



## Bridge Refurbishment & Strengthening

A92 Lower North Water Bridge, Montrose

**Client**  
Angus & Aberdeen Councils  
**Principal Contractor**  
Makers Freyssinet  
**Contract Value**  
£700K  
**Works Commenced**  
September 2007  
**Works Completed**  
November 2008

The Lower North Water Bridge is a multi-span structure constructed in 1774 with 7 arch spans in the main structure and a single arch span in the approaching causeway. The bridge is a Grade A listed historic structure and was constructed out of three types of local stone. It carries the A92 north of Montrose over the River North Esk.

Makers Freyssinet were engaged by Angus and Aberdeen Councils in September 2007 to undertake a programme of refurbishment and strengthening to the structure.

A summary of works activities follows:

- Diamond drilling through voussoirs to install stainless steel tie bars to strengthen the arch structure.
- Resin injection works to band stainless steel tie bars to internal stone.
- Installation of traffic management to regulate traffic to maintain safe working areas on the bridge deck.
- Installation of scaffold access and suspended gantry systems to access external elevations of structure and soffit of arch.
- Re-pointing of masonry arch and parapets using lime mortar.
- Repair of eroded sandstone parapet blocks using stone indenting techniques.
- Replacement of 'dog cramps'.
- Re-constructing parapet wall from vehicle impact damage.
- Restoring stone information plaque.
- Application of paint system to existing steel railings.

The programme was safely and successfully completed in November 2008 to the satisfaction of the client and Historic Scotland.

Freyssinet Makers, 46 Deerdykes View, Cumbernauld, Glasgow G68 9HN  
Phone +44 (0) 1236 780622 Fax +44 (0) 1236 780722 Email [info@freyssinet.co.uk](mailto:info@freyssinet.co.uk)

