



Project details

Location: Samphire Hoe, Dover, Kent
 Client: Network Rail
 Height of slope: 80m
 Subsoil: Chalk
 Slope angle: 60-85 degrees
 Protected area: 104,000m²
 Protection measure: GBE-500A and GBE1000A
 Date of installation: January – June 2015

TACKLING SLOPE INSTABILITY AND PREVENTING ROCKFALL ONTO TRACKS

Duncan Ecclestone, country manager of Geobrugg AG, discusses a recent rockfall-prevention project at the Samphire Hoe cutting, Dover.

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the foot of the famous Shakespeare Cliff, between Dover and Folkestone in Kent. The Samphire Hoe cutting has a history of rockfall, with previous failures landing on the track. The design remit was to extend the life of the earthwork such that there is a reduced likelihood of speed restrictions or line closure due to rockfall.

Tactile inspection by Glasgow-based design engineers Fairhurst revealed the main mechanisms of slope instability to comprise ravelling across the slope face, caused by surface weathering and preferential erosion of weaker chalk horizons. This was combined with more localised toppling, wedge sliding and planar sliding failures of individual blocks.

The chalk cliffs at Dover form a vital element of the Kent Downs Area of Outstanding Natural Beauty, a nationally important and protected landscape. Samphire Hoe is a new piece of land created by Eurotunnel during the construction of the Channel Tunnel. Samphire Hoe covers a 30-hectare site at

Working alongside Fairhurst, CAN Geotechnical Ltd undertook the installation of 13 individual Geobrugg rockfall barriers. The GBE range of barriers were chosen for the ease of installation, low anchor forces (meaning shorter anchors/less drilling time) and the strict vertical drop testing

and certifications that come from the world leaders and technology innovators, Geobrugg.

Rockfall analysis was undertaken by Fairhurst, and the system energy and height were specified from this point forward. In total, 785 linear metres of GBE-500A and 446 linear metres of GBE-1000A have been installed between Abbotscliffe and Shakespeare Tunnels on the Network Rail line. The barriers were used in combination with localised areas of Geobrugg high tensile TECCO netting, where larger potential failure masses were recognised on the cliff face, or the slope geometry, such that modelled rockfall trajectories overtopped the barrier positions.

The chalk cliffs have had 3,150m² of TECCO G65/3 and 350 P33 spike plates installed.

FOR MORE INFORMATION
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