

CASE STUDY

Rockfall Products

Project: Piripaua Barrier Fence
Date: June – July 2010
Client: Genesis Energy
Designer: Tonkin & Taylor
Location: Waikaremoana



Barrier Fence

A tension crack was observed on the access track leading to the Piripaua Penstock. Engineers Tonkin & Taylor were engaged to carry out investigation work and to provide a proposal to prevent damage to the penstock from a potential debris flow should there be a failure of the uphill slope.

Various options were considered including stabilising the slope with a structural element but all were deemed to be too costly or impractical. The final solution considered was a 'passive' approach using a Maccaferri energy fence distributed by Geofabrics New Zealand Ltd. 'Passive' because the approach doesn't influence the state of the existing slope condition but provides the necessary protection to any important structure, should the slope fail. The barrier fence was therefore designed to deflect any debris flow away from the penstock. The required fence energy rating level was considered after numerical analysis and best estimation on the volume of debris impacting the fence. A debris fence with a certified energy rating of 2000kJ was chosen.

Maccaferri CTR20/04/A 2000kJ energy barrier is ETAG 027 compliant (Guideline of European Technical Approval of Falling Rock Protection Kits). This indicates that the fence has undergone rigorous full scale testing to comply with the European requirement under the energy rating capacity. Geofabrics is able to provide ETAG 027 certified barrier fence from 500kJ to 8,500kJ.

The actual installation of the barrier fence took a specialist contractor less than one week. A step by step installation manual provided by Geofabrics made the installation easier. The difficult ground conditions and remote access increased the time taken for ground preparation including the installation of the fence ground anchors. This highlights the fact that each site installation is unique and local site conditions and access are major components in the overall installation cost.



Existing Penstock line needing protection



2000kJ Energy Rating Barrier Fence



2000kJ Energy Rating Barrier Fence

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