The Finningley and Rossington Regeneration Route Scheme (now the Great Yorkshire Way) is a key part of Doncaster's economic growth plan.

Foundations for growth

Incorporating TriAx in the road subgrade delivered a thinner, and better performing, pavement for a major new road in Yorkshire.

FARRRS

Pavement optimisation

Doncaster, UK

CLIENT'S CHALLENGE

Doncaster Metropolitan Borough Council needed an alternative road pavement design for the first phase of its Finningley and Rossington Regeneration Route Scheme (FARRRS) to reduce construction costs, while increasing the road service life.

TENSAR SOLUTION

Tensar's Spectra Pavement Optimisation System, which uses TriAx geogrids to mechanically stabilise a road's foundation, was proposed as an alternative to a conventional pavement design, which could have involved lime/cement stabilisation of the underlying ground.

This value engineered approach reduced overall road thickness by 26%, saving £500,000 on initial construction costs, while improving the road service life by an average of 60%, reducing whole life costs.

BENEFITS

£500,000
construction cost savings

7,000
tonnes of material savings

26%
reduction in overall pavement thickness

60%
average increase in road service life

REF TEN357

TriAx mechanically stabilised the road subgrade, resulting in a thinner pavement but improved road performance.

PROJECT BACKGROUND

The Finningley and Rossington Regeneration Route Scheme (now the Great Yorkshire Way) involved construction of a new road south of Doncaster between junction three of the M18 and Robin Hood Airport, with links to Rossington and a major new distribution hub, iPort.

The first 4km of the route, from the M18 to the A638 at Parrots Corner, opened in early 2016. Between the M18 and Bankwood it runs as dual carriageway, before reducing to single carriageway to Parrots Corner.

One option for constructing both sections was to use a conventional pavement design and lime/cement stabilisation of the ground beneath (which had an average CBR of between 3-5%). However, due to rising project costs, client Doncaster Metropolitan Borough Council approached Tensar to develop an alternative economical and sustainable solution.

Tensar's Spectra Pavement Optimisation System delivered a design for both the dual and single carriageway sections that avoided having to treat (or excavate and replace) the weak subgrade. TriAx geogrid was installed under the road's granular sub-base to create a mechanically stabilised layer, reducing both granular and asphalt thickness, equating to a 26% saving in total pavement depth and improving the road service life by between 43% and 110%.

This alternative approach saved 7,000 tonnes in pavement materials compared with the original design, reducing construction vehicle movements (and CO_2 emissions) and cutting construction costs by £500,000.

Contractor:
Carillion

Client:
Doncaster Metropolitan Borough Council

"Tensar's innovative approach allowed us to make significant cost savings, while also greatly reducing the impact of the project on nearby residents and the local environment."

Neil Firth
Head of Service for
Major Projects & Investments

Doncaster Metropolitan
Borough Council

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