

Project: Reservoir Wurmberg
Location: Braunlage, Germany
Year: 2012 bis 2013

Design of an earth dam for the construction of a water reservoir



PROJECT DESCRIPTION

The city of Braunlage, Harz Region had planned to increase the winter sport offers. In order to extend the touristic infrastructure in Wurmberg area (Braunlage, Harz Region) and to extend winter sport facilities, a new water reservoir was designed and constructed to ensure sufficient capacity for proper snow production in winter. For this purpose, existing rock needed to be excavated and an earth dam was constructed on top of the Wurmberg.



PROJECT FACTS

- Water capacity 42.300 m³
- Surface area at crest about 10.000 m²
- Earth dam with height of 16.5 m and max. water height of 8.5 m (free board of 1 m)
- Subgrade consist of 4m disturbed granit layer with shear resistance of $\varphi = 30^\circ$, $c = 5 \text{ kN/m}^2$ over rock layer
- Slope inclination of 1 : 2.2 and 1 : 2.25
- Crest life load of 33 kN/m²
- Sealing system using a membrane within woven geotextiles



OUR SERVICE

- Geotechnical Consultancy throughout the project
- Stability analysis for the dam and the sealing system according to EBGeo, DIN 4084 and DIN 1054
- Hydraulic analyses for different load cases
- Considering of Load Case 2 "Failure of surface sealing" with water flow through the dam
- Optimization of dam geometry based on the design analysis (drainage prism)
- Method statement