



## Expansion Rail Station Berne RBS, Lot 1.3 (CH) Double Layer Vacuum System

|                              |                                                                        |
|------------------------------|------------------------------------------------------------------------|
| <b>Country</b>               | Switzerland                                                            |
| <b>Type</b>                  | Transit, Railway, Metro                                                |
| <b>Client</b>                | Regionalverkehr Bern-Solothurn (RBS)                                   |
| <b>Main Contractor</b>       | Marti Tunnel AG                                                        |
| <b>Execution of the work</b> | Renesco AG                                                             |
| <b>Designer</b>              | RBSverbindet, Emsch & Berger, Basler & Hofmann, B+S, Theo Hotz Partner |
| <b>Construction Period</b>   | 2026                                                                   |

## Project Description

The project "Expansion of Berne RBS Station" involves the construction of a new underground station as well as the railway line, various shafts, and galleries – all under full operation of the existing infrastructure including city traffic. The project consists of two 200 m long, 26 m wide and 17 m high station caverns, which lie up to 7m underneath the existing railway tracks of Berne Central Station. The 1.5 km access railway line has different cross sections and runs both underground and above ground (open cut). Challenging is also the waterproofing system, which is partly with vacuum (double-layer, active control, P&I).

## Scope of Service

Supply & Install of a sheet waterproofing membrane system acc. to SIA272 (Swiss standard), 2 mm thick PVC in the caverns (umbrella, drained) and 3 mm for the full-round (360°) sealing. Partly - installation of an active control system (P+I) consisting of two layers of sheets, compartmented in section areas, and tested via vacuum.

This type of 'Active Control' waterproofing is used particularly in cases of high-water pressure with corresponding cost-risk assessment - potentially involving increased repair costs in the event of a leak or the risk of reduced serviceability.

The advantage of such a complex 'Active Control' waterproofing system lies in its ability to identify the cause of the leak – including its location across the entire waterproofed surface – directly and promptly.

Defective sections identified during installation or during reinforcement works can be repaired or replaced. Upon handover to the main contractor, the waterproofing must be vacuum-tight, detected by an installed electrical alarm system. In the event of leaks in the structure, the affected sections are repaired by means of injection between the two waterproofing membranes. This is accompanied by a high standard of workmanship, sensitive quality controls by vacuum fields and the possibility of targeted, early repair even before concreting takes place or before the structure is subjected to pressure from rising groundwater.



1. Station cavern with inner liner
2. Waterproofing works at the wall area
3. Access tunnel with the double layer vacuum system