

BISHOPS SEE STAGE 2

DIAPHRAGM WALLS & GROUTING



MENARD BACHY



Developer: Hawaiian and Brookfield
Main Contractor: Brookfield Multiplex

Specialist Contractor: GFWA

THE PROJECT

Located at 235 St Georges Terrace, similar to Stage 1, this project is to be built on the heritage-listed Bishops See site in Perth's CBD.

Bishops See will comprise of 46,000 m² of prime commercial office space. Stage 1 includes a nine level office tower totaling 18,000m² set amongst the historic Bishops See gardens.

The tower's underground car park can only be built by constructing a ground retaining structure before the commencement of bulk excavation.

The geotechnical report indicated that the superficial layer was composed of fill, 1 m to several metres thick. Dune sands were identified from the depth of 4.5 to 11m, clay and sandy clay followed from the depth of 9 to 11m, and sand was once again recorded from 16 to 28m. This layer was underlain by a second clay layer from the depth of 20 to 33m, then more sand from 33 to 39m and finally siltstone.

MENARD BACHY'S ROLE

GFWA was awarded the design and construct contract for the retaining structure at the periphery of the bulk excavation, and proposed diaphragm walls (D-Walls). 917 m² of D-Walls were constructed, as an extension to a previously constructed D-Wall during Stage 1. Whilst a relatively small wall area, significant challenges faced the design and construction teams.

D-Wall panels were constructed 0.6m away from an ageing city high pressure gas line and the heritage listed Bishops See House; with stringent restrictions on panel deflection performance. GFWA was able to ensure that design models limited settlement during panel and bulk excavation of the gas line and heritage structure to less than 2 mm and 10 mm respectively. Pipeline curvature limitations of 1/1,000 were also satisfied. Design verification was provided by real time monitoring during panel excavation by a robotic total station.

The requirement for a water tight butt-joint of the new and existing D-Walls provided a further challenge. GFWA developed specialist tools to excavate and clean the old wall during excavation of the new. T.A.M.s were then fixed to reinforcing cages installed adjacent to the old wall, and cement-bentonite grout injected to provide the required seal. Additionally, extensive grout underpinning was carried out beneath the adjacent Bishop See House.

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