

Reference Project

Rock Blasting

Geotechnical: Rock Blasting

Location Slip P7, SH1, Kaikoura

Date January and April 2018

Consultant NCTIR

Following the November 14th, 2016 Kaikoura Earthquake a slope 15km north of Kaikoura (P7) was subject to extensive failure. Abseil Access was the first rope access team, with teams in excess of 16 operatives, to start the scaling of rocks and debris in order to allow construction access below the base of the site. A collaborative approach with NCTIR Alliance and the heli-slucing team ensured that risk levels were reduced to an acceptable level for the construction teams to begin access at the base of the slope. As construction and earthworks progressed towards road opening, the ongoing risk assessments of the slopes above the road identified two large boulders that were deemed too high a risk to leave, and NCTIR took the opportunity to engage Abseil Access for their removal.

Rigorous risk assessments and health and safety practices were employed, detailing the access, emergency plan, temporary works and blast plan. Each stage of the works was subject to peer review and collaboration with the NCTIR earthworks and geotechnical team. Our main challenge was timing the blast between road closures, with minimal delay to the users and construction teams.

Million Dollar boulder (300t, named after extensive unsuccessful helicopter sluicing) was deemed too unstable to be worked on with conventional blast holes and packed explosives. We adopted techniques used in mud capping, successfully directing the blast into the rock mass to fracture it downwards.

Rocky bal Boulder (800t) was stable enough to employ drilled holes and packed explosives. Approximately 90 holes up to 3m deep were drilled and a Powder Factor of 0.6 was used to fracture and throw the rock debris downslope.

Both blasts were successful with no secondary blasting needed, and small localised scaling was used.

