MACCAFERRI

CASE HISTORY

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MAI SON HIGHWAY QL45

NINH BINH+THANH HOA PROVINCE, NINH BINH+THANH HOA PROVINCE, VIETNAM

Dynamic Barriers

Problem

Several stretches of the highway alignment pass adjacent to steep natural and cut slopes formed by fractured and weathered rock masses. Due to the geological conditions and the region's intense seasonal rainfall, these slopes are highly susceptible to rockfall events. Weathering, joint opening, surface erosion, and gradual deterioration of the rock mass contribute to the detachment of loose or unstable blocks.

Field assessments have identified rock fragments of various sizes resting on unfavourable discontinuities, overhanging sections, and localized zones of weakened material. Even small blocks can gain significant momentum on steep slopes, creating high-impact hazards for road users. These incidents pose risks of vehicle damage, accidents, and sudden traffic interruptions, as well as increased demands on emergency maintenance teams.

Without a dedicated mitigation system, the recurring hazard threatens the safety and reliability of the highway corridor.

Given the importance of maintaining continuous and s

Solution

To effectively mitigate the rockfall risks identified along the highway alignment, the Maccaferri Rockfall Barrier System was selected as a reliable and high-performance protection measure. These barriers are engineered to absorb and dissipate the kinetic energy of falling rocks, preventing debris from reaching the carriageway and ensuring the safety of road users.

The system consists of high-tensile steel wire mesh panels supported by steel posts, base plates, lateral bracing ropes, and energy-absorbing devices strategically designed to withstand impact loads. Barriers with appropriate energy-capacity ratings were chosen based on the site's rockfall analysis, anticipated block sizes, and calculated impact energies.

Installed along the downslope edge of the highway, the barriers act as a flexible interception system.

Client: Ministry of Transport

Designer / Consultant: Vinh Hung

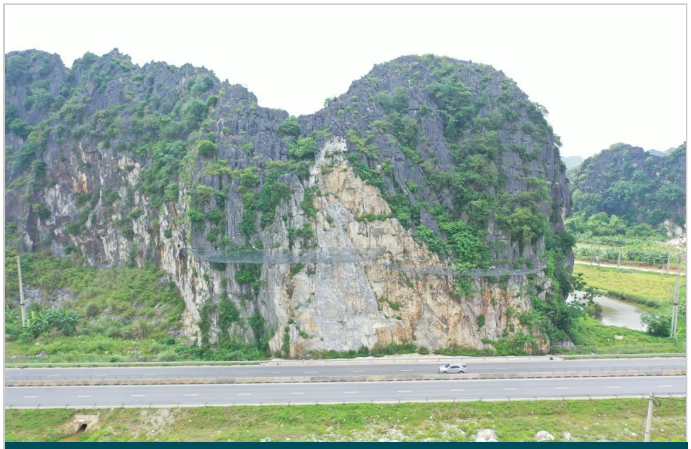
Contractor: JV of multiple local contractors

Products used (Qty.)

- Rockfall Barriers RB3000

Date of construction: 01/2025 - 06/2025

Google Maps Google Earth



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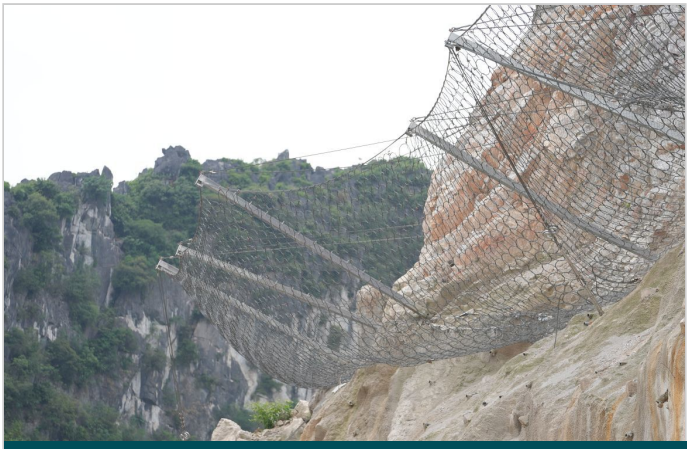

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