# Construction pit and tunnel link for Zurich Children's Hospital

**The project centers on the construction of two new buildings for Zurich Children's Hospital in Zurich's Lengg district. EBP has been commissioned to complete the planning for the construction pit, as well as for a tunnel link between the buildings that is to pass under Lenggstrasse and a sensitive city water-supply line.**

Zurich Children's Hospital is moving from its current location in the Hottingen district of Zurich to the Lengg district. The Herzog & De Meuron (HdM) architectural firm was commissioned to plan the construction of the new acute care hospital and a laboratory, research, and academic building on an adjacent site. The two buildings are to be linked by a tunnel. After the consortium consisting of HdM and the ZPF engineering firm won the contract for the project, ZPF commissioned EBP to complete the planning for and oversee the construction of the construction pit and the tunnel link.

### Challenging construction pit

The construction pit covers a large area, and its geometry is highly irregular, with various site-specific projections, recesses, and levels requiring special construction measures and sequences. Anchored soldier-pile and soil-nail walls needed to be installed as a safety measure. The backfill is also to play a role in the retention of rainwater.
The coordination of the construction sequences required close consultation among the various planners and the construction management team as the project proceeded through its various stages, from pit excavation, pit reinforcement, and the

## Client

Eleonore Foundation / ZPF Engineering

## Facts

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| Period | 2014 - 2020 |
| Project Country | Switzerland |
| Excavation volume | 195'000 m3 |
| Soil-nail walls | 5200 m2 |
| Soldier-pile walls | 3100 m2 |

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construction of a pile foundation to the placement of underground utility lines, shell construction and vertically phased backfill.

**Tunnel link crosses sensitive water supply line**

The nearly 560-foot tunnel link between the acute care unit and the laboratory building provides space for numerous utility lines and enables the maintenance technicians to complete their work efficiently. Located at the bottom of a slope, the tunnel is exposed to groundwater, and was completed in open-pit construction with the protection of a well-anchored soldier-pile wall. The need to cross a city water-supply line presented a special challenge. With a diameter of 1.2 meters, the supply line consists of a steel pipe and a concrete pipe sleeve that react sensitively to shifting forces. The line was therefore placed on a temporary steel construction and carefully monitored with geodetic equipment.
The scope of our services included the planning for the construction pit and the tunnel link, as well as overseeing their project execution. We therefore accompanied the project from the planning phase to the acceptance phase.
Picture Credits: developer's webcam

Construction pit for acute care center 1 - Picture Credits EBP

Construction pit for research building 1 - Picture Credits EBP

Construction pit for research building 2 - Picture Credits: developer's webcam

Construction pit for tunnel link