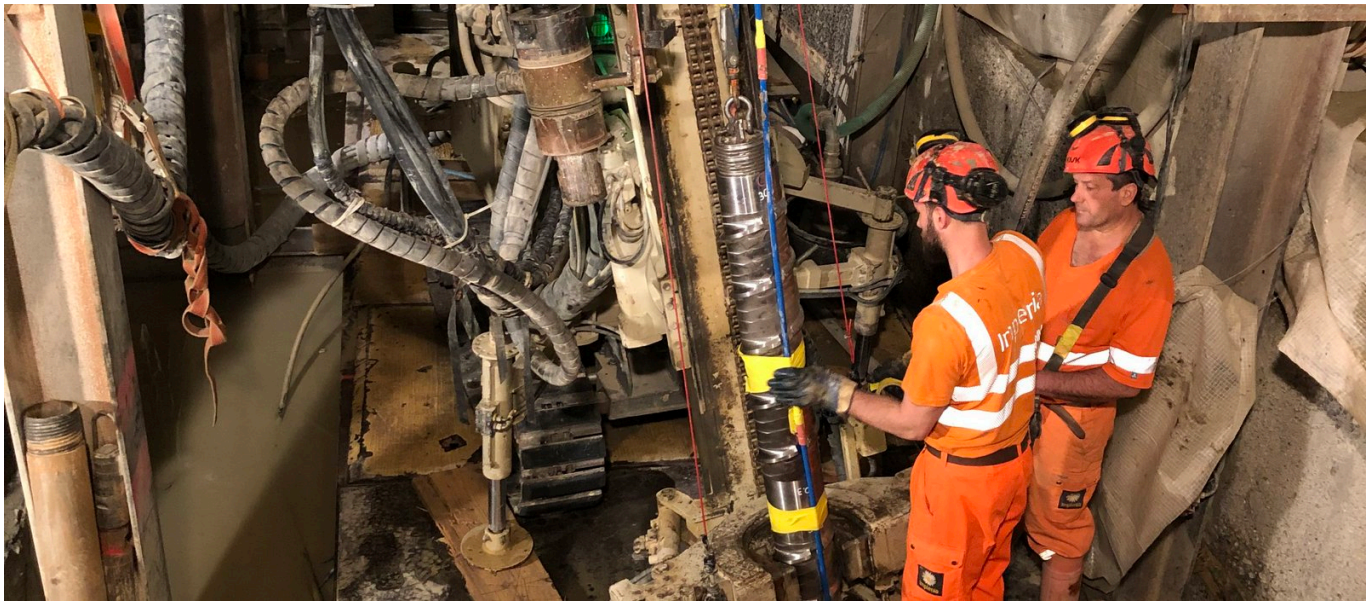
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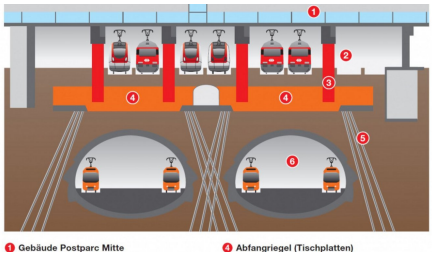
Reference

RBS Los 1.2 Postparc – Ausbau Bahnhof Bern









SHORT DESCRIPTION

Sub-project involving the expansion of Bern train station

THE PROJECT

The new RBS train station is being partially built directly under the “PostParc Mitte” building project. Four supports in the impact area of the future station caverns are among the elements serving as the foundation for this business and office centre. The supports are former post lifts that were concreted over during the construction of the PostParc building. During the excavation of the caverns, the supports will lose their load-bearing capacity.
To avoid damage to the PostParc building, unusual construction measures were required. The four supports are being newly integrated with the aid of two new transfer beams and 36 lateral micropiles each.
The 24 m long micropiles are being incorporated next to the future caverns in a fan-shaped arrangement. Due to space restrictions in the tunnels, only 1 m long pile sections can be built in. Furthermore, the boring accuracy is required to be extremely high so that no reciprocal damage can occur, especially in the middle part where the boreholes cross.
The transfer beams are being built in 9 and 8 sections, respectively. To this end, 10 m long tunnels (top heading & bench) are being driven directly under the SBB platforms and then heavily reinforced and concreted over in stages. Each beam also has 48 prestressed cables built into it.

Prior to the excavation of the caverns, the new load-bearing structures are being put into operation in a special procedure. The transfer beams are being pretensioned in stages and the beams are being mounted on the pile heads using 48 hydraulic set-collar presses. At the same time, an extensive control and monitoring system is being put into operation.

SERVICES IN DETAIL

The project is being carried out in the Division Civil Engineering in the Business Units Civil Engineering, Foundation Engineering and Tunnelling and encompasses the following works:

- Tunnel shield driving works
- Tunnel excavation and securing
- Micropile works
- Monitoring works
- Reinforced concrete works
- Structural steel works
- Civil engineering works
- Line construction building technology / cooling technology

CHALLENGES

Supplies to and the removal of waste from the building site must be handled exclusively by rail. This requires a logistics organisation that handles all transports during the night at times when trains are not running on the RBS rail network. Thus, the supplying of the building site for the 24-hour construction operations must be done within just 4 hours.
The building site is located in the 2 basement stories in the heart of the SBB Bern train station. Micropiles produced in the anchoring zone with a newly developed helicoidial thread serve as the foundation for the transfer beam. This special pile surface should improve the load application into the subsurface and the settling behaviour.

SUSTAINABILITY

Owing to the localities involved, the work is being done almost exclusively with electric vehicles and machinery and thus the goal of a CO2-neutral building site is also being pursued.

FURTHER INFORMATION

- Pipe roof 1,800 m
- Rock excavation, solid 2,500 m^3
- Excavation of loose rock, solid 0 m^3
- Shotcreting, solid 650 m^3
- Steel installation, 420 t
- Rock anchors / skewers 100 m
- Reinforcement 366 t
- Mesh reinforcement 28 t

FACTS

Location	Bern , Switzerland
Status	completed
Construction volume (value of our services)	13.7 M CHF

Start of construction	August 2018
Completion	March 2021
Building owner	RBS – Regionalverkehr Bern-Solothurn
Contracting entity	RBS – Regionalverkehr Bern-Solothurn
Project designer	Planer Gemeinschaft RBS verbindet Emch+Berger, B+S Ingenieure und Planer, Basler+Hofmann, Theo Hotz Partner Architekten

SERVICES

Tunnelling

https://implenia.com/en/references/detail/ref/rbs-section-12-postparc-expansion-of-bern-train-station/

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