MACCAFERRI

CASE HISTORY

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NGUYEN TAT THANH ROAD

QUY NHON PROVINCE, QUY NHON PROVINCE, 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 address the surface instability and erosion challenges observed along the cut slope of the alignment, Maccaferri MacMat HS was adopted as the primary surface-strengthening solution. MacMat HS is a high-performance erosion-control and slope-reinforcement geomat combining a 3D polymer matrix with high-strength steel mesh, providing both surface stabilization and mechanical reinforcement.

The system was installed directly over the slope face to effectively confine loose, weathered material and prevent raveling or detachment of small rock fragments. The reinforced geomat offers high tensile capacity, enabling it to bridge minor discontinuities and restrain unstable surface material, thereby reducing the likelihood of shallow failures. Its three-dimensional structure also promotes vegetative growth.

Client: Quy Nhon People's Committee
Designer / Consultant: Vinh Hung
Contractor: Thang Long JSC; Vinh Hung JSC
Products used (Qty.)

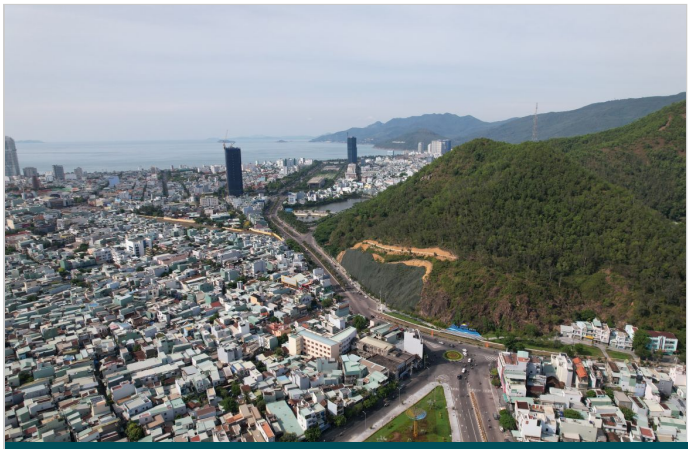
- Macmat Hs Macmat HS30

Date of construction: 01/2025 - 06/2025

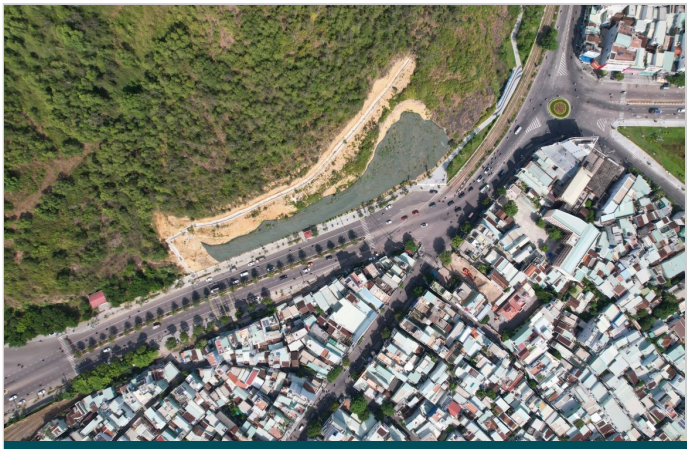
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Maccaferri (Malaysia) Sdn. Bhd.
Unit 511, Block G, Phileo Damansara 1, No. 9, Jalan 16/11, Off Jalan Damansara, 46350
Petaling Jaya, Selangor Darul Ehsan, Malaysia
T: +60 3 7955 7800
E: info.my@maccaferri.com