

# KAIKOURA EARTHQUAKE UPDATE

KAIKOURA EARTHQUAKE UPDATE - no. 14

28 April 2017

This weekly bulletin provides the latest information about the rebuild of road and rail networks damaged by the Hurunui/Kaikoura earthquake in November 2016. The bulletin is produced by the North Canterbury Transport Infrastructure Recovery (NCTIR) – an alliance representing the NZ Transport Agency and KiwiRail, on behalf of Government. We're keen to hear your questions about our work, or any feedback on this bulletin. Drop us a line via email at [info@nctir.com](mailto:info@nctir.com) or give us a call on 0800 NCTIREQ (0800 628 4737) – we'd like to hear from you.

## MOVING MOUNTAINS TO OPEN BY DECEMBER

The North Canterbury Transport Infrastructure Recovery alliance is making solid progress towards opening earthquake-damaged transport networks by the target date of December 2017.

While clearing slips and stabilising cliffs on the iconic Kaikoura coast has been underway since November's earthquake, reconstruction of SH1 and the railway has now begun – foundations of seawalls are being poured and rail tracks laid.

The recovery effort is entering its fifth month. The initial design drawings of the roads and railway are mostly complete. Plans for necessary environmental, heritage and cultural protections are also largely in place. This enables construction to move forward at pace.

Meanwhile, Geonet reports that research is confirming the earthquake that rolled through Culverden, Waiau, Mt Lyford, Kaikoura, Ward and Seddon was more complex than first appreciated. The South Island moved six metres closer to the North Island, with 21 faults moving in sequence.

The scale of that event is reflected in the alliance's construction programme. The NZ Transport Agency and KiwiRail have defined about 3,300 separate 'things to be fixed' within the transport corridor between Waipara in North Canterbury and Blenheim in Marlborough, as well as on the inland road connecting Kaikoura to the Hurunui District.

This includes damage to both land and structures.

The speed of repairs does depend on the alliance's ability to move mountains, with slips currently closing sections of SH1 and railway between Cheviot and Grassmere. The slips may be an even bigger job than first anticipated. In recent weeks, ex-cyclones Debbie and Cook worsened existing landslides. Additionally, other slopes which had partially failed due to the earthquake let go – creating further large landslides to clear.

While these landslides may actually make the land more stable longer-term, the amount of slip material that must be removed from the coast may be significantly more than was first thought. Crews are working from dawn to dusk to clear slips as quickly as possible and, generally, this work will continue through winter.

The alliance and its staff are 100% committed to reconnecting the communities affected by the November quake, and we thank local residents for their patience while we get on with our work.



## USE THE SCENIC INLAND ROAD TO KAIKOURA FOR NOW



SH1 north of Cheviot may remain closed during the first two weeks of May while the alliance consolidates the work programme to deal with landslides caused by recent storms.

The Waiiau/Mt Lyford inland road to Kaikoura (Route 70) is open; if travelling from Cheviot, the Leader Road connects with Route 70 at Waiiau.

This section of SH1 has been closed so the large slip that came down at Easter, 3 km south of Peketa, can be cleared. When the slip is no longer blocking the road, crews can continue with the slope stabilisation works.

On the inland road, abseilers have been removing boulders this past week as part of the slope stabilisation and rock fall mitigation work at the large slip on the Whales Back saddle. The temporary road that was built to carry traffic around that slip remains in use.

Travellers can check this map for updates or call 0800 4 HIGHWAYS (0800 44 44 49).

## NEW ROAD AND RAIL ALIGNMENTS NORTH OF KAIKOURA

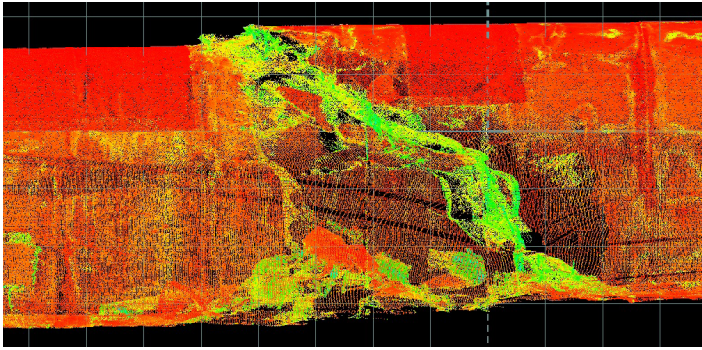
Work on the new rail and road alignment is progressing well at Site 1, near Maungamanu. The photographs below show how the transport corridor is taking shape; at this location, SH1 will be slightly more seaward than it was before the quake. Investigations are also underway for a new bridge site within a new alignment at Site 2.

Crews are continuing to remove slip debris at Sites 3 to 6. This past week, material has been reduced back to pre-cyclone levels.



## MAIN NORTH LINE WORK SITES

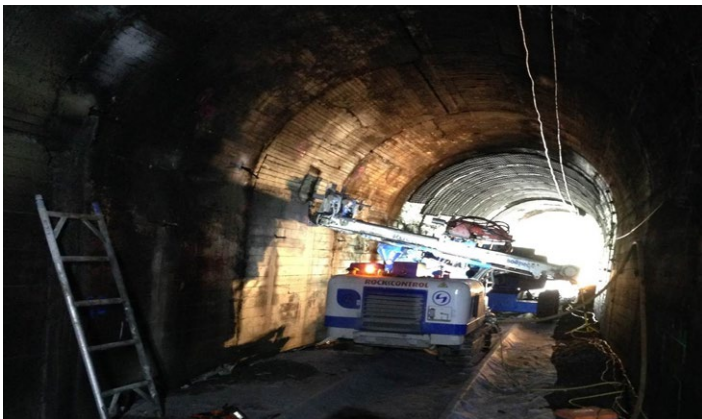
Four out of the damaged 20 rail tunnels on the line have now been repaired to the extent that work trains can pass through them, repairs are underway at a further eight tunnels, with the remainder to commence soon. Tunnel 18 (pictured right) suffered significant structural damage: it's effectively been cracked in two. The Hope fault is only 70m from the tunnel's northern portal. The reverse upward movement across the fault sheared the tunnel's concrete lining. In the laser image, the green lines show where the force from the jolting fault hit the tunnel, and you can see how part of the tunnel floor moved by 500mm. The second image shows the same crack in the tunnel's interior.



Tunnel 16 (pictured below) underwent 'squeezing' during the earthquake, leading to longitudinal tension and compression cracks. The picture below shows rock bolts being used to re-secure the tunnel's damaged concrete lining to surrounding rock.

Repairs to an earthquake-damaged culvert near Ferniehurst are well underway (pictured). The crew have excavated the downstream face of a rail embankment to a 12m depth in order to expose a large (15m long, 2.5m high) concrete-lined tunnel that formed a culvert under the railway. The underground damage to the tunnel meant the crest of the embankment had slumped by up to a metre. After the culvert is repaired, the embankment will be reinstated to its full height.

Earthworks this week started near Tar Barrel, south of Mirza creek in Marlborough. This work will enable the realignment of rail track that had moved due to subsidence. This is the most-northern major work site on the rail line. In the south, the first work train to run out of Christchurch has delivered more than a thousand cubic metres of ballast to more than a dozen sites between Spotswood and Ferniehurst in North Canterbury. Track ballast is crushed stone that works by locking the track into place, making it more stable when trains travel over it at high speed. The rail corridor between Christchurch and Blenheim should now be treated as 'live', with appropriate care taken at level-crossings.



## DREDGING BARGES START WORK IN KAIKOURA HARBOUR



Kaikoura harbour repairs have reached a new milestone with the arrival of the dredging barges - one has a 47-tonne excavator aboard while the other is a hopper barge for carrying waste material. The two barges work in tandem: the excavator dredges up to 400 cubic metres a day from the seabed and deposits it onto the hopper. A tug boat then pulls the hopper out to sea, depositing the excess material approximately 2km from the shore. Dredging is required because the earthquake raised the seabed under the marina by about a metre; deepening of the harbour is ongoing work. These photographs show the trio of vessel as they left Picton last week and in Kaikoura yesterday.

## 'KIT-SET VILLAGE' ARRIVES AT LYTTTELTON

The prefabricated accommodation facility heading for Kaikoura has arrived at Lyttelton port after travelling by ship from Brisbane.

The accommodation facility is required to house more than 300 women and men who will be stationed in Kaikoura while SH1 and the railway are rebuilt.

Once a site for the facility has been confirmed and prepared, the facility will be trucked to Kaikoura and assembled.

The 'kit-set village' will be put together on behalf of the alliance. Local suppliers will also play an important role in looking after the alliance's staff - it is hoped the influx of this professional workforce will provide an economic boost for the township.

The alliance thanks the residents, local authorities and contractors for their assistance in getting the accommodation facility in place.

For further background information about temporary accommodation, see this NZ Transport Agency media release from 29 March. [www.nzta.govt.nz/media-releases/workers-village-temporary-accommodation-on-way-to-kaikoura/](http://www.nzta.govt.nz/media-releases/workers-village-temporary-accommodation-on-way-to-kaikoura/)

## PROTECTING OHAU POINT'S RARE ROCK DAISY

An already rare flower was placed at further risk when the massive landslide at Ohau Point destroyed the vegetation in its path during the November earthquake.

The slip decimated the population of a distinct form of the Marlborough rock daisy thought to grow only on rock faces in that area.

Alliance ecologists have been working with the Department of Conservation (DOC) to ensure the remnant populations of the flower are found and seeds collected. This work must be carried out by specially-trained abseilers due to the terrain.

The intention is that once collected, DOC will propagate the plants so the rock daisy can be re-established in the area. Over time, these plants will help to recolonise the species at Ohau Point.



## PREPARING FOR WINTER AT LEWIS PASS

The Transport Agency is preparing for winter by increasing resources and monitoring on the alternate Picton to Christchurch route that crosses the Southern Alps at Lewis Pass. These measures aim to safeguard the route during severe winter weather, and to minimise the number and length of closures due to ice or snow.

A decision has been made to have road crews on stand-by along the route 24/7 over the winter months. Increased traffic volumes on this route, including many more trucks, generally mean the roads will be less prone to icing, however Lewis Pass does close during severe weather. Stationing road crews along the route will allow any section to be cleared and re-opened as efficiently as possible.

New weather stations are being installed at St Arnaud and on the Lewis Pass to improve monitoring. This will help crews to act quickly as weather develops and intensifies. The weather stations will also feed into the Transport Agency's real-time travel advice, so the public can access better information about conditions on a day-to-day basis though [www.nzta.govt.nz/traffic](http://www.nzta.govt.nz/traffic) or 0800 4 HIGHWAYS (0800 44 44 49).

Police are also increasing their presence along the route.

A Winter Journeys public awareness campaign begins next month; it will encourage all drivers to Be Safe and Be Prepared on this 'new main highway' over winter.

## IMPROVEMENTS TO CELL PHONE COVERAGE

To improve communications, work is underway to provide cell phone coverage on 'out of range' sections of the Picton to Christchurch route. The intention is to have an emergency cell phone site installed at Boyle Lodge operating by the end of May. Located on State Highway 7 just south of the Boyle River, the lodge is a Department of Conservation facility with a carpark and toilet. Short range cell towers are also being erected at O'Sullivan's Bridge in the Tasman District (SH6) and at Maruia township in the Buller District (SH65). This bulletin will advise when these micro cell sites are fully up and running.

## TRUCK PARKING IN MURCHISON AND CULVERDEN

To support truck drivers and road freight services to drive safely and take appropriate rests, a new truck stop has been established in Murchison. Creating parking in the new truck stop, as an alternative to Waller Street, will help to ease congestion.

It's on the main road with an entrance between Matakītaki Bridge and Fairfax Street. It's handy to cafés and a portable toilet has been provided.

In Culverden a safe off-road truck parking area has been established; the entrance is off St Leonards Road. It's within walking distance of accommodation, food and public toilets.

## KEEP UP-TO-DATE

How to contact us and keep up to date with our road and rail projects:

- Subscribe to our weekly bulletin by emailing [info@nctir.com](mailto:info@nctir.com), with 'Bulletin' in the subject line.
- Visit our website: [www.nzta.govt.nz/kaikoura-earthquake-response/](http://www.nzta.govt.nz/kaikoura-earthquake-response/)
- Call our freephone: **0800 NCTIR EQ** (0800 628 4737)
- Email us if you have a question: [info@nctir.com](mailto:info@nctir.com)
- Attend a community meetings - keep an eye on your local newspapers for details.
- Follow us on Facebook, see: NZ Transport Agency – South Island [www.facebook.com/nztasouthisland/](https://www.facebook.com/nztasouthisland/) and KiwiRail [www.facebook.com/kiwirailNewZealand/](https://www.facebook.com/kiwirailNewZealand/)
- For travel information about road conditions, see: [www.nzta.govt.nz/traffic/regions/11](http://www.nzta.govt.nz/traffic/regions/11)



TO BLENHEIM ↗



Waipapa Bay



**SITE 9:** 3,000m<sup>3</sup> of slip material

Okiwi Bay



**SITE 8:** 41,000m<sup>3</sup> of slip material



**SITE 7:** 20,000m<sup>3</sup> of slip material

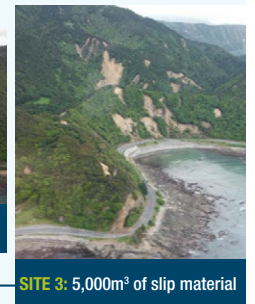
Ohau Point



**SITE 6:** 110,000m<sup>3</sup> of slip material



**SITE 5:** 6,000m<sup>3</sup> of slip material



**SITE 3:** 5,000m<sup>3</sup> of slip material

Half Moon Bay



**SITE 4:** 44,000m<sup>3</sup> of slip material



**SITE 2:** 10,000m<sup>3</sup> of slip material



**SITE 1B:** 112,000m<sup>3</sup> of slip material

↙ TO KAIKOURA



**SITE 1A:** 23,000m<sup>3</sup> of slip material

*Please note: Map is indicative only*