

Marriott Hotel in Manama

Geotechnical checks after project change
2016



BAHRAIN

Client

SETEC TPI

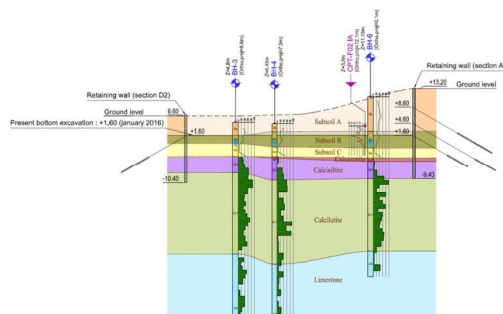
Terrasol fees

21 000 €

Highlights

Tower de 35 floors (about 170 m)

Excavation 80 m x 80 m



The Project

A large urban extension has been under development since the years 2000 around Bahrain Bay, in the north of Manama.

This extension project includes the construction of a new Marriott Hotel on a reclaimed landfill plot. The execution works for the excavation retaining structures (excavation of approximately 80 m x 80 m, tangent piles with several levels of tie-rods) and the foundations for the building (concrete piles 800 to 1500 mm in diameter, 10 to 20 m long, anchored in a variably fractured limestone substratum), began smoothly, but were abruptly halted in 2006.

The project was restarted in 2015, with a fundamentally revised design required by the new Architect GROUPE 6. In this new design, the position of the core of the 35-storey tower (height about 170 m) is offset, the excavation is deeper and loads have been revised.

Our Services

SETEC TPI asked TERRASOL to determine if the foundations of the initial structure could still be used and if it was feasible to make the excavation deeper.

After analysing all the geotechnical input data and the load-bearing tests executed on the existing piles (static and dynamic tests), the bearing capacities of the various piles were readjusted.

Checks on the retaining structures showed that the passive pressures needed to be increased by adding new ranges of tie-rods and the hydraulic embedment needed to be extended by additional grouting.

Key features

- Checking whether the foundations of the initial structure could still be used
- Check the feasibility of a deeper excavation