



**Don & Low**  
MEMBER OF THRACE GROUP

# **Lotrak<sup>®</sup> Geotextiles**

*Installation Guidelines*



## Applicability

This Guidance applies to woven and nonwoven geotextiles to provide Separation, Filtration, Drainage and Reinforcement functions in Civil Engineering applications. Uses include ground reinforcement in road construction (both paved and unpaved), construction site access roads, working platforms, loading bays, car parks, etc.

## Ground Preparation

In preparation for installing the geotextile, clear the area of any large objects such as shrubs, logs, or large angular stones, as these would immediately damage the geotextile when rolled out. Similarly, any holes or significant unevenness existing in the ground should be filled in with a suitable compactable material (for example, sand) and levelled prior to laying the geotextile.

If a significant size hole is present, it may be appropriate to line the hole with geotextile prior to placing in compactable material for added separation. It is also considered good practice to proof roll the area prior to applying the geotextile, using a small vibrating compactor if possible.

Unsuitable subgrade areas may be excavated and backfilled with suitable material before full installation can proceed.

At this point it is worth considering the use of a heavy-duty weed killer to prevent further growth and penetration of weeds into the finished construction. Specialist assistance would be required if Japanese knotweed is present in the construction area.

Depending on the intended construction project, a form of drainage system may be required prior to laying the geotextile, especially if the ground has poor drainage characteristics.

## Laying the Geotextile

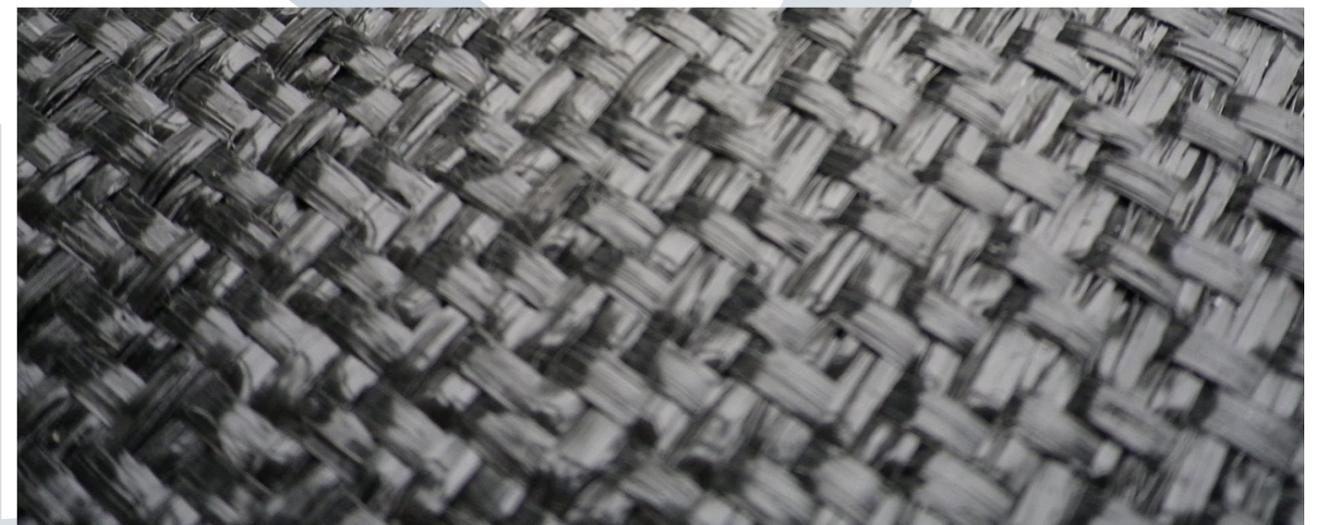
Once the area has been rolled or levelled, roll out the geotextile over the ground, keeping it taught enough to minimise wrinkles but allowing it to adopt the shape of any contours. If the geotextile is placed with a lot of wrinkles or folds it will not be tensioned and will not provide reinforcement. The geotextile can be held in position with small deposits of granular material or bags of sand until such time as total cover placement takes place, which should not exceed 30 days.

The geotextile is normally laid with the length in the direction of travel e.g. of a road. For guidance on overlapping of geotextile please see section below.

On no account should any machine traffic drive directly on top of the geotextile. The granular fill material should be end tipped on to fill already placed at one end of the project. This should then be blade levelled across the total area to the required thickness by a tracked machine continually working on top of the tipped material. It is recommended that a minimum 300mm depth of fill be placed prior to any compaction or trafficking. Avoid inadvertent movement of the geotextile during the placement of aggregate.

Lotrak geotextiles can be easily cut on site, if required, using a sharp blade. If a full width roll needs to be cut to smaller widths then this can be achieved using a circular stone cutting saw.

Lotrak geotextiles should be covered within 1 month of being installed. The geotextile should not be exposed to direct sunlight for more than 30 days. Before covering the geotextile should be checked by an inspector for extensive damage (holes or tears) and be repaired by placing a new layer of geotextile over the damaged area, ensuring that there is a minimum overlap of 1000mm between the edge of the damage and the overlapping patch. Alternatively, the damaged area can be replaced by undamaged geotextile.



# Overlapping the Geotextile

Should the geotextile be damaged during installation, an immediate repair should be administered. This can be achieved by clearing the area in question and placing a further layer of geotextile over the damaged area, ensuring that there is a minimum overlap of 1000mm between the edge of the damage and the overlapping patch. After patching the aggregate can be replaced and the project may be resumed.

Overlaps are used to provide continuity between adjacent geotextile rolls, due to friction resistance between them. Overlaps also prevent that soil be introduced into the aggregate layer through the joint. Overlap widths are site specific and depend on the CBR of the subgrade, as tabulated below.

| California Bearing Ratio or CBR (%) | Minimum Overlap (mm) |
|-------------------------------------|----------------------|
| > 2.0                               | 300 - 450            |
| 1.0 - 2.0                           | 600 - 900            |
| 0.5 - 1.0                           | 900mm or Sewn        |
| < 0.5                               | Sewn                 |
| All roll ends                       | 900mm or Sewn        |

Sewing of seams in the field is accomplished by means of a handheld sewing machine powered by generator or battery. Refer to sewing machine manufacturer's instructions for guidance on usage.

Transverse overlaps (between subsequent roll lengths) should be located at least 1000mm from the toe and crest of slopes.

Longitudinal overlaps (between adjacent roll lengths) should be formed down (not along) slopes.

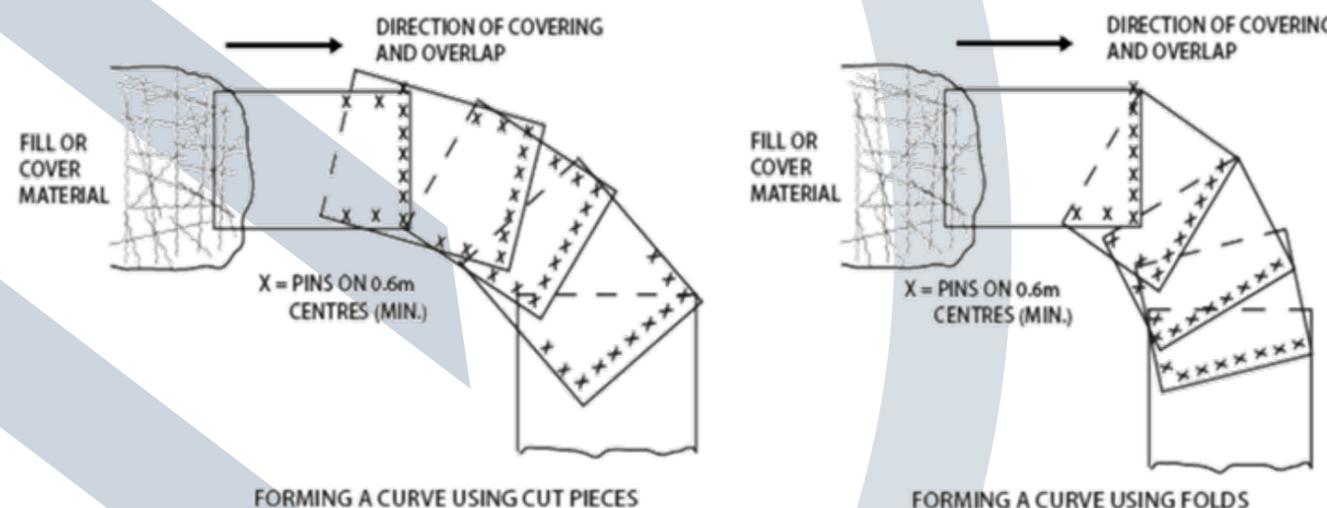
Overlap widths should be increased on steep slopes by a further 200mm at least to allow for creep and should be bonded with a hot air gun.

Transverse overlaps should not be formed /jointed on slopes greater than 1 in 3.

Overlaps should not be placed along the anticipated primary wheel paths location.

Jointed overlaps should be formed using a hot air gun fitted with a wide slot nozzle in conjunction with a hand roller. Care should be taken not to overheat the geotextile thus causing damage and increasing the risk of fire.

If the subgrade is weaker than anticipated then rutting may be evident in the aggregate. In such cases the design thickness must be re-evaluated and may need to be increased.



Overlaps around curves should be formed from short cut sections or folded sections of fabric. These should be overlapped and offset one edge versus the other such as to turn the fabric path around the corner. Sections should be anchored or pinned to the ground. See diagram above.

The above sections apply for general use of geotextiles. The section below applies additionally to heavy duty woven geotextiles for use in Ground Reinforcement applications.

# Ground Reinforcement: Woven Geotextiles

## *Anchorage*

Overlap widths are site specific and generally at the discretion of the on-site engineer. The following may be used as guidelines for landfill and general membrane protection applications:

Specific requirements are dependent upon site specific conditions such as slope length and angle, weight of geotextile and type of membrane (rough or smooth).

Anchorage requirements should be in accordance with the project drawings or should be carried out under the guidance of the site engineer.

It is recommended that the front profile of the anchor trench be rounded and smooth so as to reduce stress on the geotextile. The anchor trench should be backfilled with soil and compacted on completion of the geotextile installation.

Longitudinal overlaps (between adjacent roll lengths) should be formed down, not along, slopes.

Overlap widths should be increased on steep slopes by at least 300mm to allow for creep and should be bonded with a hot air gun.

Transverse overlaps should not be formed /jointed on slopes greater than 1 in 3.

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