



The Bulletin Kaikōura earthquake update

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Hello 2020!



Welcome back to the NCTIR Bulletin 2020! We're excited to be back out on the road after a much-needed break.

In the lead up to Christmas, crews managed to knock off some big projects, including Jacob's Ladder A, the Oaro Twin Culverts, and the parking areas at three new Safe Stopping Areas.

Due to an enormous effort from site crews and the traffic team, we were also able to open the entire coastal corridor to two-way traffic over the Christmas holidays - the first time this has been possible since the 2016 earthquake.

If you travelled the Kaikōura coast over our Christmas shutdown we hope that you enjoyed this small taste of freedom and ask that you continue to bear with us as we work towards a safe and resilient transport network.

We will be picking up where we left off last year with 76 essential works on the programme, and approximately \$80m worth of construction work remaining.

NCTIR has a full workload planned through to June, when work will begin to wind down to completion of seasonal works in late spring 2020.

If you're local and want to know more about what we've got planned this year, we are hosting regular community drop-in sessions in the foyer of the Kaikōura Library (full details on page 2). This is a good opportunity to connect with some of our people and ask us any questions you may have. We'd love to meet you.

Wishing you a happy new year - kia hari te tau hou.

Shared Use Path update

Following ongoing engagement with Mana Whenua and Te Rūnanga o Kaikōura/Kati Kuri the decision has been made not to complete the remaining sections of the Shared Use Path between Irongate Bridge and Ōkiwi Bay.

We will continue to work with our Treaty partners to ensure the Kaikōura coastline remains as natural as possible.

Following this decision we can finalise the remaining scope of the NCTIR works programme.

Over the Christmas break, the coastal corridor opened to two lanes of traffic for the first time since the earthquake.



Telco duct installation



In the 2016 earthquake at least six breaks occurred in the telco fibre optic cable that runs along SH1 through Clarence and Kaikōura to Christchurch. This supports both fixed line and mobile networks. A consortium was formed including Waka Kotahi NZ Transport Agency, Chorus, Spark and Vodafone to provide a permanent repair.

This included a single shared duct with regular access points for repairs and maintenance. The earthquake-damaged cable was repaired temporarily to restore supply, but some exposed sections remained. The cable is critical for communications between the North and South Island. South of Kaikōura is an existing AquaLink duct network that does not require repairs.

NCTIR is installing 27kms of duct for the cable between Clarence and Hāpuku Bridge. Work started in 2019, with 8.5km to be installed. The Telco fibre optic cable will be inserted into this ducting at a later date by contractor, Connect 8.

We have started the next stage of the installation between Hāpuku and Māngamāunu. All work is on the inland/western side of the road.

A crew of four will work closely together completing all stages in a small area. Firstly a narrow 1.1m deep trench is excavated, the duct is installed and the trench is immediately backfilled, with sealing occurring later.

During the Telco works there will be cultural and archaeological monitoring in place.

Traffic impacts – the road will be one lane around each worksite with traffic management.



Crew 1 will continue along the southern end of Māngamāunu. To ensure the informal Surfers' Carpark is accessible we will install across half of the area one day, completing the second half the following day.

Connect with NCTIR

This year we'll be hosting regular drop-in sessions where you can come and talk to us about anything to do with our work programme.

When:
Every Tuesday and Thursday,
Midday to 2pm

Where:
Library foyer, Level 1,
Civic Centre Building

If you can't drop in but have a question, please email info@nctir.com or call us on **0800 628 4737**



Waiau Bridge closures

The Waiau Bridge will undergo two closures while crew prepare to install the temporary Bailey Bridge over the western abutment and pier. The Bailey Bridge allows us to maintain traffic over the bridge while we continue with repairs.

**Closure 1 – Friday 31 January midnight - 6am
Saturday 1 February**

**Closure 2 – Saturday 1 February 6pm - 6am
Sunday 2 February**

A 40-minute detour route will be in place during these times via River Road, continuing along Leslie Hills Road onto Mouse Point Road (SH7). Detour arrows will be set up to direct traffic.

For more information please email us on info@nctir.com or call **0800 628 4737**

Closure at Hāpuku Bridge



Hāpuku Bridge, just north of Kaikōura, is scheduled to close on Monday 3 February from midnight until 2am Tuesday morning, while crews undertake the last lift to repair an abutment. Traffic will be one-way with a 30km speed restriction from Monday 3 February, until Friday 10 February, at which point traffic management in this section will lift entirely.



Hāpuku Bridge

New Wandle Bridge open



The permanent new Wandle Bridge on the Inland Road (Route 70) was opened to traffic yesterday. The smaller temporary Bailey Bridge can now be removed, tested, and relocated to the Waiau Bridge while repairs are underway there.



Wandle Bridge, November 2019

Punchbowl work to begin



Crews are doing some minor earthquake repairs on the original concrete barrier around Punchbowl corner, south of Kaikōura (pictured). This repair will be starting late January with traffic management in place for approximately three weeks.



Punchbowl

Minor earthquake repairs underway soon

Summer driving

Depending on your journey plans over summer, you could be driving through roadworks on scorching hot days or in wet and windy weather among increased traffic volumes. All these factors add to travel times and emphasise the importance of driving to the conditions.

Here are some things to keep in mind:

Summer is roadworks season

Over summer there will be both NCTIR and non-NCTIR maintenance crews completing road sealing work while the weather is good. We realise that the roaming nature of this work is tricky to plan a journey around, so allow yourself plenty of time. Please stick to speed limits around work sites for the safety of crew on the roads, who are often working close to moving vehicles.

Hot weather can mean surface problems

Hot temperatures over summer months can cause 'road bleeding' of sticky surfaces on roads where the bitumen melts and rises above the chip seal road surface. Crew travel up and down the roads laying small chip on top

of affected areas to help absorb the bitumen. This could be the reason for a short section with a speed restriction but no crew in sight.

Fresh laid chip needs time to 'bed in', and speeding on this loose surface could flick up gravel and bitumen, or cause motorists to slip and lose control.

Wet weather can mean slippery surfaces

Despite crews working hard to keep on top of melting surfaces, cooler wet weather straight after hot periods dries the sticky black patches into a smooth slippery driving surface. This can be dangerous for speeding drivers who need to brake suddenly, so drive carefully on black patches in wet or dry weather.

NCTIR Village update

Waka Kotahi NZ Transport Agency will soon be starting another sale-by-tender process for the NCTIR Village, in anticipation of the completion of our physical works programme later this year.

The Village was tendered last year, but as additional scope was added to the NCTIR programme and physical works were extended, this housing was still needed for local workers.

The NCTIR Village will continue to operate until June when it will be demobilised. At that stage, alternative accommodation for the remaining workers will be found by working with local Kaikōura accommodation providers in a continuation of the relationship with local business and social recovery organisations.

We expect to return the land to the landowner in September 2020.



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Two-years on from ex-cyclone Gita



NCTIR crews are close to wrapping up resilience works on Gita-affected sites as the two-year anniversary of the event was recently marked.

On 20 February 2018 ex-cyclone Gita wreaked havoc on an already earthquake-affected coast, bringing down 60 slips along the Kaikōura corridor from the Hundalees to just south of Clarence. Over 300,000 cubic metres of material needed to be cleared from the road and rail in order to get the transport networks up and running.

Our earthworks, geology and engineering teams worked swiftly to restore access north and south of Kaikōura, with the material moved in less than two weeks, and road and rail back on track by 5 March.

“It was a big shock when Gita hit,” says NCTIR North & South Construction Manager Gary Ikin. “Crews were well on their way to clearing material from the earthquake, and then suddenly these mild little streams were bringing down even more debris from the hillsides - it was a pretty huge setback.”

While engineers were pleased with how the existing infrastructure handled the extreme rainfall, Gita exposed additional erosion paths where significant volumes of natural debris remain in the hillsides, and will continue to wash down in heavy rain events.

At major Gita-affected sites engineers have focussed on increasing the capacity of infrastructure to create easy -access, low-maintenance design solutions. The newly widened debris flow bridges, culverts and strengthened retaining walls aim to reduce the necessity of road and rail closures in future.

These solutions should stand the Kaikōura corridor in good stead after NCTIR has gone and the road has been handed back to Waka Kotahi NZ Transport Agency’s maintenance contractor to maintain over time.

See the map on page 2 for a full overview of all major Gita work.



Severe damage at Raramai caused by ex-Cyclone Gita

SH1 Kaikōura: Major Gita resilience works



Rock Steps



NCTIR Landscape Architect Lawrence Elliott says the rock stairwells installed around Paparoa Point and Te Ana Pōuri safe stopping areas are the result of collaboration with the Restoration Liaison Group (RLG)*.

'NCTIR's initial design was to have formal concrete and timber stairwells leading down the revetment to the beach,' Lawrence explains.

'But after discussions with the RLG this design was modified to a more subtle, informal stairwell made from recycled slip rock, which blends with the natural environment. This will blend in even more once the areas have been planted.'

*The RLG was established in 2017 to provide a forum for the NCTIR alliance to collaborate with key stakeholders including iwi, central and local government, and local community groups.



An informal rock stairwell at Te Ana Pōuri safe stopping area

NCTIR first in NZ to use new barrier arms



Earlier this year Kennards Hire gave NCTIR's traffic team the opportunity to trial one of their PORTABOOM portable barrier arms.

This device was recently approved for use on the New Zealand roading network, and NCTIR is the first in the country to use it to manage live traffic. Two of the arms were installed at the 30B slope repair site, just north of Raramai tunnel.

The device is remote-controlled, and can be operated from up to 75 metres away. This allows Traffic Controllers to stand safely outside of the direct line of traffic, and will reduce incidents associated with fatigue and manual handling.

Only one traffic controller is required on short worksites with a view of both barrier arms.

NCTIR South Zone Traffic Manager Stephanie Ambler thinks it's great that this technology has been approved for use. "We're really excited to see these units in action and the traffic controllers are absolutely loving them! After three years of reports of paddle-runners and research into solutions, it's a great feeling to have finally found something that works and is already compliant. Having a physical barrier arm just adds that extra level of protection for our traffic and site crews."



New barrier arms in use at Slip 30B, near Raramai Tunnel

REMINDER

Please stick to speed limits around work sites for the safety of traffic teams, site crews, & other road users.

Ask an engineer: Tunnel resilience



NCTIR Project Engineer Marion Guerreiro explains how her crew is improving the resilience of Tunnel 19, north of Half Moon Bay, for the safety of rail and road. Work began at the site in August 2019 and is expected to be completed in June 2020.

Why did you need to extend the tunnel structure?

After the area was red-zoned following the 2016 earthquake, a temporary steel shelter was installed so rail freight services could resume, work could begin safely on the site, and crews could use the tunnel to access Ōhau Point. As steel is susceptible to rust and impact damage, this shelter was only ever designed as a temporary solution. The rock face behind the tunnel is still very active, so to ensure permanent rail protection from rockfall a 40-metre long concrete extension to the original tunnel has been installed.

How will the concrete extension be anchored to the hillside?

The concrete structure will be anchored to the rock face with hot dipped galvanised steel bars once the temporary steel structure is removed. The 28 hollow bar rock anchors are each 9 metres long and 73 millimetres in outer diameter. These will be drilled through pre-cast anchor beams at the top of the tunnel and 20MPa concrete before being anchored to the rock face.

How will you help to avoid rocks bouncing from the tunnel roof on to the road?

A one-metre impact layer made up of fine gravel will be placed on the roof of the tunnel extension and the concrete fill between the extension and the rock face. This will create a large catchment area and, together with a protection railing on the seaward side of the tunnel, will help avoid falling rocks rolling from the roof on to the road.



Marion Guerreiro came to work on the rebuild from France in April 2017

Protecting against rockfall



The rain on Saturday 22 February was a welcome relief from dry conditions, but also a reminder of the fragility of some sections of State Highway 1 and the importance of resilience work.

Rockfall between Peketa and the Parititahi Tunnels was triggered by the rain, and the highway was closed to traffic overnight. The section will remain reduced to a single lane for safety reasons while NCTIR works towards a solution. Rockfall is an ongoing issue at this location, with 72 recorded rockfall incidents there since the 2016 earthquake.



Recent rockfall south of Kaikōura

KiwiRail realignment work at Tunnel 21



Just south of Ward at Tar Barrel, KiwiRail is undertaking some impressive work at Tunnel 21 to realign the rail and install a new over-bridge for SH1.



Tunnel 21



NCTIR at the A&P Show



The team from NCTIR enjoyed their day out at this year's Kaikōura A&P Show, taking home the ribbon for Best Trade Stall for the second year running.

The stall included a building challenge allowing people to construct a tower and then test its strength on a platform provided by Quake Centre, which simulates earthquakes.

We also ran a jellybean counting competition as part of our stall, in the form of a cone full of jellybeans. We would like to congratulate the winner, 10-year-old Jaxon Reid, who had the closest guess of 1,215 jellybeans (actual number being 1,293). Jaxon's grandmother has calculated that if Jaxon and his two sisters each have five jellybeans per day, the supply should last them several months.



The winner, 10-year-old Jaxon Reid!



Young ones enjoying the 'quake table' at NCTIR's A&P Show stall



Connect with NCTIR sessions

Going forward our **Connect with NCTIR** drop-in sessions at the library will be held fortnightly on a Thursday from 12-2pm. The next session will be **Thursday 5 March, then 19 March**, and so on. If you have a question but are unable to make one of these sessions, please come and visit us at the NCTIR office on Beach Road or call our freephone: **0800 NCTIR EQ** (0800 628 4737) or email us: info@nctir.com

New Wandle Bridge completed in four months



The new Wandle Bridge north of Waiau on the Inland Road (Route 70) officially opened to traffic last month, after a full replacement of the original earthquake-damaged bridge.

The opening was marked with a ceremony attended by Hurunui District Council (HDC) staff and the NCTIR crew who delivered the new build, which began in September last year.

The new bridge was completed in approximately four months using a total of 290 cubic metres of concrete, 10 bridge beams, and piles drilled to a depth of up to 24 metres.

HDC staff and councillors went on a tour of the NCTIR project sites between Waiau and Kaikōura in December 2019. "The road itself is, generally, in better condition than it was before the earthquake. We're happy with the work that NCTIR's done on it," says HDC Chief Executive Officer Hamish Dobbie.

The temporary Bailey bridge that provided traffic access since 2017 has now been dismantled, with parts being used on the Waiau Bridge while repairs are underway there.



The completed bridge at Wandle River, north of Waiau



Hurunui District Councillor Ross Barnes formally opening the bridge

Shared Use Path FAQs

How will the decision not to proceed with the shared use path affect the length of the works programme and staff?

The works programme will continue throughout 2020 and will be completed with seasonal works in late Spring. NCTIR's priority is its staff, and we are working through (on a project by project basis) what this decision means for them regarding the remaining time on the project.

Are the seawalls and other structures needed now if there will be no shared use path?

The main objective of the NCTIR programme is to provide a more resilient and safer road and rail network. The sea wall structures were constructed because it was the only option where the existing road was significantly affected, and it was too dangerous to try and use the old road. As part of the safety improvements project, very early in the recovery phase, a shared use path was designed as part of the wall capping system. While there will now be no continuous off-road shared path, these structures will provide 3kms of new amenity area, which will complement the six new safe stopping areas being delivered across the Kaikōura coast. We are working with Te Rūnanga o Kaikōura's Natural Resources Manager to ensure the finish across the corridor is as natural as possible. This will involve softening the look of roadside structures wherever possible.

Why wasn't the wider community consulted on the shared use path?

Due to the emergency nature of the works following the 14 November 2016 earthquake an Order in Council (OIC) was established by the Government to enable accelerated works to proceed. Part of the condition of the OIC was the formation of the Restoration Liaison Group (RLG) to ensure that environmental, ecological and cultural issues were appropriately addressed during the rebuild of the coastal corridor. The RLG includes representatives from local councils, the Department of Conservation, Heritage New Zealand Pouhere Taonga, Kaikōura Marine Guardians and Te Rūnanga o Ngāi Tahu as the recognised Treaty Partner. In order to make quick progress and open the road and rail safely the OIC required quick decision-making (using the RLG) meaning that there was no ability to consult with the wider public. Often design and delivery were happening at the same time, including the design of the sea walls.

Does this mean the Shared Use Path will never be built?

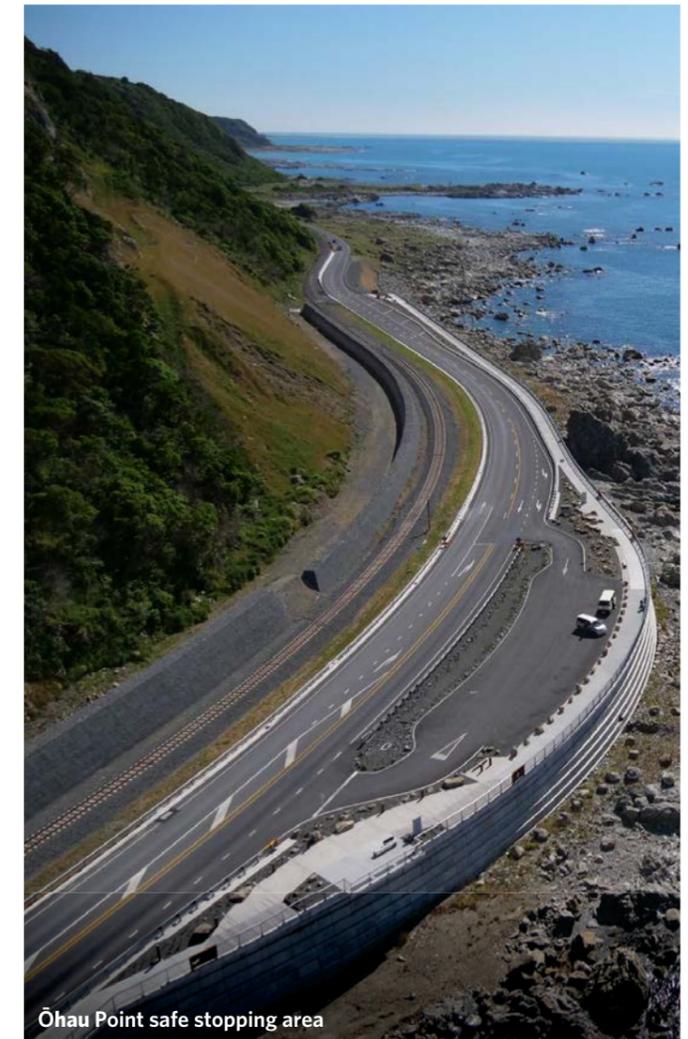
The Shared Use Path had been designed to make use of essential structures and road widening, with a plan to run from Ōkiwi Bay to Irongate Bridge. Any intention to build a trail is now outside NCTIR's scope and will sit instead with other agencies and/or interest groups, who will need to follow the normal RMA process for development if they wish to proceed.

Will you be removing handrails as a result of this decision?

No, handrails are there to protect people from falls, and we will continue to use them where needed.

Will there still be areas to park where the pathways begin and end?

Yes, the pathways will be accessible either from safe stopping areas or easily egressed/accessed from the highway.



Ōhau Point safe stopping area

NCTIR Village update

Waka Kotahi NZ Transport Agency has restarted its sale-by-tender process for the NCTIR Village in anticipation of our physical works winding down to a close later this year.

The request for tender was posted on the Government Electronic Tenders System (GETS) earlier this month, and responses are expected to be submitted no later than 4 March 2020. Interested parties can register on GETS at www.gets.govt.nz to gain access to the relevant information. The Village has 300 rooms, and large recreation, kitchen and administrative facilities. The NCTIR Village will continue to operate until June when it will be demolished.

Your chance to visit

If you would like the opportunity to come and see our home away from home before it goes, we'll be holding a NCTIR Open Day at the Village on Sunday 22 March between 11 – 2pm. This will include a project update, as well as food and family-friendly activities.



The NCTIR Village will be demolished in June



The 2017 NCTIR Village Open Day

TRAFFIC HOTSPOT MAP FEBRUARY – MARCH 2020

This map covers the projected speed reductions and one-lane sites along SH1 and Route 70 (Inland Road) in the months of February and March 2020. Please note that this is an indication only, and sites may vary in length and exact location. In addition to these main hotspots there will be other temporary works underway, such as roaming Telco ducting.

Please note that maintenance crews will be undertaking summer sealing work in the Hundalees.

For real time travel information on SH1 between Picton and Christchurch go to: www.nzta.govt.nz/p2c

For updates about occasional road closures on Route 70 (Inland Road) please email: info@nctir.com

Please note: This map is indicative only.



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Picking up where we left off

Following the Government’s Alert Level 3 announcement, our site-based crews have returned to work on the roads under strict new health and safety measures, while our office staff continue to work from home.

We are adhering to all official advice, as the health of our people and the community is our priority.

We are following the New Zealand COVID-19 construction protocols, which will be the same across the construction and building sector. At Level 3 this includes restricted access to sites, maintaining physical distance, and the use of additional protective clothing.

Our crews have formed small work ‘bubbles’ that will remain together during this time, including travel and shared accommodation.

Our return was staggered across the week, with new teams arriving in Kaikōura on different days to allow time to adjust to the new way of working. Before starting back, all site crews went through a NCTIR COVID-19 Reboot induction to learn about our new practices and protocols to keep themselves and others safe.

The NCTIR Village has reopened to accommodate workers, with staggered meals and work start times to allow for physical distancing. Communal areas are closed off during this time, with workers isolated to their rooms or work bubbles.

We’re not sure at this stage how the recent shutdown and reduced capacity return will impact the project’s completion date, but we will put out an update once we are back in full swing. For an overview of our projected two-week programme of work during Alert Level 3, please see page 2-3.

If you have any questions please contact us on **0800 628 4737** or info@nctir.com.

We hope you and your bubble are staying safe and well.

Ngā mihi nui, Tony Gallagher



Physical distancing during a morning crew briefing




Site restrictions



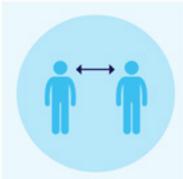
Small ‘work bubble’



Protective wear



Physical distancing



Hygiene standards



Cleaning protocols



Level 3 work map

This map covers our projected Alert Level 3 work plan. Crew will be returning to these select sites under our Alert Level 3 health and safety protocols.

For those of you undertaking essential travel along SH1 and Route 70 (Inland Road), please be aware that there will be traffic management around a number of these sites. In addition to these main sites, there will be some temporary works underway, such as roaming Telco ducting and road sealing.

Please note that non-NCTIR maintenance crews may also be undertaking essential works during this time.

For real time travel information on SH1 between Picton and Christchurch go to: www.nzta.govt.nz/p2c. For updates regarding Route 70 (Inland Road) please email: info@nctir.com.

Please note: This map is indicative only.



Safe stopping areas progress update

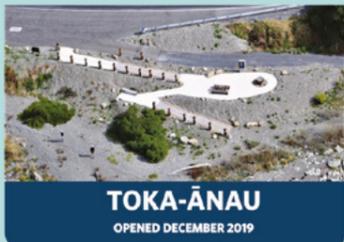
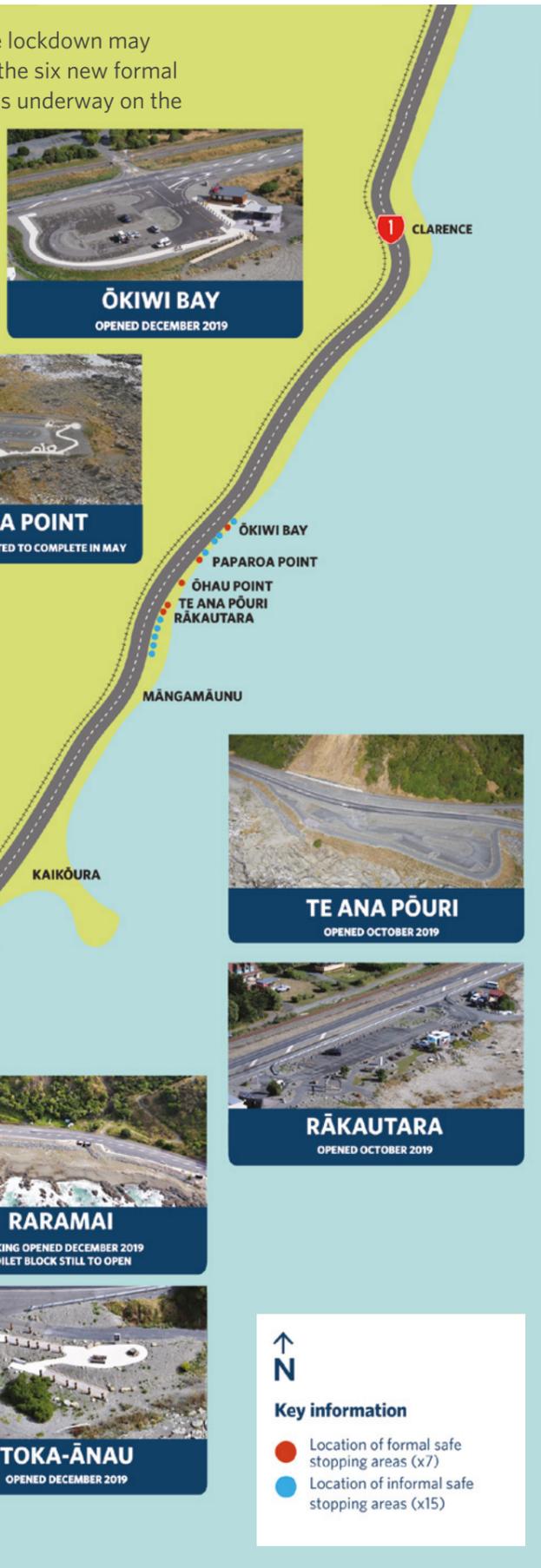


Anyone who drove the Kaikōura coast before lockdown may have taken the opportunity to stop at one of the six new formal Safe Stopping Areas along SH1. Work remains underway on the seventh and final formal area at Paparoa Point, with construction expected to be complete mid-year.

Information panels and various pieces of furniture have been installed at the Safe Stopping Areas as part of the Cultural Artwork Package, which was designed in collaboration with local Rūnanga to tell local stories along the coastal corridor. We will give more of an update about this project and the remaining work in an upcoming Bulletin, so watch this space!

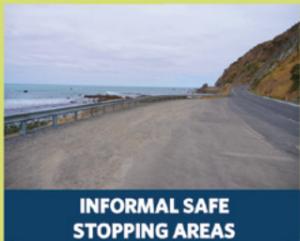
In addition to the seven formal Safe Stopping Areas there will also be 15 informal Safe Stopping Areas where NCTIR has been working, which will be tidied and then planted to help them blend into the natural environment.

There will also still be numerous casual places along the coastline with room to park and access the coast, as before the earthquake. Further planting will be undertaken at the Safe Stopping Areas during the June/July planting season.



Key information

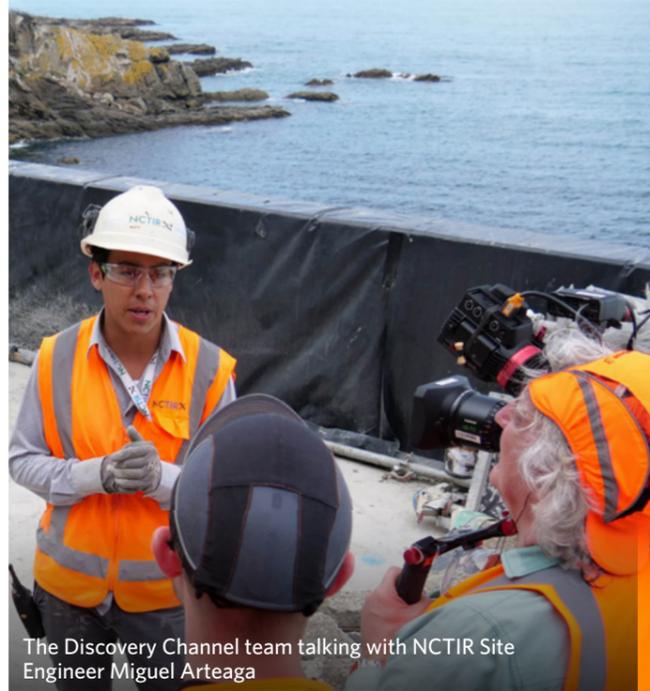
- Location of formal safe stopping areas (x7)
- Location of informal safe stopping areas (x15)



Camera crews focus on rail at Tunnel 11



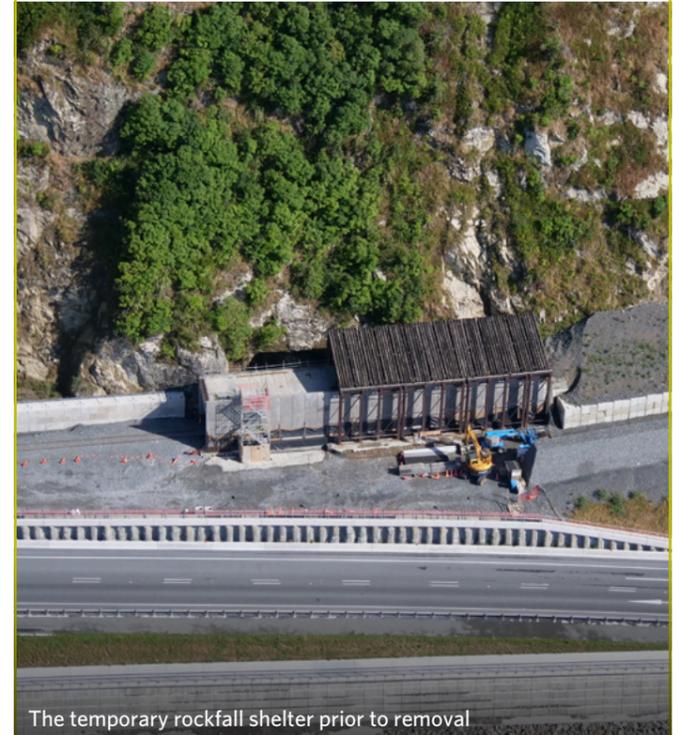
Before lockdown a camera crew from the Discovery Channel visited NCTIR's Tunnel 11 site south of Kaikōura to shoot some footage for its documentary programme, *Mighty Trains*. NCTIR Site Engineers Marion Guerreiro and Miguel Arteaga spoke with the team about the tunnel extension, and the rock anchors and backfilling work under way at the time.



Temporary tunnel shelter removed south of Ōhau Point



The temporary rockfall shelter that has been in place at Tunnel 19 since the 2016 earthquake was removed last month, revealing the new permanent tunnel shelter beneath. Crews are now back on this site under Alert Level 3, and can focus on installing rock anchors and backfilling.



Mororimu Stream Bridge repairs



Earthquake repairs were well underway at the Mororimu Stream Bridge (north of Ōkiwi Bay) before lockdown. These repairs involve reconstructing parts of the bridge's abutments and approaches, hydro-demolition of existing abutment wingwalls, careful reconstruction of the reinforcement, concrete crack injections, and upgrading the road safety barriers.



Mulch collaboration at Jacob's Ladder B

With the bund and catchment basin at Jacob's Ladder B (south of Ōkiwi Bay) completed before shutdown, crew can now turn their attention to the finishing touches: planting and hydroseeding.

The land at Jacob's Ladder belongs to the Department of Conservation (DOC), and throughout the project there has been a real collaboration between NCTIR, DOC, the Cultural Advisory Group, the Restoration Liaison Group and local iwi to preserve the ecology of the area.

NCTIR Project Manager David Larcombe explains that the trees remaining at the centre of the basin are a result of this collaboration. 'The original plan was to build the basin straight through the site, but pretty early on in the piece we had conversations with the Cultural Advisory Group and DOC and identified two totara trees of cultural and ecological significance that we all wanted to keep.'

'To ensure the survival of these trees going forward, we adjusted the design of the basin and shaped it around the root systems of the totara. DOC was also focused on protecting seeding trees - the older trees that will seed the forest floor - and so we saved as many of these as we could up on the edge of the forest.'

A digger with a special mulcher head attachment was bought in to chip the remaining trees that were removed from the basin, with the resulting mulch to be spread over the outward side of the bund. DOC's focus was to encourage the growth of native species on the outward side of the bund, as this will be unaffected by any future debris flow.

To reduce the spread of exotic and invasive plant species all machinery entering the site was washed, and active weed control put in place. The bund was hydroseeded last week, with a mixture of fast-growing and long-lived native seeds that have been eco-sourced. Some further planting is planned during the June/July planting season.



Completed bund Jacob's Ladder B



The special digger head attachment used to mulch trees

Safer alignment at Ōkiwi Bay



Prior to lockdown, motorists may have noticed a change on State Highway 1 south of Ōkiwi Bay, with the single lane of traffic switching from rail-side to sea-side as work progressed on the road alignment.

After the 2016 earthquake, a temporary road was built on the seaward side of the original road and the rail laid on the pre-earthquake road footprint to ensure resilience from the slips above, says NCTIR Design Lead Rosman Abdullah.

'This post-earthquake road was always intended to be a short-term solution as the current geometry and camber isn't suitable for the overall operating speed of this area.'

The new road alignment will reduce the number of curves from three to two, remove a dip in the road, increase the radius of the curves and widen the centreline.

'The majority of the alignment is being built on the existing footprint of the road - building it up to match the height of the realignment section,' says NCTIR Site Engineer Kerry Baillie.

Part of the road was built on the slip material to reduce construction time and cost, and to decrease the amount of excavation and imported river gravels required, providing a more sustainable solution.

'Layers of geogrid have been added beneath the embankment to ensure structural integrity of the rebuilt road for future resilience,' says Baillie.

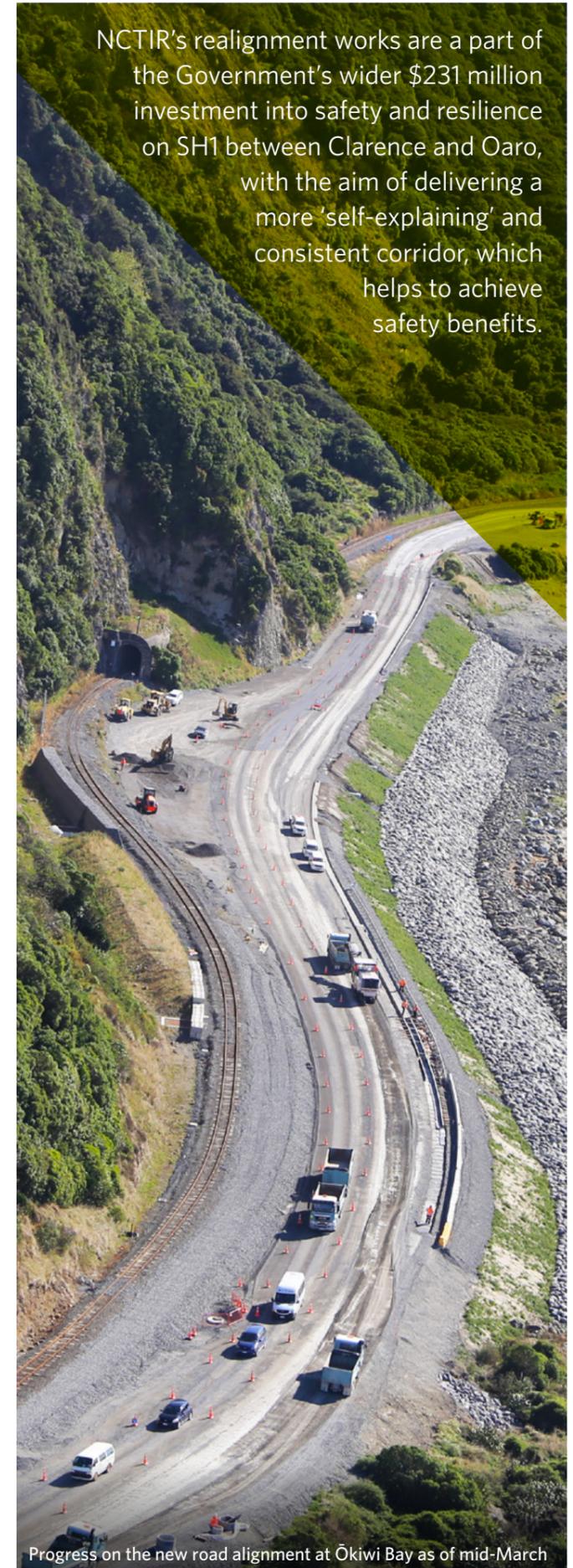
While they built the revetment, the crew made a temporary protection bund using the existing beach rock wrapped in geotextile fabric to prevent sediment run-off, as a measure against environmental impacts and tidal erosion.

Once the revetment was completed, the geotextile was removed and the bund rock was pulled back to tie it back to the existing beach rock.

At the completion of the project the embankment will be covered with topsoil and reinstated to a natural state.



Bringing the new alignment up to height earlier this year



NCTIR's realignment works are a part of the Government's wider \$231 million investment into safety and resilience on SH1 between Clarence and Oaro, with the aim of delivering a more 'self-explaining' and consistent corridor, which helps to achieve safety benefits.

Progress on the new road alignment at Ōkiwi Bay as of mid-March

Telco update

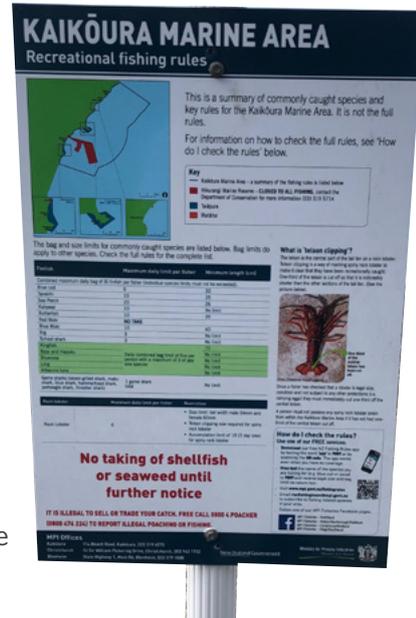


Under Alert Level 3 crew will continue laying duct for the Telco fibre optic cable between Hāpuku and Clarence, which was damaged during the 2016 earthquake. While a temporary fix was done at the time to restore critical communications, some sections of the cable remained exposed. NCTIR started this Telco project in 2019, and now there are only a few short sections of duct to be completed at Paparoa Point, Ōkiwi Bay and just north of Hāpuku Bridge. We have been working with our Cultural Advisor and Te Rūnanga O Kaikōura regarding the installation of Telco on the inland side of SH1 opposite Kiwa Road intersection. This will be installed overland (as opposed to trenched), which will involve minimal ground disturbance.

NCTIR to install marine managements signs



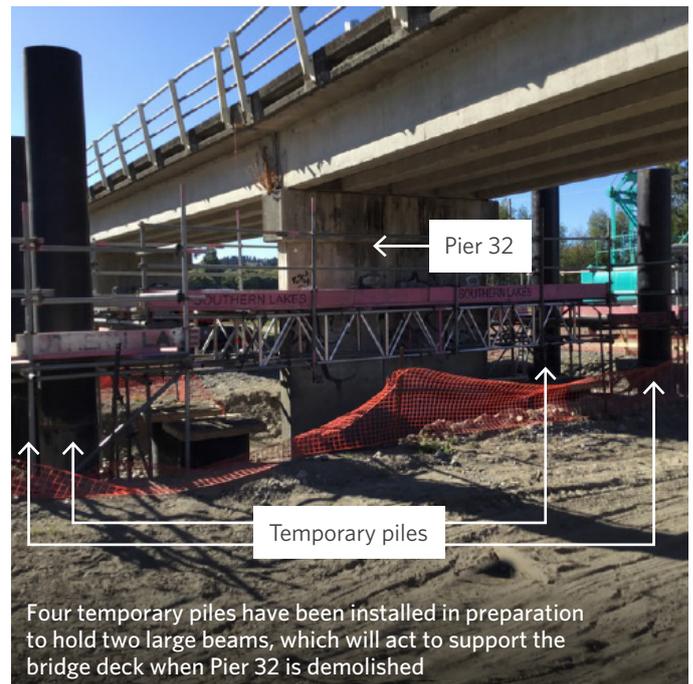
NCTIR will install 71 various marine regulation signs along the Kaikōura coastline on behalf of the Ministry for Primary Industries (MPI), which will supply the materials and mark out the intended locations.



Progress at Waiiau Bridge



Repairs on the Waiiau Bridge, which started in November last year, are now continuing under Alert Level 3. This involves replacing pier 32 and the southern abutment, and repairing 34 expansion joints. A temporary Bailey bridge has been installed over the southern end of the bridge where the abutment and pier will be demolished to keep the road open to traffic. Below are some photos showing the progress made on this work just prior to the COVID-19 closedown.



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A safer normal at NCTIR

Following a two-week reduced capacity return to site under Alert Level 3, the Government's Level 2 announcement brought a welcome shift to a new, safer normal at NCTIR.

Our teams have continued with contact tracing, physical distancing and strict hygiene measures under this Alert Level, with cleaners and designated site safety controllers available at each work site.

We are also managing a safe, staggered return to headquarters for our office-based staff, some of whom have continued to work from home during this transition.

Crews out on site still managed to make some exciting progress while navigating the strict Level 3 work environment, with Jacob's Ladder B (just south of Ōkiwi Bay) ticked off shortly after their return.

The final formal Safe Stopping Area at Paparoa Point is also nearing completion, with plans to start sealing the parking area during the next clear stretch of weather.

During Alert Level 3 Kaikōura District Mayor Craig Mackle visited the NCTIR Village to get a better understanding of our health and safety measures. NCTIR Village Manager Sean Madden welcomed Craig at the front gate, where he underwent a health survey and temperature check.

Sean took Craig for a walking tour of the site, explaining the contactless meal system in the dining area, separate work spaces for the kitchen staff, and intensified laundering processes for work clothes. Craig says he was surprised by some of the measures.

"They were really strict. I think NCTIR's done a great job enforcing what is essentially a lockdown of its own on their workers. All the shared areas were closed, which seems harsh, but is probably necessary. They've taken it very seriously."

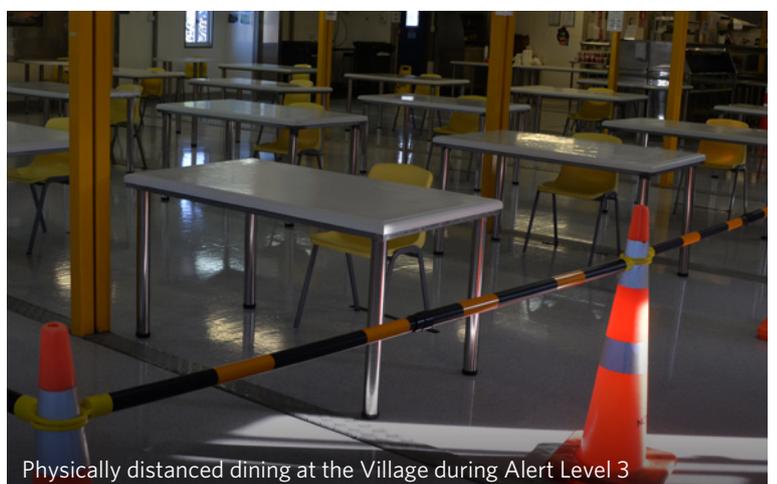
Since the Alert Level 2 announcement, the occupants of the NCTIR Village have returned to dining out in the community and supporting local businesses.



NCTIR Village Manager Sean Madden



Kaikōura Mayor Craig Mackle having his temperature taken at the entrance to the NCTIR Village



Physically distanced dining at the Village during Alert Level 3

Sunday returns to Kaikōura

Last month a film crew from TVNZ's Sunday programme returned to Kaikōura to film a follow-up segment on their documentary Kaikōura: A Big Year, which was filmed in 2018. Sunday reporter Tania Page spoke with SprayMarks Rail Protection Officer Bruce Barwick about his time on the NCTIR project. Bruce and his wife Karen are the former owners of beloved local ice-cream shop, Poppies, which featured in Sunday's previous documentary. Bruce's interview, as well as a segment on the Kaikōura township, will be available for viewing online at TVNZ OnDemand after airing on Sunday 7 June.



Sunday reporter Tania Page speaking with Rail Protection Officer Bruce Barwick

NCTIR Village update

As a result of the shutdown due to Covid-19 and its impact on our programme, Waka Kotahi NZ Transport Agency will retain the Kaikōura Village for a further period. We're reviewing how the recent shutdown and reduced capacity return will impact the project's completion date, but we will provide an update when we can.



The NCTIR Village

Connect with NCTIR

NCTIR will once again be hosting fortnightly drop-in sessions on the second floor of the Kaikōura District Council building, in the room opposite the library.

These will be starting on Thursday 11 June, and continuing 25 June, 9 July etc.

Come in and have a chat between **noon and 2pm** about the work we'll be completing over the rest of the year.



Work updates

Seal tidying



Crews are continuing work to tidy up the sides of SH1 both north and south of Kaikōura, which involves sealing the gravel edges of the highway, including some driveways. This work reduces the gravel on the road that can cause safety issues for vehicles and cyclists. These will be roaming worksites with traffic management in place.

Rosy Morn Stream



Opposite Raramai Safe Stopping Area, on the inland side of SH1, work has started on a Debris Flow Interception Wall at the Rosy Morn Stream culvert. This is designed to stop debris entering and blocking the culvert under the road.



Rosy Morn Stream culvert

Waiau update



Repairs are continuing on the Waiau Bridge, with some weekend night closures. The next closures are scheduled for Saturday 20 (8pm-8am) and Sunday 21 June (6pm-6am). Further dates to be confirmed. If you would like to receive weekly email updates on this work, email us at info@nctir.com or call us on **0800 628 4737**.



Temporary piles hold up the bridge deck while crew work to replace Pier 32

Punchbowl



Repairs are underway on a small 15-metre section of seawall at the Punchbowl that was damaged during the earthquake. The existing traffic management in place around Tunnel 11 has been extended north to include the work that has started on the Punchbowl point. Temporary traffic lights will be operating overnight.



Repairs underway at the Punchbowl

Ōkiwi Bay realignment



Sealing work is set to get underway on the Ōkiwi Bay road realignment, just north of Black Miller Stream. This will be undertaken in two sections, starting with the southern end this week and the northern end the following, weather permitting. One-lane traffic management will be in place around this site, which is approximately 800 metres in length, allowing traffic to continue moving while the opposite lane is being sealed. Once sealing is complete, crews will line-mark the road and start installing guardrail.



Preparation for sealing on the Ōkiwi Bay realignment.



Chevvy Allen in his new role as a Site Safety Controller

Big changes for Chevvy



Former Whale Watch chief skipper Chevvy Allen is one of 17 Kaikōura locals employed by NCTIR since Alert Level 3 to help teams manage under new COVID-19 health and safety measures.

As a designated Site Safety Controller, Chevvy is responsible for making sure that all teams under his care understand and follow these new rules. "I've really enjoyed it so far," he says. "And I haven't had to tell anyone off."

Chevvy's new work site at Peketa has a view of the sea, and he says he enjoys being able to look at the waves without checking for boats or spouts. After 27 years of working for Whale Watch with the ocean for an office, he admits that the decision to leave was a difficult one.

"Driving boats was an awesome job - but during lockdown while I was at home with my kids I did a lot of reflecting. It was time for me to leave and try something different, and this new role is a good place to start. On the boats I was Chief Skipper assisting the Operations Manager, so I spent a lot of time training our new and old crew about health and safety. That work ties in really well with what I'm doing now."

Chevvy is joining two of his sons at NCTIR, who already have work in the rail and safety spaces. This is not his first stint working on the project either. Shortly after the 2016 earthquake Chevvy joined the SprayMarks traffic team on night shift, working on the paddle and spotting for rail, while continuing to work on the boats during the day. "It was just something I really wanted to be involved in," he says. "Everyone wanted to help with the initial rebuild, to see this town restored."

Chevvy says he has been really proud of the resilience of his town and its people. "I just think our community is amazing, especially in tough times - from the earthquake to the lockdown. When something needs to be done the whole town gets behind it."

So what's next for Chevvy once NCTIR work winds down? "I'm looking into doing some study, and taking some courses around mental health and social work. It's something I've always wanted to do - I like helping and supporting people."

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CELEBRATING

6 months to go and million work hours



NCTIR end date announced

The end is in sight for the NCTIR project! All construction works are officially due to wrap up in 6 months' time on 15 December 2020 – exactly three years on from when we moved mountains to reopen SH1 in 2017.

NCTIR Project Director Tony Gallagher says we've come a long way since the earthquake on 14 November 2016. 'By 2017 we had reopened vital transport connections, with freight trains returning in September, and SH1 reopened by December. Since then our teams have been working to

strengthen the corridor for future generations.'

'This month we hit 6 million work hours on the project, with over 9,000 people involved in the work since the beginning, including many locals. This represents a huge amount of human effort, and we want to make every hour count by creating something we are proud of, and that the Kaikōura community can be proud of for the next 100 years.'

Our teams have over 50 milestones to meet this year, including the completion of the Cultural

Artwork Package (see page 8), the last formal Safe Stopping Area, and various rail tunnels, bridge strengthening, landscaping and safety improvements.

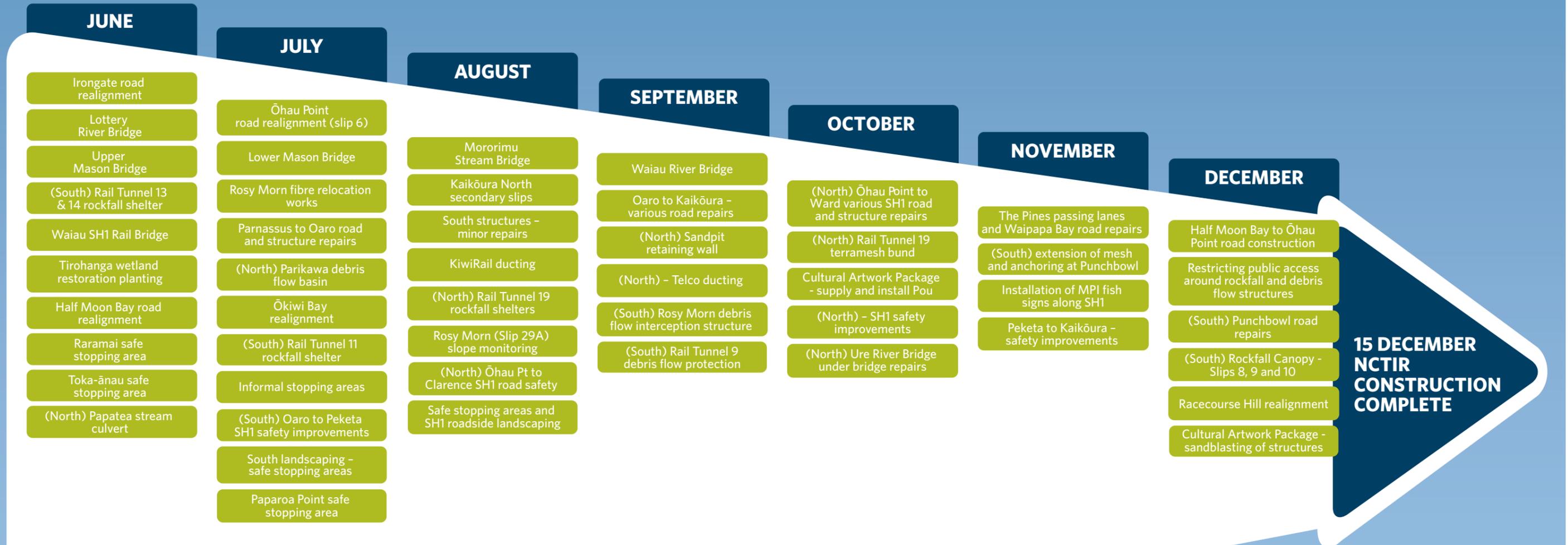
We also have two big projects to complete, with a permanent rockfall protection canopy to be installed south of Peketa, and stabilisation works near the Kaikōura racecourse (see page 6 & 7 for details).

It's a busy time, and we appreciate your patience and ongoing support as we reach the home stretch. The countdown is on to December 15!



NCTIR Construction Projects:

Completion dates of our final six months



**15 DECEMBER
NCTIR
CONSTRUCTION
COMPLETE**



2020 Programme of remaining works map

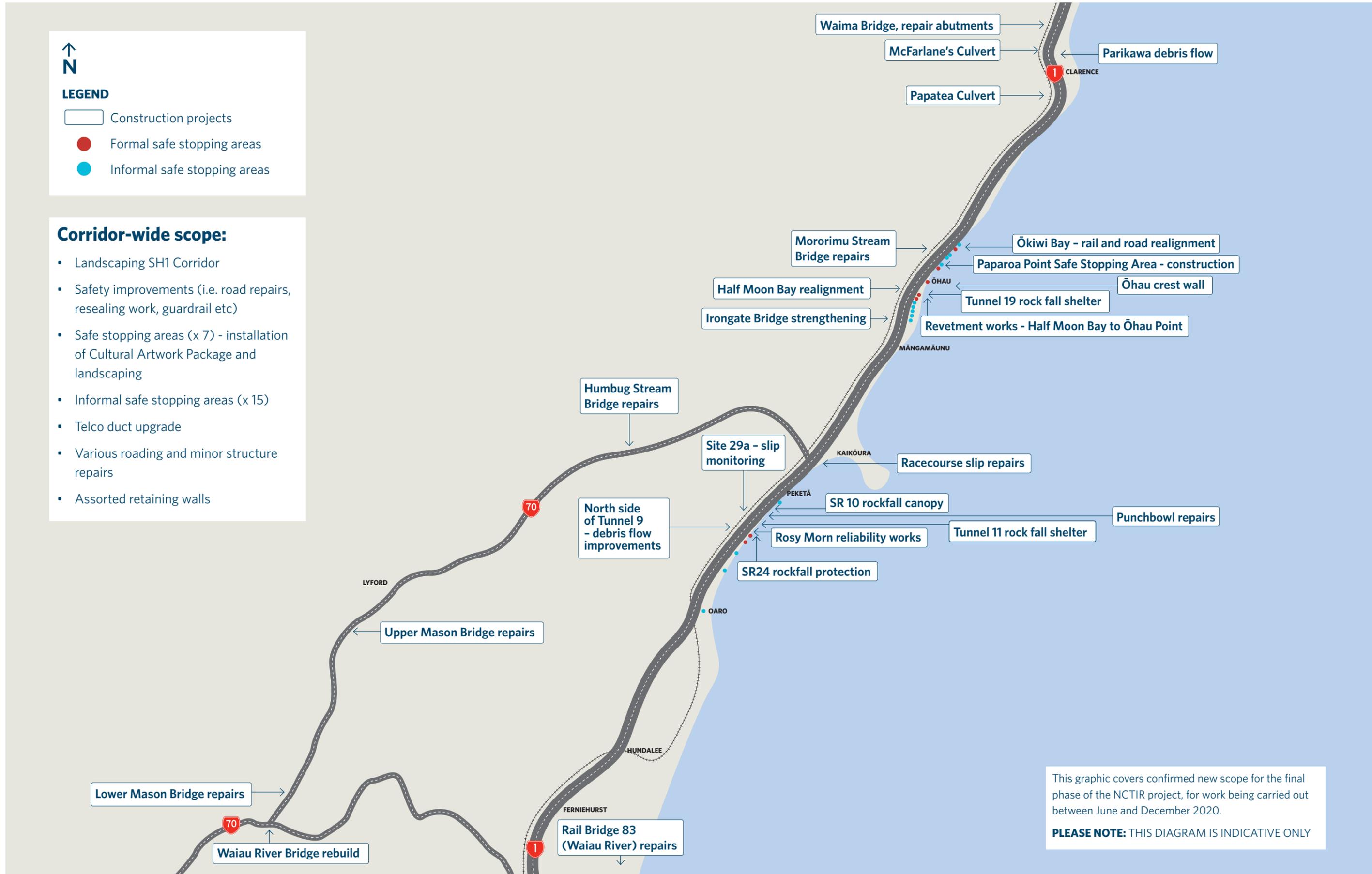
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LEGEND

- Construction projects
- Formal safe stopping areas
- Informal safe stopping areas

Corridor-wide scope:

- Landscaping SH1 Corridor
- Safety improvements (i.e. road repairs, resealing work, guardrail etc)
- Safe stopping areas (x 7) - installation of Cultural Artwork Package and landscaping
- Informal safe stopping areas (x 15)
- Telco duct upgrade
- Various roading and minor structure repairs
- Assorted retaining walls



This graphic covers confirmed new scope for the final phase of the NCTIR project, for work being carried out between June and December 2020.

PLEASE NOTE: THIS DIAGRAM IS INDICATIVE ONLY

Racecourse road repairs

 NCTIR has started work to reconstruct and realign a section of SH1 above the racecourse, where an earthquake-damaged retaining wall has slumped. The realignment work will run between the intersections of South Bay Parade and Killarney Street, with the road being moved over by the width of one lane in some sections.

Safety improvements along this stretch will include a new left turning bay into South Bay Parade, a footpath/cycleway on the southbound side of the highway, widening the road embankments, and side protection.

Initially the team will cut out the old embankment and rebuild it wider. Then a large 2-metre high temporary retaining wall, known as a preload, will be built alongside the top of the northbound lane. This preload spans 240 metres, and the weight of it will allow the land to settle in preparation for the construction of the new lane. The preload will be removed around September, when final roading can begin. Our Archaeology Team and Cultural Advisor will be on hand throughout this project.

Work will be underway in this area for approximately 6 months. Traffic management will include one-lane Stop/Go during the day, and temporary traffic lights overnight.

Pedestrians and cyclists will continue to have access to South Bay via the pathway leading down the back of the racecourse.



Damaged retaining wall above the racecourse



Impression of repaired retaining wall



Impression of South Bay turnout



Impression of the new view down South Bay hill

Permanent rockfall protection for southern slips



Visualisation of the new permanent rockfall protection planned at site 8, 9 and 10

 New rockfall protection will soon be installed around a rockfall-prone corner south of Kaikōura to improve the long-term safety and resilience of the area.

Rockfall has been an ongoing issue at sites 8, 9 & 10 between Peketa and the Paratitahi Tunnels, with over 70 recorded incidents since the 2016 earthquake.

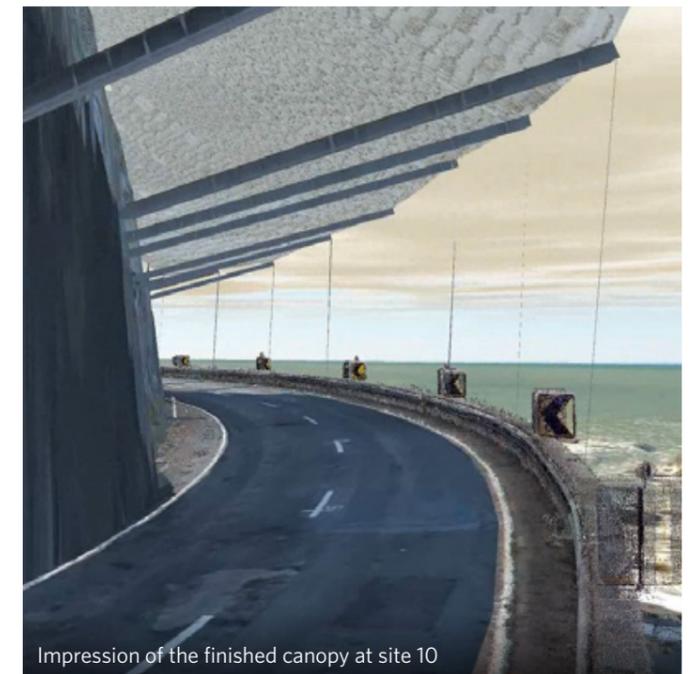
The most recent rockfall event in February this year saw the highway closed to traffic overnight. This section will remain reduced to a single lane until permanent protection is installed.

The agreed solution for this 325-metre section consists of three parts:

- A canopy design, which will be the first of its kind to be installed in the southern hemisphere, has been chosen for the large bend around site 10. The canopy is 6-metres high, and acts as a self-cleaning net that redirects falling rock to a safe zone away from the road.
- Site 9 will be draped with mesh, which will look similar to the mesh fence north of the Paratitahi Tunnel.
- The road around site 8 will be placed with one-metre high aggregate barriers that will act as a low energy catch barrier.

Construction will take approximately 6 months, with work due to wrap up in December. Some closures of SH1 will be required.

Initial work includes scaling and milling the existing rock, as well as shotcrete and meshing in certain places beneath the canopy structure.



Impression of the finished canopy at site 10

Invitation to learn about cultural artwork

Te Rūnanga O Kaikōura and NCTIR will be hosting a public event at the Takahanga Marae to present the Cultural Artwork Package; sharing the stories behind the designs that NCTIR is installing along the Kaikōura coastal corridor. These cultural designs feature prominently at the formal Safe Stopping Areas between Ōkiwi Bay and Oaro, with a few key pieces still to be installed on tunnels, walls and at informal stopping areas. This event will be held from 2 - 4pm on Sunday 5 July 2020, with a presentation at 2:30pm. An official Cultural Artwork Package opening will be held later in the year, so watch this space.



A harpoon recently installed at Toka-ānau Safe Stopping Area

Rock scaling



A team of abseilers undertook necessary maintenance south of Kaikōura this month, clearing out catch fences and scaling active sites to reduce the risk of new rockfall. With this overall maintenance work completed between the Paratitahi and Raramai tunnels, crew can now focus on preparing site 8, 9 and 10 south of Peketa for permanent rockfall protection.



Abseiler scaling slopes south of Kaikōura



Waiau closure update



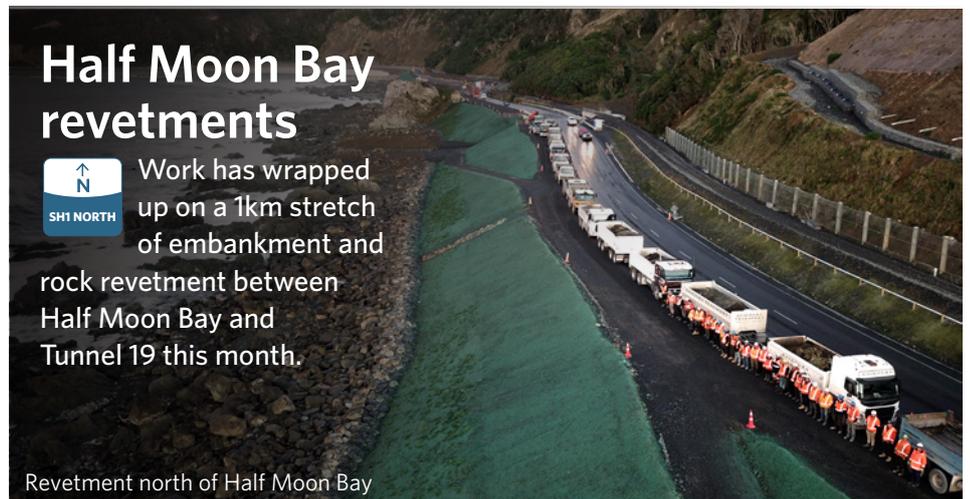
The next night closures for the Waiau Bridge are scheduled for Saturday 27 June (8pm - 8am), and Sunday 28 (6pm - 6am). The temporary Bailey bridge will shortly be ready for removal, with a scheduled closure on Sunday 5 July (6pm - 6am). If you would like to receive email updates on this work, email us at info@nctir.com or call us on **0800 628 4737**.

Half Moon Bay revetments



Work has wrapped up on a 1km stretch of embankment and rock revetment between Half Moon Bay and Tunnel 19 this month.

Revetment north of Half Moon Bay



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Cultural artwork to spark curiosity



A Cultural Artwork presentation led by Te Rūnanga o Kaikōura, in partnership with NCTIR, was recently held at the Takahanga Marae.

Maurice Manawatu gave an in-depth overview of the development of the artwork package that is being installed along the coastline to around 40 people from the Kaikōura community.

‘It’s a real privilege to tell the story of the partnership to the locals and I was wrapped with the turn out, but also wrapped that the people that came were genuinely interested in the artwork,’ Maurice said.

In November 2018, NCTIR and the Cultural Advisory Group held a cultural design hui to discuss stories of cultural significance that could be told along the coastline.

There the Cultural Artworks Package evolved from just four pouwhenua (carved pillars) into an extensive range of artwork designs reflecting the cultural significance of the coastline for installation on rail tunnel shelters and at Safe Stopping Areas. The package includes water-blasted murals, laser cut corten steel, concrete pouwhenua and information panels.

‘Everything has been done for a reason and the reason is whakapapa and connection. Reason, connection and whakapapa takes it from a mural or a carving to an art piece, it creates a life force and gives Mana and meaning. This is what makes our coastline unique,’ said Maurice.

NCTIR’s design team worked with creative studio, Ariki Creative, to develop the designs and sign studio Art Fetiche has begun water-blasting murals in place.

The four originally planned pouwhenua each represent a local ancestor and will be installed in the coming months, cast with weather resistant concrete from carvings made by Master Carvers Riki Manuel and Fayne Robinson.

Maurice said he hopes the end product will inspire curiosity and encourage more people to investigate the history and culture of Kaikōura. ‘It’s been probably a year and a half of working together with NCTIR on this project, it’s been a really good journey and it is exciting that we’re getting there.’



Maurice Manawatu presenting the Cultural Artwork Package



Work is progressing on the compass mural at Te Ana Pōuri Safe Stopping Area

Final Safe Stopping Area opens



Construction on the last formal Safe Stopping Area of the project finished this month, with parking opened to the public at Paparoa Point on 15 July.



Paparoa Point Safe Stopping Area



Parking has opened at Paparoa Point Safe Stopping Area

Hydroseeding at Ōhau Point



Motorists north of Kaikōura may have spotted a helicopter dropping hydroseed around Ōhau Point this month. A team from Red Tree Environmental Solutions has overseen the safe helicopter distribution of an 'enviroblanket' around the base of Slip 6 in the high-risk rockfall zone behind the mesh fences. This enviroblanket is a mixture of compost, fertiliser and locally sourced native seeds that will help to further stabilise the embankment and reduce the potential for soil erosion and storm water runoff.



Helicopter dropping an 'enviroblanket' at Ōhau Point

Ōkiwi Bay realignment wraps up



After a string of recent weather setbacks, the team at Ōkiwi Bay were pleased to lay the final layer of seal on the site in late June, completing the project to realign the road and rail in 13 months.



Final sealing works on the Ōkiwi Bay realignment



The Ōkiwi Bay paving team

Canopy closure times



The first stage of permanent rockfall protection is now underway at a rockfall-prone corner between Peketa and the Parititahi Tunnels south of Kaikōura. This initial work has identified the need for additional rock anchoring to stabilise the fractured rock face, requiring two weeks of day closures for SH1, finishing mid-August.

These two weeks will follow the same schedule as the current day closures, Monday - Friday, between 9am-5pm, with up to 35 minute delays and regular openings to let traffic pass.

Night closures are expected to be in place from mid-August with several openings to allow traffic to pass.

More details will be provided closer to the time.



Grinding the rock edge in preparation for the canopy protection



A visualisation of the completed canopy, rockfall mesh and aggregate barrier

Paving the way to Paparoa Point



Work is underway south of Paparoa Point to replace a 380-metre section of road pavement on the seaward side that slipped as a result of earthquake damage. Once the section has been rebuilt, crew will stabilise the area with a rock revetment. This will help absorb the energy of incoming waves and support the road embankment. A small section of Telco duct will also be installed while work is underway here. One-lane traffic management is in place around this site, with work expected to wrap up in September.



Replacing a section of damaged pavement south of Paparoa Point

24/7 works at the racecourse



Over the next 3-4 weeks, work on the racecourse road reconstruction is shifting up a notch. Crew will be working around the clock to install a 240-metre temporary bund (or 'preload') alongside the top of the northbound lane. The weight of the 2-metre high preload will allow the land beneath to settle in preparation for the construction of a new lane. The preload will be removed in September, with the overall project expected to wrap up in December.



Artist's impression of the temporary bund, or 'preload'

School visits Waiau Bridge worksite



A curious group of pupils and teachers from Waiau School recently visited the Waiau Bridge to learn about NCTIR's restoration work.

The traffic team held motorists long enough to allow the children to walk the length of the 560-metre bridge all the way to the Rotherham end.

NCTIR Project Manager Dean Ewen and Site Engineer Jordan Smith showed the group around the site while all the machinery was turned off, and answered many excited questions about the cranes.

The children were intrigued by the Meccano-like sections forming the bridge, and the way that the temporary Bailey bridge had held up the bridge deck while crew constructed a new pier.

The Waiau Bridge team received a very welcome delivery of home-baking the following day as a thank you from students who enjoyed their visit.

Work on the Waiau Bridge is wrapping up, with the temporary Bailey bridge removed, and plans for a final closure to seal the area.

If you would like to receive email updates on this work, email us at info@nctir.com or call us on **0800 628 4737**.



NCTIR engineers explaining the work at the Waiau Bridge



Waiau School visiting NCTIR works on local bridge

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Lights, diggers and action at the racecourse



Night works have kicked into gear at the Racecourse this month, with lighting towers, trucks, diggers and rollers starting up in the evenings, Sunday to Thursday, and working right through until the day team arrives back on site at 6:30am.

The old road embankment on the top western side of the site has been cut away, with night crews significantly boosting the progress in building up a wider embankment to support the new road alignment. Once the embankment is up to height, traffic will be moved onto it, and work can begin in the southbound lane.

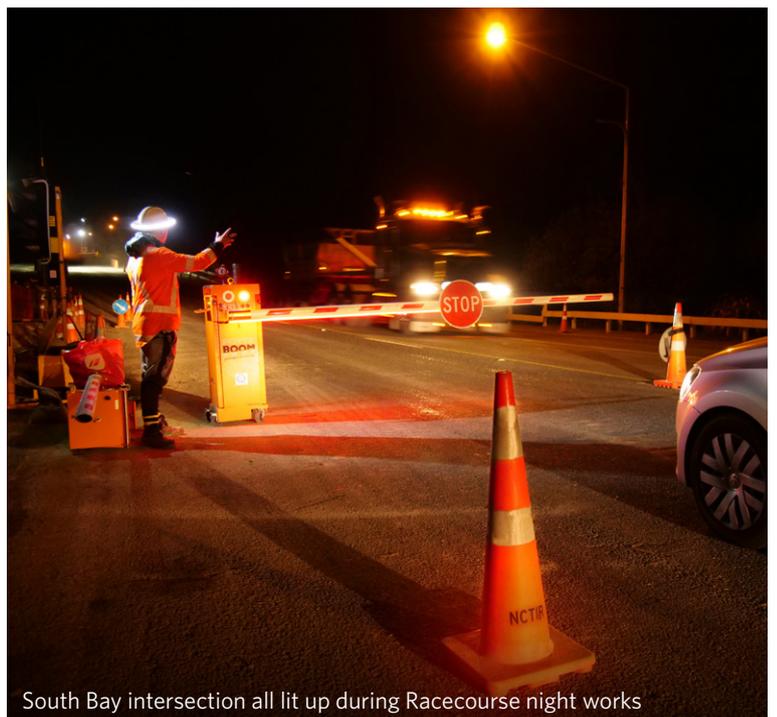
With the worksite itself bathed in light, the Traffic Team have added their own touches at each intersection to make sure their Traffic Controllers stand out too. NCTIR Traffic Manager Stephanie Ambler says a number of measures have been taken to make the Traffic Team visible during night works.

'We have new LED 'flares' at the Racecourse that light up the traffic cones to help motorists navigate a clear path to the stop point - much like an airfield landing strip. We have fitted the Portaboom barrier arms with strips of flashing lights so that these can be used in the dark. This helps prevent motorists from breaching the stop. And to protect our Traffic Controllers we have lighted 'halos' on their hard hats, and lights on their jackets. It makes the intersection look like a bit of a light show, but it's all in the name of safety.'

The night works are helping to prepare the site for high traffic volumes during the Kaikōura Hop in mid-September, where we aim to open the road to two lanes of traffic for the duration of the event. The road will be unsealed, with crew on hand to maintain it if necessary. Night works will be underway until the end of August, weather depending. The road will then return to one lane after the Hop.



Day crew working to bring the new embankment up to height



South Bay intersection all lit up during Racecourse night works

Wick drains installed at the racecourse



Wick drains have been installed along the western side of the Racecourse road realignment to help drain and settle the newly widened embankment.

What is 'settlement'?

Beneath the embankment construction zone, the earth is a soft, wet silt. The weight of the fill material being laid on the new embankment causes the groundwater pressure to increase in the silt below, then over time the water to drain out, and the soil to 'settle'. This process is similar to squeezing water from a sponge. As the water is squeezed out, the space between the soil particles is reduced, making the volume of the soil smaller. Once the water has drained from the silt, the embankment soil on top will settle.

What are wick drains?

Wick drains look like a flattened drinking straw, with small holes up the length of them. The drains are wrapped in cloth, which allows water to seep into the drains while filtering out the silt particles. The installation of wick drains speeds up the drainage process by shortening the path the water needs to take before it can escape from the ground.

A special wicking rig was used to install the drains vertically into the ground to depths of between 1 to 7 metres, with spaces of 1.5 metres between each drain. In total we have installed 700 metres along this section. A number of vertical pins, which extend to the bottom of the embankment fill beneath the new road, are used to monitor the settlement levels. Approximately three weeks after settlement has occurred crew can begin final roading works.



New timetable for SH1 closures south of Kaikōura



Night works and overnight closures of SH1 have begun at a rockfall prone corner between Peketa and the Parititahi Tunnels, south of Kaikōura.

NCTIR designers and engineers needed to develop a solution that would protect road users from three slips at the corner.

‘The slips were quite varying in nature, so that’s why we’ve ended up with three different solutions,’ says Project Manager Jessica Pritchard.

The final design includes a rockfall canopy, an attenuator fence and a low impact barrier.

The construction process will involve installing all of the anchors for the canopy structure before lifting the 14 canopy beams into place.

‘One of the key reasons why we need to close the highway is we are using some quite large machinery – cranes, excavators, mobile works platforms – and they need to work right across the carriageway, because the canopy beams come out from the rock face and affect both lanes,’ says Jessica.

‘The safest and most productive way for us to do this is at night, because there is less traffic, and so we reduce traffic delays to the public during the day.’

The project and the NCTIR programme will be complete in December 2020.

See below for the night closure timetable.



South of Kaikōura night road closures New timetable effective 23 August 5 nights a week (Sunday–Thursday) Between 7pm and 6am

Night closures will be in place from August as part of the work to install permanent rockfall protection on a rockfall-prone corner between Peketa and the Parititahi Tunnels. Traffic will be cleared through at certain points (see table below). The road will be open each weekend from 6am Friday to 7pm Sunday.

Please check www.nzta.govt.nz/p2c before travel to ensure you have the latest information

TIME	ROAD STATUS
7:00pm–8:30pm	ROAD CLOSED for 30 minute intervals from 7pm–8.30pm. Following a 30 minute closure the road will re-open to allow queued traffic through, and then close again for 30 minutes. This cycle is repeated until 8.30pm. (Average wait time 20–25minutes)
8:30pm–9:00pm	ROAD OPEN for 30 minutes
9:00pm–11:30pm	ROAD CLOSED
11:30pm	ROAD OPEN to clear queued traffic only. Traffic MUST be in the queue by 11:30pm to be let through.
11:35pm–3:00am	ROAD CLOSED
3:00am–4:00am	ROAD OPEN for 1 hour
4:00am–6:00am	ROAD CLOSED
6:00am–7:00pm	ROAD OPEN

NOTE: Road OPEN is still under one lane with stop/go operation in place.
Times will change in September due to the construction programme.



The repaired pier at Waiau Bridge

Waiau Bridge night closure



The Waiau Bridge is on track to be completed by early September, with final road sealing completed during day closures on the 17 and 18 August. A final night closure remains on Friday 28 August, to install the last of the rubber expansion joints. The night of Saturday 29 August is our contingency date, if required. Traffic will be diverted via River Road, along Leslie Hills Road and onto Mouse Point Road (SH7). This detour adds an extra 20 – 30 minutes to your journey. If you would like to receive email updates on this work, email us at info@nctir.com or call us on **0800 628 4737**.

Road rebuild north of Paparoa Point



A 30-metre section of road embankment just north of Paparoa Point is being replaced, where a pre-existing gabion basket was damaged during the earthquake. The road and guardrail above the gabion basket has slipped as a result of this damage, and will be replaced as part of these repairs. While this work is underway a small section of Telco duct will also be installed. An archaeologist and cultural advisor will be involved throughout the process. One-lane traffic management will be in place around this site, which is expected to end in September.



Earthquake-damaged gabion basket north of Paparoa Point



The work is north of the new Paparoa Safe Stopping Area

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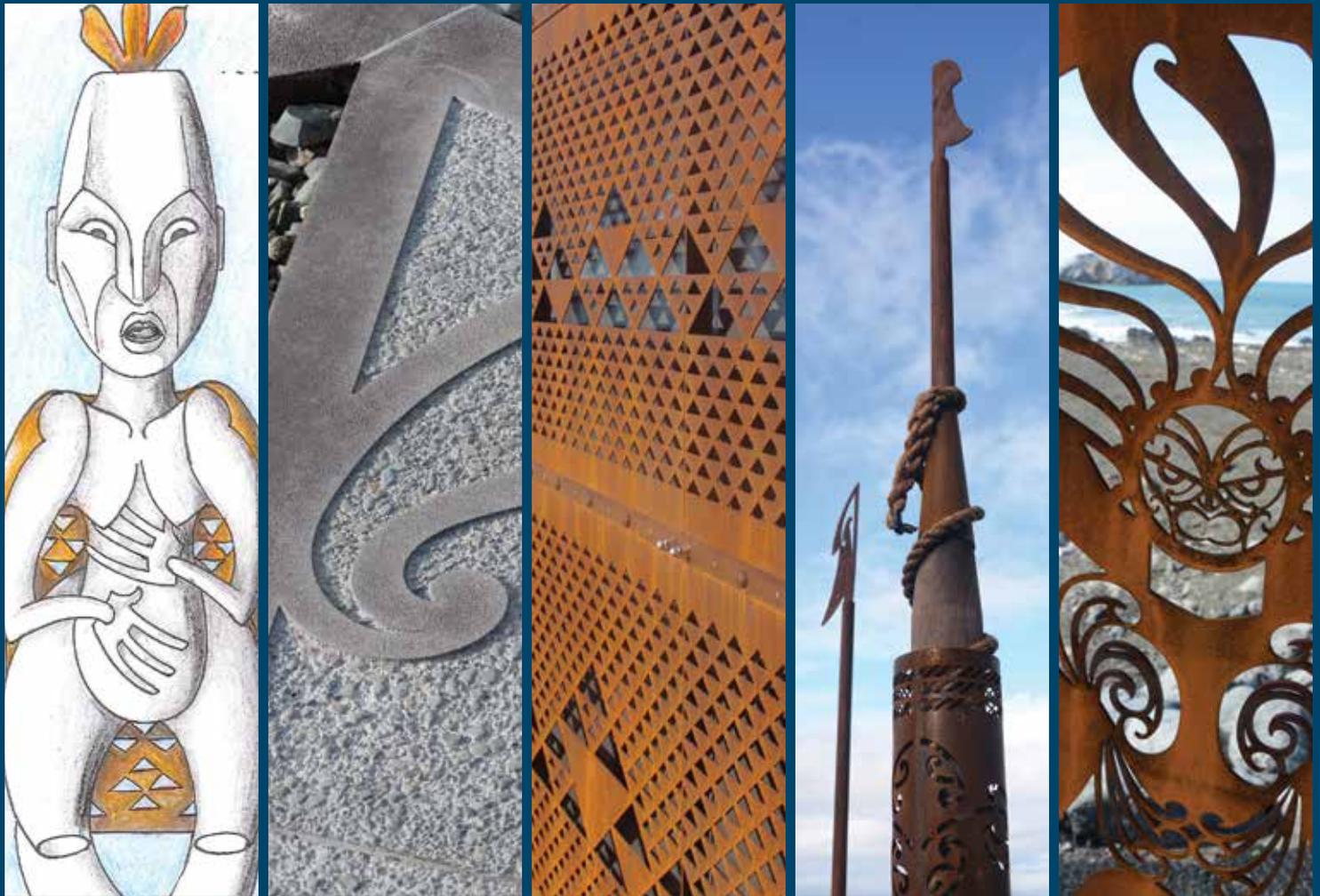
This Bulletin provides the latest information about the rebuild of road and rail networks damaged by the Kaikōura earthquake in November 2016. The Bulletin is produced by the North Canterbury Transport Infrastructure Recovery (NCTIR) – an alliance representing the NZ Transport Agency and KiwiRail, on behalf of Government.

Cultural Artwork Package

Sharing stories of Kaikōura



The Cultural Artwork Package evolved out of a design hui held in November 2018 between NCTIR and the Cultural Advisory Group* about the stories that could be told along the Kaikōura coastline – and especially at several Safe Stopping Areas. These initial ideas have since developed into an extensive range of culturally significant artworks including pouwhenua & tekoteko (carved pillars), vapour blasted murals, laser cut corten steel and information panels. The installation of artwork is underway along the coastline from Oaro to Clarence.



*The Cultural Advisory Group (CAG) is made up of mandated members from Te Rūnanga o Kaikōura, Waka Kotahi NZ Transport Agency, KiwiRail and NCTIR. The CAG was established in 2018 by NCTIR, together with Treaty Partners, to engage at a local level with the Rūnanga on all aspects of design and construction across the recovery and resilience works within their takiwa (area).

A word from Maurice

“It’s been a good year and a half since we started working with NCTIR on this project, and it’s come a long way since the first hui. It’s been a good journey, working alongside NCTIR to draw together designers, artists and carvers to bring the Cultural Artwork Package to life. It is exciting to finally see it being installed! Every piece of art is there for a reason, and the reason is whakapapa and connection – that is what turns it from a mural or a carving into an art piece, it creates a life force and gives Mana and meaning. This is what makes our coastline unique. We hope that the end product will inspire curiosity, and encourage more people to investigate the history and culture of Kaikōura.”

Maurice Manawatu, Te Rūnanga o Kaikōura.



David McKenzie and Lawrence Elliott from NCTIR (right) meeting with artists from Arika Creative (left).

Rewarding collaboration

NCTIR’s design & landscaping team, including David McKenzie, Derek Watson and Lawrence Elliott, have been involved throughout the artwork’s design and delivery process. Lawrence says it has been a real pleasure to work so closely with the Rūnanga. “I found collaborating with Maurice [Manawatu], Arika Creative, Riki [Manuel] and the broader group behind the Cultural Artwork Package a truly rewarding experience. I’ve been very proud seeing the artwork progress from where we began with early concept sketches to the final pieces appearing on site now. I believe the work we have done together has strengthened the relationship between Waka Kotahi and Te Rūnanga o Kaikōura. I’m really looking forward to the celebration when it all comes together!”

Locals enjoying the coast

Kaikōura local Lisa Bond has thoroughly enjoyed the new cultural art installations. “Along the way we now have some amazing stop off areas for folk to take a break and enjoy not only the breathtaking views, but also read about and learn significant cultural history of this area provided by the local Rūnanga. The story boards are an attraction in themselves. I am thankful every time I drive that highway for the many men and women who have put in many hours to make that even possible. If you haven’t had the opportunity to drive along the Kaikōura coastline lately, then best you put this on your to-do list!”



Artists inspired by Kaikōura

The immense size of the Cultural Artwork Package allowed designers the space and opportunity to flex their creative muscles, while paying homage to existing artwork, local artists and the spectacular Kaikōura landscape.



Arika Creative team, left to right: Hori Te Arika Mataki, Sammy Nicholls, Morgan Mathews and Taane Flanagan.

Arika Creative Founder Hori Te Arika Mataki says the design team was led by Te Rūnanga o Kaikōura while designing the package of murals, interpretation boards and laser cut corten steel currently being installed along SH1 and at Safe Stopping Areas.

“All the stories told in the artwork were provided to us by the Rūnanga; none of them were of our own creation. Once we had the trust and connection with the mana whenua and a deep understanding of the Rūnanga’s perspective, we became their creative tools in the design process,” says Hori.

The installations along the coastline reference existing Maori artwork in Kaikōura, including the carvings at the Takahanga Marae by Cliff Whiting and the work of local Master carvers Riki Manual and Fayne Robinson.

“In the artwork we tried to create something that is not too dissimilar from what already exists so it doesn’t feel disconnected with a different design aesthetic. We tried to draw as much as we could from those design influences as well as adding our own style.”

The design team of Hori, Morgan Mathews, Taane Flanagan and Sammy Nicholls, also visited Kaikōura to get inspiration from the physical space.

“We were looking at the aesthetics across the entire coastline and how we could integrate a design that looks and feels connected across the whole landscape in an organic way.”

The opportunity to create large-scale artwork to fit these spaces – some of which are over 50-metres long – was a highlight of the process, says Hori.

Hori says one of the most challenging parts will be placing the designs into the landscape, and is confident Art Fetiche, the signage company currently vapour blasting the murals, will bring them to life.

“We have a high level of trust with them utilising the designs and putting them in place exactly as they should be. I think they’ve got an understanding of the importance of the artwork and have an appreciation that it’s not just another blasting job.”

Hori began working in Maori cultural design over 20 years ago and says the Kaikōura Cultural Artwork Package is some of his proudest work.

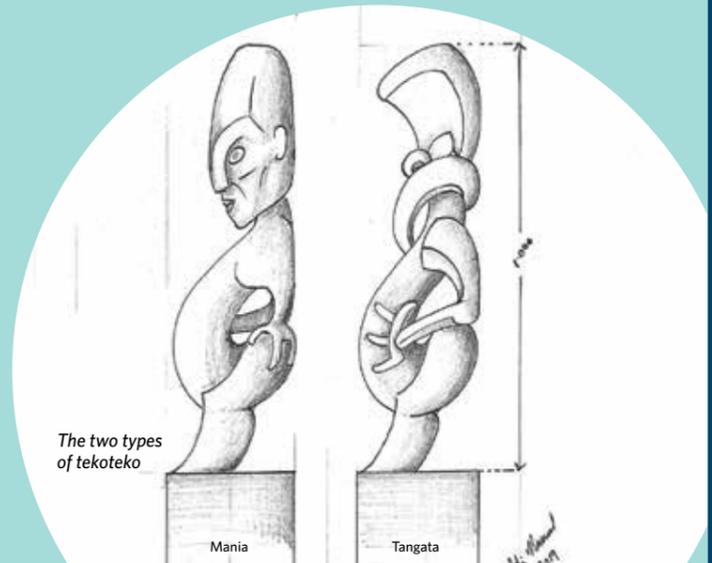
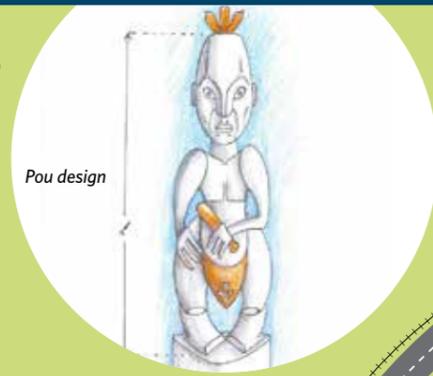
“It’s been a really awesome process for us, we’ve appreciated being a part of it with the Rūnanga and NCTIR, as well as being able to share it with our own up and coming staff who are learning how to get into the industry.”

”

Map of Cultural Artwork Package sites

Key information

- Location of formal stopping areas
- Pouwhenua (large carved pillars)
- Tekoteko (small carved pillars)
- Wall treatments/murals (vapour blasting, painting, corten etc)
- Toilet facilities



Cultural Artwork Package at Safe Stopping Areas

Below is a brief description of the key narratives from the seven formal Safe Stopping Areas. The information panels at each stop provide a richer understanding of the history of each area, so be sure to pull in, take a break and have a read.

TOKA-ĀNAU

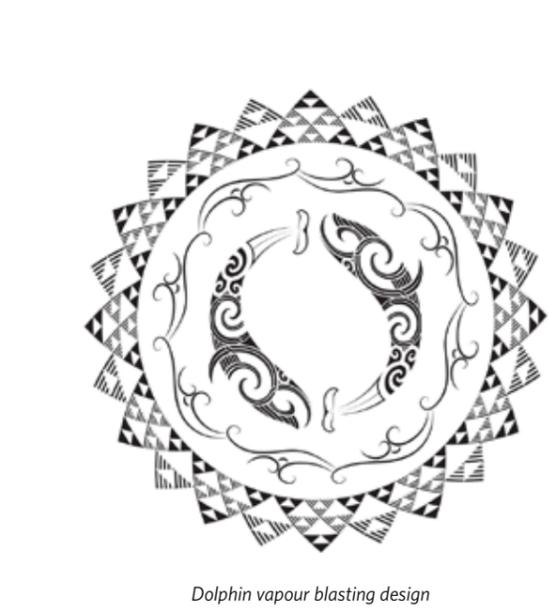
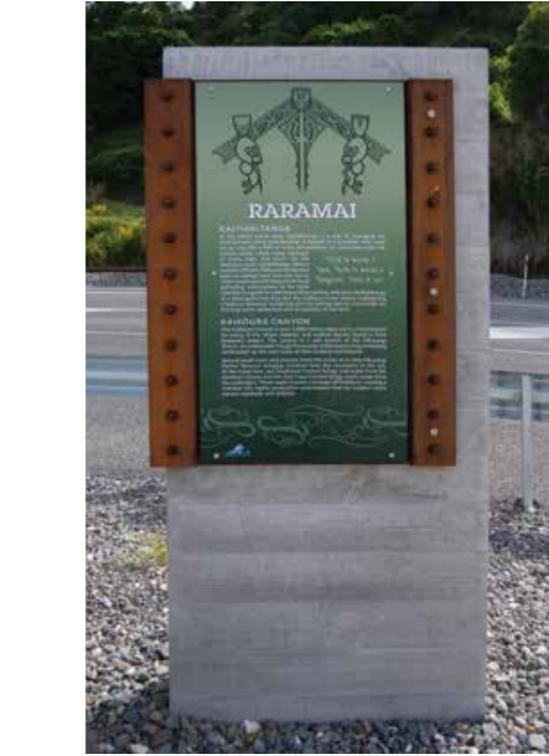
Toka-ānau, just south of Raramai Tunnel, tells the story of whaling, whale watching and biculturalism between Māori and non-Māori. This story is represented by the image of three upright harpoons, and ropes that symbolically bind the cultures together. Further south at an informal stopping area in Oaro is a pou representing Hinekura (of Ngāti Ira), who was the namesake of Ōmihi -based hapu, Ngāti Hinekura.



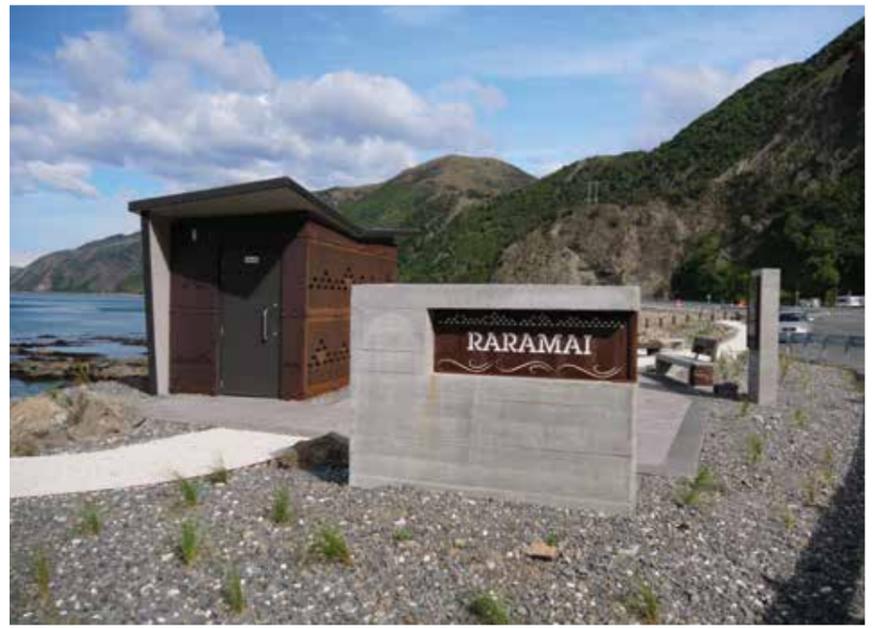
Pou of Hinekura to be installed further south near Oaro.

RARAMAI

Raramai, just north of the Raramai Tunnels, focuses on the kaitiakitanga, or guardianship of the area, as well as the presence of dolphins. The pou here depicts Te Ruahikihiki, who was a chief at Ōmihi pa. Te Ruahikihiki moved south to Taumutu, by Lake Ellesmere, and so his carving faces in that direction.



Dolphin vapour blasting design



Pou of Te Ruahikihiki

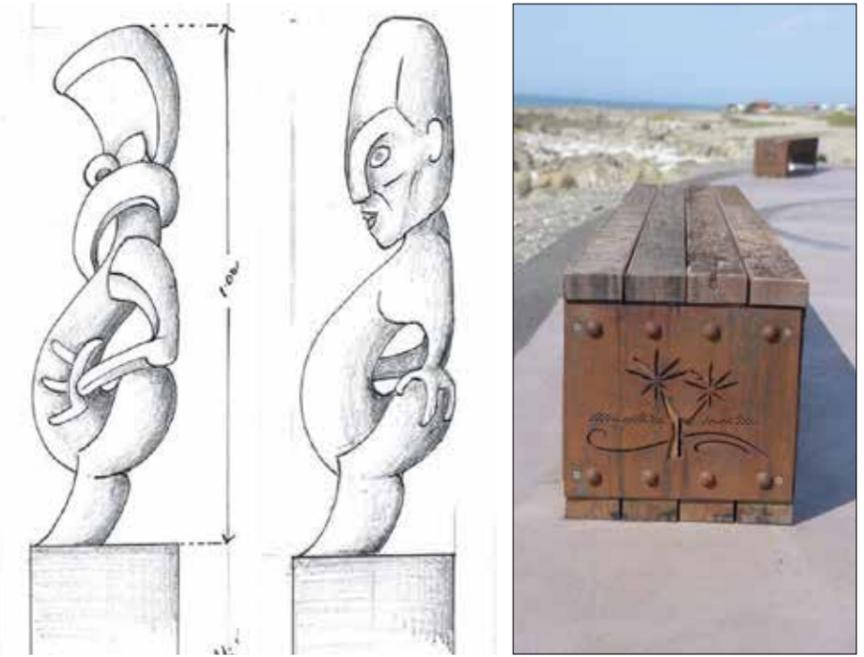
RĀKAUTARA

Rākautara, which is home to Nin's Bin, focusses on the theme of kai moana, and features designs that represent Maui's famed fish hook. A detailed design has been vapour blasted into the concrete path representing Maui fishing up the north island (a sting ray), while standing on the South Island (his waka).

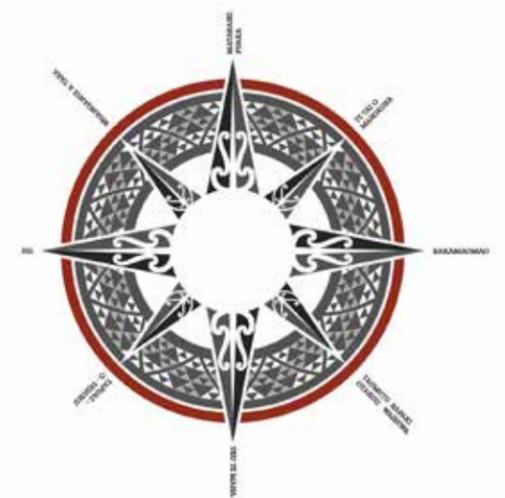


TE ANA PŌURI

At Te Ana Pōuri, just north of Rākautara, the focus turns from the sea to the land. This area was the origin of a significant track that once ran between Ōkiwi Bay and Half Moon Bay, and it was a planting/harvesting point of food such as ti kouka (cabbage tree). The safe stop features a large vapour blasted compass design, with each point offering a culturally significant name, wind direction, or place in te reo Māori.



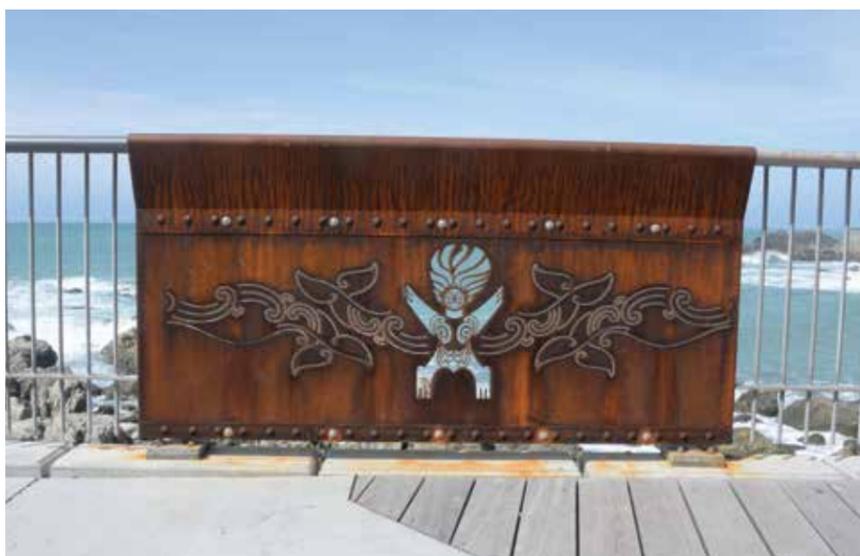
Visualisation of Maui vapour blasting design



Compass vapour blasting design

ŌHAU

Ōhau Point is themed around its famous seal colony, as well as a genus of rock daisy that can only be found around this area. Ōhau rock daisies are prized for their silk-like fibres, which can be weaved into a korowai or cloak.

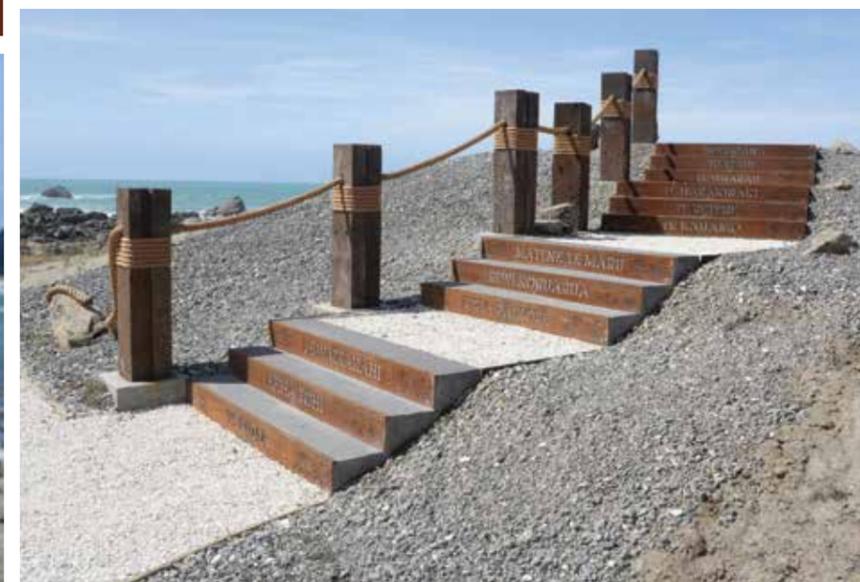


Corten steel design of Tahu Potiki, of Ngāi Tahu

PAPAROA

Paparoa Point tells the story of Paikea, the whale rider, and is themed around the almost umbilical connection that the Hikurangi Trench represents between Kaikōura and the east coast of the North Island. The pouwhenua here is of a man named Tūteurutira, and each stair leading to the lookout displays a name from his whakapapa, or genealogical line.

The staggered shape of the lookout references the geological change to the coast and uplift of the ocean bed as a result of the earthquake. Ruamoko (god of earthquakes) is depicted on the lookout's internal face.



Pou of Tūteurutira

ŌKIWI

Ōkiwi Bay focusses on a once famous spring, Haumakariri, which existed in the area before the earthquake, and celebrates the totara tree, which was used for waka-building. Further north, near Mororimu Stream, a pou will stand of Ngāti Māmoē ancestor, Hinerongo



Vapour blasted waka design

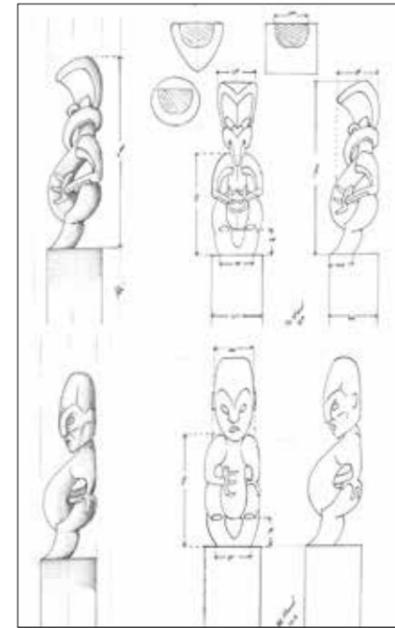


Pou of Hinerongo to be installed further north near Mororimu Stream



Pou and tekoteko

Master carvers Riki Manuel and Fayne Robinson worked on the four pouwhenua (carved pillars), and the eight smaller tekoteko posts. The carvings have been cast in weather-resistant concrete and will be installed along the coast in the coming months. Each pouwhenua represents a local ancestor linked to the area where the pou will be displayed.



The eight tekoteko posts are designed in two styles, Mania (left) and Tangata (right).

Interpretation panels

Interpretation panels are installed at each of the safe stops to give a brief description of the history and cultural significance of the area. Each panel includes an intricate graphic relating to a corresponding whakataukī (proverb) in te reo Māori. The corten steel design running down the side of each panel relates to the theme of each area.



Planting

A landscaping team from Red Tree Environmental Solutions has been working with NCTIR to plant each Safe Stopping Area with locally-sourced native seeds and plants. "We've tried to marry the planting to the stories at each safe stop," says Te Rūnanga o Kaikōura member Maurice Manawatu. "Everything has a reason for being there."

Peketa palisade

A wooden palisade will cover the retaining wall south of Kahutara River Bridge. The design is in acknowledgment of the historic Pa site above Peketa, and eight tekoteko will be displayed, depicting eight individuals significant to the site.



Wall treatments

The murals found on tunnels and retaining walls both north and south of Kaikōura tell the creation story, as told by Ngāi Tahu leader Matiaha Tiramorehu in 1849. Each mural depicts a part of creation, while remaining interconnected. They tell the story from the beginning of time to the birth of Ranginui (sky father), his wives and his battle with Tangaroa – ending in the separation of himself from Papatuanuku (earth mother). The murals start at Tunnel 6 south of Raramai, and finish at Ōhau Point.



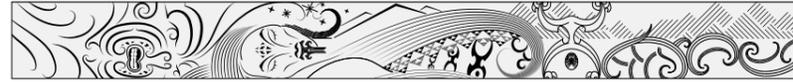
Rail Tunnel 6. Te Po – Te Ao – Te Kore: The Beginning.



Rail Tunnel 11. Ranginui and Pokoharuatapo.



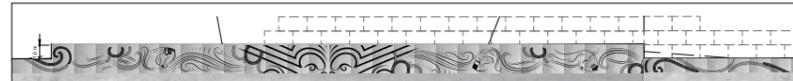
Rail Tunnel 13. Ranginui and Papatuanuku.



Rail Tunnel 14. Ranginui and Hekehekepapa.



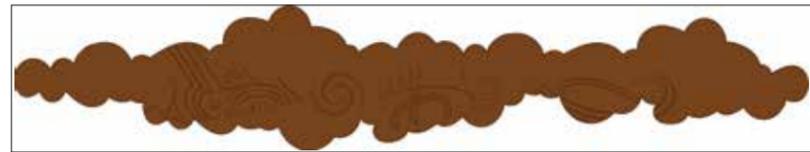
Slip 1A. Ranginui and Hotupapa, Maukuuku and Tauharekiokio.



Slip 2. Ranginui and Papatuanuku.



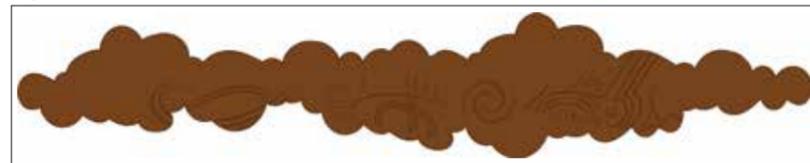
Slip 6 - Section 1. Separation of Sky Father/Earthquake.



Slip 6 - Section 2



Slip 6 - Section 3



Slip 6 - Section 4



Slip 6 - Section 5



Artist's impressions of planned West End Rail Bridge murals.

Gateway to Kaikōura

The Westend Rail Bridge is getting a makeover, with a colourful mural planned to tell the story of early Kaikōura settlement. The northern pier under the rail bridge tells the story of Rakihouia, who came to New Zealand from Hawaiki on the canoe, Uruao. The southern pier design tells the story of Rakihouia's wife, Tapuiti. The couple were among the first to settle in the Kaikōura district, and the artwork forms a symbolic gateway into the town centre. The concepts were designed in collaboration with local artist, Brett Pettit, with installation expected to begin in October. Brett says he wasn't planning on devoting much time to creative arts this year, but after being approached by NCTIR and Te Rūnanga o Kaikōura he knew he had to embrace the opportunity.

“They have been great collaborators, and I am grateful for their trust, guidance and support. The prefabrication work is nearly complete and I'm excited to get on site soon and bring the creation to life.”



Blasting brings art to life

The team at Art Fe'tiche are using a specialised vapour blasting method to install the Cultural Artwork Package murals to reduce the impact of the works on the environment.

“Vapour blasting uses 80 mesh grit, mixed with water, which comes out as a vapour. The idea of the vapour is to suppress the dust down to between 92% and 95% dustless, where normal vapourblasting is quite unhealthy and un-ecological,” says Art Fe'tiche owner Brent Brownlee.

“We're going through about 400-500 litres of water a day and about 350kgs of grit which we then remove from the environment.”

The huge wall murals take up to a month to blast into place, and smaller ground murals take approximately 15 hours each. Part of the process is placing and fixing the metal stencils into place.

“We use the steel patterns for the floor, they're nice and strong and we screw it in place to keep them from moving. When we do the walls we use ACM, which is an aluminium composite, as it's nice and light and easy to place on the walls,” says Art Fe'tiche crew member Maurice Manawatu Junior. “I've done blasting before but not to this extent and size... it's awesome to be a part of, it's quite humbling.”

Brent says Art Fe'tiche has worked extensively with Ngāi Tahu and iwi throughout the South Island.

“Fayne Robinson and Maurice Manawatu (from Te Rūnanga o Kaikōura) asked us if we would do this project for them, we obviously agreed and we're working with NCTIR to make it happen, it's exciting times,” Brent says.

School artwork displayed at safe stopping areas

NCTIR engaged some amazing young local artists to decorate the tiles that are on display in amenity blocks at three of the Safe Stopping Areas. Children from Kaikōura's four local primary schools decorated tiles with images inspired by their visit to the safe stops with Rawiri Manawatu from Te Rūnanga o Kaikōura. Rawiri and Auckland artist Nicola Francis-Gibb worked with the children to develop designs that reflect the cultural history of each site.



NCTIR crews' Marae visits

In late 2019 Te Rūnanga o Kaikōura held a number of powhiri at the Takahanga Marae for teams from NCTIR to come and learn about the history of the whare, and to get an understanding of the stories behind the Cultural Artwork Package. CPS Geotechnical Engineer Duncan Henderson says during his visit he was 'captivated' listening to the history of Ngāi Tahu and the local Rūnanga. "It's awesome that the marae has given so many people working on this project the opportunity to be involved. It was great to hear the stories behind the cultural package after watching them being installed."



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The Bulletin Kaikōura earthquake update

Inland Road celebration



The NCTIR team celebrated the recent completion of all major earthquake repairs on the Inland Road (Route 70) with a community BBQ on Waiau’s village green this month, to thank locals for all their support.

The event was held in Waiau, as this is where the final major repairs were recently completed on the Waiau Bridge. The celebration was attended by local residents, members of the Hurunui District Council and students from Waiau School, who sang a beautiful waiata.

Hurunui District Mayor Marie Black gave a speech acknowledging the mixture of emotions the local community have felt throughout the recovery journey. ‘The repair work may have caused some disruption, but all who live here and use this access really do appreciate what has been completed.’

Owner Interface Manager at Waka Kotahi Colin Knaggs says the conclusion of this work brings the team one step closer to completing the wider Kaikōura region’s recovery and improvements work.

‘Completing our work on the Inland Road is a huge milestone, for us and the community. We reopened the road in December 2016 to make Kaikōura accessible after repairing the initial damage. Then in July 2019 we turned the focus to making permanent and more resilient repairs.’

The Inland Road was hit with over 50 slips and seven damaged bridges following the 2016 Kaikōura earthquake. The repair works consisted of 20 separate projects, including repairs to bridges, culverts and retaining walls, as well as a road realignment at Lulu’s bend, and a complete bridge replacement at Wandle River.

The last remaining job on the Inland Road is to improve fish passage at Little Linton Creek, which will be completed at the end of November with minimal traffic impact.

The local road maintenance contractor will complete sealing work along the Inland Road over the summer months when weather conditions are favourable.



Hurunui District Mayor Marie Black



Site Engineer Jordan Smith helping out at the Waiau community BBQ



Looking back - earthquake damage at Whalesback



Looking back - Removal of damaged Wandle Bridge in 2017

New timetable for SH1 night closures south of Kaikōura



A new night closure timetable has been announced for the work to install permanent rockfall protection between Peketa and the Parititahi Tunnels south of Kaikōura.

This timetable came into effect on Sunday 18 October and involves one minor change to the previous timetable, which is to keep the road closed until 6:30am. This will allow crew a larger window of time to complete their work.

The closures will continue to be in place five nights a week (Sunday – Thursday) with set opening times throughout the night to clear traffic.

Night closures will run until late December, and then resume in January to complete the canopy work in this location.

Short daytime delays

Intermittent helicopter operations will also be occurring at this site over the next month. This will involve short 10-minute stop/stops when a helicopter crosses the road to release their load for the abseilers on the hillside to secure safely.

Longer holds will be required later in the year, with more details to be provided closer to the time.

To plan your journey, please check www.nzta.govt.nz/p2c for the latest travel information.

SH1 south of Kaikōura - new night closure timetable from Sunday 18 October (Sunday-Thursday)

TIME	ROAD STATUS
7:00 - 8:30pm	Road will be closed for 30 minute intervals from 7pm-8:30pm. Following a 30 minute closure the road will re-open to allow queued traffic through, and then close again for 30 minutes. This cycle is repeated until 8:30pm. (Average wait time 20-25 minutes)
8:30 - 9:00pm	Road open for 30 minutes
9:00 - 11:30pm	Road closed
11:30pm	Road open to clear queued traffic only. Traffic MUST be in the queue by 11:30pm to be let through.
11:30pm - 3:00am	Road closed
3:00 - 4:00am	Road open
4:00 - 6:30am	Road closed
6:30* - 7:00pm	Road open (*Road open 6:00am every Monday)

NOTE: When the road is open, it is still under one lane with stop/go operation in place.



Rockfall protection work underway at Site 8, 9 and 10 south of Kaikōura

Tunnel maintenance south of Kaikōura



NCTIR is carrying out work on the Parititahi and Raramai road tunnels south of Kaikōura over the next month. This will be maintenance work involving crack injection, graffiti removal and the addition of an anti-graffiti coating. Maintenance in each tunnel will take approximately a week,

with four individual tunnels to complete. Work will begin at the Parititahi Tunnels, just south of Peketa, and then move to Raramai, just south of Goose Bay. There will be one lane Stop/Go traffic management in place while work is underway.

Planting and pull-off areas complete

BEFORE



AFTER



NCTIR wrapped up two milestones recently, completing the last of 15 additional informal safe stopping areas, as well as the remaining landscaping works up and down the coast.

The informal stopping areas have sprung up in areas where NCTIR site offices and stock piles have been removed at the end of projects. These have been tidied and planted to help them blend back into the environment.

The planting in these areas also represents the last of the landscaping for the entire NCTIR project, which was completed with the help of Red Tree Environmental Solutions. The landscaping utilised eco-sourced native plants that were grown from seeds collected in the local area. NCTIR Landscape Architect Lawrence Elliott says the process of landscaping the coast following the 2016 earthquake has been a 'big job', with the planting tailored to serve multiple purposes.

'This could be anything from slope stabilisation, rehabilitation of disturbed areas, ecological and cultural enhancement, habitat creation, or the preservation of rare and threatened species. It also provides shelter and visual buffering at safe stopping areas. The recent planting looks a bit sparse at the moment, but wait a few months and it will really start to fill in!'

On track at the Racecourse



Steady progress is being made on the road realignment above the

Racecourse, with the project tracking ahead of schedule. Crews have been working on drainage, installing kerbs, and preparing the ground beam for the new walking and cycling pathway. Work will shut down at this site on Monday 2 November for the Kaikōura Races to help increase traffic flow. Thanks for everyone's patience during this work.



Visualisation of the new road and pathway on South Bay hill

Telco duct complete



NCTIR recently laid the last of the Telco duct for the fibre optic cable between Hāpuku and Clarence, which was damaged during the 2016 earthquake. The cable runs along SH1 from Clarence and Kaikōura to Christchurch, and supports both fixed line and mobile networks. While a temporary fix was done at the time to restore supply to affected locals, some sections of the cable remained exposed. A consortium was formed including Waka Kotahi NZ Transport Agency, Chorus, Spark and Vodafone to provide a single solution to permanently repair the cable. The agreed solution was to install a single shared 73km length of duct between Parikawa (north of Clarence) to Oaro (south of Kaikōura). NCTIR has now finished laying approximately 25km of duct across more than 10 projects - with consortium contractor, Connect 8, to complete the project by installing the cable into the repaired stretch of duct.



Telco duct

All done at Tunnel 9



Work has wrapped up this month at Tunnel 9 south of Kaikōura. A debris screen made from railway iron has been installed over the mouth of the culvert beneath the rail, and a rockfall wall has been constructed alongside the track. The purpose of both is to protect the transport corridor from any large debris flows that have the potential to come down from the catchment area above the wall.



Tunnel 9 wall during construction



Hutton's Shearwaters returning to town

Kaikōura's endemic seabirds are returning home after spending the winter in warmer Australian waters, and often get disorientated by the street lights and crash land on the road. If you find a grounded shearwater, please place the bird in a cardboard box in a quiet, dry and cool place, and take it to Encounter Kaikōura (96 Esplanade, 7:30am - 6pm Monday - Sunday) where staff will arrange for the bird to be released safely at sea. If you find an injured bird, please contact Kaikōura Wildlife Rescue on 021 585 586.

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The Bulletin Kaikōura earthquake update

December events - please join us to celebrate!

As NCTIR begins to wrap up, there are a few events that we would love the community to join us in celebrating!

Cultural artwork blessing

Te Rūnanga o Kaikōura and NCTIR are hosting a public event on the Kaikōura Peninsula to officially open and bless the Cultural Artwork Package. The final pieces of cultural artwork are being installed along the coast, and feature prominently at the formal Safe Stopping Areas between Ōkiwi Bay and Oaro. After the official opening, bus tours will be offered to share the stories behind the designs. The buses will depart from Ngā Niho Pā on Scarborough Terrace, travelling both north and south of Kaikōura to a few select sites. **To book your place on a bus tour please contact info@nctir.com, as spaces are limited.**



Date: Saturday 5 December

Dawn blessing: 5:00am (karakia begins at sunrise, approx. 5:15am, followed by kai at Takahanga Marae at 7:30am)

Official opening: 10am

Bus tour: 11am – 1pm (approximately)

Location: Ngā Niho Pa, Scarborough Terrace, Kaikōura (Parking available on site, and along Scarborough)

We look forward to seeing you and your whanāu there!



Community farewell

We would like to say a big thank you to the local community for your support as we wrap up the project. We hope you can make it along to this fun, family friendly afternoon! There will be bouncy castles, truck tours, food stalls, free ice-cream and much more!

Date: Sunday 13 December

Time: 1pm – 4pm

Location: Kaikōura Racecourse, South Bay Parade

Unveiling and blessing ceremony

A special ceremony will be held at the South Bay corner to unveil the new Kaikōura town entry sign and to bless two tekoteko (carved pillars).

This event will also officially mark the departure of NCTIR from Kaikōura exactly three years after State Highway 1 re-opened on 15 December 2017.

Date: Tuesday 15 December

Time: 12pm

Location: South Bay Racecourse intersection

RSVP: Thursday 10 December to info@nctir.com



Naturalising the coast



NCTIR's design team has been working with

Te Rūnanga o Kaikōura's Natural Resources Manager to soften and naturalise roadside structures, including concrete barriers, rock revetments, guardrail, retaining walls and tunnel shelters.

NCTIR Design Lead Derek Watson says this 'naturalisation project' was born in response to local feedback about initial works.

'As we were initially in an emergency response situation we had to move quickly to get the road reopened. A critical amount of work happened to get the road open in one year, one month, one day - and it all happened at a great rate of knots.'

Derek explains that design decisions were often based on strict time constraints and available resources. The colour and visibility of the new roadside features meant that they could be seen from a distance, and

prevented them from blending with the surrounding hillside/coastline. 'The structures were a bit of a shock for some people as they started coming back on the road,' Derek says.

'As we have moved out of an emergency response phase and into a controlled delivery model, we have managed to spend more time listening to and working with the community to ensure a greater outcome for everyone.'

This has involved shortening, and even removing lengths of guardrail, blending revetments made from river boulders with existing beach material, and staining or sandblasting bright barriers/structures.

The naturalisation project has seen a more balanced approach to structures such as guardrail, to incorporate the views of the safety engineer with those of the local community. 'It's a fine line to find this balance, as safety remains our focus - reducing potential deaths and serious injuries. But where we can we've been revisiting areas to see how we can blend them back into the local environment.'

The reduction of planned guardrail along the coast was made possible by reducing the hazard. An example of this can be seen just south of Rākautara, where a 300-metre section of beach has been built up by approximately 1-metre to the height of the seawall to reduce the drop-off risk. Also in short sections where concrete f-type barrier needs to be installed, an exposed aggregate has been chosen over bright white concrete, which is a first on New Zealand roads.

A number of roadside retaining walls, tunnel shelters and a bridge in town have been utilised as ideal canvases to tell local stories as part of the Cultural Artwork Package, which is a design partnership between NCTIR and Te Rūnanga o Kaikōura. Derek says murals and designs of cultural significance are being installed along the coast, and have meant that more people are learning about the history of Kaikōura.

Ōhau crown wall

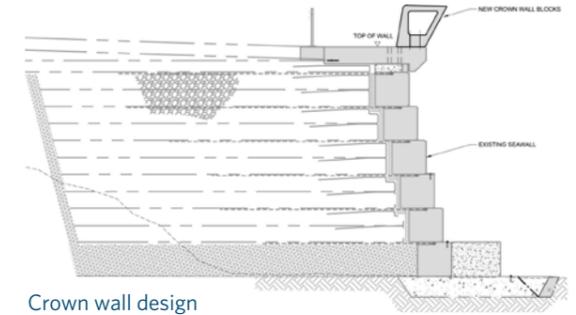
Work is underway at Ōhau Point to mitigate the effect of waves coming onto a short section of SH1 during large swell events.

The Ōhau seawall was constructed close to the maximum height possible without compromising its integrity in another earthquake event, or being built further out to sea - and it was acknowledged that waves would occasionally overtop part of the wall. For the majority of the 3.2km, the seawall has performed well under large swells, but there is a 70-metre section at Ōhau Point where a combination of deep water immediately offshore and rock outcrops, which focus wave energy, have resulted in higher levels of wave overtopping than expected.

As a permanent measure to mitigate the effects of overtopping along this short wave-prone section, a 'crown wall' is being installed to raise the height along 70-metres of the wall by 1.2 metres. The crown wall will be attached to the existing seawall capping block, and have an angled return to deflect part of the wave energy back offshore. Physical model testing undertaken at a hydraulics laboratory found that adding a crown wall would reduce overtopping to around 40% of existing, and would assist in offsetting the effects of future sea level rise.

As an added measure to mitigate wave effects, a monitoring buoy and camera were installed last year to develop a response plan with warning thresholds - this information gets fed back to Waka Kotahi NZ Transport Agency allowing them to make the call to manage traffic or close the road for a short period of time, until the event passes.

Crew have begun installing the crown wall blocks, with work expected to wrap up in December.



Crown wall design

Revetment before



Revetment after



Rākautara revetment before



Rākautara revetment after



Rākautara embankment - reduced drop-off



Daytime delays SH1 south

Short helicopter operations are underway during the day at Site 10 between Peketā and the Parititahi Tunnels.

They will take place from Monday 23 November until Friday 5 December, with 10-minute traffic holds to allow helicopters to cross the road carrying materials (such as rockfall mesh) for the abseilers on the hillside to secure safely.

Longer 30-minute traffic holds will take place the week of Monday 7 December while tree-felling and rock scaling work is undertaken.



Collaboration celebrated at awards

The combined efforts of Waka Kotahi NZ Transport Agency, KiwiRail, NCTIR and Te Rūnanga o Kaikōura have been recognised at this year's Public Services Commission Spirit of Service Awards.

The team won two awards for the recovery and improvement of Kaikōura's transport network, including the Outstanding Public Sector Leadership in Governance Award, and the overall Prime Minister's Award, which was selected by the judging panel from the winners of each of the four award categories.

Prime Minister Jacinda Ardern said the NCTIR project has been the first to introduce a single governance structure for a road and rail rebuild, and shows the value of team work, and a people-first approach.

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 South Island www.facebook.com/nztasouthisland/

 KiwiRail www.facebook.com/kiwirailNewZealand/

CONTACT US

Call our freephone: **0800 NCTIR EQ** (0800 628 4737) or email us: info@nctir.com

This Bulletin provides the latest information about the rebuild of road and rail networks damaged by the Kaikōura 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.



The Bulletin

Kaikōura earthquake update

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We're nearly there!

Works along the coast are coming together quickly with the Racecourse to be completed this week ahead of our event to thank and farewell the community (details below). Just before the event begins we will officially open the new pathway for people cycling and walking, which runs alongside State Highway 1 (SH1) and into South Bay.

The majority of the NCTIR team will be off the road for good by Friday 18 December, with a small team working Saturday 19 December and returning on Tuesday 5 January 2021 to complete the permanent rockfall protection work between Peketā and the Parititahi Tunnels.

The SH1 south night closures* associated with this rockfall work will take a break over the Christmas holidays, with the road returned to two lanes during this time under a speed

restriction. The last night closure of the year will be Thursday 17 December, with closures resuming the night of Tuesday 5 January 2021 and continuing to late February. (For an update of progress on the canopy project see page 2).

The Kaikōura NCTIR office and workers' Village will be demobilised in the new year, with the small returning canopy team to work out of the site office at Peketā.

The Waka Kotahi local maintenance contractor, Downer, will be completing the final roading works on SH1 during the summer months when conditions are optimal for sealing.

*For real-time journey information and updates on these night closures please check www.nzta.govt.nz/p2c.



Asphalt being laid on the Racecourse project

Community farewell and thanks



With the end of the project in sight, NCTIR is hosting a fun, family-friendly afternoon to thank the Kaikōura community for their patience and support. There will be bouncy castles, truck tours, food stalls, free ice-cream and much more. We hope you can join us in celebrating!

Sunday 13 December
1.00pm - 4.00pm
Kaikōura Racecourse, South Bay Parade

Canopy progress update

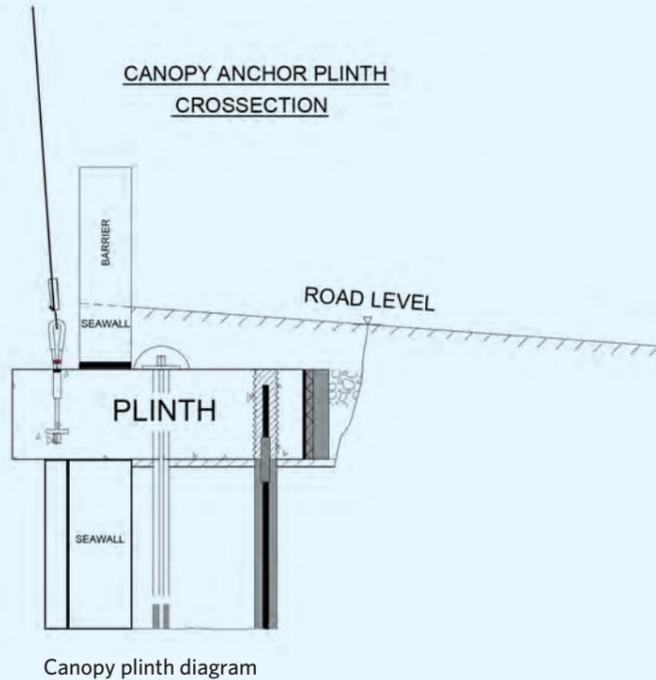
Despite a string of weather events, increased requirements for rock removal and COVID-19 related delays, crew are making progress on the rockfall protection work underway between Peketā and the Parititahi Tunnels.

This work involves installing three separate rockfall solutions: a draped mesh fence, a 1-metre high barrier and a six-metre high canopy to help redirect rockfall away from the road.

The seaward side of the road has been dug out in 14 sections where concrete is being poured to form plinth structures. These plinth structures are being installed on both the roadside and the hillside to act as anchor points for the 14 canopy posts.

The posts will be installed in the new year under night works, and connected to the anchor points using wire ropes (see diagram).

Helicopters have been busy over the past two weeks installing eight posts for the draped mesh fence at Site 9, just north of the canopy site.



Canopy by the numbers

1st
OF ITS KIND IN
THE SOUTHERN
HEMISPHERE

33
PANELS
OF MESH

220M²
OF SHOTCRETE

110M
CANOPY
LENGTH

6M
CANOPY
HEIGHT

120M
MESH FENCE
LENGTH

600+
ROCK
ANCHORS

14
POSTS

15M
LONGEST
POST

77
ROPES





'Package of memories' officially opened

The final pieces of the Cultural Artwork Package* have been installed along the Kaikōura coast this month, adding pouwhenua and tekoteko (carved pillars), laser cut corten steel murals, a painted rail bridge and palisade fence to the existing artwork displayed on tunnel shelters, and at seven Safe Stopping Areas.

Te Rūnanga o Kaikōura and NCTIR hosted a dawn blessing and opening ceremony at Ngā Niho Pā on the peninsula last Saturday to celebrate and mark the completion of this special project. Before the dawn blessing, in the early hours of the morning, a small karakia team travelled both north and south of the township to bless the sites.

At the 10am official opening event Sir Tipene O'Regan, former long-serving chairman of the Ngāi Tahu Māori Trust Board, gave a heart-felt speech about the importance of the artwork in acknowledging the status and presence of Māori along the coast.

"I would like to join in the general chorus of praise for the forces that have assembled this package of memories along our coast. The coast is now much more widely adorned with its memories and its story than it was before, and that says something about what we are beginning, as a people, to become."

Hariata Kahu, Chair of Te Rūnanga o Kaikōura spoke to the guests and community about the shared legacy that the artwork represents. "For us, the Cultural Artwork Package is also for you, the community, to understand our history and to know who we are, and to join in. It is about biculturalism."



Dawn blessing ceremony

After the blessing and opening events the Rūnanga held guided bus tours for the public between Oaro and Ōkiwi Bay. Alan and Chris Gulleford were on the guided bus trip, "We had a great day out! Very interesting and knowledgeable speakers. The artwork is astounding and will be a very important part of our continuing living history of Kaikōura. The technical skills of everyone involved have produced exceptionally high-quality art made with cutting-edge tools. Once again, Kaikōura rocks! Thanks to NCTIR for making this day happen".

*The Cultural Artwork Package has been a partnership between Waka Kotahi, KiwiRail, Te Rūnanga o Kaikōura and NCTIR that involves a team of artists, designers and others producing an extensive range of artwork along the coastline that tell stories of whakapapa and connection, for the past and for the future.



LEFT: Raramai pou
TOP RIGHT: Teketeko marker near the Peketā palisade
BOTTOM RIGHT: Corten mural near Ōhau Point



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The Bulletin Kaikōura earthquake update

Mēri Kirihimete – thank you, and farewell!

From all of us here at NCTIR – we would like to wish you our very last ‘Mēri Kirihimete’! Not only that, but also a big thank you and farewell. The past four years have been extraordinary, and this project has been an experience that will stay with us all forever.

This project has been one of the most significant engineering challenges in New Zealand’s history, and it has been a privilege, and very humbling to be so warmly welcomed by the community and mana whenua over the last four years. We could not have achieved what we did without the support and patience of the community.

We have one last project left to complete south of Kaikōura (a rockfall canopy), which will require a small orange taskforce, who will be based out of Peketā! We’d like to thank you all for bearing with us while we

complete this final piece of safety work. We will open the road to two lanes around this corner over the Christmas break, so holiday-makers can travel freely. The Bulletin will return in the new year to keep you updated on the final work.

Thanks to all those locals who worked with us - who housed, fed, welcomed and befriended us. On behalf of the NCTIR team, we wish you and your loved ones an enjoyable and relaxing holiday.

If you are travelling through this beautiful piece of the country, please drive carefully and enjoy your journey.

Ngā mihi nui,
Tony Gallagher
NCTIR Project Director



Blessing and unveiling event reflects on past four years

A special ceremony was held at the South Bay intersection last week to mark the departure of NCTIR from Kaikōura three years on from the re-opening of State Highway 1 north of the township – which saw the reconnection of communities that had been separated since the November 2016 earthquake.

A new Kaikōura town entry sign and two tekoteko (carved pillars) were unveiled and blessed by Te Rūnanga o Kaikōura, to symbolise the completion of works to restore and improve road and rail along the coast, and to celebrate the increasingly strong relationship built between the alliance and the Rūnanga over the past four years.

Speakers recalled the approximate 6.5 million work hours put in by over 9,000 people across the course of the project, many of whom were working away from their homes and families, and the smiling traffic controllers who brightened the days of delayed motorists.

Waka Kotahi CEO Nicole Rosie spoke of the team's extraordinary efforts, and how they achieved what they did by working collaboratively.

'By forming strong partnerships with our Treaty Partners Te Rūnanga o Kaikōura, Kaikōura District Council, and through the work with the Restoration Liaison Group, Cultural Advisory Group and the community we have been able to achieve so much together and leave a lasting legacy for the community.'

Speakers included Transport Minister Michael Wood, Waka Kotahi CEO Nicole Rosie, KiwiRail COO David Gordon, Kaikōura Mayor Craig Mackle, and Te Rūnanga o Kaikōura Chair Hariata Kahu.



Who will look after the highway when NCTIR leaves?

NCTIR crews have been working hard to make State Highway 1 (SH1) and the Main North Line safe and resilient for the future with a range of protective measures. But like other coastal areas in New Zealand, Kaikōura and the surrounding areas are prone to rockfall because of its geography and weather. Waka Kotahi has a dedicated locally-based team to manage SH1 (as they do in all other regions across the country), with Downer currently contracted to maintain Kaikōura roads. This team was the first to respond after the earthquake and has worked closely with NCTIR throughout the last four years. They know the area well and will be responsible for its ongoing maintenance and incident management.

Our Kaikōura Story

We recently released a video – 'Our Kaikōura Story', which sums up the rebuild journey and celebrates the amazing work of around 9,000 women and men who worked on this project. Follow the link to watch our journey: <https://bit.ly/2Woh5HG>



NCTIR StoryMaps

An online collection of eight interactive stories covering different aspects of the rebuild journey has also recently gone live! This includes a brief overview of everything from initial recovery work, to feats of design and engineering, to the installation of some stunning cultural artwork – complete with visuals. Check out the StoryMaps at the following link, or scan the QR code

<http://bit.ly/2WoLENS>



Reminder: Canopy work dates



A small team will be working south of Kaikōura into early 2021 to complete the final piece of NCTIR work – a new rockfall protection canopy between Peketā and the Parititahi Tunnels. The SH1 south night closures associated with this work will take a break over the Christmas holidays, with the road returned to two lanes under a speed restriction. The last closure of the year was Thursday 17 December, and they will resume the night of Tuesday 5 January 2021, and continue to late February. Day work will resume on Wednesday 6 January.



Racecourse road officially opened ahead of community farewell

The Racecourse road, and shared path, were officially opened with a ribbon-cutting ceremony ahead of the community event this month, with Kaikōura Mayor Craig Mackle doing the honours. Members of the Kaikōura Cycling Club, including club Chair Winston Gray, also attended the ceremony and were among the first to ride down the new shared path, which connects and completes the club's 48km bike loop trail around the Kaikōura township.

Despite a fresh southerly breeze on that Sunday afternoon, there was a good turnout of keen local families who came along to enjoy ice-cream and bouncy castles at the community farewell. There was something for everyone with a quake table, face-painting, archaeological displays, tasty local food vendors, and entertainment by talented local songstress Jade Hole – and of course, Santa!



Let's get ready!

Non-profit organisation Neighbourhood Support has set up free online tool **North Canterbury Gets Ready** to help get you connected with your neighbourhood.



Kaikōura District Council member Joanna York runs Neighbourhood Support and North Canterbury Gets Ready in Kaikōura and says it is a 'really important' tool, and urges locals to sign up.

'We found during lockdown that the Gets Ready tool was a valuable asset in locating people and finding out what their immediate needs were. The aim is to have all Kaikōura residents signed up so in the event of an emergency we can find people and get valuable resources and aid to them faster.'

By signing up you will receive emails and alerts from community partners such as NZ Police, and get tips about preparing for emergencies and improving household and neighbourhood safety. The aim is to get communities working together to provide support, solve local issues, and make our neighbourhoods safer and more welcoming.

Sign up before Thursday 31 December 2020 to go into a draw to win a prize pack. Follow the link to sign up: northcanterbury.getsgetsready.net

If you have any questions email Joanna on Joanna.York@kaikoura.govt.nz



Christmas contact

For any queries regarding road maintenance in the Kaikōura area between Saturday 19 December 2020 and Tuesday 5 January 2021 call the Waka Kotahi local maintenance contractor, Downer, on 027 478 3458. For real-time journey information and updates on please check www.nzta.govt.nz/p2c. Downer will also be completing roading works on SH1 during the summer months when conditions are optimal for sealing (as with all roads around New Zealand each summer).

What will NCTIR do with its assets now that work is wrapping up?

A number of locals have expressed interest in the shipping containers, traffic shelters and other various materials that have been used by NCTIR over the course of our work. Many of these assets seen at our worksites are not owned by NCTIR – they are either hired, on loan, or belong to subcontractors working with us on the recovery. When NCTIR-owned equipment or material is no longer required, Waka Kotahi NZ Transport Agency and KiwiRail, as funders of the project, will decide whether they will keep, donate or dispose of the equipment/material. If Waka Kotahi or KiwiRail do not require the equipment, it will be offered at fair market value to the NCTIR alliance contractors (HEB, Higgins, Fulton Hogan and Downer). Anything they do not purchase will be put up for auction using client-approved auction companies. Some NCTIR assets will have no market value, either through age or condition, and will be sold for residual scrap value where possible, or will be disposed of appropriately. Any revenue will be returned to KiwiRail and Waka Kotahi.

NCTIR Village update

Following a successful tender process, the NCTIR workers' Village will be disestablished in January 2021. Once the buildings have been removed, the land will be reinstated.



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