

## Victoria and Alfred Waterfront

Western Cape, South Africa

Basement piling and earth retention at the Victoria and Alfred Waterfront, an iconic mixed-use neighbourhood and working harbour in Cape Town.



### The project

Clock tower basement lateral support and piling, comprising of concrete sheet piles, post tensioned anchors, odex piles, gunite, Franki piles and temporary cased auger piles.

## The challenge

The precast elements consisting of the concrete sheet piles were a priority and sufficient stock was required in order to commence the works on the earth retention for the basement. The waterfront is an extremely busy area falling with a working dock which is one of the oldest parts of Cape Town, with numerous unknown or redundant services, not to mention the arms cache of old war heads that were excavated during our tenure on site.

We ended up with little continuity on the piling due to unforeseen services and or traffic diversions to accommodate the working harbour. Most of the sheet piles performed as expected, however there were some that were damaged due to larger than expected hard rock boulders.

The large voided rock and the intertidal zone made the grout socks and anchor installation very difficult and anchor capacities were reduced accordingly with additional anchors added.

## The solution

Once the lateral support was installed and the basement excavation was dropped, we were able to start with the installation of the foundation piles which consisted of 750mm diameter temporary cased augers and driven cast in-situ Franki piles of various sizes (410mm, 520mm and 610mm diameter). This was also slow and the piles required permanent liners to avoid wash out due to the inter tidal movements.

A very challenging contract with a variety of geotechnical aspects, which made it interesting for all involved.

## Project facts

### Owner(s)

V & A Waterfront Holdings

### Keller business unit(s)

Keller South Africa

### Main contractor(s)

MACE Project Managers  
WBHO

### Engineer(s)

Sutherland Engineers

### Solutions

Heavy foundations  
Excavation support

### Markets

Commercial

### Techniques

Bored piles - cased  
Franki (DCIS) piles  
Sheet piles  
Anchors  
Shotcrete / Gunitite

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