Before the Expert Panel appointed under the Fast-track Approvals Act 2024

Under	the Fast-track Approvals Act 2024
And	
In the Matter of	an application for approvals by NZSki Limited to upgrade existing infrastructure at the Remarkables Ski Area, including a new passenger transport lift, carparking areas, and expanding the ski field into the adjacent Doolans Basin

Statement of Evidence of **Derek Norris Hill Chinn** on behalf of NZSki Limited in response to Section 53 Comments

Engineering

Dated: 3 November 2026

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INTRODUCTION

1. My name is Derek Norris Hill Chinn.

2. My professional Qualifications are Bachelor of Engineering in Civil Engineering, Chartered Professional Engineer (Civil and Structural), Fellow of Engineering New Zealand and I am on the International Professional Engineers register (NZ). My area of professional interest is alpine and remote site infrastructure. I have 40 years' experience in engineering projects in remote and alpine locations. I have designed, and been involved in the implementation of, a wide variety of alpine and remote structures including 15 significant high alpine hut structures, 10 chairlifts and gondolas and 10 high alpine toilets in sensitive alpine environments. I have prepared more than 10 specific natural hazard risk assessments for significant alpine projects. I am a Life Member of the New Zealand Alpine Club. I was a Senior Team Member of the Queenstown Alpine Cliff Rescue Team for 16 years and was involved in numerous alpine rescues and recoveries. I have 40 years' mountaineering experience throughout the world including 10 ascents of Aoraki Mt Cook and first ascents of mountaineering routes, and peaks, in New Zealand and the Himalaya. I have skied from the summit of a 7,500m peak in the Himalaya, and I climbed Mt Everest from Tibet via the North Col/North Ridge in 2004.

3. This statement is given as part of NZSki Limited's (**NZSki**) response to comments on the Remarkables Ski Area Upgrade and Doolans Expansion (**Project**) made under Section 53 of the Fast-track Approvals Act 2024 (**FTA**). This statement responds to specific comments raised by:

   (a) QLDC and more specifically, Mark Cruden; and

   (b) Kā Rūnaka, or more specifically, Dr Rowan Dixon.

4. My original findings are provided in full in the natural hazard assessment provided in Part of the Substantive Application documents [B-15 Natural Hazards Assessment], with further analysis provided with respect to various aspects of the report in response to comments provided by Mark Cruden on behalf of CODC and QLDC between May and September 2026.

5. Although this is not an Environment Court proceeding my confirmation of compliance with the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2023 is included in my natural hazard assessment submitted as part of the substantive application.

SPECIFIC RESPONSE TO COMMENTS

QLDC Comments

6. QLDC (Paragraph 6.10) have requested that Stantec confirm that the high-risk rating identified in for the rock fall hazard between Swan Lake and Helicopter Ridge (the construction access and skier return trail) can be adequately mitigated in the context of temporary construction access.

7. The risk of rockfall from the bluffs above Swan Lake is 'High Risk' in terms of the National Policy Statement for Natural Hazards 2025. It is my professional opinion that location between Swan Lake and the bluffs above is not an appropriate location for permanent infrastructure, such as buildings or permanent structures, due to the ongoing risk of rockfall from the bluff above.

8. Rockfall from alpine bluff features such as those above Swan Lake is typically episodic in nature and primarily occurs in response environmental triggers such as heavy rainfall, snow avalanche and spring thaw conditions and thus the risk may be mitigated by operational measures. Seismic events may also trigger rockfall, but such events cannot be predicted, and in this location seismic propagated rockfall risk is reduced by the transient use of the proposed road and is thus consistent with roads operated by roading control authorities in the area.

9. However, the risk of rockfall propagated by weather and climate conditions may be managed and reduced by various operational measures. The effectiveness of mitigation measures in mitigating the 'High Risk' rating for the identified rockfall hazard can be determined by a hazard risk assessment. Such mitigation measures may include the following:

    (a) Summer road closure prior to forecast rainfall. In practice this is likely to mean monitoring the weather forecast and closing the road to traffic prior to predicted rainfall.

    (b) Short term nature of summer construction traffic. Construction traffic will be limited to summer over a period of approximately four seasons. Beyond this time there will be limited summer use of the road by wheeled maintenance vehicles.

    (c) Winter avalanche control measures. The Remarkables operate a robust winter avalanche control programme. This programme involves both active and passive control measures. These include aerial bombing and ski cutting plus access control to prevent people from being exposed to avalanche risk prior to, and during, active control measures. Thus, should there be a risk of

snow avalanche, which may also propagate rockfall, the Remarkables ski patrol will undertake both access control and active avalanche control.

10. Seasonal vehicle use. Construction and wheeled maintenance traffic will be limited to summer only when the proposed road is trafficable. Consequently, during times when there is a risk of winter snow avalanches or spring wet snow slides, the road will not be available to either construction or wheeled maintenance traffic.

    (a) The least risk time of the year for rockfall above swan lake is during winter when potentially unstable rocks are largely frozen in place or fixed by snowpack. This coincides with the time of year when guests may be traversing between Helicopter Ridge and the top station of Sugar Bowl lift.

    (b) Skier management. During winter ski season, no stopping signage can be implemented to ensure skiers spend minimum time within the rockfall risk area. In practice, narrow width return ski trails (such as the proposed return trial) naturally require skiers to continue moving due to the lack of stopping areas and skiers following behind.

    (c) Restricted use. The road can be restricted to construction and maintenance access only and the return ski trail realigned if a hazard risk assessment determined acceptable and unacceptable levels of risk respectively for the different uses.

11. During post-lodgment engagement with QLDC, Mr. Cruden recommended a temporal rockfall hazard risk assessment should be undertaken for the proposed construction road / return ski trail located within rockfall hazard risk area above Swan Lake, and that this should be included in the application as a condition of consent. Mr. Cruden has reiterated this recommendation under comment 3 Table 1 of his s53 evidence. I understand that NZSki has proposed a new resource consent condition to this effect.

12. While there is no record of specific of specific frequency data on rockfall above Swan Lake, a temporal rockfall hazard risk assessment can still be undertaken by an onsite assessment of the rockfall hazard risk area. This assessment would be able to assess the base risk and the residual risk following the implementation of mitigation measures, which may include some or all of the examples identified above, and compare the base and residual risk to accepted standards.

13. I consider the Department of Conservation published ‘Guidelines for Natural Hazard Risk Analysis on Public Conservation Lands and Waters’ are appropriate for the alpine location. The guidelines recommend that for a higher risk site a level of risk to individuals of less than 3×10^{-7} is acceptable with ongoing monitoring of the situation

and that risk mitigation measures are explored for a high-risk site with a risk to individuals of between 3×10^{-5} and 3×10^{-7}.

14. During the same post-lodgment engagement, Mr. Cruden also recommended flood modelling should be undertaken for the area around the Rastus Burn Gondola Base Building to identify the flood risk in the area and inform the detailed stormwater management design for the building. Mr. Cruden has reiterated this recommendation under comment 2 Table 1 of his s53 evidence. I agree with Mr. Cruden's recommendation and understand NZSki has proposed a new resource consent condition to this effect.

15. Overall, I currently assess the risk of rockfall from the bluffs above Swan Lake as 'High' but consider operational management measures will be able to mitigate the natural hazard risk to users of the road, although confirmation of the extent of this mitigation required can only be informed through a rockfall hazard risk assessment. I agree with Mr. Cruden's recommendations for additional flood modelling and rockfall hazard risk assessment to be required as a condition of consent. I support NZSki's inclusion of new resource consent conditions to this effect. As described above, I consider that mitigation options are available and feasible to respond to the outcome of the rockfall hazard risk assessment.

Department of Conservation Comments

16. Paragraph 153 of DOCs ecologist evidence suggests that a bridge at the Culvert H location may have lower ecological effect than a culvert. In this location a bridge is not the preferred engineering solution as in the proposed location the stream is not deeply incised into the country, and minimum clearance is required beneath the soffit of a bridge deck. Thus, the combination of the deck thickness and the clearance between the deck soffit and the creek would lift the bridge and would require approach embankments. A culvert provides the minimum disturbance to the surrounding country and during flood stage and super design events a culvert may be readily overtopped and allow the flood stage to overflow through surrounding country. A bridge structure, with raised approaches will provide an obstruction to flood flow which may breach the banks of the creek. Bridges also have maintenance issues in snowy environments as the snow load may approach the bridge capacity, whereas in snow conditions a culvert is passible by a groomer or similar plant without the risk of overloading the structure.

17. The armoured swale around the proposed snow making reservoir will not require an impermeable liner. The purpose of the armoured swale is to direct significant surface stormwater flow around the reservoir to prevent the reservoir from overtopping and to prevent the stormwater flow carrying debris into the pond. Despite the presence of in-line filters, any significant sediment in the reservoir will have serious effects on the

snow making system, particularly the multistage pumps and the nozzles at the guns. In significant flood conditions when the swale is required to function, the surrounding country will already be saturated. In such storm conditions, leakage from the swale will have no material effect on the surrounding ground water and will have no ill effect on the reservoir.

Kā Rūnaka Comments

18. Kā Rūnaka's climate change expert has identified while NZSki's natural hazard assessment provides useful hazard identification and engineering mitigation information, it does not appear to assess in depth how natural hazard risk may evolve over the 40-year concession in a way that affects the viability or resilience of the ski field.

19. The assessment of natural hazards has been undertaken in accordance with the National Policy Statement for Natural Hazards 2025. In our stormwater concept report the assessment of stormwater generation includes growth includes assessment for both RCP 4.5 and RCP 8.5 climate change scenarios for the period 2081-2100. The wind loadings standard, NZS 1170.2, does not include specific provision for future prediction of wind speed with climate change, but wind predictions in the concept report and for future detailed design will be carried out both in accordance with NZS 1170.2 and NIWA proprietary modelling software. Compliance with the methodology for wind speed and wind load calculation in NZS 1170.2 is the current method of demonstrating compliance with the New Zealand Building Code. This is accepted current best practice for the design structures required to resist wind load in New Zealand. It is our experience that the wind loading and speed resulting from the methodology in NZS 1170.2 for exposed alpine sites is conservative and is likely prone to overprediction. We do not anticipate any change in seismic risk resulting from natural phenomena, but we recognise that loading standards are revised intermittently, and when detailed design is undertaken the relevant New Zealand loadings standard will be used. Snow avalanche prediction is based on the specific conditions at the site at the time, this is dependent on snow fall depth, existing snowpack, prevailing wind, temperature, precipitation and other factors. Thus, avalanche prediction and management within the area will be carried out on the basis of the conditions of the day and reference to climate change in relation to snow avalanche prediction is not relevant.



Derek Norris Hill Chinn

3 November 2026