

## Blackhall Rocks Bridge strengthening Hartlepool



The project required the strengthening of an existing masonry railway arch with a new reinforced concrete liner sprayed insitu. Shotcrete became involved when the Client was looking for alternative methods of construction and Shotcrete worked with Amco and the designers Pell Frischman to alter and optimise the design.

The result was a 550mm thick reinforced concrete shell tied into the existing abutments with stainless steel dowel bars but remaining independent of the crown section.

An added challenge was that the crown section had to be sprayed during limited overnight track possessions and the sprayed concrete had to achieve a strength of 10N/mm<sup>2</sup> before trains were allowed to recommence running.

### Key aspects

- Railway interface
- High early strength concrete
- Sprayed concrete encapsulating dense mats of reinforcement
- Temporary lattice arches to support reinforcement
- Waterproofing

### KEY ASPECTS:

Railway Interface

High early strength concrete

Sprayed concrete encapsulating dense mats of reinforcement

Temporary lattice arches to support reinforcement

Waterproofing

### CLIENT

Amco for  
Network Rail

### COMPLETED

March 2014

