

# ROCKFALL PROTECTION CANOPY INSTALLATION

## Frequently asked questions

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If you have any questions please email [info@nctir.com](mailto:info@nctir.com)

## THE DESIGN SOLUTION

### 1. Why is a permanent rockfall protection needed at this location?

The safety of road users is our priority and a permanent solution is needed to protect road users now and in the future.

Rockfall has been an ongoing issue between Peketa and the Parititahi 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.

### 2. What rockfall protection is being installed?

The agreed solution for the 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 just north of Parititahi Tunnels. 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.
- Fencing with mesh drape attached will be installed across the middle section, slip 9. It will look similar to the mesh fence north of the Parititahi Tunnel.
- The road around site 8 will be placed with one-metre high aggregate barriers, which will act to prevent debris from landing on the road.

### 3. Why was this design chosen?

It will provide minimal disruption to the community and road users, it's cost-effective and provides a reduced impact to the coastal experience and environment.

Different options, that provided the required level of protection, were considered but it was a balance between cost and minimised impact to road users and the environment.

The canopy design remains open with good visibility. It will protect the road and redirect rockfall out to the sea.

The design solution is intended to minimise the risk catching rock sizes 65mm and above with road cleaning required for smaller sized particles.

#### **4. Who clears the rocks that land on top of the canopy?**

The canopy is designed to be self-cleaning, with the majority of the material rolling off the mesh into the sea. If material does get caught or accumulates over an extended period, then maintenance and clearance will be completed by the Network Operations Contractor (NOC) - maintenance contractor - for the coast. In most cases this clearance can be undertaken from beneath the canopy. This will be the same team that maintain all the other similar rockfall structures on the highway.

#### **5. Will the mesh fill up with rocks and eventually break?**

Some rocks may end up getting caught or accumulating on the mesh, this will be monitored frequently by the NOC team who routinely drive this section of road. Any material that does accumulate will be cleared to ensure the system is in working order.

#### **6. Why is this work only being done now?**

In 2017 remediation works were completed with rockfall areas scaled, and some larger blocks bolted in place.

This risk in this area has increased from marginal to unacceptable recently with recorded incidents and observations of rockfall onto the road, which is why it is being included in the work programme now.

#### **7. Have locals been consulted on this design?**

The Restoration Liaison Group and Te Rūnanga o Kaikōura have been consulted on the design and are in agreement about the preferred solution. We also held an information evening for explanation and video of the visualisations.

#### **8. Why not a viaduct?**

A viaduct would have significant impact on the coastal area, would take in excess of two years to design and build, including the consenting process. It is also not a cost-effective solution.

## THE WORK BEING UNDERTAKEN

### 9. What are the stages of work?

There are six stages to this work.

**Stage 1 (6 July – 14 August)** - Includes milling (cutting back rock) and scaling (removing loose rock) as well as anchoring (drilling into the rock to secure it), using shotcrete (sprayed concrete) and net meshing of isolated locations beneath the canopy structure.

**Stage 2 (16 August – early October)** – This stage will be undertaken during night closures. This includes installing 14 plinth structures in the hillside (these will act to support the 14 canopy beams) and installing anchor points uphill from the canopy (the canopy beams will later be connected to these points with cables).

**Stage 3 (late August – October)** – This stage will be completed during the day with one-lane Stop/Go. Includes installing the downslope anchors (the canopy beams will later be connected to these anchor points with cables).

**Stage 4 (early October – late November)** – This stage will be completed during the day with one-lane Stop/Go. Includes applying shotcrete (sprayed concrete) to support plinth structures, and draping the rockfall mesh using helicopters.

**Stage 5 (Mid October – mid November)** – This stage will be undertaken during night closures. Includes lifting and connecting canopy beams into place, and draping and connecting mesh.

**Stage 6 (Mid November – December)** – This stage will be completed during the day with one-lane Stop/Go. Includes final roading works.

## INFORMATION FOR ROAD USERS

### 10. Will the Stage 1 work mean delays for those travelling on SH1?

Construction will take approximately six months, with work due to wrap up in December and there will be delays for road users at various times.

During Stage 1, from Monday 6 July, for up to six weeks (depending on weather), between 9am and 5pm the road will be closed for 30 minutes while crew work on the rock above the road. The road will then open to clear traffic from both directions. Maximum wait will be 35 minutes. Traffic crew will walk the queue to inform people of their wait time.

During the second stage of work, traffic can return to one lane while our team stabilises the site with rock bolts, mesh and shotcrete and drilling anchors.

## 11. What about Stage 2 and the night closures?

From 16 August, the installation of the canopy beams and craning in the draped mesh will be undertaken at night, and will involve road closures. They are expected to run until late November with set opening times available throughout the night to let vehicles through.

Table below correct at 6 August 2020:

SH1 south of Kaikōura	
Night closures from 16 August to late November	
5 nights (Sunday - Thursday)	
TIME	ROAD STATUS
7:00pm - 9:00pm	Road will be closed for 30-minute intervals from 7pm-9pm. 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 9pm. (Average wait time 20-25minutes)
9:00pm - 9:30pm	Road OPEN for 30 minutes
9:30pm – 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 - 3:30am	Road OPEN for 30 minutes
3:30am - 7:00am	ROAD CLOSED
7:00am – 7:00pm	Road OPEN
<p>NOTE: Road OPEN is still under one lane with stop/go operation in place.</p> <p>Times could change in summer with changes to the Ferry timetable.</p>	

## **12. What alternate routes are available during the closures?**

The Inland Road (Route 70) is open 24/7 and will be the detour for light vehicles. The alternative route for heavy vehicles between Blenheim and Waipara is via SH7, SH65, SH6 and SH63. This route is open 24/7 and takes about 6.5 hours to travel.

## **13. What happens if alternate routes are closed due to snow?**

The Inland Road (Route 70) will be the detour for light vehicles and SH63 for heavy vehicles. If there is snow on the alternate routes the project team will review our work hours if necessary.

## **14. What about people that are travelling from the ferries or around holiday periods or for events?**

Night closures will also be timed around ferry arrivals and departures, and minimised around events such as Labour Day and the Kaikōura Hop.

## **15. Will two trucks be able to pass each other under the canopy?**

Yes, based on the modelling that has been undertaken two trucks should be able to pass at this location.

## **16. When will the traffic be back to two lanes?**

Once work is completed in December.

## **17. Where can I find real-time travel information?**

Information on closures and a link to real-time travel will be available at [www.nzta.govt.nz/p2c](http://www.nzta.govt.nz/p2c)

## **18. How long will it take to drive between Picton and Christchurch at the moment?**

Around 5 ½ hours.

## 19. **What HPMV trucks can travel on Inland Road (Route 70?)**

Due to a weight restriction at the Conway River Bridge vehicles at >44tonnes cannot travel on Route 70 Inland Rd. All trucks running under normal weights (<44tonnes) should be fine on the Inland Rd.

If drivers do not want to wait or plan their trip to meet the set opening times then they will need to use the Alternate Route via SH 6, 65, 7 through Lewis Pass.

## **THE ENVIRONMENT**

### **20. Is there a risk that birds will get entangled in the rockfall structures?**

NCTIR has not recorded any entanglements or entrapments of any birdlife on any of the other rockfall structures installed along the Kaikoura coast. Many of these structures use similar meshes, which are positioned at a variety of angles.

The manufacturers of the structure are not aware of any incidences regarding bird life getting trapped in or on canopy structures installed elsewhere.

The NCTIR Ecology Team has identified a relatively low risk of occurrence for birds to get feet caught within the mesh, as well as no major concerns around nesting around the structure in terms of entanglement. However, this can be monitored following construction and if a problem is identified a solution could be devised to mitigate any risk to seabirds.

### **21. Will the rocks damage wildlife if they bounce out to sea?**

Wildlife has been considered by the NCTIR environmental team during the early design process. The impact to the local wildlife is considered relatively low due to design of the canopy having a relatively small footprint in terms of ground disturbance. However, we have identified the potential that geckos may be present on the sunnier aspects of the site so our abseiling teams have been given handling demonstrations during toolbox talks by our herpetologist to move them safely out of harm's way during works. The works are outside of bird nesting season so we are unlikely to encounter nesting birds during these works.

## **MORE INFORMATION**

Please email [info@nctir.com](mailto:info@nctir.com) or call 0800 628 4737