

Memorandum of the New Zealand Transport Agency Waka Kotahi on the Meridian Energy Limited's Lake Pukaki Hydro Storage and Dam Resilience Works Application

8 April 2026

1. Introduction

- 1.1. This memorandum presents the assessment undertaken by NZ Transport Agency Waka Kotahi (NZTA) of the substantive application for the Lake Pukaki Hydro Storage and Dam Resilience Works application (**Application**), submitted by Meridian Energy Limited (**Meridian Energy**) under the Fast-track Approvals Act 2024 (**FTAA**).
- 1.2. The assessment has been prepared in response to an invitation from the Expert Panel (**the Panel**) to provide comment and includes a summary of how the Application relates to the state highway network.
- 1.3. This assessment is based on the Application materials submitted to the Environmental Protection Authority (**EPA**) and previous discussions had between Meridian Energy and NZTA prior to lodgement of this Application.

2. Background

- 2.1. The Application is seeking to obtain resource consents under the Resource Management Act 1991 (**RMA**) for water takes from Lake Pukaki contingent storage over three consecutive winters starting in 2026 through to 2028. The water take consents would allow for the water level of Lake Pukaki to be lowered to 513.0 mRL, which is an additional 5.0 m from the permitted level of 518.0 mRL.
- 2.2. Additionally, resource consents are also sought to install permanent rock armouring on the Pukaki Dam at the southern end of Lake Pukaki. These works can only be undertaken when lake levels are lower than permitted and will take approximately 10-12 weeks to complete from commencement. The rock armouring will provide resilience to the Pukaki Dam and manage effects from potential increase in wave energy associated with lower lake levels.
- 2.3. Wildlife permits under the Wildlife Act 1953 will also be sought in case native lizard species require capture and relocation.
- 2.4. NZTA has been invited by the Panel to make comments on the substantive application by Meridian Energy through the FTAA as NZTA has been identified by the applicant due to interests in the project that might have an effect on the state highway network, specifically State Highway 8 (**SH8**) and State Highway 80 (**SH80**) which is located at the southern end of Lake Pukaki and operates over the Pukaki Dam.

3. Assessment

- 3.1. NZTA has reviewed the substantive application to understand the potential effects of the proposal on the state highway network. The specific matters of interest that NZTA provide comments on are as follows:
- Construction traffic effects associated with the installation of the proposed rock armouring, and
 - Operational effects of the lower lake levels that may result in adverse effects on state highway infrastructure.

Construction Traffic Effects

- 3.2. The Application has identified that the construction activities for the installation of the rip-rap bedding for the rock armouring will occur over short durations, potentially being a few weeks at a time, and will occur over multiple stages. However, the installation may occur over multiple stages which could take multiple years to complete. At a minimum, the duration of each stage of construction will be three weeks.
- 3.3. The material that is required to construct the rock armouring is currently being stockpiled on the southern side of SH8 with the construction works occurring on the northern side within Lake Pukaki. The existing stockpiling sites and the project designated stockpiles are outlined in Section 3.2.2.5 of the Application and are shown in Figure 7 (Attachment 1 below). It is understood that the material will be taken from these existing stockpiling sites and shifted to the project designated stockpiles then used to construct the rock armouring. Once this material has been depleted it is expected that an additional 50,000 tonnes of rock will be brought to site to construct the remainder of the rock armouring.
- 3.4. Access to the project designated stockpiles will be via two separate entrances from the state highway. The western location will be via the existing sealed access to the Lake Pukaki car park, and the eastern location will be via an existing unsealed access which is currently used to access an overnight campervan parking area. It is proposed to temporarily close both accesses during the construction stages.
- 3.5. The applicant has been in discussion with NZTA regarding the management of traffic effects associated with the construction phase of the rock armouring. NZTA sought that the following permissions/requests be required:
- Installation of Temporary Traffic Management for construction traffic crossing the state highway and the A20 / Te Araroa Track diversions, and
 - A Corridor Access Request (**CAR**), as required under the Government Rounding Powers Act 1989 (**GRPA**), to allow for the establishment of traffic management and to ensure that any damage to state highway assets is managed and repaired if damage occurs.
- 3.6. NZTA supports the use of Temporary Traffic Management measures during the construction stage(s) of the project, as the movement of material will be undertaken by heavy vehicles that are required to cross SH8 in a high speed environment, having a posted speed limit of 100 km/h. Traffic management will ensure that any potential safety effects are effectively mitigated during the construction stages.
- 3.7. To ensure that sufficient traffic management is installed during each construction stage, it is required that any Temporary Traffic Management Plans are in accordance with the New Zealand guide to temporary traffic management (**NZGTTM**). Additionally, a CAR will also be required prior to each time that temporary traffic management is established within the state highway corridor. To apply for a CAR, this must be submitted via www.submitica.com at least

fourteen working days prior to works taking place. However, it is recommended that Meridian Energy work closely with NZTA with their construction programme to minimise any potential delays of obtaining a CAR and to ensure that NZTA can manage state highway maintenance activities without conflicting with the proposed works.

- 3.8. Additionally, if any damage is caused by Meridian Energy and/or their contractors on the state highway infrastructure, then this should be remediated at the end of each stage of construction. At a minimum this will include pavement repair and/or reinstatement, kerb and channel repair, and sweeping of loose material from the state highway carriageway. Appropriate conditions of consent should be included to address this.

Operational Effects

- 3.9. The Application by Meridian Energy proposes to lower the water level of Lake Pukaki by an additional 5.0 m to support energy production during winter for a period of three years. NZTA does not oppose the lowering of Lake Pukaki and supports the construction of the rock armouring to protect the Pukaki Dam, including sufficient erosion and sediment controls during construction. This will also indirectly protect SH8 which sits on top of the Pukaki Dam. However, NZTA wants to ensure that the lowering of the lake levels will not exacerbate or cause additional adverse effects on other sections of SH8 and also sections of SH80 that are prone to erosion.
- 3.10. There are several sections on the state highway network adjacent to Lake Pukaki that are currently prone to erosion and slips, such as a section of SH80 to the south of Boundary Stream and to the west of the Lake Pukaki Viewpoint carpark on SH8. Currently these areas, in addition to many more, are monitored bi-annually by Meridian Energy to check for scour and erosion. This requirement is set out in an agreement (Attachment 2) that is held between NZTA and Meridian Energy as part of the Waitaki Hydro Scheme. The agreement also outlines the requirements if any remedial works are required.
- 3.11. NZTA is concerned that the lower lake levels could further expose these cliff faces and that increase or a change in wave energy may exacerbate the issue. Lower lake levels also have the potential for sediment to be exposed in the bed of the Lake Pukaki, which could become an issue for dust during periods of high winds.
- 3.12. While the agreement outlines monitoring requirements, it is considered that bi-annually may not be sufficient for the three year period where Meridian Energy is seeking to lower the lake levels. It is recommended that a baseline assessment be undertaken at the first time the lake levels drop below the current permitted level of 518.0 mRL, which can be done as a visual assessment. Additional monitoring should then occur during each winter period to ensure that the lowered lake levels do not undermine the state highway infrastructure. If any scour or erosion occurs that could result in impacts on the state highway then this should be remediated by Meridian Energy. Monitoring and management of dust from exposed sediment in the bed of the lake should also be required to ensure that it does not cause a safety effect on the state highway.
- 3.13. Additionally, NZTA was unable to assess if there were any effects associated with change in gravel aggradation from streams entering Lake Pukaki. NZTA have several structures that go over these streams, such as Sawyers Stream and Whale Stream on SH80, and maintenance is often required to remove gravel from these streambeds to ensure that the streams continue flow, minimise flooding effects on the state highway during high rainfall events and mitigate damage to these assets.

- 3.14. At this stage, it is unsure whether gravel aggradation may be increased or decreased during the periods where the lake levels are lowered. It is recommended that further assessments are undertaken by Meridian Energy to confirm the likely change in volume of material associated with the reduction of water levels of Lake Pukaki and whether this will change the characteristics of these streams. This is necessary to confirm whether further maintenance of state highway assets is required and how they should be effectively managed.
- 3.15. Lastly, NZTA notes that the lower lake levels could result in livestock being able to navigate around fencing where they haven't been able to do so previously. Typically this fencing goes into the waterbody of Lake Pukaki to prevent stock from getting around it, if the lake levels are dropped by 5.0 m then this could result in the risk of livestock getting out and entering the state highway carriageway. This would be a safety hazard to motorists and it is considered that Meridian Energy should address this as part of their application where it is appropriate to do so.
- 3.16. The concern is that stock may exit paddocks and end up on the state highway carriageway, which is a safety hazard to motorists. It is recommended that any fences are extended where this risk may occur.

4. Summary

- 4.1. NZTA is not opposed to the Application by Meridian Energy to lower the levels of Lake Pukaki from 518.0 mRL down to 513.0 mRL during the winter periods. However, it is considered that appropriate conditions should be included to address risks on the state highway, which should include:
- Appropriate temporary traffic management is established on the state highway network during each stage of constructing the rock armouring around the Pukaki Dam.
 - Any damage that has occurred to the state highway as a result of construction activities are remediated after each stage of construction.
 - Baseline monitoring is undertaken at the initial stage where the lake levels drop below the current permitted level of 518.0 mRL.
 - Additional monitoring be undertaken during the winter periods where the lake levels will be between 513.0 mRL to 518.0 mRL.
 - Monitoring and management of potential dust from within Lake Pukaki where sediment is exposed from lowered lake levels.
 - Installation of additional fencing to address concerns associated with livestock.
- 4.2. Additionally, NZTA considers that further assessment should be undertaken by Meridian Energy to confirm that gravel aggradation from streams entering Lake Pukaki will not cause a build up of material that may impact on state highway infrastructure. If the assessment identifies any increase in risk of gravel build up, then suitable conditions should be included that requires Meridian Energy to manage this in consultation with NZTA.

Attachment 1 – Rock Stockpiling Locations



Attachment 2 – NZTA and Meridian Agreement in relation to the Waitaki Hydro Scheme