



Route des Nations, Geneva (CH) Sleeve pipe injection

Client	Republic and Canton Geneva
Main Contractor	Groupement Marti Nations
Execution of works	Renesco GmbH, Abt. Marti Geotechnik
Construction period	November 2019 – March 2020
Contract value (grouting only)	600,000.00 €

Object description

The tunnel project between airport and the United Nation Organization district is performed in loose underground. In low depth the tunnel traverses a built-up urban area and faces quite challenging complex geological and hydrogeological conditions. The quaternary formations from the Riss and Würm glaciation are heterogeneous and contain very permeable gravel bodies, which are separated by very little permeable layers. Therefore there are several water-bearing layers with different groundwater levels.

Grouting works

Heavy water ingress occurred during the tunnel excavation works. For this purpose, sleeve pipes were installed on both sides in the longitudinal direction and injected with suspensions of cement, fine cement and colloidal silica. The drilling and grouting works were executed from the ground surface. The injections had to be carried out with the greatest care and precision to avoid any negative impact on the surrounding buildings such as the Pregny-Chambésy-Grand-Saconnex church.

Scope of work

Masses of grouting works:

Cement:	170.000 kg
Fine cement:	25.000 kg
Colloidal Silica:	64.000 kg



1. View on Church Pregny-Chambésy next to the injection field
2. Camera inspection of sleeve pipes prior to injection
3. View into the grouting container