

# HUME DAM, ALBURY NSW

## FOUNDATION IMPROVEMENT



**Client:** Dept of Land & Water Conservation  
**Designers:** NSW Dept of PublicWorks & Services

**Project Management:** SMEC Victoria Pty Ltd  
**Specialist Contractor:** Menard Bachy Pty Ltd

### THE PROJECT

Hume Dam is located on the Murray River, which forms the border between New South Wales and Victoria.

Menard Bachy, in joint venture with Menard Soltraitement, were awarded the contract for foundation improvement works in December 1999.

### MENARD BACHY'S ROLE

The existing dam embankment on the southern side of the dam required additional support for the increased loading in the event of seismic activity. The design called for installation of 1033 stone columns varying in depth from 5 to 11m, arranged in a 3m triangular grid pattern along the downstream toe of the existing dam embankment. These columns were designed to support a 10m high beam that in turn would buttress the existing embankment.

The 7500 square metre site consisted of between 5 and 9m of clay and intermediate alluvial and layers with SPT N value varying between 6 and 14 overlying gravels where the SPT N value exceeded 20.

The columns were installed to add shear resistance to reinforce the embankment foundation, consolidate the surrounding strata and assist in alleviating pore water pressures

The Menard Bachy and Menard Soltraitement Joint Venture considered a number of different options. These techniques included the dry vibro-displacement method using the Terrafirmer bottom feed rig, the wet vibro-replacement method and the conventional drop hammer and tube method. The decision to use the hammer-drop technique was based on structural and geological considerations, high SPT N values at shallow depths and a difficult top 2 metres of fill material consisting of large boulders. This suggested pre-augering and hammer-drop techniques would be the most appropriate method.

On site operations commenced in late January 2000 with the commissioning of a Mait HR160 drilling rig and the first of two 30 tonne crawler cranes fitted with leader attachment. A second piling rig augmented production in early March 2000. The average productivity for the project was 20 columns/day from both rigs with peak productivity being reached in April at 28 to 30 columns/day from both rigs. The column installation was completed early May 2000 with the placement of berm fill material proceeding contemporaneously with the stone column grid.

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