

ELIZABETH QUAY SERVICE PITS

SHEET PILES



Owner: Metropolitan Redevelopment Authority
Managing Contractor: Leighton-Broad

Main Contractor: Matera Construction
Specialist Contractor: GFWA

THE PROJECT

Elizabeth Quay is a \$440 million project that will return the city's focus to the iconic Swan River and enhance Perth's reputation as one of the most liveable cities in the world. It is the centre piece of a bold plan to revitalise central Perth. Delivered by the State Government and supported by the City of Perth, Elizabeth Quay will cover nearly 10 hectares of prime riverfront land in the heart of the city. The project will create a magnificent precinct featuring a 2.7 hectare inlet surrounded by a split level promenade, shops, cafes, restaurants and other entertainment venues.

The promenade will be constructed on an existing old landfill with various thicknesses and heterogeneous materials mixed with sand and land reclaimed from the Swan River. An island that will be connected to the promenade by a pedestrian bridge will also be reclaimed from the River. The uncontrolled fill is overlaid by very soft and highly deformable Swan River Alluvium, and multi layers of the Guildford Formation with various thicknesses and elevations.

Construction of underground power, fuel tank, and sullage tank facilities required the excavation of 5 rectangular shaped pits that were 2.5 m to 6.05 m deep, and below groundwater level. The pits' planar dimensions were variable from 4.8 m wide to 12 m long.

THE ROLE OF GFWA

GFWA was awarded the design and construction of the earth retaining support system of the service pits using sheet piling technology. For this purpose 9 m and 12 m sheet were installed with up to two rows of internal ring beam whalers.

Due to ground resistance pre-drilling was utilised to facilitate sheet penetration into the Guildford Formation.

To optimise production sheet piling was performed using an excavator base rig for the shorter sheets and a multi-purpose piling rig for the longer sheets.

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