MACCAFERRI

CASE HISTORY

Rev: 1, Issue Date 24.11.2025

KHAO SAT CONG TRINH

KHAO SAT PROVINE, KHAO SAT PROVINE, VIETNAM

Surface Strengthening and Support

Problem

Along the highway alignment, several cut slopes have exhibited signs of surface instability resulting from weathering, variable rock mass conditions, and exposure to intense seasonal rainfall. The excavated slopes consist of heterogeneous materials with varying degrees of fracturing and weathering, which reduce their inherent strength and increase susceptibility to shallow failures.

During periods of heavy rainfall, surface erosion, raveling of loose blocks, and localized detachment of weathered material have been observed. These processes not only compromise the long-term stability of the slope but also pose safety risks to road users due to potential rockfall and debris deposition onto the carriageway. Inadequate natural cohesion, joint discontinuities, and insufficient surface confinement further contribute to the progressive degradation of the slope face.

With ongoing traffic development in the region and the critical importance of ensuring uninterrupted expressway operation, a durable surface-strengthe

Solution

To mitigate surface instability, raveling, and potential rockfall hazards along the cut slope of the Vung Ang–Bung Expressway alignment, Maccaferri Steelgrid® HR30 was selected as the primary surface-strengthening system. Steelgrid HR30 is a high-tensile, double-twisted steel wire mesh integrated with pre-tensioned steel cables, providing superior strength, rigidity, and surface confinement compared to conventional mesh systems.

The system was installed across the slope face to stabilize weathered material, restrain loose blocks, and control shallow-scale failures common in fractured and heterogeneous rock masses. Its reinforced structure offers high tensile capacity both in the mesh and the integrated cables, enabling the system to effectively contain unstable surface elements.

Client: Ministry of Transport

Designer / Consultant: Vinh Hung

Contractor: JV of multiple local contractors

Products used (Qty.)

- Macmat Hs — Macmat HS30

Date of construction: 01/2025 - 06/2025

Google Maps — Google Earth



site photo



site photo



site photo



site photo

Maccaferri (Malaysia) Sdn. Bhd.
Unit 511, Block G, Phileo Damansara 1, No. 9, Jalan 16/11, Off Jalan Damansara, 46350
Petaling Jaya, Selangor Darul Ehsan, Malaysia
T: +60 3 7955 7800
E: info.my@maccaferri.com