

## Amtmannvegen, Molde

Molde, Norway

In relation to works with a new sewage line in Molde, Keller stabilized the quick clay in the ground by using Mass Soil Mixing rig. The Mass Soil Mixing were executed using a 7m long reaching arm and mixing tool connected to a 35-ton excavator and a cement-fed pressurized shuttle.



### The project

During excavation works for a new sewage line in Amtmannvegen, Molde, quick clay was discovered by Molde Vann og Avløp KF. As a result of a local quick clay land slide that occurred during the excavation works, the works were temporarily suspended until a safe solution was in place.

## The challenge

The challenge in the project was mainly to ensure a good flow of the works in cooperation with Molde Vann og Avløp KF and the ground-contractor as well as ensuring that all pockets of quick clay in the ground were stabilized with binder.

## The solution

The solution was to stabilize the ground with the Mass Soil Mixing technique as opposed to the traditional Dry Deep Soil Mixing method with a drilling rig. The solution was chosen due to the limited depths to bedrock which enabled to reach all areas with the excavator boom. The excavator was connected with a shuttle that fed the machine with a cement-based binder. The mass mixing works were executed in cells of 2x4 m on each side of the trench. The built-in software system ensured that the entire volume of soil in each cell was treated with the designed binder amount. Executed tests showed that the quick clay was stabilized, but the connection towards bedrock was not optimal. As a result, it was decided to also stabilize the middle of the trench which in return gave a better working platform. The works with the sewer line could then continue.

## Project facts

### Owner(s)

Molde Vann og Avløp KF

### Keller business unit(s)

Keller Geoteknikk  
Keller Grøntbygg

### Main contractor(s)

Keller Geoteknikk AS

### Engineer(s)

Project Manager of the Customer  
Arne Vinje  
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### Solutions

Bearing capacity / settlement control

### Markets

Industrial

### Techniques

Mass mixing

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