A bespoke colour and finish to the TensarTech® TW3 blocks ensured the completed wing walls complemented the aesthetics of the scheme.

Border force

Tensar's TensarTech® TW3 modular block retaining wall system enabled a bridge for a major roadover the new Borders Railway to be built fasterand more economically than originally planned.

CLIENT'S CHALLENGE

As part of its bid to build a bridge carrying the A7 road over the new Borders Railway, Scottish Borders Council's construction arm, SBc Contracts, sought a cost-effective alternative to the originally specified concrete panel faced wing walls.

TENSAR SOLUTION

Tensar proposed its TensarTech® TW3 retaining wall system for the wing walls. The geogrid-reinforced soil system, with mechanically connected modular concrete block facing, was faster (and therefore more economical) to build than the original design, while meeting project requirements. This helped SBc win the contract to build the bridge.

A7 Falahill structures Borders Rail

Reinforced soil retaining wall

Borders, UK

BENEFITS

Robust and cost-effective
alternative to concrete panel faced retaining walls

Modular system
to reduce construction risk during temporary works

Bespoke colour
and finish to match the scheme aesthetic

REF TEN367

Tensar supplied specially-manufactured 45° chamfered wall caps for additional edge safety.

PROJECT BACKGROUND

The Borders Railway is the first new railway to be built in the UK for more than 100 years. Construction of the £294m project began in 2012 with the new line, between Edinburgh and Galashiels, opening in 2015.

Three new road bridges were needed as part of the scheme, the most complex of which was at the village of Falahill, where the A7 trunk road between Edinburgh and Carlisle crossed the railway alignment.

Scottish Borders Council's contracting arm, SBc Contracts, was bidding to build the bridge for main contractor BAM Nuttall. SBc wanted to explore alternatives to the concrete panel faced reinforced soil retaining system specified for the up to 6.5m high wing walls.

SBc approached Tensar, which proposed using its TensarTech TW3 modular block system under a design and supply arrangement. The system, which has a Highway Authorities Product Approval Scheme (HAPAS) BBA certificate for use on roads and bridges, comprises a dry-laid modularl concrete block wall facing secured to layers of Tensar uniaxial geogrid (via a mechanical connection) that reinforce the soil behind.

The TW3 system not only met the highway load requirements but its modular nature meant it would be faster to build than the alternative concrete panel system at a lower construction cost, helping SBc to secure the contract. Tensar's design was checked and approved by Borders Railway scheme consultant Fairhurst.

In collaboration with the client and contractor, the TensarTech TW3 blocks were manufactured to a bespoke "Borders" grey colour, to tie-in with structures elsewhere on the project. Tensar also supplied specially-manufactured 45° chamfered wall caps for additional edge safety at the crest of the wall.

Main contractor:
BAM Nuttall

Subcontractor:
SBc Contracts

Consultant:
Fairhurst

Client:
Scottish Borders Council

"Tensar's approach ensured the wing walls could be built quickly and economically with a bespoke finish to match other structures on the railway."

Derek Anderson
Scottish Borders Council

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