



GEOFABRICS CASE STUDY



STABILISING A HEAVY-DUTY PAVEMENT WITH TRIAXIAL GEOGRID

PRODUCT USED

Triaxial Geogrid

- A multi-axial geogrid made from punched polypropylene sheets, forming a unique hexagonal structure with triangular apertures that confine and interlock with aggregate for soil stabilisation and ground improvement
- Reduces aggregate layer thickness by up to 50% without compromising performance, lowering excavation and fill costs
- Enhances layer stiffness to allow the use of lower-quality or recycled fill materials, reducing material costs
- Speeds up installation, offering a fast, cost-effective stabilisation solution for roads, working platforms and heavy-vehicle pavements

Similar Product

Geofabrics® Geogrid™ Triaxial



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PROJECT DESCRIPTION

The design engineer, Peritas was contacted by Booth Transport to assist with a heavy-duty pavement solution to expand their existing container storage facility in Tasmania. The proposed facility included a new heavy-duty pavement that would be trafficked by container handling forklifts with axle loads of 80 tonnes.

OUR SOLUTION

Based on the geotechnical investigation, the initial pavement design was undertaken for CBR = 9%. During construction it was noted that the actual CBR was 7% and some soft spots where CBR = 2.5% were also encountered. To optimise the pavement thickness for the subgrade conditions, a geosynthetic solution was required.

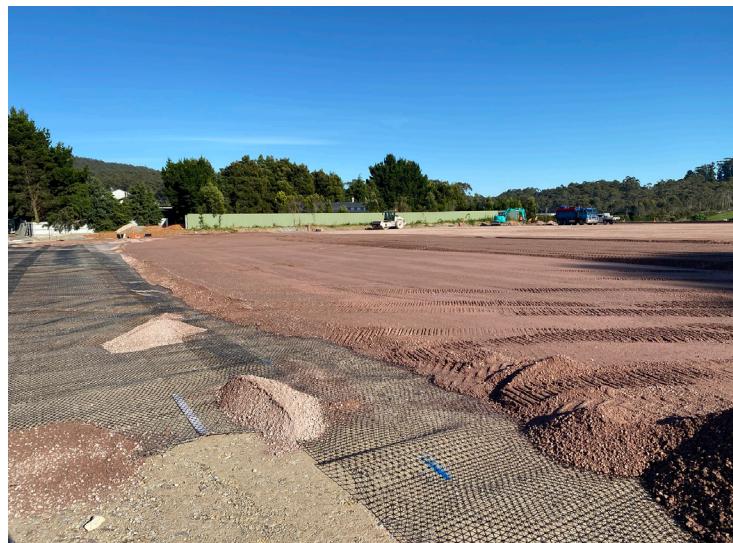
Incorporating triaxial geogrids into the pavement was proposed as a readily available solution to Booth Transport to minimise downtime on site. Geofabrics proposed a solution where pavement thickness did not need to be increased from the original design by using triaxial geogrid in the pavement. Where soft spots with CBR = 2.5% were encountered, geogrids helped to reduce the pavement thickness by approximately 40%, compared to the non-stabilised pavement thickness.

Prior to installation, the existing ground was proof rolled and prepared. Triaxial geogrid laminated to a non-woven geotextile was installed directly on the subgrade and overlap was provided according to the published installation guidelines. Following this, a 400mm layer of Class 3 subbase was constructed and tested every 200mm. The subsequent layers consisted of triaxial geogrid and 400mm Class 3 subbase, which was also tested every 200mm with the top layer consisting of 50mm asphalt.

A total of 11,020m² of triaxial geogrid laminated with non-woven geotextile was used, with an additional 10,545m² of triaxial geogrid installed. The client was able to avoid construction delays due to weak ground conditions by incorporating triaxial geogrids into the pavement. For significantly softer areas with CBR = 2.5%, the pavement thickness was reduced by approximately 40%.



Pavement thickness
reduced by
40%
in areas of soft
subgrade



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