

Fore Gill Bridge Reconstruction Retaining Wall and Ground Improvement in the Yorkshire Dales

North Yorkshire



TYPE OF PROJECT

Vertical Walls With
Concrete Facing Panels

YEAR OF CONSTRUCTION

2025

CLIENT

North Yorkshire Council

CONTRACTOR

CR Reynolds

DESIGNER

Geoman

PROD. RELATED

MACWALL (1000m²)

Challenge

The collapse of Fore Gill Bridge on New Year's Eve 2023 created an urgent need to stabilise the structure and restore a critical transport route in the Yorkshire Dales. This bridge reconstruction project required a rapid yet sensitive engineering response due to its location within a heritage setting and a remote rural environment.

As part of the Fore Gill Bridge Rebuild Scheme, engineers faced the challenge of delivering a structurally sound solution while preserving the historic character of the bridge. A key requirement was to reuse and incorporate the original masonry as a facing material, ensuring the rebuilt structure remained visually consistent with its surroundings and met sustainability objectives.

The site conditions further complicated the project. Located adjacent to the Fore Gill Beck watercourse, the ground presented poor geotechnical properties, including a shallow water table and deep deposits of soft soils. These conditions posed significant risks to stability and made traditional foundation and retaining wall solutions less effective, requiring an innovative and engineered approach.



Solution

Maccaferri provided a tailored retaining wall solution using their BBA-approved MacWall modular block system. This system formed the main structural support for the reinstated roadway, offering a durable and flexible solution capable of meeting both engineering and aesthetic requirements. The use of MacWall also enabled the integration of original stone masonry as a facing, preserving the bridge's heritage appearance while delivering modern performance.

To ensure long-term structural stability, Maccaferri carried out testing to determine the most effective tie-back system. The selected solution involved installing ties drilled directly into the block face, providing secure anchorage and enhancing the overall integrity of the retaining structure.

Addressing the challenging ground conditions, Maccaferri's engineering partner, Geoman Ltd, designed a ground improvement solution incorporating MacGrid EG geogrids. This geogrid reinforcement improved soil stability and load distribution, significantly reducing the need for extensive excavation and replacement with imported granular materials.

This approach not only accelerated construction and reduced costs but also delivered a more sustainable solution by minimising material usage, lowering environmental impact, and reducing disruption within the sensitive Yorkshire Dales landscape.







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