

# CASE STUDY

Geogrid

Project: Porchester Rd Widening Stage 1  
Date: May 2011  
Client: Papakura District Council  
Location: Papakura



## Tensar TriAx® Geogrid

Porchester Road is a main arterial route through the back of the Takinini District and due to subsequent new housing developments either side of the road, which predominantly used to be a semi rural area, the existing 2 lane road built a number of years ago over soft peat laden sub grades was unable to cope with the increased traffic loads. Hence an upgraded road and drainage construction was required by the Papakura District Council to cope with the increased intensity of traffic frequency in the area.

As this piece of road was heavily trafficked it was essential that the new road construction was carried out with the utmost speed as not to disrupt the local residents and motorists everyday travel plans. The area of road in question was notorious for constant maintenance repairs as it was founded on very weak peat strewn sub grades (CBR less than 1) which helped cause the constant problem of pot holing, rutting and pavement seal heaving in the existing pavement.

A combination of **bidim® nonwoven A29** geotextile, **Tensar® Triax TX160** geogrid and Woodhill Sand were incorporated in the design to help limit and eliminate these problems. Particularly, the use of the **Tensar® TriAx TX160** geogrid to help limit differential settlement, improve load distribution and stiffen up the road sub base foundation layers.

Subsequent beam tests on the finished pavement have easily passed the stringent regulations imposed by the Opus and local council engineers which pleased all that had been involved with the project.

Another integral part of the pavement construction was the consideration of the effects of the high ground water table weakening the pavement sub base area. PTO.



Porchester Rd before construction with pot holes and rutting



Laying of bidim® nonwoven geotextile, Tensar® TriAx geogrid and black sand



Road view perspective of bidim® nonwoven geotextile and Tensar® TriAx geogrid laid for road

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**Megaflo® 300** rigid panel drain was installed being preferred over standard round pipe drainage as the **Megaflo®** rigid panel drains a third quicker, has higher internal flow velocities and can be laid on very flat grades without the risk of blocking, again providing definite advantages.



Megaflo® 300 rigid panel drain



Porchester Rd before construction with pot holes and rutting

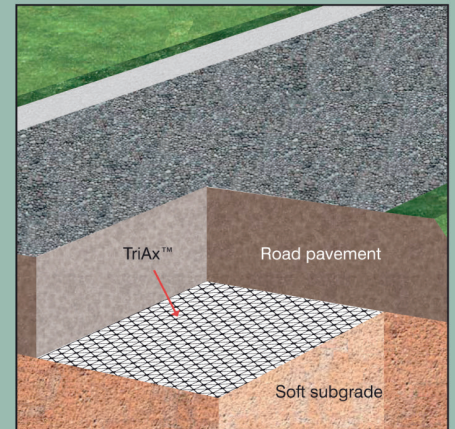
### How Tensar® TriAx™ Geogrids work.

Using over 30 years' experience in ground stabilisation, **Tensar®** has radically re-engineered the fundamental structure of geogrids to create the revolutionary **TriAx™**, based on one of the most efficient and stable structural forms – triangles..

The aggregate particles interlock within the triangular apertures and the efficient, deep rib profile of **TriAx™** helps to confine aggregate, which combined with the isotropic stiffness, creates a mechanically stabilised layer with exceptional performance.

It has been shown that **TriAx™** outperforms even **Tensar®** biaxial geogrids. When compared with an unreinforced aggregate layer, a mechanically stabilised layer incorporating **TriAx™** geogrids can:

- Reduce the excavation needed.
- Control differential settlement.
- Increase bearing capacity.
- Cut construction CO<sup>2</sup> emissions by up to 50%.



Tensar® TriAx™ Geogrid Cross Section