

GREENVALE RESERVOIR UPGRADE

GREENVALE, VICTORIA



Key achievements

- Using a traditional piling technique to achieve an alternate solution to a ground engineering problem
- Successfully creating a deep filter sand trench on the downstream side of an existing dam embankment

Application

Slope Stabilisation
Seepage Control

Technique

Segmentally Cased Secant
Filter Sand Piles

Market

Infrastructure – Water
Storage

Client

Melbourne Water

Main contractor

Thiess Contractors

Contract Value

A\$1.3M

Keller business unit (s)

Keller (Australia)

- **The project**

Situated just 20km north of the CBD, Greenvale Reservoir is Melbourne's most urbanised large water reservoir. Recent upgrades to codes to meet modern dam safety guidelines and significant downstream urban development has demanded an increased operational stability/safety factor. The project included a significant dam wall upgrade involving a secant pile filter wall linking the main dam and wing embankment chimney filters.

- **The challenge**

Although the main dam and wing embankment were adjacent, they were not at the same slope within the embankment. Keller needed to determine a suitable methodology to meet the specific requirements of the client design brief.

- **The solution**

Keller solved the challenges by installing a series of 1300mm dia. segmentally cased secant filter piles to depths of 12m. A down hole survey was conducted on every pile to ensure sufficient overlap prior to backfilling with a graded filter sand material in 750mm layers. The layers were compacted using a 3t free fall drop weight; and segmental casing was extracted without any vibration. Methodology and placement/compaction equipment were developed specifically to meet the project requirements.