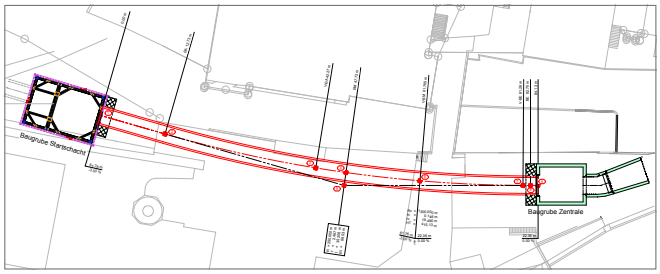
Crossing an industrial complex
by applying Microtunneling technique

Part of the new Ziegelbrücke Hydropower Plant was a penstock line between the existing water supply dam and the new power house. This penstock had to pass an existing industrial complex which was containing settlement and vibration sensi-tive production facilities that had to be keet in service also during construction. In a longer project development process which considered many other environmental boundary condi-tions Microtunneling was determined as the most suitable construction technique for passing the industrial complex.

The big pipe dimension to be applied in an existing industrial complex implicated a demanding logistic operation for ship-ping of the jacking equipment and the jacking pipes in which an existing Highway was partly closed during the night time for shipment of the TBM. Furthermore the non cohesive ground in combination with the small overburden under the existing buildings required extensive efforts for settlement monitoring and control.

The application of Microtunneling technique for a penstock in a Hydropower plant with Kaplan turbine axis showed to be an efficient and fast construction method.



LEGENDE?

AT A GLANCE	
Project name	KW Ziegelbrücke Hydropower Plant
Project location	Ziegelbrücke, Canton of Glarus, Switzerland
Purpose	Hydropower Penstock
Time of completion	July 2010 – Octobre 2010
Specialties	– Crossing of sensitive industrial complex with small overburden – Curved alignment
Total length	84 m / 276 ft (all in soft and saturated soil)
Pipe ID	3000 mm / 118,1 in
Pipe OD	3600 mm / 141,7 in
Alignment	3-D curve
Min. curve radius	245 m / 804 ft
Pipe material	reinforced concrete
Pipe length	2,5 m / 8,2 ft
Geology & groundwater	Saturated debris; highly permeable, lose sandy / silty grave. Groundwater level 3 m / 10 ft above crown.
Hydraulic Joint	JC250 / double loop. Admissible jacking force 22 000 kN / 2472 t
Guidance system	VMT SLS Microtunneling LT
TBM	Herrenknecht AVND2400
Owner / Client	Ziegelbrücke Energie AG, Fabrikstrasse 2, 8867 Ziegelbrücke, Switzerland
Consultant / Designer	Jackcontrol AG, Glarus / Switzerland
Contractor	Implenia AG, Switzerland

Jackcontrol AG
Buchholzstrasse 50 | 8750 Glarus | Switzerland
Phone +41 (0)55 650 20 20 | Fax +41 (0)55 650 20 30
info@jackcontrol.com | **www.jackcontrol.com**

Jackcontrol
monitoring microtunneling