Otago Regional Council

Appendix 1: Wetlands and Tarn technical expert advice

Fast-track Approvals Act 2024 (FTAA) Technical Advice

Remarkables Ski Area Upgrade and Doolans Expansion Fast-track Application

s.53 Specialist Response – Substantive Application

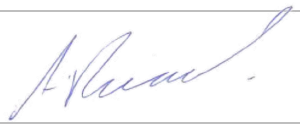
1. Application Summary

Project Name	**Remarkables Ski Area Upgrade and Doolans Expansion**
Applicant	NZSki
Site Address	Rastus Burn Recreation Reserve, Remarkables Mountain Range, Queenstown
Fast-track Reference Number	FTAA-2605-1236
Council reference numbers	RM26.075
Description of Proposal	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. This expansion includes wetland and tarn reclamation, snow making and infrastructure installations, water extraction and stream crossings.

2. Specialist Response Details

To	Angela Fenemor
From	Andrew Rossaak
Specialist Area	Wetlands and wetland ecology
Qualifications & Relevant Experience	I hold the qualification(s) of: Masters of Science in Ecology and have 30 years of experience in preparing and reviewing environmental and ecological assessments. I have prepared expert evidence and technical assessments for resource consent applications, plan changes, notices of requirements, Fast Track applications and have appeared as an expert witness before consent authorities on multiple occasions. I attended a site visit in April 2026.
Documents referred to	*Remarkable Ski Area Upgrade and Doolans Expansion: Freshwater Ecological Impact Assessment*, Version 2. e3Scientific Ltd for NZSki Ltd. August 2026 (dated 27/08/2026) (B.09 v2)

	Remarkables Ski Area Upgrade and Doolans Expansion: Terrestrial Ecological Impact Assessment, Final V2.x, Parts 1 to 3 (redacted). e3Scientific Ltd for NZSki Ltd. August 2026 (dated 26/08/2026) (B.12) *Remarkables Ski Area Upgrade and Doolans Expansion: Tracks, Stream Crossings and Stormwater Freshwater Ecological and Hydrological Impact Assessment*, Version 2. e3Scientific Ltd for NZSki Ltd. August 2026 (dated 27/08/2026) (B.14 v2) *Draft Resource Consent Conditions*, Updated. NZSki Ltd. 3/09/2026 (H.02) *Memo: Remarkables Ski Area Upgrade and Doolans Expansion Freshwater Ecological Impact Assessment Report: Tarns, Weir and Watertake. Otago Regional Council Feedback Response (Torlesse 26/5/2026, 29/4/2026; Morphum 4/5/2026; DOC 4/5/2026)*, Ref 25047_G. e3Scientific Ltd to NZSki Ltd. 21/08/2026 (lodged 27/08/2026) (e3s B.09 Response (ORC/DOC)) *e3s 24043: Remarkables Upgrade and Doolans Expansion TEcIA Stakeholder Response (DOC)*. e3Scientific Ltd to NZSki Ltd. 26/08/2026 *Memorandum: Effects Management and Compensation Overview Addendum*, Mitchell Daysh Ltd, 3/09/2026, including Attachment A: NZSki *Infrastructure Site Selection Technical Memorandum*, August 2026 (A-21). The publicly accessible application material on the Fasttrack website (https://www.fasttrack.govt.nz/projects/remarkables-ski-area-upgrade-and-doolans-expansion/substantive-application)
Preparation in Accordance with the Code of Conduct	I confirm that I have read the Environment Court Practice Note 2023 – Code of Conduct for Expert Witnesses (**Code**) and have complied with it in the preparation of this memorandum. I also agree to follow the Code when participating in any subsequent processes, such as expert conferencing, directed by the Panel. I confirm that the opinions I have expressed are within my area of expertise and are my own, except where I have stated that I am relying on the work or evidence of others, which I have specified.
Conflict of Interest Declaration	I have no actual, perceived, or potential conflicts of interests to declare in relation to this application, the applicant, the project site, or any other parties involved in the application. Should any matter arise, that may constitute a conflict, I would advise this immediately.

Signature	
Date	12 October 2026

3. Specialist Assessment

This assessment is limited to wetland and tarn ecological aspects of the application. I have reviewed application documents relating to the site ecology and where I have been pointed by the applicant to relevant information such as in the works plans.

Information has been provided following requests, consultation and subsequent reviews and meetings with the applicant ecologists. Whilst aspects have been addressed, there are critical aspects that remain unresolved.

3.1. Overview of ecological values

The Doolans Basin wetlands comprise interconnected cushion bog, riparian wetland and seepage, with small formations of string mire enclosed within the cushion bog (B.12, Section 4.2.6). Cushion bogs, string mires and seepages are naturally uncommon ecosystem types (Williams et al., 2007). Applying the IUCN Red List of Ecosystems criteria, seepages are classified as Endangered (Holdaway et al., 2012), as the applicant also notes. Riparian wetland is not a naturally uncommon type, but it is rare in New Zealand as a result of historic wetland loss (B.12, Section 5.2). The applicant rates each wetland type as Very High ecological value using the EIANZ guideline, and I agree with this assessment. These wetlands support numerous At Risk plant species and several Threatened species.

The applicant assesses the values of Tarn 3 as High value and accepts that its fluctuating regime is a natural feature rather than degradation. It is different to all the other tarns in the Doolan basin and has a lower biodiversity. I do not consider biodiversity to be the only measure to be relied on in this environment. The tarn is unique in the is basin and wider area with its fluctuating water levels, groundwater connectivity and beaches. It is largely unaffected by any anthropogenic effects and its uniqueness against the other tarns (which are themselves similar) is indicative that it is rare and should be considered of a Very High ecological value.
The applicant argues that Tarn 3 is not a wetland because its exposed schist margin supports no plants or animals adapted to wet conditions. I do not accept that conclusion on the evidence presented, for three reasons:

- The assessment has been applied to the wrong feature. The RMA definition includes shallow water as well as land-water margins. The tarn itself supports zooplankton, macroinvertebrates and some macrophytes, all adapted to wet conditions.
- No delineation under the MfE Wetland Delineation Protocols has been reported for the margin. Clause 3.23(3) of the NPS-FM directs regard to those protocols where wetland status is disputed. Noting that wetland can be seasonal in extent and presence.
- The tarn's wetted area varies from about 1,210 m² to 4,450 m² between years. A margin of that kind is intermittently wet by definition. There are no cores or beach assessments to demonstrate there are no organisms adapted to wet conditions

The applicant's own evidence describes macrophytes present and a cranefly mass egg-laying event observed at this tarn.

Given the evidence presented, I consider that Tarn 3 should be considered as a natural inland wetland for the purposes of NPS-FM and to have Very High ecological value.

The applicant also dismisses the hydrological connectivity of the tarn to ground water and the intermittent stream that feeds it. The tarn may lose water to groundwater without being fed by it. The proposed liner removes the groundwater pathway, and no water balance has been provided.

The intermittent stream feeding the tarn is proposed to be reclaimed, and swales created around the lined reservoir to prevent inflow. The intermittent stream has been given a 'High' ecological value by the applicant, with which I agree.

3.2. Potential adverse effects and magnitude of effect

Wetlands. Direct wetland disturbance is reported as:

- about 0.20 ha (0.003 ha cushion bog, 0.03 ha riparian, 0.17 ha seepage) (TEcIA);
- 0.233 ha (B.14 v2 and A-21).

The direct footprint is assessed as the track width plus up to 50% vegetation loss within 2 m either side. A single integrated account of wetland and tarn loss has not been provided. Considering 0.20 ha of wetland with the 0.445 ha tarn, direct loss is about 0.65 ha. This total extent of loss does not appear in the application. The applicant reports direct wetland loss as equal to the vegetation loss for each wetland type, and expects no indirect loss through changed hydrology. The reasoning provided is that the mitigation proposed "requires" hydrology to be retained. That is an assumption about how well the mitigation will work, not an assessment of potential effect. It relies on permeable track sections and trench bulkheads whose performance in alpine peat has not been demonstrated, and whose designs are deferred to after consent.

The terrestrial assessment identifies further effects:

- Fragmentation: a Very High magnitude of effect, reducing to Moderate only if recommendations are followed.
- Sedimentation: Moderate magnitude of effect, even after erosion and sediment controls.

There are residual effects on Very High value wetlands.

Operational effects of grooming and snowmaking on cushion bog and string mire have not been assessed. The operational risk from snowmaking is the potential alkalinisation and base enrichment of naturally acidic, rain-fed peat wetlands (cushion bog and string mire). Machine-made snow will be produced from Doolans Creek water, which has higher conductivity than the upper tributaries and tarns. It will add calcium, alkalinity and other ions to wetlands that currently receive only dilute rain, snowmelt and shallow groundwater. International studies have shown shifts in species composition under prolonged artificial snow use (Rixen et al. 2003; Wipf et al. 2005). Neither the source water chemistry nor the baseline wetland pore-water chemistry has been characterised, and no TEMP trigger addresses this, and it is my recommendation to include this in the TEMP

The applicant assesses the magnitude against the extent of each vegetation type across the Ecological District. It notes the whole works area is 0.04% of the district above 1,100 m. That approach dilutes the effect on individual wetlands and on the connected wetland mosaic. It is also contrary to the EIANZ explanatory note on scale as the magnitude assessment is not at the same scale as the values assessment. It also relies on a Random Forest model that the applicant accepts is not a perfect representation of vegetation types. The applicant declined to assess wetland loss as an

effect separate from vegetation loss, on the basis that this would double-count. It also declined to prepare an integrated account of wetland and tarn loss. Both these assessments are considered key inputs when considering any offset or compensation for wetland loss.

Tarn 3. The applicant assesses magnitude of effect as Moderate, as a proportion of the basin tarn habitat. Its stated proportion provided ranges from 4.5% to 16.5% (depending on the report), however, the lodged material relies on 16%. Under the EIANZ Guidelines, magnitude should be assessed at the same scale as the affected zone of influence and values assessment, consistent with the EIANZ explanatory note on scale. At that scale the reservoir causes total, permanent and irreversible loss of Tarn 3, which is Very High magnitude of effect.

Two further points bear on the effects assessment:

- Inflow diversion removes about 55 m of intermittent stream, which B.14 rates as a Low effect. B.14 states that downgradient wetlands will not be affected because the swales discharge to soakage fields. This is asserted without a water balance.
- The impervious liner removes the tarn's subsurface loss pathway. Any wetland that later forms around the reservoir would likely be excluded from natural inland wetland status under NPS-FM clause 3.21(1)(c).

The inflow stream is to be reclaimed and armoured swales preventing inflow will discharge to soakage. The magnitude of effect has been assessed by the applicant as low as it is 3% of intermittent channels in the basin. This is, like other magnitude assessments in the application, is considered at a scale that is greater than the values assessment. Based on this, the applicant considers the overall level of effect to be low. I do not concur with this assessment. A-21 compensation document continues to describe the swales as a net gain in intermittent stream habitat. Because the residual is rated Low, the 55 m loss falls below A-21's own threshold for compensation it is not addressed by the compensation package. Again, this does not consider stream loss under the NES: FW and I do not agree with the applicant on this. I do, however, agree with the applicant ecologists that the swales will not count for offset, being stormwater structures. Stantec report (B-16) states that concentrating stormwater in swales makes scour and sediment control more complex than maintaining sheet flow that mimics natural flow.

3.3. Effects management of wetlands

Wetland losses are not worked through the effects management hierarchy as a distinct sequence in any application document. Collating the evidence provided by the applicant, the following is understood:

- **Avoidance.** The design iterations described in the AEE provide that tower placement avoids mapped wetlands and this also is in the conditions. Conditions also include that crossings must be located downgradient of where a wetland becomes a defined channel. There is, however, no ecological comparison of track alignment options or consideration of the no-go option, with the applicant stating that avoidance options for the trail alignment were "already exhausted" before effects were assessed. The track to the pump at the proposed weir on the Doolans River has a large proportion of the wetland effects and no evaluation has been provided on alternative accesses (helicopter, or from another location). More direct access routes were rejected as being too hard to build and operate.
- **Minimisation.** This includes same-day reinstatement through wetlands (ECO.41), concrete trench bulkheads, permeable track sections, and site-specific crossing requirements (WAT.20–25). There is a condition that wetland hydrology is to be retained, however, there is no clarity on how this will be confirmed as being achieved. Bulkhead and permeable-track

performance in alpine peat remains unproven. The sediment loading from deep trenching and roading are expected to be managed by best practice sediment controls. Crossing designs are deferred to after consent. They are to be approved by a hydrologist and ecologist engaged by the applicant. If checks fail, the only consequence identified is non-compliance and remediation. No performance triggers are defined.

- **Remediation.** The applicant claims none is available for loss of peat-forming cushion bog or seepage.
- **Offsetting.** The applicant considers offsetting is not achievable in this unmodified alpine setting.
- **Compensation.** The applicant's ecologists, e3s, accepts that biodiversity compensation is warranted under the NPS-FM for wetland loss, and states that there will be significant loss without an adequate compensation plan. The application further states that compensation should be of equal or greater ecological value. I concur with this position. However, in an uncommon approach, the applicant ecologists have not been required to assess any offset or compensation and that it was "out of scope".

The ecology reports therefore stop at the residual effect and hand the effects managemet to a planning condition. That condition (BIO.1–BIO.14) does not refer to wetlands. It sets an annual fund with a stated preference for predator control and revegetation, and is to be prepared after construction begins.

It does not appear that ecological specialists have been involved in any way in the development of or evaluation of the compensation package.

The effects management approach, and specifically the offset and compensation does not meet NPS-FM clause 3.22(3), which requires the applicant to show, before consent is granted, how each step of the hierarchy will be applied and that any compensation meets Appendix 7.

Under the NPS-FM definition, Ski area infrastructure is specified infrastructure.

The approach from the applicant does not comply with NPS:FM and NPS: IB and an evidential bases has not been provided, this is a substantial deviation from effects management in New Zealand and the national and international application of the Limits to Offsetting.

3.4. Effects management on Tarn 3

The applicant states that no avoidance, mitigation, remediation or offset is available for the reclamation of the tarns, and that the residual adverse effect remains High. The applicant has provided the following under each of these hierarchical steps:

- **Avoidance.** The alternative depression was discounted because of its Naturally Uncommon plant values. Tarn 1 and tributary sources were discounted on water availability and ecological grounds. However, the comparative assessment (appendix to A-21) covers the other options raised (an engineered tank, a partial-footprint reservoir, or supply from Lake Alta) and relies on costs for these, however, it contains no comparative ecological valuation of the options and no consideration of a smaller reservoir combined with tanks. e3 states a further multidisciplinary avoidance document was in preparation, but this has not been provided for review.

- **Offset and compensation.** B.09 v2 still describes tarn restoration at Coronet Peak as compensation, although this is understood to now be excluded. The only tarn-specific measure secured is a one-off $20,000 payment for a boardwalk to Lake Alta (BIO.15). This delivers no tarn habitat and no measurable biodiversity gain. There is no reasonable linkage provided between amenity infrastructure and the loss of a very high value ecological feature.

For the reclamation of the intermittent stream, the applicant says the swales "will largely act ecologically as intermittent streams" and slightly increase that habitat type. I consider armoured swales to differ from natural alpine intermittent channels in substrate, hydrology, temperature regime, organic matter supply and how they are colonised. The applicant agrees the swale is not an offset, however, has determined that as the effect of intermittent stream reclamation is low and no effects management is required. The applicant concludes there will be no effect on downgradient wetlands but has not provided a water balance for the tarn catchment. I do not concur with this approach as it does not meet the principles of the NPS: FM. The 55 m intermittent stream should be considered as a permanent loss of High value stream within the effects management hierarchy.

No effects management is provided for this intermittent stream loss, either for values or extent.

It is unclear how this loss is incorporated into the compensation package.

3.5. Overall Offset and Compensation

The overall offset and compensation package is provided in an addendum memo. The applicant's planning addendum accepts that the compensation does not meet the NPS-IB and NPS-FM compensation principles, because net gain has not been modelled. The following requirements of compensation are provided by the applicant:

- **Timing.** The Biodiversity Compensation Project is established within six months after Doolans construction starts. Its plan follows within 18 months (BIO.1, BIO.7).
- **Fund.** A $75,000 annual fund, CPI-adjusted (BIO.4), has no stated link to the extent or values lost.
- **Focus.** It prefers predator control and indigenous revegetation (BIO.10(c)), not wetland, watercourse or tarn gains.
- **Parties.** ORC is not listed among those participating (BIO.8) who are required to certify the plan.

The absence of any modelling or breakdown means this compensation package is attributed to address all effects and so there is no way to account for wetland loss specifically. The proportion of this fund allocated to go towards administrative, management, monitoring and the development of ecological baseline values (to assess gains against (against which to assess gains) has not been identified– none of these costs bring about tangible ecological or biodiversity gains.

The compensation plan lacks ecological specialist insights and target outcomes that would be required to achieve freshwater ecological or biodiversity gains.

The condition BIO.15 relates to $20,000 donation towards a boardwalk to compensate for the tarn loss, however, this is not considered compensation as the boardwalk does not improve ecological or biodiversity attributes. On the contrary, the installation of the boardwalk may incur further adverse

effects on the lake and wetlands, such as sediment discharges, loss of extent, additional anthropogenic pressures and hydrological changes.

Therefore, there is no loss-and-gain account, no like-for-like wetland or tarn outcome, no assessment of intermittent stream loss (extent or value) and no way to judge proportionality. A funded, ongoing biodiversity programme on public conservation land has value, however, the proportion of the fund that will be required for overheads such as administration and monitoring fees has not been identified.

3.6. Management plans and monitoring

The application relies on several plans:

- the TEMP (Terrestrial Ecology Management Plan) (F.03, EMM Consulting for Mitchell Daysh, v1.0, 19 May 2026);
- the CEMP (Construction Environmental Plan) and ESCP (Erosion and Sediment Control Plan). (Enviroscope, 2026);
- the Stormwater Plan (Stantec, 2026);
- a Biodiversity Compensation Project Plan, to be prepared after construction begins.

No management plan addresses the Tarn 3 inflow diversion or the reservoir. The diversion swales are described only at concept level in B-16 (Stantec, Section 5.5.1), which sizes the channels for a 100-year event but sets no maintenance, monitoring or ecological performance requirements. F.03 (TEMP) contains a generic 20 m tarn buffer but this will not apply to tarn 3 that is to be lined and converted to a reservoir.

Condition ECO.2 requires the certified TEMP to be "in general accordance with" the lodged draft. The TEMP, developed by EMM Consulting, relies on the e3Scientific assessments as they stood in May 2026. The applicant's ecologist stated that preparing the management plan was outside its scope and that its effect levels assume a specific outcome from the management plan. This is a gap that has been created between the initial values assessments being undertaken by one party and a different consultancy developing the effects management.

The TEMP sets numerical triggers for sediment; no water table decline; loss of native cover by wetland type, includes a pre-works baseline, uses control/impact sampling for wetland invertebrates, monitors for the life of the consent, and includes operation as well as construction.

There are, however, significant gaps in these plans and they are proposed to be updated under the consent. Gaps include:

- String mire is not listed, even though it is the most hydrologically sensitive, rain-fed wetland type in the basin.
- "No measurable water table decline" (cushion bog) relies on a "water table proxy". The plan does not specify what that proxy is, how precisely it can be measured, the baseline period, or the natural range of variation. As drafted, the trigger cannot be tested.
- "Flow maintained" (seepage) and "no decline in connectivity" (crossings) are qualitative. Neither sets a threshold.
- The 5 mm sediment trigger applies to every wetland type. It is not linked to background deposition rates in a basin where natural fine sediment is close to zero.
- Vegetation triggers (10% or 15% decline) do not say what they are measured against: baseline, a control site, or a time period. Without that, normal year-to-year variation could trigger them, or could hide a real decline.

- Adaptive actions have no timeframes and no end points. None of them links back to authorised wetland loss or to compensation.
- Indicator consistency. The wetland invertebrate row (soil moisture within 10% of baseline) is the only wetland trigger expressed against a baseline. Applying the same approach to the hydrology indicators in Table 6.2 would make them consistent and auditable.
- Potential alkalinisation of peat wetlands and associated species shifts

The plans are seen to provide a basis for the mitigation and restoration and are conditioned to be approved by Councils and DOC. The issue remains if the panel does not provide guidance and clear statements on the outcomes and standards/targets to be achieved in these plans, the differences expressed by DOC and Councils with regard to the applicant plans will remain unresolved and may affect the certification of the plans.

3.7. Overall assessment

I agree somewhat with the applicant's ecological values assessments (although consider all tarns to be very high value) and I accept that the delineation method follows the MfE protocols. I consider the magnitude of effect is an underestimate due to the scale mismatch with the values assessment. I acknowledge the improvements in the application through consultation.

Critical matters, however, remain unresolved the panel may wish to seek further clarification on the following:

- **Tarn 3 status.** Its wetland status rests on an un-delineated margin.
- **Wetland extent.** The different loss figures are not reconciled.
- **Stream reclamation.** Effects management for the loss of 55m intermittent stream
- **Tarn reclamation.** The magnitude of effect for the lasting removal of a unique biodiversity feature is at least high if not very high.
- **Tarn avoidance.** There is no comparative avoidance assessment.
- **Operations.** The effects of grooming and snowmaking on peat wetlands are not assessed.
- **Hierarchy.** Effects management ends in a post-consent compensation fund that is not directed to wetland, intermittent stream or tarn values and that the applicant accepts does not meet national direction.
- **Compensation.** The Appendix 7 of the NPS:FM parts 1, 2, 3, 6, 7, 8, 9, 10, and 13 are not addressed in the compensation package in any tangible or transparent manner.
- **Compensation package.** All residual effects are aggregated without distinguishing between the different ecological values affected and there is no transparency or tangible outcomes. There are no compensation measures related to aquatic biodiversity or compensate for the loss of the wetlands. Most importantly, the package sets no quantified target for wetland, tarn or stream values. There is no area, no condition score and no ecological compensation ratio. It has no performance indicators linked to the losses, and no way to show whether compensation has worked. The funding is tied to time, not an outcome.

The significant losses of very high value ecology from the protected area estate without clear and proportional compensation is a particular area the panel will need to consider.

On the information before the Panel, I do not consider that residual adverse effects on wetlands, intermittent stream and Tarn 3 are adequately managed and that there is no evidence that the compensation package will address the aquatic values lost or achieve reasonable success to outweighing the adverse effects incurred. A view that the compensation achieves an acceptable outcome will not be derived elsewhere, as no evidence to this effect is available from the applicant.

4. Comment on Proposed Conditions

The following table sets out the proposed conditions as provided by the applicant in H.02 (Draft Resource Consent Conditions, updated 3 September 2026) that relate to wetlands and tarns. Condition wording is reproduced verbatim, including original drafting errors. Columns 3 and 4 provide my recommended changes and reasoning.

Condition number	Condition wording (H.02, 3 September 2026)	Recommended change	Reason
Interpretation: Terrestrial Ecology Management Plan	"Management plan relating to the management of the activities which effect indigenous vegetation, avifauna, wetlands and invertebrates."	Add "and tarns".	Tarn 3 wetland status is disputed; the definition should not exclude it by default.
GC.8 (ORC table)	"Terrestrial Ecology Management Plan (insofar as it relates to wetlands) – 40 works days before works commence in the Alpine Project Area"	Add ORC certification of the freshwater and wetland component of the Biodiversity Compensation Project Plan.	ORC certification of the TEMP is supported; compensation is the gap.
ECO.2(f)(iii)	"Wetland management – to ensure the hydrological functioning of natural inland wetlands are maintained by providing the approach for managing and monitoring natural inland wetland values (including the requirements set out in Condition ECO.31 to ECO.41 of this resource consent);"	Require measurable performance indicators for each wetland type (water table range, extent, cover of wetland indicator species), each with a baseline and trigger.	"Ensure… maintained" cannot be audited. Testable thresholds are recommended
ECO.4	"By 30 June each year the Consent Holder must engage a suitably qualified and experienced ecologist to prepare an annual Terrestrial Ecology Monitoring Report… The Terrestrial Ecology Monitoring Report must be submitted to the Otago Regional Council (in respect of wetlands), Queenstown Lakes District Council and Central Otago District Council by 30 August each year until all of the objectives of the Terrestrial Ecology Management Plan have been met."	Retain. Add a minimum duration for wetland reporting that extends through operation, not only until objectives are "met".	Operational sediment and snow management effects recur every season.
ECO.6	"No earthworks can occur outside of the earthworks / disturbance extent shown on in Attachment A unless this would result in a	Add a cap on authorised wetland loss by type (ha) matching that given (B.12). Any	Loss figures are unreconciled (0.20 ha vs approximately 0.289 ha). Without a

	reduced footprint and a reduction in terrestrial ecology effects. Any changes to the disturbance footprint must be surveyed in accordance with Condition ECO.8, and the rationale for these changes must be included in a written report in accordance with Condition ECO.9."	exceedance requires additional compensation. Report wetland-affecting footprint changes to ORC.	cap the authorised loss is open-ended.
ECO.8(d)	"Physically mark out the wetland edge and setbacks (10 m) utilising the delineated boundaries and indicators of onsite vegetation, soils and hydrology."	Specify delineation to the MfE Wetland Delineation Protocols by a person experienced in wetland delineation. Reconcile delineated loss against the ECO.6 cap.	The applicant offered this (e3s B.14 Response (ORC)) but it is not in the condition.
ECO.9	"Within 20 working days of any ecology survey being undertaken, the Consent Holder must provide the Queenstown Lakes District Council (in respect of activities in the Rastus Burn) and the Central Otago District Council (in respect of activities in the Doolans Basin) with written report(s)…"	Add ORC as a recipient for any survey including wetlands.	ORC does not currently receive the wetland delineation results.
ECO.31	"At least 40 working days prior to the construction of any natural inland wetland crossing (including utilities trenching), the Consent Holder must provide to the Otago Regional Council: (a) Location of the crossing; (b) Detailed engineering designs of the structures; (c) An assessment confirming that the crossing / trenching will maintain the hydrological functioning of the wetland; (d) Construction methodology (including rehabilitation); (e) A statement of when construction will start and when it is expected to end; and (f) Contact details for site representative. The information provided to the Otago Regional Council must include a review of the wetland crossing information by a	Change "provide" to "submit for certification". Reviewers to be independent of the design team, with stated approval criteria. Specify precast bulkheads.	Approving hydrologist and ecologist are engaged by NZSki (e3s B.12 Response (ORC)). Cast-in-place concrete is an alkalinity risk to acidic peat wetlands.

	suitably qualified and experienced hydrologist and wetland ecologist that confirms the crossing or utilities trenching will maintain the hydrological functioning and connectivity of the wetland."		
ECO.32	"All natural inland wetland crossings must be constructed in general accordance with the detailed design plans and drawings."	Replace "in general accordance with" with "in accordance with the certified" design.	General accordance is too loose for peat hydrology.
ECO.33	"Within 10 working days of the completion of construction of each natural inland wetland crossing, each crossing must be inspected by a suitably qualified hydrologist and / or ecologist and confirmation that the design has been implemented correctly and is functioning as anticipated must be provided to the Otago Regional Council."	Add a first-anniversary re-inspection (as for WAT.28). Change "and / or" to "and".	Hydrological failure in peat may take seasons to show. Both disciplines are needed.
ECO.34	"If the works to construct a wetland crossing require the temporary taking, use, damming or diversion of water around the work site, or discharges of water into the water around a work site: (a) The activity must be undertaken during a period when there is a low risk of flooding; and (b) The activity must be undertaken only for as long as necessary to achieve its purpose."	Retain. Add that diversions must not lower the wetland water table beyond the work area.	NES-F standard; needs a wetland-specific performance limit.
ECO.35	"Photographic and quadrat monitoring points must be established for all natural inland wetlands located within 10 m of the works footprint, as delineated in Condition ECO.8. Photographs must be taken: (a) Before earthworks or vegetation clearance within 10m of the wetland commence; and (b) Within 7 days of the earthworks or vegetation clearance works within 10m of the wetland being completed In addition to (a) and (b), photographic monitoring points and quadrats (including a full	(a) At least one season of pre-works baseline. (b) Piezometers at representative seepage, cushion bog and string mire crossings. (c) Matched control sites. (d) Quantified triggers for "loss or altered hydrological condition". (e) Extend to wetlands within 100 m downgradient. (f) Any area showing hydrological change is	Quadrats agreed but without thresholds the trigger cannot operate. The applicant assumes zero indirect loss (e3s B.12 Response (ORC)); this tests that assumption.

	walkover, recording species cover) must be established at locations both upstream and downstream of each wetland crossing to monitor ecological change in wetland vegetative composition. Monitoring must be undertaken on an annual basis for 3 years and then biennially for a further 4 years. The monitoring must be undertaken by a suitably qualified and experienced ecologist. If the photographs or quadrat walkover shows natural inland wetland loss or altered hydrological condition attributable to the works authorised by this resource consent, the Consent Holder must, within 20 working days, implement remedial measures to address the loss or altered hydrological condition of the natural inland wetland. Once the remedial measures have been established, the photographic and quadrat monitoring must be further undertaken on an annual basis for 3 years and then biennially for a further 4 years."	counted as wetland loss under the ECO.6 cap, with compensation adjusted.	
ECO.36	"Any activity authorised by this consent: (a) Must not result in the discharge of any contaminant (aside from water) to any natural inland wetland in circumstances; (b) Must not increase the level of flood waters that would, in any flood event (regardless of probability), inundate all or any part of the 1% AEP floodplain; and (c) Debris and sediment must not be placed– (i) Within a setback of 10 m from any natural inland wetland; or (ii) In a position where it may enter any natural inland wetland."	In (a), delete "in circumstances" or complete the clause.	Incomplete drafting; unenforceable as worded.
ECO.37	"1. During and after any works within, or within 10 metres of, a natural inland wetland, erosion and sediment control measures must be applied and maintained at the site of the activity to minimise adverse	Correct cross-reference "(b)" to "clause 2". For wetland sites, the 80% cover is to be indigenous wetland species.	Drafting error; generic cover can be met by non-wetland plants.

	effects of sediment on natural inland wetlands; 2. The measures must include stabilising or containing soil that is exposed or disturbed by the activity as soon as practicable after the activity ends; 3. The measures referred to in (b) must remain in place until vegetation covers more than 80% of the site; and 4. If the activity is vegetation clearance, revegetation must commence within three (3) months."		
ECO.40	"Prior to works occurring within 10m of a natural inland wetland, appropriate erosion and sediment control must be implemented on the downgradient side of permeable access roads to prevent discharges into wetlands. These erosion and sediment control measures must be documented in the erosion and sediment control plan required by condition GC.8."	Apply for the life of the track, not only before works. Add a deposited sediment trigger in receiving wetlands.	The applicant accepts a Moderate residual sediment effect (e3s B.12 Response (DOC)).
ECO.41	"All works within natural inland wetlands must be undertaken in stages such that each disturbed section is completed and reinstated within the same working day unless otherwise certified by a suitably qualified hydrologist."	Retain. Notify ORC within 2 working days of any certified exception.	Supported; adds transparency.
ECO.42	"All natural wetland crossings must be designed, constructed and maintained to conform to standard engineering practices and at all times be maintained to a safe and serviceable standard."	Add "…and to maintain the hydrological functioning certified under ECO.31".	Engineering serviceability alone does not protect wetland function.
New: wetland plant translocation	None located in H.02 [verify against TEMP provisions]	Receiver sites to be identified and assessed for suitability before any wetland clearance, with survival monitoring and targets.	No receiver site has been identified (e3s B.12 Response (ORC)).
EW.5	"If during earthworks any significant water (resulting in pooling or runoff) is found within cuts that are not already designated	Add ORC notification within 2 working days.	Definition resolved; reporting and accounting to be included.

	for water crossings (culverts, fords or splash crossings), works must cease until a suitably qualified and experienced hydrologist or wetland specialist has inspected the cut and confirmed whether further actions (including mitigation measures or the use of additional crossings) is required to maintain the hydrological connectivity of the water with the surrounding waterbodies and/or wetlands."		
EW.6	"Trenching for the installation of servicing and utilities will be limited to a length of 150m per working construction face."	Add: within wetlands, precast bulkheads up- and downgradient, and backfill no more permeable than surrounding material.	The applicant recommends bulkheads (e3s B.14 Response (ORC)) but no condition requires them.
WAT.19	"1. At least 40 working days prior to the construction of any stream crossing (culvert, ford, splash crossing or utilities trench), the Consent Holder must provide to the Otago Regional Council: (a) Location of the crossing; (b) Detailed engineering designs of the structures; (c) An assessment of the hydrological effects on the stream; (d) Construction methodology (including rehabilitation); (e) A statement of when construction will start and when it is expected to end; and (f) Contact details for site representative. The information provided to the Otago Regional Council must include a review of the wetland crossing information by a suitably qualified and experienced hydrologist and ecologist that confirms the crossing will maintain the hydrological functioning of the stream and any wetland within 100m of the stream crossing. 2. Excepting utilities, the design must be in general accordance with that shown on the following plans: …"	As for ECO.31: certification, independent reviewers and stated criteria.	Consistency.

WAT.20	"Detailed design for Culvert B (Attachment G) must include twin culverts, unless an alternative design is certified by a suitably qualified hydrologist as providing equivalent or better maintenance of stream hydrology."	Add "and wetland hydrology".	Wetland approaches to Culvert B are acknowledged (e3s B.14 Response (ORC)).
WAT.21	"Detailed design for Culverts B and Culvert I (Attachment G) must confirm the direction of wetland seepage and whether a permeable access road or equivalent hydrological connectivity measure is required. If required by that assessment, the measure must be installed before the relevant crossing is brought into use."	Retain. Seepage assessment to be certified by ORC.	.
WAT.22	"Splash Crossing B (Attachment G) must be located downgradient of the point where the wetland becomes a defined waterway, unless an appropriate alternative location is identified and approved by a suitably qualified hydrologist and freshwater ecologist."	Change approval to certification by ORC.	Approval should be independent.
WAT.24	"Detailed design for Armoured Swale D (Attachment G) must include a permeable road or equivalent certified measure to maintain wetland hydrology, and any stormwater conveyed by Armoured Swale D must be discharged beyond the wetland boundary in a manner that avoids scour, sediment release and re-entry to the wetland."	Retain. Name ORC as certifier.	Certifier is not stated.
WAT.25	"Detailed design for Armoured Swale A (Attachment G) must intersect the intermittent stream downgradient of the transition from riparian wetland to stream channel to avoid loss of wetland area."	Retain. Require pre-construction delineation of the riparian wetland to stream transition.	B.14 v2 notes the riparian wetland location "has not been denoted".
INF.5	"1. Detailed design plans and drawings for water storage reservoir must be provided to the Central Otago District Council and Otago Regional Council at least 20	Suggest: (c) before and after water balance for Tarn 3 and its catchment, including the diverted	August note T3/T4. The applicant declined a water balance and treats downgradient

	working days prior to the water storage reservoir construction works commencing. … 3. The detailed design plans and drawings must include but not be limited to: (a) Operational design details of how the water storage reservoir will operate; and (b) Details of how the design takes the results of the geotechnical investigations required by Condition GEO.02."	intermittent inflow; (d) identification and monitoring of any dependent downgradient wetland and the terminal soakage fields; (e) didymo controls on the Doolans Creek to reservoir connection.	effects as outside NES-F scope (e3s B.14 Response (ORC)). Reservoir is at risk to be filled from didymo-positive water.
BD.5(4)	"The towers must not be located within waterway, wetland riparian, wetland seepage or natural inland wetland as mapped in the plans referred to in 2(a) and 2(b) above."	Extend to temporary tower access, snow guns and pump buildings. Add cushion bog explicitly.	Consistent avoidance; cushion bog is not named.
BIO.1	"No later than six (6) months after the Consent Holder commences construction activities within the Doolans Basin, the Consent Holder must establish and subsequently implement a Biodiversity Enhancement / Compensation Programme (the "Biodiversity Compensation Project"). The Biodiversity Compensation Project must: (a) Be located within public conservation land, land managed by the Consent Holder within the authorised concession area or land subject to QEII covenants; or (b) Be located within an alternative location developed in consultation with the parties listed in Condition BIO.8."	Establish, and certify the wetland and tarn component of the offset, before works in the Doolans Basin.	NPS-FM clause 3.22(3) requires the hierarchy to be demonstrated before effects occur. June Q21.
BIO.2	"The objectives of the Biodiversity Compensation Project are to: (a) Provide, long term ecological benefits to the wider area and address the Project's residual ecological effects; and (b) If agreeable to tangata whenua, enable exercise of their kaitiakitanga."	Add (c): deliver measurable, like-for-like or commensurate biodiversity gains in alpine wetland and tarn extent and condition, at least commensurate with losses authorised under ECO.6 and INF.5.	Wetland and tarn recalamtion outcome is required. e3 accepts compensation should be of equal or greater value (e3s B.12 Response (DOC)).
BIO.4	"Prior to the commencement of winter ski field operations within the Doolans Basin, Consent Holder	Derive quantum from a compensation model (e.g. Baber et al. 2021)	No link to losses. Net gain unmodelled (A-21);

	must establish a fund account to implement the Biodiversity Compensation Project as follows: (a) Initial payment of $75,000; and (b) Thereafter, payments of $75,000 annually, paid by 31 March each year. The Consent Holder must continue the funding set out within (b) above until [the Doolans Concession expiry date]."	at the scale of the affected features, allowing for time lag and uncertainty.	the is no indication that net gain biodiversity outcomes can be achieved.
BIO.7	"The Consent Holder must prepare a Biodiversity Compensation Project Plan no later than 18 months after the Consent Holder commences construction activities within the Doolans Basin."	Prepare and certify before works.	As for BIO.1.
BIO.8	"The Consent Holder must give the following parties the opportunity to participate in the development (and any subsequent review) of the Biodiversity Compensation Project Plan: (a) The Department of Conservation; (b) A representative of the Mana Whenua Advisory Group; (c) Central Otago District Council; (d) [TBC];"	Insert ORC at (d).	ORC holds wetland and freshwater jurisdiction.
BIO.9	"Any feedback provided by the parties listed in Condition BIO.8 on the Biodiversity Compensation Project Plan must be provided to the Central Otago District Council along with information detailing where these recommendations have been addressed…"	Add ORC as recipient for the freshwater and wetland component.	Otherwise, ORC has no line of sight.
BIO.10(b), (c)	"(b) The specific management and enhancement objectives for the Biodiversity Compensation Project; (c) The detailed programme of activity for the first 5 years following the Consent Holder commencing construction activities within the Doolans Basin, including how the money referred in Condition BIO.4 is to be spent, with preference given to predator control and indigenous revegetation planting;"	Ring-fence a wetland and tarn component with site, metric, targets and permanent legal protection. Predator control alone is not wetland compensation.	Current preference does not match the values lost.

BIO.15	"In addition to the requirements of Conditions BIO.1 to BIO.14 of this resource consent, upon completion of the construction of the water storage reservoir (Tarn 3), the Consent Holder must provide the Department of Conservation with a single, one-off payment of $20,000 to be utilised for the construction of a boardwalk over the wetland leading to Lake Alta. This boardwalk is provided to address the residual freshwater ecology effect relating to the loss of a tarn for water storage purposes within the Doolans Basin."	Unsupported condition	No tarn habitat or measurable gain. This is not compensation as there is no ecological or biodiversity improvements, only further reclamation for the boardwalk.

There are wastewater disposal field conditions that involve wetland delineation. The conditions associated wetlands have not been reviewed under this scope.