

# LISAROW RAIL BRIDGE

## UPGRADING OF BRIDGE FOUNDATIONS



**Client:** Railcorp NSW

**Contractor:** Railcorp NSW

**Specialist Contractor:** Menard Bachy Pty Ltd

### THE PROJECT

The railway bridge at Lisarow over Cut Rock Creek, on the main line north from Sydney, was built in 1911 as a two span transom topped bridge supported masonry abutments and one pier. It was understood that the abutments and pier were supported on timber piles. Upgrading of the bridge involved the installation of four precast culvert sections to replace the existing support structures; these structures in turn required support but better support than was offered by the in-situ soil. The concept design for the provision of this support allowed for grouting a depth of soil of 5 metres over the footprint of the new culverts.

Menard Bachy was selected to undertake the bridge foundation works on a design and construct basis using Jet Grouting. Jet grout columns set out in a grid pattern were adopted as the most appropriate solution, with column depths of up to twenty metres, where suitable founding material was encountered. The jet grouting was performed using a short mast on a conventional drilling rig, resulting in minimal disruption to rail traffic and minimal environmental impact, whilst allowing access to all column positions.

### MENARD BACHY'S ROLE

The problem with the concept design was that at a depth of 5 metres the bearing capacity was little better than at the ground surface. Various alternatives were proposed to address the deficiency of the in-situ soil, including driven piles, micro piles and compaction grouting, all in an environment, where headroom was restricted to approximately 2.3 metres above normal creek level.

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