Railway Embankment Protection with Anti-Burrowing Mesh

Edenbridge, Essex

TYPE OF PROJECT	YEAR OF CONSTRUCTION	CLIENT	CONTRACTOR	DESIGNER
Slope Protection	**2021**	**Network Rail**	**BAM**	**Tony Gee & Partners**

PROD. RELATED
RenoMesh (34,000sqm)

Challenge

Network Rail is delivering a record £1.25 billion investment programme to upgrade rail infrastructure across Kent and South East London. This includes improvements to track, signalling systems, embankments, structures, stations, and depots, all aimed at improving passenger journeys and reducing delays. A critical part of this programme focuses on railway embankment stabilisation to minimise disruption caused by landslips along key routes.

Due to the extensive geographical coverage of the network, environmental and geotechnical challenges have become a major concern. One of the most significant issues is burrowing animals damaging railway embankments. Species such as rabbits, badgers, and other mammals can tunnel into embankments, weakening their structural integrity. These burrows create direct pathways for water ingress, allowing stormwater runoff to penetrate the embankment core. Over time, this leads to internal erosion, reduced soil stability, and an increased risk of embankment failure and rail service disruption.

At Edenbridge, this issue was particularly critical. The project required the embankment to be reshaped and revegetated for slope stabilisation and environmental integration. However, without effective protection, the restored slopes remained vulnerable to renewed animal activity. Network Rail, therefore, required a durable anti-burrowing

solution that could prevent wildlife intrusion while maintaining ecological compatibility and supporting vegetation growth.

Anti Burrowing Mesh installed on the prepared embankment

Topsoil dressed into the 3D matrix of the RenoMesh

Solution

Maccaferri provided an effective and proven solution with its RenoMesh Anti-Burrowing Mesh, specifically engineered for railway embankment protection and slope stabilisation. This system delivers a robust barrier against burrowing animals while supporting sustainable infrastructure design.

Unlike traditional plastic geogrids or lightweight wire netting, RenoMesh Anti-Burrowing Mesh offers superior strength and durability. It is designed to prevent access by a wide range of species, including rabbits, badgers, and even larger burrowing animals such as beavers. The optimised mesh aperture size also helps restrict juvenile animals, providing comprehensive long-term protection.

The system is manufactured using a flexible double-twist steel wire mesh, allowing it to conform closely to embankment profiles. It features a zinc-aluminium heavy-duty galvanised coating for corrosion resistance, combined with Maccaferri's advanced PoliMac® polymer coating, which enhances resistance to UV exposure, abrasion, and environmental degradation. This ensures an extended design life compared to conventional solutions.

Importantly, RenoMesh integrates seamlessly with vegetated slopes, enabling natural growth while maintaining its protective function. This makes it an ideal solution for projects requiring both engineering performance and environmental sustainability.

By implementing RenoMesh Anti-Burrowing Mesh at Edenbridge, Network Rail successfully mitigated the risks associated with burrowing animals, improved embankment stability, and reduced the likelihood of future delays. The solution supports long-term asset performance while aligning with environmental and operational objectives.

Hydroseeding to rapidly establish vegetation

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