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Rockfall barriers

Rockfall deflector protection
Avers-Reno di Lei / Switzerland

Photo documentation / March 2009

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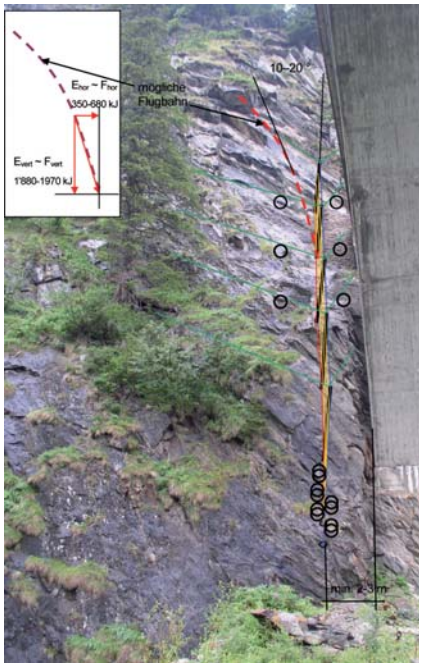
Avers-Reno di Lei / Switzerland



Diagrammatic representation of the "deflector protection".The curve marked in red represents the possible trajectory for a "direct hit". The angle of impact on the barrier is approx. 10-20°.

Object:	Abutment, Averstrasse, Reno di Lei, Switzerland
Solution:	Geobrugg RXI-200 rockfall barrier (2000kJ)
Barrier length:	18 m
Barrier height:	4 m
Distance between posts:	6 m
Anchorage:	Supporting ground plate with 3 GEWI rod anchors ø 32 mm; Lateral guy ropes with rope anchor ø 18.5 mm; Retaining ropes with rope anchor ø 18.5 mm
Foundation:	In-situ rock
Client:	Graubünden Civil Engineering Authority
Engineer:	DIAG Davoser Ingenieure AG, Davos / Switzerland
Contractor:	Crestageo AG, Chur / Switzerland
Planning:	Geobrugg AG, Romanshorn / Switzerland
Duration of construction:	June – July 2008

The old bridge over the Reno di Lei was hit by a rockfall. As part of the restoration work, a suitable measure was sought for protecting the old bridge – and the abutment of the new bridge situated above it – from falling rock. For reasons of aesthetics and to preserve the surrounding countryside, it was not possible to construct a rockfall protection roof above the portal. The solution presented by Geobrugg envisioned a RXI-200 rockfall barrier (2000 kJ) acting as a deflector, with the system being aligned almost vertically above the abutment. In contrast to a conventional rockfall barrier, three central suspension cables were installed in addition to the upper and lower suspension cables in order to reduce net deflection and allow rocks to be diverted.

The new bridge, now the principal bridge, with the deflector protection protecting the abutment.

Employing long retaining ropes enables the anchors to be relocated out of the danger zone.

Lateral guy ropes with 6 m-long rope anchors.

Deflector protection with three central, one upper and one lower suspension cable incl. running ropes in the post areas. The posts were specially developed for this project.

Rockfall barriers

Rockfall drapes

Slope stabilization systems

Debris flow barriers

Avalanche prevention structures

Open pit rockfall barriers

Special applications

Geobrugg protects people and infrastructures from the forces of nature

It is the task of our engineers and partners to analyze the problem together with you in detail and then, together with local consultants, to present solutions. Painstaking planning is not the only thing you can expect from us, however; since we have our own production plants on three continents, we can offer not only short delivery paths and times, but also optimal local customer service. With a view towards a trouble-free execution, we deliver preassembled and clearly identified system components right to the construction site. There we provide support, if desired, including technical support – from installation right on up until acceptance of the structure.

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