

ROYAL BORDER BRIDGE, ENGLAND, U.K.



Royal Border Bridge, carrying London-Edinburgh mainline train. Photo: Mel Holley ©

As part of Railtrack's major programme of repair and refurbishment of the land-based arches, work was authorised on numbers 1-15 of the Royal Border Railway Bridge. The bridge carries the main Inter-City East Coast rail line between Edinburgh (Waverley Street) and London (King's Cross). George Stephenson's magnificent 28-arch, 128 feet high viaduct spans the tidal estuary of the River Tweed between Berwick and Tweedmouth, two and a half miles south of the Anglo-Scottish border. Queen Victoria and Prince Albert opened the 2160 feet long bridge in 1850; the structure will celebrate its 150th Anniversary at the Millennium. The project was complicated by both environmental and technical factors.



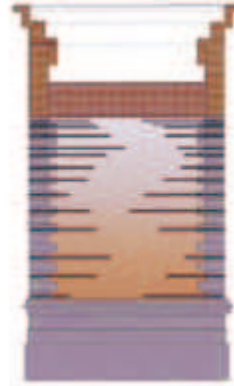
Green nylon based Debris-Mesh surrounded the main work areas to contain dust and debris from the drilling which, if uncontained, would cause environmental problems to the residents of the 36-house Riverdene Estate lying directly below the bridge. The covering material also provided a degree of shelter from the strong prevailing winds which blow eastwards down the Tweed River valley. Furthermore, certain areas of the

61' 6" span brick arches provided roosting areas for galleries of bats. Provision was made to minimize disturbance to this protected species as well as keeping clear exits for their use. The ornamental stonework which forms the top parapet of the viaduct, is also a nesting site for House Martins and a pair of Kestrels were observed nesting under one of the electricity catenary poles.

A total of 1256 Cintec anchors were installed during 1995 and 1996. These were installed horizontally through the voussoirs to varying sizes and drill depths in order to prevent the creation of a shear line in the parent material.

Apart from the erection of the electrification gantries for the high-speed Inter-City 125 express trains, some years earlier, this refurbishment is the first major repair work to be carried in its entire 150 year existence a tribute to the engineering skills of the Victorian builders and an indication of the faith placed in the Cintec Anchor System.

The project was partially funded by English Heritage.



Vertical cross section
of arch stitching.