rather than along roll lengths.

Care shall be taken to avoid damage to the geogrid. No traffic or site plant shall be permitted to travel on the geogrid prior to covering them with a layer of granular fill.

Compaction

Compaction of unbound materials for subbase and road base shall be carried out in accordance with UK Manual of Contract Documents for Highway Works (MCDHW) Volume 1 Specification for Highway works, Series 800. Compaction of other fills shall be carried out in accordance with (MCDHW) Volume 1 Specification for Highway works, Series 600, or as specified in the Contract Documents.

Over exceptionally soft subgrade, for the first layer of fill the degree of compaction may have to be reduced and vibratory rollers should not be used. Details shall be specified within the contract documents.

Contact Tensar International for specific advice.

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