

## Post Tensioning - Tyne River Bridge, A1 Haddington to Dunbar



The bridge sits in a beautiful location



Major temporary works were required



A successful grout test section



Duct installation



Stressing the 37/15 tendons



Grout plant

Post tensioned bridge deck design chosen to provide an elegant three span river crossing 220 metres long.

Client	Scottish Executive
Consulting Engineer	Scott Wilson Scotland
Principal Contractor	Balfour Beatty
Post Tensioning Specialist	Balvac
Sub-Contract Value	£250,000
Completion	December 2003

The £35m Haddington to Dunbar Expressway contract is a major component of a scheme to upgrade the congested A1 leading to Edinburgh from the south. Where the 13.7 km long dual carriageway crossed the River Tyne near Haddington, the alignment required a long and high bridge to be built in an attractive and environmentally sensitive location.

The bridge designer, Scott Wilson Scotland Ltd, working for principal contractor Balfour Beatty, achieved the client's brief for a slender structure of stated proportions with raking legs. The bridge deck design featured a post tensioned concrete box of varying depths, which used internal tendons from end to end, in total 220 metres long.

Sixteen tendons, each containing 37 No 15.7 diameter strands ran the full length of the bridge, with an additional four tendons in each of the side spans. At 220 metres the tendons are unusually long so a full scale trial was conducted on a representative tendon profile to check the capability of the strand pushing equipment and to ensure that the duct grouting process achieved full encasement of the strands, with no voiding in the duct. Success was demonstrated by cutting sections from the test run to confirm no voids were present.

The Balvac sub-contract included this full scale grout trial, and subsequent supply of all anchors, ducts, strand, and labour and equipment to install, stress and grout the deck tendons. All work met the latest requirements of Concrete Society Technical Report TR47.

- Post Tensioning system Balvac / MK4
- Tendon size 37 / 15
- Total strand weight 175 tonnes

## Balvac

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