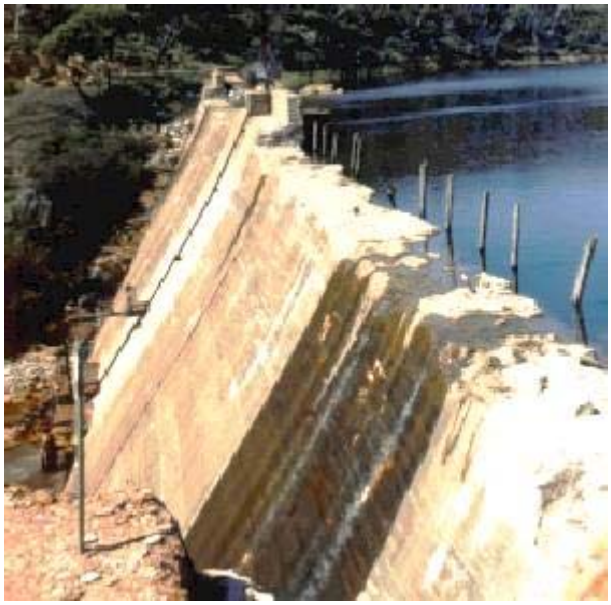
CAPTAINS FLAT DAM, NSW

GROUND ANCHORS AND ANCILLARY WORKS



Client: Yarrowlumla Shire Council
Superintendent: NSW Public Works Department, Wollongong **Contractor:** Menard Bachy Pty Ltd

THE PROJECT

Captains Flat Dam is situated on the Molonglo River, 1km upstream of the Captains Flat township and 60km from Canberra. The existing dam is a concrete gravity structure 17m high built in 1939 as a water supply dam for mining operations and since closure of the mine, the storage has served as a source of water supply for the small township.

Recent revisions of the probable maximum floods indicated the stability of the dam to be unsatisfactory during simulated overtopping by large and rare floods. To enhance security of the downstream populace and as an interim measure, the mass concrete dam wall was cut down by one metre in 1990.

MENARD BACHY'S ROLE

In June, 1992, Menard Bchy were awarded the contract by the Public Works Department on behalf of the Yarrowlumla Shire Council for the strengthening of Captains Flat Dam by post-tensioning of the existing concrete dam and associated works comprising the following:

- excavation of the concrete wall, spillway channel and downstream toe. Construction of reinforced concrete anchorage at the crest of the existing dam.

- the drilling of holes through the dam into the foundation rock to receive the anchors, including water testing and waterproof grouting.

- provision of design, testing and guarantees of proprietary anchorage and cable systems.

- the supply, installation, grouting and stressing of 19 No. 500 tonne restressable ground anchors including suitable corrosion protection.

- reinforced concrete construction for the sill of the spillway channel and for downstream toe apron at selected locations of the existing dam.

The dam crest was only 1.0m wide and so the design and construction of a 4.5m wide drilling platform across the entire dam face overcame the lack of access available for drilling the 215mm holes for the anchors. Whilst not the most economical solution, it was found to be the most beneficial in overall terms to the project.

During drilling, problems were encountered with the permeability of the dam foundations. Substantial waterproof grouting was undertaken with 75 tonnes of cement being injected into the foundations. Whilst achieving the waterproofing objective, the anchor holes provided an additional benefit of reducing water loss through foundation seepage.

The project commenced in August, 1992 and reached practical completion in mid January 1993, inside the 6 month program initially proposed.

SYDNEY
13-15 Lyonpark Road, Macquarie Park NSW 2113
Tel: 61 2 9491 7100 Fax: 61 2 9491 7111

BRISBANE
3 Harvton Street, Stafford, QLD 4053
Tel: 61 7 3354 9100 Fax: 61 7 3354 9111

MELBOURNE
41 Boundary Road, North Melb. VIC 3051
Tel: 61 3 9321 1333 Fax: 61 3 9326 8996

AUCKLAND
PO Box 72734, Papakura, Auckland NZ
Tel: 64 9 236 3385 Fax: 64 9 236 3385