

# Construction pit for new Scandic Hotel

Establishment of construction pit in highly contaminated soil



**AARSLEFF**

In Copenhagen, Per Aarsleff A/S has established a construction pit for a new Scandic Hotel inclusive of a two-storey basement. The work was carried out on an old gasworks site, where there was also previously a pharmaceutical company and a gas station. As a consequence, the soil was so contaminated that special safety precautions had to be taken.

## **Stringent safety requirements**

In large areas of the site, the soil was highly contaminated, class 4 on a scale from 1 to 4. All employees had to go through a safety check before entering the construction site, and they carried out all work wearing safety clothing and masks. In addition, the employees on the project worked only six hours a day and maximum two hours at a time. It placed heavy demands on time scheduling, planning and distribution of work tasks and breaks as well as on the required equipment.

When carrying out sheet piling in the most contaminated soil, we had safety zones with at circumference of 25 metres around the machines which all had carbon filters to ensure a healthy working environment in the contamination zone. We carried out groundwater lowering and maintained the most contaminated water in closed sys-

tems – also to avoid odour nuisance to the neighbours in the densely populated area.

## **Execution of excavation**

In connection with the excavation for the basement, we had to clean the old gasworks site. Cleaning was carried out by first constructing retaining walls of sheet piles. Subsequently, we removed all soil inside the retaining walls. Excavation and handling of the highly contaminated soil was a major issue which we had to incorporate in the logistics at the construction site, as several different soil classes required several different deposits. The most contaminated soil could not even be handled in Denmark but was sent to the Netherlands, which resulted in minor logistic delays. A total of three barges with soil were shipped from Copenhagen.

After constructing the retaining wall, we drilled the uplift anchors from ground level to the required toe level. Subsequently, we excavated down to anchor level where we installed all wall anchors before carrying out the final excavation down to the planned level. Consequently, we handed over an uncontaminated construction pit ready for concreting.



#### Data

- 290 m of sheet piles installed
- 61,000 tons of soil excavated
- 58 wall anchors installed
- 126 uplift anchors installed
- 26 relief wells
- 5 pump wells
- Installation/operation of groundwater treatment system for highly contaminated groundwater.

#### Client

Entreprenørfirmaet Einar  
Kornerup A/S

#### Contractor

Per Aarsleff A/S

#### Type of contract

Subcontract

#### Consulting engineer/ Architect

Alectia A/S  
Danielsen Architecture

#### Construction period

February 2016-August 2016

#### Contract value

DKK 41.5 million

#### Contact

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