



The new three level junction reduces congestion and provides safe access routes for local cyclists, pedestrians and horse riders.

## Strong and stable

Tensor's TensorTech® TW3 modular block retaining wall system has created long-lasting structures on a complex road junction remodelling project.

### CLIENT'S CHALLENGE

As part of its work to remodel the Catthorpe Interchange, Skanska needed a technically robust and cost-effective way of building wing walls and retaining walls for new road bridges carrying new links between the M1, M6 and A14 over local roads.

### TENSAR SOLUTION

Tensor's TensorTech TW3 system was chosen. Not only was the modular geogrid reinforced soil system faster, easier and safer to build than other systems but, because Tensor geogrids are chemically inert, a non-standard PFA fill could be used instead of more expensive aggregate in the reinforced soil structures. Stainless steel strips found in other systems would be at risk of degrading in this material, due to high pH values.

## Catthorpe Interchange

Reinforced soil and retaining walls

📍 Leicestershire, UK

### BENEFITS

#### HDPE geogrids

enabled use of non-standard fill, saving material costs

#### Robust and cost-effective

alternative to concrete panel retaining walls

#### Modular system

reduced construction risk during temporary works



TensarTech TW3 was used to build wing walls and retaining walls for three structures.

## PROJECT BACKGROUND

Junction 19 of the M1 motorway in Leicestershire, the Catthorpe Interchange, marks the start of the M6 and the A14. About 142,000 vehicles pass through each day and the junction had become congested, had a poor accident record and was a barrier to cyclists, pedestrians and horse riders.

Skanska was awarded the contract to replace the interchange with a three-level junction, building direct links between the major roads and three overbridges for local roads.

Skanska chose Tensar's TensarTech TW3 modular block system to construct wing walls to Structure 8 (carrying traffic from the southbound M1 over a local road and onto the A14/M6 link southbound); retaining walls either side of a local road between Structures 9 and 10 (that carry the A14/M6 link and the M1/M6 link, respectively) and two retaining walls south of Structure 10.

TensarTech TW3, which has a Highway Authorities Product Approval Scheme BBA certificate for use on roads and bridges, comprises a dry-laid segmental concrete block wall facing secured (via a mechanical connection) to layers of Tensar uniaxial geogrid that reinforce the soil behind.

A key reason for choosing the TW3 system was, because Tensar uses high quality HDPE to manufacture of its geogrids, they are highly resistant to chemical attack and effectively inert at in-soil temperatures.

This allowed locally-sourced PFA, an industrial waste product, to be used in the bridge approach embankments. This reduced the scheme's carbon footprint and lowered construction costs, as PFA is cheaper than quarried aggregate. Additionally, PFA typically reduces bearing pressure, so foundation requirements are reduced.

Tensar designed the four, 20m long and up to 8.3m high wing walls for Structure 8; the two, 43m long and up to 10m high walls between Structures 9 and 10 and the two, 44m long, up to 9m high retaining walls south of Structure 10. The design was checked and approved by scheme consultant Jacobs and the walls were installed by PC Construction.

The new interchange opened in December 2016.

Contractor:

**Skanska**

Consultant:

**Jacobs**

Client:

**Highways England**

*"A key reason for choosing the TW3 system was the high quality HDPE used in the geogrids, making them effectively inert at in-soil temperatures. This meant a non-standard PFA fill could be used in the approach embankments to the new bridges to replace more expensive quarried or imported aggregate."*

**Craig Roberts**

**Technology Manager  
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