

LANGKAWI FEDERAL ROUTE, MALAYSIA

Slope failure repair using MIRAFL Polyfelt PEC



Industry:	Transportation
Application:	Roadways
Location:	Langkawi, Kedah, Malaysia
Product:	MIRAFL ® Polyfelt® PEC

Challenge

Continuous rainfall caused a major landslide on the Federal Route leading to Langkawi's highest mountain (881 m/2,890 ft). This area houses a museum, a park, and a satellite control centre. The landslide severely disrupted traffic and posed risks to road users.

Challenge

The high, steep, and unstable failed slope made it difficult to trim it into a gentler gradient using conventional methods. After considering various solutions, PWD engineers decided to

realign the road, moving it 30 m (98 ft) away from the failed slope. This required constructing a geosynthetics reinforced slope starting from the toe of the failed area below the road.

Since there was no granular material available at the site, the design focused on using the fine sandy soil already present as backfill. **MIRAFL Polyfelt PEC** reinforcement geotextile was chosen due to its high tensile strength, optimal reinforcement/soil friction interface, and effective in-plane drainage in such soils.

The high, steep, and unstable failed slope made it difficult to trim it into a gentler gradient using conventional methods.

CASE STUDY

Slope failure repair using **MIRAFI** Polyfelt PEC

Challenge

The reinforced soil structure consisted of a 30 m-high (98 ft) slope reinforced from the toe of the failed embankment. The facing system used involved wrapping a net around bags filled with fine-grained soil. This construction method allowed for the practical creation of a curved slope.

MIRAFI Polyfelt PEC was placed behind the gabion and soil bags to enhance the structure's strength. Additionally, a layer of **MIRAFI** Polyfelt TS geotextile filter was installed behind the gabions to prevent soil piping through the voids.

The primary reinforcement direction of **MIRAFI** Polyfelt PEC was perpendicular to the slope's surface. The reinforcement geotextile was pretensioned and secured with wooden pegs. Backfill material was compacted using a 10-ton compactor to achieve a minimum of 90% proctor compaction. Finally, hydroseeding was performed to establish vegetation on the completed slope.



Solmax is not a design or engineering professional and has not performed any such design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation, or specification.

Products mentioned are registered trademarks of Solmax in many countries of the world.