

## Urgent measures to repair flood damage to the L73 road: Slope stabilisation with TITAN micropiles

“Thursday – site visit, Friday – project go-ahead, Saturday – site preparations, and on Monday we were already drilling.”  
**Ante Gudelj, site manager**



The Ahr Valley in northern Rhineland Palatinate is one of the Rhine's smallest side valleys. On 14 July 2021, following hours of heavy rainfall, large parts of the towns and villages along the River Ahr were devastated by horrific flooding. The L73 main road between Schuld and Insul was affected by a slope failure on the river side.

### The challenge

The natural stone wall built to stabilise the slope alongside the road was completely destroyed by the raging floodwaters over a length of about 400 m. Further slope failures could not be ruled out, and so urgent action was called for in order to keep at least one lane of the road open. Very cramped working conditions – the L73 has very narrow lanes and no shoulder – plus the risk of slippage at the top of the slope were other complications that had to be considered.

### The solution

Urgent work was required to secure the slope at risk of failure and therefore TITAN micropiles supplied by Friedr. Ischebeck GmbH were chosen to anchor a shotcrete facing. Almost 1000 TITAN 40/16 micropiles, 6 m and 9 m long (2970 m in total), were installed alternately on a 1.5 x 1.5 m grid. Small, lightweight plant was used to carry out the work. Drilling rods had to be extended manually by personnel secured by ropes. Nevertheless, a total of about 150 m was drilled every day. It was possible to use the same excavator boom for both installing the TITAN micropiles and spraying the shotcrete.

To measure any possible slope movements and render visible any increases in loads, Ischebeck load stage indicators have been installed, which avoids the need for costly geodetic surveys.

Worse damage to the L73 and long-term road closures could be prevented thanks to the determined efforts of the local road authority and contractor Milan Gudelj. With the top of the slope now stabilised, a site access road can be built directly alongside the river.

A bypass and temporary bridge will also be completed soon.

**Project:** Urgent measures to repair flood damage on L73 road between Schuld and Insul

**Start of works:**  
July 2021

**Client:**  
LBM Cochem/Koblenz, Cochem (road authority)

**Contractor:**  
Milan Gudelj, Neumagen-Dhron

### Products used:

- TITAN micropiles approx. 990 pcs.  
TITAN 40/16, 6.0–9.0 m (2970 m)  
Grid: 1.5 x 1.5 m, in some areas 0.75 m horizontally
- Drill bits  
90 mm carbide-y-cross bit  
90 mm cross-cut bit
- Load indicators in some areas

## Project Report | Anchored shotcrete facing with TITAN micropiles for slope stabilisation



Anchors were installed to secure the slope over a length of about 400 m.



Load indicators were attached to the tops of the micropiles so that any movements of the slope are rendered visible.

### The benefits of TITAN micropiles

- Self-drilling system ensures fast stabilisation and progress on site with good economics
- Small, lightweight plant ensures flexible installation options
- Only one excavator boom needed for installing TITAN micropiles and spraying shotcrete
- Extremely low-vibration, rotary percussive installation reduces any ground movements to a minimum
- Simple load stage indicators attached to the micropiles enable slope movements to be checked – without geodetic surveys



Only small, lightweight plant could be used, and could only work from above.



The shotcrete facing is 25 cm thick, up to 50 cm at craters.



Reinforcement is in the form of two layers of steel mesh.

### Would you like to find out more about TITAN micropiles?

We would be happy to advise you about your particular project. Simply get in touch with us. We look forward to hearing from you.

#### FRIEDR. ISCHEBECK GMBH

Managing Directors: Dipl.-Wi.-Ing. Björn Ischebeck, Dr. jur. Lars Ischebeck  
Loher Str. 31-79 | 58256 Ennepetal | Germany | Phone +49 (2333) 8305-0  
E-mail: [export@ischebeck.com](mailto:export@ischebeck.com) | [www.ischebeck.com](http://www.ischebeck.com)

