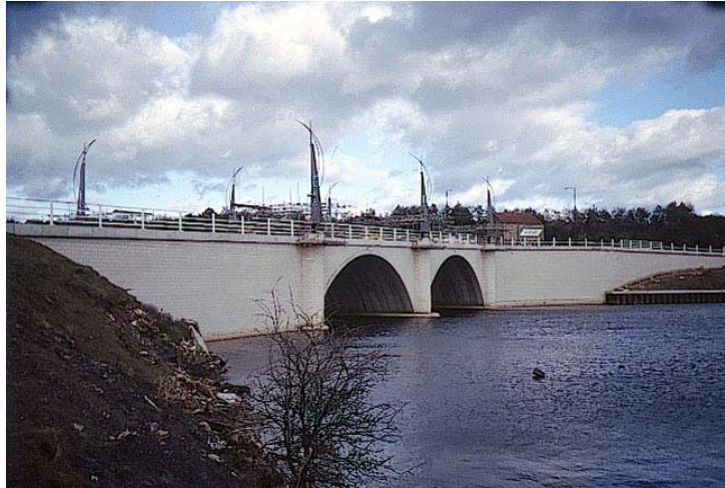




Tensar case study Ref 063

Construction of Retaining Walls – Leamington Gut Bridge, Newcastle-upon-Tyne, U.K.



Leamington Gut Bridge, Newcastle-upon-Tyne, UK

BENEFITS TO CLIENT

Rapid and economical construction of retaining walls with full British Board of Agrément approval.

THE PROBLEM

To construct a new bridge around an existing bridge which had to remain open during construction. For the new structure, concrete spandrels were used to span a small tributary of the River Tyne in the Newburn area to the west of Newcastle-upon-Tyne. A series of retaining walls were required to backfill the areas around the spandrels thus forming a bridge giving access to a new light industrial development.

THE SOLUTION

The Tensar Wall System comprises a soil mass reinforced with Tensar geogrids and faced with easily handled, dry laid, modular pre-cast concrete units. The TW₁ link system chosen allows rapid, simple construction and is characterised by having a stainless steel brick-tie inserted into a specially designed recess within the block itself; this allows a secure connection between the main body of reinforced soil and an external cladding.

Tensar Case Study

PROJECT DESCRIPTION

Tensor International produced detailed calculations, construction drawings and full indemnity cover for the design as part of their Design and Supply Service. Calculations were undertaken in accordance with the UK Highway Agency Technical Standard BD70/97 and the TW, System has full British Board of Agrément approval.

The TW, wall system was selected for its ease of construction and cost benefits. The pre-cast concrete units are available in a range of colours and styles but in this case, a plain face was selected as cladding was to be placed in front of the reinforced soil. Plastic connectors inserted in the block recesses permit a very high strength connection between the geogrids and the wall face; this enables the designer to maximise the design strength used in the calculations. The maximum wall height for the structure was 12m.

The technique lent itself particularly well to working in the tidal zone at the base of the structure; though progress was a little slower than normal, it negated the need for any expensive and time consuming dewatering temporary works. A further complication to the Contractor was provided by the fact that one carriageway of the new structure had to be finished prior to the demolition of the smaller existing bridge. This was achieved by using a Tensor reinforced steel mesh panel faced structure as a temporary 'stop wall'.



Fig 1: TW, Link Wall



Fig 2: Temporary steel mesh panel wall erected to allow the demolition and removal of the existing structure

CONTRACT DETAILS

Contractor:

Edmund Nuttall

Client:

Newcastle-upon-Tyne City Council



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REINFORCED SOIL RETAINING WALLS
AND BRIDGE ABUTMENTS