# Lighthouse, Aarhus Ø

## Geotechnical investigations



Prior to the construction of the 142-metre-high Lighthouse located at the tip of Aarhus Ø, Aarsleff carried out supplementary geotechnical investigations. The investigations were a part of the design work and were to determine, among other things, the dimensions and the execution method of the test piles for the building, and thus also the final dimensions of the large, drilled piles under the high-rise building.

#### 90 metres depth

The geotechnical investigations comprised two drillings to a depth of 90 metres including the taking of core samples. Also, we carried out two CPT soundings to a depth of 40 metres and 20 pressuremeter tests. The aim of the pressuremeter tests was to obtain information on the stiffness and strength of the ground by measuring the relationship between radially applied pressure and the resulting deformation.

#### Challenging underground

As 90-metre-deep drillings are very rare in Denmark, we were assisted by the company Concept Engineering Consultants Ltd. from Great Britain. The company specialises in deep drillings and has experience with working in the plastic clay in London, the so-called London Clay, which resembles the tertiary clay of high plasticity in Aarhus.

However, the tertiary clay in Aarhus turned out to be quite different from the London Clay which meant that we had to adjust the drilling method several times. Also, we carried out more tests with the drilling fluid to ensure the progress of the drillings.





#### Data

- 2 geotechnical drillings to a depth of 90 metres
- 2 CPT soundings to a depth of 40 metres
- 20 pressuremeter tests

**Client** Kilden & Hindby

**Contractor** Per Aarsleff A/S

**Type of contract** Subcontract **Consulting engineer** Rambøll A/S

Construction period May-July 2018

**Contract value** DKK 1.8 million

Aarsleff Ground Engineering is one of Europe's leading piling contractors, and we undertake a wide variety of piling, drilling and foundation projects in Denmark and abroad. We have offices in Poland, Sweden, Germany and the UK. Our fleet covers fully hydraulic piling and drilling rigs as well as cranes and vibrators.

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