

Fornebubanen - K2A Fornebu

Fornebu, Norway

- Keller installed about 1800 pcs of Ø800 mm lime-cement columns to stabilize the ground in a new building pit in connection to the new Fornebubanen.
- Keller executed about 200 m of jet grouting to seal between the sheet piles and the bedrock in the building pit.



The project

Implenia Norge AS have been contracted by Fornebubanen to execute the new subway tunnel between Fornebu and Lysaker.

This part of the project is located at Fornebu, where an entrance to the subway is planned along with a terminal building. Before excavating the pit, it was necessary to stabilize the sensitive clay in the ground with lime-cement columns.

Since the pit would also be excavated, there was also a need to seal the layer between bedrock and sheet piles. This was done with jet grouting of varying dimensions.

The challenge

The challenge in this project was mainly to achieve a good sealing between sheet piles and bedrock without any missing gaps due to big variations in bedrock level.

The solution

The solution in the project was to stabilize the whole pit with lime-cement columns with a mixing ratio of 75 kg/m³. The lime-cement columns were installed in a rib-pattern and also close to each of the sheet piles. All columns were installed down to bedrock. For the sealing between sheet piles and bedrock, jet grouted columns with compressive strength >5 MPa were used. Instead of using fewer large diameter columns, several small diameter columns were installed to be sure to cover all the variations in the bedrock level. Two columns of Ø0,8 m and Ø1,0 m were installed for each single sheet pile. The columns were installed according to the sheet pile protocols.

Project facts

Owner(s)

Fornebubanen

Keller business unit(s)

Keller Geoteknikk AS
Keller Grundläggning AB

Main contractor(s)

Implenia Norge AS

Engineer(s)

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Solutions

Slope stabilisation

Markets

Infrastructure

Techniques

Dry soil mixing
Jet grouting

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