Secugrid® - Repair of flood damage „Leubethaer Street“ in Freiberg - Germany

Roadway Embankment Reconstruction

- **Project Name**
  Repair of flood damage „Leubethaer Street“ in Freiberg, Germany
- **Designer**
  Ökoplan Bauplanung GmbH, Plauen, Germany
- **General contractor**
  UTR Umwelt-, Tiefbau und Recycling GmbH, Schönbrunn/Vogtland, Germany
- **Subcontractor GRS**
  GGS TerraCon GmbH, Moritzburg, Germany
- **Product**
  Secugrid® 80/20 R6
  Secugrid® 40/20 R6
  Secumat® ES 401 G4

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Problem

In May 2018 a storm front hit the Vogtland region in Germany with full force. Up to 150l of rainfall were measured in one hour. In the Adorf district of Freiberg the heavy rainfall caused the greatest damage of the storm. Over a length of 30m the Leubethaer Street was washed away. A culvert located in this area could no longer absorb the enormous quantities of water. This led to a water accumulation within the road embankment. Fine particles of the fill soil were successively washed out and the slope collapsed completely.

Solution

With financial support from the Federal State of Saxony, the failed slope was rehabilitated. The reconstruction of the embankment was carried out as geogrid-reinforced soil structure (GRS) with Secugrid® geogrids from Naue. Over a length of approx. 54m the road embankment was rebuilt with a slope inclination of 70°.

The Naue Steel P system was used for the design of the facing. This system consists of galvanized steel mesh units, which can be adapted to the planned contour of the slope. By overlapping the horizontal part of the steel mesh with the uniaxial Secugrid® geogrid a frictional connection is achieved. A total of 11 geogrid layers were installed for the maximum embankment height of 7.7m. The individual geogrids were each covered with 50cm of fill soil and then compacted in layers.

To prevent soil erosion at the slope face, a Secumat® erosion control mat was installed between the steel mesh and the filling soil. The subsequent greening of the embankment surface ensures that the GRS integrates perfectly into the existing landscape. With the GRS solution chosen in this project, an economical and ecological rehabilitation has been achieved which will safely withstand future flood events.

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