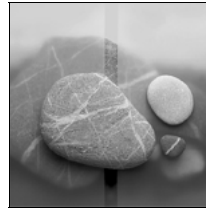


## LEB Compagny of Railways Lausanne Echallens Bercher Extension of the line in the city of Lausanne – 2<sup>nd</sup> stage



### Project description

The underground extension of the regional railway line allowed to connect the railway line to the public transportation downtown in Lausanne. This interface currently includes the subway Lausanne-Ouchy serving station CFF, the western subway M1, the lines of bus TL, and in the future, it will allow to connect the north-eastern subway m2.

Opened in 1873, the line LEB crosses 23 km, concerning 12 communes and having 19 halts.

Of a length from approximately 1 km, the new layout includes two underground stations (Chaudron and Flon) and was realized in two stages. The first section to the station of Chaudron was inaugurated in 1995 and the second reaching the place of Europe was completed in 2000.

- Location : City of Lausanne
- Reference : LEB, M. Gachet, directeur
- Duration : 1997 - 2000
- Cost of the project (2<sup>nd</sup> stage) : approx.. 45 mio CHF
- Fees : 2.2 mio CHF

### Highlights

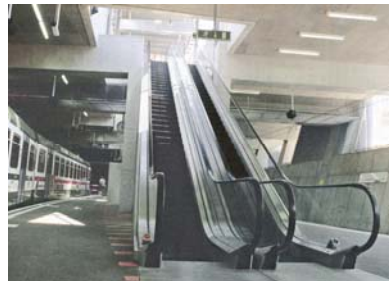
- The railway tunnel crosses a morainic massif and a molassic massif at low depth.
- The density of the urban site and the exiguity of the available room for the installations had required to find new solutions, while maintaining the road traffic.
- Nuisance effects of such a construction site, in the heart of the city, were limited by using particular techniques and with a narrow monitoring.
- All the installations of the Place of Europe were completely reconsidered, in 3d, to improve comfort of the users, pedestrians and automobile traffics.
- The execution of the excavations required the installation of shields, nailed and gunited walls.
- The project required the entire replanning underground grids and nets.

### Our Services

- Development and management of the projects with a team of engineers.
- Organization and followed probes campaigns, geotechnics and hydrological studies.
- Impact studies on the environment and environmental follow-up during the work
- Geological statements.
- Study and management for the improvement and the transformation of the underground nets.
- Particular hydraulic studies of the Flon vaulting.



**Excavation for the Underground Station of Flon**



**Underground Station of Flon**



**Place de l'Europe, bridge and lifts**

