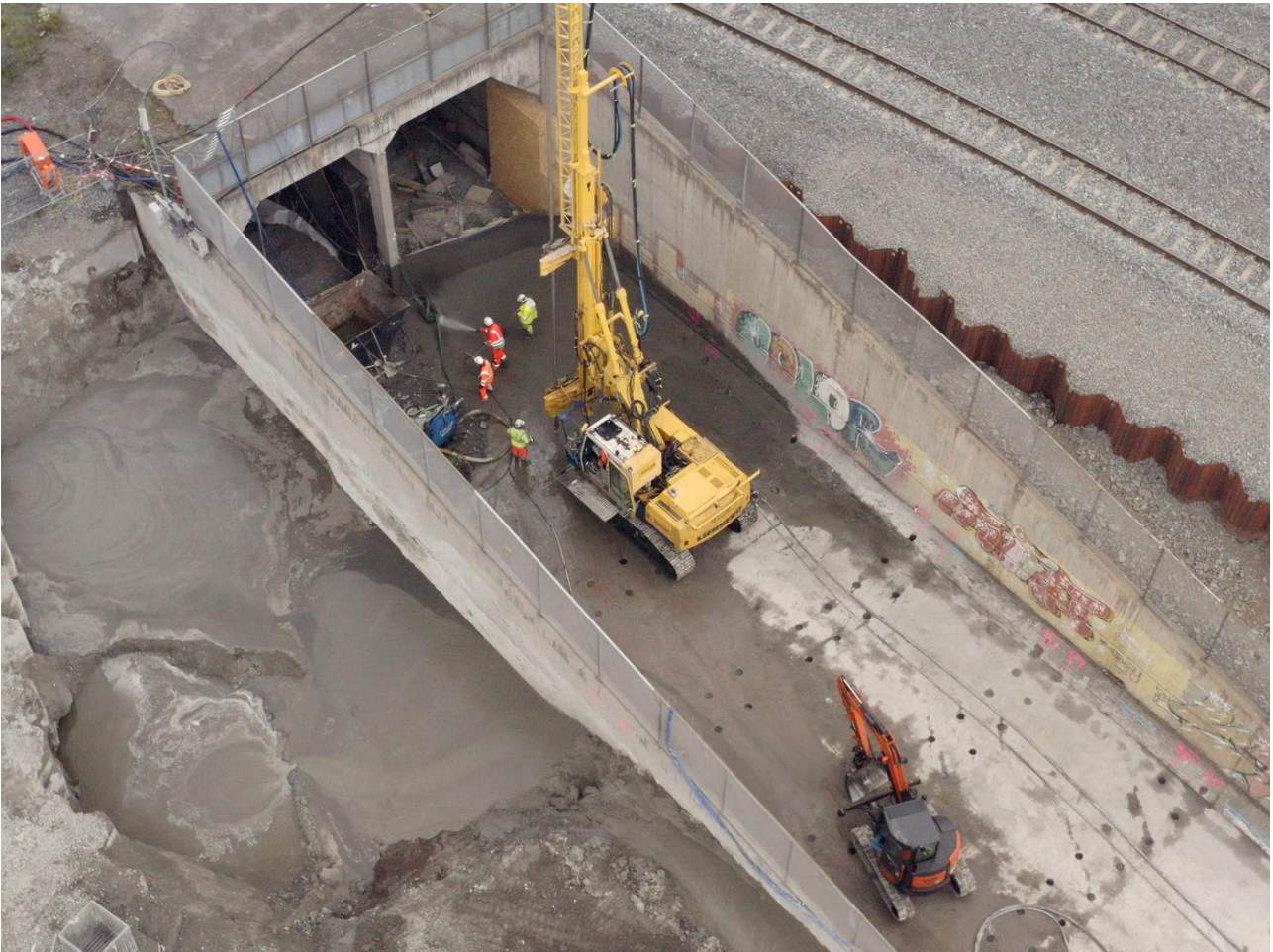


## Follo Line Oslo S K143

Oslo, Norway

Keller installed 10,400m of jet grouted columns in just 21 days to meet a tight deadline during a rail line closure on the Follo Line project.



### The project

The Follo Line arranged a line closure in the Oslo area which was critical for the completion of the overall project. Keller was contracted to install more than 10,400m of jet grouting in 21 days. The jet grouted columns are to stabilise an excavation pit in the form of stiffening ribs.

## The challenge

A main topic to take care of was time and space, as we had to deliver our product within a scheduled train stop without the chance to extend this period. The works took place directly on the alignment of the train tracks which were removed during the execution. Due to the large amount of jet grouting in a very short time, handling of the backflow was the biggest challenge to ensure continuous production. The use of three back flow treatment plants minimised the environmental footprint of the work.

## The solution

Keller mobilised special drilling rigs and three backflow treatment plants to be able to fulfil Bane NOR's schedule. A total of 20 of Keller's most experienced and skilled grouting specialist worked day and night to achieve the goal. They managed an average production of 520m of jet grouted columns per day with a maximum of 800m. Due to an existing concrete slab and very stiff clay underneath, precutting was applied to avoid deformations of the tunnel. Keller managed to deliver and demobilize the area one day ahead of schedule giving the contractor more time to re-build the tracks and deliver them to the client. In all 5,300 tons of cement were used.

## Project facts

### Owner(s)

Bane NOR

### Keller business unit(s)

Keller Grundläggning  
Keller Grundbau

### Main contractor(s)

HAB AS  
Project Manager - Geir Lundberg (geir@hab.no)

### Solutions

Excavation support

### Markets

Infrastructure

### Techniques

Jet grouting

### Email address

[info.no@keller.com](mailto:info.no@keller.com)

### Phone number

+47 239 67120