During upgrading of a section of the major north-south “Great Glen” cycleway in Scotland, Engineers identified a significant threat of rockfall affecting a short section of the route.

Blocks were falling from a cliff at the crest of a steep and unstable talus slope. To reduce the risk at the site, it was decided that a falling rock protection system should be installed.

The budget for the project was tight, both installation and maintenance costs had to be low and the system had to be able to protect against repeated impacts over a long period without a loss of functional performance.

The project engineer Adrian Koe, developed a novel design using a combination of highly durable materials to satisfy the requirements for the project.

The design employed a 3m high mass-gravity rockfall embankment, based on Maccalferri Gabion baskets, with their ease of use and BBA certificate for up to 120 year design life.
The gabions were built around three 22.5te Kevlar® Parafil® ropes, housed within MDPE ducts and anchored within mass concrete dead-man anchors located below the ground at each end of the embankment.

The Parafil reinforcements increase the overall impact capacity of the embankment and reduce its potential to deflect during impact – a critical aspect given the need to position the system adjacent to the edge of the cycle way.

Maintenance of the system is cheap and simple, only requiring the removal of accumulated fallen material. The environmental durability of the ducted Parafil ropes and polymer coated gabions is predicted to be in excess of 100 years.