

# Qube Office Building

Contiguous CFA Piles, Sheet Piles & Anchors



**Developer: Qube Properties**  
**Main Contractor: Georgiou**

**Specialist Contractor: GFWA**

## THE PROJECT

Qube Office Building is at the intersection of Roberts Road and Agnew Way in Subiaco, one of Perth's most sought and closest suburbs to CBD. This area is a prime location and of great interest to developers.

Qube Office Building has two underground car park floors with three storeys of office space. The vicinity of adjacent streets and building required specific measures to ensure that bulk excavation down to a maximum depth of about 9 m would not cause any movement or damages to other properties.

The soil investigation reported that the upper 2 m of ground was very dense sand followed by loose to medium dense sand with CPT cone resistance in the range of 3 to 10 MPa. Very dense sand was once again encountered from the depth of 10 m to testing termination depth. Groundwater was approximately 12 m below street level.

## THE ROLE OF GFWA

GFWA was awarded the design and build contract for the execution of the retaining system and proposed to install two types of walls; i.e. contiguous CFA piles next to adjacent buildings that could potentially be damaged by too close sheet piling installation vibration and the more affordable sheet piles where vibration was less sensitive. Both types of walls were supported by two to four rows of anchors and waler beams.

Thus, 71 contiguous CFA piles, each with a diameter of 600 mm and length of 10.5 m were installed at the boundary with an existing structure. Each row had 24 anchors; the top level had 3-strand anchors and the bottom level had 4-strand anchors.

Also, 44 sheet piles, each 10 m long, and 48 sheet piles, each 8 m long, were installed in the other boundaries. The sheet pile walls were supported by a total of 391 mechanical anchors of which 247 were installed for the 10 m long sheet piles and 144 were installed for the 8 m long sheet piles. The project was complicated by the existence of previously installed sheet piles on the Roberts Road and Agnew Way elevations that could not be removed. These had to be anchored and a terraced detail designed to cater for amended boundary detail.

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